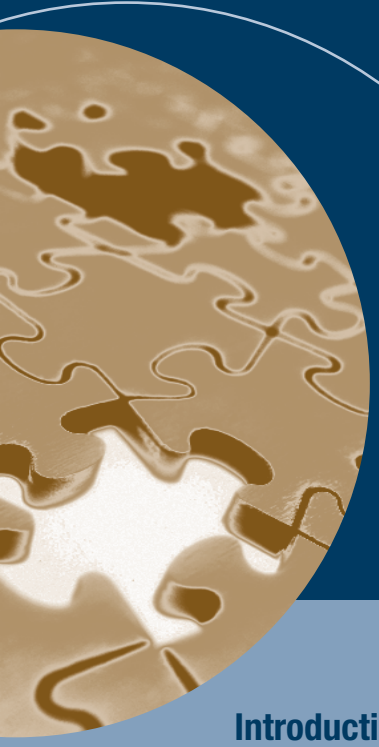

Case studies

Introduction

A summary of the case analysis process

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Case analysis is an essential part of a strategic management course and is also perhaps the most entertaining part of such a course. The 'full story' that follows this summary gives you considerable detail about how to go about a case analysis, but for now here is a brief account.

Before we start, a word about attitude: make it a real exercise; you have a set of historical facts and use a rigorous system to work out what strategies should be followed. All the cases are about real companies, and one of the entertaining bits of the analysis process is to compare what you have said they should do with what they really have done. So, it is best not to check the Net to see current strategies until you have completed your analysis.

What follows is one analytical system, a fairly tight one that you may want to adapt according to how much time you have and the style of the case.

External analysis

Step 1 What industry is it?

You must decide on this early. This is an important step, because it changes the analysis – for example, your industry analysis will yield different conclusions depending on what industry you determine.

Step 2 General environment analysis

Analyse the six generic elements – economic, sociocultural, global, technological, political/legal and demographic – and work out what the important facts are. There may be many issues and facts in each element, but you put down only the important ones. It is also important to avoid the common error of overemphasis on the firm in question. So, assuming the firm operates in the Australian ice-cream industry, the demographic analysis may have this comment: 'A large baby boomer generation is now becoming more health-conscious. This presents opportunities in health foods and healthy alternatives for conventional foods. It also presents opportunities for low-fat ice creams.' Or, in analysing the demographics of the Cochlear™ firm, you may conclude that there is a global market of 1.8 million profoundly deaf people and that this provides a huge undeveloped market for the implantable hearing devices industry.

Step 3 The industry environment

Analyse the five forces (that is, supplier power, buyer power, potential entrants, substitute products and rivalry among competitors) and explain briefly what is significant for each. For example, what are the issues involved in new entrants into the industry? For

the implantable hearing devices industry, these may include the need for understanding of intricate new technology, possession of a reputation in the global deaf community for safe and effective product development, and links to research institutions. This makes the industry hard to enter. Each force needs a brief discussion followed by a short conclusion.

One extra consideration before you pull the analysis together and work out if this is an attractive industry (the main conclusion) is: Is there a key force or forces in your industry? Porter argues that there is a key force in any industry, one that exerts more influence than the other forces.

Now, is it an attractive industry? You need to explain, briefly, why or why not. Bear in mind that it is often not a clear decision because the forces are mixed – for example, there may be little concern about new entrants, suppliers or substitutes, but buyers may be fickle and rivalry high. In such cases, the key force analysis is very important

Remember: it is the industry you analyse, *not the firm*.

Step 4 Competitive environment

Is there a strategic group that you need to take account of? What is the rivalry like in this group? What capabilities do the relevant firms have? What strategies do they follow? What threats do they represent?

Step 5 You now have material about opportunities and threats

It is easy to pull this together from the four steps you have now completed.

Internal analysis

Step 6 The firm's resources, tangible and intangible

List all relevant resources. It is useful to distinguish between tangible and intangible resources. Remember: firms have many resources.

At this point, if you have the skills and time, you can analyse the financial information that almost all cases provide. This provides material for a financial resources paragraph.

Step 7 Capabilities identification

Here you make a list of capabilities. Capabilities tell you what the firm can do.

Remember: each firm may have a dozen or more capabilities, so include some that are very unlikely to be core competencies. This is a difficult step, because you must explain the capabilities carefully to indicate what the firm really does. For example, Cochlear has a capability for research in cochlear-related technology. It does not have a generic research capability.

Step 8 Core competency analysis

For each capability, indicate which of the four tests for a core competency it meets. An easy way to do this is through use of a table. For example:

	Rare?	Valuable?	Costly to imitate?	Non-substitutable
Logistics management in cochlear technologies	Yes	Yes	No	No
Research knowledge and skill in cochlear-related areas	Yes	Yes	Yes	Yes
Etc.				

This is an important step, because the core competencies are fundamental in the strategies you suggest – firms use their core competencies.

Step 9 Weaknesses

What major weaknesses does the firm have – for example, old technology, very limited finance and poor cash flow, no succession planning?

Step 10 Pulling it together

You now have all the material for an excellent SWOT (strengths/weaknesses, opportunities/threats) analysis. Pull together the earlier identification of opportunities and threats (step 5) with the internal analysis you have done. This resources-based, theory-oriented system gives you a powerful vocabulary to describe what simpler systems call 'strengths', and the other elements of the system allow you to systematically identify other significant factors in the mix.

Step 11 Current strategies

Work out the firm's current strategies.

Step 12 Strategies

Here you take advantage of opportunities and handle threats. You should be able to make use of core competencies to do this.

You may need strategies at the business level, corporate level and international level (but it depends on the industry and on whether all are required). Also, bear in mind that you may need to specify functional-level strategies to fit the generic strategies at the business level. For example, if your ice-cream company adopts a differentiation strategy, you must specify how it is differentiated (on what grounds – low fat?) and there must be associated innovation and marketing strategies (or, in the corporate-level strategy, a supporting acquisition strategy may be used to handle the innovation issue).

Make a list of alternative possibilities and use the external and internal analyses that you have conducted to assess them. Choose one set of alternatives. How do these differ from current strategies?

Make sure the strategies chosen fit in with your earlier analysis. Use all the conclusions in the earlier analysis. For example (and bear in mind that this is simplified to make the idea clearer), if you are in a rivalrous industry which has good growth prospects because of useful demographic change and you have good financial resources, you may argue for expansion into the new segment using available resources. If the finances were not there, this strategy would be difficult to support.

Using the Cochlear™ case as a training case

This case analysis process is easy to use once you have learned it, and the best way to learn is to try it out. The Cochlear™ case in this book is designed as a training case to help you do this. Don't be concerned if you get a slightly different analysis to other people: one of the glories of case analysis is that they are never 'right'; some are, however, more plausible than others.

Preparing an effective case analysis – the full story

In most strategic management courses, cases are used extensively as a teaching tool.[1] A key reason is that cases provide active learners with opportunities to use the strategic management process to identify and solve organisational problems. Thus, by analysing situations that are described in cases and presenting the results, active learners (that is, students) become skilled at effectively using the tools, techniques and concepts that combine to form the strategic management process.

The cases that follow are concerned with actual companies. Presented within the cases are problems and situations that managers and those with whom they work must analyse and resolve. As you will see, a strategic management case can focus on an entire industry, a single organisation, or a business unit of a large, diversified firm. The strategic management issues facing not-for-profit organisations also can be examined using the case analysis method.

Basically, the case analysis method calls for a careful diagnosis of an organisation's current conditions (as manifested by its external and internal environments) so that appropriate strategic actions can be recommended in light of the firm's strategic intent and strategic mission. Strategic actions are taken to develop and then use a firm's core competencies to select and implement different strategies, including business-level, corporate-level, acquisition and restructuring, international and cooperative strategies. Thus, appropriate strategic actions help the firm to survive in the long run as it creates and uses competitive advantages as the foundation for achieving strategic competitiveness and earning above-average returns. The case method that we are recommending to you has a rich heritage as a pedagogical approach to the study and understanding of managerial effectiveness.[2]

As an active learner, your preparation is critical to successful use of the case analysis method. Without careful study and analysis, active learners lack the insights required to participate fully in the discussion of a firm's situation and the strategic actions that are appropriate.

Instructors adopt different approaches in their application of the case analysis method. Some require active learners/students to use a specific analytical procedure to examine an organisation; others provide less structure, expecting students to learn by developing their own unique analytical method. Still other instructors believe that a moderately structured framework should be used to analyse a firm's situation and make appropriate recommendations. Your lecturer or tutor will determine the specific approach you take. The approach we are presenting to you is a moderately structured framework.

We divide our discussion of a moderately structured case analysis method framework into four sections. First, we describe the importance of understanding the skills active learners can acquire through effective use of the case analysis method. In the second section, we provide you with a process-oriented framework. This framework can be of value in your efforts to analyse cases and then present the results of your work. Using this framework in a classroom setting yields valuable experiences that can, in turn, help you to successfully complete assignments that you will receive from your employer. The third section

is where we describe briefly what you can expect to occur during in-class case discussions. As this description shows, the relationship and interactions between instructors and active learners/students during case discussions are different than they are during lectures. In the final section, we present a moderately structured framework that we believe can help you to prepare effective oral and written presentations. Written and oral communication skills also are valued highly in many organisational settings; hence, their development today can serve you well in the future.

Skills gained through use of the case analysis method

The case analysis method is based on a philosophy that combines knowledge acquisition with significant involvement from students as active learners. In the words of Alfred North Whitehead, this philosophy 'rejects the doctrine that students had first learned passively, and then, having learned should apply knowledge'.[3] In contrast to this philosophy, the case analysis method is based on principles that were elaborated upon by John Dewey:

> Only by wrestling with the conditions of this problem at hand, seeking and finding his own way out, does [the student] think ... If he cannot devise his own solution (not, of course, in isolation, but in correspondence with the teacher and other pupils) and find his own way out he will not learn, not even if he can recite some correct answer with a hundred percent accuracy.[4]

The case analysis method brings reality into the classroom. When developed and presented effectively, with rich and interesting detail, cases keep conceptual discussions grounded in reality. Experience shows that simple fictional accounts of situations and collections of actual organisational data and articles from public sources are not as effective for learning as fully developed cases. A comprehensive case presents you with a partial clinical study of a real-life situation that faced managers as well as other stakeholders, including employees. A case presented in narrative form provides motivation for involvement with and analysis of a specific situation. By framing alternative strategic actions and by confronting the complexity and ambiguity of the practical world, case analysis provides extraordinary power for your involvement with a personal learning experience. Some of the potential consequences of using the case method are summarised in Exhibit 1.

As Exhibit 1 suggests, the case analysis method can assist active learners in the development of their analytical and judgement skills. Case analysis also helps students to learn how to ask the right questions. By this we mean questions that focus on the core strategic issues that are included in a case. Active learners/students with managerial aspirations can improve their ability to identify underlying problems rather than focusing on superficial symptoms as they develop skills at asking probing, yet appropriate, questions.

The collection of cases your instructor chooses to assign can expose you to a wide variety of organisations and decision situations. This approach vicariously broadens your experience base and provides insights into many types of managerial situations,

Exhibit 1

1. Case analysis requires students to practise important managerial skills – diagnosing, making decisions, observing, listening and persuading – while preparing for a case discussion.
2. Cases require students to relate analysis and action, to develop realistic and concrete actions despite the complexity and partial knowledge characterising the situation being studied.
3. Students must confront the *intractability of reality* – complete with absence of needed information, an imbalance between needs and available resources, and conflicts among competing objectives.
4. Students develop a general managerial point of view – where responsibility is sensitive to action in a diverse environmental context.

Source: C.C. Lundberg and C. Enz, 1993, 'A framework for student case preparation', *Case Research Journal*, 13 (summer), p. 134.

tasks and responsibilities. Such indirect experience can help you to make a more informed career decision about the industry and managerial situation you believe will prove to be challenging and satisfying. Finally, experience in analysing cases definitely enhances your problem-solving skills, and research indicates that the case method for this subject is better than the lecture method.[5]

Furthermore, when your instructor requires oral and written presentations, your communication skills will be honed through use of the case method. Of course, these added skills depend on your preparation as well as your instructor's facilitation of learning. However, the primary responsibility for learning is yours. The quality of case discussion is generally acknowledged to require, at a minimum, a thorough mastery of case facts and some independent analysis of them. The case method therefore first requires that you read and think carefully about each case. Additional comments about the preparation you should complete to successfully discuss a case appear in the next section.

Student preparation for case discussion

If you are inexperienced with the case method, you may need to alter your study habits. A lecture-oriented course may not require you to do intensive preparation for *each* class period. In such a course, you have the latitude to work through assigned readings and review lecture notes according to your own schedule. However, an assigned case requires significant and conscientious *preparation before class*. Without it, you will be unable to contribute meaningfully to in-class discussion. Therefore, careful reading and thinking about case facts, as well as reasoned analyses and the development of alternative solutions to case problems, are essential. Recommended alternatives should flow logically from core problems identified through study of the case. Exhibit 2 shows a set of steps that can help you to familiarise yourself with a case, identify problems and propose strategic actions that increase the probability that a firm will achieve strategic competitiveness and earn above-average returns.

Exhibit 2

Step 1: *Gaining familiarity*	a In general – determine who, what, how, where and when (the critical facts of the case). b In detail – identify the places, persons, activities and contexts of the situation. c Recognise the degree of certainty/uncertainty of acquired information.
Step 2: *Recognising symptoms*	a List all indicators (including stated 'problems') that something is not as expected or as desired. b Ensure that symptoms are not assumed to be the problem. (Symptoms should lead to identification of the problem.)
Step 3: *Identifying goals*	a Identify critical statements by major parties (e.g. people, groups, the work unit, etc.). b List all goals of the major parties that exist or can be reasonably inferred.
Step 4: *Conducting the analysis*	a Decide which ideas, models and theories seem useful. b Apply these conceptual tools to the situation. c As new information is revealed, cycle back to sub-steps (a) and (b).
Step 5: *Making the diagnosis*	a Identify predicaments (goal inconsistencies). b Identify problems (discrepancies between goals and performance). c Prioritise predicaments/problems regarding timing, importance, etc.
Step 6: *Doing the action planning*	a Specify and prioritise the criteria used to choose action alternatives. b Discover or invent feasible action alternatives. c Examine the probable consequences of action alternatives. d Select a course of action. e Design an implementation plan/schedule. f Create a plan for assessing the action to be implemented.

Source: C. C. Lundberg and C. Enz, 1993, 'A framework for student case preparation', *Case Research Journal*, 13 (summer), p. 144.

Gaining familiarity

The first step of an effective case analysis process calls for you to become familiar with the facts featured in the case and the focal firm's situation. Initially, you should become familiar with the focal firm's general situation (for example, who, what, how, where and when). Thorough familiarisation demands appreciation of the nuances, as well as the major issues, in the case.

Gaining familiarity with a situation requires you to study several situational levels, including interactions between and among individuals within groups, business units, the corporate office, the local community and the society at large. Recognising relationships within and among levels facilitates a more thorough understanding of the specific case situation.

It is also important that you evaluate information on a continuum of certainty. Information that is verifiable by several sources and judged along similar dimensions can be classified as a *fact*. Information representing someone's perceptual judgement of a particular situation is referred to as an *inference*. Information gleaned from a situation that is not verifiable is classified as *speculation*. Finally, information that is independent of verifiable sources and arises through individual or group discussion is an *assumption*. Obviously, case analysts and organisational decision makers prefer having access to facts over inferences, speculations and assumptions.

Personal feelings, judgements and opinions evolve when you are analysing a case. It is important to be aware of your own feelings about the case and to evaluate the accuracy of perceived 'facts' to ensure that the objectivity of your work is maximised.

Recognising symptoms

Recognition of symptoms is the second step of an effective case analysis process. A symptom is an indication that something is not as you or someone else thinks it should be. You may be tempted to correct the symptoms instead of searching for true problems. True problems are the conditions or situations requiring solution before the performance of an organisation, business unit or individual can improve. Identifying and listing symptoms early in the case analysis process tends to reduce the temptation to label symptoms as problems. The focus of your analysis should be on the *actual causes* of a problem, rather than on its symptoms. Thus, it is important to remember that symptoms are indicators of problems; subsequent work facilitates discovery of critical causes of problems that your case recommendations must address.

Identifying goals

The third step of effective case analysis calls for you to identify the goals of the major organisations, business units and/or individuals in a case. As appropriate, you should also identify each firm's strategic intent and strategic mission. Typically, these direction-setting statements (goals, strategic intents and strategic missions) are derived from comments made by central characters in the organisation, business unit or top management team as described in the case and/or from public documents (for example, an annual report).

Completing this step successfully can sometimes be difficult. Nonetheless, the outcomes you attain from this step are essential to an effective case analysis because identifying goals, intent and mission helps you to clarify the main problems featured in a case and to evaluate alternative solutions to those problems. Direction-setting statements are not always stated publicly or prepared in written format. When this occurs, you must infer goals from other available factual data and information.

Conducting the analysis

The fourth step of effective case analysis is concerned with acquiring a systematic understanding of a situation. Occasionally, cases are analysed in a less-than-thorough manner. Such analyses may be a product of a busy schedule or of the difficulty and complexity of the issues described in a particular case. Sometimes you will face pressures on your limited amounts of time and may believe that you can understand the situation described in a case without systematic *analysis* of all the facts. However, experience shows that familiarity with a case's facts is a necessary, but insufficient, step in the development of effective solutions – solutions that can enhance a firm's strategic competitiveness. In fact, a less-than-thorough analysis typically results in an emphasis on symptoms, rather than on problems and their causes. To analyse a case

effectively, you should be sceptical of quick or easy approaches and answers.

A systematic analysis helps you to understand a situation and determine what can work and probably what will not work. Key linkages and underlying causal networks based on the history of the firm become apparent. In this way, you can separate causal networks from symptoms.

Also, because the quality of a case analysis depends on applying appropriate tools, it is important that you use the ideas, models and theories that seem to be useful for evaluating and solving individual and unique situations. As you consider facts and symptoms, a useful theory may become apparent. Of course, having familiarity with conceptual models may be important in the effective analysis of a situation. Successful students and successful organisational strategists add to their intellectual tool kits on a continual basis.

Making the diagnosis

The fifth step of effective case analysis – diagnosis – is the process of identifying and clarifying the roots of the problems by comparing goals with facts. In this step, it is useful to search for predicaments. Predicaments are situations in which goals do not fit with known facts. When you evaluate the actual performance of an organisation, business unit or individual, you may identify over- or under-achievement (relative to established goals). Of course, single-problem situations are rare. Accordingly, you should recognise that the case situations you study probably will be complex in nature.

Effective diagnosis requires you to determine the problems affecting longer-term performance and those requiring immediate handling. Understanding these issues will aid your efforts to prioritise problems and predicaments, given available resources and existing constraints.

Doing the action planning

The final step of an effective case analysis process is called action planning. *Action planning* is the process of identifying appropriate alternative actions. In the action planning step, you select the criteria you will use to evaluate the identified alternatives. You may derive these criteria from the analyses; typically, they are related to key strategic situations facing the focal organisation. Furthermore, it is important that you prioritise these criteria to ensure a rational and effective evaluation of alternative courses of action.

Typically, managers 'satisfice' when selecting courses of action; that is, they find *acceptable* courses of action that meet most of the chosen evaluation criteria. A rule of thumb that has proved valuable to strategic decision makers is to select an alternative that leaves other plausible alternatives available if the one selected fails.

Once you have selected the best alternative, you must specify an implementation plan. Developing an implementation plan serves as a reality check on the feasibility of your alternatives. Thus, it is important that you give thoughtful consideration to all issues associated with the implementation of the selected alternatives.

What to expect from in-class case discussions

Classroom discussions of cases differ significantly from lectures. The case method calls for instructors to guide the discussion, encourage student participation and solicit alternative views. When alternative views are not forthcoming, instructors typically adopt one view so that students can be challenged to respond to it thoughtfully. Often students' work is evaluated in terms of both the quantity and the quality of their contributions to in-class case discussions. Students benefit by having their views judged against those of their peers and by responding to challenges by other class members and/or the instructor.

During case discussions, instructors listen, question and probe to extend the analysis of case issues. In the course of these actions, peers or the instructor may challenge an individual's views and the validity of alternative perspectives that have been expressed. These challenges are offered in a constructive manner; their intent is to help students develop their analytical and communication skills. Instructors should encourage students to be innovative and original in the development and presentation of their ideas. Over the course of an individual discussion, students can develop a more complex view of the case, benefiting from the diverse inputs of their peers and instructor.

Among other benefits, experience with multiple-case discussions should help students to increase their knowledge of the advantages and disadvantages of group decision-making processes.

Student peers as well as the instructor value comments that contribute to the discussion. To offer *relevant* contributions, you are encouraged to use independent thought and, through discussions with your peers outside of class, to refine your thinking. We also encourage you to avoid using 'I think', 'I believe' and 'I feel' to discuss your inputs to a case analysis process. Instead, consider using a less emotion-laden phrase, such as 'My analysis shows'. This highlights the logical nature of the approach you have taken to complete the six steps of an effective case analysis process.

When preparing for an in-class case discussion, you should plan to use the case data to explain your assessment of the situation. Assume that your peers and instructor know the case facts. In addition, it is good practice to prepare notes before class discussions and use them as you explain your view. Effective notes signal to classmates and the instructor that you are prepared to engage in a thorough discussion of a case. Moreover, thorough notes eliminate the need for you to memorise the facts and figures needed to discuss a case successfully.

The case analysis process just described can help you prepare to effectively discuss a case during class meetings. Adherence to this process results in consideration of the issues required to identify a focal firm's problems and to propose strategic actions through which the firm can increase the probability that it will achieve strategic competitiveness.

In some instances, your instructor may ask you to prepare either an oral or a written analysis of a particular case. Typically, such an assignment demands even more thorough study and analysis of the case contents. At your instructor's discretion, oral and written analyses may be completed by individuals or by groups of two or more people. The information and insights gained through completing the six steps shown in Exhibit 2 are often of value in the development of an oral or written analysis. However, when preparing an oral or written presentation, you must consider the overall framework in which your information and inputs will be presented. Such a framework is the focus of the next section.

Preparing an oral/written case strategic plan

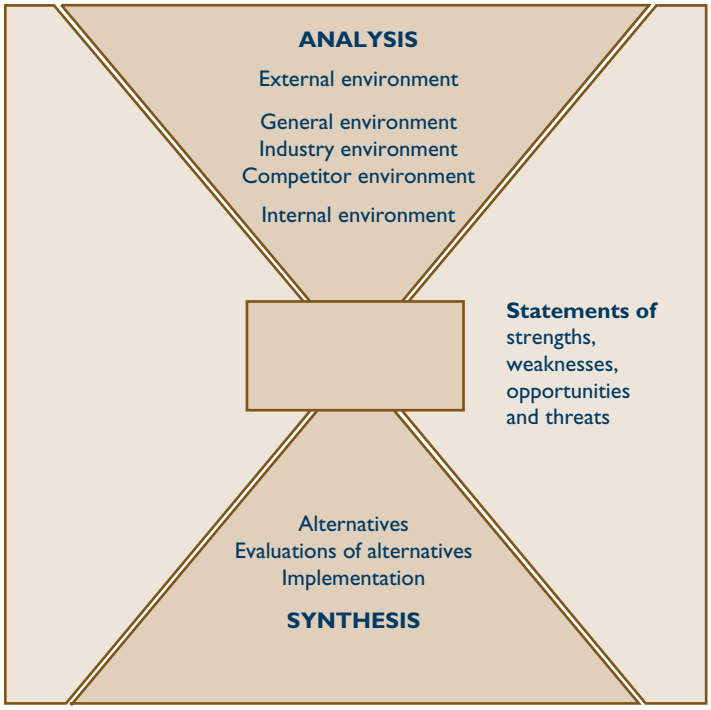
Experience shows that two types of thinking are necessary in order to develop an effective oral or written presentation (see Exhibit 3). The upper part of the model in Exhibit 3 outlines the *analysis* stage of case preparation.

In the analysis stage, you should first analyse the general external environmental issues affecting the firm. Next, your environmental analysis should focus on the particular industry (or industries, in the case of a diversified company) in which a firm operates. Finally, you should examine the competitive environment of the focal firm. Through study of the three levels of the external environment, you will be able to identify a firm's opportunities and threats. Following the external environmental analysis is the analysis of the firm's internal environment, which results in the identification of the firm's strengths and weaknesses.

As noted in Exhibit 3, you must then change the focus from analysis to *synthesis*. Specifically, you must *synthesise* information gained from your analysis of the firm's internal and external environments. Synthesising information allows you to generate alternatives that can resolve the significant problems or challenges facing the focal firm. Once you identify a best alternative, from an evaluation based on predetermined criteria and goals, you must explore implementation actions.

Exhibits 4 and 5 outline the sections that should be included in either an oral or a written strategic plan presentation: introduction (strategic intent and mission), situation analysis, statements of strengths/weaknesses and opportunities/threats, strategy formulation and implementation plan. These sections, which can be completed only through use of the two types of thinking featured in Exhibit 3, are described in the following discussion. Familiarity with the contents of your textbook's 13 chapters is helpful because the general outline for an oral or a written strategic plan shown in Exhibit 5 is based on an understanding of the strategic management process detailed in those chapters.

Exhibit 3 Types of thinking in case preparation: Analysis and synthesis



External environment analysis

As shown in Exhibit 5, a general starting place for completing a situation analysis is the external environment. The *external environment* is composed of outside conditions that affect a firm's performance. Your analysis of the environment should consider the effects of the *general environment* on the focal firm. Following that evaluation, you should analyse the *industry and competitor environmental* trends.

These trends or conditions in the external environment shape the firm's strategic intent and mission. The external environment analysis essentially indicates what a firm *might choose to do*. Often called an *environmental scan*, an analysis of the external environment allows a firm to identify key conditions that are beyond its direct control. The purpose of studying the external environment is to identify a firm's opportunities and threats. *Opportunities* are conditions in the external environment that appear to have the potential to contribute to a firm's success. In essence, opportunities represent *possibilities*. *Threats* are conditions in the external environment that appear to have the potential to prevent a firm's success. In essence, threats represent potential *constraints*.

When studying the external environment, the focus is on trying to *predict* the future (in terms of local, regional, and international trends and issues) and to *predict* the expected effects on a firm's operations. The external environment features conditions in the broader society *and* in the industry (area of competition) that influence the firm's possibilities and constraints. Areas to be considered (to identify opportunities and threats) when studying the general environment are listed in Exhibit 6. Many of these issues are explained more fully in Chapter 2.

Once you analyse the general environmental trends, you should study their effect on the focal industry. Often the same environmental trend may have a significantly different impact on separate industries, or it may affect firms within the same industry differently. For instance, with deregulation of the airline industry in the United States, older, established airlines had a significant decrease in profitability, while many smaller airlines, such as Southwest Airlines,

Exhibit 4 Strategic planning process

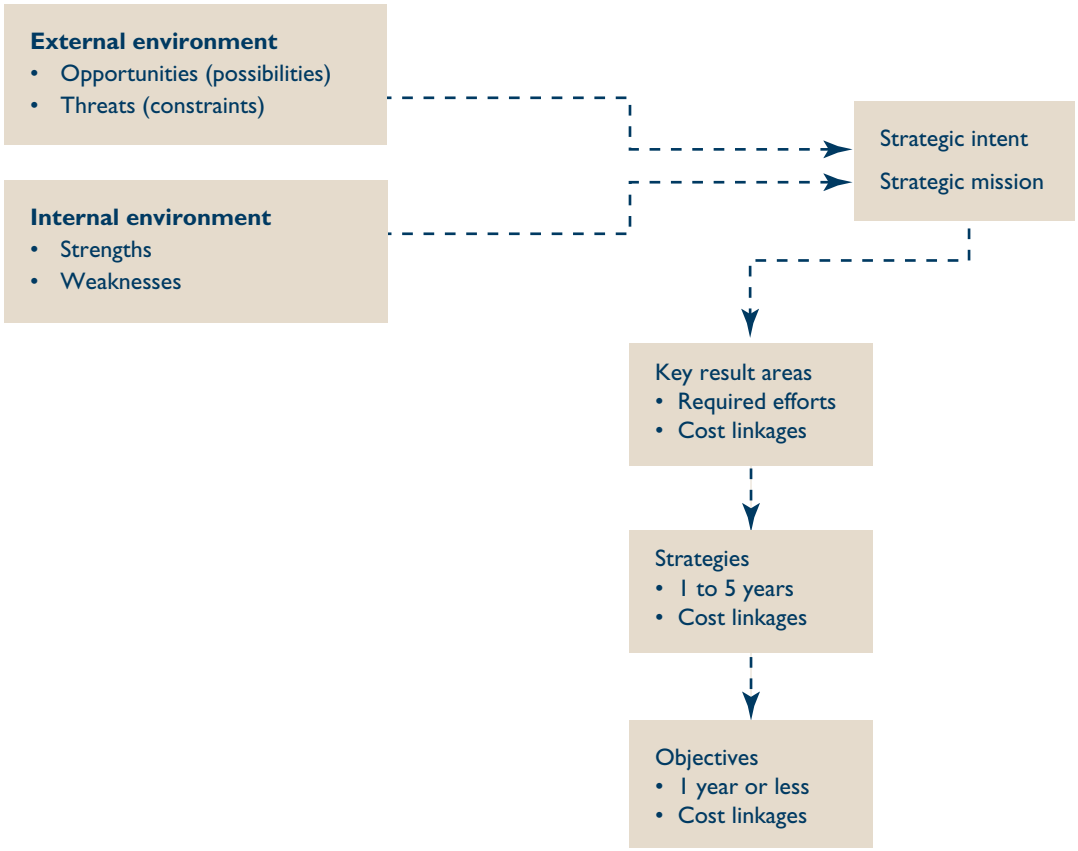


Exhibit 5 Strategic planning and its parts

- *Strategic planning is a process* through which a firm determines what it seeks to accomplish and the actions required to achieve desired outcomes
  - ✓ *Strategic planning*, then, is a *process* that we use to determine *what* (outcomes to be reached) and *how* (actions to be taken to reach outcomes)
- The effective *strategic plan* for a firm would include statements and details about the following:
  - ✓ *Opportunities* (possibilities) and *threats* (constraints)
  - ✓ *Strengths* (what we do especially well) and *weaknesses* (deficiencies)
  - ✓ *Strategic intent* (an indication of a firm's ideal state)
  - ✓ *Strategic mission* (purpose and scope of a firm's operations in product and market terms)
  - ✓ *Key result areas* (KRAs) (categories of activities where efforts must take place to reach the mission and intent)
  - ✓ *Strategies* (actions for each KRA to be completed within one to five years)
  - ✓ *Objectives* (specific statements detailing actions for each strategy that are to be completed in one year or less)
  - ✓ *Cost linkages* (relationships between actions and financial resources)

Exhibit 6 Sample general environmental categories

Technology	• Information technology continues to become cheaper and have more practical applications • Database technology allows organisation of complex data and distribution of information • Telecommunications technology and networks increasingly provide fast transmission of all sources of data, including voice, written communications and video information
Demographic trends	• Computerised design and manufacturing technologies continue to facilitate quality and flexibility • Regional changes in population due to migration • Changing ethnic composition of the population • Ageing of the population • Ageing of the baby boomer generation
Economic trends	• Interest rates • Inflation rates • Savings rates • Trade deficits • Budget deficits • Exchange rates
Political/legal environment	• Antitrust enforcement • Tax policy changes • Environmental protection laws • Extent of regulation/deregulation • Developing countries privatising state monopolies • State-owned industries
Socio-cultural environment	• Increasing proportion of women in the workforce • Awareness of health and fitness issues • Concern for the environment • Concern for customers
Global environment	• Currency exchange rates • Free trade agreements • Trade deficits • New or developing markets

with lower cost structures and greater flexibility, were able to aggressively enter new markets.

Porter's five forces model is a useful tool for analysing the specific industry (see Chapter 2). Careful study of how the five competitive forces (that is, supplier power, buyer power, potential entrants, substitute products and rivalry among competitors) affect a firm's strategy is important. These forces may create threats or opportunities relative to the specific business-level strategies (that is, differentiation, cost leadership, focus) being implemented. Often a strategic group's analysis reveals how different environmental trends are affecting industry competitors. Strategic group analysis is useful for understanding the industry's competitive structures and firm constraints and possibilities within those structures.

Firms also need to analyse each of their primary competitors. This analysis should identify their competitors' current strategies, strategic intent, strategic mission, capabilities, core competencies and competitive response profile. This information is useful to the focal firm in formulating an appropriate strategic intent and mission.

Internal environment analysis

The *internal environment* is composed of strengths and weaknesses internal to a firm that influence its strategic competitiveness. The purpose of completing an analysis of a firm's internal environment is to identify its strengths and weaknesses. The strengths and weaknesses in a firm's internal environment shape the strategic intent and strategic mission. The internal environment essentially indicates what a firm

can do. Capabilities or skills that allow a firm to do something that others cannot do or that allow a firm to do something better than others do it are called strengths. *Strengths* can be categorised as something that a firm does especially well. Strengths help a firm to take advantage of external opportunities or overcome external threats. Capabilities or skill deficiencies that prevent a firm from completing an important activity as well as others do it are called weaknesses. *Weaknesses* have the potential to prevent a firm from taking advantage of external opportunities or succeeding in efforts to overcome external threats. Thus, *weaknesses* can be thought of as something the firm needs to improve.

Analysis of the primary and support activities of the value chain provides opportunities to understand how external environmental trends affect the specific activities of a firm. Such analysis helps to highlight strengths and weaknesses. (See Chapter 3 for an explanation of the value chain.) For the purposes of preparing an oral or written presentation, it is important to note that strengths are internal resources and capabilities that have the potential to be core competencies. Weaknesses, on the other hand, have the potential to place a firm at a competitive disadvantage in relation to its rivals.

When evaluating the internal characteristics of the firm, your analysis of the functional activities emphasised is critical. For example, if the strategy of the firm is primarily technology-driven, it is important to evaluate the firm's R&D activities. If the strategy is market-driven, marketing functional activities are of paramount importance. If a firm has financial difficulties, critical financial ratios would require careful evaluation. In fact, because of the importance of financial health, most cases require financial analysis. The appendix lists and operationally defines several common financial ratios. Included are exhibits describing profitability, liquidity, leverage, activity and shareholders' return ratios. Other firm characteristics that should be examined to study the internal environment effectively include leadership, organisational culture, structure and control systems.

Identification of strategic intent and mission

Strategic intent is associated with a mind-set that managers seek to imbue within the company. Essentially, a mind-set captures how we view the world and our intended role in it. Strategic intent reflects or identifies a firm's ideal state. Strategic intent flows from a firm's opportunities, threats, strengths and weaknesses. However, the main influence on strategic intent is a firm's *strengths*. Strategic intent should reflect a firm's intended character and a commitment to 'stretch' available resources and strengths in order to reach strategies and objectives. Examples of strategic intent include:

- The relentless pursuit of perfection (Lexus).
- To be the top performer in everything that we do (Phillips Petroleum).
- We are dedicated to being the world's best at bringing people together (AT&T).

The strategic mission flows from a firm's strategic intent; it is a statement used to describe a firm's unique intent and the scope of its operations in product and market terms. In its most basic form, the strategic mission indicates to stakeholders what a firm seeks to accomplish. An effective strategic mission reflects a firm's individuality and reveals its leadership's predisposition(s). The useful strategic mission shows how a firm differs from others and defines boundaries within which the firm intends to operate. For example:

- Cochlear's mission is to have 'clinical teams and recipients embrace Cochlear as their partner in hearing for life'.
- Coca-Cola Amatil's mission is to have market leadership in every territory.

Hints for presenting an effective strategic plan

There may be a temptation to spend most of your oral or written case analysis on the results from the analysis. It is important, however, that the *analysis* of a case should not be over-emphasised relative to

the *synthesis* of results gained from your analytical efforts – what does the analysis mean for the organisation (see Exhibit 3)?

Strategy formulation: Choosing key result areas

Once you have identified strengths and weaknesses, determined the firm's core competencies (if any), and formulated a strategic intent and mission, you have a picture of what the firm is and what challenges and threats it faces.

You can now determine alternative key result areas (KRAs). Each of these is a category of activities that helps to accomplish the strategic intent of the firm. For example, KRAs for Cochlear may include to remain a leader in hearing implant technology and to build links with hearing clinicians in Southeast Asia. Each alternative should be feasible (that is, it should match the firm's strengths, capabilities and, especially, core competencies), and feasibility should be demonstrated. In addition, you should show how each alternative takes advantage of the environmental opportunity or avoids/buffers against environmental threats. Developing carefully thought-out alternatives requires synthesis of your analyses and creates greater credibility in oral and written case presentations.

Once you develop a strong set of alternative KRAs, you must evaluate the set to choose the best ones. Your choice should be defensible and provide benefits over the other alternatives. Thus, it is important that both the alternative development and evaluation of alternatives be thorough. The choice of the best alternative should be explained and defended. For the two Cochlear KRAs presented earlier, the strategies are clear and in both cases they take advantage of competencies within the company and opportunities in the external environment.

Key result area implementation

After selecting the most appropriate KRAs (that is, those with the highest probability of enhancing a firm's strategic competitiveness), you must consider effective implementation. Effective synthesis is important to ensure that you have considered and evaluated all critical implementation issues. Issues you might consider include the structural changes necessary to implement the new strategies and objectives associated with each KRA. In addition, leadership changes and new controls or incentives may be necessary to implement these strategic actions. The implementation actions you recommend should be explicit and thoroughly explained. Occasionally, careful evaluation of implementation actions may show the strategy to be less favourable than you originally thought. (You may find that the capabilities required to implement the strategy are absent and unobtainable.) A strategy is only as good as the firm's ability to implement it effectively. Therefore, expending the effort to determine effective implementation is important.

Process issues

You should ensure that your presentation (either oral or written) has logical consistency throughout. For example, if your presentation identifies one purpose, but your analysis focuses on issues that differ from the stated purpose, the logical inconsistency will be apparent. Likewise, your alternatives should flow from the configuration of strengths, weaknesses, opportunities and threats you identified through the internal and external analyses.

Thoroughness and clarity also are critical to an effective presentation. Thoroughness is represented by the comprehensiveness of the analysis and alternative generation. Furthermore, clarity in the results of the analyses, selection of the best alternative KRAs and strategies, and design of implementation actions are important. For example, your statement of the strengths and weaknesses should flow clearly and logically from the internal analyses presented, and these should be reflected in KRAs and strategies.

Presentations (oral or written) that show logical consistency, thoroughness and clarity of purpose, effective analyses, and feasible recommendations are more effective and will receive more positive evaluations. Being able to withstand tough questions from peers after your presentation will build credibility for your strategic plan presentation. Furthermore, developing the skills necessary to make such presentations will enhance your future job performance and career success.

Appendix: Financial analysis in case studies

Exhibit A-1 Profitability ratios

Ratio	Formula	What it shows
1 Return on total assets	$\frac{\text{Profits after taxes}}{\text{Total assets}}$	The net return on total investment of the firm
	or	or
	$\frac{\text{Profits after taxes + interest}}{\text{Total assets}}$	The return on both creditors' and shareholders' investments
2 Return on shareholders' equity (or return on net worth)	$\frac{\text{Profits after taxes}}{\text{Total shareholders' equity}}$	How effectively the company is utilising shareholders' funds
3 Return on ordinary equity	$\frac{\text{Profit after taxes – preference share dividends}}{\text{Total shareholders' equity – par value of preference shares}}$	The net return to ordinary shareholders
4 Operating profit margin (or return on sales)	$\frac{\text{Profits before taxes and before interest}}{\text{Sales}}$	The firm's profitability from regular operations
5 Net profit margin (or net return on sales)	$\frac{\text{Profits after taxes}}{\text{Sales}}$	The firm's net profit as a percentage of total sales

Exhibit A-2 Liquidity ratios

Ratio	Formula	What it shows
1 Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	The firm's ability to meet its current financial liabilities
2 Quick ratio (or acid-test ratio)	$\frac{\text{Current assets – inventory}}{\text{Current liabilities}}$	The firm's ability to pay off short-term obligations without relying on sales of inventory
3 Inventory to net working capital	$\frac{\text{Inventory}}{\text{Current assets – current liabilities}}$	The extent to which the firm's working capital is tied up in inventory

Exhibit A-3 Leverage ratios

Ratio	Formula	What it shows
1 Debt-to-assets	$\frac{\text{Total debt}}{\text{Total assets}}$	Total borrowed funds as a percentage of total assets
2 Debt-to-equity	$\frac{\text{Total debt}}{\text{Total shareholders' equity}}$	Borrowed funds versus the funds provided by shareholders
3 Long-term debt-to-equity	$\frac{\text{Long-term debt}}{\text{Total shareholders' equity}}$	Leverage used by the firm
4 Times-interest-earned (or coverage ratio)	$\frac{\text{Profits before interest and taxes}}{\text{Total interest charges}}$	The firm's ability to meet all interest payments
5 Fixed charge coverage	$\frac{\text{Profits before taxes and interest + lease obligations}}{\text{Total interest charges + lease obligations}}$	The firm's ability to meet all fixed-charge obligations, including lease payments

Exhibit A-4 Activity ratios

Ratio	Formula	What it shows
1 Inventory turnover	$\frac{\text{Sales}}{\text{Inventory of finished goods}}$	The effectiveness of the firm in employing inventory
2 Fixed assets turnover	$\frac{\text{Sales}}{\text{Fixed assets}}$	The effectiveness of the firm in utilising plant and equipment
3 Total assets turnover	$\frac{\text{Sales}}{\text{Total assets}}$	The effectiveness of the firm in utilising total assets
4 Accounts receivable turnover	$\frac{\text{Annual credit sales}}{\text{Accounts receivable}}$	How many times the total receivables have been collected during the accounting period
5 Average collection period	$\frac{\text{Accounts receivable}}{\text{Average daily sales}}$	The average length of time the firm waits to collect payments after sales

Exhibit A-5 Shareholders' return ratios

Ratio	Formula	What it shows
1 Dividend yield on ordinary shares	$\frac{\text{Annual dividends per share}}{\text{Current market price per share}}$	A measure of return to ordinary shareholders in the form of dividends
2 Price–earnings ratio	$\frac{\text{Current market price per share}}{\text{After-tax earnings per share}}$	An indication of market perception of the firm. Usually, the faster-growing or less risky firms tend to have higher PE ratios than the slower-growing or more risky firms
3 Dividend payout ratio	$\frac{\text{Annual dividends per share}}{\text{After-tax earnings per share}}$	An indication of dividends paid out as a percentage of profits
4 Cash flow per share	$\frac{\text{After-tax profits + depreciation}}{\text{Number of ordinary shares outstanding}}$	A measure of total cash per share available for use by the firm

Notes

1 M. A. Lundberg, B. B. Levin and H. I. Harrington, 2000, *Who Learns What from Cases and How? The Research Base for Teaching and Learning with Cases* (Englewood Cliffs, NJ: Lawrence Erlbaum Associates).

2 L. B. Barnes, A. J. Nelson and C. R. Christensen, 1994, *Teaching and the Case Method: Text, Cases and Readings* (Boston: Harvard Business School Press); C. C. Lundberg, 1993, 'Introduction to the case method', in C. M. Vance (ed.), *Mastering Management Education* (Newbury Park, Calif.: Sage); C. Christensen, 1989, *Teaching and the Case Method* (Boston: Harvard Business School Publishing Division).

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4 J. Solitis, 1971, 'John Dewey', in L. E. Deighton (ed.), *Encyclopedia of Education* (New York: Macmillan and The Free Press).

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Case 1

Hearing with the aid of implanted technology:

The case of Cochlear™, an Australian high-technology leader

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The Cochlear company of Australia: The situation

Cochlear™ is a leading Australian company specialising in cochlear devices – that is, implantable hearing devices. It is the world leader in this market and a prominent innovator in the high-technology niche within which it operates. Cochlear originated in Australia but now sells globally in an increasingly competitive market.

There are several problems currently facing the company. Within the global deaf community there is a serious debate about the use of technology to aid hearing in the profoundly deaf, and this obviously threatens the market. Second, and more significantly, in 2002 there was a major issue when the US Food and Drug Administration (FDA) issued a notification that it had received news of possible associations between cochlear implants and meningitis. In late 2003 a new CEO, Chris Roberts, took over. What are his options?

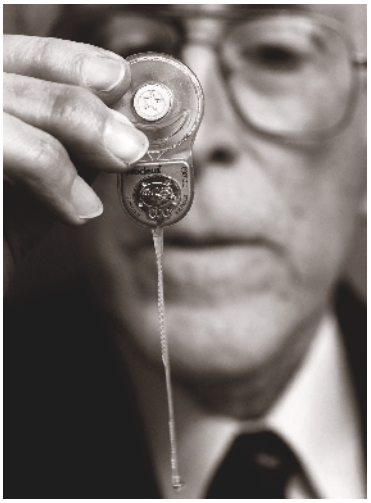
The Cochlear implant technology

A cochlear implant is a small electronic device that helps a profoundly (completely) deaf person to have a sense of sound. It is different from a hearing aid because it helps to compensate for damaged or non-functional parts of the ear, while a hearing aid amplifies sound. The implant has four parts:

- a tiny but sensitive microphone that picks up sound
- a speech processor that selects and arranges useful sounds
- a transmitter and receiver that turns these sounds into electrical impulses
- a series of electrodes that are surgically implanted in the inner ear, which pick up the receiver's impulses and transmit them to the brain. (This process is analogous to how hearing people hear sounds.)

The cochlear implant technology is getting more sophisticated all the time. It is a fast-moving technology, and changes are further enhancing the capacity

Exhibit 1 How the Nucleus® 3 system works



1 A directional microphone picks up sound.
2 Sound is sent from the microphone to the speech processor.
3 The speech processor analyses and digitises the sound into coded signals.
4 Coded signals are sent to the transmitter via radio frequency.
5 The transmitter sends the code across the skin to the internal implant.
6 The internal implant converts the code to electrical signals.
7 The signals are sent to the electrodes to stimulate the remaining nerve fibres.
8 The signals are recognised as sounds by the brain, producing a hearing sensation.

of the devices as well as making them smaller and therefore more socially acceptable.

Implanting the devices is a surgical procedure that has some risks. It is also expensive because it requires an experienced surgeon. Exhibit 1 is a diagrammatic representation of the device.

A recent Cochlear company annual report outlines the details of this technology and indicates its intricacy:

Introduction to the Nucleus® 3 system

The unique features of the Nucleus® 3 system include:

Longest battery life on the market: The ESPrit™ 3G speech processor is the only processor on the market with a battery life that lasts up to three days. Few interruptions and clear sound means better hearing.

Unique Whisper setting provides more sound: The ESPrit 3G is the only speech processor on the market that features a special Whisper setting designed to make soft sounds more audible – like rain falling or a person calling from another room.

Wireless FM and in-built telecoil: An in-built telecoil allows you to use the telephone with no additional attachments. The wireless FM provides access to sound in a variety of settings including cinemas, museums, meetings, classrooms, and wherever an FM system is in place for hearing-impaired participants. No additional cables are necessary.

The only pre-curved (contoured) electrode array on the market: The Nucleus® 24 Contour™ implant is the first implant choice for surgeons. It features a pre-curved electrode array, which has two important benefits: 1) The curve of the array puts the electrodes as close as possible to the hearing fibers in the cochlea to allow for the distinct sound. 2) The pre-curved shape of the array matches the shape of the cochlea, which helps to protect its delicate structure.

Titanium implant casing for best reliability: Nucleus® implants are durable and reliable and are made from Titanium. The Nucleus 24 Contour has never fractured on impact. Nucleus is built for a lifetime of use.

Removable magnet for safe MRI: Nucleus is the first implant to feature the removable magnet for MRI. This allows recipients to have a full-strength MRI if they require one.[1]

Cochlear, the company

The history of Cochlear's Nucleus® device goes back to 1967, when Graeme Clark started research on multi-channel cochlear implants. In 1978, Professor Clark implanted Rodney Saunders with a multi-channel cochlear device, and by 1982 a 22-channel device was implanted in Graham Carrick. (The more channels, basically, the better the hearing.) In 1985 the 22-channel Nucleus device was approved by the FDA for use in adults, and in 1990 for use in children. By 1998, 10 000 children had been implanted, and by 2001 more than 36 000 adults and children had been implanted.[2]

Cochlear's technology has kept improving, and each component improvement improves the overall system. In 2003 the company announced a further significant improvement to its basic product: the Nucleus® 24 Contour Advance™ was designed to minimise trauma to the delicate cochlear structures during implant surgery. It also developed a new Micro-Link Adaptor for use with the speech processor and receiver. (This was a product of the alliance Cochlear has with European technology firm Phonok AG.) In recent years the company has continually enhanced the capacity, and further minimised the size, of its Nucleus devices. Cochlear has won many awards for innovation – for example, the Medical Design Excellence Award in 2001 (an internationally prestigious achievement).

The 2002/03 financial year also included a record result financially. Profit after tax increased by 45 per cent to A$58.2 million and earnings per share were up 44 per cent. There were also record unit sales, up

Exhibit 2 Statement of financial performance

Cochlear Limited and its controlled entities for the year ended 30 June 2003

	Consolidated		Company	
	2003 $000	2002 $000	2003 $000	2002 $000
Revenue from ordinary activities	290 045	256 201	205 044	187 752
Expenses	209 239	204 021	131 110	136 448
Borrowing costs	796	1 150	153	195
Profit from ordinary activities before related income tax expense	**80 010**	**51 030**	**73 781**	**51 109**
Income tax expense relating to ordinary activities	21 797	10 920	19 892	11 952
Net profit attributable to members of the parent entity	**58 213**	**40 110**	**53 889**	**39 157**
Non-owner transaction changes in equity				
Translation adjustment in general reserve	(8)	3	–	–
Net (decrease)/increase in retained profits on the initial adoption of:				
Revised AASB 1028, 'Employee Benefits'	(116)	–	(90)	–
AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets'	311	–	2 411	–
Net exchange difference relating to self-sustaining foreign operations	(4 737)	2 507	–	–
Total changes in equity from non-owner related transactions attributable to the members of the parent entity	**53 663**	**42 620**	**56 210**	**39 157**
Basic earnings per share (cents)				
Ordinary shares	110.0	76.6		
Diluted earnings per share (cents)				
Ordinary shares	110.0	76.6		

19 per cent on the previous year. Sales in the United States were strong; in Europe they were steady; and in Asia there was strong growth before the SARS outbreak of 2002 affected the market. Some 9328 devices were sold during the financial year, and at A$50 000 for lifetime care this indicated a very good year. It took Cochlear 20 years to sell 30 000 systems, but in the last couple of years it has sold another 20 000.[3] Exhibit 2 shows the statement of financial performance for the 2002/03 financial year.

Cochlear's manufacturing facilities are world class and have had repeated upgrades in order to maintain this status.

The firm is very focused on R&D and devotes 15 per cent of total revenue to research. As well as 220 research staff, it has major long-term research links with the CRC (Co-operative Research Centre) for Cochlear Implant and Hearing Aid Innovation in Melbourne, as well as with the University of Melbourne itself. In addition, Cochlear has collaborative research arrangements with 90 other partners in 35 countries.[4]

The organisation is very determined to maintain excellent links with implant recipients and the surgeons and audiologists that work with them. In 2002, 70 surgeons attended the Sydney facility through Cochlear's ongoing visiting surgeon program.

Cochlear has 630 staff in 70 countries. It has an excellent training system for new staff. For example, in 2002, 43 new staff attended the Sydney headquarters for intensive training in the technology of implants and all aspects of the implantation process, including surgery. Cochlear is proud of the ethnic diversity of its staff – the Sydney office includes staff from 60 nations.

The board is made up of eight independent non-executive directors, the CEO, and one other executive director. Cochlear has a great committee system and all meetings are well documented. In September 2002, Cochlear was named in the top three Australian companies for best corporate governance by *Investor Relations Magazine*.

The external world for the industry

Hearing impairment

Hearing impairment ranges from mild to profound, and some people can hear some frequencies but not others. Mild hearing loss means that people can hear in quiet, one-to-one, situations but have problems in noisy environments such as cafés and bars. At the moderate level of loss, people find difficulty in hearing normal speech at any distance over a metre and are unlikely to hear well in crowded social situations. Profound hearing loss means that a person cannot hear a normal speaking voice or normal sounds. They may be helped by hearing aids, but tend to rely heavily on speech reading or sign language. Those with high-frequency loss (often caused by exposure to loud noises) can hear the person speaking but have difficulty hearing all the sounds. For example, the higher-pitched consonants such as P, S, F and CH may be confused, so 'sun' may be heard as 'fun' or 'pat' heard as 'sat'.[5]

The market for cochlear devices is the profoundly deaf. The number of such people is difficult to determine. The UK National Deaf Children's Society (NDCS) suggests that one in 1000 children are born with severe/profound hearing problems.[6] The (Australian) Bionic Ear Institute estimates the potential market in the West plus Japan as 3 million devices. In China, there are possibly 35 000 people born each year who would benefit from the device.[7] Even when discounted for unwillingness to risk the operation or lack of money, the numbers are huge. The companies competing in the industry concentrate on the United States and European markets and have barely penetrated the wider global market.

The political/legal environment

The cochlear industry is part of the general medical technology industry. Regulation is therefore significant and the US Food and Drug Administration is

the most significant regulator because its findings have weight worldwide. The FDA must approve new devices before they can be sold in the United States. The FDA was also the initiator of the 2002 meningitis scare, which affected the whole industry.

The global aspect

The cochlear market has gradually expanded beyond Australia, the United States and Europe. Cochlear itself established its European offices in 1987 and an office in Japan and Hong Kong in the 1990s, while China was a major target in 2001. Cochlear devices are now sold in more than 60 nations. Given that profound deafness is a problem globally, it can be expected that the global market will continue to expand.

Economics and cochlear devices

Cochlear devices cost around A$50 000 for a lifetime service.[8] Demand worldwide therefore comes from relatively affluent individuals, medical insurance companies and government organisations. It is possibly limited in poorer nations. However, within the OECD the middle to upper income groups are increasingly prosperous and these people are a potential market without government help. On the other hand, medical and insurance systems are gradually coming under increasing pressure as government tax incomes struggle to cope with competing demands for health, education and welfare services.[9]

In 2003 the global economy was expected to take an upturn, while Australia continued a phase of continued prosperity and Europe and the United States were basically stable in economic terms.

The meningitis crisis in the Cochlear implant industry

On 24 July 2002 the FDA issued a notification that it had reports of a link between cochlear implants and bacterial meningitis (a potentially fatal infection of the lining of the surface of the brain). There were 43 such cases and 11 people died. There were reports that implants had been withdrawn from sale in Germany, France and Spain. On 25 July the FDA updated its warning and said it had now learned of 118 cases.[10]

Cochlear responded to the crisis quickly. Graeme Clark claimed that the infection was related to a design change by their competitor, Advanced Bionics, that created 'dead space' within the ear, thus providing a home for bacteria. Professor Clark commented that, 'It is a very great problem of engineers per se designing something without due recourse to biologists and medical people.'[11] Advanced Bionics temporarily withdrew its product from sale.

The neuro-technology industry (the generic industry for implantable devices) bulletin commented on this scare: 'One side benefit of the relative lack of media exposure that the neural prosthesis industry receives is that this crisis has not gained the intensive public scrutiny that has greeted other industries when confronted with unflattering data or allegations.'[12] The scare nevertheless received significant media attention and Cochlear's share price dropped sharply. Advanced Bionics advanced a reputation for crisis management with its suspension from sales and detailed explanations of problems to its stakeholders.

The meningitis scare has had a long-term ripple effect on the industry, and doubt remains despite a climb in share prices to those similar to levels prior to the scare. The deaf community and the medical profession have an ongoing debate about cochlear implants. For example, Blake Papsin, the director of the Cochlear implant program in Toronto, Canada, in early 2003, said:

> In coming to terms with the relation between cochlear implants and meningitis, we should not lose sight of the benefit of this technology. For many children, the cochlear implant is a marvel that has allowed them to attain or regain hearing and speech. The growing number of candidates for cochlear implants, at least in Canada centres, reflects a conservative application of this technology based on the responsible evaluation of outcomes.[13]

This debate simmers in deaf culture. It is made more complex by advances in other areas of neuro-technology that are leading to useful devices such

as artificial sight. In addition, the increasing acceptance of altered body technology may impact on the cochlear industry: many now feel it is normal to alter body parts by surgery – for example, with pectoral enhancement or breast enlargement – and this could affect the 'normality' of a cochlear implant in the wider (as distinct from deaf) culture.

Debate about the idea of Cochlear implants in the deaf community

The background to a vigorous debate about the active benefits of a cochlear implant is encapsulated in a 2002 letter from Robert Adam, President of the Australian Association of the Deaf:

> The truth is obvious: a cochlear implant is not a cure for deafness. Let me expand on this a little.
>
> The Royal Institute for the deaf in the UK has a fact sheet which mirrors the Australian Association of the Deaf's view succinctly: A child with an implant will still be profoundly deaf when not wearing the implant. When wearing the implant, the child will be considered hard of hearing, or severely deaf, in the sense that a person with a hearing aid is described as hard of hearing.
>
> The deaf culture is not just about a language – it is also about community, history and art. Like many minority cultures, there is a strong tradition of stories and folklore that is passed on from one generation to the next. There have been many captivating and moving stories about the way deaf people lived in the past and about how deaf culture has endured despite attempts to 'cure' deafness.[14]

In 2000 in the United States the debate was highlighted by a film documentary called *Sound and Fury*, which portrayed the Artinian family. The father, Pete, is deaf and has three deaf children. His family includes brother Chris and his wife Mari. They had a deaf baby and decided to have an implant. Pete and his wife Nita, leading anti-implant campaigners, objected but were then astonished when their own daughter requested an implant. Pete and Nita were afraid that their daughter would lose contact with deaf culture if she had an implant, so they decided to move to a more deaf-culture-oriented community. This complex family drama appealed to the US media, and the idea of a deaf culture contrasted with the benefits of cochlear implants became a subject of general debate.

In 2003 the tenor of the debate in the United States changed with the entry of Miss USA 1995, Heather Whitestone McCallum. She became profoundly deaf in infancy and had an implant in 2002. She then sprang into action, lobbying federal politicians for the industry, appearing on top-rating television shows, such as *Good Morning America*, and appearing in print media such as the bestselling *USA Today*. She has been credited with helping to change the US government's mind on cochlear support: the government had been talking in 2002 of reducing funding for the implant procedure but ended up increasing it.[15]

Competitors in the industry

Advanced Bionics is a private US company founded in 1993, which is dedicated to the development of neuron-stimulation products – implantable devices that direct electrical impulses to nerves and muscles. The chairman, Alfred Mann, says the company aims to 'enable the deaf to hear, the blind to see, and the lame to walk'. The company originated when Dr Robert Schindler from the University of California's San Francisco cochlear program approached Mann for funding. Mann was already highly successful in implantable devices, the founder of a major heart pacemaker company (Pacemaker Systems) and high-tech wearable insulin-delivering pumps (MiniMed). In 2003 the Alfred Mann Foundation (Mann's philanthropic research organisation) was working with Robert Greenberg, the CEO of Mann's company Second Sight, a company devoted to the development of implants to enable vision. The implants would enable people with retinal disintegration to see. Greenberg claimed in 2003 that three people have been implanted and that the results were 'pleasing'.[16] Advanced Bioniocs has developed and sold the Clarion cochlear implant. This had, in 2002, about 15 per cent of the US market.

AllHear Inc. Designs

This company manufactures and sells cochlear implants. The founder, Dr William House, produced a cochlear device in 1984 in conjunction with the 3M Corporation, one of the world's leading innovation-driven corporations. The AllHear cochlear implant is unique because it uses a single short electrode that apparently does not destroy residue of hearing.[17] In 2003, AllHear's cochlear implants were not approved by the FDA for general sale in the United States.

Med-El

Med-El produces the COMBI-40+ cochlear implant system. It has collaborative arrangements with a range of universities. Med-El has eight subsidiaries and nine service centres throughout the world. It is a fierce competitor.

Back to Cochlear, the company

The previous CEO, Jack Mahoney, was a successful leader after succeeding the well-known Catherine Livingstone in 2001. He delivered on ambitious growth and profit targets in 2002/03. He received a package in 2002 worth $1.8 million, including a $416 845 performance-based bonus and had $100 000 in stock options, which remained unaffected by the new plan.

In late 2003 he announced his resignation and a new CEO, Chris Roberts, took over in February 2004. Roberts faced the classic challenges of the new CEO of a reasonably successful company – how to continue a record of advancing sales, profits and innovation. In addition, he must cope with the competition and the social and medical issues that threaten the industry. Roberts had been CEO of ResMed, an Australian company that makes and innovates in sleep apnoea products. (Sleep apnoea is a condition where a person's airways become blocked, often as a result of being overweight, causing them to wake up, sometimes many times a night. It is a good area for business, as cases of apnoea are on the increase. ResMed is number one in Europe for these products.

Soon after Roberts took over at Cochlear, the share price dropped by 30 per cent. The European markets were worse than expected, and the American market was tight because the federal health budget was tighter, and the major competitor in the United States, Advanced Bionics, had been rejuvenated. Cochlear is still the market leader, but its competitors are coming on strong.[18]

What strategies do you suggest CEO Chris Roberts use to achieve his aims?

Notes

1 www.cochlear.com.
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3 N. Gluyas, 'Cochlear', *The Australian*, 1 December 2003.
4 www.cochlear.com.
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6 NDCS, 2003.
7 Gluyas, 'Cochlear'.
8 Ibid.
9 OECD, 2002.
10 www.lieffcabrasser.com/cochlear.htm.
11 Quoted in ibid.
12 *Neurotech Business Report*, August 2003.
13 MAT, accessed on www.cmaj.ca.
14 *Herald-Sun*, 26 March 2002.
15 *Australian Financial Review*, 20 August 2003.
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Case 2

The Australian retail wars:

Coles Myer and Woolworths battle for brand value

Mark Wickham
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Introduction

Throughout the 1990s, the chronic poor performance of Australia's largest 'food' and 'general merchandise' retail firms, Coles Myer and Woolworths, led analysts and investors alike to abandon their shares in droves. Both chains were dogged by underperforming divisions, global economic uncertainty, and a lack of strategic vision perceived as endemic to the sector. Since 2000, however, both companies have managed to implement significant strategic changes to their business operations, and by 2003 had once again found favour with the investment community. The strategic changes have included diversification into new retailing sectors such as petrol and credit cards, the restructuring of their supply chain logistics, and the advancement of their information technology capabilities. Each move has been greeted with increased earnings and the associated investor optimism, although the question remains as to how Coles Myer and Woolworths can continue to deliver the outstanding results of 2003 in an uncertain economic future.

The Australian 'food' and 'general merchandise' retail sectors, 1996–2002

Despite the global economic decline experienced since the Asian financial crisis of 1997/98, and the economic and social shocks of the World Trade Center attacks in 2001, the Australian retailing sector has experienced robust year-on-year growth since 1995/96. Exhibit 1 indicates the robust nature of Australian retail spending during this period. The strength of Australia's retail spending has been attributed to relatively high consumer and business confidence, relatively low official interest rates and stable employment levels.[1] The food and general merchandise retail sectors have contributed significantly to Australia's retailing success story, and closely reflect the success, and dominance, of Coles Myer's and Woolworths' branding strategies since 2000. Coles Myer's and Woolworths' domination of the food and general merchandise sectors is reflected by their combined revenues, which in the financial year ended 2003 accounted for close to 80 per cent of the sector's total.[2]

Exhibit 1 Australian retail sales figures, 1995/96–2001/02

	Food retailing	General merchandise	Clothing and soft goods retailing	Household goods retailing	Recreational goods retailing	Other retailing	Hospitality and services	Total
	$mn	$mn	$mn	$mn	$mn	$mn	$mn	$mn
1995/96	57 996	12 315	8 882	12 591	7 623	12 307	25 002	135 885
1996/97	58 406	12 241	8 758	13 795	7 251	12 742	23 603	136 411
1997/98	60 453	12 593	8 989	14 314	7 391	13 835	23 965	141 220
1998/99	61 482	12 994	10 068	14 717	7 492	14 639	26 007	147 081
1999/00	62 218	13 768	10 781	17 344	7 612	15 863	27 363	154 884
2000/01	62 004	13 140	10 213	17 972	7 310	17 020	27 563	155 222
2001/02	63 340	13 714	11 005	20 554	7 393	18 785	25 584	163 374

Source: Commsec.

The best of times: A tale of two retailers

The Australian food retailing industry consists of a virtual duopoly between Coles Myer and Woolworths. The combined sales of the two retail giants exceed A$55 billion, and provide employment for some 300 000 workers.[3] The Coles Myer empire was established in 1985 with Coles' acquisition of Grace Brothers, and by 2003 consisted of 14 distinct business units spanning both the food and general merchandise retailing sectors. In its food division are the Coles Supermarket chain of stores, its Bi-Lo discount supermarkets, and the Internet-based Coles Online and Shopfast Online. In its general merchandise division are the Myer's Grace Brothers department store, the Megamart chain of electrical and furniture retailers, the Target department stores, Kmart's cut-price department store, the OfficeWorks chain and Harris Technology. Recently, the company also launched its Coles Express stores, which merchandise a limited range of grocery items from selected petrol stations in Victoria.[4]

In 2003, the Woolworths retailing empire consisted of three food and four general merchandise businesses. Woolworths' food businesses included their Woolworths and Safeway supermarkets, and the BWS (Beer, Wines and Spirits) chain of liquor outlets. Its general merchandise businesses include the Big W chain of discount department stores, the Dick Smith chain of electronic equipment stores, the Tandy chain of electrical merchandise stores, and the Plus Petrol service stations.[5]

Despite the fact that Coles Myer remains the country's largest food retailer, its growth year on year lags behind that of Woolworths, which has delivered 22 per cent increases in its earnings for the period 2000 to 2002. Coles Myer, on the other hand, has achieved growth rates that are commensurate with CPI increases, and has tended to play 'catch-up retailing' on everything from supply chain management to fuel discounts. One strategy that Coles Myer uses that acts as a real point of difference in the supermarket game is its concentration on the development of house brands (that is, its Coles, Reliance and Farmland brands). Currently, house brands account for approximately 8 per cent of Coles Myer's store-keeping units (SKUs), with the company planning to increase these to 15 per cent over the next three years. Woolworths, on the other hand, is concentrating on the promotion of everyday low price (EDLP) points for well-established national brands, a strategy that it borrowed heavily from the success of the Wal-Mart chain of stores in the United States.[6] By taking on the demonstrably successful aspects of Wal-Mart's EDLP strategy, Woolworths has turned around its loss-making general merchandise operations and has streaked ahead of its major competitors.[7] In particular, Woolworths' EDLP has worked well in its Big W chain, where it has

proven to be a competitive advantage against Coles' Kmart and Target divisions, which maintained a 'high–low' pricing strategy.[8]

A question of leadership and strategy

Despite the multi-point competition that exists between the two companies, their leadership could not be any more divergent. In September 2001, and without any prior experience in the industry, John Fletcher was appointed as the chief executive officer of Australia's largest retailer, Coles Myer Ltd. Before his appointment at Coles Myer, Fletcher spent almost his entire professional career at Brambles Industries, a resource sector firm that supplied on- and off-site logistics for mining companies operating in Australia.[9] Early in his career, Fletcher was charged with accounting responsibilities at Brambles, but his managerial skills were soon recognised and developed by the company, who promoted him to CEO in 1993. By comparison, Roger Corbett, the CEO of Woolworths Ltd, has been involved in the Australian retail industry for more than 30 years, initially working as a service assistant for Grace Brothers in the 1960s, which, ironically, became part of the Coles Myer empire in 1985. Corbett has also been heavily involved with the management of the Wal-Mart chain of supermarket and general merchandise stores in the United States, where he has attended annual general meetings and other pivotal strategy meetings. It was from this interaction that Corbett adopted the Australian version of the EDLP strategy that has to date been highly valuable for the Woolworths business.[10]

Fletcher assumed the CEO position at Coles Myer during a very interesting time for the company. Aside from its supermarket division, which had experienced strong growth since Dennis Eck took control in the mid-1990s, the remainder of the group was dogged by well-documented, and seemingly chronic, underperformance. In addition, Fletcher's arrival was met with a series of boardroom upheavals and the culmination of years of shareholder discontent.[11] The eight years' experience at the helm of one of Australia's largest resource companies between 1993 and 2001, however, did little to prepare him for the tumultuous period that he would endure at Coles Myer during 2002, a year that he was to describe as 'as tough as any year that I have had in my professional life'. At the same time, Roger Corbett was enjoying a third consecutive year-on-year profit growth of approximately 10 per cent, and had plans to acquire the Franklins' chain of supermarkets to further its growth ambitions. The source of Woolworths' much-heralded performance has been attributed to Corbett's implementation of a strategy named 'Project Refresh' in 1999. Project Refresh sought to restructure the company's supply chain, and to introduce new technology and the new EDLP structure to its supermarkets. Added to this was its successful foray into the petrol-retailing sector in 1997 (a strategy that drew no competitive response from Coles Myer at the time), which resulted in Woolworths capturing valuable market share points from Coles Supermarkets between 1999 and 2002. By the end of 2002, the Australian food and general merchandise retail sectors were valued at approximately $75 billion, and Woolworths had managed to capture 40 per cent compared with Coles' 36 per cent, a fact reflected in Woolworths' share price which had grown from $4.20 in 1999 to $13 in 2002. Coles' share price during the same period had fallen from $9 to $6.

2003: The Coles Myer empire strikes back

After indications that the Coles Myer empire might be broken into its constituent 'parts' due to the chronic underperformance of a number of its divisions,[12] John Fletcher instead announced a bold plan to confront Woolworths head-on in the war for corporate brand value in early 2003. The corporate brand 'battles' had been comprehensively won by Woolworths between 1997 and 2002, with the company achieving 400 per cent sales growth on their multi-point direct competition items during this time. Woolworths had also managed to position itself as *The Fresh Food People* during this period, a marketing triumph not matched by the Coles Myer food retailers. In response to Coles Myer's relatively poor performance and its 'second mover' status in the food and general merchandise sectors, Fletcher promised his shareholders that by

2007, Coles Myer would become the leaders of retail-market innovation and value, and double the company's profit levels achieved in 2003. The first broadside in this 'battle of the brands' was to occur early in 2003 in the liquor segment of the food-retailing sector.

In April 2003, Coles Myer announced that it had acquired the Theo's chain of 'premium' liquor outlets located in Sydney and Melbourne. Woolworths had already been in control of the Cheaper Liquor Company in various states, but had not been involved with this premium end of the market. Almost immediately, Woolworths undertook a similar acquisition of the Dan Murphy's franchise (for a reported $260 million), also located in Sydney and Melbourne.[13] The move almost immediately resulted in the reduction of prices charged by both outlets. Coles Myer had acquired Theo's as a real point of difference between the two companies' offerings; however, Woolworths' implementation of its EDLP strategy forced Coles Myer to similarly cut its prices as a competitive necessity. Woolworths' ability to minimise its supply chain costs (a benefit of the four-year-old Project Refresh strategy) enabled the company to maintain greater margins in this price war than Coles Myer could manage, a fact reflected in the two companies' 2002/03 financial reports (see Exhibit 2 later in this case).

In May 2003, some six years after Woolworths' initial foray into the retail petrol sector had seen it capture 11 per cent of the market, Coles Myer agreed to pay $94 million to Shell Petroleum for the right to operate its own petrol discount chain in 584 of Shell's service stations. The alliance between the two companies was negotiated on the understanding that the relationship would last for 20 years. Up until this point, Coles Myer had undertaken a token competitive response to Woolworths' 1997 Plus Petrol scheme by offering its customers discount vouchers to the Mobil chain of petrol retailers. The problem with this initial response was that, unlike Woolworths' Plus Petrol stations, which were located in close proximity to its stores, the Coles–Mobil discount offer did not allow the customer to 'cash in' on the value-adding offer at the point of purchase. Of the company's eventual strategic move into retail petrol, Fletcher stated: 'Coles [does] not want a price war, but will react to Woolworths' pricing in this market.'[14] In response to this competitive action, Woolworths reversed its long-running 'house-brand' fuel strategy by unveiling an equity joint venture with the Caltex franchise of petrol retailers in August 2003 – a move that closely mimicked Coles Myer's alliance with Shell. The equity joint venture was the company's response to the Coles–Shell alliance, a move that the company had widely criticised at its launch in July 2003.[15] In line with the announcement was a commitment by the company to wind down its home brand Plus Petrol service stations in favour of re-branding them as Caltex service stations.[16] The deal with Caltex was to add an additional 180 retail petrol outlets to Woolworths' existing 287 Plus Petrol outlets. Essentially, this move ensured that Woolworths would have 450 outlets in head-to-head competition with Coles Myer's 580 outlets nation-wide.[17] Roger Corbett claimed that the joint venture with Caltex had nothing to do with Coles Myer's alliance with Shell, instead stating that the strategy overcame the difficulties the company was having in finding new retail outlet sites for its growing Plus Petrol division.[18]

The new financial year 2003/04 began with two important announcements from Fletcher. The first concerned a Coles Myer alliance with the National Australia Bank to revamp the company's long-running Fly Buys reward program. The second was the introduction of a major cost-cutting strategy that mirrored Woolworths' Project Refresh launched some four years earlier. In July 2003, Coles Myer and the National Australia Bank announced that they had signed an agreement to revamp the Fly Buys loyalty program to include a credit card facility. Jon Wood, a senior Coles Myer executive, said that the enhancement of the Fly Buys card was an important part of Coles Myer's strategy to provide a comprehensive and valuable offer for all of its customers, especially given the announcement that the company's famous shareholder discount card was to be discontinued. Of the Fly Buys strategy, Wood stated: 'Fly Buys is Australia's largest loyalty program and we are moving to put more value into the program for our customers. Together with our partners at the National [Australia Bank], we will be revamping the program to offer more points, better rewards and other benefits.'[19] The replacement card was to be known as the Source card, and included a credit facility that represented

Coles Myer's initial foray into Australia's $100 billion Capital Card Market (that is, credit cards). Coles Myer already operates a loyalty card program that consists of 1.7 million Coles Myer Card holders (a chain-specific line of credit) but did not have the 'universal usage capability'. The company's new Source credit card meant that Coles Myer could differentiate itself from Woolworths by offering a full credit card capability alongside a long-standing and valued rewards program and a private label store credit card.

Fletcher's second announcement was his intention to emulate the success of Woolworths' Project Refresh, a plan that would entail major cost-cutting strategies within the company.[20] Fletcher planned to save up to $1 billion by making its 65 000 suppliers shoulder more of its supply chain costs in a program designed to close the performance gap with Woolworths. Fletcher intended to change the way Coles Myer buys its $18 billion of merchandise by cutting its stock on hand and by forcing its suppliers to move to a just-in-time approach to delivery. The company flagged to its employees that it intends to cut the number of its distribution centres from 41 to 24, and will use improved technology to reduce costs and streamline deliveries to stores.[21] Also part of this strategy are plans to pressure its suppliers to adopt the same IT systems that it uses in its warehouses and stores so that it can build a more efficient e-trading platform. Fletcher said that the company would invest between $800 million and $900 million over the next five years as part of this cost-cutting strategy that is expected to deliver benefits of $425 million a year from 2007/08 onwards.[22]

By August 2003, there was already some evidence that Coles Myer's strategies were bearing fruit for Fletcher's shareholders. Sales in the group lifted by a substantial 6.1 per cent at $27 billion, marginally ahead of Woolworths' $26.3 billion. The stock market also responded well to Fletcher's performance, with Coles Myer shares rising 29 per cent during the year, while Woolworths' shares remained steady.[23] Still a concern for the company was the food and liquor sales, which grew by only 1.5 per cent, as opposed to Woolworths' 5.4 per cent.[24] The statistics served to underline the competitive advantage that Woolworths had over the Coles Myer empire. Exhibit 2 presents the economic results for both firms during the 2002/03 financial year. Despite the apparent success of Coles Myer's strategies in addressing its performance gap with Woolworths, Corbett was confident that Woolworths would continue to achieve its recent double-digit profit growth. Indeed, despite Coles Myer's seemingly effective strategising, the financial year ended 2003 witnessed Woolworths notching up its best annual result in five years. The company's 16.5 per cent increase in profit to $610 million was powered by higher margins in its supermarket, liquor, petrol and general merchandise operations.[25] Corbett also revealed that its cost savings program, Project Refresh, had delivered the promised savings to the company of some $1.7 billion over the previous four years.[26] Corbett announced that the company would maintain its profit growth forecasts of between 10 and 15 per cent for the 2003/04 financial year, despite the uncertain outlook for the food and liquor divisions, and the increased competition from Coles and the German outfit, Aldi.[27] Corbett stated that Woolworths' strategy to remain differentiated from Coles Myer while adding greater value to their customers' shopping experience

Exhibit 2 Financial results for Woolworths Limited and Coles Myer Limited, 2001/02 and 2002/03

	Woolworths financials[28]		Coles Myer financials[29]	
(A$ million)	**2001/02**	**2002/03**	**2001/02**	**2002/03**
Sales	25 239.4	26 321.4	25 688.7	27 016.6
Pre-tax profit	782.2 (3%)	906.0 (3.4%)	491.0 (1.9%)	617.2 (2.3%)
Net profit	564.4 (2.2%)	650.6 (2.5%)	353.8 (1.4%)	429.5 (1.6%)
EPS	50.2	58.1	26.1	32.2
Dividend	15.0	18.0	25.5	26.0

Sources: *Commsec Securities Home Page*, www.commsec.com.au.

was of utmost importance in Australia's retailing industry, and flagged a possible diversification into the pharmaceutical market. In November 2003, Corbett solidified this by announcing that Woolworths planned to open a number of fully stocked pharmacies and 'health and beauty stores' in its supermarket chain.[30]

The challenge for both Fletcher and Corbett in 2004 centres on their ability to continue to add value to their customers' shopping experience while simultaneously maintaining shareholder returns. The question, therefore, is how the two men might best strategise for this result given the increasing market power of the two dominant firms, and the multi-point competitiveness inherent to their operations.

Notes

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Case 3

eBay.com*:

Profitably managing growth from start-up to 2000

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Introduction

It was 21 November 2000, and Meg Whitman was considering the events of the last few days. As the chief executive officer (CEO), she had led eBay.com to its position as the world's largest person-to-person (P2P) trading community, but the share price had just fallen 20 per cent to US$34.75 when eBay's share was downgraded from a 'buy' to a 'neutral' by Lehman Brothers, a global investment bank, because of concerns over eBay's aggressive sales forecasts. The previous day, eBay had announced the launch of a new product, application programming interface software that would enable other web companies to display eBay auctions on their sites.

The company had experienced explosive growth from start-up when the founder and current chairman, Pierre Omidyar, launched eBay in September 1995. While most e-commerce companies were making significant losses by spending aggressively to build their customer and revenue bases, eBay had remained profitable since the beginning. In the three-month period to September 2000, US$1.4 billion worth of goods were transacted on eBay, with items listed in more than 4320 categories. The company had 18.9 million registered users at the end of the period and had captured over 80 per cent of the on-line auction market with its closest competitors being Yahoo! and Amazon.com.

Background to eBay

Pierre Omidyar

Pierre Omidyar was born in Paris, France in 1967 and moved to Washington, DC in the United States with his parents at the age of six. From an early age he was interested in computers and he wrote a program to print catalogue cards for the school library at the age of 14. In 1988, he graduated with a Bachelor's degree in Computer Science from Tufts University. He initially worked as a developer of consumer application

* This case study was written by Dale Pudney and Marius van der Merwe, MBA students at the University of Cape Town, under the supervision of Professor Gary J. Stockport, Graduate School of Management, University of Western Australia. It is intended to be used as the basis for class discussion rather than to illustrate either effective or ineffective handling of a management situation.

This case was compiled from published sources.

software such as MacDraw, for Claris, a software subsidiary of Apple Computer. In 1991, he was one of the founders of Ink Development, which later became eShop, an early e-commerce site that was bought by Microsoft in 1996.

Person-to-person (P2P) trading prior to 1995

In traditional P2P trading forums, it is sometimes difficult for buyers to find pricing benchmarks to ensure that the prices that they pay correspond to the proper value of the item. It was estimated that in 1995, US$100 billion was traded annually in the following forums:

- *Newspaper classifieds:* Users listed items that were for sale or wanted, normally in locally distributed newspapers. The classifieds typically generated more than 50 per cent of local newspapers' revenues from listing fees. The buyers usually inspected the items before purchasing and may have collected and paid for the items in person. As a consequence of the proximity of buyers and sellers, the items could have been larger items that were difficult to transport over long distances.
- *Flea markets and garage sales:* Sellers stocked items for sale either at their homes or at organised markets. Buyers were typically looking for bargains or interesting artefacts. The buyers were able to inspect the items and needed to pay for them before they could collect.
- *Auction houses:* Sellers took items that were for sale to auction houses where buyers could inspect them before the auction. Buyers needed to pay a registration fee in order to bid and were required to be at the auction or have a proxy bidder. The highest bidder won the auction and normally paid the auction house. The auction house typically deducted a percentage of the sale price and paid the balance to the seller.

The opportunity

In the early 1990s, Silicon Valley was quickly turning its attention away from electronics manufacturers towards new Internet-based start-ups that married existing technology to new business models. Internet usage growth and the provision of the infrastructure required to ensure acceptable data transmission speeds were, however, uncertain. Analysts were also unsure whether people would purchase goods of value from distant strangers without seeing them beforehand. Omidyar was writing code for communications-software maker General Magic in 1995 when he started to think about the possibility of on-line auctions. He said the following about his idea:

> I had been thinking about how to create an efficient marketplace – a level playing field, where everyone had access to the same information and could compete on the same terms as everyone else. Not just a site where big corporations sold stuff to consumers and bombarded them with ads, but rather one where people 'traded' with each other … I thought, if you could bring enough people together and let them pay whatever they thought something was worth … real values could be realised and it could ultimately be a fairer system – a win-win for buyers and sellers.[1]

Start-up in 1995

eBay (then AuctionWeb) was launched on Labour Day, 1 September 1995, using a website that was hosted by Omidyar's US$30 per month Internet service provider (ISP). The site was located at www.ebay.com. The company operated from Omidyar's apartment with only the website, a filing cabinet, an old school desk and a laptop computer. The site was not much more than a simple marketplace where sellers listed items and buyers bid for them. Omidyar made no guarantees about the goods being sold, took no responsibility and settled no disputes. There were no fees, no registration, no search engine and, for the first month, no customers.

Omidyar's only attempt at marketing was to list eBay on the National Center for Supercomputing Applications' *What's Cool* site. Despite this, so many people visited the site that by February 1996 Omidyar had to institute a fee of 10 cents per listing to recoup the ISP costs which by then had risen to US$250 per month. By the end of March 1996, eBay showed a profit. Omidyar had kept his day job at General Magic, but the traffic to the site became so intense that he had to concentrate on eBay full-time and the

ISP asked him to take the site elsewhere. He therefore bought his own web server and installed it in his apartment.

Omidyar developed software that was capable of supporting a robust scalable website and transaction processing system to provide real-time reporting on the current auctions. The system was scalable to reduce the initial investment but enabled expansions when an increasing number of auctions demanded it.

By July 1996, Omidyar needed to move the operation to a one-room office and hire a part-time employee. The risks that the business faced at that stage were substantial and with barriers to entry being low there was nothing to stop the large Internet players such as America Online (AOL) (ISP and Internet portal), Amazon.com (on-line book retailer) and Yahoo! (search engine and Internet portal) from stealing the opportunity. As the business was based on collectors' items, changes in the current fads could have affected the revenues significantly. At one stage, trading of Beanie Babies generated 7 per cent of eBay's revenues.

The business concept

Omidyar asked one of his friends, Jeff Skoll, to join the company as its first president in August 1996 and his role was to turn the concept into a business. He had a Master's in Business Administration (MBA) degree

Exhibit 1 Quarterly financial results and statistics

	1998				1999				2000		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Financial data											
Revenue ('000)	13 998	19 480	21 731	30 930	42 801	49 479	58 525	73 919	85 753	97 399	113 377
Gross profit ('000)		16 194	17 364	24 980	34 824	38 534	41 444	52 334	62 481	73 756	89 465
Gross margin (%)		83.1	79.9	80.8	81.4	77.9	70.8	72.9	75.7	78.9	
Operating expenses ('000)		11 996	15 504	21 365	27 063	43 166	46 478	51 883	62 029	65 026	75 149
Net income ('000)		2 279	461	2 639	3 765	816	1 186	4 895	6 288	11 590	15 211
Net profitability ('000)		14.0	2.1	8.5	8.8	1.6	2.0	6.6	7.3	11.9	13.4
Registered users (mn)		0.85	1.3	2.2	3.8	5.6	7.7	10.0	12.6	15.8	18.9
No. of auctions (mn)		6.6	9.2	13.6	22.9	29.3	36.2	41.0	53.6	62.5	68.5
Growth (%)											
Revenue (per quarter)		39	12	42	38	16	18	26	16	14	16
Net income			–83	472	43	–78	45	313	28	84	31
Registered users			53	69	73	47	38	30	26	25	20
No. of auctions			39	48	68	28	24	13	31	17	10
Auctions/ registered user		7.1	6.2	6.0	5.2	4.7	4.1	4.3	4.0	3.6	
Revenue/auction		2.95	2.36	2.27	1.87	1.69	1.62	1.80	1.60	1.56	1.66

Notes: All figures in US dollars. Source: eBay financial statements.
The registered users figures include everyone who had ever registered on the site and does not reflect currently active users.
Growth figures are growth per quarter.
Revenue figures exclude refunds to sellers due to site outages.

from Stanford University and had wide experience in managing distribution channels of on-line news information, computer consulting and computer rentals.

The business concept was to provide P2P auctions on the Internet. Using the Internet, buyers and sellers could access a larger market, which was important for those collectors who could not find people with similar interests in their areas. By providing a marketplace for buyers and sellers to trade their collectibles on the Internet in an auction format, the buyers set the price for items based on demand. When more potential buyers bid on the items, sellers received higher prices. As the buyers and sellers may be from different parts of the United States and even the world, the items that were sold were typically collectibles that were easy to deliver long distances.

The eBay process was simple and easy to understand. Sellers could list items for sale and pay a small listing fee, which depended on where and how the listing was presented and whether the seller required a reserve price. The seller chose the auction duration during which buyers could bid for the item. At the end of the auction, eBay notified the seller and the winning bidder, following which they made their own arrangements for payment and delivery of the goods. The seller was also charged a percentage of the final value of the transaction. Over time, eBay added services to this simple model to improve the user experience and thereby increase user loyalty and retention. eBay has been profitable from start-up and although its business was seasonal with volatile revenues, the company had maintained high gross margins of about 70–80 per cent (see Exhibit 1). The only costs of goods sold were computing infrastructure and customer service expenses. eBay's business model did not require it to keep any inventory, establish an extensive distribution network or have a large staff complement. Its product range was also determined by the size of its community and their listings and not by eBay's product development staff.

The listing fees and final value fees charged by eBay are shown in Exhibits 2 and 3. For example, if a seller listed a collection of rare stamps on eBay and the maximum bid is US$24, they would have paid a 50 cent insertion fee when they listed the item, assuming that the listing was not *emphasised* in any way. They would also have paid 5 per cent of the final sale price if the item was sold. eBay would have received

Exhibit 2 Fee to place an item listing

Opening value or reserve price	Insertion fee
$0.01 – $9.99	$0.25
$10.00 – $24.99	$0.50
$25.00 – $49.99	$1.00
$50.00 and up	$2.00
Real estate and automotive categories	$50.00
Reserve price less than $25.00	$0.50
Reserve price of $25.00 or more	$1.00

Notes:
1 All prices in US dollars.
2 Additional fees are charged for enhancing the listing in any way.

Source: www.eBay.com, November 2000.

Exhibit 3 Additional fee if the item sells

Closing value	Final value fee
$0 – $25.00	5% of the closing value
$25.01 – $1000	5% of the initial $25.00 ($1.25), plus 2.5% of the remaining closing balance
Over $1000	5% of the initial $25.00 ($1.25), plus 2.5% of the initial $25 – $1000 ($24.38), plus 1.25% of the remaining closing value balance

Notes:
1 All prices in US dollars.
2 There is no final value fee for the real estate and automotive categories.
3 Sellers may have the final value fee refunded if the high bidder does not pay.

Source: www.eBay.com, November 2000.

US$1.60 for the listing if the auction closed. If the seller had a reserve price of US$24.50 on the item, the auction would not have closed, so eBay would have received the insertion fee and a 50 cent fee for the reserve price which was only payable if the item did not sell.

Building the team

In June 1997, Omidyar and Skoll realised that they would need capital and management expertise if eBay was to realise its full potential. They approached venture capitalists Benchmark Capital who invested US$5 million for shares and warrants worth 22 per cent of the company. Bob Kagle, a partner at Benchmark Capital, became a board member of eBay. This money was never used, but the agreement gave them access to Benchmark's network of potential CEOs, marketing gurus, consultants and bankers. eBay needed this to help them build the business and recruit talented management. One of the first members of the management team was Gary Bengier, who was hired in November 1997 as the chief financial officer (CFO). He was responsible for developing the financial strategy and vision of the company and maintaining a corporate culture of financial discipline and prudence, and for equipping eBay for an eventual public offering of its shares.

Benchmark persuaded Meg Whitman to leave her job as general manager of Hasbro's pre-school division to become president and CEO of eBay. She was a strong and decisive executive without the need-to-dominate personality, which meant that there was a good fit with eBay's existing culture of being open to the voices of customers and employees. Whitman was impressed by the fact that eBay was doing something that could not be done effectively off-line and by the emotional connection between the eBay users and the service. Whitman brought global marketing and brand management experience with her when she joined in February 1998. Her previous work included being a vice president at Bain & Company and developing Stride Rite's Internet strategy. She had an MBA from Harvard Business School and a BA in Economics from Princeton.

Whitman recognised the need for other advisers on the board who understood the challenges of expanding into new markets and could provide advice and feedback. Again, Benchmark was instrumental in finding people such as Howard Schultz, chairman and CEO of Starbucks, and Scott Cook, chairman of Intuit. Whitman also went on to build her management team, and details of the other top-level management at eBay are given in Exhibit 4.

Building the community of users

Many of eBay's early customers were the result of referrals. eBay's loyal customers performed the marketing and sales function through word of mouth to bring new customers *to the community*. eBay undertook limited marketing but had entered into cross-promotional agreements with the following:

- Banner advertisement on web portals such as Netscape, Excite and Yahoo!.
- America Online (AOL) – provided an auction service for AOL's classified section which gave eBay access to AOL's more than 10 million users.
- ZAuction, a vendor-sourced auction site, which was a leading provider of computer products, electronic equipment and other brand name consumer goods.

Omidyar created a platform where 'anybody could sell anything' and did not interfere in the user transactions. Most of eBay's sellers were serious collectors and small traders who used eBay as their storefront to access a large market across the United States and the world. eBay provided a facility whereby users could interact with each other through the use of discussion boards and later through a chat room called the eBay Café. The eBay Café was similar to a traditional coffee shop where users could relax, catch up on news and hearsay, and exchange information. It brought users back to the site every day and they sometimes communicated directly with each other. One frequent user of the eBay Café described it as follows:

> At the eBay Café you will meet a bunch of caring and friendly folks talking, helping, laughing, and at times even complaining about varied subjects. I have found and met some great folks here. If you ever need help with almost ANYTHING, if you have some tips, tricks or a good story or two to share … the Café is the place.[2]

Exhibit 4 Summary of eBay management at November 2000

Pierre Omidyar (33), founder and chairman, oversees strategic direction and growth, model and site development, and community advocacy. He has a BS in Computer Science from Tufts University. His previous jobs include founder, Ink Development Corp., developer of consumer applications for Claris, a subsidiary of Apple Computer, and General Magic.

Meg Whitman (43), president and CEO, is responsible for building a successful business while delivering on customer needs and expectations. Her focus is on the user experience, creating a fun, efficient and safe forum for on-line person-to-person trading. She develops the work ethic and culture of eBay as a fun, open and trusting environment and keeps the organisation focused on the big picture objectives and key priorities. She has an MBA from Harvard and a BA in Economics from Princeton. Previous jobs include general manager for Hasbro Inc.'s pre-school division, global marketing of Playskool and Mr. Potato Head brands; president and CEO of Florists Transworld Delivery; president of Stride Rite and executive vice president at Keds Division; senior vice president of marketing for the Walt Disney Company's consumer products; vice president at Bain & Company; and brand manager at Procter & Gamble.

Gary Bengier (45), chief financial officer, is responsible for developing the financial strategy and vision as well as maintaining a corporate culture of financial discipline and prudence for eBay. He has an MBA from Harvard and a BBA in Computer Science and Operations Research, Kent State University. Previous jobs include CFO, Vxtreme, financial officer at Compass Design Automation, and senior financial posts at Kenetech Corp. and Qume Corp.

Brian Swette (45), chief operating officer, helps to build the eBay community as well as creating an environment for trade by responding to the community and introducing new categories. He has a BA in Economics from Arizona State University. His previous jobs include executive vice president and chief marketing officer, Pepsi-Cola Company, responsible for worldwide marketing and advertising efforts for Pepsi, and brand manager at Procter & Gamble.

Maynard Webb (43), president, eBay Technologies, oversees eBay's technology strategies, engineering, architecture and site operations. He has a BA from Florida Atlantic University. Previous jobs include senior vice president and CIO at Gateway, Inc.

Mike Wilson, chief scientist, is responsible for site architecture. Previous jobs include chief architect and project manager at Ink Development Corp.

Jeff Skoll (35), vice president, strategic planning and analysis, is responsible for competitive analysis, new business planning and incubation, as well as overall strategic direction. He has an MBA from Stanford University and a BS in Electrical Engineering from the University of Toronto. His previous jobs include manager of the distribution channels of on-line news information for Knight-Ridder Information and founder of Skoll Engineering.

Steve Westly, senior vice president, international and general manager of premium services, is responsible for business development, corporate communications, mergers, acquisitions and partnerships. He has an MBA and a BA from Stanford University. Previous jobs include vice president, WhoWhere?

Jeff Jordan, vice president and general manager of regionals and services, oversees eBay's regional business and end-to-end services which has the goal of making it easier to trade on the site. He has an MBA from Stanford University and a BA in Political Science and Psychology from Amherst College. Previous jobs include president of Reel.com.

Source: www.eBay.com, November 2000.

When eBay tried to impose changes on users, such as pricing changes, the users expressed their disappointment through these discussion forums. eBay trusted its users' suggestions for improving the site, and by giving its customers what they wanted, eBay was improving both customer retention and loyalty. One analyst commented that eBay's community was critical for attracting and retaining buyers and sellers:

> eBay has found a natural feedback loop where creating a critical mass of bidders increases the price obtained by sellers, which increases the number of sellers, which attracts more bidders, et cetera.[3]

Initially, there was no way to ensure that what was being bought was real or that the goods would be paid for. The anonymity and physical distance between buyers and sellers on the Internet encouraged counterfeiting and fraud. In message-board postings to Omidyar, the eBay users suggested that he set up a system for buyers and sellers to rate each other. This became known as the Feedback Forum and was a peer-review reporting system. Buyers and sellers rate each other and comment on how their business

together went. When launching this, Omidyar laid out eBay's guiding philosophy:

> eBay wouldn't exist if it wasn't for our community … At eBay, our customer experience is based on how our customers deal with our other customers. They rarely deal directly with the company. So how do you control the customer-to-customer experience? We can't control how one person treats another … The only thing we can do is to influence customer behaviour by encouraging them to adopt certain values. And those values are to assume that people are basically good, to give people the benefit of the doubt, and to treat people with respect.[4]

Company values

Omidyar hoped that his auction community would reflect the values of honesty, openness, equality, empowerment, trust, mutual respect and mutual responsibility. eBay's Mission Statement says:

> eBay was founded with the belief that people are honest and trustworthy. We believe that each of our customers, whether a buyer or a seller, is an individual who deserves to be treated with respect.[5]

To instil these values into the community, Omidyar maintained that they had to be embraced by the company and its employees because everything that the company did, such as the website, press releases and strategic partnerships, indirectly influenced the community. When Meg Whitman joined eBay, her challenge was to develop the work ethic and culture of eBay as a fun, open and trusting environment and keep the organisation focused on the big-picture objectives and key priorities. eBay had a 'no penalty' operating culture where there were no penalties for making mistakes or being on the wrong side of an issue which could *muzzle* employees or suppress new ideas. Whitman met with all new recruits and other staff on Mondays to tell them about the culture and make sure that they knew what was expected of them. eBay also brought some of its customers to the head offices regularly to talk to employees about their experiences.

Coping with customer service

By the end of 1997, more than 3 million items worth US$94 million had been sold on eBay, resulting in total revenues of US$5.7 million and US$900 000 profit. eBay had achieved these results with only 76 employees. The average value of each item sold was about US$31, with 6 per cent of this going to eBay's revenues. The number of auctions per day had increased from 1500 at the end of 1996 to about 150 000 at the end of 1997. As the number of users increased, eBay started to find it difficult to provide customer service to the members of the community. Simple questions such as 'How do I list an item?' or 'How do I buy an item?' were answered using a self-service on-line help function which had prominent links from the eBay home page. Other queries were more difficult and needed knowledgeable users or service agents to answer. Users placed queries on bulletin boards dedicated to the discussion of specific issues of the business, such as help, registration, listing and shipping, which were sometimes answered by other members of the community and at other times by eBay. As part of building their on-line community, eBay had contracted active, enthusiastic and knowledgeable users of the site to respond to requests for help. These independent contractors worked from home to answer emailed questions and those that were posted on the bulletin boards. eBay also decided to employ and supervise the customer service representatives directly to better understand customers' problems and control the quality of customer service. Nevertheless, not all of the users were satisfied with the customer service that eBay offered.

Building trust and loyalty

To work with the community to improve the services that were offered and develop trust and loyalty, eBay launched SafeHarbor in February 1998. SafeHarbor included the following elements:

- *Verified User Program:* eBay verified user information during registration and had partnered with Equifax to provide a higher level of verification if required.
- *Feedback Forum:* buyers and sellers rated their experience with each other as positive, neutral or negative. The user profile followed the user

everywhere on eBay. Estimates suggested that users were willing to pay up to 30 per cent more in certain markets for items sold by someone with a high feedback rating.

- *Insurance:* Lloyds of London provided insurance for users with a net non-negative feedback rating on their auctions up to US$200 subject to an excess of US$25.
- *Shill Bidding Policy:* suspended users who bid on an item with the intent to drive up the price without buying it.
- *Non-paying Bidder Policy:* non-paying bidders were warned and then suspended.

eBay's policies and service had helped them to develop a loyal community of buyers and sellers. One user described the eBay experience as follows.

> I visit eBay to transact auction business because it has a superior universe of sellers and bidders and quality and quantity of listings. The people visiting eBay are generally loyalists, while the average person visiting Amazon.com is there to buy a book, but I'd hazard a guess that he isn't going to stick around for an hour.[6]

eBay also provided facilities that users could personalise, such as the 'My eBay' and 'About Me' sections. 'My eBay' was a tool that users could personalise to keep track of their favourite categories, view items they were selling or bidding on, check their recent account balance and feedback, or update their contact information. An 'About Me' page could be set up by users to tell other eBay users about themselves and their feedback rating, which helped to improve the credibility and trust among the users. Not all users were happy with the services, however, and this can be seen in the following message taken from the discussion boards.

> Am I the only one that thinks the 'Watch This Item' link in auctions is driving sellers to the poorhouse? Geez … Bidding is bad enough without encouraging bidders not to bid.[7]

Brand building

In a company that had always disdained advertising, Whitman employed Pepsi's head of marketing, Brian Swette, as senior vice president of marketing in October 1998 to oversee international expansion, marketing and customer support efforts for eBay. He had worldwide brand-building experience with both the Pepsi-Cola Company and Procter & Gamble. His focus was on increasing brand awareness both nationally and internationally and on making eBay one of the most accessible and successful e-commerce sites on the Internet.

eBay found that small traders and serious collectors were the most active site users. Many of the traders were small businesses who had used eBay as their storefront or as a supplement to their existing stores. These users contributed 80 per cent of the total revenues but only constituted 20 per cent of the registered users. As a result, eBay decided to reduce its presence in broadband portals and concentrate its marketing and brand-building resources on these users. This included advertising in many niche publications read by serious collectors and exhibiting at collectors' trade shows. eBay subsequently launched its first national print and broadcast advertising campaign in October 1998 in order to increase awareness of the company's brand with The Acme Idea Company, a strategic and creative consultancy committed exclusively to the building of brands. The national radio campaign was aired on more than 12 000 stations across the United States for five weeks. The print campaign included adverts in *Parade*, *People*, *Entertainment Weekly*, *Newsweek* and *Sports Illustrated* and over 70 distinct collecting publications, reaching people who had an active passion – for example, for coins, stamps, dolls or photography.

eBay also instituted the PowerSellers program to benefit the bulk sellers. The program was designed to meet the needs of users who were running a full-time on-line trading business on eBay with benefits and privileges designed to make selling easier and more profitable. There were three different program levels, – namely: Bronze, Silver and Gold – which were achieved with minimum monthly sales on eBay of US$2000, US$10 000 and US$25 000, respectively. eBay offered these users additional services depending upon the level that they had achieved. These benefits included the PowerSellers logo to distinguish users on the site, dedicated email customer support, participation in the eBay Success Stories program (to be profiled for use in press-related events), invitations

to special events, specialist customer phone support, dedicated account managers and support hotlines.

A member of the PowerSellers customer-service program complained that her email and phone calls regularly went unanswered: 'I feel like I'm in a co-dependent relationship. I write to them, I get no response. I e-mail them, nothing. I'm being abused.'[8]

On 25 March 1999, eBay and AOL expanded their existing relationship and announced a four-year strategic alliance to expand person-to-person commerce and community building on AOL and its family of brands. The agreement gave eBay prominent presence across the domestic and international AOL family of brands, including AOL, AOL.com, CompuServe, Netscape's Netcenter, ICQ and Digital City. According to the agreement, eBay was to pay AOL US$75 million over the term of the agreement and AOL was entitled to all advertising revenues generated by the co-branded sites and to act as the exclusive third-party advertising sales force for advertising sold on eBay's website. They created customised and co-branded sites for AOL's multiple brands that included comprehensive listings, feedback and ratings, message boards and select content from eBay. eBay was to promote AOL as its preferred Internet ISP and enable its users to download ICQ (communication software that enables chat, voice, message board, data conferencing, file transfer or games on the Internet) on its website as well as to integrate AOL's 'My News' feature into its 'My eBay' feature. AOL, in return, undertook to promote eBay to its member community of over 16 million. As a part of the agreement, the companies were to work together to facilitate eBay's expansion into international markets, and AOL helped to launch eBay's expansion into regional markets through the promotion of eBay on Digital City, a complete guide to activities in the US's largest cities.

The challenges of growth

Exhibit 1 contains eBay's key quarterly financial results from the beginning of 1998 to the third quarter of 2000, indicating its growth and profitability during this period. eBay never had any formal plan to develop the business, but rather took advantage of opportunities as they arose. Opportunistic behaviour was bound by a clear goal to be 'the world's largest P2P online auction company' and a focused strategy with five elements:

- strengthening the eBay brand
- expanding the user base
- broadening the trading platform by increasing product categories and promoting new ones
- fostering community affinity
- enhancing site features and functionality.

International expansion

While the Internet was available to users around the world, trading goods across borders involved difficulties such as currency conversions, different duties, taxes and regulations, as well as high delivery costs. To build their user base and access the users in other countries, eBay needed to open country-specific sites. It started to expand into the international markets early in 1999. The company identified the following possible strategies to enter these new markets:

- building a new user community
- acquiring a company that was already in the local trading market
- partnering with strong local companies.

eBay started its international expansion in the UK and Canada (www.ca.ebay.com). eBay's community in the UK (www.ebay.co.uk) was built from the grassroots by local management with on-line marketing and local events. eBay rolled this service out to Australia (www.ebay.com.au), Japan (www.ebayjapan.co.jp) and France (www.fr.ebay.com).

In March 1999, some German entrepreneurs copied eBay's source code and set up a mirror-image of the eBay site under the name of Alando.de in Germany. The site quickly established itself as the leading on-line trading company among Germany's 10 million Internet users and soon attracted eBay's attention. When it acquired Alando on 22 June 1999, it had 50 000 registered users and 80 000 items listed in 500 categories. The site was later renamed www.ebay.de, which gave German users access to eBay's worldwide community of active buyers and sellers.

eBay launched its local site in Australia in October 1999 in a joint venture with a leading Internet media company in Australia, PBL Online. To promote the launch of the website, eBay Australia waived all listing fees for a limited period and this provided sellers with an even greater reason to list their items on

www.ebay.com.au. In February 2000, eBay Japan was launched as a joint venture with NEC. The deal brought together eBay's unrivalled trading presence and NEC, one of the world's most innovative technology companies with a commanding presence in the Japanese market. As part of the agreement, NEC took an equity stake in eBay Japan and promoted the site in many ways, including through its BIGLOBE ISP, personal computer products and off-line marketing campaigns. The international sites contain:

- country-specific categories and content, reflecting popular local collectibles
- the ability to trade local items in the local currency with content in the local language
- access to a worldwide community of traders. International sellers can list their item so that it can be viewed from any eBay site, and buyers can view items listed anywhere in the world, with items denominated in the local currency and in US dollars
- local discussion boards that allow the country's community to get the most out of the website and a country-specific chat room.

Amazon.com enters the on-line auction market

New competitors in the on-line auction market were surfacing every day, encouraged by the low barriers to entry and eBay's success. The first major competitor was Onsale, which was already an established B2C site. Yahoo!, Lycos, Excite, Microsoft's MSN and many smaller niche competitors followed, but all of them found that attracting buyers and sellers was difficult. Exhibit 5 compares a few of the major on-line auctions sites as at October 2000 by their inventory of listed items, bidding activity, services and fees, design and functionality, customer support and the community.

In April 1999, Amazon.com launched its auction site which was remarkably similar to eBay's and made it easy for buyers and sellers to move across to Amazon. Amazon did not charge any fees for the first few months and offered additional services such as cross-promotion to relevant Amazon retail sites, credit card payments and buyer guarantees by underwriting the risks of a seller failing to send an item or where the item is 'materially different' from the description. Amazon achieved 100 000 auctions per day within a few months, but the number of listings started to fall when Amazon introduced charges. While the services it offered were superior to eBay's, it was not able to break into the market that was already dominated by eBay. One of the sellers summarised his reasons for staying with eBay:

> I've posted auctions on just about every site you can imagine (but) I pretty much stick with eBay. The buyers are there. I'm established there. My feedback rating establishes me as an upstanding member of the community. I don't have those ratings on other sites because I don't do much business on any of them. I'd rather stay where I'm known.[9]

By being the first on-line auction to be able to scale up and acquire a critical mass of buyers and sellers in its community of users, eBay was able to successfully fend off attacks from Internet brands that were better recognised and offered better services. eBay's community of buyers meant that sellers were less likely to move to competitor sites.

Improved customer service required

Following Amazon's launch with superior services, eBay launched services to assist its community with shipping (April 1999), credit card payments, escrow services, electronic stamps and a customer support centre (May 1999). These services were offered by entering into alliances with the following:

- iShip.com provided information to e-merchants and buyers regarding shipping costs and options.
- MBE provided the bricks-and-mortar support for packing and shipping.
- Billpoint facilitated person-to-person credit card payments on the Internet.
- iEscrow enabled buyers to pay an escrow service when they bought an item. This was when a buyer placed money in the custody of a trusted escrow service. The money was then paid to the seller once a specified set of conditions was met, such as the buyer receiving and approving the goods.

Exhibit 5 Auction site competitor comparisons

Auction site	Inventory	Bidding activity	Services & fees	Customer support	Design & functionality	Community
321Gone	○	○	○	●	●	○
Amazon.com	■	○	■	●	■	○
AuctionAddict.com	○	•	●	●	○	○
Auctions.com	●	○	●	●	●	•
Bid.com	•	•	●	●	○	N/A
Bidbay.com	○	•	●	●	○	○
BoxLot	○	○	●	●	●	○
CityAuction	○	○	●	●	●	○
CNET Auctions	●	○	○	○	●	•
Collecting Nation	○	○	●	●	○	●
Comic Exchange	●	○	●	○	●	○
Dell Auction	○	○	●	●	●	•
eBay	■	●	●	○	●	■
edeal	○	○	●	●	○	●
eHammer	●	■	●	●	○	•
eOrbis.com	○	•	●	■	●	•
eRock.net	○	•	○	○	●	●
eWanted.com	○	○	●	●	●	○
Excite Auctions	○	○	■	●	○	•
First Auction	○	●	○	●	●	N/A
Gavelnet.com	○	•	●	○	●	○
GoAuction	●	○	●	●	●	•
Gold's Auction	○	•	■	●	●	●
Go Network Auction	○	•	●	●	●	○
Haggle Online	○	○	●	○	○	○
Lycos Auctions	○	○	●	■	●	○
MSN Auctions	●	○	●	○	●	○
Musichotbid.com	●	•	○	■	○	•
Onsale	●	●	○	●	○	N/A
Popula	○	●	●	●	○	●
Pottery Auction	○	○	●	■	●	○
Sothebys.com	■	●	●	●	●	N/A
SportsAuction	●	N/A	○	●	●	N/A
Teletrade	○	N/A	●	●	○	N/A
uBid	●	●	●	■	●	N/A
Up4Sale	●	○	○	○	●	○
Wantads.com	●	○	●	○	●	•
Xoom.com Auctions	●	○	●	●	●	○
Yahoo Auctions	■	●	●	•	■	○
Yahoo Store	●	N/A	●	○	■	N/A
ZDNet Auction	●	●	●	○	○	○

Excellent = ■, good = ●, average = ○, below average = •.

Source: www.auctionwatch.com/awdaily/reviews/ratings.html, November 2000.

- e-Stamp allowed people to buy and print postage on-line to avoid queues at post offices where sellers needed to hand letters that weigh more than 16 ounces directly to a postal clerk.

eBay established its first remote customer support centre in Salt Lake City in order to stay ahead of the needs of the on-line community. Its main responsibility was to interact via email with the eBay community on a 24-hour basis and provide live customer support on eBay's customer support bulletin boards, such as the 'Support Q&A Board', 'Support Q&A For New Users' and 'Help with Images and HTML'. One user described his experience of eBay's customer support.

> I think we should spread the word for people to start using Amazon.com. Maybe then eBay will increase their customer service and see to it that their system is working instead of pissing people off. No wonder they are offering Billpoint for free. You can't count on it. eBay is not there to help. At least not readily. I have sent 3 emails to support and have heard NOTHING.[10]

eBay still did not have its customer support up to the level of its competitors and this remained a problem for the users.

eBay acquires bricks-and-mortar businesses

With the on-line auction market being so competitive, eBay found it difficult to increase its fees. The only way to increase its revenues was to improve the traffic volumes by deepening the penetration into the North American market, expand internationally and raise the average price of goods sold. On 26 April 1999, eBay announced that it had agreed to acquire San Francisco-based Butterfield & Butterfield (B&B), one of the world's largest and most prestigious auction houses. This acquisition enabled eBay to accelerate its penetration into higher-priced items on a global basis because of B&B's expertise in premium markets and extensive relationships with dealers, auction houses and individuals throughout North America, Europe and Asia. B&B had begun providing auctions over the Internet through its relationship with a local company, but ended the arrangement three weeks prior to the announcement in order to work with eBay. eBay used this acquisition to start its 'great collections' speciality site and other antique categories. Prior to this acquisition, eBay's average auction closed at only about US$47, of which eBay's fee was about US$3. The average B&B auction closed at US$1400, of which the house's fee was almost US$400. Buying into the high-end auction business might not have increased the amount of interaction on the discussion boards or chat rooms, but it promised to boost eBay's revenues. Shortly afterwards, on 18 May 1999, eBay announced that it had acquired Kruse International, one of the world's most respected and well-established brands in the collector automobile market. This strategic acquisition enabled eBay to move into this market and continue to offer higher-priced items to its community. Kruse participated in approximately 40 car auctions each year and had held events in 46 US states, the United Kingdom and Japan. eBay used expertise gained through this acquisition and other alliances with CarClub.com and Autotrader.com to introduce a new automotive section on the eBay site for collectable and other used cars and offer users related additional services.

eBay introduces local sites

To further increase eBay's penetration into higher-priced goods, eBay accessed the market for goods that were difficult to ship long distances, such as cars and large appliances that would have normally been sold through the local newspaper classifieds owing to their size or fragile nature. Late in 1999, eBay launched 'eBay: Go Local' with a campaign called 'from our homepage to your hometown' whereby eBay toured 30 communities across the United States, and introduced a pilot site in Los Angeles. At the end of 1999, there was a local site for 63 cities in the US and others internationally, with a regional flavour in order to connect local buyers and sellers. Buyers could also inspect the goods before they bid. The separate local sites were accessible through the 'Go Local' area on the eBay home page.

eBay Local featured local categories and allowed members to browse through and trade items of local interest, such as memorabilia from popular regional sports teams, political collectibles and antique postcards celebrating the region's heritage. The local site was completely integrated into eBay's worldwide

listings so sellers could list locally while everyone on eBay could see the item.

Computing infrastructure

The aggressive marketing and expansion during late 1998 and early 1999 resulted in rapid increases in demand upon the computing infrastructure that supported the on-line auctions. By the end of June 1999, eBay had 5.6 million registered users and had conducted 29.4 million auctions (about 250 000 per day) with gross merchandise sales of US$622 million during the previous three-month period. The increasing traffic to the website required constant expansion and upgrading of the technology. Frequent site outages and downtime for maintenance was a serious problem for the growing company. A number of the small traders, who depended on eBay for a living, attributed the 'downs' in their business to site crashes, pages not loading, system slowdowns and slow end-of-auction notices. During June 1999, eBay experienced a three-day string of outages because of problems with its server operating system software which corrupted their databases. A report of the event even appeared on the front page of the *New York Times* and it was estimated that these outages cost the company US$3–5 million in refunds to sellers. The share price fell by 25 per cent and the web page viewing figures halved for the week after the outage. Other costs that could not be quantified were the lost revenues from those customers who got frustrated with the site and defected to competitors' sites. eBay instituted an automatic auction extension policy which meant that any outage lasting for two hours or more resulted in an automatic lengthening in the time allowed to place bids. As a result of the outages, Whitman decided to build excess capacity, but she decided that the additional cost would be small when compared to the cost of outages and poor site performance. She set the goal of building the infrastructure to 10 times the required capacity.

In October 1999, eBay outsourced its back-end Internet technology to AboveNet Communications and Exodus Communications. It outsourced its web servers, database servers and Internet routers, and relied on the companies to provide increased network bandwidth for its millions of active buyers and sellers. These companies had front-end web servers that were linked to eBay's proprietary database and application servers and were all located at AboveNet's and Exodus's locations. The servers were located in temperature-controlled facilities with superior fire control, security and redundant power systems, and were housed in seismically braced racks. These companies were also the primary service provider for Yahoo!, Lycos and other major on-line companies.

Expanding the product range

As of August 1999, eBay's brand was recognised by 91 million US adults, compared to 118 million for Amazon.com. eBay's challenge, however, was to turn this awareness of its brand into registered users (7.7 million at the time) and revenues. This was becoming more difficult as new competition was entering the market all the time. In September 1999, FairMarket.com announced that it would form an auction network including Microsoft's MSN, Excite@Home and Lycos. Alta Vista, Xoom.com, Outpost.com, ZDNet, CompUSA and Ticketmaster soon joined the network. Each of the networked sites accessed a single database, so any auction that was listed on one of the sites was automatically listed on all of the other partner sites which increased the number of buyers that was available for each member. The FairMarket network was intended to appeal to the big brand names that did not want their items listed next to collectibles and other 'junk'. The eBay share price dropped 7 per cent on the news. Amazon had also launched its zshops whereby merchants could retail their goods in a fixed-price format which competed with the many small traders who used eBay as their storefront but did not require the sale to be in an auction format.

In order to increase its revenues with this increased competition, eBay acquired Half.com in June 1999, a fixed-price, person-to-person trading marketplace to broaden the buying and selling choices for eBay's trading community and expand eBay's trading platform. Half.com had created an efficient, user-friendly marketplace where buyers and sellers could trade used books, CDs, movies and video games at fixed prices that were at least half of the list price. In the first quarter of 2000, eBay also launched its Business Exchange site, which was to enable small businesses to trade with each other in business-related categories such as computer and industrial equipment, power

tools, office furniture, and consumables such as printer toner. While some business-to-business trading had always taken place on the site, the intention of this site was to expand this and further increase eBay's reach into higher-priced goods.

On 8 February 2000, eBay and the Walt Disney Corporation announced a comprehensive four-year agreement in which eBay would ultimately become the on-line trading service across all of Disney's Internet properties, including the GO Network portal. The companies intended to develop, implement and promote a co-branded person-to-person trading site for the GO Network at www.ebay.go.com. In addition, the companies collaborated on the development of several merchant-to-person trading sites in an auction format for Disney.com, ESPN.com and ABC.com that showcase unique, exclusive and authenticated products, props and memorabilia from throughout The Walt Disney Company, including Walt Disney Studios, Disneyland and Walt Disney World, ESPN Cable Networks and ABC Television.

On 20 November 2000, eBay launched its Application Programming Interface (API) that would allow other companies to display eBay auctions on their independent websites. Companies would be able to subscribe to specific auction and fixed-price categories on the eBay site. eBay had developed the software itself and the software made it easier for programmers to create software applications without having to write all the code for basic features such as screen menus and printing capabilities. eBay executives believed that the syndicated listings would appeal to other Internet commerce and media sites that wanted to give users more shopping options without building their own stores. Websites that wanted eBay listings would not receive any fees of transactions executed through their site unless they owned the listed items. The company believed that it would eventually be able to persuade some sites that already sold goods to replace their in-house e-commerce systems with eBay's technology.

eBay at the end of 2000

eBay had created a convenient, efficient and entertaining marketplace where buyers and sellers could list, bid for and trade goods. eBay was the intermediary and only provided the marketspace for buyers and sellers to trade and did not take any responsibility for the actual transaction. To attract and retain buyers and sellers, eBay gave users access to value-added services that made the transaction simpler. To improve loyalty to the site, eBay had also developed an on-line community where collectors and other users could interact. The site created excitement for buyers who searched for and bid on items that they hoped would be bargain buys. As one customer noted:

> I'd recommend eBay Auction services to everyone! I attend many estate auctions on a regular basis in the Kentucky area. I have found the same thrills on eBay as I do at the real estate public auctions.[11]

Most trading took place in an auction format where the trade took place between the seller and the highest bidder, if the bid was above the reserve price (where applicable). More details of the different auction formats are contained in Exhibit 6. eBay did not take any ownership in or agency for the goods. Its neutrality eliminates some of the concerns that face other businesses, such as sourcing and supplying goods, inventory, responsibility, payment collections or shipping. This was important for eBay to maintain, as implementing systems to perform these functions would have significant costs associated with them and would require additional resources.

Auction aggregators introduce a new threat

At the end of 1999, auction aggregators such as AuctionWatch.com started to pose a threat to individual on-line auctions such as eBay. These sites acted as a portal and they collected data on the auctions that were available on the individual auction sites and displayed similar items from the competing sites together. Buyers could therefore see all of the required items at one time and compare prices. This was a significant threat to eBay, whose success in the past was due to its established community of buyers and sellers choosing eBay over other competitors. eBay installed technical measures to try to block AuctionWatch servers from accessing its website. This only worked for about a month, until AuctionWatch designed software to get through the security features. eBay consequently threatened legal action, claiming that these

Exhibit 6 Comparison of auction formats

Dutch auction: The seller places one or more identical items on sale for a minimum price for a set time. When the auction ends, the highest bidder wins the item(s) at their bid price. Remaining items are sold to other bidders in order of price, quality and time.

Reserve price: The seller lists a 'reserve bid price'. Buyers are allowed to place bids for any amount above or below the reserve price, but the seller has the option to disregard any of the bids below the reserve price. The bidders do not normally know the reserve price.

Express auction: Short timed auctions generally lasting between one-half to one hour. The quick turn-around offers a heightened auction experience.

Reverse auction: The seller and not the buyer bears the risk of not being successful. The buyer lists what is required at the price they are willing to pay for it. Sellers bid for the business. The bidder can remain anonymous, and a maximum price can be established to maintain the price within a budget. This type of auction format is not offered by eBay. Priceline.com is well known for offering reverse auctions.

Sealed bid auctions: Bidders are only aware of the reserve price and bid without knowing the amounts of other incoming bids. All bids are automatically opened at the end date of the auction and the highest bidder wins.

Sniping: Placing a bid in the closing minutes or seconds of an auction. Any bid placed before the auction ends is allowed on eBay but not on some other sites.

Proxy bidding: Placing a proxy bid at the maximum limit users are willing to bid for an item will result in the system bidding on the bidder's behalf each time a new bidder places a bid. The system will ensure that the proxy bidder's bid is one increment higher than the previous bid until the user's maximum limit is reached.

Source: Various.

sites were illegally accessing its site, making unauthorised copies of its content, and displaying the content in incomplete and confusing ways. While the users provided most of the content on its site, such as item descriptions and photographs, eBay maintained that the content that it generated (number of bids, length of the auction, etc.) was its property.

Counterfeit, illegal and other questionable listings

While on-line publishers are responsible for the content of their sites as an on-line venue, eBay was not, according to the *Digital Millennium Copyright Act* (DMCA) of 1998. People were, however, selling illegal items such as human kidneys, marijuana and counterfeit software, and controversial items such as Nazi memorabilia and pornographic material. While eBay had adopted a hands-off approach to what its customers sold on the site, Shultz advised the board that these items affected the character of the company. eBay consequently changed its description to a 'venue where anybody can sell practically anything on earth' and issued a list of items that were restricted on the site.

eBay had faced several lawsuits questioning the eBay business model where people claimed that eBay should take responsibility for the authenticity of items sold on the site. An example of this was where eBay was sued by someone who bought a collector's baseball card that turned out to be a fake. Checking every item that is listed on the site would have required an army of content checkers, and if eBay had tried to verify the legality of all of the items it probably would have been liable for those items that slipped through its inspections. On 21 November 2000, a French judge ordered Yahoo! to block French users from visiting websites that sold Nazi memorabilia. This ruling meant that all websites would be subject to the laws and norms of all other countries in the world, which was a move away from the US-inspired openness and freedom ethos. Critics suspected that this ruling may have prompted other governments to police websites in an attempt to get them to comply with their local laws.

Exhibit 7 Websites' audiences and average time per month

Ranking	Website	Unique audience ('000)	Time per person (hrs:min:sec)
1	AOL Websites	64 744	00:43:29
2	Yahoo!	63 720	01:41:00
3	MSN	51 424	01:19:37
4	Microsoft	34 614	00:12:31
5	Lycos Network	33 708	00:21:28
6	Excite@Home	32 085	00:35:09
7	Walt Disney Internet Group	27 076	00:33:41
8	Time Warner	23 250	00:24:14
9	About the Human Internet	22 262	00:10:45
10	Amazon	21 837	00:16:06
11	AltaVista	18 560	00:21:41
12	CNET Networks	18 525	00:16:06
13	NBC Internet	18 423	00:14:51
14	**eBay**	**17 010**	**02:10:49**
15	eUniverse Network	16 003	00:18:01
16	LookSmart	15 840	00:07:39
17	Ask Jeeves	14 671	00:10:30
18	Real Network	12 265	00:06:46
19	American Greetings	11 856	00:11:49
20	Earthlink	11 602	00:17:15
21	AT&T	11 196	00:15:45
22	Uproar	11 113	00:42:35
23	The Go2Net Network	10 752	00:13:25
24	GoTo.com	10 564	00:04:15
25	Viacom International	10 178	00:14:21

Source: Nielsen NetRatings.

Exhibit 8 Comparison of financial performance of dotcoms

Performance measure	eBay	Yahoo!	Priceline	Amazon
Revenues[1] (mn)	113.4	295.5	341.3	637.9
Net income[1] (mn)	15.2	47.7	(191.9)	(240.5)
Gross margin[2] (%)	74.58	85.45	15.40	21.06
Operating margin[2] (%)	2.35	27.46	–97.04	–33.08
Profit margin[2] (%)	7.50	21.33	–96.18	–35.79
Recent share price[3]	36.94	40.88	2.53	28.94
Market capitalisation[3] (mn)	9 895.62	22 825.54	426.50	10 306.96
Number of employees[4]	138	1 992	373	7 600

Source: www.marketguide.com, November 2000.

Notes:

1 All amounts in US dollars.

2 Revenue and net income for three months to 30 September 2000.

3 Margins for 12 months to 30 September 2000.

4 Share price as at 24 November 2000.

5 Employees as at 31 December 1999.

The future

In the third quarter of 2000, US$1.4 billion worth of goods were traded on eBay in 68.5 million auctions, which generated US$113.4 million of revenue and US$15.2 million in net profit for the company. At the end of September 2000, eBay had 18.9 million registered users. When releasing these results, eBay announced a revenue goal of US$3 billion in 2005, with sites in 25 countries, representing the majority of the world's Internet users. Exhibit 7 gives the Nielsen NetRatings of the top 25 websites for October 2000 (combined at-home and at-work data), where eBay received 17 million unique visitors who spent an average of 2 hours 10 minutes on the site for the month. What was important to Whitman was the fact that eBay was making a profit, while many other e-commerce companies were making significant losses while building their user base and establishing distribution networks (see Exhibit 8).

However, on 20 November 2000, Lehman Brothers downgraded eBay's share from a 'buy' to a 'neutral', citing eBay's 'aggressive 2005 sales projection' as a concern. The share price fell 20 per cent on the news. The analyst at Lehman Brothers said that eBay's core business was slowing down and that the new business initiatives were more costly than initial estimates. The staff complement had increased with the growth, which meant that the company was being challenged to maintain the culture and values among the new recruits. Whitman knew that her greatest challenge would be to keep eBay focused while growing the company. Considering the share downgrade, Whitman was sure that the analyst was over-reacting on the forecasts. Over the past five years, eBay had been an example of e-commerce success for Internet and bricks-and-mortar companies alike. It had transformed the auction business, which had allowed it to become the world's largest P2P on-line auction company, achieving a higher value than many established Fortune 500 companies. Overcoming challenges was an everyday part of the environment, for which eBay had set the example. But the future may bring as many threats as previously there were opportunities.

Exhibit 9 A brief history of auctions

The auction format of selling emerged almost from the beginning of time, when people first began to barter trade with each other. The word 'auction' is derived from a Latin word, which means a gradual increase.

The earliest record of an organised auction was of the annual marriage market of Babylon in about 500 BC. Once a year the men of Babylon would gather around while a herald (auctioneer) would accept bids for maidens. The herald would begin the auction with the most '*beautiful*' girls and work his way through to the '*ugliest*'. Ancient Romans also auctioned goods. One of the most astonishing auctions in history occurred in the year AD 193 when no less than the entire Roman Empire was 'tossed on the block' by the Praetorian Guard. First they killed Pertinax, the emperor, and then they announced that the highest bidder could claim the empire. As the Roman Empire came to an end, there were fewer and fewer auctions.

The earliest reference to the auction as practised in Great Britain is from 1595, but there are no more references until the end of the 17th century. At that time, auctions were held in taverns and coffee houses to sell art. At the beginning of the 17th century, four types of auctions developed which shaped how current auctions are conducted today. The four types were:

1. Auctions using a 'hammer' as we know it today.
2. *Hourglass auctions:* Bids were accepted until the last grain of sand was left at the top of the hourglass. The last bid called before the glass was empty, won.
3. *Candle auction:* The same idea as the hourglass auction.
4. *Dutch auction:* This is when the auctioneer begins at a higher price and quotes smaller and smaller bids until there is a buyer.

Sotheby's and Christies were founded in 1744 and 1766, respectively.

Sources: www.bendisauctions.com/orgin.htm; http://iml.jou.ufl.edu/projects/Spring2000/McKenzie/History.html; www.webcom.com/agorics/auctions/auction9.html.

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Case 4

Gillette and the men's wet-shaving market

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SAN FRANCISCO

On a spring morning in 1989, Michael Johnson dried himself and stepped from the shower in his San Francisco Marina District condominium. He moved to the sink and started to slide open the drawer in the cabinet beneath the sink. Then he remembered that he had thrown away his last Atra blade yesterday. He heard his wife, Susan, walk past the bathroom.

'Hey, Susan, did you remember to pick up some blades for me yesterday?'

'Yes, I think I put them in your drawer.'

'Oh, okay, here they are.' Michael saw the bottom of the blade package and pulled the drawer open.

'Oh, no! These are Trac II blades, Susan, I use an Atra.'

'I'm sorry. I looked at all the packages at the drugstore, but I couldn't remember which type of razor you have. Can't you use the Trac II blades on your razor?'

'No. They don't fit.'

'Well, I bought some disposable razors. Just use one of those.'

'Well, where are they?'

'Look below the sink. They're in a big bag.'

'I see them. Wow, 10 razors for $1.97! Must have been on sale.'

'I guess so. I usually look for the best deal. Seems to me that all those razors are the same, and the drugstore usually has one brand or another on sale.'

'Why don't you buy some of those shavers made for women?'

'I've tried those, but it seems that they're just like the ones made for men, only they've dyed the plastic pink or some pastel colour. Why should I pay more for colour?'

'Why don't you just use disposables?' Susan continued. 'They are simpler to buy, and you just throw them away. And you can't beat the price.'

'Well, the few times I've tried them they didn't seem to shave as well as a regular razor. Perhaps they've improved. Do they work for you?'

'Yes, they work fine. And they sure are better than the heavy razors if you drop one on your foot while you're in the shower!'

'Never thought about that. I see your point. Well, I'll give the disposable a try.'

History of shaving

Anthropologists do not know exactly when or even why men began to shave. Researchers do know that prehistoric cave drawings clearly present men who were beardless. Apparently these men shaved with clamshells or sharpened animal teeth. As society developed, primitive men learned to sharpen flint implements. Members of the early Egyptian dynasties as far back as 7000 years ago shaved their faces and heads, probably to deny their enemies anything to grab during hand-to-hand combat. Egyptians later fashioned copper razors and, in time, bronze blades. Craftsmen formed these early razors as crescent-shaped knife blades, like hatchets or meat cleavers, or even as circular blades with a handle extending from the centre. By the Iron Age, craftsmen were able to fashion blades that were considerably more efficient than the early flint, copper and bronze versions.

Before the introduction of the safety razor, men used a straight-edged, hook-type razor and found shaving a tedious, difficult and time-consuming task. The typical man struggled through shaving twice a week at most. The shaver had to sharpen the blade (a process called stropping) before each use and had to have an expert cutler hone the blade each month. As a result, men often cut themselves while shaving; and few men had the patience and acquired the necessary skill to become good shavers. Most men in the 1800s agreed with the old Russian proverb: 'It is easier to bear a child once a year than to shave every day.' Only the rich could afford a daily barber shave, which also often had its disadvantages because many barbers were unclean.

Before King C. Gillette of Boston invented the safety razor in 1895, he tinkered with other inventions in pursuit of a product which, once used, would be thrown away. The customer would have to buy more, and the business would build a long-term stream of sales and profits with each new customer.

'On one particular morning when I started to shave,' wrote Gillette about the dawn of his invention, 'I found my razor dull, and it was not only dull but beyond the point of successful stropping and it needed honing, for which it must be taken to a barber or cutler. As I stood there with the razor in my hand, my eyes resting on it as lightly as a bird settling down on its nest, the Gillette razor was born.' Gillette immediately wrote to his wife, who was visiting relatives, 'I've got it; our fortune is made.'

Gillette had envisioned a 'permanent' razor handle on to which the shaver placed a thin, razor 'blade' with two sharpened edges. The shaver would place a top over the blade and attach it to the handle so that only the sharpened edges of the blade were exposed, thus producing a 'safe' shave. A man would shave with the blade until it became dull and then would simply throw the used blade away and replace it. Gillette knew his concept would revolutionise the process of shaving; however, he had no idea that his creation would permanently change men's shaving habits.

Shaving in the 1980s

Following the invention of the safety razor, the men's shaving industry in the United States grew slowly but surely through the First World War. A period of rapid growth followed, and the industry saw many product innovations. By 1989, US domestic razor and blade sales (the wet-shave market) had grown to a US$770 million industry. A man could use three types of wet shavers to remove facial hair. Most men used the disposable razor – a cheap, plastic-handled razor that lasted for eight to 10 shaves on average. Permanent razors, called blade and razor systems, were also popular. These razors required new blades every 11 to 14 shaves. Customers could purchase razor handles and blade cartridges together, or they could purchase packages of blade cartridges as refills. The third category of wet shavers included injector and double-edge razors and accounted for a small share of the razor market. Between 1980 and 1988, disposable razors had risen from a 22 per cent to a 41.5 per cent market share of dollar sales. During the same period, cartridge systems had fallen from 50 per cent to 45.8 per cent and injector and double-edge types had fallen from 28 per cent to 12.7 per cent. In addition, the development of the electric razor had spawned the dry-shave market, which accounted for about US$250 million in sales by 1988.

Despite the popularity of disposable razors, manufacturers found that the razors were expensive to make and generated very little profit. In 1988, some industry analysts estimated that manufacturers

earned three times more on a razor and blade system than on a disposable razor. Also, retailers preferred to sell razor systems because they took up less room on display racks and the retailers made more money on refill sales. However, retailers liked to promote disposable razors to generate traffic. As a result, US retailers allocated 55 per cent of their blade and razor stock to disposable razors, 40 per cent to systems and 5 per cent to double-edge razors.

Electric razors also posed a threat to razor and blade systems. Unit sales of electric razors jumped from 6.2 million in 1981 to 8.8 million in 1987. Low-priced imports from the Far East drove demand for electric razors up and prices down during this period. Nonetheless, fewer than 30 per cent of men used electric razors, and most of these also used wet-shaving systems.

Industry analysts predicted that manufacturers' sales of personal care products would continue to grow. However, the slowing of the overall US economy in the late 1980s meant that sales increases resulting from an expanding market would be minimal and companies would have to fight for market share to continue to increase sales.

By 1988 the Gillette Company dominated the wet-shave market with a 60 per cent share of worldwide razor market revenue and a 61.9 per cent share of the US market. Gillette also had a stake in the dry-shave business through its Braun subsidiary. The other players in the wet-shave market were Schick with 16.2 per cent of market revenues, BIC with 9.3 per cent, and others, including Wilkinson Sword, with the remaining 12.6 per cent.

The Gillette Company

King Gillette took eight years to perfect his safety razor. In 1903, the first year of marketing, the American Safety Razor Company sold 51 razors and 168 blades. Gillette promoted the safety razor as a saver of both time and money. Early ads proclaimed that the razor would save US$52 and 15 days' shaving time each year and that the blades required no stropping or honing. During its second year, Gillette sold 90 884 razors and 123 648 blades. By its third year, razor sales were rising at a rate of 400 per cent per year, and blade sales were booming at an annual rate of 1000 per cent. In that year, the company opened its first overseas branch in London.

Such success attracted much attention, and competition quickly developed. By 1906, consumers had at least a dozen safety razors from which to choose. The Gillette razor sold for US$5, as did the Zinn razor made by the Gem Cutlery Company. Others, such as the Ever Ready, Gem Junior and Enders, sold for as little as US$1.

With the benefit of a 17-year patent, Gillette found himself in a very advantageous position. However, it was not until the First World War that the safety razor gained wide consumer acceptance. One day in 1917, King Gillette had a visionary idea: have the government present a Gillette razor to every soldier, sailor and marine. In this way, millions of men just entering the shaving age would adopt the self-shaving habit. By March 1918, Gillette had booked orders from the US military for 519 750 razors, more than it had sold in any single year in its history. During the First World War, the government bought 4 180 000 Gillette razors as well as smaller quantities of competitive models.

Although King Gillette believed in the quality of his product, he realised that marketing, especially distribution and advertising, would be the key to success. From the beginning, Gillette set aside 25 cents per razor for advertising and by 1905 had increased the amount to 50 cents. Over the years, Gillette used cartoon ads, radio shows, musical slogans and theme songs, prizes, contests and cross-promotions to push its products. Perhaps, however, consumers best remember Gillette for its Cavalcade of Sports programs that began in 1939 with the company's sponsorship of the World Series. Millions of men soon came to know Sharpie the Parrot and the tag line, 'Look Sharp! Feel Sharp! Be Sharp!'

Gillette had always been an industry innovator. In 1932, Gillette introduced the Gillette Blue Blade, which was the premier men's razor for many years. In 1938, the company introduced the Gillette Thin Blade; in 1946, it introduced the first blade dispenser that eliminated the need to unwrap individual blades; in 1959, it introduced the first silicone-coated blade, the Super Blue Blade. The success of the Super Blue Blade caused Gillette to close 1961 with a commanding 70 per cent share of the overall razor and blade

market and a 90 per cent share of the double-edge market, the only market in which it competed.

In 1948, Gillette began to diversity into new markets through acquisition. The company purchased the Toni Company to extend its reach into the women's grooming-aid market. In 1954, the company bought Paper Mate, a leading marker of writing instruments. In 1962, it acquired the Sterilon Corporation, which manufactured disposable hospital supplies. As a result of these moves, a marketing survey found that the public associated Gillette with personal grooming as much as, or more than, with blades and razors.

In 1988, the Gillette Company was a leading producer of men's and women's grooming aids. Exhibit 1 lists the company's major divisions. Exhibits 2 and 3 show the percentages and dollar volumes of net sales

Exhibit 1 Gillette product lines by company division, 1988

Blades and razors	Stationery products	Toiletries and cosmetics	Oral B products	Braun products
Trac II	Paper Mate	Adorn	Oral B toothbrushes	Electric razors
Atra	Liquid Paper	Toni		Lady Elegance
Good News	Flair	Right Guard		Clocks
	Waterman	Silkience		Coffee grinders and makers
	Write Bros.	Soft and Dri		
		Foamy		
		Dry Look		
		Dry Idea		
		White Rain		
		Lustrasilk		

Exhibit 2 Gillette's sales and operating profits by product line, 1986–88 (US$mn)

	1988		1987		1986	
Product line	Sales	Profits	Sales	Profits	Sales	Profits
Blades and razors	$1 147	$406	$1 031	$334	$903	$274
Toiletries and cosmetics	1 019	79	926	99	854	69
Stationery products	385	56	320	34	298	11
Braun products	824	85	703	72	657	63
Oral B	202	18	183	7	148	8
Other	5	(0.1)	4	2	48	(1)
Totals	$3 582	$643	$3 167	$548	$2 908	$424

Source: Gillette Company Annual Reports, 1985–88.

Exhibit 3 Gillette's net sales and profit by business, 1984–88 (per cent)

	Blades and razors		Toiletries and cosmetics		Stationery products		Braun products		Oral B products	
Year	Sales	Profits	Sales	Profits	Sales	Profits	Sales	Profits	Sales	Profits
1988	32	61	28	14	11	9	23	13	6	3
1987	33	61	29	18	10	6	22	13	6	2
1986	32	64	30	16	11	3	20	15	5	2
1985	33	68	31	15	11	2	17	13	6	3
1984	34	69	30	15	12	3	17	12	3	2

Source: Gillette Company Annual Reports, 1985–88.

and profits from operations for each of the company's major business segments. Exhibits 4 and 5 present income statements and balance sheets for 1986–88.

Despite its diversification, Gillette continued to realise the importance of blade and razor sales to the company's overall health. Gillette had a strong foothold in the razor and blade market, and it intended to use this dominance to help it achieve the company's goal – 'sustained profitable growth'. To reach this goal, Gillette's mission statement indicated that the company should pursue 'strong technical and marketing efforts to assure vitality in major existing product lines; selective diversification, both internally and through acquisition; the elimination of product and business areas with low growth or limited profit potential; and strict control over product costs, overhead expenses, and working capital'.

Gillette introduced a number of innovative shaving systems in the 1970s and 1980s as part of its strategy to sustain growth. Gillette claimed that Trac II, the first twin-blade shaver, represented the most revolutionary shaving advance ever. The development of the twin-blade razor derived from shaving researchers' discovery that shaving causes whiskers to be briefly lifted up out of the follicle during shaving, a process called 'hysteresis' by technicians. Gillette invented the twin-blade system so that the first blade would cut the whisker and the second blade would cut it again before it receded. This system produced a closer shave than a traditional one-blade system. Gillette also developed a clog-free, dual-blade cartridge for the Trac II system.

Because consumer test data showed a 9-to-1 preference for Trac II over panellists' current razors, Gillette raced to get the product to market. Gillette supported Trac II's 1971 introduction, which was the largest new product introduction in shaving history, with a US$10 million advertising and promotion budget. Gillette cut its advertising budgets for its other brands drastically to support Trac II. The double-edge portion of the advertising budget decreased from 47 per cent in 1971 to 11 per cent in 1972. Gillette reasoned that growth must come at the expense of other brands. Thus, it concentrated its advertising and promotion on its newest shaving product and reduced support for its established lines.

Gillette launched Trac II during a World Series promotion and made it the most frequently advertised shaving system in America during its introductory period. Trac II users turned out to be predominantly young, college-educated men who lived in metropolitan and suburban areas and earned higher incomes.

Exhibit 4 Gillette income statements, 1986–88 (US$mn except for per share and stock price data)

	1988	1987	1986
Net sales	$3 581.2	$3 166.8	$2 818.3
Cost of sales	1 487.4	1 342.3	1 183.8
Other expenses	1 479.8	1 301.3	1 412.0
Operating income	614.0	523.2	222.5
Other income	37.2	30.9	38.2
Earnings before interest and tax	651.2	545.1	260.7
Interest expense	138.3	112.5	85.2
Non-operating expense	64.3	50.1	124.0
Earnings before tax	448.6	391.5	51.5
Tax	180.1	161.6	35.7
Earnings after tax	268.5	229.9	15.8
Earnings per share	2.45	2.00	0.12
Average common shares outstanding (000)	109 559	115 072	127 344
Dividends paid per share	$0.86	$0.785	$0.68
Stock price range			
High	$49	$45 7/8	$34 1/2
Low	$29 1/8	$17 5/8	$17 1/8

Source: Gillette Company Annual Reports, 1986–88.

Exhibit 5 Gillette balance sheets, 1986–88 (US$mn)

		1988	1987	1986
Assets	Cash	$156.4	$119.1	$94.8
	Receivables	729.1	680.1	608.8
	Inventories	653.4	594.5	603.1
	Other current assets	200.8	184.5	183.0
	Total current assets	1 739.7	1 578.2	1 489.7
	Fixed assets, net	683.1	664.4	637.3
	Other assets	445.1	448.6	412.5
	Total assets	**2 867.9**	**2 731.2**	**2 539.5**
Liabilities and equity	Current liabilities*	965.4	960.5	900.7
	Long-term debt	1 675.2	839.6	915.2
	Other long-term liabilities	311.9	331.7	262.8
	Equity†	$ (84.6)	$ 599.4	$ 460.8

* Includes current portion of long-term debt: 1988 = $9.6, 1987 = $41.0, 1986 = $7.6.

† Includes retained earnings: 1988 = $1261.6, 1987 = $1 083.8, 1986 = $944.3.

Source: Gillette Company Annual Reports, 1986–88.

As the fastest-growing shaving product on the market for five years, Trac II drove the switch to twin blades. The brand reached its peak in 1976 when consumers purchased 485 million blades and 7 million razors.

Late in 1976, Gillette, apparently in response to BIC's pending entrance into the US market, launched Good News!, the first disposable razor for men sold in the United States. In 1975, BIC had introduced the first disposable shaver in Europe; and by 1976 BIC had begun to sell disposable razors in Canada. Gillette realised that BIC would move its disposable razor into the United States after its Canadian introduction, so it promptly brought out a new blue plastic disposable shaver with a twin-blade head. By year's end, Gillette also made Good News! available in Austria, Canada, France, Italy, Switzerland, Belgium, Greece, Germany and Spain.

Unfortunately for Gillette, Good News! was really bad news. The disposable shaver delivered lower profit margins than razor and blade systems, and it undercut sales of other Gillette products. Good News! sold for much less than the retail price of a Trac II cartridge. Gillette marketed Good News! on price and convenience, not performance; but the company envisioned the product as a step-up item leading to its traditional high-quality shaving systems.

This contain-and-switch strategy did not succeed. Consumers liked the price and the convenience of disposable razors, and millions of Trac II razors began to gather dust in medicine chests across the country. Many Trac II users figured out that for as little as 25 cents, they could get the same cartridge mounted on a plastic handle that they had been buying for 56 cents to put on their Trac II handle. Further, disposable razors created an opening for competitors in a category that Gillette had long dominated.

Gillette felt sure, however, that disposable razors would never gain more than a 7 per cent share of the market. The disposable razor market share soon soared past 10 per cent, forcing Gillette into continual upward revisions of its estimates. In terms of units sold, disposable razors reached a 22 per cent market share by 1980 and a 50 per cent share by 1988.

BIC's and Gillette's successful introduction of the disposable razor represented a watershed event in 'commoditisation' – the process of converting well-differentiated products into commodities. Status, quality and perceived value had always played primary roles in the marketing of personal care products. But consumers were now showing that they would forgo performance and prestige in a shaving product – about as close and personal as one can get.

In 1977, Gillette introduced a new blade and razor system at the expense of Trac II. It launched Atra with a US$7 million advertising campaign and over 50 million US$2 rebate coupons. Atra (which stands for Automatic Tracking Razor Action) was the first twin-blade shaving cartridge with a pivoting head. Engineers had designed the head to follow a man's facial contours for a closer shave. Researchers began developing the product in Gillette's UK research and development lab in 1970. They had established a goal of improving the high-performance standards of twin-blade shaving and specifically enhancing the Trac II effect. The company's scientists discovered that moving the hand and face was not the most effective way to achieve the best blade–face shaving angle. The razor head itself produced a better shave if it pivoted so as to maintain the most effective shaving angle. Marketers selected the name 'Atra' after two years of extensive consumer testing.

Atra quickly achieved a 7 per cent share of the blade market and about one-third of the razor market. The company introduced Atra in Europe a year later under the brand name 'Contour'. Although Atra increased Gillette's share of the razor market, 40 per cent of Trac II users switched to Atra in the first year.

In the early 1980s, Gillette introduced most of the new disposable razors and product enhancements. Both Swivel (launched in 1980) and Good News! Pivot (1984) were disposable razors featuring movable heads. Gillette announced Atra Plus (the first razor with the patented Lubra-smooth lubricating strip) in 1985 just as BIC began to move into the United States from Canada with the BIC shaver for sensitive skin. A few months later, Gillette ushered in Micro Trac – the first disposable razor with an ultra-slim head. Gillette priced the Micro Trac lower than any other Gillette disposable razor. The company claimed to have designed a state-of-the-art manufacturing process for Micro Trac. The process required less plastic, thus minimising bulk and reducing manufacturing costs. Analysts claimed that Gillette was trying to bracket the market with Atra Plus (with a retail price of US$3.99 to US$4.95) and Micro Trac (US$0.99), and protect its market share with products on both ends of the price and usage scale. Gillette also teased Wall Street with hints that, by the end of 1986, it would be introducing yet another state-of-the-art shaving system that could revolutionise the shaving business.

Despite these product innovations and introductions in the early 1980s, Gillette primarily focused its energies on its global markets and strategies. By 1985, it was marketing 800 products in more than 200 countries. The company felt a need at this time to coordinate its marketing efforts, first regionally and then globally.

Unfortunately for Gillette's management team, others noticed its strong international capabilities. Ronald Perelman, chairman of the Revlon Group, attempted an unfriendly takeover in November 1986. To fend off the takeover, Gillette bought back 9.2 million shares of its stock from Perelman and saddled itself with additional long-term debt to finance the stock repurchase. Gillette's payment to Perelman increased the company's debt load from US$827 million to US$1.1 billion, and put its debt-to-equity ratio at 70 per cent. Gillette and Perelman signed an agreement preventing Perelman from attempting another takeover until 1996.

In 1988, just as Gillette returned its attention to new product development and global marketing, Coniston Partners, after obtaining 6 per cent of Gillette's stock, engaged the company in a proxy battle for four seats on its 12-person board. Coniston's interest had been piqued by the Gillette–Perelman US$549 million stock buyback and its payment of US$9 million in expenses to Perelman. Coniston and some shareholders felt Gillette's board and management had repeatedly taken actions that prohibited its shareholders from realising their shares' full value. When the balloting concluded, Gillette's management won by a narrow margin – 52 to 48 per cent. Coniston made US$13 million in the stock buyback program that Gillette offered to all shareholders, but Coniston agreed not to make another run at Gillette until 1991. This second takeover attempt forced Gillette to increase its debt load to US$2 billion and pushed its total equity negative to (US$84.6 million).

More importantly, both takeover battles forced Gillette to 'wake up'. Gillette closed or sold its Jafra Cosmetics operations in 11 countries and jettisoned weak operations such as Misco, Inc. (a computer supplies business), and S.T. Dupont (a luxury lighter,

clock and watchmaker). The company also thinned its workforce in many divisions, such as its 15 per cent staff reduction at the Paper Mate pen unit. Despite this pruning, Gillette's sales for 1988 grew 13 per cent to US$3.6 billion, and profits soared 17 per cent to US$268 million.

Despite Gillette's concentration on fending off takeover attempts, it continued to enhance its razor and blade products. In 1986, it introduced the Contour Plus in its first pan-European razor launch. The company marketed Contour Plus with one identity and one strategy. In 1988, the company introduced Trac II Plus, Good News! Pivot Plus and Daisy Plus – versions of its existing products with the Lubrasmooth lubricating strip.

Schick

Warner-Lambert's Schick served as the second major competitor in the wet-shaving business. Warner-Lambert, incorporated in 1920 under the name William R. Warner & Company, manufactured chemicals and pharmaceuticals. Numerous mergers and acquisitions over 70 years resulted in Warner-Lambert's involvement in developing, manufacturing and marketing a widely diversified line of beauty, health and well-being products. The company also became a major producer of mints and chewing gums, such as Dentyne, Sticklets and Trident. Exhibit 6 presents a list of Warner-Lambert's products by division as of 1988.

Warner-Lambert entered the wet-shaving business through a merger with Eversharp in 1970. Eversharp, a long-time competitor in the wet-shave industry, owned the Schick trademark and had owned the Paper Mate Pen Company prior to selling it to Gillette in 1955. Schick's razors and blades produced US$180 million in revenue in 1987, or 5.2 per cent of Warner-Lambert's worldwide sales. (Refer to Exhibit 7 for operating results by division, and Exhibits 8 and 9 for income statement and balance sheet data.)

In 1989, Schick held approximately a 16.2 per cent US market share, down from its 1980 share of 23.8 per cent. Schick's market share was broken down as follows: blade systems, 8.8 per cent; disposable razors, 4.1 per cent; and double-edged blades and injectors, 3.3 per cent.

Schick's loss of market share in the 1980s occurred for two reasons. First, even though Schick pioneered the injector razor system (it controlled 80 per cent of this market by 1979), it did not market a disposable razor until mid-1984 – eight years after the first disposable razors appeared. Second, for years Warner-Lambert had been channelling Schick's cash flow to its research and development in drugs.

In 1986, the company changed its philosophy: it allocated US$70 million to Schick for a three-year

Exhibit 6 Warner-Lambert product lines by company division, 1988

Ethical pharmaceuticals	Gums and mints	Non-prescription products	Other products
Parke-Davis drugs	Dentyne	Benadryl	Schick razors
	Sticklets	Caladryl	Ultrex razors
	Beemans	Rolaids	Personal Touch
	Trident	Sinutab	Tetra Aquarium
	Freshen-up	Listerex	
	Bubblicious	Lubraderm	
	Chiclets	Anusol	
	Clorets	Tucks	
	Certs	Halls	
	Dynamints	Benylin	
	Junior Mints	Listerine	
	Sugar Daddy	Listermint	
	Sugar Babies	Efferdent	
	Charleston Chew	Effergrip	
	Rascals		

Source: *Moody's Industrial Manual*.

Exhibit 7 Warner-Lambert's net sales and operating profit by division, 1985–88 (US$mn)

		Net sales				Operating profit/(loss)			
Division		**1988**	**1987**	**1986**	**1985**	**1988**	**1987**	**1986**	**1985**
Healthcare	Ethical products	$1 213	$1 093	$ 964	$ 880	$ 420	$ 351	$ 246	$ 224
	Non-prescription products	1 296	1 195	1 077	992	305	256	176	177
	Total healthcare	2 509	2 288	2 041	1 872	725	607	422	401
	Gums and mints	918	777	678	626	187	173	122	138
	Other products*	481	420	384	334	92	86	61	72
Divested businesses									(464)
	R&D					(259)	(232)	(202)	(208)
	Net sales and operating profit	3 908	3 485	3 103	3 200	745	634	599	(61)

* Other products include Schick razors, which accounted for US$180 million in revenue in 1987.

Source: Warner-Lambert Company Annual Report, 1987; *Moody's Industrial Manual.*

Exhibit 8 Warner-Lambert income statements, 1986–88 (US$000)

	1988	**1987**	**1986**
Net sales	$3 908 400	$3 484 700	$3 102 918
Cost of sales	1 351 700	1 169 700	1 052 781
Other expenses	2 012 100	1 819 800	1 616 323
Operating income	544 600	495 200	433 814
Other income	61 900	58 500	69 611
Earnings before interest and tax	606 500	553 700	503 425
Interest expense	68 200	60 900	66 544
Earnings before tax	538 300	492 800	436 881
Tax	198 000	197 000	136 297
Non-recurring item	–	–	8 400
Earnings after tax	340 000	295 800	308 984
Retained earnings	1 577 400	1 384 100	1 023 218
Earnings per share	5.00	4.15	4.18
Average common shares outstanding (000)	68 035	71 355	73 985
Dividends paid per share	2.16	1.77	1.59
Stock price range			
High	$79 1/2	$87 1/2	$63 1/8
Low	$59 7/8	$48 1/4	$45

Source: *Moody's Industrial Manual.*

period and granted Schick its own sales force. In spite of Schick's loss of market share, company executives felt they had room to play catch-up, especially by exploiting new technologies. In late 1988, Schick revealed that it planned to conduct 'guerrilla warfare' by throwing its marketing resources and efforts into new technological advances in disposable razors. As a result, Warner-Lambert planned to allocate the bulk of its US$8 million razor advertising budget to marketing its narrow-headed disposable razor, Slim Twin, which it introduced in August 1988.

Schick believed that the US unit demand for disposable razors would increase to 55 per cent of the market by the early 1990s from its 50 per cent share in 1988. Schick executives based this belief on their feeling that men would rather pay 30 cents for a

Exhibit 9 Warner-Lambert balance sheets, 1986–88 (US$000)

		1988	1987	1986
Assets	Cash	$176 000	$24 100	$26 791
	Receivables	525 200	469 900	445 743
	Inventories	381 400	379 000	317 212
	Other current assets	181 300	379 600	720 322
	Total current assets	1 264 500	1 252 600	1 510 068
	Fixed assets, net	1 053 000	959 800	819 291
	Other assets	385 300	263 500	186 564
	Total assets	2 702 800	2 475 900	2 515 923
Liabilities and equity	Current liabilities*	1 025 200	974 300	969 806
	Current portion of long-term debt	7 100	4 200	143 259
	Long-term debt	318 200	293 800	342 112
	Equity	$ 998 600	$ 874 400	$ 907 322

* Includes current portion of long-term debt.

Source: *Moody's Industrial Manual.*

disposable razor than 75 cents for a refill blade. In 1988, Schick held an estimated 9.9 per cent share of dollar sales in the disposable razor market.

Schick generated approximately 67 per cent of its revenues overseas. Also, it earned higher profit margins on its non-domestic sales – 20 per cent versus its 15 per cent domestic margin. Europe and Japan represented the bulk of Schick's international business, accounting for 38 per cent and 52 per cent, respectively, of 1988's overseas sales. Schick's European business consisted of 70 per cent systems and 29 per cent disposable razors, but Gillette's systems and disposable razor sales were 4.5 and 6 times larger, respectively.

However, Schick dominated in Japan. Warner-Lambert held over 60 per cent of Japan's wet-shave market. Although Japan had typically been an electric shaver market (55 per cent of Japanese shavers use electric razors), Schick achieved an excellent record and reputation in Japan. Both Schick and Gillette entered the Japanese market in 1962; and their vigorous competition eventually drove Japanese competitors from the industry, which by 1988 generated US$190 million in sales. Gillette's attempt to crack the market flopped because it tried to sell razors using its own salespeople, a strategy that failed because Gillette did not have the distribution network available to Japanese companies. Schick, meanwhile, chose to leave the distribution to Seiko Corporation. Seiko imported razors from the United States and then sold them to wholesalers nationwide. By 1988, Schick generated roughly 40 per cent of its sales and 35 per cent of its profits in Japan. Disposable razors accounted for almost 80 per cent of those figures.

BIC Corporation

The roots of the BIC Corporation, which was founded by Marcel Bich in the United States in 1958, were in France. In 1945, Bich, who had been the production manager for a French ink manufacturer, bought a factory outside Paris to produce parts for fountain pens and mechanical lead pencils. In his new business, Bich became one of the first manufacturers to purchase presses to work with plastics. With his knowledge of inks and experience with plastics and moulding machines, Bich set himself up to become the largest pen manufacturer in the world. In 1949, Bich introduced his version of the modern ballpoint pen, originally invented in 1939, which he called 'BIC', a shortened, easy-to-remember version of his own name. He supported the pen with memorable, effective advertising; and its sales surpassed even his own expectations.

Realising that a mass-produced disposable ballpoint pen had universal appeal, Bich turned his

attention to the US market. In 1958, he purchased the Waterman Pen Company of Connecticut and then incorporated as Waterman-BIC Pen Corporation. The company changed its name to BIC Pen in 1971 and finally adopted the name BIC Corporation for the publicly owned corporation in 1982.

After establishing itself as the country's largest pen maker, BIC attacked another market – the disposable lighter market. When BIC introduced its lighter in 1973, the total disposable lighter market stood at only 50 million units. By 1984, BIC had become so successful at manufacturing and marketing its disposable lighters that Gillette, its primary competitor, abandoned the lighter market. Gillette sold its Cricket division to Swedish Match, Stockholm, the manufacturer of Wilkinson razors. By 1989, the disposable lighter market had grown to nearly 500 million units, and BIC lighters accounted for 60 per cent of the market.

Not content to compete just in the writing and lighting markets, BIC decided to enter the US shaving market in 1976. A year earlier, the company had launched the BIC Shaver in Europe and Canada. BIC's entrance into the US razor market started an intense rivalry with Gillette. Admittedly, the companies were not strangers to each other – for years they had competed for market share in the pen and lighter industries. Despite the fact that razors were Gillette's primary business and an area where the company had no intention of relinquishing market share, BIC established a niche in the US disposable-razor market.

BIC, like Gillette, frequently introduced new razor products and product enhancements. In January 1985, following a successful Canadian test in 1984, BIC announced the BIC Shaver for Sensitive Skin. BIC claimed that 42 per cent of the men surveyed reported that they had sensitive skin, while 51 per cent of those who had heavy beards reported that they had sensitive skin. Thus, BIC felt there was a clear need for a shaver that addressed this special shaving problem. The US$10 million ad campaign for the BIC Shaver for Sensitive Skin featured John McEnroe, a highly ranked and well-known tennis professional, discussing good and bad backhands and normal and sensitive skin. BIC repositioned the original BIC white shaver as the shaver men with normal skin should use, while it promoted the new BIC Orange as the razor for sensitive skin.

BIC also tried its commodity strategy on sailboards, car-top carriers and perfume. In 1982, BIC introduced a sailboard model at about half the price of existing products. The product generated nothing but red ink. In April 1989, the company launched BIC perfumes with US$15 million in advertising support. BIC's foray into fragrances was as disappointing as its sailboard attempt. Throughout the year, Parfum BIC lost money, forcing management to concentrate its efforts on reformulating its selling theme, advertising, packaging and price points. Many retailers rejected the product, sticking BIC with expensive manufacturing facilities in Europe. BIC found that consumers' perceptions of commodities did not translate equally into every category. For example, many women cut corners elsewhere just to spend lavishly on their perfume. The last thing they wanted to see was their favourite scent being hawked to the masses.

Despite these failures, BIC Corporation was the undisputed king of the commoditisers. BIC's success with pens and razors demonstrated the upside potential of commoditisation, while its failures with sailboards and perfumes illustrated the limitations. BIC concentrated its efforts on designing, manufacturing and delivering the 'best' quality products at the lowest possible prices. And although the company produced large quantities of disposable products (for example, over 1 million pens a day), it claimed that each product was invested with the BIC philosophy: 'maximum service, minimum price'.

One of BIC's greatest assets was its retail distribution strength. The high profile the company enjoyed at supermarkets and drugstores enabled it to win locations in the aisles and display space at the checkout – the best positioning.

Even though BIC controlled only the number three spot in the wet-shaving market by 1989, it had exerted quite an influence since its razors first entered the US market in 1976. In 1988, BIC's razors generated US$52 million in sales with a net income of US$9.4 million; BIC held a 22.4 per cent share of dollar sales in the disposable razor market. Exhibit 10 presents operating data by product line, and Exhibits 11 and 12 give income statement and balance sheet data.

Exhibit 10 BIC Corporation's net sales and income before taxes, 1986–88 (US$mn)

		1988	1987	1986
Net sales	Writing instruments	$118.5	$106.7	$91.7
	Lighters	113.9	120.0	115.0
	Shavers	51.9	47.1	49.6
	Sport	10.6	16.8	11.3
	Total	294.9	290.6	267.6
Profit/(loss) before taxes	Writing instruments	16.7	17.5	15.0
	Lighters	22.9	28.2	28.5
	Shavers	9.4	8.5	8.0
	Sport	(4.7)	(3.5)	(3.6)
	Totals	44.3	50.7	47.9

Source: BIC Corporation, *Annual Reports*, 1986–88.

Exhibit 11 BIC Corporation consolidated income statements, 1986–88 (US$000)

	1988	1987	1986
Net sales	$294 878	$290 616	$267 624
Cost of sales	172 542	165 705	147 602
Other expenses	81 023	73 785	67 697
Operating income	41 313	51 126	52 325
Other income	4 119	1 836	7 534
Earnings before interest and tax	45 432	52 962	59 859
Interest expense	1 097	2 301	11 982
Earnings before tax	44 335	50 661	47 877
Tax	17 573	21 944	24 170
Extraordinary credit	–	–	2 486*
Utilisation of operating loss carry forward	2 800	–	–
Earnings after tax	29 562	28 717	26 193
Retained earnings	159 942	142 501	121 784
Earnings per share	2.44	2.37	2.16
Average common shares outstanding (000)	12 121	12 121	12 121
Dividends paid per share	0.75	0.66	0.48
Stock price range			
High	$30 3/8	$34 7/8	$35
Low	$24 3/8	$16 1/2	$23 1/4

* Gain from elimination of debt.

Source: *Moody's Industrial Manual*; BIC Annual Reports.

The introduction of the disposable razor revolutionised the industry and cut into system razor profits. However, despite the low profit margins in disposable razors and the fact that the industry leader, Gillette, emphasised razor and blade systems, BIC remained bullish on the disposable razor market. In 1989, a spokesperson for BIC claimed that BIC 'was going to stick to what consumers liked'. The company planned to continue marketing only single-blade, disposable shavers. BIC stated that it planned to maintain its strategy of underpricing competitors, but it would also introduce improvements such as the patented metal guard in its BIC Metal Shaver. Research revealed that the BIC Metal Shaver provided some incremental, rather than substitute, sales for its shaver product line. BIC executives believed that the BIC Metal Shaver would reach a 5–8 per cent market share by 1990.

Exhibit 12 BIC Corporation balance sheets, 1986–88 (US$000)

		1988	1987	1986
Assets	Cash	$5 314	$4 673	$5 047
	Certificates of deposit	3 117	803	6 401
	Receivables, net	43 629	41 704	32 960
	Inventories	70 930	59 779	50 058
	Other current assets	37 603	47 385	34 898
	Deferred income taxes	7 939	6 691	5 622
	Total current assets	168 532	161 035	134 986
	Fixed assets, net	74 973	62 797	58 385
	Total assets	243 505	223 832	193 371
Liabilities and equity	Current liabilities*	55 031	54 034	45 104
	Current portion of long-term debt	157	247	287
	Long-term debt	1 521	1 511	1 789
	Equity	$181 194	$164 068	$142 848

* Includes current portion of long-term debt.

Source: *Moody's Industrial Manual.*

Wilkinson Sword

Swedish Match Holding Incorporated's subsidiary, Wilkinson Sword, came in as the fourth player in the US market. Swedish Match Holding was a wholly owned subsidiary of Swedish Match AB, Stockholm, Sweden. The parent company owned subsidiaries in the United States that imported and sold doors, produced resilient and wood flooring, and manufactured branded razors, blades, self-sharpening scissors and gourmet kitchen knives. (Exhibits 13 and 14 present income statement and balance sheet data on Swedish Match AB.)

A group of swordsmiths founded Wilkinson in 1772. Soldiers used Wilkinson swords at Waterloo, at the charge of the Light Brigade and in the Boer War. However, as the sword declined as a combat weapon, Wilkinson retreated to producing presentation and ceremonial swords. By 1890, Wilkinson's cutlers had begun to produce straight razors, and by 1898 it was producing safety razors similar to King Gillette's. When Gillette's blades became popular in England, Wilkinson made stroppers to resharpen used blades. Wilkinson failed in the razor market, however, and dropped out during the Second World War.

By 1954, Wilkinson decided to look again at the shaving market. Manufacturers used carbon steel to make most razor blades at that time, and such blades lost their serviceability rapidly due to mechanical and chemical damage. Gillette and other firms had experimented with stainless steel blades; but they had found that despite their longer-lasting nature, the blades did not sharpen well. But some men liked the durability; and a few small companies produced stainless steel blades.

Wilkinson purchased one small German company and put Wilkinson Sword blades on the market in 1956. Wilkinson developed a coating for the stainless blades (in the same fashion that Gillette had coated the Super Blue Blade) that masked their rough edges, allowing the blades to give a comfortable shave and to last two to five times longer than conventional blades. Wilkinson called the new blade the Super Sword-Edge. Wilkinson introduced the blades in England in 1961 and in the United States in 1962, and they became a phenomenon. Schick and American Safety Razor followed a year later with their own stainless steel blades, the Krona-Plus and Personna. Gillette finally responded in late 1963 with its own stainless steel blade; and by early 1964 Gillette's blades were outselling Wilkinson, Schick and Personna combined. Wilkinson, however, had forever changed the nature of the razor blade.

Exhibit 13 Swedish Match AB income statements, 1986–88 (US$000)

	1988	1987	1986
Net sales	$2 814 662	$2 505 047	$1 529 704
Cost of sales	N/A	N/A	N/A
Operating expenses	2 541 128	2 291 023	1 387 360
Other expenses	108 206	95 420	48 711
Earnings before interest	165 328	118 604	93 633
Interest expense	5 386	19 084	21 618
Earnings before tax	159 942	99 520	72 015
Tax	57 612	29 996	39 165
Earnings after tax	102 330	69 554	32 850
Dividends paid per share	0.53	0.51	1.75
Stock price range			
High	22.53	19.65	66.75
Low	$15.00	$11.06	$22.00

Source: *Moody's Industrial Manual.*

Exhibit 14 Swedish Match AB balance sheets, 1986–88 (US$000)

		1988	1987	1986
Assets	Cash and securities	$ 159 616	$ 117 027	$323 993
	Receivables	611 372	561 479	297 321
	Inventories	421 563	415 116	258 858
	Total current assets	1 192 551	1 093 622	880 172
	Fixed assets, net	707 664	671 409	397 411
	Other assets	161 085	132 799	93 211
	Total assets	2 061 300	1 897 830	370 794
Liabilities and equity	Current liabilities	996 214	905 778	576 534
	Current portion long-term debt			
	Long-term debt	298 505	316 542	244 118
	Equity			

Source: *Moody's Industrial Manual.*

In 1988, Wilkinson Sword claimed to have a 4 per cent share of the US wet-shave market; and it was predicting a 6 per cent share by mid-1990. Industry analysts, however, did not confirm even the 4 per cent share; they projected Wilkinson's share to be closer to 1 per cent. Wilkinson introduced many new products over the years, but they generally proved to be short-lived. The company never really developed its US franchise.

However, in late 1988, Wilkinson boasted that it was going to challenge the wet-shave category leader by introducing Ultra-Glide, its first lubricating shaving system. Wilkinson designed Ultra-Glide to go head-to-head with Gillette's Atra Plus and Schick's Super II Plus and Ultrex Plus. Wilkinson claimed that Ultra-Glide represented a breakthrough in shaving technology because of an ingredient, hydromer, in its patented lubricating strip. According to Wilkinson, the Ultra-Glide strip left less residue on the face and provided a smoother, more comfortable shave by creating a cushion of moisture between the razor and the skin.

Wilkinson introduced Ultra-Glide in March 1989 and supported it with a US$5 million advertising and promotional campaign (versus the Atra Plus US$80 million multimedia investment in the United States). Wilkinson priced Ultra-Glide 5–8 per cent less than Atra Plus. Wilkinson was undaunted by Gillette's heavier advertising investment, and it expected to cash in on its rival's strong marketing muscle. Wilkinson

did not expect to overtake Gillette but felt its drive should help it capture a double-digit US market share within two to three years.

Many were sceptical about Wilkinson's self-predicted market share growth. One industry analyst stated, 'Gillette dominates this business. Some upstart won't do anything.' One Gillette official claimed his company was unfazed by Wilkinson. In fact, he was quoted as saying, in late 1988, 'They [Wilkinson] don't have a business in the US; they don't exist.'

Nonetheless, Gillette became enraged and filed legal challenges when Wilkinson's television ads for Ultra-Glide broke in May 1989. The ads stated that Ultra-Glide's lubricating strip was six times smoother than Gillette's strip and that men preferred it to the industry leader's. All three major networks had reservations about continuing to air the comparison commercials. CBS and NBC stated that they were going to delay airing the company's ads until Wilkinson responded to questions they had about its ad claims. In an 11th-hour counterattack, Wilkinson accused Gillette of false advertising and of trying to monopolise the wet-shave market.

GILLETTE'S SOUTH BOSTON PLANT

Robert Squires left his work station in the facilities engineering section of Gillette's South Boston manufacturing facility and headed for the shave test lab. He entered the lab area and walked down a narrow hall. On his right were a series of small cubicles Gillette had designed to resemble the sink area of a typical bathroom. Robert opened the door of his assigned cubicle precisely at his scheduled 10 a.m. time. He removed his dress shirt and tie, hanging them on a hook beside the sink. Sliding the mirror up as one would a window, Robert looked into the lab area. Rose McCluskey, a lab assistant, greeted him.

'Morning, Robert. See you're right on time as usual. I've got your things all ready for you.' Rose reached into a recessed area on her side of the cubicle's wall and handed Robert his razor, shave cream, aftershave lotion and a clean towel.

'Thanks, Rose. Hope you're having a good day. Anything new you've got me trying today?'

'You know I can't tell you that. It might spoil your objectivity. Here's your card.' Rose handed Robert a shaving evaluation card (see Exhibit 15).

Robert Squires had been shaving at the South Boston Plant off and on for all of his 25 years with Gillette. He was one of 200 men who shaved every work day at the plant. Gillette used these shavers to compare its products' effectiveness with competitors' products. The shavers also conducted R&D testing of new products and quality control testing for manufacturing. An additional seven to eight panels of 250

Exhibit 15 Gillette shaving evaluation card

NUMB. _____ **CODE** _____ **STA TEST #** _____ **NAME** _____ **EMP. #** _____ **DATE** _____

IN-PLANT SHAVE TEST SCORECARD

INSTRUCTIONS: Please check one box in each column

Overall evaluation of shave	Freedom from nicks and cuts	Caution	Closeness	Smoothness	Comfort
❑ Excellent ❑ Very good ❑ Good ❑ Fair ❑ Poor	❑ Excellent ❑ Very good ❑ Good ❑ Fair ❑ Poor	❑ Exceptionally safe ❑ Unusually safe ❑ Average ❑ Slight caution needed ❑ Excessive caution needed	❑ Exceptionally close ❑ Very close ❑ Average ❑ Fair ❑ Poor	❑ Exceptionally smooth ❑ Very smooth ❑ Average ❑ Slight pull ❑ Excessive pull	❑ Exceptionally comfortable ❑ Very comfortable ❑ Average comfort smoothness ❑ Slight irritation ❑ Excessive irritation

Source: The Gillette Company.

men each shaved every day in their homes around the country, primarily conducting R&D shave testing.

Like Robert, each shaver completed a shave evaluation card following every shave. Lab assistants like Rose entered data from the evaluations to allow Gillette researchers to analyse the performance of each shaving device. If a product passed R&D hurdles, it became the responsibility of the marketing research staff to conduct consumer-use testing. Such consumer testing employed 2000 to 3000 men who tested products in their homes.

From its research, Gillette had learned that the average man had 30 000 whiskers on his face that grew at the rate of half an inch (1.3 centimetres) per month. He shaved 5.8 times a week and spent three to four minutes shaving each time. A man with a life span of 70 years would shave more than 20 000 times, spending 3350 hours (130 days) removing 27.5 feet (8.4 metres) of facial hair. Yet, despite all the time and effort involved in shaving, surveys found that if a cream were available that would eliminate facial hair and shaving, most men would not use it.

Robert finished shaving and rinsed his face and shaver. He glanced at the shaving head. A pretty good shave, he thought. The cartridge had two blades, but it seemed different. Robert marked his evaluation card and slid it across the counter to Rose.

William Mazeroski, manager of the South Boston shave test lab, walked into the lab area carrying computer printouts with the statistical analysis of last week's shave test data.

Noticing Robert, William stopped. 'Morning, Robert. How was your shave?'

'Pretty good. What am I using?'

'Robert, you are always trying to get me to tell you what we're testing! We have control groups and experimental groups. I can't tell you which you are in, but I was just looking at last week's results, and I can tell you that it looks like we are making progress. We've been testing versions of a new product since 1979, and I think we're about to get it right. Of course, I don't know if we'll introduce it or even if we can make it in large quantities, but it looks good.'

'Well, that's interesting. At least I know I'm involved in progress. And, if we do decide to produce a new shaver, we'll have to design and build the machines to make it ourselves because there is nowhere to go to purchase blade-making machinery. Well, I've got to get back now; see you tomorrow.'

Thirty-seventh floor, The Prudential Center

Paul Hankins leaned over the credenza in his 37th-floor office in Boston's Prudential Center office building and admired the beauty of the scene that spread before him. Paul felt as though he was watching an impressionistic painting in motion. Beyond the green treetops and red brick buildings of Boston's fashionable Back Bay area, the Charles River wound its way towards Boston Harbor. Paul could see the buildings on the campuses of Harvard, MIT and Boston University scattered along both sides of the river. Soon the crew teams would be out practising. Paul loved to watch the precision with which the well-coordinated teams propelled the boats up and down the river. If only, he thought, we could be as coordinated as those crew teams.

Paul had returned to Boston in early 1988 when Gillette created the North Atlantic Group by combining what had been the North American and the European operations. Originally from Boston, he had attended Columbia University and earned an MBA at Dartmouth's Tuck School. He had been with Gillette for 19 years. Prior to 1988, he had served as marketing director for Gillette Europe from 1983 to 1984, as the country manager for Holland from 1985 to 1986, and finally as manager of Holland and the Scandinavian countries.

During this 1983–87 period, Paul had worked for Jim Pear, vice president of Gillette Europe, to implement a pan-European strategy. Prior to 1983, Gillette had organised and managed Europe as a classic decentralised market. To meet the perceived cultural nuances within each area, the company had treated each country as a separate market. For example, Gillette offered the same products under a variety of sub-brand names. The company sold its Good News! disposable razors under the name 'Blue II' in the United Kingdom, 'Parat' in Germany, 'Gillette' in France and Spain, 'Radi e Getta' (shave and throw) in Italy, and 'Economy' in other European markets.

Exhibit 16 Gillette market share of dollar sales, 1981–88 (per cent)

Product or category	1981	1982	1983	1984	1985	1986	1987	1988
Atra blades	15.4	17.3	19.4	18.7	20.2	20.9	20.0	20.5
Trac II blades	17.5	16.4	15.2	14.6	14.1	13.5	11.8	11.4
Gillette blades	47.3	48.9	52.1	54.2	55.8	57.1	54.1	56.0
Gillette disposables	14.3	15.4	17.4	20.0	21.1	22.7	22.2	24.0
All disposables	23.0	23.2	27.0	30.6	32.7	34.9	38.5	41.1
Gillette disposables as % of all disposables	67.9	66.9	64.7	65.7	64.6	64.2	57.6	58.4
Gillette razors	50.3	52.5	54.9	58.8	62.2	67.6	64.1	61.0

Source: Prudential-Bache Securities.

Jim Pear believed that in the future Gillette would have to organise across country lines, and he had developed the pan-European idea. He felt that shaving was a universal act and that Gillette's razors were a perfect archetype for a 'global' product.

Gillette had launched Contour Plus, the European version of Atra Plus, in 1985/86 and had experienced greater success than the US launch which took place at the same time. The pan-European strategy seemed to be both more efficient and more effective. Colman Mockler, Gillette's chairman, noticed the European success and asked Pear to come to Boston to head the new North Atlantic Group. Paul had come with him as vice president of marketing for the Shaving and Personal Care Group.

Paul turned from the window as he heard people approaching. Sarah Kale, vice president of marketing research; Brian Mullins, vice president of marketing, Shaving and Personal Care Group; and Scott Friedman, business director, Blades and Razors, were at his door.

'Ready for our meeting?' Scott asked.

'Sure, come on in. I was just admiring the view.'

'The purpose of this meeting,' Paul began, 'is to begin formulating a new strategy for Gillette North Atlantic, specifically for our shaving products. I'm interested in your general thoughts and analysis. I want to begin to identify options and select a strategy to pursue. What have you found out?'

'Well, here are the market share numbers you asked me to develop,' Scott observed as he handed each person copies of tables he had produced (see Exhibits 16 and 17). Like Paul, Scott had earned an MBA from the Tuck School and had been with Gillette for 17 years.

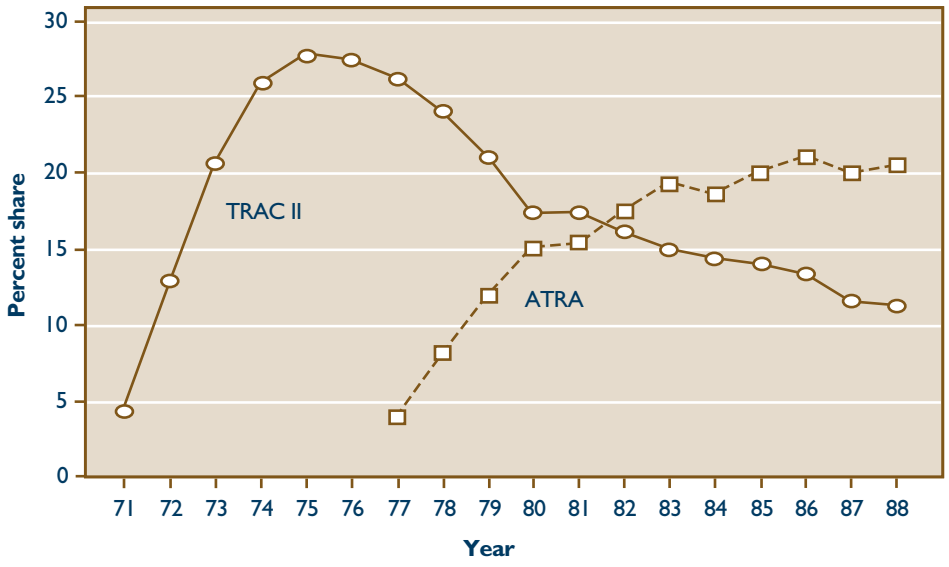
'These are our US share numbers through 1988. As you can see, Atra blades seem to have levelled off and Trac II blades are declining. Disposable razors now account for over 41 per cent of the market, in dollars, and for over 50 per cent of the market in terms of units. In fact, our projections indicate that disposable razors will approach 100 per cent of the market by the mid- to late 1990s given current trends. Although we have 56 per cent of the blade market and 58 per cent of the disposable razor market, our share of the disposable razor market has fallen. Further, you are aware that every 1 per cent switch from our system razors to our disposable razors represents a loss of US$10 million on the bottom line.'

'I don't think any of this should surprise us,' Sarah Kale interjected. Sarah had joined Gillette after graduating from Simmons College in Boston and had been with the firm for 14 years. 'If you look back over the 1980s, you'll see that we helped cause this problem.'

'What do you mean by that?' asked Paul.

'Well, as market leader, we never believed that the use of disposable razors would grow as it has. We went along with the trend, but we kept prices low on our disposable razors, which made profitability worse for both us and our competition because they had to take our price into consideration in setting their prices. Then, to compensate for the impact on our profitability from the growth of the disposable razor market, we were raising the prices on our system razors. This made disposable razors even more attractive for price-sensitive users and further fuelled the growth of disposable razors. This has occurred despite the fact that our market research shows that men rate system shavers significantly better than disposable razors. We find that the weight and balance

Exhibit 17 Gillette system cartridges, 1971–88 (dollar share of US blade market)



Source: The Gillette Company; Prudential-Bache Securities.

contributed by the permanent handle used with the cartridge contributes to a better shave.'

'Yes, but every time I tell someone that,' Paul added, 'they just look at me as if they wonder if I really believe that or if it is just Gillette's party line.'

'There's one other thing we've done,' Scott added. 'Look at this graph of our advertising expenditures in the US over the 1980s [see Exhibit 18]. In fact, in constant 1987 dollars, our advertising spending has fallen from US$61 million in 1975 to about US$15 million in 1987. We seem to have just spent what was left over on advertising. We are now spending about one-half of our advertising on Atra and one-half on Good News!. Tentative plans call for us to increase the share going to Good News!. Our media budget for 1988 was about US$43 million. Further, we've tried three or four themes, but we haven't stuck with any one for very long. We're using the current theme, "The Essence of Shaving", for both system and disposable products. Our advertising has been about 90 per cent product-based and 10 per cent image-based.'

'Well, Scott's right,' Sarah noted, 'but although share of voice is important, share of mind is what counts. Our most recent research shows a significant difference in how we are perceived by male consumers based on their age. Men over 40 still remember Gillette, despite our reduced advertising, from their youth. They remember Gillette's sponsorship of athletic events, like the Saturday Baseball Game of the Week and the Cavalcade of Sports. They remember "Look Sharp! Feel Sharp! Be Sharp" and Sharpie the Parrot. They remember their fathers loaning them their Gillette razors when they started shaving. There is still a strong connection between Gillette and the male image of shaving.'

'How about with younger men?' asked Brian. Brian had joined Gillette in 1975 after graduating from Washington and Lee University and earning a master's degree in administration from George Washington University.

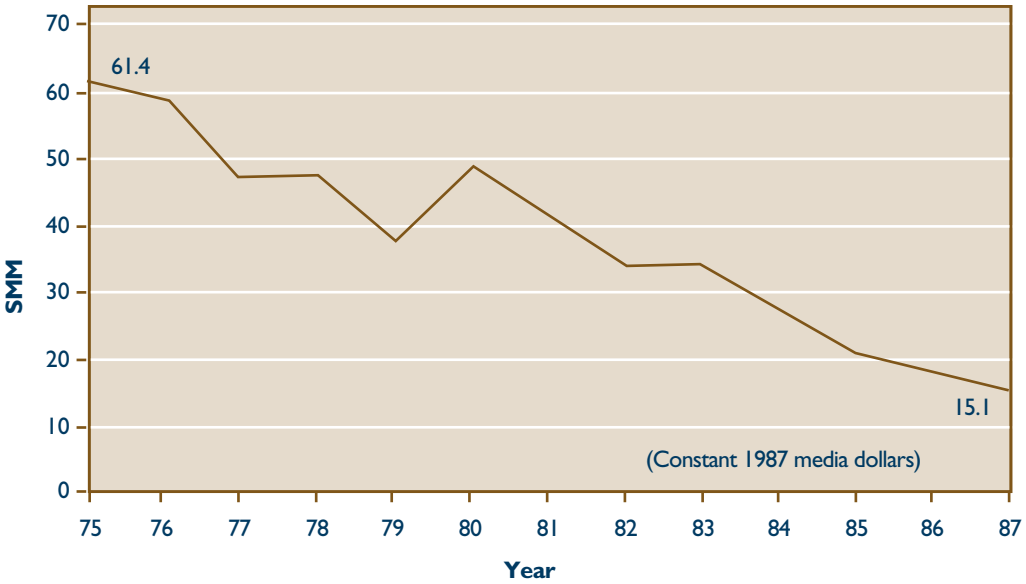
'Younger men's views can be summed up simply – twin blade, blue and plastic,' Sarah reported.

'Just like our disposable razors!' Paul exclaimed.

'Precisely,' Sarah answered. 'As I say, we've done this to ourselves. We have a "steel" man and "plastic" man. In fact, for males between 15 and 19, BIC is better known than Gillette with respect to shaving. Younger men in general – those under 30, these "plastic" men – feel all shavers are the same. Older men and system users feel there is a difference.'

'Yes,' Paul interjected, 'and I've noticed something else interesting. Look at our logos. We use the Gillette brand name as our corporate name, and the brand name is done in thin, block letters. I'm not sure it has

Exhibit 18 Blade and razor media spending, United States, 1975–87



Source: The Gillette Company.

the impact and masculine image we want. On top of that, look at these razor packages. We have become so product-focused and brand-manager-driven that we've lost focus on the brand name. Our brands look tired: there's nothing special about our retail packaging and display.'

'Speaking of the male image of shaving, Sarah, what does your research show about our image with women?' asked Brian.

'Well, we've always had a male focus and women identify the Gillette name with men and shaving, even those who use our products marketed to women. You know that there are more women wet-shavers than men in the US market, about 62 million versus 55 million. However, due to seasonability and lower frequency of women's shaving, the unit volume used by women is only about one-third that of the volume used by men. Women use about eight to 12 blades a year versus 25 to 30 for men. It is still very consistent for us to focus on men.'

'Well, we've got plenty of problems on the marketing side, but we also have to remember that we are part of a larger corporation with its own set of problems,' Brian suggested. 'We're only 30 per cent or so of sales but we are 60 per cent of profits. And, given the takeover battles, there is going to be increased pressure on the company to maintain and improve profitability. That pressure has always been on us, but now it will be more intense. If we want to develop some bold, new strategy, we are going to have to figure out where to get the money to finance it. I'm sure the rest of the corporation will continue to look to us to throw off cash to support diversification.'

'This can get depressing,' Paul muttered as he looked back at the window. 'I can sense the low morale inside the company. People sense the inevitability of disposability. We see BIC as the enemy even though it is so much smaller than Gillette. We've got to come up with a new strategy. What do you think our options are, Scott?'

'Well, I think we're agreed that the "do-nothing" option is out. If we simply continue to do business as usual, we will see the erosion of the shaving market's profitability as disposable razors take more and more share. We could accept the transition to disposable razors and begin to try to segment the disposable razor market based on performance. You might call this the "give up" strategy. We would be admitting that disposable razors are the wave of the future. There will obviously continue to be shavers who buy based on price only, but there will also be shavers who will pay more for disposable razors with additional benefits, such as lubricating strips or movable heads. In Italy, for example, we have done a lot of image

building and focused on quality. Now, Italian men seem to perceive that our disposable razors have value despite their price. In other words, we could try to protect the category's profitability by segmenting the market and offering value to those segments willing to pay for it. We would de-emphasise system razors.

'Or, we could try to turn the whole thing around. We could develop a strategy to slow the growth of disposable razors and to reinvigorate the system razor market.'

'How does the new razor system fit into all this?' Paul asked.

'I'm pleased that we have continued to invest in R&D despite our problems and the takeover battles,' Brian answered. 'Reports from R&D indicate that the new shaver is doing well in tests. But it will be expensive to take to market and to support with advertising. Further, it doesn't make any sense to launch it unless it fits in with the broader strategy. For example, if we decide to focus on disposable razors, it makes no sense to launch a new system razor and devote resources to that.'

'What's the consumer testing indicating?' asked Scott.

'We're still conducting tests,' Sarah answered, 'but so far the results are very positive. Men rate the shave superior to both Atra or Trac II and superior to our competition. In fact, I think we'll see that consumers rate the new shaver as much as 25 per cent better on average. The independently spring-mounted twin blades deliver a better shave, but you know we've never introduced a product until it was clearly superior in consumer testing on every dimension.'

'Okay. Here's what I'd like to do,' Paul concluded. 'I'd like for each of us to devote some time to developing a broad outline of a strategy to present at our next meeting. We'll try to identify and shape a broad strategy then that we can begin to develop in detail over the next several months. Let's get together in a week, same time. Thanks for your time.'

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Case 5

Gunns and the greens:

Governance issues in Tasmania

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Introduction

Gunns Limited is a listed Australian forestry company that operates in the tourism-oriented island state of Tasmania, 40 degrees south of the equator. In a sluggish economy, Gunns has been a spectacular performer for a decade. In 2001 the share price was $3.50 and in late 2003 it was $13. It is the first Tasmanian company to be worth $1 billion. Despite this success it remains controversial, a target for green activists and a common topic for critical discussion in Tasmanian homes. In September 2003, Gunns was forced by a section of its shareholding to hold an extraordinary general meeting (EGM) to discuss forestry practices.

This case is about the company and the EGM. The key issues are these: is it possible for a company operating in a hostile social environment to present as a good corporate citizen? And, how does such a company best handle a mix of profit-oriented and green-oriented investors? Finally, are its practices sustainable? To make sense of these issues requires some background to be explained, and the first sections of the case thus provide a brief description of Tasmania and the ongoing forestry debate. This is followed by a history of Gunns. The EGM is then described and the issues discussed.

Tasmania, the island state, and the forestry debate

Tasmania is the smallest Australian state, just 315 kilometres across its greatest width. The middle of the island is mountainous and features scattered lakes and alpine vegetation, while the west faces the Indian Ocean and is rainswept, with much of it covered in impenetrable 'vertical scrub'. The east coast is much dryer and has golden beaches; the north-west coast has deep soils and a climate suited to vegetable growing and dairying; and the south, and a plain next to the mountains (the midlands), is dry and a wool-growing area that achieves some of the highest prices for fine wool in the world. The government branch of Parks and Wildlife manages 354 reserves covering over one-third of the state, and the Forestry Commission, a state government authority, controls still more. Almost 1.4 million hectares of this is World Heritage listed. In this small place the world traveller can find the equivalents of the burnished hills of southern California, the hills of the grape districts of the South of France, Wordsworthian English countrysides (both his Lake District feel and the mannered and pretty countryside of the green south of England), and the golden beaches that are stereotypically Australian. The variety of vegetation and unique wildlife are the lures that attract tourists.

This is a pleasant land with a temperate climate first settled by Europeans in 1802. The new settlers set about clearing the land for agriculture, displacing the indigenous inhabitants while setting up a wool/wheat/cattle system modelled on England, complete with hawthorn, oaks, rabbits and much other exotic material. There was a thriving timber industry harvesting an apparently inexhaustible resource, and successive Tasmania governments sought to attract foreign investment into it.

There were occasional outbursts from conservation-minded people, but the pattern of cutting/burning/clearing continued relatively quietly until 1972 when the post-war transition to hydro-electrification of industry via damming of major rivers collided with the nascent green movement. Damming policy was led by the Hydro Electric Corporation (HEC), at the time a virtual government within the government; one long-time post-war premier was popularly known as 'Electric Eric'. The focus of debate was the damming of the south-west's Gordon River and flooding of Lake Pedder, a big remote lake with an unusual large, sandy beach. This led to the formation of the United Tasmania Group, the world's first formal green party.[1] In 1976 the debate heated up with another major dam proposal and the formation of the Tasmanian Wilderness Society. A major campaign resulted. This was a world event – 'No dams' was the cry in big street marches all over Australia, and all levels of government and the High Court of Australia were involved before the HEC was blocked and the Franklin saved. Green debate was by then a staple of café conversation.

Meanwhile, export woodchipping had begun, mainly sourced from 'charismatic' old-growth eucalypts. Yehudi Menuhin, the great violinist and humanist, said of this: 'I can't begin to tell you the beauty of those forests … the forest of Tasmania is yet unsullied and unpolluted by our kind of civilization. That we should have to defend them is something quite unbelievable …'[2]

His sentiments have been shared by a generation of Tasmanians who continue to contribute to an ongoing forestry debate on radio, in newspapers and on the streets. The issue is in the faces of the people of the capital city because the main log-route to the chipping place is the highway that passes through the city centre, past the Treasury building. Every day, scores of trucks go through with apparently excellent building/furniture timber on board in the form of long, solid logs. In 2002, a government-sponsored survey that was part of a 'Tasmania Together' process led by the government found that a significant majority of Tasmanians wanted an end to old-growth logging: the opinion crosses conventional political lines.[3] The green side of the debate is led by green parliamentarians, (there are four in the 25-seat lower house), the Wilderness Society, the Tasmanian Conservation Trust and the Australian Conservation Foundation. On the other side, the government is solidly pro-forestry (it is a conservative union-influenced Labor government), and the pro-forestry Forest Protection Society (and there is no evident intention of irony in the name) is a vocal pressure group.

Gunns: A company with connections

The two brothers Gunn started a building business in northern Tasmania in 1877 and soon turned to milling their own timber. They prospered and quickly became leading sawmillers. The industry was reliant on 'crown-logs', those cut off government land under licence, and Gunns had good access to this resource. The industry grew, as did Gunns, which, in the 1950s, initiated a policy of buying smaller sawmillers, private forests and rights to crown-logs. This process gathered pace after 1970 when it became evident that the supply of crown-logs was limited. From 1982, led by John Gay, Gunns also sought to consolidate its existing markets and expand into the growing export market for hardwood.

In 1986 the company was floated on the Australian Stock Exchange, with Gay as the CEO. The board at that time included as chairman Peter Wade, CEO of the mining and pulp and paper giant, North Broken Hill; Edmund Rouse, the chair of a northern Tasmanian media firm; Mr Clements of the Tasmanian firm Clements and Marshall; and two members from HMA, major investors in Gunns. (In later moves, Wade was replaced by David McQuestin, a Rouse connection, and still later, a former premier, Robin Gray, was appointed.)

This was an era in which the external environment of Gunns was also undergoing crucial changes, especially politically. Liberal premier Robin Gray called a state election in 1989 only to lose his majority. Labor and the Independents (as the greens had been identified) combined to become the Labor Green Accord (LGA) to prevent the Liberals remaining as a minority government. This upset the forest industry, which campaigned for a second election before the LGA could take power. The campaign collapsed when Edmund Rouse was imprisoned for attempting to bribe Labor MP Jim Cox to cross the floor to prevent the LGA from taking power. A Royal Commission also implicated McQuestin (another latter-day board member of Gunns), then managing director of Examiner National Television (ENT) of which Rouse was a substantial shareholder.[4] McQuestin was cleared of being unlawfully involved as a principal offender in Rouse's bribery charges, though the investigation acknowledged that his acquiescence with Rouse's direction was highly improper. During the investigation into these bribery charges, it was revealed that the campaign for a second election actually stemmed from Gray's office, although it was funded by the forest industry.[5]

The Labor Green Accord eventually came to power and, in a (failed) endeavour to settle the forest industry–conservation debate, the Forest and Forest Industry Council (FFIC) was established. However, before long, the FFIC shifted ground to become more concerned with preserving the forest industry, and proposed Resource Security legislation that would give the forest industry guaranteed access to the forests. At the same time, the publicly owned Forestry Commission became a government business enterprise, and was given exemption from freedom of information legislation. Labor's attempt to pass the Resource Security legislation caused the downfall of the LGA coalition because it outraged the greens, and Labor was compelled to call an election in 1991 that returned the Liberals to power under Ray Groom's premiership.

Meanwhile, Gunns had positioned itself in the early 1990s to undertake the bulk of the seasoned hardwood milling, moulding and veneers in the north and north-west of the state, leaving only a handful of significant, independent, locally-owned family businesses remaining in this sector of the forests industry in that part of the state. In reaching this position, the company defended two High Court appeals against the issue of licences to cut timber.

This strategic positioning continued through the late 1990s and beyond, illustrated by Gunns' buyout of Boral's Tasmanian woodchipping interests and the acquisition (aided by the ANZ Bank) of North Forest Products – owners of major tree holdings, including a 120 000-hectare tree farm. This saw Gunns become Tasmania's only woodchipping company, exporting 5.5 million tonnes of woodchips from the state each year. A significant proportion of this came from old-growth forests, including the Styx Valley of the Giants (as it is called by the Wilderness Society) – the location of the world's tallest flowering eucalypts.

During this time, there was an additional pressure on Gunns and the government over tree plantations. The movement towards turning agricultural land into trees had grown over a decade, and the difficulties of other agricultural practices meant that a growing number of farmers were selling out to tree farmers – and Gunns is the biggest. This annoyed the nearby landowners because of the loss of sun, it annoyed the greens because the tree farms are usually quick-growing species that do not provide a habitat for wildlife, and it annoyed tourism operators because it presents an ugly face to the world with chemical clearing of sites before planting and clear felling. Gunns had a direct and highly public dispute over chemical clearing in 2003 that further hindered its public image when an organic farmer near a new Gunns tree farm objected to the land clearing.[6]

Pressuring the institutional shareholders

The opening years of the 21st century saw one of Gunns' major shareholders, the Commonwealth Bank, targeted by the Wilderness Society, the society exhorting the bank's shareholders to pressure its board to use the bank's shareholding in Gunns (at the time, just over 17 per cent) to force the company to move out of the old-growth forests.

Other Australian banks came under pressure from various quarters, the ANZ Banking Group Ltd indicating that it did *not* hold a stake in Gunns but did have a banking relationship. Charles Goode, the

chairman of ANZ, said that the bank takes environmental issues seriously. 'We are prepared to enter into dialogue with community groups such as the Wilderness Society,' Mr Goode said. In 2003, the board had a half-day strategy meeting on environmental issues and, as forecast in *The Examiner* on 14 December 2002, the chairman and some executives visited the Gunns forestry sites in Tasmania in February 2003. Gunns' managing director, John Gay, contended that the company had issued invitations to all the major banking institutions that had been targeted by the Wilderness Society with what he termed 'misinformation'.[7]

(At this point, an indication of the significance of these institutionals and some that follow is necessary: the ANZ, Westpac, Commonwealth and National Australia banks are Australia's biggest banks, and the AMP and Perpetual Trustees are the major insurance companies in the nation, while Bankers Trust (BT) is a major investment firm.)

Corporate intransigence

A group of 100 Gunns Ltd shareholders who opposed the firm's logging practices took the step of requesting an EGM of the company in February 2003. The group – coordinated by the Wilderness Society, but including shareholders from outside the society – relied upon the new Corporations Law governing corporate regulation in Australia which became effective on 15 July 2001. This scheme provides that the directors of a company must call and arrange to hold a general meeting on the request of:

- members with at least 5 per cent of the votes that may be cast at the general meeting
  or
- at least 100 members who are entitled to vote at the general meeting.

Gunns Ltd initially refused to hold the special meeting. Executive chairman John Gay was reported as saying that the directors considered the Wilderness Society's demand was not valid under existing regulations, and had decided that convening a special meeting to consider the issues raised by the society would be an inappropriate use of company funds.[8] (The company maintained that the special meeting sought would cost tens of thousands of dollars.) The Tasmanian president of the Directors Institute, Gerald Loughran (who had a business in the north of the state), said that legislation to change the 100-person rule to a 5 per cent rule was before the Senate and he hoped it would soon be resolved.[9] However, Loughran seemingly ignored the fact that the 100-person rule *did* apply at the time the request for a meeting was made.

Gunns maintained that the requisition notices were invalid, and that the shareholders who had called for an EGM had 'clearly not abided by the articles of association of the company', although the company did not given the actual reason that the requisition was deemed to be invalid. Executive chairman John Gay said that because of the *Privacy Act* he could not say exactly what was wrong with the requisition.[10] He objected strongly and the Wilderness Society rethought its tactics.

The Wilderness Society then resubmitted a modified resolution calling for an EGM of Gunns Ltd. Campaigner Leanne Minshull indicated that the society would take the issue to court if Gunns refused to call a meeting a second time. The meeting was duly called.

Extraordinary general meeting, 29 August 2003

In the lead-up to the August EGM at Gunns, helpful corporate professionals entered the fray on the green side:

- Fund managers showed the Wilderness Society how to draft better resolutions.
- Lawyers gave *pro bono* advice on procedural matters, secondary boycotts and defamation issues.
- Naomi Edwards (retired partner of Deloitte Touche Tohmatsu and former director of Trowbridge Consulting) crunched numbers for the Wilderness Society to back its claim that the company could refrain from logging old-growth forests without losing money.
- An international business strategist used by some of Australia's biggest companies provided advice on the campaign in Japan. (Most of the Gunns woodchips are exported to Japan

and China, where they are used in paper production.)

- A 1980s corporate raider gave tips on tactics for dealing with corporations and hosted private lunches in Sydney to put activists in touch with senior executives.

Minshull did not 'name names', but she confirmed meetings with AMP, BT Financial Group, Commonwealth Bank, local and federal government superannuation schemes, National Australia Bank and Perpetual Trustees. Perpetual's John Sevior said it was the first time he had experienced a campaign of this kind, and that it could be the first of many. 'The world is getting more determined in a lot of ways,' he said.[11] One of the Sydney fund managers with whom Minshull had talks put up a proposal for a memorandum of understanding between Gunns, the Wilderness Society and institutional investors. Minshull believes that such cooperation is feasible, although the provisos she stipulated were uncompromising '… as long as the institutions tell Gunns to stop developing clear felling, selectively logging, or accepting product from certain forest areas'.[12]

The campaign seemed at the time to have had some effect. Westpac-owned BT Financial Group, which has a small undisclosed stake in Gunns, indicated its intention to abstain from voting, citing insufficient information on which to make a decision. The financial house said it recognised the sensitive nature of environmental issues, and that it believed there was a lack of adequate data or information on the possible effects of adopting the resolution.[13] There was an international dimension to this campaign: as reported in *The Age*, Minshull indicated that a loose coalition of activist organisations around the world, including Friends of the Earth International, Britain's WWF (World Wide Fund for Nature), Greenpeace and the Rainforest Action Network, helped on the Gunns campaign by lobbying institutional shareholders in Britain.[14]

In the end, no one really expected the Wilderness Society to get its way at the EGM. Gunns said that the shareholder activists controlled fewer than 250 000 shares, or about 0.3 per cent of the stock, and Minshull conceded that the resolution was unlikely to get anywhere near the 75 per cent needed. Gay accused the environmentalists of wasting shareholders' money on what amounted to a protest meeting. 'That is disgusting,' he said. 'They conceded they haven't got a hope in hell but they are taking this company through the pain.' Gay indicated that there was no prospect of Gunns working with the activists, because the company operates within state laws and Tasmania is a signatory to the 1997 Regional Forest Agreement between the state and federal governments. 'If I rejected (the opportunity) to take some logs, they would just issue them to someone else. They can keep coming but we don't make the decisions. They are just damaging the shareholders of Gunns and the superannuation funds of Australia by harassing Gunns for a decision that Gunns doesn't make. That's how stupid it is.'[15]

FIAT (the Forest Industries Association of Tasmania) weighed into the EGM issue by publishing half-page advertisements in all major newspapers, the text of which ran:

NOTICE TO GUNNS SHAREHOLDERS

THE GUNNS EXTRAORDINARY GENERAL MEETING THREATENS THE LIVELIHOOD OF THOUSANDS OF TASMANIANS EMPLOYED IN OUR SAWMILL AND VENEER INDUSTRIES

- Closing down more high-yielding forest will take away the resource needed to supply our sawmill and veneer industries that add high value to out timber;
- 40% of our forests are already reserved – 4 times the international standard;
- mature timbers that supply our higher-value-adding industries are not available in regrowth or plantation forests;
- less than 1% of old-growth forest has been harvested in the last 5 years.

SUPPORT FOR THE WILDERNESS SOCIETY MOTION IS SUPPORT FOR A LOW-VALUE, WOODCHIP-DRIVEN FUTURE FOR TASMANIA'S FOREST INDUSTRY

VOTE NO TO PROTECT THOUSANDS OF TASMANIAN JOBS

Forest Industries Association of Tasmania

Source: *The Saturday Mercury*, 23 August 2003, p. 21.

AMP Henderson indicated that it would vote against the Wilderness Society resolution at the EGM for Gunns to cease accessing logged old-growth forest timber from the so-called Tasmania Together region under Tasmania's Regional Forest Agreement. AMP's substantial shareholder notice in June 2003 stated that it owned 7.2 per cent of Gunns shares on issue. AMP Henderson's chief investment officer, Merv Peacock, said that AMP had long discussions with a range of parties, including Gunns and Forestry Tasmania. He concluded that the resolution would have a material negative impact on the company's profits and believed that the impact would be greater than that contained in analysis by actuary and Gunns shareholder, Naomi Edwards.[16]

Overall, a trend towards an 'abstain' or 'against' vote at the EGM emerged, as institutional shareholders balanced the risk of a consumer backlash with their fiduciary obligation to investors. UniSuper, the university employees' superannuation fund, announced that it would abstain, saying that a vote was 'premature',[17] and the large Commonwealth government employee fund, PSS/CSS, decided to vote against the resolution. Perpetual Trustees and Colonial First State would not disclose their voting intentions, and the SIRIS Proxy Voting Service also declined to say how it advised its clients to vote at the meeting. No institutional shareholder went on record as supporting the Wilderness Society-led resolution. Dean Paatsch, director of SIRIS Governance Services Unit, said his considerations varied depending on whether the client had an environmental policy as part of its investment process. Paatsch said he believed that most institutions would abstain because of their concern for 'reputation risk'.

The lead-up to the EGM drew in crusading contributions from both sides of the debate, highlighted by the Wilderness Society's own advertisements under the headline:

Tell Gunns to stop logging our oldgrowth forests

Join us outside the Gunns special meeting on oldgrowth

Source: *The Examiner*, 23 August 2003, p. 37.

The press also carried letters covering aspects of the situation. The following extracts from *The Examiner* on 24 August are representative of the range of the debate:

Woodchips on a platter

Those who see Paul Lennon as a hard man should have a look at his Forest Practices Amendment Bill 2003, currently before Parliament.

For the third time since 1998, the Forest Practices Board is being given an amnesty for any previous violations of planning regulations and its own rules regarding them.

As in FPA Amendment 48 of 1998, there is a bonus on top of forgiveness … the FPB has been empowered to overrule the state's premier appellate planning body, the Resource Management and Planning Appeals Tribunal, when that body has found forestry to be inappropriate.

Forest system is world class

Tasmania's Regional Forest Agreement is fast approaching its sixth anniversary.

This 20-year vision for our forests established a comprehensive, adequate and representative reserve system … it is a pity that green activists, who are a small group, refuse to accept (the) massive conservation gains from this landmark agreement.

The campaign also included Timber Communities Australia's half-page advertisements in major newspapers on 27 August under the banner:

We are all proud members of Tasmania's forest industry family.

Our forest industry supports one in every 20 Tasmanian jobs

These advertisements, such as that in *The Examiner* on 27 August 2003, bore testimonials from a variety of 'typical Tasmanians' whose jobs in some way depended on the forest industry. On the day of the EGM itself, a large 'open letter' on behalf of 3000 employees and contractors of Gunns was published in *The Examiner* calling on Gunns' board to reject outright the motion requiring the company 'to ban processing of timber from a significant portion of Tasmania's multiple use forests'.

The day before the EGM, Gunns released the company's financial results, announcing its record $74 million after-tax profit for 2002/03. The 39 per cent profit increase was a result of strong demand across each of the company's key markets. Total group turnover rose by 17 per cent to $610 million, with operating cash flow also up 17 per cent to $104 million.

The meeting: Green fizzer and fountain of commercial rationality?

The EGM was held at 10 a.m. on 29 August at 110 Lindsay Street in Launceston, a city of about 60 000 people. More than 200 pro- and anti-logging demonstrators gathered outside Gunns' offices, and log trucks lined the street in a show of strength for the industry. The resolution called on Gunns not to source any timber from the 'Tasmania Together' forests, which include the Styx, Tarkine, Great Western Tiers, Southern Forests, Tasman Peninsula, North-East Highlands, Eastern Tiers and proposed extensions to the Ben Lomond National Park.[18] The Wilderness Society had encouraged shareholders to attend the EGM and vote for the resolution, had sought proxy voting rights, and, in the lead-up to the EGM, had run stalls outside many Commonwealth Banks providing information and *pro forma* letters for people to send to the bank.

Some 20 speakers addressed the 90-minute meeting, and shareholders voted overwhelmingly against the resolution calling for Gunns to withdraw from 240 000 hectares of old-growth forest, the resolution being lost by 54.8 million to 248 000 votes. Institutions representing some 1.5 million votes abstained.[19] Gay said the vote demonstrated clear support for the board. 'This whole action was nothing more than a publicity stunt by the Wilderness Society, staged for political purposes in a futile attempt to attack a well-performing and legitimate Tasmanian business.'[20] The resolution was easily defeated with 98 per cent of votes against. But most disappointing for green groups and activists was that only 2.6 per cent of voters abstained – the usual form of protest for institutional investors. So, Perpetual with 10.17 per cent, the Commonwealth Bank with 8.6 per cent, and AMP with 7.21 per cent were effectively saying they were in favour of logging old-growth forests – a stance that could cause them some grief at their coming annual meetings given the high level of activism on the issue. Despite always having the numbers, John Gay didn't want too much debate from the floor. At one point he told the Wilderness Society's Leanne Minshull to 'sit down, young lady'.[21]

What does the future hold for Gunns?

There are some recurring themes in Tasmanian politics, the latest one of significance being that of a world-class pulp mill to value add the woodchip resource. There was a strong sense of *déjà vu* about the revelation in June 2003 that Gay and then Deputy Premier (now Premier) Lennon (the chief government supporter of forestry industry) discussed the possibility of a pulp mill. Lennon maintained that there was no pulp mill proposal before the government and that such a mill was only one of several downstream processing options discussed with Gay, who himself said that while he would like to see a pulp mill established in Tasmania, it would require a financial investment of an order of magnitude possibly beyond Gunns' resources.

The company is still beset by campaigners. It does not seem to be able to appear as a good corporate citizen despite its financial success and despite the failure of the greens at the EGM. The paper of record on 14 November 2003 displays the problem: sharing the front page were Lennon putting forward a pulp mill and guaranteeing Gunns 'front running', and 'Hector the Protector', a forest activist who has decided to go to gaol for 51 days rather than pay a $5000 fine for perching in a tree for 12 days in protest at logging. Hector (his standard name is Smith) was accompanied at court by a noisy band of placard-holding protesters. Perhaps Gunns must face the reality that a forestry firm, despite being law-abiding and popular with the institutional shareholders and government, cannot please the majority of the people. It is well protected by legislation that guarantees access to the critical wood resource and has a dedicated workforce, but it would be nice to be well regarded. And will the institutional investors continue to support it? The next phase of activism will not be targeted at Gunns but at its investors. How much heat will a bank take for the sake of what is, for it, a minor investment? Is a concession to green thinking required? But, is that enough? The green agenda is not about compromise but full achievement of goals; compromise is for politicians and corporations. Sustainability of forests in Tasmania is a hot issue without clear winners so far.

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Case 6

Growth at Hubbard's Foods?*

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Dick Hubbard paused for a minute from the notes he was writing for his company newsletter to reflect on the recent changes he had initiated in the company. He thought back to the early days of the business, when he did everything in the company single-handedly, including making the breakfast cereals. He looked out into the company car park and saw that it was almost full. He suddenly realised he was responsible for the livelihoods of many people other than himself. Should he take the next step and expand the company further? Dick contemplated the various scenarios and considered what they would mean for his business …

Background

Hubbard's produces a range of 23 breakfast cereals that are targeted towards the mid–high price ranges in the cereal market. A recent extension to the product range was an organic muesli that is in the very high price range. Hubbard's cereals are distinctive due to their use of New Zealand and tropical fruits and using fruit flavouring to bake the cereals in. Exhibit 1 provides a schematic that represents the elements that influence its operation. For a full description of manufacturing processes and the supply chain, see the appendix.

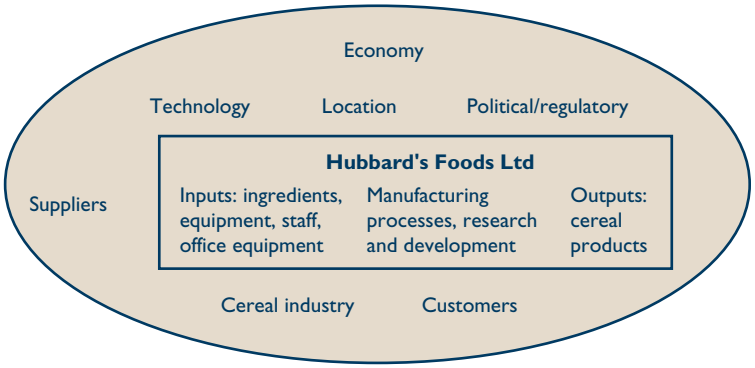
Products

Hubbard's products are aimed at both the high price range and low end of the cereal market. The high-end products have such innovative names as 'Berry Berry Nice' and 'Yours Fruitfully' (refer to Exhibit 2 for ingredient lists). While the main output from the operation is high-quality cereals under the Hubbard's brand, the company also manufactures some product lines for a range of supermarket private labels. These private labels are typically at the lower end of the price range for cereal, such as rice puffs and cornflakes.

Demand for breakfast cereal products has a slight seasonal variation. In summer months, consumption is approximately 10 per cent higher than in winter months. The breakfast cereal industry has been undergoing rapid change in the past two or three years, including an increase in the muesli-style cereals that Hubbard's popularised, an increase in supermarket own brands, as well as the huge growth in cereal bars and muesli bars (which Hubbard's does not produce). Exact growth figures are not available as

* An earlier version of this case was presented at the North American Case Research Association conference in Banff, Canada, 3–5 October 2002.
This case is part of a series of cases on Hubbard's Foods. Refer to the reference list for full details of published cases in the series.

Exhibit 1 New Zealand business environment



the cereal industry is highly competitive. In 2000/01, Hubbard's exported 14.4 per cent of its production, mainly to Australia, but a small amount was exported to the United Kingdom, Singapore and Hong Kong. Financial information for the company is shown in Exhibit 3.

Competitors

Hubbard's has an 18.5 per cent share of the cereal market in New Zealand, which makes them the third-largest player in the market. (Exact market share for the competitors is not known.) There are three strong direct competitors to Hubbard's in the New Zealand market: Sanitarium, Uncle Tobys and Kellogg's.

Sanitarium is a New Zealand-owned company that is located in a nearby suburb of Auckland. If either Sanatarium or Hubbard's runs out of an ingredient, the other will supply it if they have it available. A Seventh Day Adventist baker, whose philosophies were strong on healthy living and vegetarianism, started Sanitarium Health Foods over 100 years ago. Sanitarium continues to market their cereals using these philosophies, and has quite a strong focus on sponsoring events and charities, as well as promoting healthy living. Sanitarium's main breakfast cereal products are Weetbix and Cornflakes, and they have entered the cereal bar market as well as the breakfast-in-a-drink market.

Uncle Tobys is part of the Goodman Fielder chain, which is Australasia's largest food manufacturer, employing around 16 000 people. Goodman Fielder produces such food items as bread, potato crisps, sauces and baking products. The Uncle Tobys brand specialises in breakfast cereals and has a strong presence in the cereal bar market. Cereal products include Weeties and Fruit Feast.

Kellogg's is an international brand that was established in Australia in the 1920s. Products were exported from the Australian factory to New Zealand, and Kellogg's has a strong influence in the New Zealand market with brands such as Coco Pops, Nutri-Grain and Special K. Kellogg's employs around 485 people in Australia and New Zealand, and also has a presence in the cereal bar market.

There is also an increasing trend in New Zealand for individual supermarkets to have their own 'no frills' or 'budget' brands which are also in competition with Hubbard's. However, the Hubbard's brand generally does not compete with this sector of the market, although it has recently launched a cornflake product under the Hubbard's brand name. The mid-range segment of the market is not an area the company has chosen to target.

Business start-up

From humble beginnings, Dick has created a successful business. After being turned down for a scholarship to Massey University, he self-financed his degree. Dick then worked as a food technologist for many years, gaining valuable experience managing a tropical fruit factory in Niue for three years. On his return to New Zealand, he was appointed general manager of a local food manufacturer. He also went on a teamwork and confidence building course called Outward

Exhibit 2 Examples of Hubbard's products

Product name	Description of product	Ingredients	
'Berry Berry Nice'	'This toasted muesli is full of berry flavour – because the oats and other muesli ingredients are all soaked in berry juice before they are baked. Freeze-dried strawberries and blackberries, as well as yoghurt coated raisins complete the distinctly Hubbard's finishing touch.'	rolled oats, raspberry juice, honey, brown sugar, vegetable oil, yoghurt raisins (yoghurt powder, raisins), freeze dried strawberry pieces, freeze dried blackberries, sesame seed, coconut, salt, natural berryfruit flavour.	
'Yours Fruitfully'	'This natural muesli combines the grains, nuts and seeds you would expect with some distinctly New Zealand fruits – the kiwi and the apricot. YCR's, hazelnuts and oatbran "sticks" give Yours Fruitfully a distinctly different taste, that has certainly won favour.'	rolled oats, flaked wheat, raisins, apricot nuggets, brown sugar, oatbran, honey, wheatgerm, yoghurt coated raisins (raisins, vegetable fat, yoghurt powder, sugar, milk powder, lecithin), coconut, sunflower seeds, hazelnuts, skim milk powder, sesame seeds, soya oil, freeze dried kiwifruit.	

Source: www.hubbards.co.nz.

Exhibit 3 Financial information, 1998–2001

	April 1998 – March 1999	April 1999 – March 2000	April 2000 – March 2001
Sales	$21 297 245	$22 686 163	$24 321 789
Sales increase on previous year	23.05%	6.5%	7.2%
Export sales as % of total sales	7.7%	9.6%	14.4%
Net profit before tax	$608 829	$1 029 210	$978 052
Return on shareholders' funds – after tax	10.26%	20.32%	17.12%
Staff profit share paid	N/A	N/A	$94 172
Company tax paid	$240 114	$316 021	$249 373
Hubbard's Foods market share	17.4%	18.1%	18.5%

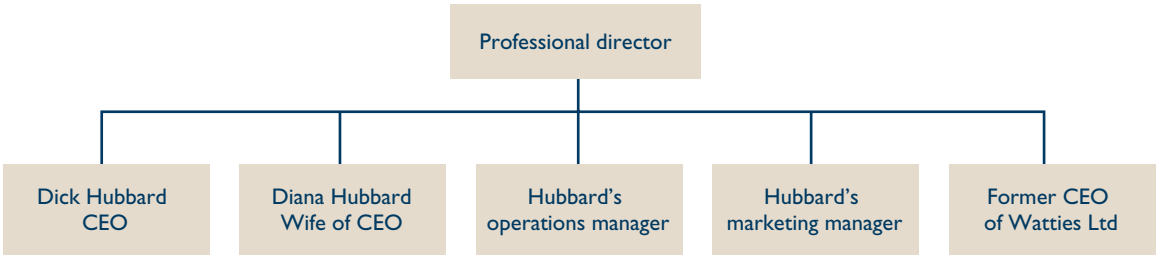
Source: Triple Bottom Line (TBL) report, 2000/01.

Bound, which Dick attributes with having assisted him immensely, and he lists the completion of the course as one of his life successes.

After several years of contemplating what to do with his life, Dick decided to start his own business. The company was started in 1988 with the grand total of four employees, under the name Winner Foods, changing its name to Hubbard's two years later. During the early years of start-up and growth the company experienced tough times and at one stage was within three weeks of going into receivership. Dick had to take the drastic action of asking his employees to go home on an extended holiday because he could not afford to pay them. He also made changes in his own life – for example, on occasion he walked to work to save petrol.

Those early days of hardship have not been forgotten and Hubbard's is managed under principles of

Exhibit 4 Hubbard's board of directors



Source: TBL report, 2000/01.

minimum waste and minimum fuss; there is very little excess at Hubbard's, with no expensive furniture or company car fleets to be seen. Dick firmly believes the early sacrifices made by him and his employees helped the company to get established.

The business did falter for some time as Dick diversified into roasting nuts and making items for bulk bins in supermarkets. The decision to diversify further into a broader product range was made in order to generate some cash flow. An oat bran muesli was launched as an in-house supermarket brand and was very successful. Dick used this foundation, as well as the extensive knowledge gained of the cereal markets, to launch his own brand.

Business growth

By 1993, the business was growing quickly and Dick realised he had to make changes to the way he managed the company. Until this time, he had managed it by himself, including tasks such as human resources management, purchasing, marketing and quality management. To address the changing situation and to alleviate some of the day-to-day administrative decision making required by him, he employed an assistant and additional office staff to help him manage the business.

As a direct result of the strong growth in demand, decisions were made about the original factory, as it became too small. A new factory in Mangere, Auckland was purpose built for Hubbard's. Mangere is on the outskirts of Auckland in a low-income, high-unemployment area where the population is largely made up of Maori and Pacific Islanders. This larger factory operates 24 hours a day, five days a week, and in busy times it operates seven days a week. Now the factory is working to almost 100 per cent capacity and is again becoming too small for the growing company.

Since Dick established the company, it has grown steadily in staff numbers. The company is now outgrowing the definition of a small–medium enterprise (SME), which in New Zealand is a company that employs fewer than 100 employees. Hubbard's now employs approximately 120 staff at any one time.

In response to the positive growth of the company, Dick and his wife Diana, who were the company's owners, appointed a new formal board of directors in 2001. A primary reason behind this move was to ensure that all stakeholder interests were being considered in the company's growth and the recognition of the increasing number of stakeholders' livelihoods involved.

This has been a total shift for Hubbard's, from Dick operating in an owner/CEO role, to a new structure which gives some of the decision-making responsibility and strategy development to a high-level board of directors. Dick will remain as CEO of Hubbard's. The board consists of six members, and to help maintain an objective and effective influence, a professional company director chairs the board. Exhibit 4 shows the membership of the board.

Company philosophies and vision

Dick believes there are a number of key stakeholders who have an interest in the business, including

shareholders (Dick and Diana), employees, customers, suppliers and the community. He has a strong vision for the business that bears his name and uses a food metaphor to outline their aim in the Triple Bottom Line (TBL)[1] report, which is to 'provide sustenance for the "mind, body and soul"' of everyone who has contact with the company (TBL report, 2000/01). This simple statement exemplifies Hubbard's commitment to being a socially responsible organisation.

Dick has a distinctive and simple no-nonsense style of management. Before entering the premises, you notice a large sign in front of the main doors. It states:

'This is a "no nonsense" management zone. No management excesses, corporate ego trips, committee decisions, inter-company memos, buck passing, back stabbing, or any other dubious management decisions allowed on these premises.'

An illustration of Dick's no-nonsense approach to managing staff has become folklore at Hubbard's. The story is told of how one employee told Dick she was intimidated by him wearing a tie. Dick immediately took off the tie and cut it up. The tie is now framed in the offices at Hubbard's and is a strong visual statement of Dick's commitment to his philosophy of management.

Dick makes an effort to ensure that he provides a family culture at the factory. This works well for the business as the majority of staff at Hubbard's are Pacific Islanders, and a significant aspect of many Pacific Island cultures is based around the importance of the family. Therefore, Dick's management style offers an extension of a family atmosphere into the workplace. Along similar lines, there is no documented management structure at Hubbard's, illustrating his philosophy of a non-hierarchical business.

Many of the manufacturing processes at Hubbard's are manual, such as mixing of cereals. In contrast, a number of the larger competitors manufacture cereal in a more equipment-intensive manner than Hubbard's and therefore tend to have a much lower staffing ratio. However, Dick believes in creating employment and will not replace people with machinery unless absolutely necessary.

Key stakeholders

Employees

Staff are a vital stakeholder in the business. Dick sums up his philosophy to staff as being 'based around the concept of "a group of people". As such, our people within the company are to be treated with respect, dignity and an over-riding acknowledgement that, first and foremost, they are people' (TBL report, 2000/01). Exhibit 5 outlines figures regarding staff and remuneration.

Dick fosters an atmosphere of camaraderie among employees and management. He encourages open communication and allows for all staff (including himself) to be on a first-name basis with each other. A particularly informal approach to communication allows Dick to practise a hands-on approach to management by meeting with employees once every three months. Ten employees at a time visit his office for a lunch of takeaways to discuss what is happening in the factory. Also, all managers are expected to be in the factory on a regular basis, and every six months spend an entire shift on the factory floor.

Exhibit 5 Employee information

	April 2000 – March 2001
Number of souls on board (employees)	116
Remuneration	$3 969 603
Average remuneration	$31 820
Profit share paid out	$94 172
Staff employed from WINZ (Work and Income New Zealand) or employment courses	17 of the 30 new employees (57% of new employees)
Production personnel	4.65 staff/$million turnover

Source: TBL report, 2000/01.

The company experiences very little absenteeism and staff turnover is low. This may be indicative of the way employees embrace and show commitment to Dick's management philosophy. He strongly believes this approach to running his business is going to become more popular as employees look beyond pay rates. Increasingly, potential employees are taking into account the culture of the company in their employment decision.

Dick believes in sharing his company's success with his employees and achieves this by taking employees on trips. Dick is well known for taking all 100 Hubbard's staff to Samoa, in the South Pacific, for a long weekend in 1998. At a total cost of approximately $170 000, Dick chartered a plane to celebrate Hubbard's 10-year anniversary. The trip was a tribute to the Pacific Island workforce's culture and heritage. This added to the family culture at Hubbard's, as many of the employees had not been back to their homeland for years. In subsequent years, other trips have occurred within New Zealand. In 2000, Dick and the entire staff met the prime minister, Helen Clark, to celebrate 10 years of the Hubbard's brand being in business. Exhibit 6 shows the trips taken by staff over the past few years.

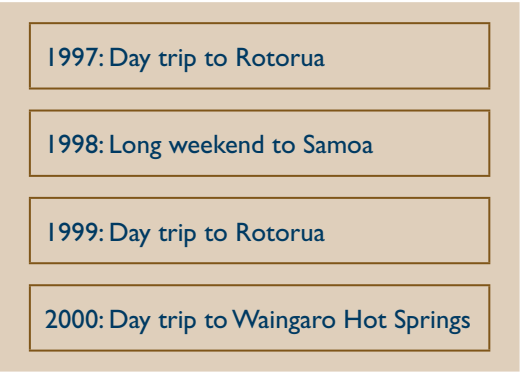
Recently the company has implemented a profit-sharing scheme for employees. The scheme distributes 10 per cent of Hubbard's pre-tax profit as a 'dividend' to employees every six months. This profit-sharing scheme works according to a formula that is based entirely on length of service. There is absolutely no recognition made of seniority or existing salary/wage rates.

One staff member's story is illustrated below:

> I came to Hubbard's as a storeman starting rate $9 an hour – I thought, pardon not another one! As I was picking orders I came across orders saying NO CHARGE. This surprised me because I have been a storeman a long time and never come across NO CHARGE – always money wanted.
>
> One day Dick was in the storeroom so I approached Dick and I said, 'Some of the orders say NO CHARGE.'
>
> He says, 'Yes.'
>
> 'How do you make money?' I said.
>
> He said 'Son' and touched my arm and told me he believed that a company needs to make a profit but he also believes in giving some – you will reap plenty. He really believes in giving and sharing. It really touched me. All my life as a worker I just came to make money. That point was a turning point. Before Dick talked to me I felt cheated because I felt I should earn more. Now I am motivated to work hard. I learned to succeed you have to go the extra mile.
>
> Now I am deputy supervisor.

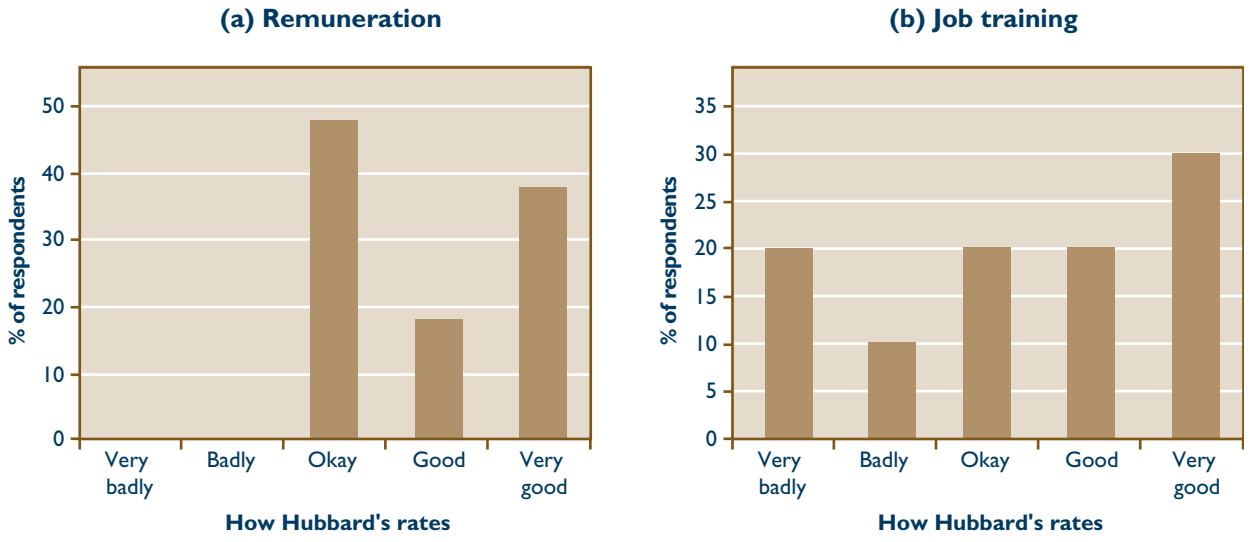
Staff at Hubbard's are paid a relatively mid-range rate of pay, and this is almost entirely due to Dick's desire to be socially responsible. Dick prefers to hire the long-term unemployed and works with the Work and Income New Zealand offices to create

Exhibit 6 Staff trips taken by Hubbard's



Source: TBL report, 2000/01.

Exhibit 7 Staff satisfaction survey results



Source: TBL report, 2000/01, as at March 2001.

employment. The staff survey results show employees' levels of satisfaction with a range of issues regarding their employment. Exhibit 7 reports on two of these issues.

Dick has consistently built a culture around caring for others, creating employment and being socially responsible, in addition to the more usual financial results. However, his philosophy on creating employment has created some problems. In 2000, an industrial dispute arose that led to a picket over wage and meal allowances. This dispute was partially due to pay rates. This industrial issue was resolved quickly by increasing pay and allowances, and through increased communication between management, the union and employees.

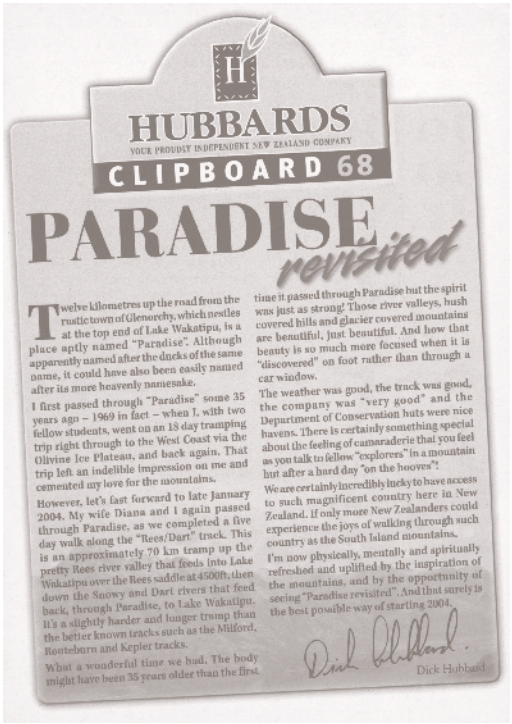
Shareholders

Although focusing on being a socially responsible company, financial success is vital to Hubbard's continuing success. Dick realises that in order to maintain employment levels and achieve his broader social goals, the company must be financially viable. The company is founded on Dick's vision, combined with commitment and loyalty from employees. There is great importance placed on running the company in a fiscally appropriate and responsible manner. The success and growth of the company has required financial discipline and sound profitability. Dick believes this to be important and puts considerable emphasis on appropriate management practices to ensure positive growth for the company. Decision making at Hubbard's combines both a human-centred and economic approach to ensure an appropriate degree of profitability is maintained to allow for all stakeholder interests to be looked after.

Community

Dick also believes in sharing his financial success with those outside the company. For over 10 years, Hubbard's has supported Outward Bound, the outdoor pursuits organisation. A donation of 50 cents from every packet of the 'Outward Bound' cereal sold is made to Outward Bound. This results in a donation of in excess of $100 000 per year, and stems from Dick's personal experience of going on an Outward Bound course. Other sponsorships include World Vision's Kids for Kids concert, which is a children's charity that benefited by $21 000 from Hubbard's in 2001. Other local community projects with schools include support for local high schools of cash scholarships and motivational prizes ($5000). A donation of $5000 was also made to the New Zealand Businesses for Social Responsibility, and $1500 was provided for a student scholarship.

Exhibit 8



HUBBARDS
YOUR PROUDLY INDEPENDENT NEW ZEALAND COMPANY
CLIPBOARD 68

PARADISE *revisited*

Twelve kilometres up the road from the rustic town of Glenorchy, which nestles at the top end of Lake Wakatipu, is a place aptly named "Paradise". Although apparently named after the ducks of the same name, it could have also been easily named after its more heavenly namesake.

I first passed through "Paradise" some 35 years ago – 1969 in fact – when I, with two fellow students, went on an 18 day tramping trip right through to the West Coast via the Olivine Ice Plateau, and back again. That trip left an indelible impression on me and cemented my love for the mountains.

However, let's fast forward to late January 2004. My wife Diana and I again passed through Paradise, as we completed a five day walk along the "Rees/Dart" track. This is an approximately 70 km tramp up the pretty Rees river valley that feeds into Lake Wakatipu over the Rees saddle at 4500ft, then down the Snowy and Dart rivers that feed back, through Paradise, to Lake Wakatipu. It's a slightly harder and longer trump than the better known tracks such as the Milford, Routeburn and Kepler tracks.

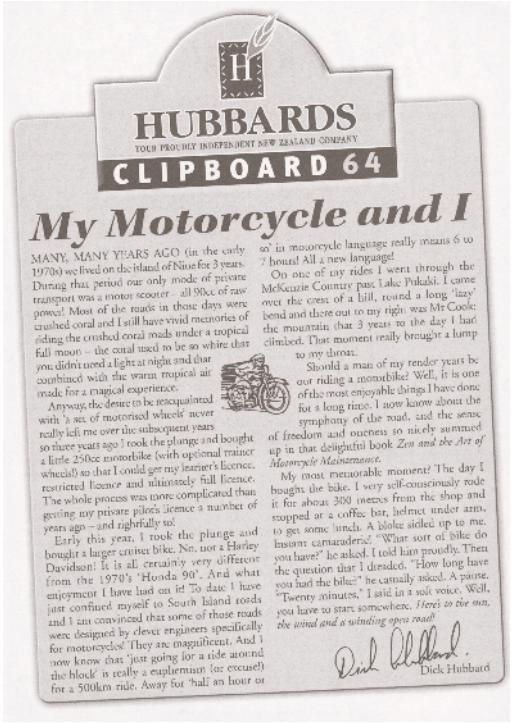
What a wonderful time we had. The body might have been 35 years older than the first time it passed through Paradise but the spirit was just as strong! Those river valleys, hush covered hills and glacier covered mountains are beautiful, just beautiful. And how that beauty is so much more focused when it is "discovered" on foot rather than through a car window.

The weather was good, the track was good, the company was "very good" and the Department of Conservation huts were nice havens. There is certainly something special about the feeling of camaraderie that you feel as you talk to fellow "explorers" in a mountain hut after a hard day "on the hooves".

We are certainly incredibly lucky to have access to such magnificent country here in New Zealand. If only more New Zealanders could experience the joys of walking through such country as the South Island mountains.

I'm now physically, mentally and spiritually refreshed and uplifted by the inspiration of the mountains, and by the opportunity of seeing "Paradise revisited". And that surely is the best possible way of starting 2004.

Dick Hubbard



HUBBARDS
YOUR PROUDLY INDEPENDENT NEW ZEALAND COMPANY
CLIPBOARD 64

My Motorcycle and I

MANY, MANY YEARS AGO (in the early 1970s) we lived on the island of Niue for 3 years. During that period our only mode of private transport was a motor scooter – all 90cc of raw power! Most of the roads in those days were crushed coral and I still have vivid memories of riding the crushed coral roads under a tropical full moon – the coral used to be so white that you didn't need a light at night and that combined with the warm tropical air made for a magical experience.

Anyway, the desire to be reacquainted with "a set of motorised wheels" never really left me over the subsequent years so three years ago I took the plunge and bought a little 250cc motorbike (with optional trainer wheels!) so that I could get my learner's licence, restricted licence and ultimately full licence. The whole process was more complicated than getting my private pilot's licence a number of years ago – and rightfully so!

Early this year, I took the plunge and bought a larger cruiser bike. No, not a Harley Davidson! It is all certainly very different from the 1970's "Honda 90". And what enjoyment I have had on it! To date I have just confined myself to South Island roads and I am convinced that some of those roads were designed by clever engineers specifically for motorcycles! They are magnificent. And I now know that "just going for a ride around the block" is really a euphemism (or excuse!) for a 500km ride. Away for "half an hour or so" in motorcycle language really means 6 to 7 hours! All a new language!

On one of my rides I went through the McKenzie Country past Lake Pukaki. I came over the crest of a hill, round a long "lazy" bend and there out to my right was Mt Cook: the mountain that 3 years to the day I had climbed. That moment really brought a lump to my throat.

Should a man of my tender years be out riding a motorbike? Well, it is one of the most enjoyable things I have done for a long time. I now know about the symphony of the road, and the sense of freedom and oneness so nicely summed up in that delightful book *Zen and the Art of Motorcycle Maintenance*.

My most memorable moment? The day I bought the bike. I very self-consciously rode it for about 300 metres from the shop and stopped at a coffee bar, helmet under arm, to get some lunch. A bloke sidled up to me. Instant camaraderie! "What sort of bike do you have?" he asked. I told him proudly. Then the question that I dreaded. "How long have you had the bike?" he casually asked. A pause. "Twenty minutes," I said in a soft voice. Well, you have to start somewhere. *Here's to the sun, the wind and a winding open road!*

Dick Hubbard

In addition to sharing his financial success, Dick is very open to sharing his story with others. His background shows hardship, and New Zealanders enjoy hearing about his rise from being a micro-business into one of the most famous companies and businessmen in New Zealand. Dick was also invited by the government to help direct New Zealand businesses towards the future. He is an inspiration to people starting their own business and is undoubtedly a role model for many people.

Hubbard's has also reported on another factor in their Triple Bottom Line report: 'influencing'. Hubbard's does this by producing the *Clipboard* newsletter (refer to Exhibit 8). In order to promote social responsibility by businesses, Dick founded the New Zealand Business for Social Responsibility (NZBSR) in 1998, and membership has now risen to 180 members.

The company is a member of the New Zealand Business Council for Sustainable Development (NZBCSD) and Dick is on its executive board. The NZBCSD is a branch of the World Business Council for Sustainable Development, and exists to promote the concept of sustainable development within New Zealand. Hubbard's follows a campaign of reducing or eliminating waste, informing and educating customers, and producing innovative products that conform to the precepts of sustainable development. Hubbard's currently recycles paper and cardboard, plastic shrink wrap which comes on inward pallet, aluminium and plastic containers, raw material containers and toner cartridges.

Customers

Traditionally, Hubbard's has not utilised any forms of advertising, other than the newsletter, which is included in each cereal box. Dick is realistic and does not try to pretend that the business is 100 per cent trouble-free, and wrote about the past labour dispute. The *Clipboard* enables customers to feel they know Dick, his family and even his dog.

Hubbard's has never believed in heavy advertising for brand or products. This was not merely a cost-saving measure, but evidence of Dick's personal philosophy regarding the social 'pollution' caused by too much advertising. He preferred to create goodwill and public knowledge of his products through word-of-mouth and his many 'good deeds' of corporate

responsibility that appeared regularly in national headlines. This exposure is extremely valuable to the company and the vast majority of the articles show the company in a very positive light.

In recent times, however, Dick has released limited advertising, which uses the following guidelines that have been presented in the Triple Bottom Line report.

> Our advertising will be aimed to inform and not to create unrealistic or irrelevant images.
>
> Our advertising will not play on anyone's conscience, fear, weakness or worries.
>
> We will not advertise directly to children and we will not invoke 'pester-power'.
>
> Our advertising will not use 'continual repetition', or 'irritation' as a technique.
>
> Our advertising will not promote the concept of 'instant gratification' or 'instant fix'.
>
> Our advertising will not denigrate our opposition and we will not undertake 'comparative advertising' as seen in the USA and now in Australia.
>
> Our advertising will respect your values and we recognise that they could be different to ours.
>
> We will spend consumers' money wisely and responsibly.
>
> Source: TBL report.

By keeping customers informed (via the *Clipboard*) and doing what they say they will do, Hubbard's has developed and maintained a good relationship with customers. The company is not afraid to publish complaints from customers, and operates as an honest and socially responsible company with regard to customers.

The future?

Until now, Hubbard's has grown with Dick as a hands-on owner and CEO, while maintaining his strong desire to operate his company in a socially responsible way. The result of this socially responsible stance is a company that is highly respected in New Zealand as well as being profitable. The question Dick now faces is whether he should expand the business further and capture some of the untapped markets he is sure are out there. Dick now has to weigh up the positives and negatives associated with growing his business.

Note

1 Triple bottom line reporting aims to extend traditional company reporting, which focused on financial information, to a more inclusive reporting system, which adds people and the environment to the report.

Appendix: Manufacturing processes

Many of the manufacturing processes are manual, with mixing of cereals with fruit being done by hand. Dick acknowledges the company is falling behind on the information technology front and will be investing a substantial amount of money into this in the near future. The production process has become more complicated, because of the large number of products and various packaging requirements. One generic product may need to be packaged in six different ways for each customer.

Work flow

The factory has expanded as new technology has been implemented. A production line approach was not working, so machines have been separated and redesigned. One product may require to work on Machines A, D, G and H, and another product may require D, F, J and S. This means there is no standard flow through the factory and can mean that work in process backs up behind machinery while waiting for spare capacity. This also causes problems for the production planner and scheduler.

Schedules

Schedules are based on sales reports from which trends are able to be gauged. Twelve monthly sales analyses are viewed, and seasonal patterns are taken into account. Some areas such as Invercargill (situated in the lower South Island) experience a much

greater drop in sales in winter (up to 50 per cent) than Auckland does, so the market is very much dependent on climate. However, a seasonal pattern also emerges because of the Christmas shutdown of many companies in New Zealand. Therefore, many of Hubbard's customers purchase large volumes of product in December, resulting in low January sales.

Purchasing

Purchasing is the responsibility of one staff member and is integrated with production planning, so all processes are operating with the same information and targets. It is considered to be a strategic activity and a recent analysis was conducted to ensure that the company is providing adequate resources and support to purchasing. The purchasing decision is facilitated by regular stocktakes and visual observation, which is common practice for a business of this size. Approximately six weeks' supply of raw materials is stored in the on-site warehouse, totalling almost NZ$3 million in value.

The types of orders range from bulk to small-sized orders. The bulk orders are for common ingredients, such as sugar or oats where the average order equates to 1000 tonnes. Bulk orders also tend to have long lead times, in some cases two to three months, because they come from overseas suppliers. A domestic supplier usually supplies smaller orders, such as a few litres of flavouring. Some are delivered on a just-in-time (JIT) basis, where an order is placed in the morning, and will be delivered by that afternoon.

Hubbard's purchases approximately 400 lines of raw materials, many of which are imported, either direct from the supplier or through a New Zealand agent. Purchases are made based on quality as opposed to cost, because in this industry cheaper suppliers usually mean lower quality. Hubbard's cannot afford to purchase inferior raw materials because it is renowned for being a high-quality producer. Suppliers are evaluated under Hubbard's HACCP (Hazard Analysis Critical Control Point) program. This requires specifications and inward checks on raw materials and packaging. A fairly recent activity encourages key suppliers to evaluate Hubbard's performance, giving suppliers the opportunity to provide input into areas for improvement.

Suppliers

Suplliers are important to Hubbard's and essential in maintaining the company's drive for high quality standards. The nature of the product makes the quality of raw materials vital and therefore long-term relationships with key suppliers are viewed as being essential to success and are actively sought. Packaging is an input into Hubbard's operation that adds a great deal of value to the products, as the packaging adds to the innovative nature of the product. Dick maintains a collaborative relationship with the main packaging supplier, as Hubbard's accounts for 60 per cent of the total sales of the packaging company. This supplier visits Hubbard's regularly to discuss specifications and any new innovations.

Case 7

Incat Tasmania's race for international success:

Blue-riband strategies

Mark Wickham
University of Tasmania

Dallas Hanson
University of Tasmania

In 1999, Robert Clifford (aged 56) entered the *Business Review Weekly*'s 'Richest 200 Australians' for the first time, qualifying for the elite group with an estimated net worth of some $150 million.[1] Clifford is the founder and chairman of Incat Tasmania, a highly successful catamaran manufacturer in Hobart. His far-sightedness as a shipbuilder, alongside his ability to manage innovation, enabled his small boat-building business (and river-ferry operation) to become a world force in the high-speed catamaran market, exporting to Europe, Asia and the Americas. So successful has the Incat operation been, that in 2000, it directly employed over 1000 people, generated $250 million in revenue, and accounted for approximately 23 per cent of Tasmania's total export earnings.[2]

Clifford and Clifford Incorporated: Don't pay the ferrymen ...

Despite the worldwide success of their aluminium catamaran range, the family business did not originally set out to build state-of-the-art vessels for the international passenger ferry market. Instead, the Clifford family business sought to reintroduce a trans-Derwent ferry service in the early 1970s, one that would predominantly serve Tasmania's tourist population.[3] The application to undertake the ferry operation was granted by the state government of the day, and in late 1972 the newly formed Sullivan's Cove Ferry Company launched the first of its 'bush-ranger' fleet, the *Matthew Brady*. Business proved to be good in the early stages, with both tourists and locals taking advantage of the novel Derwent River ferry service.

The Clifford family's decision to begin a ferry service across the Derwent River appeared to be rather fortuitous, given the tragic chance event that occurred early in 1975. On 5 January, at 9.27 p.m., the bulk ore carrier *Lake Illawarra* crashed into the 19th pier of the Tasman Bridge, claiming 12 lives, and severing the Eastern Shore's link with Hobart by knocking out an 80-metre section of the bridge.[4] Many tens of thousands of motorists and cyclists were now unable to travel easily to their required destinations, be it for work or pleasure. Bob Clifford found himself in the enviable position of being in the right place at the right time.

... 'til they get you to the other side – Transportation returns to Van Diemen's Land

Due to the increase in demand for the ferry service, the Sullivan's Cove Ferry Service increased its bushranger fleet to four with the *James McCabe*, *Martin Cash* and *Lawrence Kavanagh*. These vessels were built in near record time, and given the lessons learned from previous efforts, they were more advanced, being built 'as the plans were being drawn up'.[5] The four bushrangers were to serve as the west–east link for some three years while repairs to the Tasman Bridge were under way. In this time, Clifford's ferries transported in excess of nine million paying passengers.

Despite the successful launch of the additional bushranger vessels, demand for the ferry service still outweighed Clifford's supply. In order to improve customer service and increase the business's revenues, Clifford hired a new British-built 'fast ferry', the *Michael Howe*. The *Howe* was twice as fast and twice as comfortable as the bushranger fleet owned by Clifford, and was an instant success with the public. Unfortunately, the *Michael Howe* was also a maintenance-intensive investment, with 75 per cent of all company maintenance expenditure spent on the new 'hired hand'. Clifford was understandably unimpressed with the boat's design and maintenance requirements, despite the public's obvious delight with the faster service. The flaws that Clifford observed in the boat's design and structure (the mechanics were far too complicated and labour-intensive to be viable in the long term) once again reignited his innovative flair. 'If the English can sell 34 heaps of rubbish like this [around the world], how many properly engineered fast ships could we sell from Tasmania?[6] And with this marketing opportunity well in his grasp, the Clifford business began its initial foray into the international fast-ferry industry.

Clifford, Bob Clifford: Licensed to keel

During the following 20-year period, Bob Clifford utilised his entrepreneurial flair, and the help of some of his close shipbuilding friends, to design and build a succession of innovative catamarans. Of utmost concern for Clifford was the need to lighten the weight of his new catamaran designs, which had traditionally been built using either steel or iron. A revelation occurred in 1979, when Clifford decided to try something that no one else had been able to achieve throughout the history of shipbuilding – the use of aluminium in the construction of the ship's hull. Aluminium welding had not hitherto been considered a viable option for ship construction, as the metal is prone to bursting into flame at the high temperatures associated with the welding process. After a considerable amount of trial-and-error experimentation with his network of shipbuilding friends, Clifford perfected the aluminium welding techniques that were to propel his brand of fast ferry into the highly lucrative international markets.

Incat Tasmania: Eighty metres and beyond

By 1995, the world market for high-speed ferries had grown to generate sales revenues of just under $1.6 billion annually.[7] Not surprisingly, a significant number of businesses had entered the international catamaran industry to gain a share of this substantial revenue opportunity. By 1995, Clifford was faced with direct, and intensifying, competition, both from domestic firms (such as Austal Limited, Sea Wind, Venturer, Commercial Catamarans and Aussie Cat) and UK- and US-based firms (such as the 'US Catamaran' Company and Prout Catamarans). Each of the domestic firms, and Austal Limited in particular, had also perfected the aluminium welding technologies, and were similarly able to compete in the same markets as Incat. Over the next five years, for instance, Austal Limited would mirror Incat's foray

into passenger and cargo vessels, luxury passenger vessels, and craft suitable for military operations. The international competitors, however, were not able to mirror the Australian success with the aluminium welding technologies, and still based their vessels on the traditional steel-based hulls.

Of greatest concern to Incat was the fact that each of these competitors was also a newly 'internationalising firm', with access to similar resources (that is, revenues from international markets, raw materials and trained staff), and had likewise based their growth on the manufacture of innovative high-speed vessels. A number of Incat's competitors had also targeted the potentially lucrative Chinese market for fast ferries, somewhat threatening Clifford's most immediate and highly prioritised 'internationalising strategy'. It would appear that Incat Tasmania no longer had a monopoly in the world's high-speed catamaran market, nor the innovation and expertise required for success therein.

Clifford was well aware of the need to maintain Incat's revenue growth, and protect its market share, in the face of this increasingly competitive industry. As had been the case in the past, Clifford once again returned to the drawing board to design a 'new and improved catamaran' for the world's markets. The result was Incat's (and, indeed, the world's) first 80-metre-plus catamaran, the *Condor 12*. The innovative changes introduced by Clifford this time around would focus on passenger and crew safety, an important point of differentiation, given the spate of ferry disasters occurring in Europe at the time.[8]

The *Condor 12* was equipped with four of the world's most advanced safety systems (known as the Marine Evacuation System [MES]). The MES ensures that the entire passenger population of the *Condor 12* (some 700 people) can be evacuated in an emergency in less than 12 minutes, a time significantly less than that required by the peak international marine safety body (the International Maritime Organisation). In addition to the MES, the *Condor 12* was also fitted with an advanced and lightweight fire protection. Also installed upon the vessel were single-leafed hinged fire doors, single and double sliding fire doors, engine room fire-dampers, fire hatches and smoke baffles. These new features, combined with structural fire protection, formed the best fire protection system available for a high-speed aluminium craft. The safety features were well received by the new owners of the boat, which in 1996 was to serve as a major transport vessel for passengers crossing the English Channel.

The success of the *Condor 12* was once again evident to those in the market that provide a fast ferry service. In the period 1996 to 1998, Incat was to produce a number of 80-metre-plus catamarans for the European market. As was the Incat tradition, the new catamarans became larger, with greater levels of comfort and safety, and saw the adoption of new and innovative technologies. The completed catamarans during this period are as follows:

Stena Lynx 3	81 metres, English Channel ferry
Holyman Express	81 metres, England–Belgium run
Condor Express	86 metres, UK, 800-passenger, 200-car capacity
Sicilia Jet	86 metres, Mediterranean Sea vessel
Condor Vitesse	86 metres, UK, summer season ferry carrier
Incat 045	86 metres, Bass Strait carrier
Cat-Link V	91 metres, Scandinavia
Catalonia	91 metres, Spain

During this period, Incat averaged the construction and launch of one catamaran every 10 weeks. The most notable boat of the latest generation was the *Catalonia*, a 91-metre wave-piercing catamaran destined for Spain. Although the *Catalonia* was completed over-schedule (due to the inability of the company to physically perform the tasks required given the workload), it remained very much the latest 'showpiece' of the Incat Empire. Unlike previous efforts, the *Catalonia* was fitted out with a duty-free shop, and a number of extra luxurious features (staircases, plush carpeting, and so on). The more luxurious fit-out meant that it was noticeably heavier than

other similarly sized catamarans. However, the *Catalonia* remained capable of travelling at a respectable 48 knots as a lightship, and at 43 knots fully loaded. Despite the *Catalonia*'s size and weight, Clifford was confident that the craft was faster than the *Hover Speed Great Britain*, with which he had won the Hales Trophy (a 'Blue Riband' award) in 1990. (The 'Blue Riband' Hales Trophy is awarded to the commercial vessel that undertakes the fastest crossing of the Atlantic Ocean, a record that in 1990 was held by the liner the SS *United States* before Clifford won the trophy and the attention of the world's media.) With this thought in mind, as well as the implications for marketing and sales growth, Clifford decided to use the *Catalonia* to secure a second 'Blue Riband vessel' for the company.

During the same time, Incat's major competitor, Austal Limited, diversified away from its reliance on luxury aluminium-hulled passenger vessels, in favour of a multi-domestic-based business focusing on yachts, pleasure craft and cargo vessels. The company, unlike Incat, decided to list on the stock exchange and form alliances with other firms internationally in order to form an Austal group of companies based in the United States, Europe and Asia. By 1998, the Austral group of companies included Austral Limited (based in Australia), Austal USA (a joint venture partnership with leading US shipbuilder Bender Shipbuilding & Repair), Oceanfast (a yacht manufacturer), Image Marine (a pleasure craft manufacturer) and Austal Service (a maintenance company).[9]

Incat's Hales Trophy Defence: Catalonia and the Atlantic Ocean crossing

In mid-May of 1998, the *Catalonia* left Hobart, bound for New York from where the latest record attempt would begin. On Saturday, 6 June 6, the *Catalonia* hauled its anchor and set sail for the UK in an attempt to set a new record for the Hales Trophy, as well as a new record for the greatest distance travelled by a ship in a given 24-hour period. Once again, the mass media were on hand to witness the great feats undertaken by Clifford and his Incat team. Once again the media, and the rest of the interested world, were treated to a triumph. The *Catalonia* had, in only its second international voyage, managed to become the first boat in history to cover in excess of 1000 nautical miles in a 24-hour period. She had also crossed the Atlantic faster than any commercial vessel before her, establishing a new world record for Clifford and Incat.

While this journey was under way, the Incat manufacturing plant was putting the finishing touches on a new 91-metre catamaran named the *Cat-Link V*. Built for the Scandinavian company Scandlines, the boat was also to undertake a record-breaking attempt for the Atlantic Ocean crossing. Within weeks of the *Catalonia*'s efforts, the *Cat-Link V* successfully rewrote the record books and claimed the Hales Trophy and 'Blue Riband' certification. What was most important for Clifford was the fact that now three Incat vessels had managed to break the speed records once held by a US vessel for 50 years, and do it in absolute comfort.

Strong demand for Incat's wave-piercing catamarans resulted in the development of an important joint venture agreement with Afai Ships of Hong Kong. The joint venture was important, as it provided Incat with an initial foray into the high-potential Chinese market, as well as helped the company to keep up with the huge global demand for its vessels. The Chinese yard started work on its first vessel early in 1998, under the supervision of Graeme Freeman, an Incat manager. Most of the materials for the ships were supplied through the Tasmanian yard, and a constant team of Incat personnel and sub-contractors travelled to Hong Kong to supervise each stage of construction.[10] The joint venture proved successful, with the first ship completed by May of 1988, with a second ship's construction already under way. As with any licensing agreement, a major risk for Incat lies in the potential theft of its intellectual property, and therefore potentially the company's core competency of innovative catamaran design. Perhaps indications of the innovative drive within the company, Incat management said of such a concern that: 'We haven't really worried too much about the theft of our intellectual property. We work on the theory that whatever our licensees are stealing, they are stealing yesterday's work anyway.'[11]

Growth into the future: Incat and the continued internationalisation of a Tasmanian icon

The main issue facing Bob Clifford and his team at Incat mid-decade is ensuring the continued growth of the company through innovation, diversification and globalisation in the face of increasing competition and 'tough global economic times'. The history of successful marketing exercises, the constant flow of innovation throughout the organisation, and the ability of Incat to foster international relationships have, at least to date, seen the company rise from obscurity to a global leader in boating excellence. While there seems to be little change to the strength of global demand for high-speed vessels, cash flow problems did arise in early 2001 when a number of ships built by the company remained unsold for an extended period. The amount of money tied up in the idle ships equated to a substantial cutting back in employee overtime and other 'non-essential company expenditure'.

This cutback in 'non-essential' expenditure, unfortunately for Incat's workforce, apparently extended to include a 15 per cent pay-rise claim by the two main unions operating in the shipyard (the Australian Manufacturing Workers Union and the Construction, Forestry, Mining and Energy Union). Clifford's response to the pay claim was to dismiss it entirely, stating that pay increases at Incat will only result from an increase in catamaran sales. Given the state of the company's sales at the time (having completed, but as yet unsold vessels on the books), the pay claim appeared to be doomed to failure. In response to Clifford's statement that it would be easier for the union to 'get blood from a stone' than a pay rise based merely upon a 'cost-of-living' adjustment, industrial action was undertaken by some 650 workers in the form of a 24-hour strike. Clifford was forewarned of this imminent industrial action, and acted immediately to release a statement to this sector of his workforce that branded some as 'donkeys with not enough brains to make their heads ache'.[12] He continued to suggest that 'as "intelligent leaders" in tough economic times, Incat has no choice but to "cull the donkey population" for the good of the majority, and in doing so get rid of "the weakest links".'[13]

Unfortunately, the culling of employees was to no avail, with the firm's financer, the National Australia Bank (NAB), appointing a receiver management team to the company in mid-2001. The receiver managers were appointed largely to control the firm's perceived expenditure issues, and to enforce the cessation of the continued construction of otherwise unwanted vessels. It was stated by representatives of the NAB that it had no wish to dismantle the company, but rather protect its loans to the firm by taking closer control of its financial management. Again, a tragic event heralded a new period of growth for the company. On 11 September 2001, the financial centre of the US economy, the Twin Towers of the World Trade Center, suffered a horrific terrorist attack that destroyed the capitalist symbols and killed approximately 3000 people. Although the economic damage resulted in a major share price slump in the short term, it also sparked a major increase in defence spending around the globe, spending that would directly benefit the struggling Incat Tasmania. It was lauded that the US government had a potential A$20 billion to spend on new 'tactical response' vehicles, vehicles the service lacked for quick response to situations of armed conflict. Incat, rather fortuitously, had provided the Australian defence force with use of a catamaran (the HMAS *Jervis Bay*) for such duties in the East Timor peacekeeping mission, and was therefore well positioned to bid for the US contract.

The US government's response to the '9/11' terrorist attacks, the so-called War on Terror in Afghanistan and Iraq, freed up substantial monetary resources for the invasion of these countries. During 2002, Incat managed to win a major US contract that resulted in the NAB removing its receiver management team. The contract allowed the company to again innovate its designs (both in terms of vessels and financial management strategies) to accommodate the specific needs of the US military, as well as once again to license out its manufacturing processes to an overseas construction company.[14]

The business of building fast ferries remains a relatively new one and, as such, there is considerable scope for still further market development (continued catamaran-based construction) and market

diversification (that is, new product lines). As Clifford himself states:

> There are always problems to be solved that will require the design of both new and innovative products. It is coming up with ideas that is essential, and for that you need people with their brains in gear. Likewise, new markets will emerge to be served, and our team is constantly working to 'improve the breed'. If there is one thing that I'm proud of, it is [Incat's] ability to solve problems and expand our horizons.[15]

Although this ability seems to have always existed at Incat under Clifford's leadership, the question arises as to whether it will provide a continued source of competitive advantage into the future.

Notes

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Case 8

The Golden Arches in India:

A case of strategic adaptation

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Background

In March 2003, the McDonald's Corporation's Indian operation was at a critical juncture in its evolution. Between 1995 (the year its joint ventures were formed) and December 2002, the company and its joint venture partners had opened 46 restaurants. According to the earlier plans (June 2000), the company was aiming to have 80 outlets in India by the end of the year.[1] Since the investment to open each outlet amounted to Rs 20 to 30 million (approximately, US$417 000 to US$626 000 based on a 1 January 2003 exchange rate of Rs 47.92 = US$1)[2] excluding real-estate costs,[3] the rapid expansion would mean more than doubling of its investments, which (according to some estimates) stood at a level of Rs 3.5 billion in June 2000.[4] Some recent reports, however, had hinted that, due to the recent lacklustre financial performance of the parent corporation, McDonald's might scale back its number of planned outlets by as much as 20 per cent to 64. The scaling back would be part of a wider decision to restructure operations in emerging markets, including closure of 250 outlets.[5] Though the management of McDonald's India had denied these reports, the pace of expansion seemed to have slowed down over the past year.[6] Since the company was not required to release its financial figures, it was not clear whether it was on track to achieve its original objective of breakeven by the year 2003.[7] In fact, reducing the number of planned outlets would postpone the date for achieving breakeven since considerable fixed costs had been incurred in developing a supply chain, creating brand name recognition and inducing trial among potential customers.

McDonald's: The global fast-food powerhouse

McDonald's was, by far, the world's biggest marketer of fast food. In 2003, it operated more than 31 000 restaurants and served 46 million customers each day in 118 countries. For the financial year 2002, the company had attained US$41.5 billion in system-wide sales (out of which US$25.7 billion was accounted for by franchised restaurants), US$2.1 billion in operating profits and US$893 million in net profits. It also

had US$24.0 billion in assets. (See Exhibit 1 for a geographic analysis of McDonald's operations.) It was also, routinely, cited by the business press as being a savvy marketer. In June 1999, with a value of US$26.231 billion, the McDonald's brand was rated as being the eighth most valuable brand in the world, ahead of well-known brands such as Sony, Nokia and Toyota.[8]

McDonald's had a long history in Asia. It entered the Japanese market in 1971, which was followed by entry into other newly industrialising economies (such as Singapore and Hong Kong, among others) in Asia. Entry into China occurred only in 1990. McDonald's entered India in 1996. (See Exhibit 2 for McDonald's start-up dates in East Asian and South Asian countries.) The late entry could be attributed to several factors, such as the fact that a significant percentage of India's population was vegetarian, the limited purchasing power of the population and the closed nature of the economy.

The Indian market

India was a vast subcontinent with an area one-fourth that of the United States, and a population almost four times that large, at about 1 billion. The per capita GDP was quite low at US$400 (approximate). However, after adjusting for purchasing power parity, India's economy exhibited a per capita GDP (2002) of US$2540 and an aggregate GDP of US$2.66 trillion. On this basis, it was ranked the fifth-largest economy in the world (ranking above France, Italy, the UK and Russia) with the third-largest GDP in Asia behind Japan and China. (See Exhibit 3 for income distribution in India.[9]) Among emerging economies, India was often considered second only to China. Despite the low per capita income levels, the sheer size of the 'eating out' market in India was substantial. According to one estimate, India's food expenditure amounted to US$77 billion in 2000, out of a total world food spending of US$4000 billion.[10] The Indian food market was, however, highly fragmented,

Exhibit 1 Geographic analysis of McDonald's operations and performance (financial year 2002)

		Geographic breakdown						
	Overall	US	Europe	Asia-Pacific	Latin America	Canada	Middle East & Africa	Partner corporate brands
Revenues (US$mn)	15 405.7	5 422.7	5 136.0	1 236.7	813.9	633.6	1 294	N/A
Operating income (US$mn)	2 112.9	1 673.3	1 021.8	64.3	(133.4)	125.4	(66.8)	(571.7)
Total assets (US$mn)	23 970.5	8 687.4	8 310.6	3 332.0	1 425.3	703.2	780.4	731.6
Capital expenditures (US$mn)	2 003.8	752.7	579.4	230.4	119.9	111.6	190.4	19.4
Depreciation & amortisation (US$mn)	1 050.8	383.4	334.9	141.7	59.6	35.6	40.3	55.3
Average annual sales per restaurant (US$000)	N/A	1 628	1 821	1 091	931	1395	N/A	N/A
Margins in company-operated restaurants (%)	14.4	16.0	15.9	11.3	9.4	13.7	N/A	
Margins in franchised restaurants (%)	78.5	79.1	76.7	85.8	66.9	79.2	N/A	N/A

Source: www.mcdonalds.com.

Exhibit 2 Dates of McDonald's entry into East and South Asian markets

Year of opening	Country	Restaurants in 2002	Restaurants in 1997
1971	Japan	3 891	2 437
1975	Hong Kong	216	140
1979	Singapore	130	105
1980	Philippines	236	157
1981	Malaysia	149	110
1984	Taiwan	350	233
1985	Thailand	100	61
1988	South Korea	357	114
1990	China (Shenzhen, Special Economic Zone)	–	–
1991	Indonesia	105	103
1992	China (Beijing)	546	184
1996	India	46	9
1998	Pakistan	20	0
1998	Sri Lanka	2	0

Sources: For start-up dates: James L. Watson (ed.), 1997, *Golden Arches East* (Stanford, CA: Stanford University Press), Table 2.
For number of restaurants: McDonald's Corporation 2002 Annual Report, from www.mcdonalds.com.

with millions of roadside stalls collectively accounting for a large share of the market.

India's economic diversity was matched by its social diversity. There were more than 20 major spoken languages and over 200 dialects. The Indian currency (Rupee) had its denomination spelt out not only in English and Hindi (the national language), but also in three other languages. About 50 per cent of the population was considered to be illiterate, and advertising reached them via billboards and audio-visual means. For national launches, at least eight languages were used. In addition, the country faced poor infrastructure with frequent power outages even in New Delhi (the capital city) and Bangalore (India's Silicon Valley).

In terms of political system, India was a democracy. Since independence from the British in 1947, the economic system had historically been modelled on the socialist style. Under this system, the government strictly controlled entry and exit of domestic as well as multinational corporations (MNCs) into different sectors. Multinational firms also faced a variety of other restrictions. Since 1991, India had started deregulating the economy. However, the socialist mind-set could not be erased overnight. A member of the parliament had the following comment regarding the influx of multinational firms in consumer sectors such as packaged food: 'We want computer chips and not potato chips.'

The country also had a few anti-Western factions, which opposed the entry of MNCs, in general. The mistrust of MNCs could be at least partially attributed to the fact that the British rule of India was rooted in the entry of the British East India Company (for trading purposes) into the country. There were several small but vocal groups of health activists and environmentalists that were opposed specifically to the entry of fast-food giants such as McDonald's and KFC. When KFC opened its restaurant in Bangalore in 1995, local officials found that KFC had excessive levels of monosodium glutamate (MSG) in its food and closed the outlet. The outlet soon reopened, however. Vandana Shiva, a vocal exponent of environmental and animal welfare issues, made the following comment in an audio interview with McSpotlight:

> The McDonald's experience, which is really the experience of eating junk while thinking you are in heaven, because of the golden arches, which is supposed I guess to suggest that you enter heaven, and the clown Ronald McDonald, are experiences that the majority of the Indian population would reject – I think our people are too earthy. First, of all, it would be too expensive for the ordinary Indian – for the peasant, or the person in the slums

Exhibit 3 Income distribution in India

Classification	Number of people (mn)	Households (mn)	Income in US$
The Deprived	763	131	<600
The Aspirants	120	20	1000–3000
The Climbers	45	8	3000–6000
The Strivers	25	5	6000–12 500
The Rich (total)	2.18	0.3545	>12 500
The Near Rich	1.55	0.25	12 500–25 000
The Clear Rich	0.444	0.074	25 000–50 000
The Sheer Rich	0.144	0.024	50 000–125 000
The Super Rich	0.039	0.0065	>125 000

Income figures are approximate and based on the following two sources: Chaterjee Adite, 1998, 'Marketing to the superrich', *Business Today*, Living Media India Ltd, 22 April; Warren Berryman and Jenni McManus, 1998, 'India: Turning the Elephant Economy', *Independent Business Weekly*, 24 June.

> – it's an experience that a very tiny elite would engage in, and most of that elite which knows what good food is all about – would not fall for it. McDonald's is doing no good to people's health, and in a country like India where first of all, we are not a meat culture, and therefore our systems are ill-adapted to meat in the first place, and where people are poorer – shifting to a diet like this will have an enormous impact.[11]

Since 1991, when the Indian economy began opening up to foreign investments, many multinationals had rushed in – lured by the attraction of serving a large middle class, estimated at 300 million. However, even some of the well-known global brands failed with their initial strategies and were forced to reposition, including, in some cases, drastic reduction of prices. Some multinationals (for example, Peugeot) even had to close shop. Kellogg's, which entered with high-priced cereals (several orders of magnitude more expensive than the traditional Indian breakfast), faced a lack of demand. KFC initially failed to realise that Indians were repulsed by chicken skin, which was vital for the Colonel's secret batter to stick. Thus, apart from a lack of understanding about the local tastes, a combination of circumstances, including overestimation of the demand potential, rosy assumptions about the dismantling of bureaucratic hurdles to doing business, infrastructural inadequacies and, finally, inappropriate firm strategies (for example, pricing), led to many failures and disappointments.

McDonald's entry strategy in India

McDonald's India was incorporated as a wholly owned subsidiary – McDonald's India Pvt Ltd, or MIPL, in 1993.[12] In April 1995, the wholly owned subsidiary entered into two 50:50 joint ventures: with Connaught Plaza Restaurants (Mr Vikram Bakshi) to own and operate the Delhi restaurants, and Hardcastle Restaurants (Mr Amit Jatia) to own and operate the Mumbai outlets.

Though McDonald's had done product adaptation to suit local tastes and cultures in several previous ventures, such as the McPork Burgers served with Thai Basil in Thailand, the Teriyaki Burger in Japan, rice dishes in Indonesia, McSpaghetti with Filipino ham in the Philippines, McTempeh Burgers (fermented soyabean) in Indonesia and McLox Salmon sandwiches in Norway, the degree of adaptation required in India was significantly greater.[13] McDonald's replaced its core product, Big Mac, with the Maharaja Mac. The latter had a mutton patty (instead of the beef patty in the Big Mac), to avoid offending the sensibilities of Hindus (80 per cent of the population), who consider killing the cow as sacrilegious, and Muslims (12 per cent of the population), for whom pork was taboo. In addition, since 40 per cent of the market was estimated to be vegetarian, the menu included the McAloo Burger (based on potato), a special salad sandwich for vegetarians and the McChicken kebab sandwich. It also offered spicier sauces such as

McMasala and McImli (made from tamarind). Other elements of the menu, such as chicken nuggets, fillet of fish sandwiches, fries, sodas and milk shakes, were common with the rest of McDonald's system.

In 1998, McDonald's India set up a menu development team to collect consumer feedback. The results of the team's research revealed that while Indian customers didn't want the company to entirely localise its menu, they wanted a wider product range, more hot food and lower entry-level prices for products.[14] The company subsequently introduced several new products, such as the Veg Pizza McPuff, that were priced attractively and became top sellers in the menu. By 2001, almost 75 per cent of the menu in India was localised versus 33 per cent for a typical Asian country. (See Exhibit 4 for the complete menu offered in March 2003.[15])

The adaptation of the strategy went well beyond the menu, encompassing many aspects of the restaurant management system. Two different menu boards were displayed in each restaurant – green for vegetarian products and purple for non-vegetarian products. Behind the counter, restaurant kitchens had separate, dedicated preparation areas for the meat and non-meat

Exhibit 4 McDonald's menu in India

Menu item	Price (Rs)	Menu item	Price (Rs)
Burgers Happy Meals (burger with regular drink and a toy)		Salad Sandwich	54.00
		McAloo Tikki Burger	64.00
Salad Sandwich	18.00	Veg Pizza McPuff	54.00
Veg Pizza McPuff	17.00		
McAloo Tikki Burger	28.00	**Value Meals (burger with potato wedges/regular fries and regular drink)**	
McVeggie Burger	34.00		
Veg Surprise	18.00	McAloo Tikki Burger	49.00
Chicken McGrill	24.00	Salad Sandwich	39.00
McChicken Burger	46.00	Veg Surprise	44.00
Filet-O-Fish	46.00	Chicken McGrill	49.00
Chicken Maharaja Mac	55.00		
Paneer Salsa Wrap	40.00	**Meal combos**	
Chicken Mexican Wrap	49.00	**(burger with medium fries and medium drink)**	
Fries		Extra Cheese	6.50
Regular	20.00	Upsize to Burger with large fries and a large drink	10.00
Medium	26.00	McVeggie Combo	75.00
Large	33.00	McChicken Combo	89.00
Potato Wedges	20.00	Filet-O-Fish Combo	89.00
Beverages		Paneer Salsa Wrap Combo	82.00
Regular Coke/Fanta/Sprite	17.00	Chicken Mexican Wrap Combo	92.00
Medium Coke/Fanta/Sprite	21.00	Chicken Maharaja Mac Combo	94.00
Large Coke/Fanta/Sprite	25.00		
Cappuccino	17.00	**Desserts**	
Café Mocha	17.00	Soft serve: Pineapple/Hot Fudge Topping/ Vanilla	19.00
Espresso Black	12.00	Soft Serve: Cone	8.00
Elaichi Tea	17.00	Soft Serve: McSwirl	12.00
Tea	12.00	McShakes: Chocolate/Strawberry/Vanilla	30.00
Mineral Water (500 ml)	14.00	McShakes Regular: Chocolate/Strawberry/Vanilla	25.00
Quick bites		McShakes Medium: Chocolate/Strawberry/Vanilla	35.00
Cappuccino + Wedges	25.00	McShakes Large: Chocolate/Strawberry/Vanilla	45.00
Cappuccino + Puff	29.00	Apple Pie	24.00

Source: www.mcdonaldsindia.com.

products. The kitchen crew (in charge of cooking) had different uniforms to distinguish their roles and they did not work at the vegetarian and non-vegetarian stations on the same day, thus ensuring clear segregation.[16] The wrapping of vegetarian and non-vegetarian food took place separately. These extra steps were taken to assure Indian customers of the wholesomeness of both products and their preparation. To convince Indian customers that the company would not serve beef, and respect the culinary habits of its clientele, McDonald's printed brochures explaining all these steps and took customers for kitchen tours.

McDonald's positioned itself as a family restaurant. The average price of a meal combo, which included burger, medium fries and medium drink, varied from Rs 75 for a vegetarian meal to Rs 94 for a Maharaja Mac meal. This could be compared with KFC meal prices at Rs 59 (Crispy Burger, Regular Fries and Large Pepsi) and Rs 79 (KFC Chicken, Colonel Burger and Regular Pepsi). McDonald's Happy Meal, which included a complimentary toy, was priced between Rs 54 and Rs 64. The prices in India were lower than in Sri Lanka or Pakistan, and even the price of the Maharaja Mac was 50 per cent less than an equivalent product in the United States.[17] To fight its premium image among the public, the company undertook selective price cutting and also ran some periodic promotions. In March 2003, the company was offering value meals for as low as Rs 39 and Quick Bites for as low as Rs 25. The company's ice-cream offerings were priced extremely attractively – starting at Rs 8 for a soft serve cone. Apparently, even these low prices afforded McDonald's a healthy margin (40 per cent for cones). As Vikram Bakshi, explained: 'I will never become unaffordable, as I will not then be able to build up volumes.'[18] The lower price could be attributed to two key factors. First, pricing strategies of MNC rivals as well as by mid-range local restaurants influenced McDonald's pricing strategies as well as special promotions. For instance, in February 1999, several competitors were running special promotions, with KFC offering a meal inclusive of chicken, rice and gravy for Rs 39. For Rs 350, Pizza Hut was offering a whole family meal including two medium pizzas, bread and Pepsi. Wimpy's was offering mega meals at Rs 35.[19] Some analysts, however, were sceptical of McDonald's loss-leaders (or price cutting on selective items) strategy since they believed that customers attracted purely by these low prices would not pay repeat visits. The development of a local low-cost supply chain was a second key enabling factor in McDonald's pricing strategy.

Advertising and promotion

Some elements of the McDonald's promotional strategy remained the same as in other parts of the world – especially its emphasis on attracting children. A Happy Meal film had been consistently shown on the Cartoon Network and Zee (a popular local channel) Disney Hour. McDonald's had also teamed up with Delhi Traffic Police and Delhi Fire service to highlight safety issues, again trying to create goodwill among schoolchildren.[20] In late 2002, McDonald's held a children's painting competition across all its outlets in Delhi. As many as 5000 children participated in the competition and a selection of 12 paintings (screened by some of India's noted artists) were printed and sold as greeting cards. The proceeds from the sale of greeting cards would go towards restoring vision, through corrective surgeries, for needy children.[21] The company embarked on its first nationwide promotional campaign in June 2000. The campaign, budgeted at Rs 100 million, was expected to highlight (in phased order) the brand (the experience: *There is something special about McDonald's*), food quality and variety.[22] The company also ran special promotions during festivals and vegetarian days, and was even developing garlic-free sauces to bring in 'hard-core' vegetarian traffic.[23]

In November 2000, McDonald's launched a massive *Get Lucky* promotional scheme in collaboration with MTV, Sony Music, Coca-Cola, Hungama.com and General Motors. Under the scheme, customers buying a large meal combo, priced at between Rs 69 and Rs 89, would receive a scratch card. Customers could win giveaways such as caps, T-shirts, audiotapes and CDs, Internet browsing cards, and free tickets to a concert by Lucky Ali (a popular local singer). Purchase of a second meal combo within the same month would make customers eligible for lucky draws whose prizes included a trip to New Zealand and an Opel Corsa car. This was the first high-profile program launched by the company for adults – specifically,

young parents. In May, the company had launched a promotional program for children coinciding with summer vacations.[24] The *Get Lucky* campaign developed some snags a few months later, since many of the promised giveaways – such as trips to New Zealand, Opel Corsa cars and even the Lucky Ali concert – had not materialised.[25]

In March 2001, McDonald's India increased its advertising expenditure from Rs 150 million to Rs 200 million. In June 2002, having induced trial from a number of potential customers, McDonald's was aiming to generate repeat visits from customers. It changed its advertising slogan to *Let's have McDonald's today* (in Hindi: *To Aaj McDonald's ho jaaye*) versus the earlier theme of *There is something special about McDonald's* (in Hindi: *McDonald's main hain kuch baat*) launched in mid-2000. The objective of the new campaign was to position McDonald's as a comfort zone for young families. The company's advertising and promotional budget for 2002 was fixed at Rs 180 million.[26]

Community involvement and citizenship behaviour

McDonald's was involved in a variety of community welfare projects, including the following:

- It maintained public parks in Delhi and had taken up the responsibility for the maintenance and upkeep of two traffic triangles at a busy traffic junction in Mumbai.
- It was also helping in maintaining heritage structures of historic importance.
- It was the first fast-food restaurant chain in Delhi to withdraw the use of polythene bags in restaurants, replacing them with recyclable paper bags.
- It was playing a leading role in a campaign to detoxify one of India's major rivers by installing grease traps to separate oil from water before discharging into the drainage system.
- It treated all effluent material before disposal. It also segregated plastic, paper and liquid wastes into recycling versus discharge.
- It had participated in the Pulse Polio Awareness rally by sponsoring food and drinks for the volunteers. In 2001, it went a step further and set up a vaccination booth outside its restaurant in Pune.

Targeting markets

In terms of selection of cities, McDonald's followed the same strategy in India as in the rest of the world. Its initial focus on Mumbai and Delhi was driven by the following factors: these were the two largest cities in India, their citizens enjoyed relatively high income levels compared to the rest of the country, and they were exposed to foreign food and culture. After establishing a presence in leading cities, it then moved to smaller satellite towns, near the metropolitan cities (for example, from Delhi to Gurgaon and Noida, both suburbs of Delhi, and from Mumbai to Pune). McDonald's often found that there were positive spillover effects, in terms of its reputation, from the metropolitan cities to the satellite towns. In Jaipur, the company was hoping to attract foreign tourists. (See Exhibit 5 for a brief profile of the key cities on McDonald's radar screen.)

Developing the supply chain

Even before it opened the first restaurant, McDonald's spent as much as Rs 500 million (US$12.8 million) to set up a supply network, distribution centres and logistics support. By mid-2000, some estimates placed the total investment in the supply chain at almost Rs 3 billion.[27] Local suppliers, distributors and joint venture partners and employees had to match the restaurant chain's quality and hygiene standards before they became part of its system. McDonald's experience in identifying and cultivating the supplier of lettuce provided an excellent illustration of the difficulties involved. In 1991, hardly any iceberg lettuce was grown in India, except for a small quantity grown around Delhi during the winter months. McDonald's identified a lettuce supplier (Mr Mangesh Kumar from Ootacamund in Tamilnadu, a southern state) and helped him in a broad range of activities from seed selection to advice on farming practices. For several other suppliers, such as Cremica Industries which supplied the sesame seed buns, McDonald's helped them to gain access to foreign technology. In another instance, it encouraged Dynamix, the supplier for

Exhibit 5 Profile of the Indian cities targeted by McDonald's

Place	Population 1991	Population 2001	Remarks	State	Annual per capita income in Rs (1997/98)[1]	Annual per capita income in Rs (1997/98)[2]
Agra	892	1 076	Tourist attraction; home to the Taj Mahal	Uttar Pradesh	7 263	5 890
Jaipur	1 459	1 893	Major tourist attraction	Rajasthan	9 356	7 694
Chandigarh	504	790	Capital city of two northern states, Punjab and Haryana	Punjab and Haryana	19 500	14 457
Ahmedabad	2 955	3 823	Major business centre in western India	Gujarat	16 251	13 709
Vadodara/ Baroda	1 031	1 454	Business centre	Gujarat	16 251	13 709
Mumbai	9 926	12 903	Commercial capital of India	Maharashtra	18 365	16 217
Pune	1 567	2 004	Satellite town of Mumbai; manufacturing centre	Maharashtra	18 365	16 217
Ludhiana	1 043	1 482	Textile manufacturing centre in North India	Punjab	19 500	14 457
Delhi	9 119	13 661	Capital city; seat of the central government	Delhi	22 687	19 091
Bangalore	2 660	3 637	India's Silicon Valley	Karnataka	11 693	11 153

Notes: 1 Income data from Per Capita Income (State-wise) – Maps of India. The figures refer to the whole state and not the particular cities. Income levels for cities are likely to be somewhat higher than the figures for the whole states.

2 Income data from The Associated Chambers of Commerce and Industry of India http://203.122.1.245/assocham/prels/04181.asp. The figures refer to the whole state and not the particular cities. Income levels for cities are likely to be somewhat higher than the figures for the whole states.

Source: Population data from www.world-gazetteer.com/fr/fr_in.htm.

cheese, to establish a program for milk procurement by investing in bulk milk collection and chilling centres. This, in turn, led to higher milk yields and overall collections, as well as an improvement in milk quality. McDonald's ended up with a geographically diverse sourcing network with buns coming from North India, chicken and cheese coming from Western India, and lettuce and pickles coming from southern India. By 1999, it was sourcing 98 per cent of the ingredients and paper products from India. The only exception was French fries, which were imported from Indonesia.[28] There were as many as 40 suppliers in the company's supply chain.[29]

A dedicated distribution system was established to match the suppliers' production and delivery schedules with the restaurants' needs. The first two centralised distribution centres were set up near Mumbai and at Cochin (in the southernmost part of India) in joint ventures with two local retailers, both of whom had to learn from international distributors of McDonald's products how the restaurant chain handled distribution worldwide and particularly how to enhance the quality of storage operations. The company estimated that each distribution centre could service about 25 outlets.

McDonald's strove to keep the storage volumes of products high in order to exploit all possible economies of scale. The distribution centres were also expected to maintain inventory records and interact with suppliers and the logistics firm to make sure that their freezers were well stocked. McDonald's Quality Inspection Programme (QIP) carried out quality checks at over 20 different points at various stages in the movement of goods from farms to restaurants. It

had adopted Hazard Analysis Critical Control Point (HACCP) – a systematic approach to food safety that emphasised prevention within suppliers' facilities and restaurants rather than detection through inspection of illness or presence of microbiological data. Mr Amit Jatia had the following comment:

> The most important part of our operations was developing a cold chain (the process of procurement, warehousing, transportation and retailing of food products under controlled temperatures). There is practically no need of knife in any restaurant. All the chopping and food processing is done in the plants. Only the actual cooking takes place in the restaurants.[30]

Even with the suppliers and distribution system in place, McDonald's needed a distribution link to move raw materials to its restaurants. Logistics management was contracted out to AFL Logistics – itself a 50:50 joint venture between Air Freight (a Mumbai-based firm) and FX Coughlin of the United States, McDonald's international logistics provider. AFL logistics was responsible for the temperature-controlled movement of all products (by rail, road or air, as appropriate) from individual suppliers to regional distribution centres. McDonald's had to work extremely hard at inculcating a service orientation in its employees, especially those involved in physical logistics, since the freshness of the food was at stake. The truck operators had to be explicitly and clearly instructed not to switch off the trucks' refrigeration system to save on fuel or electricity. The corporation went to the extent of installing tracking devices, which would show the temperature chart through the entire journey.[31]

Since 1999, McDonald's had started using India as an export base for cheese, lettuce and other products that went into its burgers. Exports had already begun to Sri Lanka where it had opened in October 1998, and trial shipments had commenced to Hong Kong and the Middle East. The company was also trying to export its products to Europe, Russia and Southeast Asia. [32] Amit Jatia had the following comment: 'Things are becoming global in nature. Once you set up a supply chain in a strategic location it can service other countries as well.'[33]

Past performance and planned strategies

During its first 12 months of operations, McDonald's opened seven outlets (four in Delhi and three in Mumbai), had 6 million customer visits and had served up 350000 Maharaja Macs. By the end of 1998, the number of outlets had increased to 14, and, by mid-2000, to 25 outlets, with an outlet in Pune and Jaipur in addition to 13 in Delhi and 10 in Mumbai. By December 2000, it had opened another 21 outlets to bring the total to 46.

McDonald's success was especially notable in view of the fact that KFC, which had entered the Indian market at about the same time, had pulled out during the year.[34]

According to one estimate, in June 2002, McDonald's 38 restaurants (operating at the time) averaged about 4000 customer visits per day.[35] Over the previous four years, the number of transactions had grown at a 15 per cent annual rate.[36] The spending per customer visit at McDonald's was estimated at around Rs 45. One gratifying aspect of McDonald's success was the fact that, by mid-2000, it derived as much as 50 per cent of its revenues from vegetable food items, thus disproving its critics – especially those who were sceptical of its ability to serve food that suited Indian palates. In 1997, McDonald's food was classified by consumers as being bland. Within three short years, however, McDonald's was being sought for its unique taste.[37] The vegetarian pizza McPuffs, which combined pizza ingredients with samosas (an Indian snack), and Chicken McGrill seasoned with mayonnaise and extra-tangy Indian spices, had proved to be particularly popular.[38] It had also attracted some loyal customers with its value pricing and localised menu. One such customer said:

> A normal kebab with all the trimmings, at a regular restaurant would cost more than Rs 25 and if the new McGrill is giving us a similar satisfaction with its mint chutney (sauce), then we'd rather eat in a lively McDonald's outlet than sitting in a cramped car on the road.

To exploit the opportunities created due to its better brand awareness and customer acceptance,

McDonald's was following several different strategies. First, it was increasing the seating capacity in several of its restaurants by adding birthday party areas as well as expanding general seating areas. Initially, four restaurants in Delhi had been expanded and more would follow, depending on the results obtained.

The company was also trying to enter new cities where there might be demand for McDonald's fast food. One outlet each had been opened in cities such as Ludhiana (north India), Ahmedabad and Baroda (western India). The secondary cities, typically, had lower per capita income levels as well as population density than Mumbai or Delhi, and residents were also likely to be less open to Western food.

In addition to the traditional outlets in busy locations within key cities, McDonald's was also trying to open outlets in new locations including the following:

- at the inter-state bus terminal in New Delhi (one outlet)
- at airports and railway stations (for example, in Mumbai and Jaipur)
- on busy highways and in petrol stations
- in malls, multiplexes and cinema halls.

One advantage of these outlets was that they required lower investment per outlet versus a traditional format. A key concern, however, was whether the customer profile would be appropriate. For example, the highway travellers in India tended to be mostly truck drivers and bus passengers, who were not likely to go for the McDonald's type of food. For several other types of locations (for example, railways stations), analysts were wondering whether McDonald's outlets would generate enough traffic. The wide variety of formats and the dispersed network of outlets would accentuate the problems in maintaining quality and hygiene standards, as well as the infrastructural inadequacies. As Clair Babrowski, president of McDonald's Asia-Pacific operations, who was very upbeat about the growth prospects in the Indian market, had said: 'Part of opening a store is figuring out who's going to fix the equipment and how the deliveries will get there.'[39]

Analysts were also wondering whether the company was hasty in trying to expand too fast before achieving breakeven. On the other hand, having succeeded in developing the supply chain and creating a satisfied customer base, it seemed to be an opportune time for the company to expand. In summary, the pace and degree of expansion posed difficult dilemmas and would most likely impact the company's performance over the next several years.

Notes

1 'McDonald's India to invest Rs 7.5 billion', http://biz.indiainfo.com.
2 Approximate exchange rates on 31 December of each year were as follows:
1997: US$1 = Rs 39.246
1998: US$1 = Rs 42.481
1999: US$1 = Rs 43.516
2000: US$1 = Rs 46.664
2001: US$1 = Rs 48.170
2002: US$1 = Rs 47.870
3 'Big Mac at a fast clip', *Business Line*, 27 June 2002.
4 'McDonald's plans major investments in India', http://news.sawaal.com.
5 'McDonald's expansion plans under review', *Business Line*, 2 August 2001.
6 For instance, in June 2002, McDonald's was predicting that it would have 54 outlets by the end of 2002. The company ended the year with 46 outlets.
7 'Ronald McDonald to relive Indian dream', *Business Line*, 9 March 2001.
8 *Wall Street Journal*, Europe, June 1999; reproduced at www.branding-kaeuffer.com.
9 www.odci.gov/cia/publications/factbook/geos/in.html#Econ.
10 'Long way for India to go on the retail front', *Business Line*, 6 December 2000.
11 'Vandana Shiva on McDonald's exploitation and the global economy', www.mcspotlight.org.
12 'McDonald's expansion plans under review.'
13 'Look who's going native', *Far Eastern Economic Review*, 1 February 2001.
14 'McDonald's shifts to product-focused ads', *Business Line*, 8 September 2000.
15 'Look who's going native.'
16 'Happy birthday, Maharaja Mac! One year later: McDonald's in India', www.media.mcdonalds.com.
17 'Of PPPs, Big Macs and exchange rates', *Business Line*, 8 May 1999.
18 'McDonald's reworks its menu', www.india-today.com.
19 'Dinner on discount', *Business Line*, 25 February 1999.
20 'McDonald's readies expansion model – restaurants to come up in Pune, Jaipur and Bangalore', www.hindubusinessonline.com.
21 'Bestowing vision', *Business Line*, 18 November 2002.
22 'McDonald's goes for media splash', *Business Line*, 3 April 2000.

23 'McDonald's readies expansion model.'
24 'McDonald's to dish out mega promotions', *Business Line*, 2 November 2000.
25 'India: Bic Mac: not a lucky promo', *Business Line*, 20 March 2001.
26 'Big Mac at a fast clip.'
27 'McDonald's readies expansion model.'
28 'McJatia tickles Bombay's tastebuds, builds an empire, all in two years, The Rediff Business Special', www.rediff.com.
29 'Big Mac sets eyes on south', *Business Line*, 24 February 2001.
30 'McJatia tickles Bombay's tastebuds.'
31 'Jatia forayed into McDonald's foodbiz by chance, The Rediff Business Special', www.rediff.com.
32 'McDonald's to head south', *Business Line*, 21 April 2002.
33 'India to be McDonald's export base', www.indianexpress.com.
34 'Look who's going native.'
35 Since each restaurant was designed with a seating capacity of 150, this meant a turnover of about 26 times during the course of the day. 'Big Mac at a fast clip.'
36 'Big Mac at a fast clip.'
37 'McDonald's shifts to product-focused ads.'
38 'Look who's going native'; 'McDonald's readies expansion model.'
39 'Risky business', *Chain Leader*, 7(11), November 2002, pp. 63–7.

Case 9

Monsanto*:

Better living through genetic engineering?

Seth Brooks Melissa Schilling John Scrofani

Early in the year 2000, Monsanto Company merged with Pharmacia & Upjohn, forming Pharmacia Corporation, and making Monsanto part of the third-largest pharmaceutical company in the world. Later that year, Monsanto raised cash through a partial (15 per cent) initial public offering. As of March 2001, Monsanto employed 14 700 people, and at the helm was the president and chief executive officer, Hendrik Verfaillie.

Verfaillie faced a number of interesting challenges. Monsanto was a company that had, over the last decade, dramatically reinvented itself. Throughout the 20th century, Monsanto had acquired many companies, expanding into a diverse range of businesses. However, when Bob Shapiro had stepped into the office of CEO in 1993, he restructured the company to be more focused on 'life sciences' – or the combination of science and technology to find solutions for growing global needs. Explosive innovation in biotechnology had unleased a vast range of new potential products and offered the allure of tapping new, fast-growing markets. As of 2001, Monsanto had a new capital structure, and a new portfolio focused entirely on applying biotechnology to agriculture.

Though the company had pared down its corporate portfolio in order to have more strategic direction, Monsanto's move towards life sciences was not without its problems. One of the most successful applications of biotechnology to Monsanto's business had been *Roundup*® – a popular agricultural herbicide that worked in conjunction with genetically modified crop seeds. The combination of a powerful herbicide and crop seeds that are genetically modified to resist the herbicide had been a profound innovation, and had dramatically increased crop yields. By 1996, *Roundup*® accounted for 17 per cent of Monsanto's total annual sales.[1] However, Monsanto's patents on *Roundup*® had begun to expire in several countries in 1991, and expired in the United States in September 2000. To make matters worse, strong negative consumer perceptions of genetically modified (GM) foods began to surface towards the end of the decade, severely retarding the company's sales in Europe and beginning to threaten Monsanto's American markets as well.

* This case has been prepared as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

The science of life

Monsanto is an industry leader in the bioengineering of foods. 'The term "biotechnology" refers to the use of living organisms or their products to modify human health and the human environment,' according to the National Health Museum's website.[2]

> For thousands of years, from the time human communities began to settle in one place, cultivate crops and farm the land, humans have manipulated the genetic nature of the crops and animals they raise. Crops have been bred to improve yields, enhance taste and extend the growing season. Each of the 15 major crop plants, which provide 90 percent of the globe's food and energy intake, has been extensively manipulated, hybridized, interbred and modified over the millennia by countless generations of farmers intent on producing crops in the most effective and efficient ways possible.[3]

Many scientists argue that genetic engineering is simply a '… refinement of the kinds of genetic modification that have long been used to enhance plants … for food'.[4] The science of genetics and the understanding of why physical traits are passed from parent to child began over a century ago. German scientist Gregor Mendel conducted the first experiments aimed at understanding the science behind genetic inheritance. Mendel used artificial hybridisation, the fertilisation of the flower of one species by the pollen of another species, on thousands of plants, recording the traits of the successive generations. In 1865 he published a paper about his work, 'Versuche über Pflanzen-Hybriden' (Experiments in Plant Hybridisation).[5] The idea that physical traits are passed through generations of organisms created the new field of science focused on genetics.

In 1953, James Watson, a US biologist, and Francis Crick, an English biophysicist, discovered the structure of DNA (deoxyribonucleic acid).[6] DNA works like a blueprint to define all characteristics, or traits, of an organism. A DNA molecule has a double-helix shape, like a twisting stepladder. DNA strands are quite similar to a written language. The 'letters' of this genetic language are formed by the DNA nucleotides, which are the 'steps' in the DNA stepladder. The 'words' in the genetic language are formed of codons, each codon consisting of three nucleotides. The 'sentences' in the genetic language are genes, which are made up of many codons. A 'book' in the genetic language is an entire string of DNA, which defines all the characteristics of an organism.

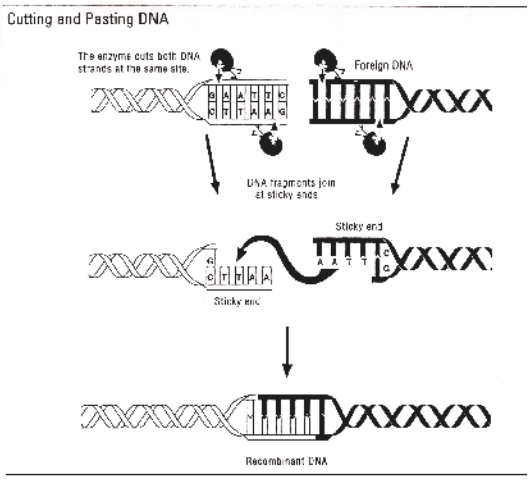
Modern understanding of the chemical properties of DNA allows scientists to 'cut' the DNA strand at a certain point in the stepladder using enzymes that are produced naturally by some bacteria. With this enzyme technology, scientists can 'cut' away a desirable gene from one organism, then 'paste' that gene into another organism, forming what is called a recombinant DNA strand (see Exhibit 1). It is through this cutting and pasting of genes that scientists can give organisms traits that they previously did not have, without the use of the longer and more ambiguous process of cross-fertilisation.

Genetically engineered crops and herbicide

> Without efficient crop protection products, worldwide yields would fall by an average of 30 to 60 per cent. They would also fluctuate wildly.[7]

Farmers across the world can either choose to spray their crops with some form of herbicide, or they can till their land on a daily basis, drastically decreasing

Exhibit 1 Cutting and pasting DNA



Source: Modified from http://esg-www.mit.edu:8001/bio/rdna/cloning.html.

Exhibit 2 *Roundup*® versus generic glyphosate brands

Herbicide treatment	SOG	Yield BU/A	Net income/Acre
Squadron 3 pts	PRE	33.6	US$209.20
Storm 1.5 pts + Poast Plus 24 oz	21 DAP + 7 Later	33.6	US$204.70
Roundup Ultra 32 oz	28 DAP	36.8	US$235.80

The *Roundup* vs. best conventional herbicide alternative study was designed to evaluate the economics of the *Roundup Ready* seed/herbicide system versus conventional herbicide programs. Each herbicide program was applied at labelled rates. Net income is figured by multiplying the yield (Bu/A) by US$7 minus herbicide costs, minus a US$4 fee per herbicide application, and the US$5 tech fee for *Roundup Ready* soybeans figured at a bag per acre.

In the systems study herbicide applications were made based on labelled recommendations and no other weed control was allowed. The systems studies are designed to measure the effectiveness of the herbicide management practices and input costs. Based on the 1996 trial at Marian AR, the *Roundup Ready* seed/herbicide system was superior economically to the other two conventional herbicide programs. These differences can be attributed to advantages in weed control and the removal of crop stress typically associated with conventional herbicide programs.

Source: www.asgrow.com/gknowled/CRMar96RR5.html, 23 March 1999.

their productivity. If they do choose herbicide, they can go the path of buying very effective and expensive proprietary products such as *Roundup*®, or they can buy the cheaper alternative generic brands such as *Squadron*, *Storm* or *Post Plus*. A 1997 study indicated that *Roundup*® clearly outperformed these generic brands. The results showed that *Roundup*® led to a net income per acre of US$235 compared to the others, which produced US$209 per acre (see Exhibit 2). *Roundup*® cost about US$34 per gallon compared to generic brands that cost US$15–$20 per gallon.[8] In 1998, Monsanto lowered the cost of *Roundup*® by US$6 to US$10 per gallon in order to increase sales volume and to better compete with generic companies. Generic products were popular in developing countries where it was difficult for farmers to afford proprietary products.[9] Furthermore, competing with generic brands had become particularly important as *Roundup*'s patents began to expire.

Roundup® herbicide technology

Roundup® is a wide-spectrum herbicide, meaning that it is toxic to any plants it comes in contact with. As noted in the *Mother Jones* environmental journal, '… its main ingredient, glyphosate, breaks down quickly in soil, so that little or no toxic byproduct accumulates in plant or animal tissue – a detail that Monsanto highlights when describing itself as an environmentally friendly company.'[10] As of March 2001, *Roundup*® had been used commercially for more than 20 years and was used in over 100 countries. It was estimated that in 1998, worldwide use of glyphosphate exceeded 112 000 tons, and that 71 per cent of all genetically engineered crops planted that year were designed to be resistant to herbicides such as Monsanto's *Roundup*®.[11]

Roundup Ready® crops

Monsanto markets several agricultural products that have been genetically modified to tolerate *Roundup*® herbicide. These crops, including *Roundup Ready*® soybeans, *Roundup Ready*® canola and *Roundup Ready*® cotton, are sold to farmers. *Roundup Ready*® soybeans, the first of Monsanto's *Roundup Ready*® genetically modified crops, was approved for commercialisation in 1995.

Roundup® herbicide is a broad-spectrum herbicide which controls a wide range of broadleaf and grass weeds. Most herbicides used in crops are selective, and only control certain types of weeds. Farmers using *Roundup Ready*® soybean seeds can use *Roundup*® herbicide to control weeds in their crop. If *Roundup*® herbicide were applied over the top of a conventional soy crop, it would kill the crop as well as the weeds. Apart from the ability to tolerate *Roundup*®, the crop is klike any other soy crop. Farmers can still use all the traditional herbicides they would with a conventional crop, and the composition of the soybeans produced is equivalent to a conventional soabean crop.

Monsanto enters into agreements with farmers who grow *Roundup Ready*® crops. These agreements

have two main purposes. First, they ensure that growers are aware of all their regulatory obligations, and second, they help Monsanto protect their intellectual property and the investment they have made in *Roundup Ready*® technology. Monsanto provides support to farmers to ensure that they meet their requirements to be compliant with the law.

Terminal technology

> On March 3 1998 the company Delta and Pine Land Co. (Mississippi, USA) and the U.S. Department of Agriculture (USDA) announced that they received US Patent No. 5,723,765 on a new genetic technology designed to prevent unauthorized seed saving by farmers.[12]

The technology enabled the environment to influence the characteristics a plant exhibits, even if the parents of the plant do not have those characteristics. With this technology it was possible to create genetic characteristics in plants that only emerge if they have the proper external stimulus. For example, two genetically altered parent plants can thrive in a moist region and exhibit characteristics of tropical plants, and their offspring can be moved to a desert region and exhibit characteristics of a desert plant, even though neither parent exhibited these desert characteristics. Monsanto hoped to capitalise on this technology by using it to prevent farmers from saving their seeds from year to year (and thus forgoing purchasing them from Monsanto). Monsanto would have utilised this technology by altering the plant's reproductive system so that, unless a patented chemical was applied to the seeds at a certain time during their development, the seeds would be unable to germinate. This technology would have further strengthened Monsanto's ability to enforce its contracts with farmers, by making the farmers unable to use seeds harvested from the plants they grew using Monsanto's seeds in the next season.

Monsanto announced its intention to merge with Delta and Pine Land Co. in the spring of 1998, in hopes of acquiring this technology. However, in response to consumer and farmer outrage, Robert Shapiro wrote an open letter dated 4 October 1999, stating that Monsanto was making the public a '… commitment not to commercialize sterile seed technologies, such as the one dubbed "Terminator". We are doing this based on input from … a wide range of other experts and stakeholders, including our very important grower constituency.'[13] Additionally, Shapiro wrote: '… though we do not yet own any sterile seed technology, we think it is important to respond to those concerns at this time by making clear our commitment not to commercialize gene protection systems that render seed sterile.'[14] Monsanto withdrew its Department of Justice filing for a merger with Delta and Pine Land Co. on 20 December 1999.

History of Monsanto

Monsanto's germination

Monsanto was founded in 1901 by John Francis Queeny, a 30-year veteran of the Meyer Brothers Drug Company, with the goal of producing products for the food and pharmaceutical industries. The company was named after the founder's wife, whose maiden name was Olga Mendez Monsanto. In 1902 the St Louis based company began producing saccharin. For several years after, the entire saccharin output was shipped to Georgia-based Coca-Cola Co. The company soon began producing caffeine and vanilla as well. In 1917, Monsanto entered the pharmaceuticals business when it became the first company to produce Aspirin.

As a result of financial crisis and wartime debt in the late 1920s, shares were offered to the public in 1927, one year before Edgar Queeny, the son of John Queeny, succeeded his father as president of the company. He announced his vision of an era of expansion into new businesses that would take Monsanto into the 1930s. This expansion would include immediate acquisitions that expanded the company into the rubber, chemicals, textile, paper, leather, soap and detergents industries. Monsanto also moved into the plastics and resin industries, the result of which gave it ownership of the first man-made plastic, celluloid.

During the Second World War years, Monsanto became involved in uranium research for the Manhattan Project. This was done in the Mound Plant in Dayton, Ohio, which was used as a nuclear facility for the government for the next 40 years. In the 1950s, Monsanto began to expand its chemical business.

Through licensing technology from DuPont, the company began to produce acrylic fibre and nylon. Monsanto also entered into the fertiliser industry, as well as the plastic bottle industry. During this decade, Monsanto built a plant to produce ultra-pure silicone, which was used as raw material in the electronics industry.

In the 1960s, Monsanto created a new company division focused exclusively on agriculture. It introduced *Lasso*® herbicide, and *Roundup*® followed a few years later. In the late 1960s, almost a decade after establishing the agriculture division, Monsanto moved into the seed and hybrid swine business through an acquisition. The 1972 appointment of John W. Hanley marked the beginning of an era of heavy investment in biotechnology research.

The 1980s began with a new president being named: Richard J. Mahoney. Immediately after assuming the position, Mahoney sold off the commodity chemicals portion of Monsanto's business to DuPont. Monsanto used the money for new research and development, and created new technologies, including the artificial sweetener 'Nutrasweet' (aspartame). At the beginning of the 1980s, Monsanto declared biotechnology as its strategic research focus. One year after this announcement, scientists at Monsanto were the first to successfully genetically modify a plant cell. This led to success in growing plants with genetically engineered traits. Two years after this success, a major restructuring of the company took place. Monsanto divested its non-strategic businesses to consolidate around its core competency, high-value-added proprietary products.

The 1990s served as a decade of expanding medicine production for Monsanto. Using new techniques in bioengineering, it was able to create new medicines at a faster pace than ever before. In the early 1990s, it sold its first *Ambien*®, an insomnia treatment, and *Daypro*®, an arthritis treatment. In 1993, Robert B. Shapiro was named the new CEO of Monsanto. He announced that the company would refocus its strategy and become a life sciences company. In the mid-1990s, Monsanto's first genetically modified crops were approved for commercial sale, including *Roundup Ready*® glyphosate-tolerant soybeans. Monsanto formed the Solaris Unit, which produced *Ortho*®, *Greensweep*® and *Roundup*® lawn and garden products.

As part of his effort to restyle Monsanto into an exclusively life sciences company, in 1997, Shapiro urged the company to spin off all the chemical parts of the business into a company called Solutia. Shapiro saw this as a good way for his company to increase its profitability by focusing on a key competitive advantage. (See Exhibit 3 for a complete corporate diversification timeline.)

Monsanto's evolved form

On 19 December 1999, Monsanto and pharmaceutical giant Pharmacia & Upjohn, Co. announced their intention to merge. The merger was approved by shareowners on 23 March 1999, creating a new entity called Pharmacia Corporation. Monsanto's pharmaceutical business was merged with Pharmacia & Upjohn's. According to information provided on the Pharmacia website at the time of the merger,

> Monsanto Company is the wholly owned agricultural subsidiary of Pharmacia Corporation. Monsanto is committed to finding solutions to the growing global needs for food and health by sharing common forms of science and technology among agriculture, nutrition and health.[15]

(See Exhibits 4 and 5 for Monsanto's financial information valid at time of merger.)

Monsanto's suppliers

In its move to become a company oriented around life sciences, Monsanto had spun off its chemical businesses that made the chemicals necessary to produce *Roundup*®. Though in general it was not dependent on any single supplier for a significant amount of its raw materials or fuel requirements, certain raw materials were obtained from a few major suppliers. For example, Monsanto purchased its North American supply of elemental phosphorus, a key raw material for the production of *Roundup*® herbicide, from P4 Production, LLC, a joint venture between Monsanto and Solutia Inc.[16]

On the crop side of the business, Monsanto had engaged in a spree of mergers and acquisitions,

Exhibit 3 Monsanto's corporate diversification timeline

1901	John F. Queeny founds the original Monsanto. His wife was Olga Monsanto Queeny. The first product of that company was saccharine.
1945	The original Monsanto produces and markets agricultural chemicals, including 2,4D.
1960	The Agricultural Division is established.
1964	*Ramrod* herbicide is introduced, beginning the use of Western theme names for the original Monsanto's brands of herbicides.
1968	Commercialization of *Lasso* herbicide in the U.S. begins the trend toward reduced-tillage farming.
1975	A cell biology research progam is established in the Agricultural Division.
1976	*Roundup* herbicide is commercialised in the U.S.
1981	A molecular biology group has been set up and biotechnology is firmly established as Monsanto's strategic research focus.
1982	Scientists working for the original Monsanto are the first to genetically modify a plant cell.
1982	The original Monsanto acquires the Jacob Hartz Seed Co., known for its soybean seed.
1984	The Life Sciences Research Center opens in Chesterfield.
1987	The original Monsanto conducts the first U.S. field trials of plants with biotechnology traits.
1994	The original Monsanto's first biotechnology product to win regulatory approval, *Polilac*, bovine somatotropin (Bst) for dairy cows, goes on sale in the U.S.
1996	The original Monsanto acquires the plant biotechnology assets of Agracetus and purchases an interest in *Calgene*, another biotech research company. (The Calgene acquisition was completed the following year.)
1996	The original Monsanto's first plant biotechnology product, *Roundup Ready* soybeans and canola and *Bollgard* cotton, are planted commercially.
1997	*YieldGard* corn, with protection against the European corn borer, is commercialized. Asgrow agronomics seed business is purchased by the original Monsanto.
1997	The original Monsanto spins off its industrial chemical and fibers business as Solutia Inc.
1998	The original Monsanto completes its purchase of DeKalb Genetics Corp.
1998	*Roundup Ready* corn is introduced.
2000	The original Monsanto enters into a merger and changes its name to Pharmacia Corporation.
A new Monsanto Company	
2000	A new Monsanto company, based on the previous agriculatural division of Pharmacia, is incorporated as a stand-alone subsidiary of the pharmaceutical company. (Pharmacia itself eventually becomes a subsidiary of Pfizer, in 2003.)
2002	*YieldGard* Rootworm and *YieldGard* Plus corn get U.S. approval.
2002	The new Monsanto company is spun off from Pharmacia and is now a separate company.
2003	More than 300 seed companies in the United States have licenses for Monsanto biotechnology traits.
2004	The majority of cotton and soybean seeds planted in the U.S. have at least one biotechnology trait.

Source: www.monsanto.com, 17 August 2004.

expanding its business to incorporate companies that had previously supplied many of the raw materials that Monsanto used to develop *Roundup Ready*® crops. Monsanto acquired or formed long-term relationships with six seed companies between 1995 and 1997 (see Exhibit 3).

Research and development

Monsanto prides itself on being a company that develops breakthrough proprietary technology. The development of *Roundup*® herbicide in the 1960s had put Monsanto's agricultural division into the forefront, and scientists in this division were working hard to develop the next generation of herbicide and seed systems. In the early 1990s, Bruce Bickner, co-president of Monsanto's agribusiness, spent $0.14 per revenue dollar on R&D compared to the industry average of $0.09 per revenue dollar.[17] However, some felt that Monsanto's focus on R&D-based proprietary products might cause it to miss out on the large global market for

Exhibit 4 Monsanto's statement of consolidated income (loss) (US$mn)

	2000	1999	1998
Net sales	5 493	5 248	4 448
Cost of goods sold	2 770	2 556	2 149
Gross profit	2 723	2 692	2 299
Operating expenses:			
Selling, general and administrative expenses	1 253	1 237	1 135
Research and development expenses	588	695	536
Acquired in-process research and development			402
Amortisation and adjustment of goodwill	212	128	77
Restructuring – net	103	22	94
Total operating expenses	2 156	2 082	2 244
Income from operations	567	610	55
Interest expense (net of interest income of $30, $26 and $27 in 2000, 1999 and 1998, respectively)	(184)	(243)	(94)
Other expense (income) – net	(49)	(104)	(21)
Income (loss) before income taxes and cumulative effect of accounting change	334	263	(60)
Income tax provision	(159)	(113)	(65)
Income (loss) before cumulative effect of accounting change	175	150	(125)
Cumulative effect of a change in accounting principle, net of tax benefit of US$16 million	(26)		
Net income (loss)	149	150	(125)

Source: Data from Monsanto Annual Report 2000.

crop protection. It was estimated that by 2001, 53 per cent of the world agrochemical market would consist of generic chemicals (rather than proprietary chemicals).[18] In most countires Monsanto's sales growth was weaker than sales growth in the United States (see Exhibits 6 and 7).

Human resources

Monsanto placed considerable emphasis on the value of its employees. It was often reinforced that excellent management of people was crucial to retain Monsanto's foothold in the market. HR managers were required to have a master's degree and at least five years of HR management experience '… to ensure proper staffing skills, change management, coaching and counseling, project management and organizational design'.[19] The senior staff at Monsanto went to great effort to place people into the positions that fit them best, believing that a failure to properly allocate employees would result in a forfeiture of the company's competitive position.

Marketing

Monsanto targeted professional farmers by advertising *Roundup*® in magazines such as *Farm & Country*, *Farm Journal* and *High Plains Journal*.[20] The primary marketing message for *Roundup*® was that it was a safe product to use. The productivity increase enabled by *Roundup*® was already clear to farmers – at least those in the United States. As noted in *The Economist*,

> Americans in general have a positive perception of technology and are willing to accept the biological version of it. They are willing to overlook the fact that they are growing and eating genetically modified foods in return for increased yields and reduced costs.[21]

Ron Thompson, a corn farmer in Illinois, noted: 'If there is a farm that grows corn, canola, soy, or wheat, then its farmer probably buys *Roundup*®. It is in his best interest.'[22]

Exhibit 5 Monsanto's statement of consolidated financial position (US$mn)

Assets	**2000**	**1999**
Current Assets:		
Cash and cash equivalents	131	26
Trade receivables, net of allowances of $171 in 2000 and $151 in 1999	2 515	2 028
Miscellaneous receivables	283	350
Related party loan receivable	205	
Related party receivable	261	
Deferred tax assets	225	130
Inventories	1 253	1 440
Other Current Assets	100	53
Total Current Assets	4 973	4 027
Property, Plant and Equipment		
Land	69	82
Buildings	766	708
Machinery and equipment	2 688	2 187
Computer software	190	155
Construction in progress	746	726
Total property, plant and equipment	4 459	3 858
Less accumulated depreciation	1 800	1 639
Net Property, Plant and Equipment	2 659	2 219
Goodwill (net of accumulated amortisation of $290 in 2000 and $183 in 1999)	2 827	3 081
Other Intangible Assets (net of accumulated amortisation of $506 in 2000 and $362 in 1999)	779	935
Other Assets	488	839
Total Assets	11 726	11 101
Liabilities and Shareowner's Equity		
Current Liabilities:		
Short-term debt	158	
Related party short-term loan payable	635	
Short-term debt of parent attributable to Monsanto		89
Accounts payable	525	466
Related party payable	162	
Accrued compensation and benefits	172	147
Restructuring reserves	38	26
Accrued marketing programs	181	256
Miscellaneous short-term accruals	886	720
Total Current Liabilities	2 757	1 704
Long-term debt	962	
Long-term debt of parent attributable to Monsanto		4 278
Postretirement Liabilities	367	
Other Liabilities	299	474
Shareowners' Equity		
Common stock (authorised: 1 500 000 000 shares, par value $0.01		
Issued: 258 043 000 shares in 2000	3	
Additional contributed capital	7 853	
Parent company's net investment		4 926
Retained earnings	2	
Accumulated other comprehensive loss	(479)	(281)
Reserve for ESOP debt retirement – attributable to Monsanto	(38)	
Total Shareowners' Equity	7 341	4 645
Total Liabilities and Shareowners' Equity	11 726	11 101

Source: Data from Monsanto Annual Report 2000.

Distribution

On 12 July 1999, Monsanto signed an agreement making Scott's Company the sole marketing and distribution agent of *Roundup*® in the United States. Scott's was the most recognised agent of garden products in the US.[23] Prior to this, Monsanto distributed *Roundup*® through the Central Garden and Pet Company, which sold *Roundup*® to retailers and sometimes directly to farmers. Global opportunities had also caught Monsanto's attention. 'The international potential for our existing biotechnology traits is roughly double the acreage potential within North America,' noted Verfaillie. In July 1998, Monsanto purchased Cargill Seed Business, an already established worldwide seed company with operations and distribution in 51 countries in Central and South America, Europe, Asia and Africa, in order to gain quicker access to these markets.[24]

As part of its strategy to lessen its reliance on US sales and increase the acceptance of biotechnology internationally, Monsanto's near-term plans included: (1) working with the Brazilian government and other stakeholders to obtain approval for planting *Roundup Ready*® soybeans in Brazil; (2) accelerating

Exhibit 6 Monsanto's sales by region (US$mn)

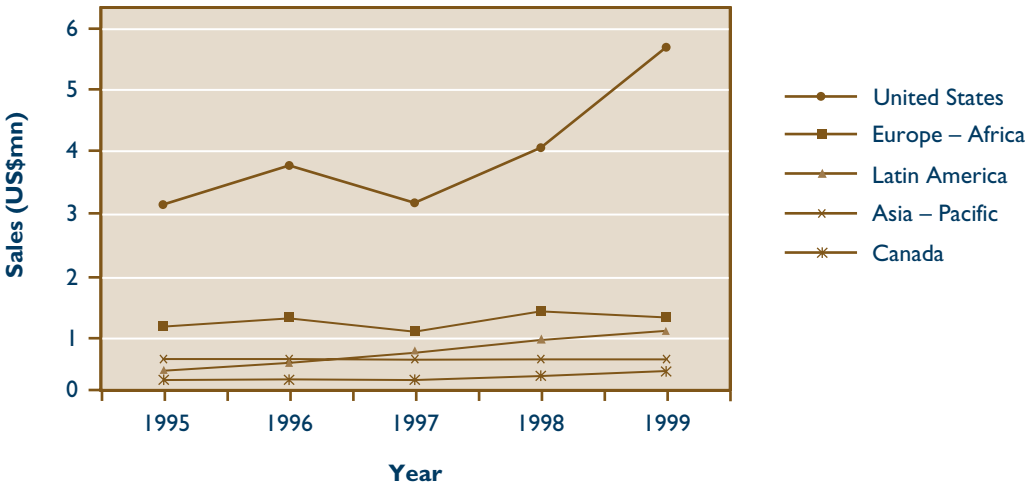
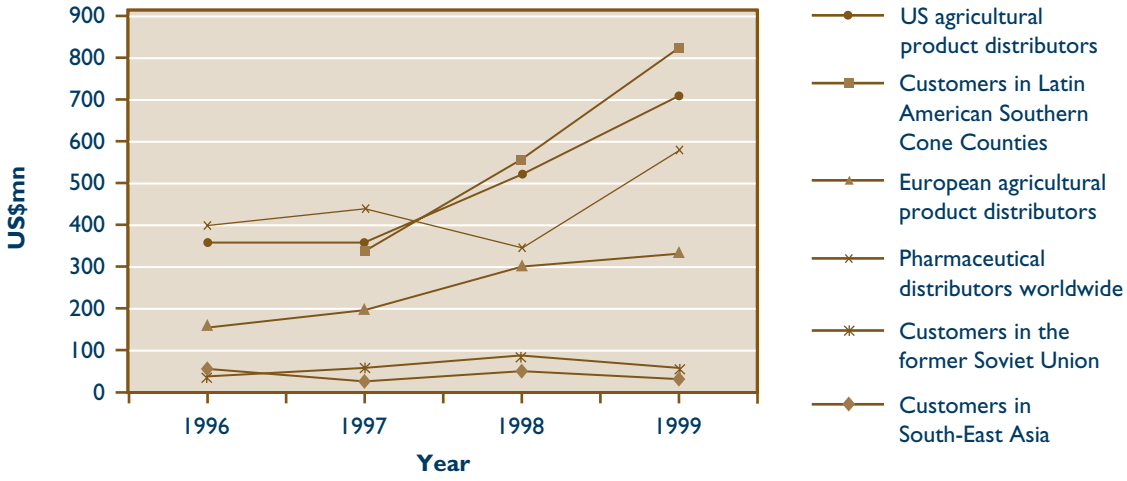


Exhibit 7 Monsanto's trade receivables by region (US$mn)



the commercialisation of *Roundup Ready*® corn by securing a licence to import grain grown from *Roundup Ready*® seeds into Europe; and (3) expanding its markets in Asia by securing the approval of *Bollgard* insect-protected cotton in India.[25]

Levelling the field

Monsanto faced several large competitors. One giant in the market was American Home Products (AHP), whose agricultural subsidiary, Cynamid Corporation, competed directly with Monsanto through a heavy focus on R&D and marketing.[26] It had introduced alternative products that had the same chemical base as *Roundup*® and thus could be used with it. DuPont Corporation and Novartis Corporation also competed with Monsanto and its parent company, Pharmacia, primarily in the areas of pharmaceuticals, chemicals and consumer home products. The patent expiration of glyphosate had further opened opportunities for companies to enter the agribusiness, an area that had long been dominated by Monsanto.

Patent expiration

Roundup® herbicide was registered for use in 1974. By 1991 patents protecting it had expired in several countries, including Australia. Patent protection for the active ingredient in the herbicide expired in the United States in September 2000.[27] Having had patent protection on the production and sale of *Roundup*® herbicide, Monsanto now stood on the threshold of competing with other chemical firms that made glyphosate-based herbicides. Monsanto began lowering prices on *Roundup*® in markets where patent expiration was most likely to impact sales. Monsanto hoped to recoup in volume what it would lose in profit margins.

On 19 January 1999, Dow Chemical Company subsidiary Dow AgroSciences LLC and Monsanto announced a multi-year manufacturing agreement that also licensed the rights to Monsanto's patent data for glyphosate herbicide.

> The agreement will allow Dow AgroSciences to register its own brand of glyphosate herbicide for sale globally. However, Dow AgroSciences will not be able to reference Monsanto data when registering its products for use in Japan. Additionally, the agreement allows Dow AgroSciences to use its own brand of glyphosate herbicide over the top of *Roundup Ready*® soybeans and cotton in the year 2000 in the United States, and beginning in 2001, over the top of *Roundup Ready*® corn in the United States.[28]

DuPont

DuPont was an extremely large company with US$28 billion in sales in 1999.[29] Its business was split fairly evenly between three divisions: Chemicals (which DuPont is most widely known for), pharmaceuticals and life sciences. From 1998 to 2000, its herbicide share in the soybean market had slipped from 30 per cent to 12 per cent due to inroads by *Roundup*®, and the company was forced to slash 800 jobs in the agricultural division.[30] However, in 2000, the company began producing herbicides similar to *Roundup*® under a licensing arrangement from Monsanto.

Novartis

Novartis competed in the areas of consumer health, healthcare and agribusiness with US$25 billion in sales in 1999.[31] The company was founded in 1758 under the name Ciba Geigy, and began by producing chemicals, dyes and drugs of all kinds. At the time of Monsanto's inception in 1901, Ciba was a market leader in artificial sweeteners. Like Monsanto and AHP, it competed worldwide, offering herbicides, insecticides, plant activators and seed treatment. While Novartis had not developed any breakthrough agricultural products in recent years, it did have the highest capital-spending budget for R&D in crop protection technologies.[32] It also licensed glyphosate from Monsanto for use in its herbicide products.

American Home Products

As mentioned previously, American Home Products (AHP) posed a significant threat to Monsanto. Its acquisition of Cynamid Corporation in 1994 significantly strengthened the company on a global basis, placing AHP among the top-tier in sales of agricultural sciences.[33] AHP's sales jumped from US$8.9 billion in 1994 to US$13.3 billion in 1995, due to the acquisition of Cynamid.[34] However, AHP showed a

net loss of US$1.2 million in 1999, due to the mass restructuring of the organisation to accommodate the new agricultural company. In addition, it conducted a nationwide inventory buyback program of soybean seeds in order to prepare for Cynamid's future herbicide products. This reduced 1999 net sales by US$175 million.[35]

AHP's focus on market research and R&D resulted in the development of an improved alternative to *Roundup*® products, EXTREME™ herbicide and PURSUIT residual. EXTREME™ used glyphosate, the same main ingredient used in *Roundup*®, and combined it with a residual agent PURSUIT, which prevented new weeds from growing up to six days after application.[36] The customer could not get this benefit from using *Roundup*® alone. When AHP asked customers how to improve *Roundup*®, 85 per cent of them responded, 'Give it residual control.'[37] The two companies, Cynamid (AHP) and Monsanto, signed a multi-year agreement in July 1999 in which Cynamid (AHP) would be allowed to purchase the glyphosate for use in EXTREME™.[38] Since the product could be used in conjunction with the glyphosate-immune seeds sold by Monsanto, AHP was able to benefit by Monsanto's large installed base of existing customers (see Exhibit 8).

Growing concerns

The genetically modified food industry had long faced opposition in Europe, and was facing increasing criticism in the United States. In addition, Monsanto in particular was facing charges of misleading advertising, and that *Roundup*®*'s* primary active ingredient, glyphosate, had been linked to illnesses that included a form of cancer known as non-Hodgkin's lymphoma.

Patenting life

Although in the year 2000 the controversy over bioengineered foods was only beginning in the United States, other countries had advocated against the sale of GM food for years. The use of biotechnology to create genetically modified food '… has set off a firestorm among European consumers'.[39] In the European Union, a legal and political battle had ensued over whether or not to allow companies to patent 'life' (that is, gene sequences which they have either discovered or engineered).

> In 1988, the European Commission first proposed a patent directive (law) which would have allowed such patents. Seven years later, in 1995, the European Parliament (EP) rejected this legislative proposal because it deemed the patenting of life-forms unethical. But in 1998, the Parliament succumbed to pressure from the biotech industry and adopted the 'Life Patents Directive'. However, the Directive is now being challenged before the European Court of Justice and it is still not certain whether the industry will get what it wants. In addition, matters are made even more complicated by the existence of a parallel patenting system, the much older European Patent Convention (EPC),

Exhibit 8 Global herbicide sales of American Home Products/Monsanto (US$mn)

	1997	1998E	1999E	2000P	2001P	2002P	97–02 'CGR
Roundup	$2 188	$2 450	$2 650	$2 850	$2 850	$2 850	5%
Pursuit	540	570	600	625	650	675	5%
Prowl/Stomp	314	325	340	360	380	400	5%
Scepter	117	135	165	195	225	250	16%
Lasso/Harness	390	360	360	360	360	360	–2%
BST	160	190	210	230	250	270	11%
Squadron	68	80	95	110	125	140	16%
Other Herbicides	448	490	550	610	660	700	9%
Total Herbicides	$4 225	$4 600	$4 970	$5 340	$5 500	$5 645	6%
% Change	15%	9%	8%	7%	3%	3%	

Note: E = Estimated, P = Predicted.

Source: Pharmaceutical Industry Pulse Part 6, SG Cowen Securities Corporation, 1 October 1998.

Exhibit 9 Greenpeace's labelling guidelines

Policy Concerning the Labelling and Declaration of Genetically Engineered Food Products

Greenpeace International, November 1997

Greenpeace is opposed to the release of genetically modified organisms (GMOs) into the environment. We also believe that stream-lining of crops (sometimes referred to as segregation) is essential for the right of consumers to be provided with the choice of non-genetically manipulated food. For products that do contain or are produced by GMOs all products, seeds, animal feed, and food products and their components must be very clearly labelled.

Greenpeace has provided an example of how a label for such products could look. We are calling on the EU Commission to implement a comprehensive and immediate labelling program for its citizens that allows for the choice of non-genetically modified food for consumers.

Greenpeace Policy on Labelling in the European Union

All food products that have been produced, processed, grown or cultivated under one of the following preconditions have to be marked with a clear and easily visible label (see Annex 1), to inform consumers about the production process and to allow an informed choice between genetically engineered and conventional food products.

The label has to be used as a non-removable sticker or as a direct imprint on the product itself or its packaging (whatever is displayed to the customer). The labelling policy should come into effect immediately as stickers can be used as a phase in for the interim period when direct imprints should be obligatory.

For the labelling process, the complete chain of production and all components of the final product must be taken into consideration. All ingredients and components of the final product must be listed. The technical capability to detect GMOs is not a criteria for labelling.

Additional information on the product must clearly state if the product contains proteins from plants, animals or microorganisms known to initiate allergies.

A central register of all products on the market in the European Union should be maintained. Information should be collected and results published for the public by the EU Scientific Food Committee controlling program on the short and long term effects of genetic engineering in food.

Liability for any health effects caused from food or products derived from GMOs should be the responsibility of the food processing company or company involved.

(A) Labelled 'Genetically Manipulated'

Food products must be marked with the label 'Genetically manipulated' if one or more of the following preconditions applies to either the finished product or one or more of its components:

1. Food products and/or their components that consist of or contain genetically modified organisms (according to the definition set out in the EU-directive 90/220/EEC). This regulation applies both for finished products and their components, regardless whether the genetical modification can be detected by currently available scientific standards or not.
2. Food products and/or their components that are produced or derived from genetically modified organisms. This regulation applies both for finished products and their components, regardless of whether the genetical modification can be detected by currently available scientific standards or not.
3. Food products, if their additives are produced or derived from genetically modified plants or animals.
4. Food products obtained or derived from animals raised and fed with genetically modified animal fodder.
5. Animal fodder must be labelled as genetically manipulated:
   if the fodder or its components consist of or contain genetically modified organisms or their parts; if the fodder or its essential components are produced or derived from genetically modified organisms.
6. Animals that are genetically engineered and sold for food or animal fodder (such as fish meal).

(B) Labelled 'Produced with Genetic Engineering'

Food products have to be marked 'Produced with genetic engineering' (without a label; in written form, placed within the list of ingredients), if one or more of the following preconditions applies to either the finished product or one or more of its components:

1. Food products that are produced with the help of production processes that operate with genetically modified organisms or their derivatives.
2. Food products that contain or are produced with the help of additives (vitamins, enzymes, flavoured substances (flavourants)) that are produced or derived from genetically modified organisms.

Source: Information taken from www.greenpeace.org/~geneng/.

which does not allow patents on plants but is undecided on patents on animals and genes.[40]

Patents on gene sequences were first allowed in the United States. If laws banning the patenting of gene sequences were upheld, Monsanto would be unable to protect itself from other companies copying and reselling the technology in which it had invested so heavily.

The regulation of genetically modified foods

In the United States, the Food and Drug Administration (FDA) is responsible for regulating the biotech industry.

> Under FDA policy developers of bioengineered foods are expected to consult with the agency before marketing, to ensure that all safety and regulatory questions have been fully addressed. FDA's policy also requires special labeling for bioengineered foods under certain circumstances. For example, a bioengineered food would need to be called by a different or modified name if its composition were significantly different from its conventionally grown counterpart, or if its nutritive value has been significantly altered. Special labeling would be required if consumers need to be informed about a safety issue, such as the possible presence of an allergen that would not normally be found in the conventionally-grown product.[41]

As the FDA policy existed in 2000, most products that contained genetically modified components did not need to state this fact on their labels. This raised heavy criticism from consumer advocacy groups, which lobbied to have food containing GM products labelled as such. One advocacy group, Greenpeace, released a guideline for labelling GM foods (see Exhibit 9).

Consumer advocates also criticised the FDA's policy that unless a genetically modified food is significantly different from its 'natural' counterpart, the agency would not test that food product for safety. The FDA asserted that GM food is '… exempt from testing because it is "generally recognized as safe" (GRAS)'.[42] However, many scientists, including scientists working for the FDA, insisted that the agency should test all genetically modified products on the market.

Herbicide risks

Many of those who were opposed to the use of genetically modified food were also concerned because companies developing herbicide-resistant crops had begun requesting permits allowing higher residues of chemicals in genetically engineered food. For example, Monsanto had already received permits enabling a threefold increase in herbicide residues on genetically engineered soybeans in Europe and the United States (up from six parts per million (PPM) to 20 PPM).[43] This was particularly alarming because a study by Swedish oncologists Dr Lennart Hardell and Dr Mikael Eriksson, published in the 15 March 1999 *Journal of American Cancer Society*, indicated a link between glyphosate and non-Hodgkin's lymphoma (NHL). The researchers maintained that exposure to glyphosate increased the risk of contracting this form of cancer.[44]

Sadhbh O'Neill, of the European organisation Genetic Concern, stated that this study reinforces concerns by environmentalists and health professionals that:

> … far from reducing herbicide use, glyphosate resistant crops may result in increased residues to which we as consumers will be exposed in our food. Increased residues of glyphosate and its metabolites are already on sale via genetically engineered soya, common in processed foods. However no studies of the effects of GE soya sprayed with Roundup on health have been carried out either on animals or humans to date.[45]
>
> The United States Department of Agriculture (USDA) statistics from 1997 show that expanded plantings of *Roundup Ready*® soybeans (i.e. soybeans genetically engineered to be tolerant to the herbicide) resulted in a 72 percent increase in the use of glyphosate. According to the Pesticides Action Network, scientists estimate that plants genetically engineered to be herbicide resistant

will actually triple the amount of herbicides used. Farmers, knowing that their crop can tolerate or resist being killed off by the herbicides, will tend to use them more liberally.[46]

Misleading advertising

Though Monsanto marketed *Roundup*® as 'biodegradable' and 'environmentally' friendly, test results had shown that the main ingredient in *Roundup*®, glysophate, was the number one cause of illness among farm workers.[47] This brought them under close scrutiny by the US Attorney General's office. As a result, Monsanto was forced to pay fines up to US$100 000 to compensate the government for the money spent in the investigation.

To counter the European aversion to genetically modified foods, Monsanto launched a US$1.6 million campaign to ease Europeans' hard feelings about genetically modified seeds and pesticides. It promised citizens that genetically modified foods were harmless to the environment and to people who eat them. It also declared that GM potatoes and tomatoes had been approved for sale in the UK (when in fact the UK had not yet approved these vegetables for sale). The European public showed a less-than-welcoming response to this campaign, complaining on 13 separate occasions to the UK Advertising Standards Authority that these ads were false and consumers were hurt as a result.[48]

Positioning for the future

The technological innovation embodied in *Roundup*® and *Roundup Ready*® seeds had given Monsanto a dominant and profitable position in the agricultural market. This product line had come to represent a significant portion of Monsanto's revenues and profits. However, with the impending patent expiration, increasing pressure from groups opposed to genetically modified foods, and other possible health concerns, the future of *Roundup*® – and, indeed, Monsanto – had become quite murky. Verfaillie needed to position his company for the future, but to do this required addressing some very difficult questions. Could Monsanto defend its position in *Roundup*®? If not, could it develop new markets that leveraged its biotechnology resources? Would genetically modified foods gain acceptance, or face increasing opposition and regulation? Was promoting genetically modified foods ethical? How could Monsanto increase its competitiveness internationally? In sum, how would Monsanto evolve to face the future?

Notes

The website sources given below were correct at the time of the merger but may no longer be vlaid.

1 www.monsanto.com/Monsanto/mediacenter/background/96sep24_Herbicide.html.
2 www.accessexcellence.org/AB/BC/what_is_biotechnology.html. The National Health Museum is a 501(c)(3) non-profit corporation, based in Washington DC.
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Case 10

Nucor Corporation and the US steel industry

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Darlington, South Carolina, 1969. Making steel is a technically demanding, complex and dangerous process. Nucor Corp.'s initial foray into steel production was the latter. Instead of staffing the plant with seasoned steel veterans, Nucor hired farmers, mechanics and other intelligent, motivated workers. Those employees along with company executives and dignitaries in attendance at Nucor's mill opening fled the plant as the inaugural pour resulted in molten steel pouring on to the mill floor and spreading towards the crowd. Onlookers and employees alike were left wondering if Nucor would ever successfully produce steel.[1]

The steel industry, a classic example of a market in the late stages of maturity, traces its roots to colonial-era blacksmiths who forged basic farm and household equipment. The industry grew (and consolidated) rapidly in the first half of the 20th century, with worldwide demand growing throughout the 1960s. However, a series of shifts in market dynamics led to dramatic industry-wide declines in growth and profitability. The dominant players faced the same problems as leaders of other mature industries – Ford and General Motors, for example: obsolete production facilities, bureaucratic management systems, heavily unionised workers and hungry foreign competitors. Due to its centrality in the economy, the decline of the steel industry was cited by some observers as evidence of the decline of the overall US economic system.

While foreign competition played a significant role in changing the US steel industry, an even larger factor emerged during the 1970s: minimill technology. Traditional 'integrated mills' rely on large-scale vertical integration including integrated coke and ore production. 'Minimills' used a new technology to recycle scrap steel and quickly stole most of the commodity steel market away from integrated producers. This enabled minimills to enter a geographic market with a distinct cost advantage: they typically require a capital investment of US$300 to US$500 million, or 5–10 per cent of that required for an integrated mill. The minimill revolution has resulted in a dramatic dispersion of the steel manufacturers from the 'rust belt' to the primary population and growth areas of the United States. The impact of minimills on the industry is best demonstrated by looking at the former industry leader US Steel (now USX Corp.). In 1966, US Steel controlled 55 per cent of the American steel market; in 1986 it controlled only 17 per cent.

Despite its inauspicious foray into steel, Nucor Corp. has become the benchmark for both the US steel industry and US industry in general. Nucor is one of the fastest growing and most efficient steel producers in the world. Despite declining demand for steel, Nucor's growth has been phenomenal. Since

pouring its first batch of steel in the 1960s to support in-house operations, the company has become one of the top five producers of steel in the United States. Without an R&D department, Nucor has repeatedly achieved technological feats other steel producers thought impossible. Their hourly pay is among the lowest in the industry, yet they have the highest productivity per worker of any steel producer in the US and near zero employee turnover. How has Nucor achieved such phenomenal success? Can it continue to do so?

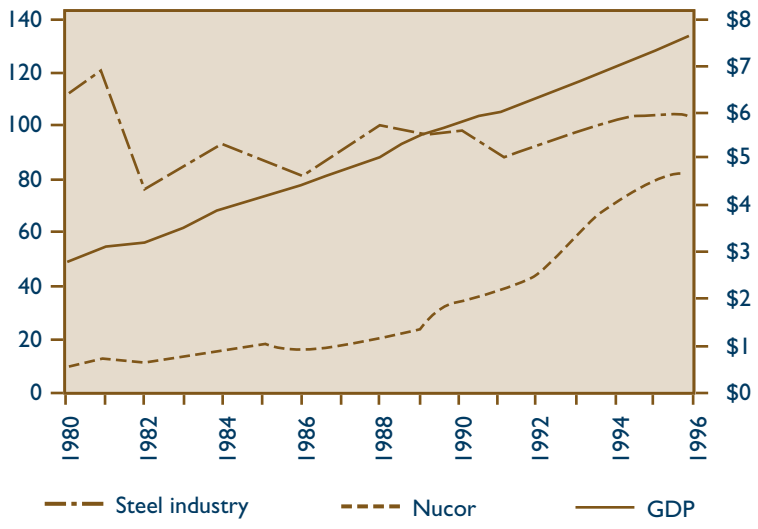
US steel industry history

Steel has been a part of the domestic economic system since the colonial era, when iron (the parent of steel) was smelted and forged. The early 19th century, with the advent of steam engines, cotton gins and farming combines, advanced iron as a commodity of progress. The addition of carbon to iron yielded a material with additional strength, elasticity, toughness and malleability at elevated temperatures. The Civil War provided the impetus for the industry to organise, consolidate, expand and modernise to supply the vast quantities of steel required for warfare.

Following the Civil War, the construction of new transportation systems, public works projects, automobiles, bridges, ships and large buildings all fuelled a torrid expansion of the industry lasting through the turn of the century. Domestic economic expansion and two world wars maintained an unquenchable appetite for steel both in the United States and around the world in the first half of the 20th century. In the aftermath of the Second World War, America's steel industry prospered as it supplied an ever-expanding domestic economy and the rebuilding of war-ravaged infrastructures. This windfall for the domestic industry was in actuality one of the root causes for its eventual decline. US plants, left idle by the end of the war, were reactivated to support the Marshall Plan and MacArthur's rebuilding of Japan. The war-torn nations of the world, however, rebuilt their industrial facilities from the ground up, incorporating the latest production technology. Conversely, domestic producers were content with older, formerly inactivated facilities.

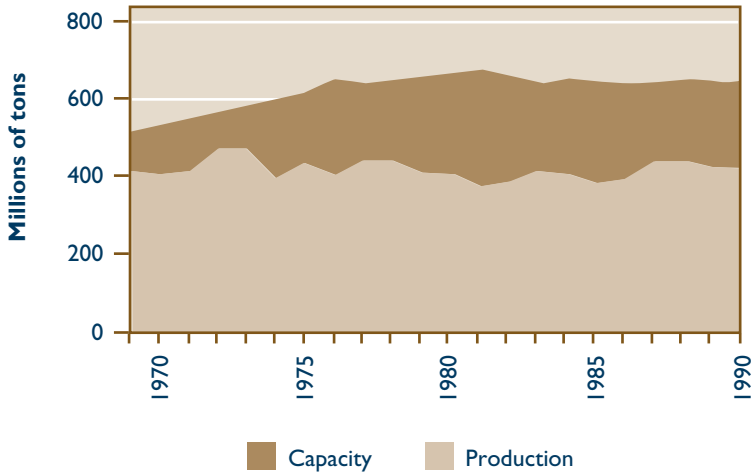
Global demand for steel expanded continuously throughout the 1960s; domestic producers elected not to meet this demand, choosing only to match domestic consumption requirements. This presented an opportunity for up-start foreign producers to rejuvenate and strengthen themselves without directly competing against US producers. Throughout this expansion, the relationship between management and

Exhibit 1 Comparative trends: GDP, steel industry output and Nucor output, 1980–96



Note: Information is overall trends; it is not to scale for comparison. GDP is scaled on right axis in trillions of 1992$. Industry is scaled on left axis in million tons. Nucor is scaled on left axis in million tons, but shown at 10×.

Exhibit 2 World capacity, production and idle capacity, 1970–90



Year	% idle
1970	20
1972	22
1974	13
1976	25
1978	24
1980	29
1982	39
1984	29
1986	31
1988	23
1990	23

labour soured. In 1892, Henry Clay Frick's Pinkerton guards attacked striking workers, setting the stage for a contentious relationship between management and labour. Labour, represented by the United Steel Workers of America (USWA), and management began negotiating three-year collective bargaining agreements beginning in 1947. These negotiations frequently collapsed, and strikes following the third year of a contract became commonplace. Firms dependent on steel soon initiated a pattern of accumulating 30-day 'strike hedge' inventories to feed operations during strike shutdowns. In 1959, the USWA walked out for 116 days. In 1964, another strike required presidential intervention. The impact of these strikes reverberated throughout the economy. Major customers began to look for stable supplies of steel from foreign producers who, in 1959, met only 3 per cent of domestic demand. Fuelled by excess capacity and strike-induced demand, foreign producers were providing 18 per cent of domestic demand by the time a long-term labour accord was reached in the early 1970s. Foreign producers currently supply 20–25 per cent of the steel used in the United States.

The slowdowns and closures of the 1970s set the stage for the steel industry's 'dark ages' – the period from 1980 to 1986 when steel output declined from 115 to 80 million tons despite an increase in real GDP. The energy crisis led to demand for smaller, lighter cars which require less steel, also resulting in less required tonnage. R&D in the steel industry led to stronger blends of steel. New materials, such as petroleum-based materials (plastics), organics (wood/pulp) and synthetic materials (fibreglass, epoxies) became significant threats in several applications customarily met by steel. Overall employment in steel fell from 535 000 in 1979 to 249 000 in 1986.

Despite this decline, this was also a period of shakeout and dynamic activity in the industry. Slowly, and with the help of the federal government (primarily in tax and regulatory relief and enforcement of Uruguay Trade Agreements/Voluntary Restraining Agreements), some firms were able to revitalise their operations by streamlining production, selecting better markets, focusing production (minimills), improving facilities, stabilising labour contracts, and reducing labour content through plant modernisation, dollar devaluation and a reprieve from the onslaught of substitute materials. This gave the surviving firms an opportunity to recover and prosper.

Historically, demand for steel fluctuates in both the US and international markets due to its close ties to durable and capital goods, markets which suffer more acutely during austerity and are more prosperous during economic expansions. Economic swings notwithstanding, there has been little appreciable growth in steel demand between the 1950s and the 1990s. Current domestic production is approximately 100 million tons per year, far less than the 120 million tons of 1981. Decline in demand has led to substantial excess capacity. In 1980, for example, domestic producers

had 25 per cent idle capacity. While the industry now operates at 90 per cent of capacity, this has come as a result of reduced capacity, not increased output; total domestic capacity declined by 30 per cent between 1980 and 1994. Capacity reduction in the steel industry is expensive, particularly for integrated producers. USX Corp., for example, eliminated 16 per cent of its capacity in 1983 at a cost of US$1.2 billion. Still, by 1987, USX had 40 per cent idle capacity.

While large-scale, integrated producers such as USX were shedding excess capacity, a new type of competitor, 'minimills', was entering the market. Minimills utilise recycled steel (in the form of junk cars, scrap, etc.) as a primary ingredient. Unlike the integrated producers, minimills are less capital-intensive, smaller and have historically focused on producing low-technology, entry-level products. Unlike integrated mills, which have seen production decline, minimills have seen explosive growth, with numerous plants opening in the late 1980s and 1990s.

Overall, the steel industry has all of the characteristics of a highly competitive market: stagnant demand, excess capacity and numerous global competitors. The ability of the largest firm to use its power to set prices is gone. Above-average industry margins are quickly targeted by other firms. These factors are compounded by a largely commodity-like product that minimises switching costs and customer loyalty. Not surprisingly, the profit performance of the industry has been weak; the industry as a whole lost money during much of the 1980s. In 1987, the first (albeit small) industry-wide profit in eight years was posted. With the exception of the 1990–91 recession, domestic producers have gradually improved the return on assets to a value of 6.1 per cent in 1994. A flurry of exits and Chapter 11 reorganisations led to an improved profit potential for remaining firms by the mid-1990s. The success is more pronounced in the minimill sector, although the integrated producers are presently healthy and now represent a new threat to the minimills.

Emerging industry trend

While in many ways the industry appears to have stabilised, a number of emerging trends threaten to cause further disruption within the industry to both integrateds and minimills.

Minimill over-capacity

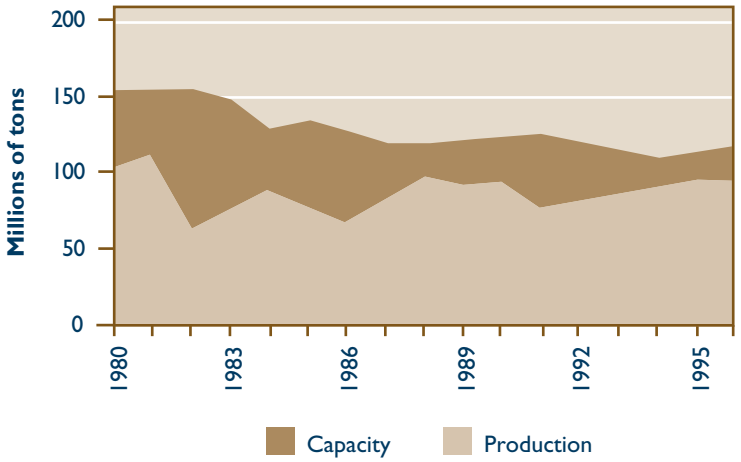
Starting in 1989, only one company, Nucor, was capable of producing flat-rolled steel using minimill technology. However, competing firms have started using similar technology and there were expected to be 10 new flat-roll minimills on-line by 1997, adding 13 million tons of production capacity – about 10 per cent of 1996 production – to the industry. This new capacity should become available just as steel consumption is expected to decline.

Scrap prices

Due to growing demand for scrap metal, its cost has become increasingly volatile in the 1990s. In 1994, for example, prices climbed as much as US$50/ton to US$165–170/ton, while 10 million tons of American scrap were exported to offshore customers. In

Exhibit 3 US production, 1974 and 1994

Exhibit 4 Domestic capacity and production, 1980–96



1996, prices reached US$200/ton, and were expected to climb, but instead declined to US$170–180/ton by the end of 1997.

Euro production

While growth has improved in recent years, demand for steel is still weak in much of Europe, particularly in Eastern European nations. Western Europe alone had 20 million tons of excess capacity in 1994, and Russian mills were operating at 65 per cent of capacity. Additionally, many European mills are state-owned and subsidised. Faced with weak performance and idle capacity, many of these mills are aggressively pursing export opportunities in China and other parts of Asia. Russian steel exports approached US$4 billion in 1993, double their 1992 level.

Antidumping rulings

US integrated steel producers filed 72 charges of dumping against foreign competitors – primarily the Germans and Japanese. In 1993, the International Trade Commission concluded that there was some justification for these charges, but not for others, and ruled that foreign steel caused no harm in 40 of the 72 cases. Stock prices for US producers (in aggregate) declined US$1.1 billion in the 90 minutes following the announcement of the ruling.

Industry economic structure

The domestic steel industry, until recent technological changes, was essentially composed of two vertically integrated sectors. The first was the raw steel production sector which encompassed steel-making operations from the unearthing of ores and coke to the basic ore reduction and smelting. The outcome or product of this sector was ingots, billets and slabs which are standard steel shapes. These products were then sent to finishing mills (the second sector) which conducted various heat treating and shaping processes to produce finished steel products such as bars, tubes, castings, forgings, plates, sheets and structural shapes. These two sectors were typically housed under a single facility but as two distinct operations in what was termed the 'integrated' producer. Traditionally, steel manufacturers used batch processing, which involved heating a furnace of steel and pouring the entire furnace full of molten steel into billets, ingots and slabs. These intermediate products were then processed and the process was repeated. The onset of continuous casting technology (a process in which ores are reduced and poured into final shapes without the intermediate production of slabs and ingots) in the late 1970s has blurred the classical two-sector demarcation. Most producers today use the continuous casting process

for producing isometric shapes, but raw steel must still be shipped to finishing mills for manufacture of more complex products.

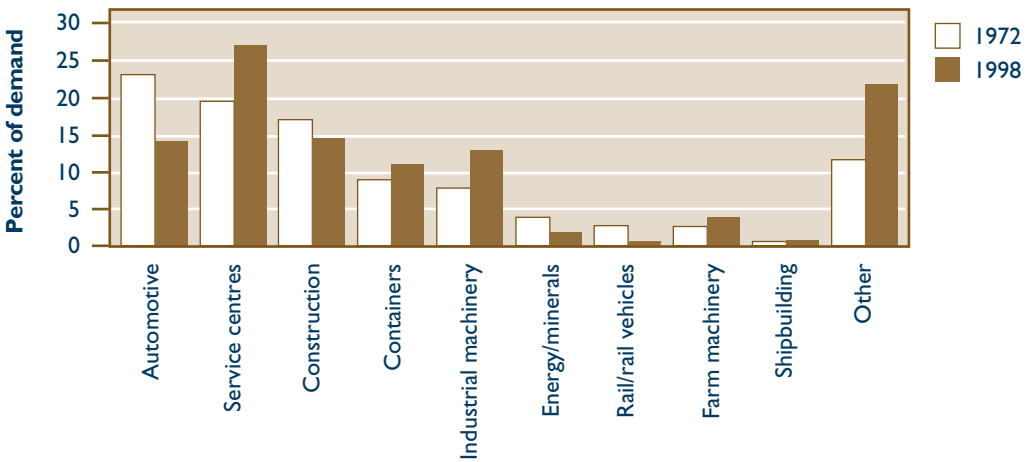
The suppliers to the steel industry can be broadly assigned to three major classes: ore, energy and transportation. Since a preponderance of the final production cost is tied up in these input items, many producers have vertically integrated backwards by acquiring ore and coal/coke mining firms and transportation networks (rail and barge). The supply factors of production (transformation factors) are labour to operate plants, capital facilities and land. Recent modernisation has significantly substituted technology for labour in steel production.

Minimills are a significant force of change in the industry, as their supplier and customer requirements differ from the integrated mills. First, ore supplies are, to differing degrees, replaced by a need for access to large quantities of scrap steel. Second, minimills, while still large consumers of electricity, consume far less power than their integrated mill counterparts. This, along with the lower output capacity of each plant, allows for placement of the mills closer to the third factor: the changing customer base. This has resulted in a radical shift in steel production in recent years from western Pennsylvania and Ohio to a much broader dispersion of steel mills throughout the United States. By one estimate, steel mills can now be found in over half of the US states.

The principal markets and customers for steel are the classical markets. Some sectors are on the decline, while others are fairly stable. The automotive sector was historically the largest consumer of steel in peacetime. Construction materials is now the largest sector, followed by the automobile and container industries, energy equipment, industrial machinery, farming equipment, car/rail production and various military applications. The reduced demand by the automobile industry is the result of the lower steel content in a modern automobile, a trend steel producers are aggressively trying to counter by banding together to form the Steel Alliance which is running a US$100 million advertising campaign targeted at consumers and touting the advantages of steel for automobile design (and house construction).

Service centres are playing an increased role in the industry, acting as major distributors and wholesalers for finished steel products to steel consumers (construction firms, shipbuilders, machine fabricators, etc.). With the exception of the automobile and automobile part manufacturers (who contract directly with producers), most finished steel is delivered to end users via the steel service centre, moving some of the inventory management burden to the service centres for a marginal mark-up to the end user. This presents a forecasting complication to planners and strategists, as all demand for steel is a derived demand. The forecaster must be able to look into the macro forces affecting an economy and project steel's role in

Exhibit 5 Steel demand by market sector, 1972 and 1998



the broader economic system from which a consumer demand pattern could be ascertained.

Steel production technology

Any attempt to consolidate steel and steel production technology into a few paragraphs would be doing the topic a disservice. However, two major issues deserve additional attention: production factors and substitutes. Automation has improved the competitive position of the industry by reducing its exposure to volatile labour markets and labour costs. It has also increased the flexibility of producers to shift product output and incorporate the continuous casting process. Closely related is the elimination of the old open-hearth furnace in favour of the blast-oxygen furnace and electric arc furnaces, which are far more efficient, more easily automated and require less manpower. These furnaces also reduce stack emissions, a critical environmental requirement (and a concern that many foreign producers do not face). While technology has been a driver of change, labour agreements and relations have not always made it possible to fully exploit the benefits of technological improvements.

The proliferation of substitute materials is an important issue. It is important to note, however, that while substitutes have made significant inroads into steel markets over the last 30 years, they will likely never replace steel as the commodity of choice for many applications. Steel will not be displaced (with very minor exceptions) as a material in strength applications: plastic is not strong enough; graphite-reinforced plastics and epoxies lack steel's thermal resistance properties; wood is not as strong or environmentally resistant as steel; and titanium remains a rare, expensive, strategically controlled material. Furthermore, steel comes in many different compositions (stainless, tool, high-strength, galvanised). The industry's R&D efforts have continued to evolve steel to meet the demands of customers. In short, steel remains – and is likely to remain – the material of choice in most applications.

Nucor Corporation

Nucor Corp. began life as the Nuclear Corporation of America. The latter was a highly diversified and marginally profitable company; its products included instruments, semiconductors, rare earths and construction. One of its potential acquisitions was Coast Metals, a family-owned producer of speciality metals. When the acquisition fell through, Nuclear hired one of Coast's top engineers as a consultant to recommend other acquisition targets. The engineer – Ken Iverson – had strong technical skills (including a graduate degree in metallurgy from Purdue University) and general management experience. Based on Iverson's recommendation, Nuclear acquired a steel joist company in South Carolina. Subsequently, Iverson joined Nuclear as a vice president in 1962. Nuclear built a second joist plant in Nebraska the following year. Iverson was responsible for supervising the joist operations as well as the research, chemical and construction segments. By 1965, the diversified company had experienced another string of losses, although the joist operations were profitable, and Iverson was promoted to president.

Recognising that its most valuable skills lay in its joist operations, Nuclear became Nucor Corp. and divested non-joist operations. New joist plants soon followed, including one in Alabama in 1967 and another in Texas in 1968. As a joist company, Nucor was dependent on American and foreign steel producers for its key input. Iverson decided to integrate backwards into steel making in the hopes of stabilising supply and lowering input costs for the joist business. So, Nucor began construction of its own steel mill in Darlington, South Carolina – a location close to an existing joist operation. The Darlington plant used the then new minimill technology. When the plant opened on 12 October 1969, the pouring of the first batch of steel resulted in molten steel cascading out of the mould and across the floor of the plant. Despite the mishap, Nucor quickly became adept at minimill technology. In addition to supplying its own joist operations, it began competing with integrateds and other minimills in the commodity steel business. Iverson and Nucor soon became recognised as the 'Southwest Airlines' of steel: a simple, no-frills organisation,

with a unique culture, highly motivated workers and the lowest cost structure of the industry. Some indicators of Nucor's success include:

- It is the only major player in the industry that can boast of 22 years of uninterrupted quarterly dividends (Nucor began paying quarterly dividends in 1973) and 30 years of continuous quarterly profits, despite numerous slumps and downturns in the industry (see Exhibits 6–14).
- Between 1980 and 1990, Nucor doubled in size. In comparison, the six main integrated producers reduced their steel-making capacity from 108 to 58 million tons during this period.
- In 1990, Nucor had six steel plants and a total annual capacity of 3 million tons. By 1995, it had added a seventh plant, and its overall capacity neared 8 million tons.
- In 1994, Nucor generated US$1.50 in sales for every dollar in property, plant and equipment. The industry average was US$0.95 before depreciation expenses. After depreciation, these ratios are US$2.18 and US$1.83, respectively.
- Nucor continues to be the industry leader in cost efficiency. In 1990, it produced 980 tons of steel per employee each year, at a net cost of US$60/ton, compared to the industry average of 420 tons per employee at a cost of US$135/ton. In 1994, Nucor's conversion cost was US$170/ton, roughly US$50–75 less than its competitors.

Nucor has primary mills located in Arkansas, Nebraska, Utah, South Carolina, Texas and Indiana. Additional operating facilities located in Fort Payne, Alabama; Conway, Arkansas; Saint Joe and Waterloo, Indiana; Wilson, North Carolina; and Swansea, South Carolina are all engaged in the manufacture of steel products. During 1997, the average utilisation rate of all operating facilities was more than 85 per cent of production capacity. Nucor competes in a number of distinct product segments, and the emphasis on these segments has changed substantially in recent years. Historically, the largest segment was the Nucor Steel division, which produces bar and light structural steel products. In 1991, this was its largest segment (measured by product volume). However, by 1995, sheet steel, once considered to be an exclusive product of integrated producers, accounted for the largest production volume. Heavy structural beams from a joint venture with Yamato Steel of Japan were the third-largest segment, followed by the Vulcraft joist division. Remaining products – including grinding balls, fasteners, ball bearings and prefabricated steel buildings – each account for relatively small proportions of total output.

While Nucor's first experience with steel was the result of backward integration by the Vulcraft joist division, the manufacture of steel has become the central focus of the firm. That focus has broadened to include sheet steel (1989) and heavy structural beams (1988). The company has also extended its focus to several downstream products, including fasteners and ball bearings (both in 1986) and prefabricated metal buildings (1988). With the exception of the ball bearings mill, which was acquired, new business segments are developed internally. Roughly 15 per cent of steel output is used internally for downstream operations. More recently, Nucor has chosen to integrate backwards from steel with a plant in Trinidad. This backward integration is aimed at lowering production costs; the plant produces iron carbide, which is expected to become an alternative to scrap in the minimill process.

Nucor's strategy

Nucor has chosen to avoid the formalised planning processes that are typically found in Fortune 500 firms. This lack of formalisation also extends to the company's mission statement, which is non-existent but known to all employees. The company does not have a formal mission statement, as management believes that most mission statements are developed in isolation, never seen or conveyed to employees, and have little in common with what the firm really does and how it operates. Nonetheless, all Nucor employees can tell you what their job entails and what the objective of the organisation is: the production of high volumes of quality, low-cost steel.[2] Nucor and its employees recognise that all the steel produced must meet industry standards for quality. In fact, Nucor frequently exceeds quality standards. High levels of production per man-hour result in low costs and, subsequently, prices among the lowest in the industry.

Exhibit 6 Historical data, 1955–96

		Earnings			Earnings per share				Stockholders' equity			Common stock	
Year	Net sales	Operations	Other	Net	Operations	Other	Net	Total assets	Amount	Per share	Shares outstanding	Per share	Amount
Prior management													
1955	415 658	(39 359)	–	(39 359)	Loss	–	Loss	1 630 644	930 188	0.06	16 355 402	0.48	7 850 593
1956	1 653 007	(355 293)	–	(355 293)	Loss	–	Loss	1 881 385	848 934	0.04	20 573 241	0.23	4 731 845
1957	1 925 462	(546 270)	–	(546 270)	Loss	–	Loss	1 908 337	1 052 664	0.03	33 803 241	0.17	5 746 551
1958	2 020 886	(521 827)	–	(521 827)	Loss	–	Loss	1 717 335	672 638	0.02	35 628 981	0.21	7 482 086
1959	1 859 034	(260 161)	–	(260 161)	Loss	–	Loss	1 783 598	502 454	0.01	36 532 149	0.28	10 229 002
1960	2 182 204	(367 149)	(261 829)	(628 978)	Loss	Loss	Loss	1 837 102	647 565	0.01	44 023 275	0.44	19 370 241
1961	4 014 416	379 006	(16 021)	362 985	0.01	Loss	0.01	5 630 178	2 307 566	0.04	55 267 743	0.43	23 765 129
1962	9 100 958	24 095	(683 323)	(659 228)	–	Loss	Loss	7 184 395	1 952 764	0.03	56 646 415	0.23	13 028 675
1963	15 374 487	260 710	240 000	500 710	0.01	0.00	0.01	8 324 759	2 453 474	0.04	56 646 415	0.18	10 196 355
1964	17 485 319	33 264	30 000	63 264	–	–	–	10 337 955	2 796 719	0.05	57 809 552	0.18	10 405 719
1965	22 310 595	(431 013)	(1 803 748)	(2 234 761)	Loss	Loss	Loss	6 937 251	762 380	0.01	58 695 962	0.26	15 260 950
Present management													
1966	23 006 483	698 900	635 000	1 333 900	0.01	0.01	0.02	8 109 190	2 239 882	0.04	59 310 011	0.23	13 641 303
1967	23 600 093	822 424	880 832	1 703 256	0.01	0.02	0.03	11 546 498	6 581 876	0.10	66 836 275	0.64	42 775 216
1968	35 544 913	1 002 954	1 235 982	2 238 936	0.01	0.02	0.03	16 501 866	9 288 771	0.14	68 078 687	0.78	53 101 376
1969	46 321 797	1 210 083	1 125 000	2 335 083	0.02	0.01	0.03	24 655 801	11 938 178	0.17	68 935 656	0.45	31 021 045
1970	50 750 546	1 140 757	–	1 140 757	0.02	–	0.02	28 800 183	13 101 313	0.19	69 001 709	0.27	18 630 461
1971	64 761 634	2 740 694	–	2 740 694	0.04	–	0.04	33 168 014	15 892 357	0.23	69 245 150	0.41	28 390 512
1972	83 576 128	4 668 190	–	4 668 190	0.07	–	0.07	47 537 247	20 929 525	0.30	70 353 577	0.54	37 990 932
1973	113 193 617	6 009 042	–	6 009 042	0.09	–	0.09	67 550 110	26 620 195	0.38	70 302 597	0.41	28 824 065
1974	160 416 931	9 680 083	–	9 680 083	0.14	–	0.14	82 038 748	37 103 939	0.50	73 712 586	0.30	22 113 776
1975	121 467 284	7 581 788	–	7 581 788	0.10	–	0.10	92 639 413	44 549 735	0.59	75 010 113	0.41	30 754 146
1976	175 768 479	8 696 891	–	8 696 891	0.11	–	0.11	119 095 581	54 084 970	0.70	77 790 707	0.74	57 565 123
1977	212 952 829	12 452 592	–	12 452 592	0.16	–	0.16	128 010 982	66 295 405	0.84	78 807 784	1.02	80 383 940
1978	306 939 667	25 848 849	–	25 848 849	0.33	–	0.33	193 454 693	92 129 119	1.15	80 261 028	1.74	139 654 189
1979	428 681 778	42 264 537	–	42 264 537	0.52	–	0.52	243 111 514	133 257 816	1.64	81 046 524	3.32	269 074 460
1980	482 420 363	45 060 198	–	45 060 198	0.55	–	0.55	291 221 867	177 603 690	2.16	82 199 964	5.82	478 403 790
1981	544 820 621	34 728 966	–	34 728 966	0.42	–	0.42	384 782 127	212 376 020	2.54	83 562 084	4.98	416 139 178
1982	486 018 162	22 192 064	–	22 192 064	0.27	–	0.27	371 632 941	232 281 057	2.77	83 951 292	5.21	437 386 231
1983	542 531 431	27 864 308	–	27 864 308	0.33	–	0.33	425 567 052	258 129 694	3.05	84 541 086	7.13	602 777 943
1984	660 259 922	44 548 451	–	44 548 451	0.53	–	0.53	482 188 465	299 602 834	3.53	84 966 474	5.38	457 119 630
1985	758 495 374	58 478 352	–	58 478 352	0.68	–	0.68	560 311 188	357 502 028	4.16	85 890 030	8.98	771 292 469
1986	755 228 939	46 438 888	–	46 438 888	0.54	–	0.54	571 607 644	383 699 454	4.54	84 525 192	7.72	652 534 482
1987	851 022 039	50 534 450	–	50 534 450	0.60	–	0.60	654 090 139	428 009 367	5.05	84 784 352	9.91	840 212 928
1988	1 061 364 009	70 881 020	38 558 822	109 439 842	0.83	0.46	1.29	949 661 710	532 281 449	6.25	85 150 764	11.94	1 016 700 122
1989	1 269 007 472	57 835 844	–	57 835 844	0.68	–	0.68	1 033 831 512	584 445 479	6.83	85 598 480	15.06	1 289 113 109
1990	1 481 630 011	75 065 261	–	75 065 261	0.88	–	0.88	1 035 886 060	652 757 216	7.59	85 950 696	15.50	1 332 235 788
1991	1 465 456 566	64 716 499	–	64 716 499	0.75	–	0.75	1 181 576 798	711 608 991	8.23	86 417 804	22.34	1 930 573 741
1992	1 619 234 876	79 225 703	–	79 225 703	0.92	–	0.92	2 507 382 255	784 230 713	9.04	86 736 700	39.19	3 399 211 273
1993	2 253 738 311	123 509 607	–	123 509 607	1.42	–	1.42	1 829 268 322	902 166 939	10.36	87 073 478	53.00	4 614 894 334
1994	2 975 596 456	226 632 844	–	226 632 844	2.60	–	2.60	2 001 920 165	1 122 610 257	12.85	87 333 313	55.50	4 846 998 872
1995	3 462 045 648	274 534 505	–	274 534 505	3.14	–	3.14	2 296 141 333	1 382 112 159	15.78	87 598 517	57.13	5 004 503 276
1996	3 647 030 387	248 168 948	–	248 168 948	2.83	–	2.83	2 619 533 406	1 609 290 193	18.33	87 795 947	51.00	4 477 593 297

Source: *Nucor Corporation Home Page*, www.nucor.com/h_historicaldata.htm, 4 September 1998.

Exhibit 7 Annual balance sheets, 1977–96

	Dec-96	Dec-95	Dec-94	Dec-93	Dec-92	Dec-91	Dec-90	Dec-89
Assets								
Cash & equivalents	104.40	201.80	101.93	27.26	25.55	38.30	51.65	32.55
Net receivables	292.64	283.21	258.13	202.18	132.14	109.46	126.75	106.95
Inventories	385.80	306.77	243.03	215.02	206.41	186.08	136.64	139.45
Prepaid expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other current assets	45.54	38.97	35.61	23.79	0.52	0.47	0.09	1.08
Total current assets	828.38	830.74	638.70	468.23	364.62	334.29	315.13	280.03
Gross plant property & equipment	2 698.75	2 212.89	1 977.58	1 820.99	1 574.10	1 261.53	1 086.37	1 048.01
Accumulated depreciation	907.60	747.49	614.36	459.95	448.34	414.25	363.12	294.22
Net plant property & equipment	1 791.15	1 465.40	1 363.22	1 361.04	1 125.77	847.28	723.25	753.80
Investments at equity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Intangibles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deferred charges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total assets	2 619.53	2 296.14	2 001.92	1 829.27	1 490.38	1 181.58	1 038.38	1 033.83
Liabilities								
Long-term debt due in one year	0.75	0.15	0.25	0.20	0.20	2.00	2.21	2.27
Notes payable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accounts payable	224.37	214.56	182.85	165.74	119.30	93.76	78.72	89.75
Taxes payable	10.29	11.30	15.51	14.27	10.46	11.07	10.65	13.20
Accrued expenses								
Other current liabilities	230.25	221.12	183.86	170.29	142.02	122.34	134.00	88.34
Total current liabilities	465.65	447.14	382.47	350.49	271.97	229.17	225.58	193.56
Long-term debt	152.60	106.85	173.00	352.25	246.75	72.78	28.78	155.98
Deferred taxes	50.00	51.00	63.00	53.00	18.82	21.10	25.82	18.82
Investment tax credit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Minority interest	265.71	220.66	175.99	143.09	140.50	124.05	105.44	81.02
Other liabilities	76.28	88.38	84.86	28.27	28.11	22.87	0.00	0.00
Total liabilities	1 010.24	914.03	879.31	927.10	706.15	469.97	385.62	449.39
Equity								
Preferred stock – redeemable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Preferred stock – non-redeemable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total preferred stock	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Common stock	35.95	35.90	35.80	35.70	17.78	8.86	8.82	8.78
Capital surplus	55.05	48.67	39.27	29.91	39.41	42.81	37.67	34.23
Retained earnings	1 535.95	1 315.85	1 065.80	854.86	745.26	678.16	624.66	559.90
Less: treasury stock	17.66	18.30	18.26	18.31	18.23	18.23	18.39	18.46
Common equity	1 609.29	1 382.11	1 122.61	902.17	784.23	711.61	652.76	584.45
Total equity	1 609.29	1 382.11	1 122.61	902.17	784.23	711.61	652.76	584.45
Total liabilities & equity	2 619.53	2 296.14	2 001.92	1 829.27	1 490.38	1 181.58	1 038.38	1 033.83
Common shares outstanding	87.80	87.60	87.33	87.07	86.74	86.42	85.95	85.60

Note: All US$mn.

Dec-88	Dec-87	Dec-86	Dec-85	Dec-84	Dec-83	Dec-82	Dec-81	Dec-80	Dec-79	Dec-78	Dec-77
26.38	72.78	128.74	185.14	112.71	79.06	44.89	8.71	21.75	36.65	27.42	7.10
97.43	80.08	61.27	70.87	66.87	58.17	38.34	48.70	43.52	40.21	31.90	23.39
123.22	81.50	105.60	78.64	73.80	56.56	48.83	73.00	49.60	40.01	41.55	30.41
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.74	0.36	0.14	0.11	0.08	0.11	0.48	0.98	0.49	0.50	0.25	0.26
247.76	234.72	295.74	334.77	253.45	193.89	132.54	131.38	115.37	117.36	101.11	61.16
942.27	618.54	452.26	376.23	359.97	338.66	322.85	318.86	219.10	160.46	115.25	86.67
240.37	199.16	181.43	150.95	131.87	107.36	83.78	66.25	46.02	35.88	26.72	20.73
701.90	419.37	270.83	225.28	228.10	231.31	239.07	252.62	173.07	124.58	88.53	65.94
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	5.04	0.27	0.63	0.37	0.02	0.78	2.78	1.17	3.81	0.92
949.66	654.09	571.61	560.31	482.19	425.57	371.63	384.78	291.22	243.11	193.46	128.01
2.21	2.21	3.05	2.40	2.40	2.40	1.60	1.66	1.70	1.25	0.46	0.44
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93.17	68.46	53.17	35.47	32.69	37.14	22.95	32.24	36.64	26.42	24.15	12.08
35.80	24.34	14.31	27.60	23.71	14.81	12.54	10.73	4.36	15.91	15.64	4.44
84.92	52.46	47.91	55.78	41.74	34.14	29.02	28.41	23.79	19.96	15.54	13.35
216.11	147.47	118.44	121.26	100.53	88.49	66.10	73.03	66.49	63.54	55.79	30.30
113.25	35.46	42.15	40.23	43.23	45.73	48.23	83.75	39.61	41.40	41.47	28.13
15.32	19.32	27.32	41.32	38.82	33.22	25.02	15.62	7.52	4.92	4.02	2.62
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72.71	23.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.66
417.38	226.08	187.91	202.81	182.59	167.44	139.35	172.41	113.62	109.85	101.33	61.72
0.00	0.00	0.00	0.00	0.00	0.00	0.00					
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.74	8.70	8.67	5.73	5.67	5.64	2.80	2.79	2.74	2.70	1.78	1.25
30.54	27.38	25.19	24.30	18.99	17.02	17.70	16.24	12.91	10.67	10.41	9.55
511.46	410.51	367.58	327.82	275.04	235.57	211.92	193.36	161.95	119.89	79.94	55.50
18.46	18.58	17.73	0.35	0.09	0.10	0.14					
532.28	428.01	383.70	357.50	299.60	258.13	232.28	212.38	177.60	133.26	92.13	66.30
532.28	428.01	383.70	357.50	299.60	258.13	232.28	212.38	177.60	133.26	92.13	66.30
949.66	654.09	571.61	560.31	482.19	425.57	371.63	384.78	291.22	243.11	193.46	128.01
85.15	84.78	84.52	85.89	84.97	84.54	83.95	83.57	82.20	81.05	80.26	78.80

Source: Compustat.

Exhibit 8 Annual cash flow statement, 1977–96

	Dec-96	Dec-95	Dec-94	Dec-93	Dec-92	Dec-91	Dec-90
Indirect operating activities							
Income before extraordinary items	248.17	274.54	226.63	123.51	79.23	64.72	75.07
Depreciation and amortization	182.23	173.89	157.65	122.27	97.78	93.58	84.96
Extraordinary items and disc. operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deferred taxes	(8.00)	(15.00)	(2.00)	1.00	(3.00)	(4.00)	7.00
Equity in net loss (earnings)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sale of property, plant, and equipment and sale of investments – loss (gain)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Funds from operations – other	82.57	48.18	17.67	9.75	23.17	26.11	29.71
Receivables – decrease (increase)	(9.43)	(25.07)	(55.96)	(70.03)	(22.69)	14.80	(19.80)
Inventory – decrease (increase)	(79.03)	(63.75)	(28.01)	(8.61)	(20.33)	(49.43)	2.81
Accounts payable and accrued liabs – inc (Dec)	9.81	31.72	17.11	46.44	25.53	11.54	(11.03)
Income taxes – accrued – increase (decrease)	(1.01)	(4.21)	1.24	3.81	(0.61)	0.42	(2.55)
Other assets and liabilities – net change	25.30	26.87	90.60	43.67	26.32	15.66	48.16
Operating activities – net cash flow	450.61	447.16	424.95	271.79	205.41	173.40	214.33
Investing activities							
Investments – increase	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sale of investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Short-term investments – change	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capital expenditures	537.44	263.42	185.32	364.16	379.12	217.72	56.75
Sale of property, plant, and equipment	1.59	0.92	5.22	1.30	2.12	0.55	0.83
Acquisitions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Investing activities – other	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Investing activities – net cash flow	(535.84)	(262.50)	(180.11)	(362.86)	(377.00)	(217.17)	(55.92)
Financing activities							
Sale of common and preferred stock	7.07	9.67	9.50	8.51	5.60	5.35	3.59
Purchase of common and preferred stock	0.00	0.22	0.00	0.17	0.08	0.00	0.04
Cash dividends	28.06	24.49	15.69	13.91	12.13	11.22	10.30
Long-term debt – issuance	46.50	24.00	0.00	105.70	183.90	46.00	0.00
Long-term debt – reduction	0.15	90.25	179.20	0.20	11.73	2.20	127.27
Current debt – changes				0.00			
Financing activities – other	(37.52)	(3.51)	15.22	(7.16)	(6.73)	(7.51)	(5.29)
Financing activities – net cash flow	(12.16)	(84.79)	(170.17)	92.77	158.84	30.42	(139.31)
Exchange rate effect	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cash and equivalents – change	(97.40)	99.87	74.68	1.71	(12.75)	(13.35)	19.10
Direct operating activities							
Interest paid – net	6.95	9.21	16.06	10.74	9.14	3.42	8.58
Income taxes – paid	152.90	176.50	124.37	57.52	40.82	34.68	31.70

Note: All US$mn.

CF – combined figure.

NA – not available.

NC – not calculable.

Dec-89	Dec-88	Dec-87	Dec-86	Dec-85	Dec-84	Dec-83	Dec-82	Dec-81	Dec-80	Dec-79	Dec-78	Dec-77
57.84	70.88	50.53	46.44	58.48	44.55	27.86	22.19	34.73	45.06	42.27	25.85	12.45
76.57	56.27	41.79	34.93	31.11	28.90	27.11	26.29	21.60	13.30	9.71	7.46	5.93
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.50	(4.00)	(8.00)	(14.00)	2.50	5.60	8.20	9.40	8.10	2.60	0.90	1.40	0.80
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(9.52)	(18.93)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(16.24)	(44.65)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(3.43)	25.36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(22.60)	(8.54)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3.56	71.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
98.00	147.71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
130.20	345.63	188.99	81.43	29.07	26.08	19.62	14.79	101.52	62.44	45.99	31.59	15.95
1.26	0.40	3.69	0.94	0.79	0.38	0.27	2.05	0.38	0.65	0.23	1.54	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	78.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(128.95)	(266.73)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3.86	3.33	2.34	3.96	5.39	2.01	2.20	1.46	3.37	2.29	1.33	1.52	1.02
0.14	0.0	0.96	17.52	0.27	0.00	0.00	0.12	0.00	0.00	0.16	0.13	0.22
9.40	8.49	7.60	6.68	5.70	5.08	4.22	3.63	3.33	3.00	2.31	1.41	1.04
45.00	80.00	0.00	4.91	0.00	0.00	0.00	7.50	46.40	0.00	1.14	13.90	0.00
2.21	2.21	6.69	3.00	3.00	2.50	2.50	43.02	2.25	1.79	1.21	0.56	3.54
		0.84	(0.65)	0.00	NA	NA	NA	NA	NA	NA	NA	NA
0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
37.11	72.62	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6.17	(46.40)	(55.96)	(56.41)	72.43	33.66	CF	CF	CF	CF	CF	CF	CF
16.03	3.65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
46.90	49.24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: Compustat.

Exhibit 9 Annual income statement, 1977–96

	Dec-96	Dec-95	Dec-94	Dec-93	Dec-92	Dec-91	Dec-90	Dec-89
Sales	3 647.03	3 462.05	2 975.60	2 253.74	1 619.24	1 465.46	1 481.63	1 269.01
Cost of goods sold	2 956.93	2 726.28	2 334.11	1 843.58	1 319.60	1 209.17	1 208.12	1 028.68
Gross profit	690.11	735.77	641.49	410.16	299.64	256.29	273.51	240.33
Selling general & administrative expense	120.39	130.68	113.39	87.58	76.80	66.99	70.46	66.99
Operating income before deprec.	569.72	605.09	528.10	322.57	222.84	189.30	203.05	173.34
Depreciation depletion & amortization	182.23	173.89	156.65	122.27	97.78	93.58	84.96	76.57
Operating profit	387.49	431.20	370.45	200.31	125.06	95.73	118.09	96.77
Interest expense	7.55	9.28	14.59	14.32	9.03	2.60	8.10	16.88
Non-operating income/expense	7.84	10.41	1.08	1.12	1.30	2.69	1.23	5.74
Special items	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pretax income	387.77	432.34	356.93	187.11	117.33	95.82	111.22	85.64
Total income taxes	139.60	157.80	130.30	63.60	38.10	31.10	36.15	27.80
Minority interest								
Income before extraordinary items & discontinued operations	248.17	274.54	226.63	123.51	79.23	64.72	75.07	57.84
Preferred dividends	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Available for common	248.17	274.54	226.63	123.51	79.23	64.72	75.07	57.84
Savings due to common stock equivalents	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted available for common	248.17	274.54	226.63	123.51	79.23	64.72	75.07	57.84
Extraordinary items	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discontinued operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted net income	248.17	274.54	226.63	123.51	79.23	64.72	75.07	57.84
Earnings per share (primary) – excluding extra items & disc op	2.83	3.14	2.60	1.42	0.92	0.75	0.88	0.68
Earnings per share (primary) – including extra items & disc op	2.83	3.14	2.60	1.42	0.92	0.75	0.88	0.68
Earnings per share (fully diluted) excluding extra items & disc op	2.83	3.13	2.59	1.41	0.91	0.75	0.87	0.68
Earnings per share (fully diluted) including extra items & disc op	2.83	3.13	2.59	1.41	0.91	0.75	0.87	0.68
EP from operations	2.83	3.14	2.60	1.42	0.92	0.75	0.88	0.68
Dividends per share	0.32	0.28	0.18	0.16	0.14	0.13	0.12	0.11

Note: All US$mn.

	Dec-88	Dec-87	Dec-86	Dec-85	Dec-84	Dec-83	Dec-82	Dec-81	Dec-80	Dec-79	Dec-78	Dec-77
	1 061.36	851.02	755.23	758.50	660.26	542.53	486.02	544.82	482.42	428.68	306.94	212.95
	832.88	671.55	575.45	569.69	510.83	434.62	382.32	434.61	356.12	305.98	220.50	162.32
	228.49	179.47	179.78	188.80	149.43	107.91	103.70	110.21	126.30	122.71	86.44	50.63
	62.08	55.41	65.90	59.08	45.94	33.99	31.72	33.53	38.16	36.72	28.66	19.73
	166.40	124.06	113.88	129.72	103.49	73.93	71.98	76.69	88.14	85.98	57.78	30.90
	56.27	41.79	34.93	31.11	28.90	27.11	26.29	21.60	13.30	9.71	7.46	5.93
	110.14	82.27	78.95	98.62	74.59	46.82	45.69	55.09	74.84	76.27	50.33	24.98
	9.18	3.94	5.32	4.36	4.62	4.80	8.41	10.67	3.53	4.30	2.87	2.82
	6.63	4.91	10.61	11.92	8.58	5.55	0.52	0.42	4.75	2.79	1.00	0.10
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	107.58	83.23	84.24	106.18	78.55	47.56	37.79	44.83	76.06	74.77	48.45	22.25
	36.70	32.70	37.80	47.70	34.00	19.70	15.60	10.10	31.00	32.50	22.60	9.80
	70.88	50.53	46.44	58.48	44.55	27.86	22.19	34.73	45.06	42.27	25.85	12.45
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	70.88	50.53	46.44	58.48	44.55	27.86	22.19	34.73	45.06	42.27	25.85	12.45
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	70.88	50.53	46.44	58.48	44.55	27.86	22.19	34.73	45.06	42.27	25.85	12.45
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	38.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	70.88	50.53	46.44	58.48	44.55	27.86	22.19	34.73	45.06	42.27	25.85	12.45
	0.83	0.60	0.54	0.69	0.53	0.33	0.27	0.42	0.55	0.52	0.33	0.16
	1.29	0.60	0.54	0.69	0.53	0.33	0.27	0.42	0.55	0.52	0.33	0.16
	0.83	0.60	0.54	0.68	0.53	0.33	0.27	0.42	0.54	0.52	0.32	0.16
	1.28	0.60	0.54	0.68	0.53	0.33	0.27	0.42	0.54	0.52	0.32	0.16
	0.83											
	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.04	0.04	0.03	0.02	0.01

Exhibit 10 Annual ratios, 1977–96

	Dec-96	Dec-95	Dec-94	Dec-93	Dec-92	Dec-91	Dec-90	Dec-89
Liquidity								
Current ratio	1.78	1.86	1.67	1.34	1.34	1.46	1.40	1.45
Quick ratio	0.85	1.08	0.94	0.65	0.58	0.64	0.79	0.72
Working capital per share	4.13	4.38	2.93	1.35	1.07	1.22	1.04	1.01
Cash flow per share	4.90	5.12	4.40	2.82	2.04	1.83	1.86	1.57
Activity								
Inventory turnover	8.54	9.92	10.19	8.75	6.72	7.49	8.75	7.83
Receivables turnover	12.67	12.79	12.93	13.48	13.40	12.41	12.68	12.42
Total asset turnover	1.48	1.61	1.55	1.36	1.21	1.32	1.43	1.28
Average collection period (days)	28.00	28.00	28.00	27.00	27.00	29.00	28.00	29.00
Days to sell inventory	42.00	36.00	35.00	41.00	54.00	48.00	41.00	46.00
Operating cycle (days)	71.00	64.00	63.00	68.00	80.00	77.00	70.00	75.00
Performance								
Sales/net property, plant & equip	2.04	2.36	2.18	1.66	1.44	1.73	2.05	1.68
Sales/stockholder equity	2.27	2.50	2.65	2.50	2.06	2.06	2.27	2.17
Profitability								
Operating margin before depr (%)	15.62	17.48	17.75	14.31	13.76	12.92	13.70	13.66
Operating margin after depr (%)	10.62	12.46	12.45	8.89	7.72	6.53	7.97	7.63
Pretax profit margin (%)	10.63	12.49	12.00	8.30	7.25	6.54	7.51	6.75
Net profit margin (%)	6.80	7.93	7.62	5.48	4.89	4.42	5.07	4.56
Return on assets (%)	9.47	11.96	11.32	6.75	5.32	5.48	7.23	5.59
Return on equity (%)	15.42	19.86	20.19	13.69	10.10	9.09	11.50	9.90
Return on investment (%)	12.24	16.06	15.40	8.84	6.76	7.12	9.54	7.04
Return on average assets (%)	10.10	12.77	11.83	7.44	5.93	5.83	7.24	5.83
Return on average equity (%)	16.59	21.92	22.39	14.65	10.59	9.49	12.13	10.36
Return on average investment (%)	13.28	17.26	15.80	9.62	7.62	7.63	9.33	7.51
Leverage								
Interest coverage before tax	52.35	47.60	25.46	14.07	13.99	37.85	14.73	6.07
Interest coverage after tax	33.87	30.59	16.53	9.63	9.77	25.89	10.27	4.43
Long-term debt/common equity (%)	9.48	7.73	15.41	39.04	31.46	10.23	4.41	26.69
Long-term debt/shrhldr equity (%)	9.48	7.73	15.41	39.04	31.46	10.23	4.41	26.69
Total debt/invested capital (%)	7.56	6.26	11.77	25.22	21.08	8.23	3.94	19.26
Total debt/total assets (%)	5.85	4.66	8.65	19.27	16.57	6.33	2.98	15.31
Total assets/common equity	1.63	1.66	1.78	2.03	1.90	1.66	1.59	1.77
Dividends								
Dividend payout (%)	11.31	8.92	6.92	11.26	15.31	17.34	13.72	16.25
Dividend yield (%)	0.63	0.49	0.33	0.30	0.36	0.58	0.77	0.73

Note: All ratios.

NC – not calculable.

Dec-88	Dec-87	Dec-86	Dec-85	Dec-84	Dec-83	Dec-82	Dec-81	Dec-80	Dec-79	Dec-78	Dec-77
1.15	1.59	2.50	2.76	2.52	2.19	2.01	1.80	1.74	1.85	1.81	2.02
0.57	1.04	1.60	2.11	1.79	1.55	1.26	0.79	0.98	1.21	1.06	1.01
0.37	1.03	2.10	2.49	1.80	1.25	0.79	0.70	0.59	0.66	0.56	0.39
1.49	1.09	0.96	1.04	0.86	0.65	0.58	0.67	0.71	0.64	0.41	0.23
8.14	7.18	6.25	7.47	7.84	8.25	6.28	7.09	7.95	7.50	6.13	NC
11.96	12.04	11.43	11.01	10.56	11.24	11.17	11.81	11.52	11.89	11.10	NC
1.32	1.39	1.33	1.46	1.45	1.36	1.29	1.61	1.81	1.96	1.91	NC
30.00	30.00	31.00	33.00	34.00	32.00	32.00	30.00	31.00	30.00	32.00	NC
44.00	50.00	58.00	48.00	46.00	44.00	57.00	51.00	45.00	48.00	59.00	NC
74.00	80.00	89.00	81.00	80.00	76.00	90.00	81.00	77.00	78.00	91.00	NC
1.51	2.03	2.79	3.37	2.89	2.35	2.03	2.16	2.79	3.44	3.47	3.23
1.99	1.99	1.97	2.12	2.20	2.10	2.09	2.57	2.72	3.22	3.33	3.21
15.68	14.58	15.08	17.10	15.67	13.63	14.81	14.08	18.27	20.06	18.83	14.51
10.38	9.67	10.45	13.00	11.30	8.63	9.40	10.11	15.51	17.79	16.40	11.73
10.14	9.78	11.15	14.00	11.90	8.77	7.78	8.23	15.77	17.44	15.78	10.45
6.68	5.94	6.15	7.71	6.75	5.14	4.57	6.37	9.34	9.86	8.42	5.85
7.46	7.73	8.12	10.44	9.24	6.55	5.97	9.03	15.47	17.38	13.36	9.73
13.32	11.81	12.10	16.36	14.87	10.79	9.55	16.35	25.37	31.72	28.06	18.78
9.87	10.37	10.91	14.70	12.99	9.17	7.91	11.73	20.74	24.20	19.35	13.19
8.84	8.25	8.21	11.22	9.81	6.99	5.87	10.27	16.87	19.36	16.08	NC
14.76	12.45	12.53	17.80	15.97	11.36	9.98	17.81	28.99	37.50	32.63	NC
11.76	11.07	11.28	15.79	13.78	9.54	7.70	13.53	23.00	27.42	22.67	NC
12.72	22.11	16.83	25.35	18.00	10.91	5.49	5.20	22.55	18.40	17.86	8.88
8.72	13.82	9.73	14.41	10.64	6.81	3.64	4.25	13.77	10.84	9.99	5.41
21.28	8.29	10.98	11.25	14.43	17.72	20.76	39.44	22.30	31.07	45.02	42.44
21.28	8.29	10.98	11.25	14.43	17.72	20.76	39.44	22.30	31.07	45.02	42.44
16.08	7.73	10.61	10.72	13.31	15.84	17.77	28.84	19.01	24.42	31.39	30.26
12.16	5.76	7.91	7.61	9.46	11.31	13.41	22.20	14.18	17.54	21.68	22.32
1.78	1.53	1.49	1.57	1.61	1.65	1.60	1.81	1.64	1.82	2.10	1.93
11.98	15.04	14.38	9.74	11.41	15.13	16.34	9.58	6.66	5.46	5.46	8.38
0.84	0.91	1.03	0.74	1.12	0.70	0.83	0.80	0.63	0.86	1.03	1.30

Exhibit 11 Comparative income statements – SIC 3312

	Nucor Corp. Dec-96	Bethlhm Stl Dec-96	Birm. Steel Jun-96	Carpntr Tch Jun-96	Chaparr Stl May-96	Inland Stl Dec-96	Steel Dynam Dec-96	USX-US Stl Dec-96
Sales	3 647.0	4 679.0	832.5	865.3	607.7	2 397.3	252.6	6 547.0
Cost of goods sold	2 956.9	4 168.2	730.4	601.6	480.6	2 156.1	201.2	6 005.0
Gross profit	690.1	510.8	102.0	263.8	127.1	241.2	51.5	542.0
Selling general & administrative expense	120.4	105.5	37.7	112.9	26.1	54.7	13.8	–169.0
Operating income before deprec.	569.7	405.3	64.3	150.9	101.0	186.5	37.6	711.0
Depreciation depletion & amortization	182.2	268.7	34.7	35.2	29.5	124.6	19.4	292.0
Operating profit	387.5	136.6	29.6	115.6	71.5	61.9	18.2	419.0
Interest expense	7.6	60.3	18.5	19.3	10.0	50.7	23.7	97.0
Non-operating income/ expense	7.8	12.9	10.4	–3.8	4.3	2.5	2.9	51.0
Special items	0.0	–465.0	–23.9	2.7	0.0	–26.3	0.0	–6.0
Pretax income	387.8	–375.8	–2.4	95.2	65.8	–12.6	–2.6	367.0
Total income taxes	139.6	–67.0	–0.2	35.0	23.8	–3.5	0.0	92.0
Minority interest	CF	CF	0.0	0.0	CF	0.0	0.0	CF
Income before extraordinary items & discontinued operations	248.2	–308.8	–2.2	60.1	42.0	–9.1	–2.6	275.0
Preferred dividends	0.0	41.9	0.0	1.6	0.0	25.8	0.0	22.0
Available for common	248.2	–350.7	–2.2	58.6	42.0	–34.9	–2.6	253.0
Savings due to common stock equivalents	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Adjusted available for common	248.2	–350.7	–2.2	58.6	42.2	–34.9	–2.6	253.0
Extraordinary items	0.0	0.0	0.0	0.0	0.0	–8.8	–7.3	–2.0
Discontinued operations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adjusted net income	248.2	–350.7	–2.2	58.6	42.2	–43.7	–9.8	251.0

Note: All US$mn.

Source: Compustat.

Exhibit 12 Comparative balance sheets – SIC 3312

	Nucor Corp. Dec-96	Bethlhm Stl Dec-96	Birm. Steel Jun-96	Carpntr Tch Jun-96	Chaparr Stl May-96	Inland Stl Dec-96	Steel Dynam Dec-96	USX-US Stl Dec-96
Assets								
Cash & equivalents	104.4	136.6	6.7	13.2	20.0	0.0	57.5	23.0
Net receivables	292.6	311.6	111.6	137.1	49.5	225.6	32.5	580.0
Inventories	385.8	1 017.3	196.8	160.5	121.8	182.0	65.9	648.0
Prepaid expenses	0.0	0.0	1.4	0.0	7.8	0.0	0.0	0.0
Other current assets	45.5	22.9	11.6	13.8	0.0	18.6	1.6	177.0
Total current assets	828.4	1 488.4	328.0	324.5	199.1	426.2	157.4	1 428.0
Gross plant property & equip.	2 698.8	6 344.0	678.2	809.7	493.5	4 011.4	356.1	8 347.0
Accumulated depreciation	907.6	3 924.2	134.2	390.2	279.4	2 642.7	16.8	5 796.0
Net plant property & equipment	1 791.2	2 419.8	544.0	419.5	214.1	1 368.7	339.3	2 551.0
Investments at equity	0.0	50.0	0.0	9.8	0.0	221.4	0.0	412.0
Other investments	0.0	NA	0.0	0.0	0.0	0.0	0.0	209.0
Intangibles	0.0	160.0	46.1	18.8	59.2	0.0	0.0	39.0
Deferred charges	0.0	0.0	CF	91.5	2.0	CF	12.4	1 734.0
Other assets	0.0	991.7	9.9	48.0	1.0	326.5	13.2	207.0
TOTAL ASSETS	2 619.5	5 109.0	928.0	912.0	475.3	2 342.8	522.3	6 580.0
Liabilities								
Long-term debt due in one year	0.8	49.3	0.0	7.0	12.4	7.7	11.2	73.0
Notes payable	0.0	0.0	0.0	19.0	0.0	272.5	0.0	18.0
Accounts payable	224.4	410.4	83.2	75.8	34.1	217.7	41.2	667.0
Taxes payable	10.3	67.9	0.4	13.7	0.0	69.2	0.0	154.0
Accrued expenses	CF	313.3	32.8	56.5	15.9	73.3	9.2	387.0
Other current liabilities	230.2	116.5	0.0	0.0	0.0	3.9	0.0	0.0
Total current liabilities	465.7	957.4	116.4	172.0	62.4	644.3	61.6	1 299.0
Long-term debt	152.6	497.4	307.5	188.0	66.7	307.9	196.2	1 014.0
Deferred taxes	50.0	0.0	50.3	84.5	CF	0.0	0.0	0.0
Investment tax credit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minority interest	265.7	CF	0.0	0.0	CF	0.0		
Other liabilities	76.3	2 689.1	5.6	158.4	51.3	1 179.8	0.0	2 637.0
Equity								
Preferred stock – redeemable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Preferred stock – non-redeemable	0.0	14.1	0.0	5.8	0.0	0.0	0.0	7.0
Total preferred stock	0.0	14.1	0.0	5.8	0.0	0.0	0.0	7.0
Common stock	36.0	113.9	0.3	97.7	3.0	0.0	0.5	85.0
Capital surplus	55.0	1 886.3	331.4	13.5	178.5	1 194.5	303.8	NA
Retained earnings	1 535.9	(988.6)	137.6	256.6	126.9	(983.7)	(39.8)	NA
Less: treasury stock	17.7	59.7	21.1	64.5	13.4	0.0	0.0	0.0
Common equity	1 609.3	951.9	448.2	303.3	295.0	210.8	264.6	1 559.0
TOTAL EQUITY	1 609.3	66.0	448.2	309.1	295.0	210.8	264.6	1 566.0
TOTAL LIABILITIES & EQUITY	2 619.5	5 109.9	928.0	912.0	475.3	2 342.8	522.3	6 580.0

Note: All US$mn.

Exhibit 13 Comparative ratios – SIC 3312

	Bethlhm Stl	Birm. Steel	Carpntr Tch	Chaparr Stl	Inland Stl	Ipsco Inc.	Nucor Corp.	Steel Dynam	USX-US Stl	Weirton
	Dec-96	Jun-96	Jun-96	May-96	Dec-96	Dec-96	Dec-96	Dec-96	Dec-96	Dec-96
Liquidity										
Current ratio	1.55	2.82	1.89	3.19	0.66	2.98	1.78	2.56	1.10	2.14
Quick ratio	0.47	1.02	0.87	1.12	0.35	1.92	0.85	1.46	0.46	0.98
Working capital per share	4.75	7.40	9.18	4.76	–218 099.97	9.48	4.13	2.01	1.52	7.31
Cash flow per share	–0.36	1.14	5.74	2.49	115 499.99	2.76	4.90	0.35	6.68	0.32
Activity										
Inventory turnover	4.22	3.95	4.78	4.31	11.33	4.17	8.54	5.06	9.62	4.99
Receivables turnover	13.64	7.48	6.76	12.01	10.27	8.18	12.67	15.51	10.97	9.08
Total asset turnover	0.87	0.99	0.99	1.29	1.02	0.62	1.48	0.60	1.00	1.06
Average collection per (days)	26.00	48.00	53.00	30.00	35.00	44.00	28.00	23.00	33.00	40.00
Days to sell inventory	85.00	91.00	75.00	84.00	32.00	86.00	42.00	71.00	37.00	72.00
Operating cycle (days)	112.00	139.00	129.00	114.00	67.00	130.00	71.00	94.00	70.00	112.00
Performance										
Sales/net PP&E	1.93	1.53	2.06	2.84	1.75	1.07	2.04	0.74	2.57	2.27
Sales/stockholder equity	4.84	1.86	2.80	2.06	11.37	1.02	2.27	0.95	4.18	8.25
Profitability										
Oper. margin before depr (%)	8.66	7.73	17.44	16.61	7.78	15.78	15.62	14.89	10.86	4.24
Oper. margin after depr. (%)	2.92	3.56	13.36	11.76	2.58	13.39	10.62	7.21	6.40	0.05
Pretax profit margin (%)	–8.03	–0.28	11.00	10.82	–0.53	15.13	10.63	–1.01	5.61	–4.00
Net profit margin (%)	–6.60	–0.26	6.95	6.91	–0.38	10.35	6.80	–1.01	4.20	–3.22
Return on assets (%)	–6.86	–0.23	6.42	8.83	–1.49	5.93	9.47	–0.49	3.84	–3.42
Return on equity (%)	–36.84	–0.49	19.31	14.23	–16.56	10.53	15.42	–0.97	16.23	–29.83
Return on investment (%)	–23.96	–0.29	11.78	11.61	–6.73	7.08	12.24	–0.56	9.57	–7.43
Return on average assets (%)	–6.49	–0.26	6.72	8.88	–1.49	6.37	10.10	–0.61	3.86	–3.40
Return on average equity (%)	–32.23	–0.48	20.78	14.86	–15.31	11.01	16.59	–1.56	17.47	–25.59
Return on average invest. (%)	–21.59	–0.32	12.26	11.78	–5.95	7.62	13.28	–0.69	10.17	–7.29
Leverage										
Interest coverage before tax	–5.23	0.87	5.92	7.57	0.75	6.27	52.35	0.89	4.78	–0.22
Interest coverage after tax	–4.12	0.88	4.11	5.19	0.82	4.60	33.87	0.89	3.84	0.02
Long-term debt/common eq. (%)	52.25	68.61	61.99	22.61	146.06	48.73	9.48	74.15	65.04	288.89
Long-term debt/shrhldr eq. (%)	51.49	68.61	60.83	22.61	146.06	48.73	9.48	74.15	64.75	256.97
Total debt/invested cap. (%)	37.36	40.69	43.05	21.86	113.38	32.89	7.56	45.00	41.79	71.99
Total debt/total assets (%)	10.70	33.14	23.47	16.63	25.10	27.57	5.85	39.70	16.79	33.12
Total assets/common equity	5.37	2.07	3.01	1.61	11.11	1.77	1.63	1.97	4.22	8.72
Dividends										
Dividend payout (%)	0.00	–524.80	37.10	13.88	0.00	15.62	11.31	0.00	33.60	0.00
Dividend yield (%)	0.00	2.42	4.13	1.37	NA	1.26	0.63	0.00	3.19	0.00

Note: All ratios.

Source: Compustat.

Exhibit 14 Steel companies (SIC 3312) sorted by sales

Company name	SIC	1996 Sales	1996 Assets
Broken Hill Proprietary – ADR	3312	$15 260.90	$28 113.50
British Steel PLC – ADR	3312	$11 882.00	$12 939.60
Pohang Iron & Steel Co – ADR	3312	$11 140.60	$18 967.60
USX-US Steel Group	3312	$6 547.00	$6 580.00
Bethlehem Steel Corp	3312	$4 679.00	$5 109.90
LTV Corp	3312	$4 134.50	$5 410.50
Allegheny Teledyne Inc	3312	$3 815.60	$2 606.40
Nucor Corp	3312	$3 647.03	$2 619.53
National Steel Corp – CL B	3312	$2 954.03	$2 547.06
Inland Steel Co	3312	$2 397.30	$2 342.80
AK Steel Holding Corp	3312	$2 301.80	$2 650.80
Armco Inc	3312	$1 724.00	$1 867.80
Weirton Steel Corp	3312	$1 383.30	$1 300.62
Rouge Steel Co – CL A	3312	$1 307.40	$681.95
WHX Corp	3312	$1 232.70	$1 718.78
Texas Industries Inc	3312	$985.67	$847.92
Lukens Inc	3312	$970.32	$888.75
Grupo IMSA SA DE CV – ADS	3312	$953.00	$1 404.00
Algoma Steel Inc	3312	$896.47	$983.47
Quanex Corp	3312	$895.71	$718.21
Carpenter Technology	3312	$865.32	$911.97
Birmingham Steel Corp	3312	$832.49	$927.99
Oregon Steel Mills Inc	3312	$772.82	$913.36
Republic Engnrd Steels Inc	3312	$746.17	$640.58
Geneva Stl Co – CL A	3312	$712.66	$657.39
Highvld Stl & Vanadium – ADR	3312	$695.36	$957.28
Northwestern Stl & Wire	3312	$661.07	$442.52
Tubos de Acero de Mex – ADR	3312	$645.16	$1 027.85
Titan International Inc	3312	$634.55	$558.59
Florida Steel Corp	3312	$628.40	$554.90
J & L Specialty Steel	3312	$628.02	$771.93
Chaparral Steel Company	3312	$607.66	$475.34
Ipsco Inc	3312	$587.66	$1 025.00
Talley Industries Inc	3312	$502.70	$280.39
NS Group Inc	3312	$409.38	$300.03
Laclede Steel Co	3312	$335.38	$331.11
Keystone Cons Industries Inc	3312	$331.18	$302.37
Huntco Inc – CL A	3312	$264.09	$222.44
Steel Dynamics Inc	3312	$252.62	$522.29
Roanoke Electric Steel Corp	3312	$246.29	$167.02
Grupo Simec-Spon ADR	3312	$214.64	$509.72
Bayou Steel Corp – CL A	3312	$204.43	$199.27
New Jersey Steel Corp	3312	$145.21	$151.37
China Pacific Inc	3312	$123.50	$114.33
Kentucky Electric Steel Inc	3312	$98.32	$78.43
Steel of West Virginia	3312	$95.33	$79.30
UNVL Stainless & Alloy Prods	3312	$60.26	$42.10
Consolidated Stainless Inc	3312	$50.82	$51.25
Stelax Industries Ltd	3312	$0.73	$16.76

Nucor's strategic intent is clearly known by employees, customers and its competitors. Each year, the business review of the annual report gives this succinct description of its scope of operations: 'Nucor Corporation's business is the manufacture of steel products.' The annual letter to shareholders gives this picture of the company:

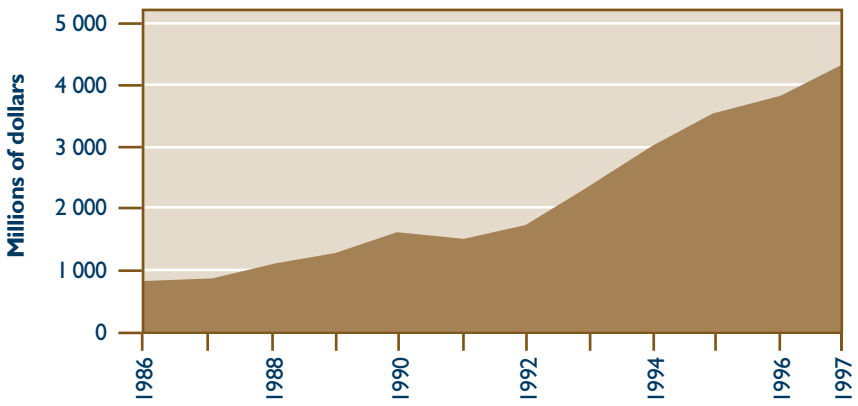
> Your management believes that Nucor is among the nation's lowest cost steel producers. Nucor has operated profitably for every quarter since 1966. Nucor's steel products are competitive with those of foreign imports. Nucor has a strong sense of loyalty and responsibility to its employees. Nucor has not closed a single facility, and has maintained stability in its work force for many years ... Productivity is high and labor relations are good.[3]

As with the mission, goals at Nucor are equally streamlined. Iverson has noted that in some companies planning systems are as much ritual as reality, resulting in plans and budgets that are inappropriate and unrealistic.[4] Nucor has both long- and short-range goals. However, they are handled differently than at many firms. Short-term plans focus on budget and production for the current and next fiscal year. The plans are zero-based – created from actual needs and estimates for specific projects – not an updated copy of a prior year's budget. Long-range plans are a combination of the plans of different divisions and plant – a bottom-up approach to planning. The long-range plans are seen as guides – not gospel. The plans incorporate relative goals instead of specific milestones that the firm expects managers to achieve. Division and plant managers set their target goals knowing that they will be rewarded for meeting them, but not punished if for unexpected reasons they are not met.

Similarly, even plans for specific projects are minimalist. For example, the company handles new mill construction largely internally. Many aspects of the plant design are done 'on the fly' to save time. The company does not create finely detailed construction plans for new plants. Instead, it uses this experience as a guide for starting construction. It then fills in the details as construction proceeds.[5] This approach allows Nucor to construct plants both faster and at less cost than their competitors. The Hickman, Arkansas mill was completed six months ahead of schedule, going from groundbreaking to first commercial shipment in a mere 16 months.

By 1995, Nucor had become the fourth-largest domestic steel producer. CEO John Correnti targets annual growth at between 15 and 18 per cent – substantially above the 1–2 per cent rate of growth for the industry. Given Nucor's size and the industry's maturity, growth for Nucor requires taking market share away from the integrated producers. Most experts agree that Nucor is well positioned to achieve such growth and sustain profitability, given its industry-leading cost structure. Steel industry analysts attribute Nucor's ability to grow in a constricting market to the firm's aggressive style of management, its innovative and revolutionary technologies, and a

Exhibit 15 Nucor annual sales, 1986–97



solid understanding of the dynamics and cost-drivers of the steel industry.

Nucor can trace its low-cost position to a combination of three factors: technological innovation, continuous process refinement and a strong corporate culture. Investments in any of the three alone is insufficient; the three elements must work together for the firm to be productive and successful.

Technological innovation at Nucor

Historically, the main distinction between minimills and integrated producers has been the range of products offered. While minimill technology is less capital-intensive, the production process is also limited to commodity steel products: bars, angles and structural steel beams. Integrated producers largely retreated from these commodity products and concentrated on sheet steel, which was presumably safe from encroachment by the minis. Strategically, though, Nucor more closely resembles the integrated producers versus other minimills in terms of product offerings. Innovative use of technology is key to this strategy.

A prime example of Nucor's innovation was its foray into sheet steel. By the mid-1980s, Iverson had anticipated the coming shake-out among minimills; the lure of easy pickings from dinosaurs like Bethlehem Steel had drawn many firms into the minimill business, resulting in over-supply. Integrated mills produce steel sheet by starting with 10-inch-thick slabs of steel and repeatedly processing the slab through rollers to reduce thickness and increase width. Multiple rolling machines result in a production line hundreds of metres long. Conventional wisdom said that it was impossible to produce the 10-inch-thick steel slabs needed to roll sheet steel in a minimill; their small electric arc furnaces simply did not have the same capability as the blast furnace used by an integrated mill. Nucor carefully researched emerging technology. Rather than develop a proprietary system, they licensed and modified a new German caster and began a US$270 million experiment. This new plant – in Crawfordsville, Indiana – started up in 1987. The process was very different from making sheet steel in an integrated plant. Nucor's system involves the highly controlled continuous pouring of molten steel into a narrow mould and on to a conveyor belt to form a continuous two-inch-thick ribbon of semi-solid steel – pouring steel much in the same manner as frosting an endless cake using a pastry tube. The process requires sophisticated computer technology and monitoring to ensure constant quality and to avert costly and dangerous spills. This precisely sized ribbon of steel is then rolled to the specific thickness using a few smaller-sized rolling machines. This results in a much smaller and less expensive plant than a traditional mill for the production of sheet steel.

The technical challenges of producing steel using this method are the basic requirements of entry into the minimill market. Profitability, however, is achieved through efficiency. Labour costs constitute a large portion of the cost of steel. Integrated producers can take up to four to five man-hours per ton to produce sheet steel, with three hours/ton on a productivity benchmark. In comparison, Nucor's Crawfordsville plant took only 45 man-minutes per ton. Such efficiency gave Nucor a US$50–75 cost advantage per ton, a savings of nearly 25 per cent compared to their competitors. By 1996, Nucor had production time down to 36 minutes per ton with additional savings expected. A second sheet plant was added in 1992, and capacity was expanded at both plants in 1994. Production capacity was 1 million tons in 1989, and 3.8 million tons in 1995.

Not content with the sheet steel market, Nucor chose to enter a new strategic segment in 1995: speciality steel. The Crawfordsville plant was modified to produce thin slab stainless steel – another 'impossible' feat for a minimill. Through experimentation, it was able to produce two-inch-thick stainless steel slabs. It shipped 16 000 tons in 1995, 50 000 tons in 1996, and expects to hit a production capacity of 200 000 tons annually. Coincidentally, perhaps, its projected capacity mirrors the volume of stainless sheet imported to the United States – about 10 per cent of stainless steel demand in the United States.

Another example of technological innovation was Nucor's entry into the fastener steel segment. Fasteners include hardware such as hex and structural bolts and socket cap screws, which are used extensively in an array of applications, including construction, machine tools, farm implements and military applications. Dozens of American fastener plants shuttered their doors in the 1980s, and foreign firms captured virtually all of this business segment. After a year of

Exhibit 16 Nucor's principal manufacturing locations, 1997

Location	Size (ft²)	Products
Blytheville–Hickman, Arkansas	2 880 000	Steel shapes, flat-rolled steel
Norfolk–Stanton, Nebraska	2 28 000	Steel shapes, joists, deck
Brigham City–Plymouth, Utah	1 760 000	Steel shapes, joists
Darlington–Florence, South Carolina	1 610 000	Steel shapes, joists, deck
Grapeland–Jewett, Texas	1 500 000	Steel shapes, joists, deck
Crawfordsville, Indiana	1 410 000	Flat-rolled steel
Berkeley, South Carolina	1 300 000	Flat-rolled steel

studying the fastener market and available technology, Nucor built a new fastener plant in Saint Joe, Indiana. Productivity was substantially higher than that at comparable US plants, and a second fastener plant came on-line in 1995. The fastener plants receive most of their steel from the Nucor Steel division. With a production capacity of 115 000 tons – up substantially from 50 000 tons in 1991 – Nucor has the capacity to supply nearly 20 per cent of this market.

A final example of technological innovation concerns upstream diversification. Scrap steel is a critical input for minimills. Quality differences in scrap types coupled with insufficient supply have led to large fluctuations in scrap costs. Frank Stephens, a mining engineer, had developed a technology to improve the efficiency of steel making through the use of iron carbide. Stephens had tried – unsuccessfully – to sell this process to US Steel, National Steel and Armco, among others.[6] In comparison, to Nucor, iron carbide appeared to be an opportunity to reduce its reliance on the increasingly volatile scrap steel market. After speaking with the inventor of the process and touring an iron carbide pilot plant in Australia, Nucor made preliminary plans to construct an iron carbide pilot plant.[7] The location selected – Trinidad – would provide the large quantities of low-cost natural gas needed for iron carbide production. Nucor estimated that establishing the pilot plant would require US$60 million. However, as the process was unproven, Nucor would, in essence, be making a gamble that would yield an industry-revolutionising process or be investing US$60 million in a plant that would be virtually worthless. To Nucor, the investment constituted a measured risk; while the investment to determine the feasibility was significant, if the process failed it would not cripple the firm. In 1994, Nucor opened the iron carbide pilot plant at a cost of US$100 million – almost double expectations. At the end of 1995, the plant was operating at only 60 per cent of capacity. Still, Nucor was betting big on this opportunity. Nucor estimates that the use of iron carbide would allow them to reduce their steel-making costs by US$50 per ton – a 20 per cent reduction. Additionally, Nucor is working on a joint venture with US Steel to manufacture steel directly from iron carbide, which could revolutionise the steel industry.

Process refinement at Nucor

Much of the business press focuses on the high-profile quantum advances made at Nucor, such as the creation of flat-rolled steel in an electric arc furnace and the use of iron carbide as a substitute for scrap. However, an emphasis on continuous innovation is felt throughout the organisation and is equally important. A manager from Nucor's Crawfordsville mill observed that most of the innovation comes not from management, but from equipment operators and line supervisors. The job of management, says the manager, is to make sure the innovations can be implemented.[8] For example, workers discovered that they could fine-tune surface characteristics of their galvanised steel (a benefit valued by many customers) simply by making small adjustments to the air pressure of a coating process. Changes such as these do not require management review or approval. Instead, equipment operators and line supervisors are authorised to innovate and implement processes that improve production. Such innovation is routine enough at Nucor that management does not track individual improvements. Rather, Nucor tracks innovation by looking at the end result – reductions in the amount of labour required to produce each ton of steel.

Employee innovation is driven by two factors. First, the company's bonus system means that any substantial improvements to efficiency will contribute to both the plant's performance and individual pay cheques. Second, the corporate culture emphasises how experiments – even failed ones – keep Nucor as the perennial benchmark for industry productivity. Experiments are conducted both at the time of mill start-up and on an ongoing basis. Typical of most mill start-ups, the start-up of Nucor's Hickman plant was fraught with problems. The high rate of the production line resulted in 'breakouts' – bad pours – of the 'ribbon' of steel for thin-slap casting. Though initially occurring at the rate of several per day, breakouts have been declining since the plant became operational. The high rates of production still result in two to five breakouts per week and Nucor continues to make modifications to the equipment to reduce this level.

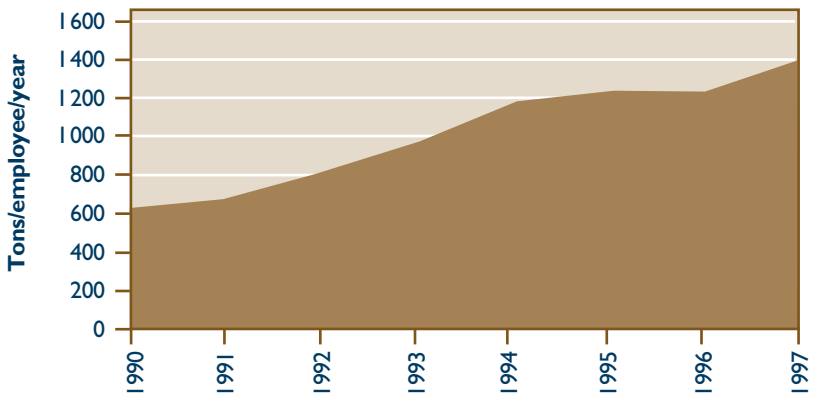
Focusing on clean-steel practices, the melt-shop people are developing mould powders that can handle the high-speed, thin-slab casting. Mould powders insulate, lubricate, aid uniform heat transfer, and absorb inclusions, all of which makes for cleaner steel. Unfortunately, no existing mould powders can handle hot steel at the rate Nucor could potentially produce it: 200 inches a minute. To reduce inclusions (impurities in the steel), Nucor is working to standardise all operating practices in the two furnaces and two ladle furnaces.

The Nucor philosophy towards innovation is that attempts at improvement will be accompanied by failures. Tony Kurley, a Nucor plant manager, recalls Nucor chairman Ken Iverson's expectation that success is making the correct decision 60 per cent of the time. What's important isn't the mistakes that are made, says Iverson, but the ability to learn from the 20 per cent that are truly mistakes and the 20 per cent that are sub-optimal decisions.[9]

This willingness to modify on the fly and 'shoot from the hip', as one melt-shop supervisor puts it, makes Nucor an exciting place to work. The lean, flexible workforce is continually trying new things, doing different jobs. Employees continue to engage in risk taking because the company rewards success and does not punish for failures. The result is that employees, from top managers to hourly personnel, are willing to take risks to achieve innovation and take ownership in their jobs.

At Nucor, the tolerance levels for failure are apparently high. In the 1970s, a Nucor plant manager was considering the replacement of the electric arc furnace in the plant with an induction furnace. At Nucor, the plant manager has the authority to select the type of furnaces used in his plant. There was no clearly right or wrong answer. A discussion yielded strong arguments in favour of the switch from some plant managers and equally enthusiastic arguments against the switch from others. The plant manager elected to make the switch at a cost to Nucor of US$10 million. From the start, the new furnaces failed to live up to expectations and resulted in repeated shutdowns. Discussion shifted to the pluses and minuses of removing the furnace and within a year the furnace was removed. When the manager told Iverson of his

Exhibit 17 Nucor annual worker productivity, 1990–97



decision, Iverson supported him, saying he had made the right decision – there was no sense in leaving the reminder of a bad decision laying around.[10]

Despite the price tag on this particular learning experience, management was unfazed. Iverson's comment on this failure was that the true problem is people *not* taking risks. Nucor has a saying: 'Don't study an idea to death in a dozen committee meetings; try it out and make it work.'

Through incremental advances, employees are continually able to streamline and refine the steelmaking process. The data suggests that Nucor employees have not come close to exhausting these enhancements. Productivity, as measured in tons produced per employee, doubled from 1990 to 1995 (626 tons/worker and 1269 tons/worker, respectively) and continues to climb. In 1997, productivity exceeded 1400 tons/worker. How is Nucor able to realise such productivity gains in this mature industry? The following examples highlight incremental innovations.

Preventive maintenance

Preventive maintenance is a crucial but time-consuming task at a minimill. At Nucor-Yamato, a joint venture between Nucor and Yamato Kogyo, a Japanese steel producer, the plant had week-long shutdowns three times a year. During these periods, outside contractors would strip, service and replace worn machinery. The outages could involve as many as 800 contractor personnel – a difficult task to manage. Further exacerbating the situation was the level of skill and low level of productivity of some contractor personnel. Aside from the challenges of hunting down missing contractors, the plant (and employees) suffered from the three weeks without production. The company addressed both of these concerns by eliminating the week-long shutdowns, instead tackling specific areas of the mill in focused, 24-hour shutdowns. This new process has several advantages, including spreading the maintenance costs over a wider window and being able to use a smaller in-house staff that operates continually. Some maintenance jobs are large enough to still require multiple-day shutdowns, but the number of outside contractors has been reduced from 800 to 150. Through this program, downtime at the plant has fallen from 10 per cent to near 1 per cent. Some improvements are less dramatic, but significant nonetheless. A young engineer at a Nucor plant was concerned that too much was being spent to lubricate and maintain a series of supporting screws under a rolling line. He had a better idea. The screws, part of the original manufacturer's design, were replaced with metal shims, achieving an annual savings of over US$1 million.

Reduced melt times

At the Crawfordsville plant, workers made a series of small changes, such as replacing an exhaust pipe and tinkering with the chemistry of the melt. By doing so, they reduced the melt time from 72 minutes to 65 minutes. While this may seem a small improvement, it meant that an additional 25 tons of steel could be poured in a single shift.

Revitalisation of outdated equipment

When Nucor bought a casting line from a German supplier, an obsolete reversing mill, which is used to reduce the thickness of steel, was thrown in as an afterthought to sweeten the deal. The capacity of the reducing mill was rated as 325 000 tons a year by the supplier. Nucor employees immediately began fiddling with the mill; the following are among the improvements and results:

- Changing the way the steel was fed into the machine increased capacity from 360 to 1960 feet per minute.
- Changes reduced the time to thread the machine from five minutes to 20 seconds.
- Nucor changed the type and grade of lubricating oil and installed a bigger motor.

With these changes, Nucor processed 650 000 tons of steel during the first year the equipment was in operation – twice the machine's capacity as rated by its manufacturer. Nucor anticipates that an additional 10 per cent increase can be achieved.[11]

New galvanising line

At one point, Nucor decided to install a galvanising line that coats finished steel to enhance its durability. Engineers from US$17.8-billion USX Corp. visited the plant before the foundation for the line had even been poured, and Nucor engineers told them they would have the line running by year's end. The USX visitors laughed because they had started building a similar line a year earlier and it still wasn't operational. The

day after Christmas, USX ran its first coil through its new galvanising line. Twelve hours later, Nucor's US$25 million galvanising line was operational. No other firm had constructed such a line for less than US$48 million.[12]

Continuous production

In most minimills, the conversion of scrap to a finished product is a discontinuous process. Scrap is converted to ingots, for instance, which are then stockpiled for further conversion. When building their new Hickman plant in the early 1990s, Nucor tried an experiment: continuous production. All steps of the steel-making process are coordinated, from picking up the raw scrap, to melting it, forming it and laying down a finished coil. Continuous production is both faster (three to four hours from inputs to finished product) and more efficient. The downside? This just-in-time approach eliminates all slack or buffers in the process; problems at any point in the production line shut the entire operation down. How well has this new process worked? As with other Nucor plants, virtually none of the employees had ever worked in a steel mill before. Still, plant performance within one year of start-up was competitive with more established mills: 0.66 man-hours per ton, and a 91 per cent yield (percentage of scrap converted to finished product, a measure of efficiency). In late July 1993, the Hickman plant shipped 8804 tons, setting a new Nucor record for the most tons shipped from a single plant in a day.[13]

Culture at Nucor

A key ingredient in any effective corporate culture is people. It is not surprising that many organisations, especially manufacturing firms, have dysfunctional cultures given the fear and distrust experienced by many workers, frequent layoffs and an 'us versus them' mentality. Executives of Bethlehem Steel, for example, constructed a golf course using corporate funds, then built a second and third course for middle managers and employees, respectively. Ken Iverson questioned how a company with a culture so dysfunctional as to require the construction of three golf courses to maintain the hierarchical distinction between executives, managers and line employees could ever expect to improve its operations.[14]

Nucor differs dramatically from its competitors. At Nucor, 'us versus them' clearly implies management and workers united against competitors. One melt-shop supervisor described a sense of personal responsibility not only for his own job but also for the firm. He described his position at Nucor as being much like running his own company – a typical comment given the entrepreneurial environment Nucor has created. Decentralised authority and a sense of individual responsibility are a key part of that structure. John Correnti explains that he does not want to micro-manage the firm's operations. Doing so, he feels, would result in employees placing blame when things go wrong instead of taking responsibility and finding solutions. This, Correnti feels, results in line personnel having a realistic ability to control their own job environment, increase productivity and increase their pay.[15]

Still, Nucor is anything but a 'workers' paradise'. The standards for employee productivity are extremely high, and there are a number of painful reminders of this emphasis. For example, the steelworker who is 15 minutes late loses his production bonus for the day – as much as half of the day's pay. Thirty minutes late and the bonus for the entire week is forfeited. Workers are not paid for sicknesses less than three days, or for production downtime due to broken machinery. However, by most measures, Nucor is the employer of choice. There is extreme competition for new positions. The Darlington plant has routinely received 1000 applications from a single job posting in the newspaper. Similarly, the new plant in Jewett, Texas (population 435), received 2000 applications. Employee turnover rates are among the lowest in the industry. For example, the Crawfordsville, Indiana, plant lost a total of four employees between 1988 and 1994: two for drug use and two for poor performance. Nucor is a non-union shop with much of the opposition to unions coming from Nucor employees who feel that union rules would hurt productivity and subsequently their pay cheques. According to company folklore, there has been one labour dispute outside the mill gates, and plant supervisors had to protect union pamphleteers from angry employees!

How does Nucor achieve such levels of motivation and dedication? Iverson suggests that corporate America has confused the ideas of motivation and

manipulation. Manipulation stipulates a one-sided relationship wherein management convinces employees to do things in the interest of management. Motivation involves getting employees to do things that are in the best interest of both parties. In the long term, Iverson says, motivation yields a strong company whereas manipulation destroys a company. With this in mind, Nucor has identified the following elements as critical to effective employee motivation:

1 Everyone must know what is expected of them, and goals should not be set too low.
2 Everyone must understand the rewards, which must be clearly delineated and not subjective.
3 Everyone must know where to go to get help. The company must have a system that clearly tells the employee who to talk to when confused or upset.
4 Employees must have real voices. They must participate in defining the goals, determining the working conditions and establishing production processes.
5 The company must provide a feedback system so that employees always know how they, their group and the company are doing.[16]

The approach appears to work. A long-time Nucor employee recalls when the Darlington, South Carolina, plant could produce 30 tons of steel a day. The same plant now produces 100 tons of steel an hour. The worker says that, given the can-do attitude of employees and the focus on constant improvement, the 'sky is the limit' for additional improvements.[17]

While Nucor is a merit-oriented company, it also makes it clear that there are no 'classes' of employees. Top managers receive the same benefits as steelmakers on everything from vacation time to health insurance. There are no preferred parking spaces, and the 'executive dining room' is the delicatessen across the street. Incidentally, the corporate headquarters is located in a dowdy strip mall in Charlotte, North Carolina. Not surprisingly, there is no corporate jet or executive retreat in the Caymans. Officers travel in coach class on business trips, and the organisation is rife with legends of corporate austerity – such as Iverson travelling via subway when on business in New York City (true, incidentally). This emphasis on egalitarianism is an integral part of the Nucor culture. Iverson, wanting to eliminate even the smallest distinctions between personnel, ordered everyone to wear the same colour hardhat. In many plants, the colour of your hardhat is a highly visible signal of your level in the company hierarchy. Even at Nucor, some managers thought that their authority rested not in their expertise and management ability, but in the colour of their hat. This goal of egalitarianism has not been completely without problems. When it was brought to Iverson's attention that workers needed to be able to quickly identify maintenance personnel, Iverson admitted his mistake and at Nucor plants everyone wears green hardhats except maintenance personnel who wear yellow so that they can be easily spotted.[18]

This approach appears transferable and the motivational effects are contagious. Iverson recalls when Nucor purchased a plant and immediately sold the limousine and eliminated executive parking spaces in favour of a first-come, first-served system. Iverson greeted employees on their way into the plant and recalls one employee who parked in what was the boss's reserved spot and commented that the simple changes in the parking system made him feel much better about the company.[19]

Compensation and bonus system

Leadership by example can only induce so much behaviour; one of the more visible aspects of Nucor's culture is its compensation system, particularly the prominent bonus system. 'Gonna make some money today?' is a common greeting on the plant floor, and discussion of company financials is as common in the lunchroom as basketball scores. The bonus system is highly structured, consisting of no special or discretionary bonuses. The company is divided based on production teams of 25–50 individuals who are responsible for a complete task (such as a cold rolled steel fabrication line). The group includes everyone on that line, from scrap handlers to furnace operators, mould and roller operators, and even finish packagers. Managers get together and, based on the equipment being used, set a standard for production. This standard is known to everyone in advance and doesn't change unless the company makes a significant investment in capital equipment. With the standard in mind, employees make whatever changes they see fit to increase production. A bonus is paid for all produc-

tion over the standard and there is no limit as to how much bonus can be paid. The only qualifier is that the production must be good – that is, of sufficient quality for sale. No bonus is paid for bad production. At the end of the week, all employees on a particular line get the same production bonus, which is issued along with their weekly cheques.[20]

With bonuses, Nucor employees typically earn as much as their unionised counterparts in the integrated plants. Weekly bonuses have, in recent years, averaged 100–200 per cent of base wages. Typical production workers earn US$8 to US$9 in base pay plus an additional US$16 per hour in production bonuses and averaged US$60 000 in 1996, making them the highest-paid employees in the industry. Since Nucor locates its plants in rural locations, employee salaries are well above the norm for any specific area, making Nucor jobs highly desirable.

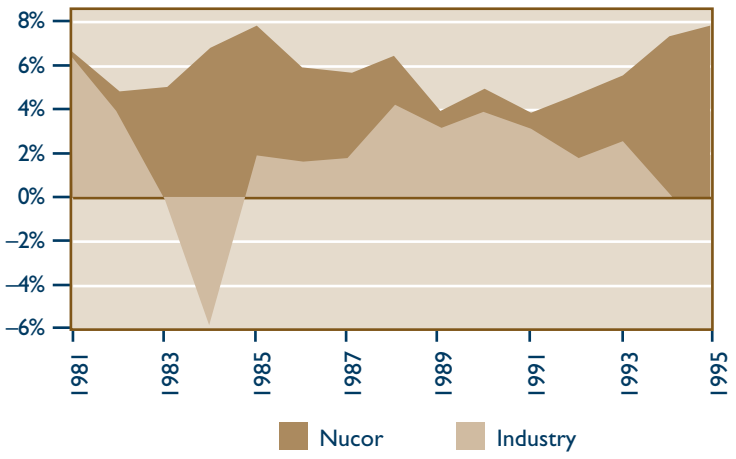
Nucor also offers several other benefits to help motivate and retain employees. In the 1980s, it shifted to a workweek of four 12-hour days. Workers take four days off and then resume another intensive shift – a practice borrowed from the oil industry. While this practice results in a lot of expensive overtime – Crawfordsville alone paid out an extra half a million dollars in 1995 due to the compressed workweek – management feels that the ensuing morale and productivity gains pay for themselves. The company has also disbursed special US$500 bonuses (four times in the last 20 years) in exceptionally good years. They also provide four years worth of college tuition support (up to US$2000/year) for each child of each employee – excluding only the children of corporate officers.

Job security

Listening to Nucor managers, it is difficult to determine which fact they are most proud of: 30 years of uninterrupted quarterly profits or 20 years since they have last had to lay off an employee. Nucor locates in rural areas and there are often few other employment opportunities, let alone other jobs at similar pay scales, so Nucor feels a strong responsibility for keeping workers employed, even during economic downturns.

Popular impressions aside, Iverson is clear to note that Nucor does not have a no-layoff policy. He cautions that Nucor will lay off employees as a last resort if the survival of the company is at stake.[21] But during prior downturns, the company has chosen to ride out slowdowns with its 'Share the Pain' program, which involves reduced workweeks and plant slowdowns instead of layoffs. What is most unusual with the program is that the brunt of poor performance is felt most heavily at upper parts of the organisation, particularly as long-term compensation is an integral part of the executive pay system. During a period of reduced demand for steel, the plants reduce their operations. For line personnel and foremen, this reduces their income by about 20 per cent. For department heads, who are covered by a bonus plan based on the profitability of their plant, slowdowns result in

Exhibit 18 Nucor profitability vs industry, 1981–95



a reduction of about one-third of their pay. Nucor's top managers have their pay based largely on return on shareholders' equity – the measure most important to shareholders. This is hit the hardest and top managers see their pay decline the most – as much as two-thirds or three-quarters of their income is lost.[22] This structure serves a number of purposes. First, the line personnel don't feel that they are bearing the brunt of a downturn. Second, there is a great deal of motivation to further reduce the cost per ton so that Nucor can underprice any other producer and keep its mills active even during an economic downturn. Lastly, while the shareholders may not be happy with a reduced ROI, they at least know that management has an incentive to improve company performance. As an example, Iverson notes that in 1961 – a good year – he made US$460 000 including bonuses. In 1982, though, Nucor fell shy of its 8 per cent return on equity and Iverson earned only US$108 000.[23]

Summary

How important is the corporate culture to Nucor's success? Management is free to point out that their advantage does not stem from proprietary technology. After all, most of their innovations – including thin-slab casting and the use of iron carbide – are based on technology developed by other firms. While they pioneered the modifications to make thin-slab casting possible, numerous other minimills are hot on their heels in this product segment. Nucor's plants are open to firms seeking to benchmark their operations, including other steel producers. When other firms tour a plant, they may see the same equipment as in their plant. Many comment on the culture of the plant. One visitor from an integrated producer commented that at his plant the culture is adversarial, management versus employee, with no trust between the parties. 'Us versus them' refers to workers versus management and production. In contrast, at Nucor, workers are seen striving together as a team, helping each other and working towards a common goal: the production of a high volume of low-cost, quality steel.[24]

Iverson explains Nucor's success as being based on a combination of the technology used and the culture of the organisation. He is unsure if technology is 20, or 30, or even 40 per cent – but he's sure it is less than half of the formula for Nucor's achievements. The culture that Nucor instills is focused primarily on the long-term health of the organisation. For example, debt is avoided, start-up costs are not capitalised but rather are expensed in the current period, and depreciation and write-offs lean towards the detriment of short-term earnings. Iverson is adamant about not bowing to short-term pressures to manage earnings or spread dividends evenly over a quarterly basis. He refuses to do it. He compares companies that try endlessly to meet short-term projections at the expense of a long-term approach to dogs on a leash – trying to perform a trick to satisfy the stock market. He admonishes short-term share speculators to stay away from the company. He compares Nucor to an eagle and invites long-term investors to soar with the company.[25]

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Case 11

Philip Condit and the Boeing 777*:

From design and development to production and sales

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Following his promotion to Boeing CEO in 1988, Frank Shrontz looked for ways to stretch and upgrade the Boeing 767 – an eight-year-old wide-body twin jet – in order to meet Airbus competition. Airbus had just launched two new 300-seat wide-body models, the two-engine A330 and the four-engine A340. Boeing had no 300-seat jetliner in service, nor did the company plan to develop such a jet.

To find out whether Boeing's customers were interested in a double-decker 767, Philip Condit, Boeing executive vice president and future CEO (1996), met with United Airlines vice president Jim Guyette. Guyette rejected the idea outright, claiming that an upgraded 767 was no match for Airbus's new-model transports. Instead, Guyette urged Boeing to develop a brand-new commercial jet, the most advanced airplane of its generation. Shrontz had heard similar suggestions from other airline carriers. He reconsidered Boeing's options, and decided to abandon the 767 idea in favour of a new aircraft program. In December 1989, accordingly, he announced the 777 project and put Philip Condit in charge of its management. Boeing had launched the 777 in 1990, delivered the first jet in 1995, and by February 2001, 325 B-777s were flying in the services of the major international and US airlines.[1]

Condit faced a significant challenge in managing the 777 project. He wanted to create an airplane that was preferred by the airlines at a price that was truly competitive. He sought to attract airline customers as well as cut production costs, and he did so by introducing several innovations – both technological and managerial – in aircraft design, manufacturing and assembly. He looked for ways to revitalise Boeing's outmoded engineering production system, and to update Boeing's manufacturing strategies. And to achieve these goals, Condit made continual efforts to spread the 777 program-innovations company wide.

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Looking back at the 777 program, this case focuses on Condit's efforts. Was the 777 project successful and was it cost-effective? Would the development of the 777 allow Boeing to diffuse the innovations in airplane design and production beyond the 777 program? Would the development of the 777 permit Boeing to revamp and modernise its aircraft manufacturing system? Would the making and selling of the 777 enhance Boeing competitive position relative to Airbus, its only remaining rival?

The aircraft industry

Commercial aircraft manufacturing was an industry of enormous risks where failure was the norm, not the exception. The number of large commercial jet makers had been reduced from four in the early 1980s – Boeing, McDonnell Douglas, Airbus and Lockheed – to two in late 1990s, turning the industry into a duopoly, and pitting the two survivors – Boeing and Airbus – one against the other. One reason why aircraft manufacturers so often failed was the huge cost of product development.

Developing a new jetliner required an up-front investment of up to US$15 billion (2001 dollars), a lead time of five to six years from launch to first delivery, and the ability to sustain a negative cash flow throughout the development phase. Typically, to break even on an entirely new jetliner, aircraft manufacturers needed to sell a minimum of 300 to 400 planes and at least 50 planes per year. Only a few commercial airplane programs had ever made money.[2]

The price of an aircraft reflected its high development costs. New-model prices were based on the average cost of producing 300 to 400 planes, not a single plane. Aircraft pricing embodied the principle of learning by doing, the so-called learning curve[3] workers steadily improved their skills during the assembly process, and as a result, labour cost fell as the number of planes produced rose.

The high and increasing cost of product development prompted aircraft manufacturers to utilise subcontracting as a risk-sharing strategy. For the 747, the 767 and the 777, the Boeing Company required subcontractors to share a substantial part of the airplane's development costs. Airbus did the same with its own latest models. Risk-sharing subcontractors performed detailed design work and assembled major subsections of the new plane while airframe integrators (that is, aircraft manufacturers) designed the aircraft, integrated its systems and equipment, assembled the entire plane, marketed it, and provided customer support for 20 to 30 years. Both the airframe integrators and their subcontractors were supplied by thousands of domestic and foreign aircraft components manufacturers.[4]

Neither Boeing, nor Airbus, nor any other postwar commercial aircraft manufacturer produced jet engines. A risky and costly venture, engine building had become a highly specialised business. Aircraft manufacturers worked closely with engine makers – General Electric, Pratt and Whitney, and Rolls-Royce – to set engine performance standards. In most cases, new airplanes were offered with a choice of engines. Over time, the technology of engine building had become so complex and demanding that it took longer to develop an engine than an aircraft. During the life of a jetliner, the price of the engines and their replacement parts was equal to the entire price of the airplane.[5]

A new-model aircraft was normally designed around an engine, not the other way around. As engine performance improved, airframes were redesigned to exploit the engine's new capabilities. The most practical way to do so was to stretch the fuselage and add more seats in the cabin. Aircraft manufacturers deliberately designed flexibility into the airplane so that future engine improvements could facilitate later stretching. Hence the importance of the 'family concept' in aircraft design, and hence the reason why aircraft manufacturers introduced families of planes made up of derivative jetliners built around a basic model, not single, standardised models.[6]

The commercial aircraft industry, finally, gained from technological innovations in two other industries. More than any other manufacturing industry, aircraft construction benefited from advances in material applications and electronics. The development of metallic and non-metallic composite materials played a key role in improving airframe and engine performance. On the one hand, composite materials that combined light weight and great strength were utilised by aircraft manufacturers; on the other, heat-resisting alloys that could tolerate temperatures of up

to 3000 degrees were used by engine makers. Similarly, advances in electronics revolutionised avionics. The increasing use of semiconductors by aircraft manufacturers facilitated the miniaturisation of cockpit instruments, and more important, it enhanced the use of computers for aircraft communication, navigation, instrumentation and testing.[7] The use of computers contributed, in addition, to the design, manufacture and assembly of new-model aircraft.

The Boeing Company

The history of the Boeing Company may be divided into two distinct periods: the piston era and the jet age. Throughout the piston era, Boeing was essentially a military contractor producing fighter aircraft in the 1920s and 1930s, and bombers during the Second World War. During the jet age, beginning in the 1950s, Boeing had become the world's largest manufacturer of commercial aircraft, deriving most of its revenues from selling jetliners.

Boeing's first jet was the 707. The introduction of the 707 in 1958 represented a major breakthrough in the history of commercial aviation; it allowed Boeing to gain a critical technological lead over the Douglas Aircraft Company, its closer competitor. To benefit from government assistance in developing the 707, Boeing produced the first jet in two versions: a military tanker for the Air Force (k-135) and a commercial aircraft for the airlines (707-120). The company, however, did not recoup its own investment until 1964, six years after it delivered the first 707, and 12 years after it had launched the program. In the end, the 707 was quite profitable, selling 25 per cent above its average cost.[8] Boeing retained the essential design of the 707 for all its subsequent narrow-body single-aisle models (the 727, 737 and 757), introducing incremental design improvements, one at a time.[9] One reason why Boeing used shared design for future models was the constant pressure experienced by the company to move down the learning curve and reduce overall development costs.

Boeing introduced the 747 in 1970. The development of the 747 represented another breakthrough; the 747 wide-body design was one of a kind; it had no real competition anywhere in the industry. Boeing bet the entire company on the success of the 747, spending on the project almost as much as the company's total net worth in 1965, the year the project started.[10] In the short run, the outcome was disastrous. As Boeing began delivering its 747s, the company was struggling to avoid bankruptcy. Cutbacks in orders as a result of a deep recession, coupled with production inefficiencies and escalating costs, created a severe cash shortage that pushed the company to the brink. As sales dropped, the 747's breakeven point moved further and further into the future.

Yet, in the long run, the 747 program was a triumph. The Jumbo Jet had become Boeing's most profitable aircraft and the industry's most efficient jetliner. The new plane helped Boeing to solidify its position as the industry leader for years to come, leaving McDonnell Douglas far behind, and forcing the Lockheed Corporation to exit the market. The new plane, furthermore, contributed to Boeing's manufacturing strategy in two ways. First, as Boeing increased its reliance on outsourcing, six major subcontractors fabricated 70 per cent of the value of the 747 airplane,[11] thereby helping Boeing to reduce the project's risks. Second, for the first time, Boeing applied the family concept in aircraft design to a wide-body jet, building the 747 with wings large enough to support a stretched fuselage with bigger engines, and offering a variety of other modifications in the 747's basic design. The 747-400 (1989) is a case in point. In 1997, Boeing sold the stretched and upgraded 747-400 in three versions, a standard jet, a freighter, and a 'combi' (a jetliner whose main cabin was divided between passenger and cargo compartments).[12]

Boeing developed other successful models. In 1969, it introduced the 737, the company's narrow-body flagship, and in 1982 it put into service two additional jetliners, the 757 (narrow-body) and the 767 (wide-body). By the early 1990s, the 737, 757 and 767 were all selling profitably. Following the introduction of the 777 in 1995, Boeing's families of planes included the 737 for short-range travel, the 757 and 767 for medium-range travel, and the 747 and 777 for medium- to long-range travel (Exhibit 1).

In addition to building jetliners, Boeing also expanded its defence, space and information businesses. In 1997, the Boeing Company took a strategic

Exhibit 1 Total number of commercial jetliners delivered by the Boeing Company, 1958–2001

Model	No. delivered	First delivery
B-707	1 010 (retired)	1958
B-727	1 831 (retired)	1963
B-737	3 901	1967
B-747	1 264	1970
B-757	953	1982
B-767	825	1982
B-777	325	1995
B-717	49	2000
Total:	10 159	

* McDonnell Douglas commercial jetliners (the MD-11, MD-80 and MD-90) are excluded.

Sources: Boeing Commercial Airplane Group, *Announced Orders and Deliveries as of 12/31/97*; The Boeing Company Annual Report 1998, p. 35; 'Commercial airplanes: Order and delivery summary', www.Boeing.com, 20 March 2001.

gamble, buying the McDonnell Douglas Company in a US$14 billion stock deal. As a result of the merger, Boeing had become the world's largest manufacturer of military aircraft, NASA's largest supplier, and the Pentagon's second-largest contractor (after Lockheed). Nevertheless, despite the growth in its defence and space businesses, Boeing still derived most of its revenues from selling jetliners. Commercial aircraft revenues accounted for 59 per cent of Boeing's US$49 billion sales in 1997 and 63 per cent of its US$56 billion sales in 1998.[13]

Following its merger with McDonnell, Boeing had one remaining rival: Airbus Industrie.[14] In 1997, Airbus booked 45 per cent of the worldwide orders for commercial jetliners[15] and delivered close to one-third of the worldwide industry output. In 2000, Airbus shipped nearly two-fifths of the worldwide industry output (Exhibit 2).

Airbus's success was based on a strategy that combined cost leadership with technological leadership. First, Airbus distinguished itself from Boeing by incorporating the most advanced technologies into its planes. Second, Airbus managed to cut costs by utilising a flexible, lean production manufacturing system that stood in a stark contrast to Boeing's mass production system.[16]

As Airbus prospered, the Boeing Company was struggling with rising costs, declining productivity, delays in deliveries and production inefficiencies. Boeing Commercial Aircraft Group lost US$1.8 billion in 1997 and barely generated any profits in 1998.[17] All through the 1990s, the company looked for ways to revitalise its outdated production manufacturing system, on the one hand, and to introduce leading-edge technologies into its jetliners, on the other. The development and production of the 777, first conceived of in 1989, was an early step undertaken by Boeing managers to address both problems.

The 777 program

The 777 program was Boeing's single largest project since the completion of the 747. The total development cost of the 777 was estimated at US$6.3 billion and the total number of employees assigned to the project peaked at nearly 10 000. The 777's twin-engines were the largest and most powerful ever built (the diameter of the 777's engine equalled the 737's fuselage), the 777's construction required 132 000 uniquely engineered parts (compared to 70 000 for

Exhibit 2 Market share of shipments of commercial aircraft: Boeing, McDonnell Douglas and Airbus, 1992–2000 (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Boeing	61	61	63	54	55	67	71	68	61
McDonnell Douglas	17	14	9	13	13				
Airbus	22	25	28	33	32	33	29	32	39

Sources: *Aerospace Facts and Figures, 1997–98*, p. 34; *Wall Street Journal*, 3 December 1998 and 12 January 1999; The Boeing Company Annual Report 1997, p. 19; Data supplied by Mark Luginbill, Airbus Communication Director, 16 November 1998, 1 February 2000 and 20 March 2001.

the 767), the 777's seat capacity was identical to that of the first 747 that had gone into service in 1970, and its manufactured empty weight was 57 per cent greater than the 767's. Building the 777 alongside the 747 and 767 at its Everett plant near Seattle, Washington, Boeing enlarged the plant to cover an area of 76 football fields.[18]

Boeing's financial position in 1990 was unusually strong. With a 21 per cent rate of return on shareholder equity, a long-term debt of just 15 per cent of capitalisation and a cash surplus of US$3.6 billion, Boeing could gamble comfortably.[19] There was no need to bet the company on the new project, as had been the case with the 747, or to borrow heavily, as had been the case with the 767. Still, the decision to develop the 777 was definitely risky; a failure of the new jet might have triggered an irreversible decline of the Boeing Company and threatened its future survival.

The decision to develop the 777 was based on market assessment – the estimated future needs of the airlines. During the 14-year period from 1991 to 2005, Boeing market analysts forecasted a 100 per cent increase in the number of passenger miles travelled worldwide and a need for about 9000 new commercial jets. Of the total value of the jetliners needed in 1991–2005, Boeing analysts forecasted a US$260 billion market for wide-body jets smaller than the 747. An increasing number of these wide-body jets were expected to be larger than the 767.[20]

A consumer-driven product

To manage the risk of developing a new jetliner, aircraft manufacturers had first sought to obtain a minimum number of firm orders from interested carriers, and only then to commit to the project. Boeing CEO Frank Shrontz had expected to obtain 100 initial orders of the 777 before asking the Boeing board to launch the project, but as a result of Boeing's financial strength, on the one hand, and the increasing competitiveness of Airbus, on the other, Schrontz decided to seek the board's approval earlier. He did so after securing only one customer: United Airlines. On 12 October 1990, United had placed an order for 34 of the 777s and an option for an additional 34 aircraft, and two weeks later, Boeing's board of directors approved the project.[21]

Negotiating the sale, Boeing and United drafted a handwritten agreement (signed by Philip Condit and Richard Albrecht, Boeing's executive vice presidents, and Jim Guyette, United's executive vice president) that granted United a larger role in designing the 777 than the role played by any airline before. The two companies pledged to cooperate closely in developing an aircraft with the 'best dispatch reliability in the industry' and the 'greatest customer appeal in the industry'. 'We will endeavor to do it right the first time with the highest degree of professionalism' and with 'candor, honesty, and respect' [the agreement read]. Asked to comment on the agreement, Philip Condit said: 'We are going to listen to our customers and understand what they want. Everybody on the program has that attitude.'[22] Gordon McKinzie, United's 777 program director, agreed: 'In the past we'd get brochures on a new airplane and its options … wait four years for delivery, and hope we'd get what we ordered. This time Boeing really listened to us.'[23]

Condit invited other airline carriers to participate in the design and development phase of the 777. Altogether, eight carriers from around the world (United, Delta, America, British Airways, Qantas, Japan Airlines, All Nippon Airways and Japan Air System) sent full-time representatives to Seattle; British Airways alone assigned 75 people at one time. To facilitate interaction between its design engineers and representatives of the eight carriers, Boeing introduced an initiative called 'Working Together'. 'If we have a problem,' a British Airways production manager explained, 'we go to the source – design engineers on the IPT [Integrated Product Teams], not service engineer(s). One of the frustrations on the 747 was that we rarely got to talk to the engineers who were doing the work.'[24]

'We have definitely influenced the design of the aircraft,' a United 777 manager said, mentioning changes in the design of the wing panels that made it easier for airline mechanics to access the slats (slats, like flaps, increased lift on takeoffs and landings), and new features in the cabin that made the plane more attractive to passengers.[25] Of the 1500 design features examined by representatives of the airlines, Boeing engineers modified 300. Among changes made by Boeing was a redesigned overhead bin that left more stand-up headroom for passengers (allowing a

six-foot-three tall passenger to walk from aisle to aisle), 'flattened' side walls which provided the occupant of the window seat with more room, overhead bin doors which opened down and made it possible for shorter passengers to lift baggage into the overhead compartment, a redesigned reading lamp that enabled flight attendants to replace light bulbs, a task formerly performed by mechanics, and a computerised flight deck management system that adjusted cabin temperature, controlled the volume of the public address system, and monitored food and drink inventories.[26]

More important were changes in the interior configuration (layout plan) of the aircraft. To be able to reconfigure the plane quickly for different markets of varying travel ranges and passenger loads, Boeing's customers sought a flexible plan of the interior. On a standard commercial jet, kitchen galleys, closets, lavatories and bars were all removable in the past but were limited to fixed positions where the interior floor structure was reinforced to accommodate the 'wet' load. On the 777, by contrast, such components as galleys and lavatories could be positioned anywhere within several 'flexible zones' designed into the cabin by the joint efforts of Boeing engineers and representatives of the eight airlines. Similarly, the flexible design of the 777's seat tracks made it possible for carriers to increase the number of seat combinations as well as reconfigure the seating arrangement quickly. Flexible configurations resulted, in turn, in significant cost savings; airlines no longer needed to take the aircraft out of service for an extended period of time in order to reconfigure the interior.[27]

The airline carriers also influenced the way in which Boeing designed the 777 cockpit. During the program definition phase, representatives of United Airlines, British Airways and Qantas – three of Boeing's clients whose fleets included a large number of 747-400s – asked Boeing engineers to model the 777 cockpit on the 747-400's. In response to these requests, Boeing introduced a shared 747/777 cockpit design that enabled its airline customers to use a single pool of pilots for both aircraft types at a significant cost savings.[28]

Additionally, the airline carriers urged Boeing to increase its use of avionics for in-flight entertainment. The 777, as a consequence, was equipped with a fully computerised cabin. Facing each seat on the 777, and placed on the back of the seat in front, was a combined computer and video monitor that featured movies, video programs and interactive computer games. Passengers were also provided with a digital sound system comparable to the most advanced home stereo available, and a telephone. About 40 per cent of the 777's total computer capacity was reserved for passengers in the cabin.[29]

The 777 was Boeing's first fly by wire (FBW) aircraft, an aircraft controlled by a pilot transmitting commands to the movable surfaces (rudder, flaps, etc.) electrically, not mechanically. Boeing installed a state-of-the-art FBW system on the 777 partly to satisfy its airline customers, and partly to challenge Airbus's leadership in flight control technology, a position Airbus had held since it introduced the world's first FBW aircraft, the A-320, in 1988.

Lastly, Boeing customers were invited to contribute to the design of the 777's engine. Both United Airlines and All Nippon Airlines assigned service engineers to work with representatives of Pratt and Whitney (P&W) on problems associated with engine maintenance. P&W held three specially scheduled 'airline conferences'. At each conference, some 40 airline representatives clustered around a full-scale mock-up of the 777 engine and showed Pratt and Whitney engineers gaps in the design, hard-to-reach points, visible but inaccessible parts, and accessible but invisible components. At the initial conference, Pratt and Whitney picked up 150 airline suggestions, at the second, 50, and at the third, 10 more suggestions.[30]

A globally manufactured product

Twelve international companies located in 10 countries, and 18 more US companies located in 12 states, were contracted by Boeing to help manufacture the 777. Together, they supplied structural components as well as systems and equipment. Among the foreign suppliers were companies based in Japan, Britain, Australia, Italy, Korea, Brazil, Singapore and Ireland; among the major US subcontractors were the Grumman Corporation, Rockwell (later merged with Boeing), Honeywell, United Technologies, Bendix and the Sunstrand Corporation. Of all foreign participants, the Japanese played the largest role. A consortium

made up of Fuji Heavy Industries, Kawasaki Heavy Industries and Mitsubishi Heavy Industries had worked with Boeing on its wide-body models since the early days of the 747. Together, the three Japanese subcontractors produced 20 per cent of the value of the 777's airframe (up from 15 per cent of the 767's). A group of 250 Japanese engineers had spent a year in Seattle working on the 777 alongside Boeing engineers before most of its members went back home to begin production. The fuselage was built in sections in Japan and then shipped to Boeing's huge plant at Everett, Washington for assembly.[31]

Boeing used global subcontracting as a marketing tool as well. Sharing design work and production with overseas firms, Boeing required overseas carriers to buy the new aircraft. Again, Japan is a case in point. In return for the contract signed with the Mitsubishi, Fuji and Kawasaki consortium – which was heavily subsidised by the Japanese government – Boeing sold 46 of the 777 jetliners to three Japanese air carriers: All Nippon Airways, Japan Airlines and Japan Air System.[32]

A family of planes

From the outset, the design of the 777 was flexible enough to accommodate derivative jetliners. Because all derivatives of a given model shared maintenance, training and operating procedures, as well as replacement parts and components, and because such derivatives enabled carriers to serve different markets at lower costs, Boeing's clients were seeking a family of planes built around a basic model, not a single 777. Condit and his management team, accordingly, urged Boeing's engineers to incorporate the maximum flexibility into the design of the 777.

The 777's design flexibility helped Boeing to manage the project's risks. Offering a family of planes based on a single design to accommodate future changes in customers' preferences, Boeing spread the 777 project's risks among a number of models all belonging to the same family.

The key to the 777's design efficiency was the wing. The 777 wings, exceptionally long and thin, were strong enough to support vastly enlarged models. The first model to go into service, the 777-200, had a 209-foot-long fuselage, was designed to carry 305 passengers in three class configurations, and had a travel range of 5900 miles in its original version (1995), and up to 8900 miles in its extended version (1997). The second model to be introduced (1998), the 777-300, had a stretched fuselage of 242 feet (10 feet longer than the 747) was configured for 379 passengers (three classes), and flew to destinations of up to 6800 miles away. In the all-tourist class configuration, the stretched 777-300 could carry as many as 550 passengers.[33]

Digital design

The 777 was the first Boeing jetliner designed entirely by computers. Historically, Boeing had designed new planes in two ways: paper drawings and full-size models called mock-ups. Paper drawings were two-dimensional and therefore insufficient to account for the complex construction of the three-dimensional airplane. Full-scale mock-ups served as a backup to drawings.

Boeing engineers used three classes of mock-ups. Made up of plywood or foam, class 1 mock-ups were used to construct the plane's large components in three dimensions, refine the design of these components by carving into the wood or foam, and feed the results back into the drawings. Made partly of metal, class 2 mock-ups addressed more complex problems such as the wiring and tubing of the airframe, and the design of the machine tools necessary to cut and shape the large components. Class 3 mock-ups gave the engineers one final opportunity to refine the model and thereby reduce the need to keep on changing the design during the actual assembly process or after delivery.[34]

Despite the engineers' efforts, many parts and components did not fit together on the final assembly line but rather 'interfered' with each other – that is, they overlapped in space. The problem was both pervasive and costly; Boeing engineers needed to rework and realign all overlapping parts in order to join them together.

A partial solution to the problem was provided by the computer. In the last quarter of the 20th century, computer-aided design was used successfully in car manufacture, building construction, machine production and several other industries; its application

to commercial aircraft manufacturing came later, both in the United States and in Europe. Speaking of the 777, Dick Johnson, Boeing chief engineer for digital design, noted the 'tremendous advantage' of computer application:

> With mock-ups, the … engineer had three opportunities at three levels of detail to check his parts, and nothing in between. With Catia [Computer aided three dimensional, interactive application] he can do it day in and day out over the whole development of the airplane.[35]

Catia was a sophisticated computer program that Boeing bought from Dassault Aviation, a French fighter plane builder. IBM enhanced the program to improve image manipulation, supplied Boeing with eight of its largest mainframe computers, and connected the mainframes to 2200 computer terminals that Boeing distributed among its 777 design teams. The software program showed on a screen exactly how parts and components fit together before the actual manufacturing process took place.[36]

A digital design system, Catia had five distinctive advantages. First, it provided the engineers with 100 per cent visualisation, allowing them to rotate, zoom and 'interrogate' parts geometrically in order to spotlight interferences. Second, Catia assigned a numerical value to each drawing on the screen and thereby helped engineers to locate related drawings of parts and components, merge them together, and check for incompatibilities. Third, to help Boeing's customers service the 777, the digital design system created a computer-simulated human – a Catia figure playing the role of the service mechanic – who climbed into the three-dimensional images and showed the engineers whether parts were serviceable and entry accessible. Fourth, the use of Catia by all 777 design teams in the US, Japan, Europe and elsewhere facilitated instantaneous communication between Boeing and its subcontractors and ensured the frequent updating of the design. And fifth, Catia provided the 777 assembly line workers with graphics that enhanced the narrative work instructions they received, showing explicitly on a screen how a given task should be performed.[37]

Design-build teams (DBT)

Teaming was another feature of the 777 program. About 30 integrated-level teams at the top and more than 230 design-build teams at the bottom worked together on the 777.[38] All team members were connected by Catia. The integrated-level teams were organised around large sections of the aircraft; the DBTs around small parts and components. In both cases, teams were cross-functional, as Philip Condit observed:

> If you go back … to earlier planes that Boeing built, the factory was on the bottom floor, and Engineering was on the upper floor. Both Manufacturing and Engineering went back and forth. When there was a problem in the factory, the engineer went down and looked at it. …
>
> With ten thousand people [working on the 777], that turns out to be really hard. So you start devising other tools to allow you to achieve that – the design-build team. You break the airplane down and bring Manufacturing, Tooling, Planning, Engineering, Finance, and Materials all together [in small teams].[39]

Under the design-build approach, many of the design decisions were driven by manufacturing concerns. As manufacturing specialists worked alongside engineers, engineers were less likely to design parts that were difficult to produce and needed to be redesigned. Similarly, under the design-build approach, customers' expectations as well as safety and weight considerations were all incorporated into the design of the aircraft; engineers no longer needed to 'chain saw'[40] structural components and systems in order to replace parts that did not meet customers' expectations, were unsafe, or were too heavy.

The design of the 777's wing provides an example. The wing was divided into two integration-level teams, the 'leading edge' (the forward part of the wing) and the 'trailing edge' (the back of the wing) team. Next, the trailing edge team was further divided into 10 design-build teams, each named after a piece of the wing's trailing edge (Exhibit 3). Membership in these DBTs extended to two groups of outsiders: representatives of the customer airlines and

engineers employed by the foreign subcontractors. Made up of up to 20 members, each DBT decided its own mix of insiders and outsiders, and each was led by a team leader. Each DBT included representatives from six functional disciplines: engineering, manufacturing, material, customer support, finance, and quality assurance. The DBTs met twice a week for two hours to hear reports from team members, discuss immediate goals and plans, divide responsibilities, set time lines, and take specific notes of all decisions taken.[41] Described by a Boeing official as 'little companies', the DBTs enjoyed a high degree of autonomy from management supervision; team members designed their own tools, developed their own manufacturing plans, and wrote their own contracts with the program management, specifying deliverables, resources and schedules. John Monroe, a Boeing 777 senior project manager, remarked:

> The team is totally responsible. We give them a lump of money to go and do th[eir] job. They decide whether to hire a lot of inexpensive people or to trade numbers for resources. It's unprecedented. We have some $100 million plus activities led by non-managers.[42]

Exhibit 3 The 10 DBTs ('little companies') responsible for the wing's trailing edge

Flap Supports Team
Inboard Flap Team
Outboard Flap Team
Outboard Fixed Wing Team
Flaperon* Team
Aileron* Team
Inboard Fixed Wing and Gear Support Team
Main Landing Gear Doors Team
Spoilers** Team
Fairings*** Team

The Flaperon and Aileron were movable hinged sections of the trailing edge that helped the plane roll in flight. The Flaperon was used at high speed, the Aileron at low speed.

** The spoilers were the flat surfaces that lay on top of the trailing edge and extended during landing to slow down the plane.

*** The fairings were the smooth parts attached to the outline of the wing's trailing edge. They helped reduce drag.

Source: Karl Sabbagh, *21st Century Jet: The Making and Marketing of the Boeing 777* (New York: Scribner, 1996), p. 73.

Employees' empowerment and culture

An additional aspect of the 777 program was the empowering of assembly line workers. Boeing managers encouraged factory workers at all levels to speak up, offer suggestions and participate in decision making. Boeing managers also paid attention to a variety of 'human relations' problems faced by workers, problems ranging from childcare and parking to occupational hazards and safety concerns.[43]

All employees entering the 777 program – managers, engineers, assembly line workers and others – were expected to attend a special orientation session devoted to the themes of teamwork and quality control. Once a quarter, the entire '777 team' of up to 10 000 employees met off-site to hear briefings on the aircraft status. Dressed casually, the employees were urged to raise questions, voice complaints and propose improvements. Under the 777 program, managers met frequently to discuss ways to promote communication with workers. Managers, for example, 'fire fought' problems by bringing workers together and empowering them to offer solutions. In a typical 'fire-fight' session, Boeing 777 project managers learned from assembly line workers how to improve the process of wiring and tubing the airframe's interior: 'staffing' fuselage sections with wires, ducts, tubes and insulation materials before joining the sections together was easier than installing the interior parts all at once in a pre-assembled fuselage.[44]

Under the 777 program, in addition, Boeing assembly line workers were empowered to appeal management decisions. In a case involving middle managers, a group of Boeing machinists sought to replace a non-retractable jig (a large device used to hold parts) with a retractable one in order to ease and simplify their jobs. Otherwise they had to carry heavy equipment loads up and down stairs. Again and again, their supervisors refused to implement the change. When the machinists eventually approached a factory manager, he inspected the jig personally and immediately ordered the change.[45]

Under the 777 program, work on the shop floor was ruled by the 'Bar Chart'. A large display panel placed at different work areas, the Bar Chart listed the name of each worker, his or her daily job descrip-

tion, and the time available to complete specific tasks. Boeing had utilised the Bar Chart system as a 'management visibility system' in the past, but only under the 777 program was the system fully computerised. The chart showed whether assembly line workers were meeting or missing their production goals. Boeing industrial engineers estimated the time it took to complete a given task and fed the information back to the system's computer. Workers ran a scanner across their ID badges and supplied the computer with the data necessary to log their job progress. Each employee 'sold' his/her completed job to an inspector, and no job was declared acceptable unless 'bought' by an inspector.[46]

Leadership and management style

The team in charge of the 777 program was led by a group of five vice presidents, headed by Philip Condit, a gifted engineer who was described by one Wall Street analyst as 'a cross between a grizzly bear and a teddy bear. Good people skills, but furious in the marketplace.'[47] Each of the five vice presidents rose through the ranks, and each had 25–30 years' experience with Boeing. All were men.[48]

During the 777 design phase, the five VPs met regularly every Tuesday morning in a small conference room at Boeing's headquarters in Seattle in what was called the 'Muffin Meeting'. There were no agendas drafted, no minutes drawn, no overhead projectors used and no votes taken. The home-made muffins, served during the meeting, symbolised the informal tone of the forum. Few people outside the circle of five had ever attended these weekly sessions. Acting as an informal chair, Condit led a freewheeling discussion of the 777 project, asking each VP to say anything he had on his mind.[49]

The weekly session reflected Boeing's sweeping new approach to management. Traditionally, Boeing had been a highly structured company governed by engineers. Its culture was secretive, formal and stiff. Managers seldom interacted, sharing was rare, divisions kept to themselves, and engineers competed with each other. Under the 777 program, Boeing made serious efforts to abandon its secretive management style. Condit firmly believed that open communication among top executives, middle managers and assembly line workers was indispensable for improving morale and raising productivity. He urged employees to talk to each other and share information, and he used a variety of management tools to do so: information sheets, orientation sessions, question and answer sessions, leadership meetings, regular managers' meetings and 'all team' meetings. To empower shop floor workers as well as middle managers, Condit introduced a three-way performance review procedure whereby managers were evaluated by their supervisors, their peers and their subordinates.[50] Most important, Condit made teamwork the hallmark of the 777 project. In an address entitled 'Working Together: The 777 Story' and delivered in December 1992 to members of the Royal Aeronautics Society in London,[51] Condit summed up his team approach:

> [T]eam building is … very difficult to do well but when it works the results are dramatic. Teaming fosters the excitement of a shared endeavor and creates an atmosphere that stimulates creativity and problem solving.
>
> But building team[s] … is hard work. It doesn't come naturally. Most of us are taught from an early age to compete and excel as individuals. Performance in school and performance on the job are usually measured by individual achievement. Sharing your ideas with others, or helping others to enhance their performance, is often viewed as contrary to one's self interest.
>
> This individualistic mentality has its place, but … it is no longer the most useful attitude for a workplace to possess in today's world. To create a high performance organization, you need employees who can work together in a way that promotes continual learning and the free flow of ideas and information.

The results of the 777 project

The 777 entered revenue service in June 1995. Since many of the features incorporated into the 777's design reflected suggestions made by the airline carriers, the pilots, mechanics and flight attendants were quite enthusiastic about the new jet. Three achievements of the program – in airplane interior, aircraft design and aircraft manufacturing – stood out.

Configuration flexibility

The 777 offered carriers enhanced configuration flexibility. A typical configuration change took only 72 hours on the 777 compared to three weeks in competing aircraft. In 1992, the Industrial Design Society of America granted Boeing its Excellence Award for building the 777 passenger cabin, honouring an airplane interior for the first time.[52]

Digital design

The original goal of the program was to reduce 'change, error, and rework' by 50 per cent, but engineers building the first three 777s managed to reduce such modification by 60 per cent to 90 per cent. Catia helped engineers to identify more than 10 000 interferences that would have otherwise remained undetected until assembly, or until after delivery. The first 777 was only 0.023 inch short of perfect alignment, compared to as much as 0.5 inch on previous programs.[53] Assembly line workers confirmed the beneficial effects of the digital design system. 'The parts snap together like Lego blocks,' said one mechanic.[54] Reducing the need for reengineering, replanning, retooling and retrofitting, Boeing's innovative efforts were recognised yet again. In 1993, the Smithsonian Institution honoured the Boeing 777 division with its Annual Computerworld Award for the manufacturing category.[55]

Empowerment

Boeing 777 assembly line workers expressed a high level of job satisfaction under the new program. 'It's a whole new world,' a 14-year Boeing veteran mechanic said. 'I even like going to work. It's bubbly. It's clean. Everyone has confidence.'[56] 'We never used to speak up,' said another employee, 'didn't dare. Now factory workers are treated better and are encouraged to offer ideas.'[57] Although the Bar Chart system required Boeing 777 mechanics to work harder and faster as they moved down the learning curve, their principal union organisation, the International Association of Machinists, was pleased with Boeing's new approach to labour–management relations. A union spokesman reported that under the 777 program, managers were more likely to treat problems as opportunities from which to learn, rather than as mistakes for which to lay blame. Under the 777 program, the union representative added, managers were more respectful of workers' rights under the collective bargaining agreement.[58]

Unresolved problems and lessons learned

Notwithstanding Boeing's success with the 777 project, the cost of the program was very high. Boeing did not publish figures pertaining to the total cost of Catia. But a company official reported that under the 777 program, the 3D digital design process required 60 per cent more engineering resources than the older, 2D drawing-based design process. One reason for the high cost of using digital design was slow computing tools: Catia's response time often lasted minutes. Another was the need to update the design software repeatedly. Boeing revised Catia's design software four times between 1990 and 1996, making the system easier to learn and use. Still, Catia continued to experience frequent software problems. Moreover, several of Boeing's outside suppliers were unable to utilise Catia's digital data in their manufacturing process.[59]

Boeing faced training problems as well. One challenging problem, according to Ron Ostrowski, director of 777 engineering, was 'to convert people's thinking from 2D to 3D. It took more time than we thought it would. I came from a paper world and now I am managing a digital program.'[60] Converting people's thinking required what another manager called an 'unending communication' coupled with training and retraining. Under the 777 program, Ostrowski recalled, 'engineers had to learn to interact. Some couldn't, and they left. The young ones caught on' and stayed.[61]

Learning to work together was a challenge to managers, too. Some managers were reluctant to embrace Condit's open management style, fearing a decline in their authority. Others were reluctant to share their mistakes with their superiors, fearing reprisals. Some other managers, realising that the new approach would end many managerial jobs, resisted change when they could, and did not pursue it wholeheartedly when they could not. Even top executives were sometimes uncomfortable with Boeing's open management style, believing that sharing information

with employees was likely to help Boeing's competitors obtain confidential 777 data.[62]

Teamwork was another problem area. Working under pressure, some team members did not function well within teams and had to be moved. Others took advantage of their new-born freedom to offer suggestions, but were disillusioned and frustrated when management either ignored these suggestions or did not act upon them. Managers experienced different team-related problems. In several cases, managers kept on meeting with their team members repeatedly until they arrived at a solution desired by their bosses. They were unwilling to challenge senior executives, nor did they trust Boeing's new approach to teaming. In other cases, managers distrusted the new digital technology. One engineering manager instructed his team members to draft paper drawings alongside Catia's digital designs. When Catia experienced a problem, he followed the drawing, ignoring the computerised design, and causing unnecessary and costly delays in his team's part of the project.[63]

Extending the 777 revolution

Boeing's learning pains played a key role in the company's decision not to implement the 777 program company wide. Boeing officials recognised the importance of teamwork and Catia in reducing change, error and rework, but they also realised that teaming required frequent training, continuous reinforcement and ongoing monitoring, and that the use of Catia was still too expensive, though its cost was going down. (In 1997, Catia's 'penalty' was down to 10 per cent.) Three of Boeing's derivative programs – the 737 Next Generation, the 757-300 and the 767-400 – had the option of implementing the 777's program innovations, and only one, the 737, did so, adopting a modified version of the 777's cross-functional teams.[64]

Yet the 777's culture was spreading in other ways. Senior executives took broader roles as the 777 entered service, and their impact was felt through the company. Larry Olson, director of information systems for the 747/767/777 division, was a former 777 manager who believed that Boeing 777 employees 'won't tolerate going back to the old ways'. He expected to fill new positions on Boeing's next program – the 747X – with former 777 employees in their forties.[65] Philip Condit, Boeing CEO, implemented several of his own 777 innovations, intensifying the use of meetings among Boeing's managers, and promoting the free flow of ideas throughout the company. Under Condit's leadership, all mid-level managers assigned to Boeing Commercial Airplane Group, about 60 people, met once a week to discuss costs, revenues and production schedules, product by product. By the end of the meeting – which sometimes ran into the evening – each manager had to draft a detailed plan of action dealing with problems in his/her department.[66] Under Condit's leadership, more importantly, Boeing developed a new 'vision' that grew out of the 777 project. Articulating the company's vision for the next two decades (1996–2016), Condit singled out 'Customer satisfaction', 'Team leadership' and 'A participatory workplace' as Boeing's core corporate values.[67]

Conclusion: Boeing, Airbus and the 777

Looking back at the 777 program 11 years after the launch and six years after first delivery, it is now (2001) clear that Boeing produced the most successful commercial jetliner of its kind. Airbus launched the A330 and A340 in 1987, and McDonnell Douglas

Exhibit 4 Total number of MD11, A330, A340 and 777 airplanes delivered during 1996–2000

	1996	1997	1998	1999	2000
McDonnell Douglas/Boeing MD11	15	12	12	8	4
Airbus A330	10	14	23	44	43
Airbus A340	28	33	34	20	19
Boeing 777	32	59	74	83	55

Sources: For Airbus, Mark Luginbill, Airbus Communication Director, 1 February 2000 and 20 March 2001. For Boeing, The Boeing Company Annual Report 1997, p. 35, 1998, p. 35; 'Commercial airplanes: Order and delivery summary', www.Boeing.com, 2 February 2000 and 2 February 2001.

launched a new 300-seat wide-body jet in the mid-1980s, the three-engine MD11. Coming late to market, the Boeing 777 soon outsold both models. The 777 had entered service in 1995, and within a year Boeing delivered more than twice as many 777s as the number of MD11s delivered by McDonnell Douglas. In 1997, 1998 and 1999, Boeing delivered a larger number of 777s than the combined number of A330s and A340s delivered by Airbus, and in 2000 the 777 outsold each of its two Airbus competitors (Exhibit 4). A survey of nearly 6000 European airline passengers who had flown both the 777 and the A330/A340 found that the 777 was preferred by more than three out of four passengers.[68] In the end, a key element in the 777's triumph was its popularity with the travelling public.

Appendix A: Selected features of the 777

Aerodynamic efficiency

Aircraft operating efficiency depended, in part, on aerodynamics: the smoother the surface of the plane and the more aerodynamic the shape of the plane, the less power was needed to overcome drag during flight. To reduce aerodynamic drag, Boeing engineers sought to discover the optimal shape of the plane's major components – namely, the wings, fuselage, nose, tails and nacelles (engine-protective containers). Speaking of the 777's 'airfoil', the shape of the wing, Alan Mulally, the 777's director of engineering (he later succeeded Condit as the project manager), explained:

> The 777 airfoil is a significant advance in airfoil design over … past airplanes … We arrived at this shape by extensive analysis in wind tunnel … [W]e learned new things by testing the airfoil at … near flight conditions as far as temperature … pressures, and air distribution are concerned. And … we've ended up with an airfoil that is a new standard at maximizing lift versus drag.[69]

The 777's advanced wing enhanced its ability to climb quickly and cruise at high altitudes. It also enabled the airplane to carry full passenger payloads out of many high-elevation airfields served by Boeing customers. Boeing engineers estimated that the design of the 777 lowered its aerodynamic drag by 5–10 per cent compared to other advanced jetliners.[70]

A service-ready aircraft

A two-engine plane needed special permission from the Federal Aviation Administration (FAA) to fly long over-water routes. Ordinarily, the FAA first certified a twin-jet for one hour of flight away from an airport, then two hours, and only after two years in service, three hours across water anywhere in the world. For the 767, Boeing attained the three hours certification, known as ETOPS (extended range twin-engine operations) approval, after two years in service. For the 777, Boeing customers sought to obtain an ETOPS approval right away, from day one of revenue operations. Boeing 777 customers also expected the new jet to deliver a high level of schedule reliability from the start. (Boeing 767 customers experienced frequent mechanical and computer problems as the 767 entered service in 1982.[71])

To receive an early ETOPS approval, as well as minimise service disruptions, Boeing engineers made special efforts to produce a 'service-ready' plane. Using advanced computer technology, Boeing tested the 777 twice as much as the 767, improved and streamlined the testing procedure, and checked all systems under simulated flight conditions in a new US$370 million high-tech lab called Integrated Aircraft System Laboratory. The Boeing Company, in addition, conducted flight tests for an extended period of time, using United pilots as test pilots. Following a long validation process that included taking off, flying and landing on one engine, the FAA certified the 777 in May 1995.[72]

The 777 proved highly reliable. During the first three months of its revenue service, United Airlines experienced a schedule reliability of 98 per cent, a level the 767 took 18 months to reach. British Airways' first 777 was in service five days after delivery, a company record for a new aircraft. The next three 777s to join British Airways fleet went into service a day after they arrived at Heathrow.[73]

The use of composite materials

Advanced composite materials accounted for 9 per cent of the 777's total weight; the comparable figure for Boeing's other jetliners was 3 per cent. Improved Alcoa aluminum alloys that saved weight and reduced corrosion and fatigue were used for the construction of the 777's upper wing skin; other non-metallic composites were used for the 777's rudder, fines and the tails. To help reduce corrosion around the lavatories and galleys, Boeing pioneered the use of composite materials for the construction of the floor beam structure. Boeing made a larger use of titanium alloys on the 777 than on any previous aircraft. Substituting steel with titanium cut weight by half, and space by one quarter; titanium was also 40 per cent less dense than steel, yet of equal strength. The use of heat-resisting titanium in the 777's engine nacelle saved Boeing 180 pounds per engine, or 360 pounds per plane; the use of titanium rather than steel for building the 777's landing gear saved Boeing 600 pounds per plane. Although titanium was more expensive than steel or aluminum, the choice of its application was driven by economics: for each pound of empty weight Boeing engineers squeezed out of the 777, Boeing airline customers saved hundreds of dollars worth of fuel during the lifetime of the plane.[74]

Appendix B: The 777's choice of engines

Pratt and Whitney (P&W), General Electric (GE) and Rolls-Royce (RR) had all developed the 777 jet engine, each offering its own make. Boeing required an engine that was more powerful, more efficient and quieter than any jet engine in existence; the 777 engine was designed to generate close to 80 000 pounds of thrust (the forward force produced by the gases escaping backward from the engine) or 40 per cent more power than the 767's.[75]

All three engine makers had been selected by Boeing airline customers (Exhibit 5). United Airlines chose the Pratt & Whitney engine. Partly because P&W supplied engines to United 747 and 767 fleets, and also because the design of the 777 engine was an extension of the 747's and 767's design, United management sought to retain P&W as its primary engine supplier.[76] British Airways, on the other hand, selected the GE engine. A major consideration in British Airways' choice was aircraft efficiency: fuel consumption of the GE engine was 5 per cent lower than that of the two competing engines. Other carriers selected the RR engine for their reasons pertaining to their own needs and interests.

Exhibit 5 The choice of engines: Boeing 777's largest customers

Air France	GE
All Nippon Airways	P&W
American Airlines	RR
British Airways	GE
Cathay Pacific Airways	RR
Continental Airlines	GE
Delta Airlines	RR
International Lease Finance Corp.	GE
Japan Air System	P&W
Japan Airlines	P&W
Korea Airlines	P&W
Malaysia Airlines	RR
Saudi Airlines	GE
Singapore Airlines	RR
Thai Airways International	RR
United Airlines	P&W

Source: Boeing Commercial Airplane Group, 777 Announced Order and Delivery Summary … as of 9/30/99.

Notes

1 Eugene Rodgers, 1991, *Flying High: The Story of Boeing* (New York: *Atlantic Monthly Press*, 1996), pp. 423–15; Michael Dornheim, '777 twinjet will grow to replace 747-200', *Aviation Week and Space Technology*, 3 June, p. 43.

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4 John Newhouse, 1982, *The Sporty Game* (New York: Alfred Knopf), p. 21, but see also pp. 10–20.

5 David C. Mowery and Nathan Rosenberg, 1982, 'The commercial aircraft industry', in Richard R. Nelson (ed.), *Government*

Exhibit 6 Selected financial data (dollars in millions except per share data)

Operation	2000	1999	1998	1997	1996
Sales and revenues					
Commercial airplanes	31 171	38 475	36 998	27 479	19 916
Defense and space*	20 236	19 015	19 879	18 125	14 934
Other	758	771	612	746	603
Accounting differences	(844)	(304)	(1 335)	(550)	
Total	51 321	57 993	56 154	45 800	35 453
Net earnings (loss)	2 128	2 309	1 120	(178)	1818
Earnings (loss) per share	2.48	2.52	1.16	(0.18)	1.88
Cash dividends	504	537	564	557	480
Per share	0.59	0.56	0.56	0.56	0.55
Other income (interest)	386	585	283	428	388
Research and development	1 441	1 341	1 895	1 924	1 633
Capital expenditure	932	1 236	1 665	1 391	971
Depreciation	1 159	1 330	1 386	1 266	1 132
Employee salaries and wages	11 614	11 019	12 074	11 287	9 225
Year-end workforce	198 000	197 000	231 000	238 000	211 000
Financial position at 31 December					
Total assets	42 028	36 147	37 024	38 293	37 880
Working capital	(2 425)	2 056	2 836	5 111	7 783
Plant and equipment	8 814	8 245	8 589	8 391	8 266
Cash and short-term investments	1 010	3 454	2 462	5 149	6 352
Total debt	8 799	6 732	6 972	6 854	7 489
Customers and commercial financing assets	6 959	6 004	5 711	4 600	3 888
Shareholders' equity	11 020	11 462	12 316	12 953	13 502
Per share	13.18	13.16	13.13	13.31	13.96
Contractual backlog					
Commercial airplanes	89 780	72 972	86 057	93 788	86 151
Defense and space*	30 820	26 276	26 839	27 852	28 022
Total	120 600	99 248	112 896	121 640	114 173

* Including Information.

Source: The Boeing Company Annual Report 2000, pp. 8, 98.

A special note: For additonal financial data, as reported in the company's annual reports and other financial documents, see Boeing's website at www.Boeing.com.

and Technological Progress: A Cross Industry Analysis (New York: Pergamon Press), p. 116; Dertouzos et. al, *Made in America*, p. 200.

6 Dertouzos, et. al, *Made in America*, p. 203.

7 Newhouse, *Sporty Game*, p. 188; Mowery and Rosenberg, 'The commercial aircraft industry', pp. 124–5.

8 Mowery and Rosenberg, 'The commercial aircraft industry', pp. 102–3, 126–8.

9 John B. Rae, 1968, *Climb to Greatness: The American Aircraft Industry, 1920–1960* (Cambridge, MA: MIT Press), pp. 206–7; Rodgers, *Flying High*, pp. 197–8.

10 Frank Spadaro, 1992, 'A transatlantic perspective', *Design Quarterly*, Winter, p. 23.

11 Rodgers, *Flying High*, p. 279; Newhouse, *Sporty Game*, Ch. 7.

12 M. S. Hochmuth, 1974, 'Aerospace', in Raymond Vernon (ed.), *Big Business and the State* (Cambridge: Harvard University Press), p. 149.

13 Boeing Commercial Airplane Group, *Announced Orders and Deliveries as of 12/31/97*, Section A1.

14 The Boeing Company Annual Report 1998, p. 76.

15 Formed in 1970 by several European aerospace firms, the Airbus Consortium had received generous assistance from the French, British, German and Spanish governments for a period of over two decades. In 1992, Airbus had signed an agreement with Boeing that limited the amount of government funds each aircraft manufacturer could receive, and in 1995, at long last, Airbus had become profitable. 'Airbus 25 years old', 1997, *Le Figaro*, October (reprinted in English by Airbus Industrie); Rodgers, *Flying High*, Ch. 12; *Business Week*, 30 December 1996, p. 40.

16 Charles Goldsmith, 1998, 'Re-engineering, after trailing Boeing for years, Airbus aims for 50 percent of the market', *Wall Street Journal*, 16 March.

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Case 12

Resene Paints

Stephen Bowden
Waikato Management School

> This really is a fantastic company to be part of. Every day presents new opportunities to build on the great legacy we have.
>
> *Nick Nightingale, general manager, Resene Paints*

As Nick Nightingale, general manager of Resene Paints, walked along a corridor between his office and the manufacturing plant, he looked at the can of Stipplecote cement-based paint that sat in a display case. Stipplecote was the original product that his grandfather, Ted Nightingale, had developed and based the company on in 1946. In 55 years, Resene had grown into an integrated manufacturer and retailer of a wide array of high-quality paints and surface coatings. Resene operated four manufacturing plants in New Zealand, one in Australia and one in Fiji. In addition, a chain of 54 company-owned ColorShops and 19 franchised outlets provided the retail arm of Resene in New Zealand. A total of 600 employees worked for Resene generating over $100 million in group annual revenue and healthy profits. (All figures are in New Zealand dollars unless otherwise stated.) Resene had cultivated a stellar reputation for innovation throughout its history – especially from water-based paints, colour development and environmental awareness.

Still, despite the enormous pride that Nick felt in the company's achievements over the last 55 years, he knew that Resene faced many challenges in the future. Resene competed against large multinationals in an industry facing rising research costs. Could Resene continue to be such an innovator, or did it need to change in some way? While dominant in the New Zealand commercial market, overall Resene trailed the market share of major competitor Dulux. Internationally, Resene had a small presence in a number of countries, including Australia, Fiji, Bangladesh and China. But where should Resene focus its efforts – what range of products and markets should it be in and how should it structure the company to best take advantage of that identity?

Resene Paints

A history of innovation and growth

Ted Nightingale, a builder with no chemical or technical training, developed Stipplecote, a paint for concrete, simply because no such paint existed. (www.resene.co.nz/pdf/nostalgia.pdf offers a more complete history.) In 1951, Ted also developed New Zealand's first water-based paint under the brand name Resene and formed the Stipplecote Product Company in 1952. Ted developed water-based paint after he heard that the resin he was familiar with through Stipplecote, PVA, could be used to make other paints. In an experimental way, with very limited resources, Ted was able to solve the problem and develop the water-based paint. In many ways, it was a process that would be repeated again and again over the history of Resene as the company continued to innovate in terms of both paint types and colours. After considerable effort, demand for the company's water-based paints grew strongly. The growth necessitated

expansion and resulted in moves from the original Kaiwharawhara factory to Seaview in 1967 and then to the current site in Naenae in 1992. In 1977 the company changed its name from Stipplecote Products to the present Resene Paints Ltd.

Paint and protective coatings had long been produced for a wide range of purposes. Nick Nightingale viewed Resene as selling to five different markets.

> First, there's a commercial market consisting of tradespeople, architects and specifiers. While painters apply the paint, the decision on the paint to be applied is often made by others. Particularly on larger jobs an architect, an interior decorator or even a project manager specifies the paint to be used. The second market is the retail market and consists of do-it-yourself (DIY) consumers who paint their own houses and make occasional purchases of paint. The combined commercial and retail markets are referred to as the architectural and decorative coatings market. Third, is the specialty finishes market, which mainly involves textured coatings. The textured coatings are basically a construction product. Fourth, there's a protective coatings market that includes marine products as well as industrial coatings and some architectural products like anti-graffiti systems. Finally, there's the automotive market for paints.

While Resene began as a manufacturer of basic paints for buildings and houses, focused mainly on water-based paints, the company had widened its range of paints and coatings considerably since to offer an extensive range of products for each market. Resene moved into solvent-based paints and had a specialised plant in Upper Hutt. Resene also operated two acquired subsidiaries based in New Zealand. Altex Coatings, with manufacturing facilities both in Tauranga and Australia, was a manufacturer of protective coatings for industrial and marine surfaces. Resene Automotive & Performance Coatings, located in Auckland, manufactured its own brand of automotive, furniture and industrial paints and a range of car care products for the New Zealand market. Resene Automotive was also the distributor in New Zealand for the world's leading brand in automotive refinish paint – DuPont car paints. In addition, Resene operated two international subsidiaries. Resene Ltd (Australia) focused on manufacturing marine coatings as well as a full range of industrial and architectural coatings from its factory on the Gold Coast. Resene Paints Fiji Limited, in Suva, manufactured a full range of architectural, industrial and marine paints, as well as furniture lacquers for the commercial and retail customer. Outside of the paint industry, Resene owned the Cellier Le Brun Ltd wine-maker in Blenheim.

At the same time that Resene had been going from strength to strength, however, other paint companies had disappeared. In the 1970s a large number of small independent paint manufacturers existed – probably 30 or 40 – but the industry was now dominated by the largest three firms: Orica, Resene and Wattyl. Both Orica and Wattyl were large Australian companies for whom the New Zealand paint market represented a small part of their operations. Orica, formerly ICI Australia, operated in New Zealand through brands including Dulux, British Paints and Levenes. Wattyl distributed both Wattyl and Taubmans branded paints in New Zealand. Resene was the only paint company still doing research and development in New Zealand and as a group manufactured the most paint in New Zealand.

The Nightingale family

Resene was a very successful privately owned, family business that was still headed by the Nightingale family that founded the business. A significant difference from competitors that stemmed from the ownership by the Nightingale family was management tenure. Resene had been headed by only two people during its history – the founder Ted Nightingale and his son Tony. By contrast to the almost 30-year average tenure at Resene, their competitors often viewed New Zealand as a training ground and turned over senior management on a two-year cycle.

When Ted Nightingale ran the company, he was the innovator as well as the marketer and manager and everything else. In the succession plan that was implemented with Ted's retirement, Ted's son Tony became managing director, while the recently hired technical director, Colin Gooch, was given considerable autonomy for the technical issues. Tony focused more on the marketing and managerial issues, although he always debated other issues with Colin.

Given the importance of technical issues within the company, one legacy of the succession was that Tony and Colin were forced to work together and agree on how to proceed.

Resene was gradually moving through the next stage in the succession of the company. Tony was still the managing director, although illness had limited his involvement over the last few years. Two-and-a-half years ago, Nick became general manager, directly under his father, with all other senior managers reporting to Nick. Of greater concern, however, Colin Gooch was set to retire in five years' time and no obvious successor to Colin was yet apparent.

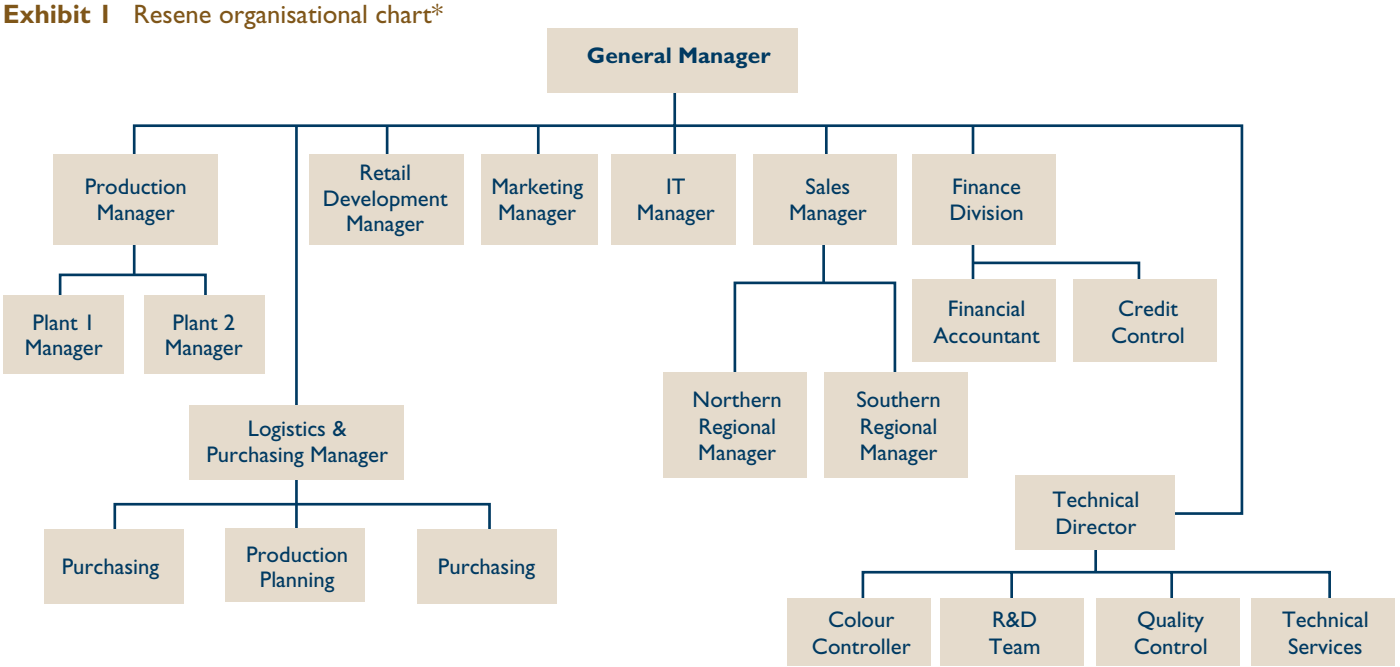
Top management

Nick had been involved in jobs around the company since his youth. He was the first person to staff one of their stores on a Saturday. After completing a commerce degree at Victoria University, Nick spent a few years overseas before returning to New Zealand and the family business. He had worked on the sales side since his return as a regional sales manager prior to becoming general manager. Reporting to Nick were all the functional managers (see Exhibit 1). In addition, the heads of each of the subsidiary companies throughout New Zealand, Australia and Fiji – except Altex, which reported directly to Tony – were responsible to Nick. According to Nick,

> The subsidiary companies operate as separate companies and we don't really like to tell them what to do. We do a little R&D work here in Naenae for our Australian and Fijian subsidiaries, but it's limited due to product differences. We have just switched a major resin supplier for our Australian subsidiary to the same supplier that we use in New Zealand. That switch has led to cost savings, quality improvement, and meant that our knowledge base about that resin could be utilised in Australia.' Resene Automotive and Altex, serving different markets with different products, were treated as stand-alone business units.

'We require our managers to have a strong orientation to quality at Resene. Frankly, without that orientation you just would not last here,' said Nick Nightingale. Often, the orientation to quality came at a cost in terms of materials used. For example, Resene had increased the weight of card they used as the backing on a colour chart for metallic paints. This had increased the cost of producing those colour

Exhibit 1 Resene organisational chart*



* Subsidiaries not included.

charts by 20 cents per card, or 9 per cent, but Nick felt that the card held up better, looked more attractive and better supported the quality proposition. The higher cost structure associated with better-quality ingredients certainly led to arguments through the years. 'Periodically Tony asks me to look at the cost of producing the paint to see if we can get that down,' recalled Colin. 'Eventually, I would agree to take a look, but I tended to forget and nothing much changed. I can honestly say there has never been a decision to reduce quality over the last 30 years – only to increase it.'

There was a belief among management, however, that consumers – even professional painters – did not always recognise the quality of Resene paints. Colin Gooch noted that 'we have always sought standards for the paint that go far beyond either industry norms or even customer expectations'. However, the quality had at least been recognised by the New Zealand Consumer Institute, identifying Resene as standing out above all other brands of interior acrylic paints.[1] Colin believed that, 'over time, painters will notice that they are having less come-backs [repairs] on Resene paints'.

The board of directors for Resene consisted of Tony Nightingale, Lindsay Lewer the finance director, Colin Gooch and Wellington lawyer, Adrian Ellingham. At present, particularly since the board was heavily weighted towards active employees, meetings of the board were not highly formalised, nor regular. Important decisions involved consultation between Nick and Tony. Nick argued that, 'we bring in specific expertise as necessary – either within the company or, occasionally, through consultants. But I do see the board evolving into a more formalised role with additional members added such as the manager of Altex Coatings, myself and perhaps my brother [who did not work for the company].'

One task that management at Resene had pursued during 2001 was the development of a vision for the company. Two alternatives had been under discussion among the management team: *Resene will be an innovative supplier of paint solutions to the retail and commercial marketplace* or *Resene will be a world leader in the provision of paint products, colour and their technologies. We will be driven by our successful, world-class New Zealand team which will celebrate our success*. In mid-September, the management team chose to go with *To be acknowledged as the leading provider of innovative paint solutions and technologies*.

Human resources

A significant proportion of employees had worked for Resene for many years. When Resene did recruit new staff, employees of other paint companies were generally avoided. For example, the sales force had, in recent times, recruited only four employees from competitors. According to Nick, this was because the philosophy of competitors tended to be more towards making sales, even at the expense of profits. Resene preferred to recruit from other industries – people who had an understanding of selling a quality product for a profit. Hiring technical staff, in particular, was very difficult. Resene had recently had to hire two scientists from India to obtain suitably qualified and trained staff. In general, technical recruits from competitors were more accustomed to a sterile environment with well-resourced labs, but less orientation towards creativity.

Product range

At its most basic level there were two types of paint – water-based and solvent-based. The difference referred to the type of solvent used in the paint for thinning – water or a petroleum derivative. While Resene pioneered water-based paints in New Zealand, as noted, Resene later began producing solvent-based paints as well. These were produced in their Upper Hutt plant – separately from the main plant in Naenae. Solvent-based paints could have certain properties that made them desirable over water-based paints – particularly for high-gloss products. However, water-based paints were not considered dangerous goods because there was not the fire danger of a petroleum-based product. Water-based paints also cleaned up easier, had less dangerous fumes and were generally more environmentally friendly. Because of these advantages, water-based paints dominated production in Australasia. As such, paint companies were always looking to develop water-based versions of paints that had previously only been available as oil-based. One

recent example was where Resene had pioneered the first truly water-based enamel in the world.

Within these two types of paint, Resene produced literally hundreds of product types, and thousands of specific SKUs for use on the huge variety of surfaces that paint could be applied to. The product range of Resene included primers, sealers, undercoats and topcoats for wood, steel, concrete, plaster or any other building material. The wide product range was supported by advice on the appropriate product for any surface. Resene produced award-winning specification manuals to aid this, but also worked at a personal level with clients on specific problems. Both the decorative and protective functions of paint could be compromised – no matter how good the paint was – if the paint was not able to bond with the surface it was applied to.

Manufacturing

The actual manufacturing of paint involved the mixing together of the basic ingredients of pigment, binder, solvents and additives. At Resene, like the vast majority of paint manufacturers in Australasia, paint was produced in batches. Industry-wide these batches varied from 200 litres to 20 000 litres at a time. Resene produced in batches ranging from 200 litres to 10 000 litres. The technology for batch manufacturing was not capital-intensive – particularly for the production of less complex paint. The technology for continuous production of particular lines of paint did exist, but was only economic for the most popular lines of the largest manufacturers. In 2001, no continuous manufacturing was done in New Zealand. As well as demand constraints, the type of product could limit the size of batch production. Resene had a product called Zylone Sheen which, if produced in too large a batch, turned into a jelly-like substance.

The manufacturing facility at Naenae had been expanded in 2001. An additional 8 per cent capacity had been built, aiding the manufacture of industrial tinters and streamlining the manufacturing process. One outcome of the expansion was that less stock needed to be carried, as the plant had greater capacity to produce paint as needed. Resene had the space on their present site to be able to double capacity. Dulux had recently invested $4 million on upgrading its plant in Gracefield, Lower Hutt. The introduction of robot technology enabled increased production, in addition to improvements in waste treatment, for the two factories on site. Dulux claimed to produce 12 million litres of paint per year at the site and wanted to grow – taking market share from competitors. Wattyl, on the other hand, had been rationalising its manufacturing, reducing from three sites to one in New Zealand.

Raw materials

Resene used approximately 1000 raw materials in the manufacture of its paints and coatings. For each raw material, there were many suppliers globally. While there was variation in the exact type of product and the quality of products, there was usually a choice of quality suppliers for each important chemical. Colin Gooch noted:

> For the vast majority of raw materials we purchase there would be at least 10 suppliers. As an example, there are many suppliers of titanium dioxide around the world, including DuPont, the company who developed the chemical, but also many others who produce just as high quality titanium dioxide. Quite often, those suppliers who did not develop particular raw materials will charge lower prices – because they did not have the development costs of the innovator. This can create something of a dilemma for paint companies. Employees involved in purchasing, whose job it is to obtain required supplies at the best cost they can, would often prefer to purchase from these lower-priced imitators. However, we have always placed a premium on maintaining relationships with innovating suppliers like DuPont so that we can be kept abreast of the latest innovations. Our competitors don't have technical people involved in purchasing so tend to go for the cheaper option.

Colin Gooch felt that he saw more samples of new products than potentially any competing paint company. 'Suppliers know that if they have something "magic", then we will be interested,' Gooch noted. Suppliers had expressed to Resene the view that there has been an increasing trend among other paint companies towards price as the dominant concern. The strong relationships of Resene had enabled it to be the first company in the world to adopt a number of new

technologies. In return, Resene provided information back to the supply companies. This was aided by the fact that New Zealand was a good test market with sophisticated customers and harsh conditions. Gooch commented:

> But the relationships are the key – principally the willingness to share. As an example, we obtained new pigment dispersion technology from DuPont that was the best available – which DuPont had up until that point refused to release to anyone. However, when I met with the key people at DuPont I told them about a technology that we were developing, as well as an idea for how the DuPont technology might be developed that were sufficiently valuable to DuPont that they agreed to allow us access.

For one technology, Resene had commercially available paint incorporating a new technology for two months in New Zealand before paint manufacturers in the United States were even aware of the technology.

Product development

Ideas for new products at Resene principally came from three sources: marketing, usually where Tony Nightingale had come up with some 'wild' idea; technical staff, developing a new product; or suppliers, coming up with a new material that allowed new paints to be developed. New developments could involve all three elements simultaneously. Colin Gooch had always enjoyed the problem-solving aspect of R&D more than anything else, so even Tony's 'wild' ideas had been treated as challenges by the technical staff. As Colin noted, 'If they said to us make paint jump out of the can and on to the walls itself, then it was our job to try and get to the guts of the idea behind that to see what could be done.'

An extremely promising recent innovation had been the joint development with a Norwegian life-sciences company, Polymer Systems Ltd, of 'spheromers'. Spheromers were perfectly spherical particles that produced an extremely tough, cleanable and burnish-resistant surface. The dramatic performance improvements for low-sheen paints were attracting significant international interest. The problems with prior low-sheen paints were the stimulus for Resene to try to find a technology to improve performance. That search led to contact with Polymer Systems, who were developing the technology, but unaware of the potential in paints. Resene developed the base technology for paints and will receive a share of the future sales of the spheromers to other paint companies.

There was no such thing as a technician – who ran experiments and reported back results to more senior colleagues who decided what experiments to run – at Resene. All the scientists ran experiments for themselves. 'There are subtle observations that are very difficult to record,' observed Gooch.

> If technicians alone observed these, then key researchers would not hold valuable information. Instead, we strongly emphasise technical expertise at the micro-level – to the point where we have been said to 'build paint from the molecules up'. And actually we take pride in doing just that – of having an absolutely thorough understanding of all the constituent parts involved in developing a great paint. Importantly, one of the constituent parts is the surface that is to be painted. Therefore, we go to considerable lengths – far more than our competitors – to understand potential surfaces.

Colour

Resene has long had a strong reputation in the quality of its colours. Paint manufacturers typically had a very large number of colours available for purchase. However, the factory production of paint in every colour would be impractical. Instead, the typical practice was to produce in the factory a base paint, often white, and add tinting pastes in-store, according to preset formulas, to create the final paint colour. This whole process varied considerably across paint companies. The variation was in part because tinting pastes varied – not just in their colour, but also in their concentration. Resene was the first company in the world to produce multiple base paints from the factory that allowed less tinting paste to be used to create final colours. Resene produced 14 different coloured bases from the Naenae factory.

While Resene had employed its basic colour system for many years, only in 2001 did Dulux adopt

something similar. The cost of changing a colour system is enormous. Colin Gooch explained:

> As an example, simply changing the concentration of one tinting paste without altering the shade would require the production of probably 30 000 pieces of paper to effect the change. Our blue tinting paste, for example, is used in approximately 2500 colour formulas of the 10 000 total formulas that Resene has. Each of those 2500 formulas would have to be changed because of the change in concentration. Any change to base paint or tinting paste will have a major effect on the colour system because of the scope of colours that need to be able to be produced and the interdependence of each aspect of the final paint colour. So it was a monumental undertaking when we changed from a system of one base colour to 14 base colours of paint. But it was less difficult for us to change than for our competitors because of our smaller size – particularly then.

Colin Gooch estimated:

> Probably 85 per cent of paint manufacturers in New Zealand, Australia, the United States and Scandinavia used colour systems involving tinting. Elsewhere in Europe, penetration rates would be more like 40 per cent, and even lower throughout Asia. Really what drives it is the sophistication of the market and the demand for colours by customers. It's just very difficult to compete with a limited range of colours in more colour-sophisticated markets like New Zealand.

Customers chose paint based on colour to a significant extent. Therefore, customers needed to be able to see colour and preferably visualise the final look of any colour on the surface they wanted to paint. Two critical aspects of colour visualisation that paint companies used were colour charts and test pots. Resene has been a leader in many areas of colour charts. Resene introduced a new system of colour that included strong colours for the first time in New Zealand in 1969.

'We developed the British Standards Register system of colours into a series of colour charts that were the largest available internationally,' noted Colin Gooch. The pressure for strong colours came from a number of prominent Wellington architects with whom Resene had close relationships. In 1976 the 'Total Colour Chart' was launched, having been completely developed in-house, and replacing previous charts as the largest available. 'We've continued to develop our colour ranges and even developed a fan deck colour chart that allows better isolation of particular colours on a chart,' noted Nick.

Resene was also the first company in New Zealand to introduce a full range of test pots in 1975. Test pots enabled customers to try a small amount of paint on a particular surface before making their full purchase of paint. Even though colour charts and newer computer programs (such as Resene's recently introduced 'Ezypaint') aided colour choice enormously, there was no perfect system for taking into account effects such as lighting, in any given space without actually painting the surface. Hence, test pots continued to play a critical part in colour selection and were complementary to the other colour selection tools. Test pots were introduced as a promotional device for architects and interior designers, but in 2001 they accounted for more than $1 million in sales per year.

Marketing

Resene has always placed great emphasis on the commercial segment of the market and in 2001 continued to dominate the commercial segment in New Zealand. Indeed, the primary phrase that is used in marketing is, 'Resene: the paint the professionals use.' Partly, this focus dates back to the origins of the company and the difficulties in selling to the retail market. But professionals, particularly architects and specifiers, were also more discerning about the type of paint to be used. As noted, architects even encouraged the development of the strong colours that helped Resene to distinguish itself from competitors. To support the commercial segment, Resene employed 65 sales reps – almost twice as many as its nearest competitor, Dulux, with 35.

Appealing to the commercial market involved direct marketing, more than mass advertising. Even with a concerted effort under way to increase its retail profile, Resene spent approximately the same amount on direct marketing as wider advertising in 2001. 'Since I've been general manager the database that we use to target our marketing has grown from

2500 to 12 000,' noted Nick Nightingale. 'And that's come from thorough research – including actively tracking down the owners of buildings throughout New Zealand. The database is itself segmented and each person targeted specifically.' Resene produced a newsletter that featured new products and services as well as case studies of recent projects involving Resene paints. Resene also sent out calendars, coasters and many other promotional items throughout the year. Additionally, Resene sponsored the Architecture Awards of the New Zealand Institute of Architects.

Resene traditionally advertised less than the other major paint companies in New Zealand. However, this situation was changing, as shown in Exhibit 2. The trend of increasing advertising continued in 2001 with expenditures up 20 per cent with the introduction of a new series of three television commercials. Resene advertising emphasised the brand generally – and the ColorShops in particular. The competition, especially Orica, focused on particular products far more in their advertising. For example, $696 000 of Orica's total advertising expenditure was on Dulux Exterior and Wash & Wear paints alone. Nick explained:

> For the retail segment of the market, the key for us is to get customers inside a ColorShop where those customers can then be directed to the appropriate Resene product. For Orica and Wattyl, who operate through independent retailers, they try to influence a particular purchase decision prior to entering a store. The advertising of Orica and Wattyl is also aimed at fighting for extra shelf-space from retailers. However, Orica and Wattyl do benefit from the advertising of the retailers themselves.

Sales

A major difference between Resene and its two main competitors was that Resene owned its own retail outlets. In 2001, Resene operated 54 company-owned ColorShops as well as 19 franchised outlets (see Exhibit 3). The franchised outlets tended to operate in smaller towns, where demand may not justify a dedicated ColorShop. Nick noted:

> We originally opened our own stores because we couldn't sell through independent retailers because the larger paint companies had control of those channels. We tried using an agent in the 1970s, but he wasn't overly committed to moving our paint, it seemed. We'd always sold direct from the factory, but those sales were limited, of course. But we bought a hand-made wallpaper manufacturing operation and with that came a store in Wellington – so we started selling paint through that. We were genuinely surprised at how much we could sell like that.

From that original store had grown the whole chain. As such, the control of retail distribution had become a central component of Resene's overall approach. That approach had been very successful, with double-digit growth in retail sales throughout

Exhibit 2 Advertising expenditures, 2000

	TV ($000)	Press ($000)	Magazines ($000)	Total ($000)	% change 1999–2000	% change 1998–99
Paint companies						
Benjamin Moore	1304	251	68	1623	33.9	12.3
Dulux	1295	17	87	1399	–41.8	20
Resene	1098	123	143	1364	31.2	12.4
Retailers						
Mitre 10	4234	2381	138	6753	9.7	38.0
PlaceMakers	2074	1981		4055	4.5	–19.3
Benchmark	2544	640		3184	56.1	19.6
Guthrie Bowron	2739	193		2932	–18.6	62.1

Source: *Marketing Magazine*, April 2001, p. 23 (based on ratecard only, not actual expenditures).

Exhibit 3 New Zealand retail locations

Region	ColorShops (55)	Franchises (19)	Region	ColorShops (55)	Franchises (19)
Northland	Whangarei	Kaitaia	Lower Central	Napier	Dannevirke
		Kerikeri		Hastings	Hawera
		Dargaville		New Plymouth	Stratford
		Kaikohe		Palmerston North	
		Wellsford		Wanganui	
Auckland	Wairau Park	Ponsonby	Wellington	Levin	Porirua
	Takapuna	Devonport		Masterton	
	Birkenhead	Browns Bay		Paraparaumu	
	Orewa			Lower Hutt	
	Warkworth			Upper Hutt	
	Mt Eden			Naenae	
	Newmarket			Wellington City	
	Onehunga			Wellington City	
	Parnell			Wellington City	
	Henderson			Kilbirnie	
	New Lynn			Johnsonville	
	Manukau City		Nelson/ Marlborough	Nelson	Stoke
	Howick			Blenheim	
	Pukekohe		Canterbury	Christchurch Central	New Brighton
	Albany			Hagley Park	Sydenham
	Papakura			Papanui	
Waikato	Hamilton	Thames		Shirley	
	Cambridge	Gisborne		Timaru	
	Te Awamutu			Riccarton	
	Tauranga		Otago/Southland	Oamaru	Winton
	Mt Maunganui			Dunedin	Alexandra
	Whakatane			Invercargill	
	Matamata			Queenstown	
	Rotorua				
	Taupo				

its history. Since Nick became general manager in 1999, nine new stores had been added.

In addition to the growth of the ColorShops chain, the stores themselves had been gradually upgraded. A number of stores were relocated to better locations, and more broadly, significant renovation had occurred. The new-style stores were larger, brighter and more sophisticated than their predecessors. The latest ColorShops in Christchurch, Dunedin and Palmerston North included quiet study spaces, colour libraries, areas for children and plenty of parking. Nick explained that, 'in order to go after the retail market more aggressively we realised we had to have a format that was consistent with the high-quality image of Resene. Our increased advertising needs to work in concert with better stores and improved training – I'm determined to only promise what we can deliver.' In the ColorShops themselves, Resene offered a full complement of paint, wallpaper and accessories. Most of the merchandise in the ColorShops was sold under the Resene brand name, but there was also a limited amount of 'ColorShop' brand paint that was lower in price and quality, but also manufactured by Resene. Independent suppliers manufactured the wallpaper and accessories, such as brushes.

Both trade and DIY customers were served in the ColorShops. Competitors Orica (through the Dulux brand) and Wattyl did operate trade stores throughout New Zealand, numbering 20 and 12 respectively, and these were open to the public. However, given the importance of their other distribution channels through independent retailers such as Placemakers, Mitre 10 and Guthrie Bowron, DIY sales were not targeted by either trade store chain. Benjamin Moore, a smaller operator, however, did distribute through a chain of 38 owner-operated retail outlets for its paint under the Benjamin Moore Colourworks banner. In addition to selling under their own brands, all the major paint companies manufactured house brands for specific stores. Resene sold a very small amount of paint through The Warehouse retail chain, using the 'NZ Paints' brand. Dulux manufactured house brands for Mitre 10 and Guthrie Bowron, while Wattyl manufactured for Placemakers and Carters.

Distribution of paint and other supplies to the ColorShops was done on a daily basis. However, information systems to track the movement of paint through to sale were limited. There was no way of knowing exactly how much inventory was on hand at any particular store until a manual stocktake was undertaken. Relatedly, the profitability of each store was not known with precision. Resene did purchase market share data from Neilson, which was broken

Exhibit 4 Price comparison (acrylic exterior house paints – 4 litres)

White		**Price ($)**
Benjamin Moore	Benjamin Moore Moorglo 119	93
Orica	British Paints 4 Seasons Gloss	65
	British Paints Solarscreen Gloss	80
	Dulux Weathershield	80
	Levene Goldline 100% Acrylic Gloss	80
Resene	Resene Enamycryl	87
	Resene Hi Glo	87
Wattyl	Taubmans All Weather Gloss	56
	Wattyl Solagard	80
Others	Damar House and Roof Gloss	55
	Protec Master Stroke 300	55
	Protective Paints Duralon Acrylic	61
House brands	Guthrie Bowron Dimensions UVB	60
	Hammer Hardware Acrylic High Gloss	40
	ITM Supreme Acrylic Gloss	43
	Kmart The Performer Acrylic Gloss	60
	Mitre 10 Acrylic Gloss	45
	The Warehouse NZ Paints 100% Acrylic Gloss	35
Brown		**Price ($)**
Benjamin Moore	Benjamin Moore Moorglo 119	93
Orica	Dulux Weathershield	100
	Levene Goldline 100% Acrylic Gloss	130
Resene	Resene Enamacryl	103
	Resene Hi Glo	103
Wattyl	Wattyl Solagard	85
Others	Damar House and Roof Gloss	71
	Protective Paints Duralon Acrylic High Gloss	95
House brands	Guthrie Bowron Dimensions UVB	80

Source: Consumer Institute of New Zealand, *House Paint Test*, 6 August 2001. Resene price includes standard 20 per cent ColorShop card discount. Although the table is accurate for the paint shown, house paint is largely purchased in 10-litre pales and tends to range in price from $100 to $150 approximately.

down by region. From that research, Nick was able to track the company's performance relative to competitors on a monthly basis. In general, Resene's weakest market was Auckland.

Discounting

Paint companies charge different prices to different customers and also offer a wide variety of discounts. For example, Resene had a loyalty card that entitled users to a 20 per cent discount. Resene had in excess of 100 000 cards on issue. In general, trade prices were approximately 25 per cent below general retail prices. While Resene was competitively priced in the retail segment, relative to other premium paints (see Exhibit 4), it was able to charge a 10–15 per cent premium over competitors in the trade segment.

The tradition of discounting in the industry and the complexity of the pricing systems created challenges for paint companies. Often the emphasis of sales staff was on sales rather than profits, and the result can be excessive discounting. Profitability at Resene had been improving in part because the level of discounts was being more closely monitored. There are two primary reasons why a trade customer may be offered a discount – volume and visibility. Certain paint projects – such as the Museum of New Zealand, Te Papa – were prestigious and gained publicity for the paint chosen. In those cases, paint companies had added incentive to supply the paint, which led to further discounts. Overall, the highest discounts were given to Plunket and the IHC – charities to whom Resene sold basically at cost. In general, major contractors received the second-highest level of discount, smaller contractors a lower discount, and occasional trade customers a lower discount still.

Environmental choice

Resene explicitly promoted the environmental friendliness of its paint through its Environmental Choice range. Environmental Choice New Zealand was a program endorsed by the Ministry for the Environment and administered by International Accreditation New Zealand (IANZ). It was aimed at improving the quality of the environment by minimising the adverse environmental impacts generated by the production, distribution, use and disposal of products. Resene promoted the following pledge to customers regarding its environmentally friendly products: *With no increase in price, Resene customers will enjoy safer, less hazardous paints, which are either of the same quality as before or higher.* About 70 per cent of Resene's paint products were Environmental Choice – far ahead of any other manufacturer.

New Zealand subsidiaries

Altex Coatings was a paint and coatings manufacturer for the heavy industrial and marine markets, having been purchased as a going concern by Resene in 1989. Started over 45 years ago, Altex supplied a wide range of coatings to almost every major industry sector. Structures as diverse as petrochemical plants, commercial ships, electricity pylons – and even the Auckland Harbour Bridge – had been supplied by Altex. Complementing its own range of coatings, Altex had also been a long-standing licensee for Devoe Coatings. More recently, Altex had obtained the licence from the US Paint Corporation to produce its renowned 'Awlgrip' and 'Awlcraft' range of high-performance marine coatings. Altex had quickly established a strong market position in the high-performance pleasure marine market. When Altex was acquired, Resene already held licences for some competing technologies from Ameron Coatings. As such, the Altex business had to be kept separate from Resene. The stand-alone nature of Altex was partly a reflection of that history. However, Nick also believed that Altex operated better under a separate identity.

Resene had been in the automotive paint market since 1990, both manufacturing and distributing for DuPont outside of Auckland. In Auckland, a company called Santano was the DuPont distributor, but in 1995, after encouragement from DuPont, Resene acquired Santano. Originally called Resene Santano, the subsidiary had changed its name to Resene Automotive & Protective Coatings. The company's business was approximately evenly divided between manufacturing its own paint range, and acting as a local distributor for other paint companies such as DuPont. The market for automotive paint involved very low volumes of paint. The painting of an entire car normally required a half to one litre of paint. Moreover, since there was no car manufacturing industry in New Zealand, the market was completely reliant on repainting vehicles being repaired after accidents.

Nevertheless, recent changes meant the business did contribute profits to the group in 2001.

Tony Nightingale decided in 1996 to purchase the wine company Cellier Le Brun principally because he had a long-standing interest in wine. Resene used some of the wine produced for promotional purposes and the vineyard was painted with Resene paints. The name Cellier Le Brun had become synonymous with high-quality *methode traditionelle* wines. In recent years, the Terrace Road label had also been developed for more moderately priced table wines with some success.

International operations

Resene had a small presence in Australia. The previously separate Australian manufacturing operations of Resene and Altex Coatings had been consolidated down to one plant on the Gold Coast in Queensland. The Australian manufacturing plant was complemented by a small retail distribution network consisting of four Resene ColorShops and 14 independent stockists (see Exhibit 5). Nick noted, 'We haven't pushed trade sales in Australia because the competition has driven prices down to virtually below cost.'

In Fiji, Resene operated one small plant, as did some Australian competitors. (There was little difference between paints that worked in Fiji and Australia.) The Fijian operation produced a very wide variety of paints and coatings in small volumes. The Fijian market had shrunk about 10 per cent after recent political turmoil. There was a market in Fiji for up-market paints, but that market was under threat if more affluent sections of the community left Fiji over the political problems.

Resene was investigating export opportunities to Thailand and Japan. In Japan, where prices were quite high, Resene could cover the cost of transportation and still be profitable. Nick commented, 'Traditionally the emphasis has been on white, some off-whites and perhaps beige. More recently, though, you can see European colour influences coming through in magazines which may signal future growth in the demand for stronger colours.'

The principal element of Resene's technology licensing to date had been a tinting technology system. Resene had supplied this technology to South Africa, Zimbabwe, the Dominican Republic, Malaysia, Indonesia and China. According to Nick:

> Most international markets tend to have an 'ICI-type' [orica-type] player, a major multinational paint company who drip-fed technology into those markets after a lag-time from their primary markets. Our general approach has been to supply a local competitor with technology that allows them to compete better. In China, we're providing

Exhibit 5 Australian retail locations

State	ColorShops (4)	Stockists (15)
Queensland	Woolloongabba, Brisbane	Butcher's Paint Barn, Townsville
	Geebung, Brisbane	Cairns Hardware, Atherton
	Brisbane	Cairns Hardware, Edmonton
		Cairns Hardware, Cairns
		Cairns Hardware, Cairns
		Classic Paint Supplies, Cleveland, Brisbane
		Goodfellows Handy Hardware, Kallangur, Brisbane
		Innisfail Plumbing and Paint, Innisfail
		Paint City Coolum, Coolum Beach
		Paint City Currimundi, Currimundi
		Paint City Maroochydore, Maroochydore
		Paint City Noosa, Noosaville
		Goodfellows Handy Hardware, Kallangur, Brisbane
New South Wales	North Rocks, Sydney	Taree Builders Bargain Centre, Taree South
Victoria		Morgans Paint Spot, Moorabbin, Melbourne

technology to a major Chinese player who has been losing market share to multinationals ICI and Nippon. In Bangladesh, we've gone a step further, and have a 20% stake in Resene Bangladesh with a local partner. That was really the only way we could enter the market. The products manufactured are very basic, but it has the potential to provide an avenue into the massive Indian market.

The paint industry

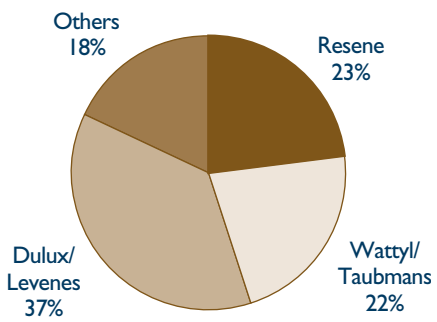
In 2001, total sales in the Australasian architectural and decorative paint market slightly exceeded A$1 billion, with New Zealand representing approximately NZ$190 million. Both Australian and New Zealand markets have shown the same limited growth as other mature markets for a number of years, at about 1–2 per cent per year. (Resene has been growing at around 6 per cent recently.) The limited amount of residential and commercial property construction during 2001 had further hindered growth. As shown in Exhibits 6 and 7, based on Orica's own estimates, Dulux was the market leader in both Australia and New Zealand. Only 6 per cent of paint sold in Australasia was imported.

The primary brands in Australia were identical to New Zealand with the exception of Resene itself – Dulux, Wattyl and Taubmans. However, while the Taubmans brand was manufactured by Wattyl in New Zealand, South African company Barloworld owned the brand in Australia. There were a relatively large number of independent paint stockists in Australia, who competed with the massive hardware chains such as Mitre 10 and BBC Hardware. The major brands in Australia – Dulux, Wattyl and Taubmans – all distributed through those large hardware chains. The independent paint retailers tried to differentiate themselves from the big chains by greater customer service. However, ultimately the customer was still buying the same paint they could get elsewhere – probably cheaper. In general, Australian paint shops were not as upscale as either ColorShops or Guthrie Bowron in New Zealand.

Throughout Australasia 55 per cent of sales were to the trade and 45 per cent to the retail DIY market. The majority of retail paint sales occurred through independent hardware and decorating outlets. Chains dominated hardware and decorating retailing in both New Zealand and Australia. Some of those chains were owned by single companies, such as Benchmark,

Exhibit 6 New Zealand market shares

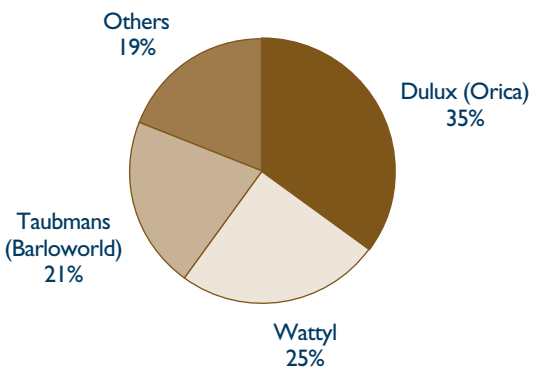
New Zealand Architectural & Decorative Coatings Market A$150mn (25mn litres)



Source: Orica.

Exhibit 7 Australian market shares

Australian Architectural & Decorative Coatings Market A$850mn (125mn litres)



Source: Orica.

while others were cooperatives of independently owned stores, such as Mitre 10. In Australia, paint was the highest-margin hardware product sold, generating gross margins of 35.5 per cent on average for retailers. Paint was also the single biggest category of sales for hardware stores – representing approximately 15 per cent of their retail sales in Australia.

The biggest of the hardware chains in both New Zealand and Australia was Mitre 10. Under the Mitre 10 and True Value brand names, the group operated 653 stores in Australia and 205 in New Zealand. When Mitre 10 in Australia switched from Taubmans to Dulux for the supply of its house brand of paint, Taubmans lost 7 per cent of its total sales. In general, price cutting on paint was pervasive in Australia. 'Discounting, plus the cluttered appearance of most sales outlets, has encouraged consumers to view paint as a commodity.'[2] One result was that tinting was not paid for by customers in Australia if done off a white base, whereas it was in New Zealand.

Competitors

Dulux was the leading paint brand of the Orica group. Orica was an Australian-headquartered company formerly known as ICI Australia before the parent company ICI (UK) sold its 64 per cent stake in 1998. A condition of the sale was that the ICI name be replaced, and so the name Orica was introduced. Orica was involved in mining services (explosives), chemicals, agricultural chemicals, and consumer products such as paint in numerous countries. The paint business operated only in Australia and New Zealand, primarily under the brand name Dulux. In June 2001, a new CEO was hired after recent poor performance by the group. In New Zealand, the Dulux name itself has been around since 1939.

The principal paint business for Orica was in Australia, predominantly through the Dulux brand. R&D was centralised in Clayton, Victoria at the A$12 million technology centre for the Consumer Products division, opened in November 2000. Overall within Orica, the Consumer Products division generated A$638 million (17 per cent) of corporate sales and 21 per cent of the A$235 million corporate profits in 2000. The approach of the division was to emphasise leading brands, established technology, overlapping customers, and overlapping channels surrounding a customer focus. Dulux Trade operated 69 Dulux Trade Centres throughout Australasia, had 175 aligned depots and distributorships, and boasted a customer base of 40 000. Overall, as market leader, Dulux sold 35 per cent of the paint purchased in Australasia by volume and 38 per cent by value of what they estimated to be a A$1.1 billion total market. Dulux believed its strategy for success was based around brands, technology, innovation, colour leadership, distribution and customer satisfaction. In unaided brand awareness tests in Australia, Dulux trailed only Telstra and McDonald's for awareness, beating Coca-Cola and far outstripping any other paint brand.

Dulux operated three Australian manufacturing facilities in Queensland, Western Australia, South Australia plus the New Zealand operation in Wellington. The Rocklea plant in Queensland had completed a A$17 million upgrade in 2000 that incorporated two fully automated and six semi-automated robotic filling lines and the implementation of flexible manufacturing technology. The Rocklea plant was the largest paint manufacturer in Australia, the upgrade increasing the capacity from 40 million litres per year to over 60 million.

Wattyl was also a multinational competitor headquartered in Australia. Wattyl was solely a paint company with manufacturing operations in Australia, New Zealand, the United States, Thailand, Malaysia and Indonesia. Founded in Sydney in 1915, Wattyl became a public company in 1959. Since then, Wattyl's development has been heavily influenced by acquisitions, having purchased at least nine other Australian paint companies. Wattyl has had a presence in New Zealand since 1970, when it acquired Solway Products. In 1989 that presence was expanded greatly through the acquisition of Samson Gold-X. The Taubmans brand in New Zealand was acquired in 1995, establishing Wattyl as a major player in the market. Outside Australasia, expansion has been driven by the acquisition of companies such as the Dimet Group (Asia) and Coronado Paint (USA).

During the financial year to 30 June 2001, Wattyl had corporate revenues of A$528 million, but experienced losses of A$22 million. In March 2001, Wattyl's managing director resigned. Subsequently, the management and board of Wattyl instigated a major strategic review of operations. While Wattyl had faced a number of one-off costs such as bad debts in the United States and an Australian strike, it also believed that it had not re-invested sufficiently in plant in recent times. While Wattyl was still profitable in both Australia and New Zealand, 2001 performance was poor in both the Asian and US markets. As a result, Wattyl wrote down its investments in Asia and the United States and was looking to exit Asia completely. In seeking to remedy the situation in Australia, Wattyl has reduced the number of plants from eight to three, established more efficient warehousing, sold surplus properties, and introduced a major new premium interior wall paint.

Barloworld is a large South African conglomerate with interests including cement, lime, laboratory equipment, lasers and steel tubes. Barloworld has paint manufacturing operations in South Africa, the United Kingdom and Australia under different brands. The Taubmans brand had been in Australia for over 100 years; however, prior to its sale to Barloworld in 1996, it had begun to flounder, benefiting Wattyl and Dulux. In 1992, Taubmans had market share of 22 per cent, but that fell to 15 per cent by the time of the sale. The new ownership had turned that around and the combined market share of Taubmans and Barloworld's other Australian brand, Bristol Paints, had risen from 23 per cent to 29 per cent since 1998, taking over the number two spot in the industry.[3] Nevertheless profits had been more difficult to come by and the Taubmans/Bristol group made losses in 2000 (see Exhibit 8). Speculation existed that Barloworld would look to exit Taubmans.

The 120-store retail arm of Bristol Paints was moving towards increased franchising, with company-owned stores converted into franchisees. The stores employed 500 staff throughout Australia and represented the largest chain of retail and trade stores for paint and wallpaper. In addition, six franchised Bristol decorator centres opened in China in 1999 and a further four in 2000. The entire range sold in China was produced in Australia. As part of Barloworld, both Bristol and Taubmans had access to the Nova Paint Club. The Nova Paint Club was a worldwide association of 15 paint companies that provided a framework for the exchange of technical information, technology and expertise across all their areas of operation.

Smaller paint companies existed in both Australia and New Zealand. Benjamin Moore Pacific in New Zealand, for example, began as a joint venture between Benjamin Moore, the large US paint company, and local owners. However, the local owners had subsequently taken full ownership and operated under a licensing agreement from Benjamin Moore (US). As noted, Benjamin Moore did have a retail presence through franchised retail outlets around New Zealand. However, the number of Benjamin Moore Colourworks stores had been diminishing as stores switched to competing retail chain Colour Plus. Colour Plus was associated with Wattyl products, so the switching allegiance was cutting off the primary outlets that Benjamin Moore had. Retailers were believed to be switching in order to gain better brand support.

Most small paint companies did not have chains of stores associated with them, however. Often they were specialised firms that had a reputation in a particular product that allowed them to sell direct to the trade. In New Zealand, Rotorua-based Damar had an alliance with Amway that had resulted in the website

Exhibit 8 Barloworld's regional paint results

	Australia		South Africa		Other Africa		Europe	
(A$mn)	**1999**	**2000**	**1999**	**2000**	**1999**	**2000**	**1999**	**2000**
Sales	192	218	216	220	9	17	19	21
Operating profit	0.8	(2.3)	12	12	0.2	1.2	1.8	2
Assets	104	109	102	101	5	7	9	9

Source: Barloworld Limited Annual Report 2000.

PaintDirect. Damar concentrated more on the low-margin road-marking business. Other small competitors tried to sell direct or through any independent retailers that will stock them.

The future

Throughout its first 55 years in existence, Resene Paints had shown that it had the capabilities to compete effectively in New Zealand against its larger multinational competitors. Having traditionally been strong in the commercial market, Resene had, in more recent years, made a concerted and successful push at the retail market through its own chain of ColorShops. But within New Zealand the prospects for growth in its current markets were not limitless. Although there was still room for growth in the New Zealand market, longer-term growth prospects appeared to be outside New Zealand. Internationally, Resene had very small operations in Australia and Fiji. Clearly, Australia was a large opportunity, but was it the right opportunity for Resene? Were Asia or elsewhere more desirable regions? Should Resene itself even look to operate in other countries, or should it focus on developing technologies in New Zealand to be licensed overseas, such as the newly developed spheromer paint flatting agent? Or should Resene focus its resources on continuing to grow the New Zealand market for the time being? As Nick Nightingale stepped off the 18th green at Paraparaumu Beach Golf Club, having shot 91 in a losing effort, he knew he couldn't afford to be as wayward in his choice of markets.

Notes

1 Consumer Institute of New Zealand, 1998, 'Interior Acrylic Paints', April.

2 N. Shoebridge, 1997, 'Taubmans, "with imagination", tries to paint its way out of a corner', *Business Review Weekly*, 10 November 1997, p. 78.

3 Barloworld Limited Annual Report 2000, p. 32.

Case 13

Sony Corporation:

The vision of tomorrow

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At the advent of the 21st century, Sony Corporation was at a crucial juncture in its long and illustrious history. At the threshold of the much anticipated world of *total digital convergence*, the electronics maker turned media and communications giant seemed to have it all: next-generation Internet-aware gadgets and compelling content to pump through them, a vibrant culture of innovation resulting in cutting-edge research and development, and a world-class marketing acumen that had made Sony a global mega-brand. Despite having all the arms in its arsenal, some tough decisions nevertheless lay ahead for the company. Chief among them were: How to manage the company's mix of diverse businesses to achieve inter-unit coordination and synergies? What paths, in terms of new product development, to take in the unexplored realm of total digital convergence? And, above all, how to communicate and sell the new Sony identity to the customers, shareholders and employees?

Introduction: It's a Sony

In 2002, Japan-based Sony Corporation was the world's largest consumer electronics company, a significant player in the media industry and the fastest-growing computer and communication equipment maker. The *Sony* brand was one of the world's most recognisable and trusted brands – thanks to half a century of relentless innovation, bringing an array of trend-setting electronics products into the market. Sony ranked 21st in the *BusinessWeek*/Interbrand list of the World's 100 Most Valuable Brands with an estimated value of US$14 billion[1] – and the first among its industry peers.

In 1999, for the third year in a row, Sony was recognised as one of the world's 100 Best Managed Companies by *Industry Week* magazine.[2] The Trinitron, the Walkman, the Betamax, the Camcorder, the Compact Disc, the MiniDisc, the venerable PlayStation and the robot dog Aibo were some of the Sony innovations that had created all new markets of their own. *It's a Sony* – the company's tagline for its electronic audio and video products – was a stamp of quality, cutting-edge technology and reliability.

The company also had a strong media industry presence, with its record label boasting artists such as Michael Jackson, Bruce Springsteen, Jennifer Lopez, Celine Dion and Mariah Carey. The filmmaking division was behind blockbusters such as *Spiderman*, *Men in Black*, *Air Force One*, *Charlie's*

Angels, *Stuart Little* and many hit television shows syndicated to various TV and cable channels around the world. The success of the PlayStation had made Sony the leader in the console gaming market. Sony was also the world's fastest-growing personal computer maker,[3] albeit still ranking eighth in worldwide market share, with its *VAIO* brand of personal computers and *CLIÉ* line of hand-helds fast threatening larger players such as HP-Compaq and Dell. Having also a presence in semiconductors, electronic components, mobile phones and even robots, Sony was well positioned to compete in the emerging world of *total digital convergence* – a vision of the future where multifunctional devices could seamlessly talk to each other, and multimedia content was ubiquitous through these networks. But in this uncertain future world of technology-driven digital entertainment, Sony, like its competitors, wasn't too sure of what exactly constituted the winning formula.

Sony's history: The making of a dream

The two visionaries

Sony Corporation traced its roots to the Tokyo Tsushin Kogyo (The Tokyo Telecommunications Engineering Corporation), or *Totsuko*, established on 7 May 1946 by Masaru Ibuka – a gifted engineer, and Akio Morita – a marketing-savvy innovator. Both Ibuka and Morita had honed their engineering skills while serving the government, developing military equipment for the Second World War. After the war, they moved to war-damaged Tokyo and brought together a small team of trusted war-time engineers to start a company whose main aim was *to create a stable work environment where engineers who had a deep and profound appreciation for technology could realize their societal mission and work to their hearts' content*.[4] Seeking to help rebuild post-war Japan with its engineering know-how but lacking in capital and infrastructure, the company started out by repairing radio sets. Its first product was an electric rice cooker, followed by other innovative appliances such as an electrically heated cushion and a good-quality record pick-up. In 1958, the company was renamed *Sony* – a term derived from the Latin word *sonus*, which was the root of words such as *sound* and *sonic*; and also from *sonny* which meant *little son*. Hence, *Sony* signified *a small group of young people who have the energy and passion toward unlimited creation*.[5] The fact that this name was much simpler to remember and more marketable to an international consumer base than *Totsuko*, of course, helped.

The trailblazers – Sony's famous products

In 1950, Sony produced the *G-Type*, Japan's first tape recorder, followed by the *P-Type* – its portable version. *TR-55*, Japan's first transistor radio, was launched in 1955, followed by the world's first pocket transistor radio in 1957. In 1960, Sony launched the world's first direct-view transistor television, and in 1963, the world's first VCR. In 1968, the legendary *Trinitron* colour-TV set the industry standards of picture quality and design.

In 1975, Sony brought the theatre home by launching the *Betamax* – the world's first home-VCR. In 1979, Sony launched the *Walkman* – the world's first personal audio tape player – to a sceptical market. But the product made history by starting a revolution of personal audio products. The term *Walkman* has even been included in the *Oxford English Dictionary* since 1986. In 1982, Sony pioneered the compact disc, in association with Philips. Apart from these innovations, Sony also launched the digital audio tape, the home-use *Handycam* video camera, the mini-disc, flat-panel and high-definition TVs (HDTV), and digital cameras.

Sony also played a key role in the development of the digital versatile disc, or DVD. The market-leading *PlayStation* game console was launched in 1994. In the late 1990s, Sony entered the computer market by launching its *VAIO* line of multimedia-capable PCs in 1996 and the *CLIÉ* series of handheld computers in 2000.

In 1999, it launched the world's first entertainment robot, the dog-like *Aibo*, which became a runaway success. Sony engineers were also working on intelligent humanoid robots, following the success of *Aibo*.

Globalisation and diversification

While Sony was launching these innovative products, it was also expanding out of Japan to become a global player. Ibuka and Morita had earlier visited the United States and Europe in the early 1950s to study the latest technologies – for example, the transistor. There, they discovered a huge market for electronic products. During his visit to Philips in 1953, Morita thought, 'Holland resembles Japan in many ways. If a company like Philips can succeed in the international market, there's no reason why Totsuko can't.'[6] He thus directed Sony to start concentrating on exports to the international market, with a goal of earning at least half of its total revenues from overseas sales. This was followed by setting up overseas offices to supervise marketing and sales activities. Sony's first major overseas office, the Sony Corporation of America (SONAM), was established in New York City in February 1960 to do 'business with Americans like an American company'.[7] With a capital investment of US$500 000, the office was actually located in a small warehouse, employing six people. This was followed by offices in Hong Kong and Zurich. A radio factory in Shannon, Ireland was Sony's first overseas manufacturing facility. The Sony Technology Centre in San Diego, established in 1972, was the first consumer electronics manufacturing facility opened by a Japanese company in the United States.

These initial establishments were followed by Sony opening offices and plants in many countries. Sony leveraged on its vast pool of talented engineers to produce innovative audio and video products, as well as various electronic components. Under the leadership of Norio Ohga, who was Sony's president from 1982 to 1995, Sony's view of its business was transformed from an electronics company to an entertainment company. Ohga took the bold step of establishing the music, pictures and gaming businesses to pioneer Sony's foray into the content arena. Akio Morita also wanted Sony to move into the content business, so that it could have higher market power, believing that if Sony had controlled the rights to enough movies, its Beta video format would not have lost out to Matsushita's rival VHS format in the 1970s.

This foray into the content business was achieved by the acquisition of US-based CBS records in 1988 and the Hollywood studio, Columbia Pictures (along with its television subsidiary Columbia Tristar Television Group) in 1989. Hence, Sony Music Entertainment (SME) and Sony Pictures Entertainment – two of the world's largest content producers – were formed. Ohga, being a visionary, was also instrumental in Sony's foray into the game business in 1994. The PlayStation game console directly took on established players such as Nintendo and Sega, subsequently dominating the market. These moves were coupled with a renewed and innovative marketing strategy and product planning, projecting Sony's new stylish, modern image. Nobuyuki Idei, who took over the helm from Ohga in 1995, continued the process of continuous reinvention at Sony, pushing the company into the digital networks and convergence era, by launching personal and handheld computers, mobile phones and a host of hybrid devices that heralded the integration of audio-visual and information-technology products. In 1996, Sony launched *So-net*, a broadband network provision service in Japan. Sony had also diversified into the financial services business, providing banking and insurance services in the Japanese market. Sony Bank, an Internet-based bank for middle-class Japanese investors, was opened in 2001.

A culture of innovation – the 'Sony DNA'

Technical innovation and marketing superiority had been the two central pillars of the Sony establishment. These pillars were put in place by the company's founders, who, through their complementary skills and enthusiastic leadership, set the foundations of a true culture of innovation at Sony. Ibuka was a visionary, adept at imagining applications of emerging technologies to everyday life. Leading the research and new product development efforts, he was an inspiring leader, responsible for shaping much of Sony's open-minded corporate culture, and infusing the spirit of innovation in Sony's employees. To complement Ibuka's skills, Morita was a true marketing pioneer, and was instrumental in making Sony a household name worldwide, by searching for new markets and growth opportunities.

The modern corporate culture at Sony was articulated by the term *Sony DNA*, a metaphorical reference to the traits inherited from the two founders and other leaders. The meaning of the term, and Sony's *raison d'etre,* was summarised by Kunitake Ando, Sony's president and chief operating officer, in 2002:

> If Sony is going to be different from all the others, it has to really step ahead. It's the difference between originality and a copy machine. We are not like a Dell. We are trying always to come up with something new, to create innovative products. That's basically Sony's DNA. The path is not always smooth. But if you lose your mission, your DNA, you lose your reason for being. Sony's reason for being has always been to create something new, to create more dreams, to make things fun.[8]

Sony described itself as follows, on its news and information website:

> Sony is a company devoted to the CELEBRATION of life. We create things for every kind of IMAGINATION. Products that stimulate the SENSES and refresh the spirit. Ideas that always surprise and never disappoint. INNOVATIONS that are easy to love, and EFFORTLESS to use, things that are not essential, yet hard to live without. We are not here to be logical. Or predictable. We're here to pursue INFINITE possibilities. We allow the BRIGHTEST minds to interact freely, so the UNEXPECTED can emerge. We invite new THINKING so even more fantastic ideas can evolve. CREATIVITY is our essence. We take chances. We EXCEED expectations. We help dreamers DREAM.[9]

The making of a global brand

The term *Sony DNA* also captured Sony's extraordinary flair for the design and marketing of its products. Sony's successful product launches were always accompanied by an elaborate marketing and positioning effort, and doing things differently often earned it handsome premiums for its products. For example, one of its devices was a wireless access point that joined components in a local area network and provided access to the Internet. Traditional models of such devices were plain, flat and ugly plastic boxes with thick antennae jutting out. But Sony's version had a glassy, opaque surface, stood vertically and had cleverly concealed the antennae – giving the product a smart and very agreeable look.[10]

These design innovations were backed by zealous marketing efforts, resulting in the creation of several successful sub-brands within the Sony umbrella such as Trinitron, Walkman, WEGA, VAIO, which also strengthened the umbrella Sony brand. Sony also often relied on revitalising its mature brands to reposition them. The Walkman brand was relaunched in 2000, this time for the mini-disc format, with a tagline *The Walkman Has Landed*. The launch was supported by broadcast, print and on-line advertising, Internet and dealer events and promotions, and grassroots public relations campaigns, to target the Generation Y target market.[11]

As a result of these efforts, Sony had become one of the world's greatest brands, rated the number one brand in the United States by the 2000 Harris poll,[12] and as the world's 21st most valuable brand in 2002.[13] Norio Ohga, Sony's chairman until 2003, said:

> In April of every year a large number of new employees join the company. And what I always say to them is that we have many marvelous assets here. The most valuable asset of all are the four letters, S, O, N, Y. I tell them, make sure the basis of your actions is increasing the value of these four letters. In other words, when you consider doing something, you must consider whether your action will increase the value of SONY, or lower its value.[14]

Winds of change: Sony prepares for the future

The modern consumer electronics industry was created with the launch of the VCR in the 1970s, but had changed surprisingly little until the mid-1990s. Computers and mobile telephones had been launched, but they had become separate industries in their own right. During this time, the main players in the consumer electronics industry had remained broadly the same – dominated by firms such as Sony, Philips and Matsushita (makers of Panasonic and JVC).[15] Each of

these analogue consumer electronic devices had their own standards and market leaders. Hence, market-leading VCRs were made by different firms than the ones that made market-leading audio equipment. But in the mid-1990s, with the advent of a host of digital devices with mass market potential, this equation was changing quickly. These devices were made by firms outside the consumer electronics world, and were technically similar to computers – heralding the *digital convergence*. They increasingly incorporated features of consumer electronics devices – for example, an MP3 personal stereo – but, being digital, were inherently different in their underlying technology from their traditional counterparts. The PC was fast becoming the home's information and entertainment hub in developed countries. This evolution of the computer industry towards the consumer electronics industry promised a profound and long-term impact on the traditional consumer electronics companies. The message was clear – the wave of digital convergence was coming as the boundaries between the computer and other devices blurred, as virtually all media, from a movie to a telephone call, could be transmitted and processed as a string of ones and zeros.[16] Consumer electronics companies could ignore this trend only at their own peril.

The transformation of Sony for this digital age had started well in time, when Nobuyuki Idei, a young executive, was surprisingly appointed the CEO of the company in 1995. Norio Ohga had actually bypassed about a dozen more senior managers to give Idei the job, a bold move highlighting the need for the company to reinvent itself at the end of the analogue age. Idei had his task cut out: to remake the company for the network age. He quickly announced his vision for Sony by coining the phrase '*Digital Dream Kids*',[17] underlining the ambitions of a company that had a new youthful zeal in the digital era. He summarised his vision by declaring,

> We have to change our culture from the manufacturing industry to knowledge-based global culture. Kind of a reinvention of the business model itself.[18]

He knew that Sony had come a long way since the days of Ibuka and Morita and compared the old Sony to a prop plane that he was outfitting for jet propulsion, by transforming the company that made stand-alone products shipped in boxes to one that produced an almost organic swarm of interconnected devices, services and experiences, all riding on the blurred pulses of a ubiquitous wide-spectrum network.[19] Investors liked Idei's convergence idea, and Sony's market value had tripled by 1999, partly fuelled by the Internet boom.

Restructuring and cost control

Idei's appointment was immediately followed by significant restructuring. He split the group's unwieldy audio/video products company and created a new division for information technology products. He also announced that the consumer electronics group would restructure to become less dependent on making television sets, video recorders and portable stereos, due to these products' commoditisation and falling margins, and concentrate more on new networking opportunities.[20] He also started the company's drive to convert as many as possible of its analogue products into digital, since manufacturing digital products was relatively cheaper and they also commanded higher margins.[21]

Traditionally, Sony was a high-cost producer – a drawback that it used to compensate for by extracting higher premiums on its innovative products and designs. But its innovations and designs were swiftly being replicated by cheap electronics producers at home (for example, Matsushita) and abroad (for example, Samsung), pushing down industry margins. These low-cost producers had even captured a significant market share in a number of markets in Asia, Latin America and Russia, by charging up to 40 per cent less than Sony's prices. Cost control was hence Idei's top agenda. To cut costs, he shut down 15 of its manufacturing centres worldwide, leaving Sony with 55 plants by 2003, a workforce reduction of 17 000 workers, [22] and a greater reliance on contract manufacturers such as Flextronics and Solectron. Much of the production was moved overseas to low-cost countries such as China, and 12 of the company's Japanese plants were placed under a rationalised structure to further control costs.[23] Sony's loss-making low-cost electronics subsidiary, Aiwa, as well as the music and movies businesses, were restructured to reduce costs. Three of the group's publicly traded subsidiaries –

Sony Music Entertainment (Japan), Sony Chemicals and Sony Precision Technology – were brought back into the group as wholly owned units, strengthening the balance sheet to provide the financial muscle for the company's digital foray. In 2003, Sony announced that it would restructure its loss-making music business, Sony Music Entertainment, by slashing 1000 jobs, trimming its roster of artists and combining back office operations to cut costs.[24] In 2003, Idei also announced that Sony would organise itself more like an American company.[25]

Focusing on core strengths

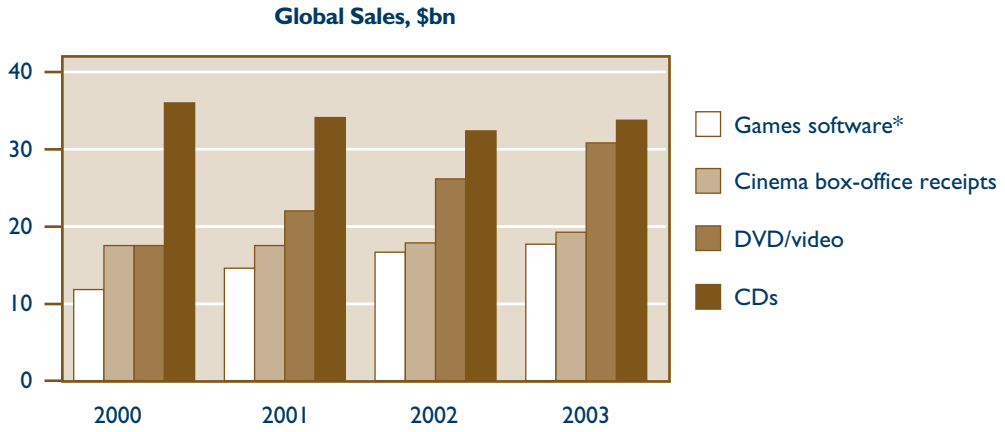
CEO Idei knew that Sony's core strength lay in its ability to innovate and come up with revolutionary products. Throughout the change process, this was a trait that had to remain unchanged. It was clear that Sony did not expect its next breakthrough to come from a single new electronic device.[26] The focus had shifted from stand-alone devices to networked ones, and the onus was on Sony's engineers to realise the digital dream. Kunitake Ando, Sony's president and chief operating officer, also vowed that despite emphasis on network-based content and services, Sony would not lose its focus on hardware.[27] Sony R&D labs were continuously working on next-generation wonders such as paper-thin TV displays, high-definition video projectors that turned entire walls into film screens and *digital chopsticks* – a digital pointer that allowed a user to freely move a file or an image from a screen and transfer it to another device, just like a chopstick. Sony was blurring the lines between these gadgets by blending their features.

Game for change

One of the most important strategic decisions that Sony made in the mid-1990s was to enter the video game market. Norio Ohga envisioned the importance of the video game consoles in Sony's digital strategy, and the PlayStation was launched worldwide in 1995. Ken Kutaragi, an engineer atypical to Sony's culture of internal cooperation, was the champion of the PlayStation, developing the new console with his team of engineers in a relatively independent manner from the rest of the company. Owing to the dominant position of Sega and Nintendo in the console market, game developers were initially reluctant to support Sony's new format. But Sony pushed forward with the PlayStation, eventually convincing the developers of the system's superior design and capabilities. By 2000, the PlayStation had dominated the market to become the world's largest-selling game console, with a 70 per cent market share and 80 million units sold.[28] This was followed by the famous launch of the console's new avatar, the PlayStation 2, in 2000 – when eager customers tumbled over one another to obtain the first machines.[29] The PlayStation 2 offered a substantial jump in performance and versatility, with new features such as *Emotion Engine* and *Graphics Synthesizer* making possible more complex effects such as facial expressions and clothes fluttering in the wind. Over 10 million units were sold in the first year, and by 2003, PlayStation 2 accounted for about half of Sony's total profits and could be found in 50 million homes.[30] By then, Sega had exited the console business altogether to concentrate on gaming software, while Nintendo still held on by launching its GameCube system. However, Sony's unexpected new rival was none other than Microsoft, which had launched the X-Box, its own gaming console in 2001. Despite a US$500 million marketing campaign, the X-Box had sold only 10 million units by 2003, being a far second in console market share.

Sony had a strong business case to support its foray into the game business, although its move was met with scepticism in 1994. Goldman Sachs predicted the global sales of games to be US$17.5 billion and consoles to be US$8.7 billion in 2002, the former equalling the total box office revenues of the film industry and catching up even with the sales of music CDs[31] (see Exhibit 1). Sales of games were expected to overtake music CD sales in Europe by 2005.[32] A survey also found that 60 per cent of Americans played video games, and 61 per cent of these game-buffs were adults; 43 per cent were women and their average age was 28, implying that this form of entertainment was now mainstream.[33] Similar trends were observed in Europe and Japan too. All this was happening while music and film companies were losing money and the global economy was facing a slowdown. Due to its recession-proof nature and lucrative prospects, the gaming industry was the next big frontier for many entertainment companies.

Exhibit 1 The growing market for games



* Includes games for consoles, PCs and handhelds. Source: Goldman Sachs; *Screen Digest*; IFPI; Merrill Lynch.

Source: 'Console wars', *The Economist*, 20 June 2002.

However, a presence in the game console market had far more strategic implications for Sony, and was indeed an important part of its future digital game plan. The first, and probably less important, reason was that the gaming industry was not yet as competitive as the consumer-electronics industry and there was potential for high margins through product differentiation and margins on gaming software. More importantly, Sony's vision for the game console was that it could be the next entertainment hub in homes of the future, equipped with multimedia capabilities and connected to other devices with a broadband network. It would then allow players to compete with other gamers on the network, and would be a gateway to a host of multimedia services and content. The console was thus a centrepiece of Sony's vision of digital convergence and a new way to distribute its content.

The PlayStation 2 was already equipped with some multimedia and network capabilities, with even more *network awareness* expected in future models. These consoles were thus akin to *Trojan Horses*,[34] a new breed of consumer electronics products, doubling up as a television, home computer, game console and video recorder. The entry of software giant Microsoft into the game console market was a testimony to the device's unlimited potential. An analyst commented, 'Games are the engine of the next big wave of computing. Kutaragi is the dance master, and Sony is calling the shots.'[35]

Computers hold the key

Concerned that Silicon Valley was invading its turf, Sony decided to mount its own assault on the computer industry.[36] Idei was aware that an ability to make information technology products was crucial to survival in the new era of digital competition, with the computer as its centrepiece. Being new to the business, Sony failed to capitalise upon its powerful brand in its early attempts to enter the PC market through the high-margin notebook-PC segment. Collaborating with Intel and former marketers from Apple Computer, Sony launched its *VAIO* (Video-Audio Integration Operation) line of multimedia-capable notebooks in 1996. Initial adoption was slow, as the users found the price too steep given the notebook's features. But Sony decided to learn from the experience, saying that it needed PC expertise more than it needed the profit.[37] Idei commented, 'If you are not making computers, you can't keep up.'[38] Undaunted by its initial failures, Sony continued to improve its line of computers, add new features and slash production costs, also launching the *CLIÉ* range of handheld computers in 2000. Sony's persistence finally paid off, and by 2002, it was the fastest-growing major PC maker in the world, ranking eighth in overall market share. Its *CLIÉ* handheld computers commanded a

22 per cent market share, second only to Palm.[39] An analyst described Sony's ascent in the PC market:

> They're borrowing from several of the success strategies in the PC business. They have a bit of the operational excellence of Dell, some of the gaga design of Apple and some of the total solutions idea from IBM – only targeted at the home retail market.[40]

Sony's latest computer models offered seamless interconnectivity with its other digital devices. Mark Hanson, Sony's vice president in charge of marketing the *VAIO* line, concluded:

> Our original intent was to figure out how the PC could help consumer-electronics usage, and (then) bridge them. And the technology is there where we can do what many can't. We're now better able to show why we got into the PC business.[41]

Content with the current content

On the content side, Sony avoided any extravagance during the mergers and acquisitions boom in the media industry in the late 1990s, which resulted in underperforming conglomerates such as AOL Time Warner and Vivendi Universal. One possible reason was that Sony still remembered the difficulties it faced when its acquisition of movie and music businesses was on the verge of failure and almost brought the whole company down. Sony had finally recovered through extensive cost-cutting efforts, but the promised synergies were not realised. Moreover, the rationale for the merger wave was the convergence of content and distribution. In its dream of digital convergence, however, Sony saw its own networked devices as the distribution channels for its content. Hence, in a way, Sony already had what these media giants were trying to achieve, avoiding the merger wave of the late 1990s (and the woes that it eventually brought to the merging conglomerates) and could instead focus on developing its next-generation gadgets.

Sony's main weakness in the content business was its absence in the American TV networks arena, which were the strongholds of its competitors such as AOL Time Warner, Viacom and Disney. Being a Japanese company, Sony was not allowed to set up broadcast networks in the US, while the difficulties resulting from its acquisitions prevented it from creating cable networks in the early 1990s.[42] Realising that it was rather late to start cable channels in the fiercely competitive US market, Sony tried to make up for it by investing in satellite broadcasting in Japan (through a partnership with Rupert Murdoch's News Corp) and many other countries outside the US and Europe. By globalising production, Sony exploited a shift in demand in international markets, where American programming was gradually being replaced by locally produced programs in the prime-time slots.[43] By 1999, Sony had set up production facilities and TV channels in most of the big countries in Latin America and Asia, and was making 4000 hours of foreign-language programs, as compared to 1700 hours of English-language programs.[44] This strategy worked in favour of Sony. By 2003, many of its local channels were performing extremely well – for example, the Sony Entertainment Channel in India, which consistently scored top viewer ratings in a country of 1 billion viewers.

Sony's disciplined approach in the media business had begun to pay dividends. As a result of its cost-focused operations, its TV series production business was posting healthy returns in 2003,[45] while its movies business was the most profitable one in Hollywood in 2002, thanks to blockbusters such as *Spider-man*.[46] Only the music business was a concern, due to falling sales and widespread piracy. As of 2003, stringent cost-cutting measures were under way to turn the division around.[47]

The promise of broadband

One point where Sony was in consensus with its competitors – whether in the media industry or consumer electronics or information technology – was that broadband was the next big wave making digital convergence possible. And, like many of its competitors, Sony staked its future on broadband. This was also Sony's chance to justify its costly acquisitions of content businesses a decade ago, by pushing its content to consumers through broadband devices. Kunitake Ando said:

> The concept that consumer electronics devices can access all sorts of content while connected to a network is the biggest trend, and as broadband

> rolls out and becomes more commonly available – which will happen by 2005 – companies have to make it happen by introducing more types of products.[48]

Broadband networks were next-generation networks providing high-speed, high-bandwidth, access to the Internet, hence enabling the seamless transfer of multimedia-rich content. Thus, broadband was the main thread running through the trellis of Sony's future vision of connected devices with rich content flowing through them. Broadband was also the technological prerequisite to such concepts as on-line music and movie distribution, multi-player gaming and other interactive services. Kunitake Ando believed that in 2002, Sony was better positioned than any other company to make the transition to the broadband world.[49] Its seasoned executives knew how to design consumer products that were both sexy and functional; it had a proven global distribution system and was in constant touch with consumers; it had a deep understanding of both networking technology and successful information technology products. Ando also believed that Sony had finally found the synergy between the hardware and the content sides of its business, a point where the other convergence-seeking conglomerates were struggling.[50]

Strategic alliances

Sony believed that in the future world of networked entertainment, size mattered. Although it avoided jumping on the merger bandwagon, it saw alliances as a valuable means of growth. The development of the PlayStation itself was aided by alliances forged between hardware designers and creative game-software developers; so were other innovations such as the compact disc, a result of an alliance with Philips. Nobuyuki Idei outlined the importance of alliances to Sony:

> We also recognize that the broadband era requires more resources than the Sony Group alone has. This is why we began several years ago to promote 'soft alliances' with partners sharing the same vision. Many companies have expressed an interest in these soft alliances. I believe that this kind of cooperation with partners having outstanding technology, content, telecommunication networks and other key resources is essential.[51]

He also revealed that Sony was more interested in forging 'soft alliances' than the riskier strategies of mergers and acquisitions:

> The opposite of soft alliances is hard alliances, which include mergers and acquisitions. Since purchasing the Music and Pictures businesses, more than ten years have passed, and we have experienced many cultural differences between hardware manufacturing and content businesses. This experience has taught us that in certain areas where hard alliances would have taken ten years to succeed, soft alliances can be created more easily. Another advantage of soft alliances is the ability to form partnerships with many different companies. We aim to provide an open and easy-to-access environment where anybody can participate and we are willing to cooperate with companies that share our vision. Soft alliances offer many possibilities.[52]

Mobile phones were an integral element of Sony's network strategy. But Sony had never really been successful in capturing any substantial market share in the industry. To quickly overcome this shortcoming, Sony pooled resources with the Swedish phone maker, Ericsson, to launch a joint venture – Sony Ericsson Mobile Communications (SEMC) in October 2001.

Ericsson was a major player in the mobile phone business, and had introduced several technical innovations over the years. But it had witnessed its market share fall against its arch-rival – Finland-based Nokia. Kunitake Ando summarised the motives of the alliance:

> As one of the originators of GSM, a transmission standard, Ericsson is known as a company with a high level of vanguard technology and is the best in the world when it comes to the technology used for mobile communication base stations. Sony's strength lies in its ability to create new products, particularly in the crucial product-planning and design stages. By uniting this strength with Ericsson's excellent telecommunications technology and ability to set standards, SEMC is

seeking to become a global market leader in mobile phones.[53]

Although Sony Ericsson was still making losses as of 2003, Sony and Ericsson had both pledged more resources into the venture. Its phones were highly regarded by technology enthusiasts and the youth for their advanced and user-friendly features, and the company predicted that its next-generation handsets could finally turn things around.[54]

Other alliances included PressPlay, an on-line music distribution site launched by Sony Music in partnership with Universal Music Group in 2001, and Sony's alliance with Palm Corporation to use its operating system for the *CLIÉ* handheld. Sony planned to use the open-source Linux operating system for many of its other devices, including the *CoCoon* set-top box.

These alliances provided Sony an alternative to Microsoft products, and thus helped to keep its licensing costs down. Although Sony waited for broadband infrastructure to be widely available in order to realise the hidden potential for its game consoles, it nevertheless struck another alliance with America Online (AOL) in 2001. The deal gave the PlayStation 2 users access to the web, email and other services operated by AOL, the world's largest Internet service provider with 29 million subscribers at the time.[55] A special Internet browser was also developed for the purpose, and Sony designed additional equipment such as hard disk drives, mouse and keyboard to connect to the console. This, according to Sony, was just a glimpse of things to come in the broadband world, and was 'an important first step taking PlayStation 2 into the online and broadband environment', according to Kaz Hirai, president of Sony Computer Entertainment.[56] Sony was also partnering with IBM and Toshiba to develop the next-generation *cell microprocessor* technology, an extremely fast and network-capable multipurpose chip that would be the heart of future Sony devices, including the PlayStation 3.[57] Other alliances included a consortium of nine companies – including Sony, Philips, Samsung, Sharp and Thomson – pushing for the adoption of their *Blu-Ray* DVD recording standard over a rival standard from NEC and Toshiba.[58]

At the crossroads: Sony in 2002

The year 2002 was a crucial one in the history of Sony. It was believed that the broadband revolution was just about to take place and that the world could finally witness the company's vision taking shape. The rise of China as a manufacturing powerhouse was having important implications for manufacturing-based companies such as Sony, while Korean competitors such as Samsung and LG were fiercely challenging Sony's innovations in consumer electronics with low-priced products. Growing digital piracy was fast eroding the profits of music- and movie-making companies. Finally, a global economic slowdown, apprehensions of terrorist attacks and an unstable geopolitical landscape were set to test Sony's resilience as a global corporation.

Sony's organisation

As a result of Nobuyuki Idei's restructuring efforts, the structure of Sony Corporation in 2002 was designed with cost-effectiveness in mind. The company was broadly divided into six business areas, each further divided into smaller business units (see Exhibit 2).[59]

1. Electronics Businesses consisted of audio, video, televisions, information and communications, semiconductors, components and other businesses.
2. Game Businesses consisted of game console and software businesses conducted mainly through Sony Computer Entertainment Inc.
3. Music Businesses consisted of Sony Music Entertainment Inc. (SMEI) and Sony Music Entertainment (Japan) Inc. (SMEJ).
4. Pictures Businesses consisted of motion picture and television businesses, conducted mainly through Sony Pictures Entertainment Inc. (SPE).
5. Financial Services Business consisted of Sony Life Insurance Co. Ltd, Sony Assurance Inc., Sony Financial International Inc. and Sony Bank Inc.
6. Other Businesses consisted of location-based entertainment businesses, Internet-related businesses (So-net), conducted by Sony Communication Network Corporation, advertising agency business and other businesses.

Sony's performance in 2002

In 2000, Sony had reported losses of US$354 million in one six-month period – shaking investors' confidence in its broadband vision. Nobuyuki Idei declared that grand talk of the long-term future could wait until Sony showed a better command of the present.[60] Idei then embarked on a bold restructuring initiative to cut costs in the electronics and content businesses. As a result, Sony posted an all-time-high net sales figure for 2001 of US$53 billion – 3 per cent above the previous year. But the operating income of US$1.01 billion – 40 per cent below the previous year's income – highlighted Sony's eroding margins. Vindicating Sony's foray into the game business, the game division strongly boosted Sony's bottom line, generating 53 per cent of the total operating income, despite comprising just 12 per cent of total sales (see Exhibit 3). Sales of the PlayStation 2, in the second year since its launch, had risen by 52 per cent. The profitability of the game business was safeguarded by a significant drop in manufacturing costs and an increase in the gross margins on software. Around 18 million PlayStation 2 consoles and 122 million copies of game software were sold. The game division's performance hence more than offset the losses made in the electronics business, which had suffered a 3 per cent decrease in sales due to a slump in global demand for semiconductors and components, reduced sales of consumer electronics, and losses made in the mobile phone business due to quality issues. Sony's *VAIO* computers, though, gained global market share faster than any other computer brand. Despite contraction of the global music industry, an increase in digital piracy and terrorist attacks in the US, increased sales in Japan contributed to sales growth of 5 per cent in the music business, but a decrease of 2 per cent in operating income.

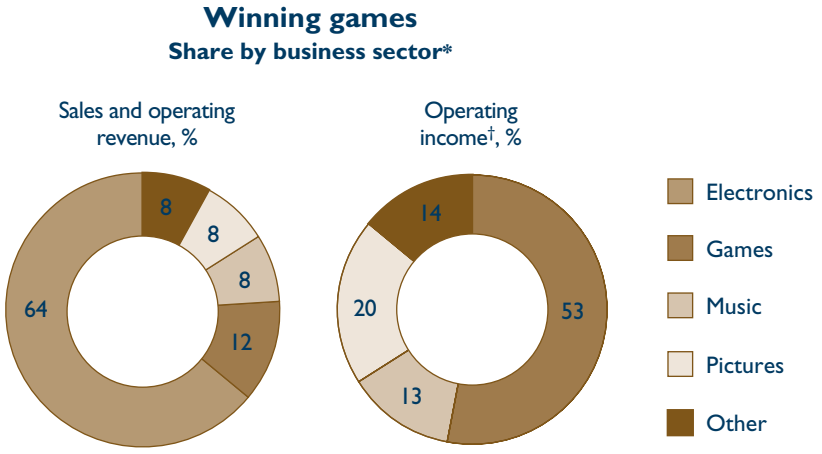
The pictures business recorded a 15 per cent increase in sales and a more than seven-fold increase in operating income, due to some blockbusters, strong DVD sales, successful game shows and structural reforms. The financial services business recorded a 7 per cent increase in revenue and a 27 per cent increase in operating income, as Sony grew its presence in the financial industry. The other business segments recorded a 6 per cent decrease in sales and overall losses due to losses in advertising business, location-based entertainment businesses in Japan and the US, and at Sony Communication Networks Corporation (SCN). (Appendix A shows Sony's group financial results by business segments.)

Exhibit 2 Sony's organisational units in 2002

Electronics	Audio, Video, Televisions, Information and Communications, Semiconductors, Components, Other Businesses
Games	Sony Computer Entertainment Inc. (Playstation and associated software)
Music	Sony Music Entertainment Inc. Sony Music Entertainment (Japan) Inc.
Pictures	Sony Pictures Entertainment Inc. Columbia Tristar Television
Financial Services	Sony Life Assurance Co. Ltd., Sony Assurance Inc., Sony Finance International, Sony Bank
Others	Sony Communication Network Corporation (So-net), advertising and location-based entertainment

Source: Sony Corporation Annual Report 2002.

Exhibit 3 PlayStation's contribution to Sony's income



* Year ending 31 March 2002.

† Calculated as if operating loss in electronics segment were zero.

Source: 'The complete home entertainer?', *The Economist*, 27 February 2003.

'Do you dream in Sony?': Sony's dream of the future

Nobuyuki Idei came out with the tagline *Do you dream in Sony?* to spur innovation inside the company and to prepare consumers for things to come. Sony strongly believed that its clout in consumer electronics, combined with its media content, would allow it to steer digital convergence in its favour.[61] With its portfolio of 1000 digitised films, 33 000 hours of TV programming and more than 500 000 hours of songs, Sony was eagerly awaiting this convergence, so that it could provide all this content to the consumers.[62]

If everything in the future went Sony's way, the consumers could see a whole new world of rich content delivered anytime, anywhere through broadband networks on a spectrum of devices that would be hybrids of computers and consumer electronics. Sony identified four categories of *gateway* products that would help it to implement its future strategy. The first would be an intelligent set-top box, called *CoCoon*, which could learn its users' preferences and could record TV programs of their taste. The CoCoon would be connected to the DVD player, the TV and, of course, the Internet. Another gateway product would be the PlayStation 3, which, apart from being 1000 times faster than its predecessor, would support movie-like multi-player network games and could also be used to surf the multimedia-rich Internet in 3-D. It would also simultaneously handle various tasks – for example, recording a TV show while playing a game. Next-generation *VAIO* notebooks, *CLIÉ* handhelds and Airboard portable wireless TV/Internet display devices would serve as the third gateway device, equipped with intelligent software to learn their user's preferences and communicate them to other Sony devices through *RoomLink* wireless links. The mobile phone, the fourth gateway device, would be equipped with cameras and also work in synch with other devices through the Bluetooth technology. All these gizmos, including digital still and movie cameras, would be connected to a *home server* device, which would be based on the modular *cell microprocessor* technology, and would store and coordinate all the information in these devices. Each device would eventually have a certain number of *cells*, whose computing power could be harnessed by other devices on the network, should the need arise.

Sony also planned to make personal robots that would evolve from their current *pet* status of Aibos to become intelligent, humanoid-shaped companions. They would again communicate with all the other devices, and also help their master manage his personal information by remembering appointments, etc. Toshitada Doi, head of Sony's Digital Creatures Laboratory, believed that the personal robots would be

Sony's most profitable line of products and the robot industry would one day be 'bigger than the computer industry'.[63] He said, 'PCs will continue to grow, but robots will grow faster. When this will happen, I don't know – maybe 30 years. But maybe ten years to 15 years.'[64] Kunitake Ando also expressed optimism about the future of robots:

> We are hoping that robots will create a new type of industry. Initially, it will be for entertainment and for giving comfort, but we think there is a long-term future for robots, and we are adding new technology to our robots so they will quickly become more intelligent and more useful in day-to-day life.[65]

Difficult road ahead: Sony's future challenges

Sony's future vision sounded very exciting, but many real hurdles lay ahead.

All for one

The biggest internal challenge that Sony faced in achieving its digital convergence ambitions was to achieve seamless cooperation between its various subsidiary companies by selling the network vision internally. This was no easy task, given different subsidiaries' different expectations and goals.

Traditionally, despite attempts at discovering synergies, there had been little cooperation between the content people in the United States and the technical wizards in Japan. Even the product units used to work rather independently – the development of PlayStation under Ken Kutaragi being the prime example. Kutaragi worked outside the company's mainstream and forged his own alliances with various parties. PlayStation was highly successful, but Sony wondered if it could enjoy similar luxuries of independence in the *networked* future. It also wondered if innovation could still be maintained by compromising upon this independence.

To counter the low-cost imitators of its mainstream products that threatened its profits, Sony had decided to keep at the forefront of innovation. Now that Sony was making innovative interconnected digital multimedia products, the content business, already plagued by piracy, was even more concerned about the implications of these new devices for its copyrighted content. As a producer of both content and devices, this was a dilemma for Sony that many other competitors did not have to worry about. As a result, competitors were already making many devices that Sony ought to have made.[66] Sony had, on the other hand, equipped its MP3 players with unpopular anti-piracy software, greatly affecting their market acceptance.[67]

Nobuyuki Idei was working actively to achieve organisational integration. In 2002, he started an initiative called NACSS (Network Application and Content Service Sector), an effort aimed at bridging the hardware and content businesses. Masayuki Nozoe, a veteran with experience in both consumer electronics and movie groups, was appointed to head the initiative.

Extensive reorganisation was done to change the organisational mind-set. Such efforts showed promising results, and by 2003, Sony had witnessed a dramatic increase in internal cooperation. When developing new games, Sony's developers now kept in mind not only the PlayStation, but also the *CLIÉ* and Sony Ericsson phones. The Walkman was integrated with *VAIO* PCs and Sony's on-line music service, PressPlay. Engineers always kept the network in mind while designing new devices. There was also increased cooperation between the hardware and content managers through emails and videoconferences. Nobuyuki Idei was satisfied by the developments:

> It took almost two years for everyone to grasp the network concept and go in the same direction. Now we're all going the same way. The horizontal and vertical are more balanced.[68]

Howard Stringer, CEO of Sony USA, said:

> The company was built in a vertical silo fashion, to cultivate the independence that was prized by Mr. Morita. At the end of the analog age, the operating companies actually didn't get along well. Now everybody in every aspect of the company is talking to each other. If you keep talking about networks, you have to practice good networking in your own company.[69]

Idei had managed to persuade even Kutaragi to be a team player and cooperate more closely with everyone, by giving him greater responsibility. About Kutaragi, Idei said, 'He's kind of a symbol for Sony, how the rule breaker can survive with the rule maker. And now, the rule breaker has become the rule maker.'[70]

The standards war

Being a consumer electronics company, Sony was well aware of the importance of standards – having learned its lesson early when its Beta video format had lost a fiercely fought battle against Matsushita's VHS format. But Sony had won more standards battles than it had lost, the compact disc being one of them. In the age of digital convergence, it could be a winner-takes-all situation in a standards war. The number of companies, including Sony, fighting it out over the new DVD recording standard was a testimony to the high stakes involved in modern standards battles.[71] Evidently, the age of convergence was expected to bring with it the fiercest standards battles ever, with rival players such as Microsoft, Samsung, Nokia, Sun Microsystems, etc., all pushing their own formats and protocols for market dominance. Sony's broadband dream could only be a reality if its own standards prevailed. Joining alliances for joint standard specification was a good risk-mitigation strategy.

Competition in the 21st century

Sony had traditionally competed with a somewhat stable set of rivals – the likes of Philips, Matsushita, Toshiba and Samsung. Competitive issues the company usually faced were important but less complex, such as cheap producers of commodity electronics eroding Sony's margins. But thanks to the age of convergence, Sony had suddenly found itself up against an overwhelming set of adversaries, including, but not limited to, computer makers such as HP and IBM, PC makers such as Dell, Apple and Palm, network equipment makers such as Cisco and 3Com, software makers such as Microsoft and Sun, media companies such as AOL Time Warner and Vivendi Universal, game makers such as Nintendo, photographic equipment makers such as Kodak and Fuji, and mobile phone makers such as Nokia and Motorola. This complex, multi-dimensional competition was a bitter reality of the world of digital convergence, where the boundaries between traditional industry segments had disappeared. Sony had entered the terrains of these companies in the media, computer, gaming and networking markets, and had also witnessed these very players enter Sony's traditional fortes. Microsoft was now making game consoles, Apple was making personal digital stereos, 3Com was making network radios, and Nokia was making PDAs. And with most of its competitors nurturing grand broadband visions of their own and staking their future on them, Sony's digital dream did not seem that unique.

The world of digital convergence also meant that one company could not do everything on its own, necessitating selective cooperation with its competitors. An example was Sony's dependence on Intel for VAIO chips and Microsoft for its software. This trend was rather unfamiliar to Sony, which had been hitherto fiercely independent when it came to launching new consumer electronics products. The traditional consumer electronic model also meant companies operating huge manufacturing plants on their own. But such plants now had to give way to third-party contract manufacturers such as Flextronics and Solectron, so that the company could concentrate on swiftly designing innovative new products, as manufacturing superiority and efficiency were no longer the basis of competition.[72] This outsourcing trend had significantly reduced the barriers to entry into the industry.

The scourge of piracy

The proliferation of the Internet and digital gadgets translated into easier piracy of digitised copyrighted content. In the 1970s, Sony, as a consumer electronics company, had fiercely fought in the Supreme Court – and won – for consumers' right to make personal copies of content using its VCRs and tape recorders.[73]

Now, being one of the world's biggest owners of copyrighted content itself, Sony was in a strange dilemma. Its past attempts to design its devices to prevent copying had resulted in consumer displeasure. Kunitake Ando thoughtfully rued, 'When you have a problem like this, I really wish we were a simple hardware company.'[74]

Meanwhile, piracy continued unabated, eating into the revenues in the music business. Despite an

increase in demand, global music sales paradoxically fell by 9 per cent in 2002.[75] Illegal copies and sales in countries such as Russia, China, Brazil and Ukraine were estimated to cost movie and music companies US$7 billion a year.[76]

With international sales fast becoming major revenue earners for US-based content producers, the piracy trend spelled doom to the industry. If this trend continued, many movie and music producers, including Sony's content divisions, could go out of business – leaving the digital convergence dreams unfulfilled. In 2003, Sony teamed up with AOL Time Warner and Viacom to form an association to urge the US government to step up its anti-piracy measures.[77]

Technology adoption

The most interesting part of Sony's digital convergence dream was that it was, after all, still a dream. Despite elaborate preparation for the next generation of networked entertainment, the networks themselves remained conspicuously missing from the picture. By mid-2003, not a single product from Sony had yet incorporated any of the features that Idei and Ando proudly proclaimed in their dreams. Sony had bet too much on broadband, but there were no elaborate broadband networks in place to realise those dreams.

Although a technical reality for some years, the broadband networks had not caught on at the pace that Sony would have liked. Even in the United States, the traditional trendsetter in network technologies, broadband was slow to replace the slower dial-up access networks. Japan, however, showed faster adoption. By 2005, half of Japan's households were expected to have a broadband connection, compared to just 30 per cent of American households.[78] The prices of such services were not helping either: costing US$50 per month in the US, compared to US$20 per month in Japan.[79] The situation was even worse in other parts of the world – many developing countries with high market potential had not even seen the first wave of the digital transformation. In 2002, about 30 per cent of Sony's Walkman sales were units that still used the traditional cassette tape for which the Walkman was first launched in 1979.[80] A sceptical analyst wondered:

> This is the first time in Sony's history that they are producing products that are ahead of the infrastructure's ability to use them. When they came out with the first transistor radios and Trinitron TVs, the broadcasters were already there. When they came out with the Walkman, everyone was already using cassettes. There's a huge question mark about broadband networks.[81]

Sony, having no relationships with telecom and infrastructure companies, could only wait – but not forever. An analyst commented:

> Even though it's a chicken-and-egg situation, you have to have the vision and drive toward it. A small or even medium-sized company can't afford to make that bet. Sony has some insulation from risk. The company has revenues from so many other spaces and products that it can fill in the profit gaps even in the short term.[82]

Even if broadband networks became mainstream, the consumers' acceptance of Sony's convergence products could not be taken for granted. Sony's first attempt at an Internet appliance, the *eVilla*, a desktop web-browsing device, had miserably failed in 2001.[83] Sales of the Airboard, the network Walkman and third-generation (3G) phones had also been ominously discouraging.

Defining the redefined 'Sony'

Sony still faced the daunting task of selling its broadband vision and new identity to the customers. Sony had to shed the *consumer electronics* company image and explain to users what its new products actually did. In addition, Sony's shareholders and employees had to be part of Sony's grand vision. Sony had indeed done quite a lot in the past to successfully change its image from a pure consumer electronics company to a total entertainment company, later adding information technology products to its portfolio. Nobuyuki Idei described Sony's public image in the broadband

era as a 'Global Media and Technology Company'.[84] According to Sony:

> In essence, Sony, the box manufacturer, is being replaced by a new Sony – a customer-centric entity centered around broadband entertainment, yet driven by the venture spirit of Sony's founding days.[85]

But the task of projecting an image of a player in the digital convergence industry was much more complex, given that most people still did not understand what this convergence actually meant. A good example of this point was the problem Sony faced in marketing its otherwise highly innovative product – the Airboard, a combination of TV and PC with an LCD screen. Kunitake Ando revealed:

> People don't know what it is, whether it's a PC or a TV or something else. We try to explain the concept, but people find it difficult. And dealers don't know how to sell it. In the meantime Sharp's Aquos, a simple LCD TV, sells so well. But Airboard is so much more than Aquos![86]

He went on to explain:

> The biggest hurdle is actually the dealers who may not be sure how or even where to sell devices. Do you put something like the Airboard with TVs or with PCs? We have faced this problem in the past, and we have managed to educate them. What we don't want to do is make it too hard on the consumer to use the device. We have even created a user-friendly committee within the company to make sure that we don't run into that problem.[87]

But one thing that Sony did not want to do was give up. Dreams were an integral part of Sony, and fervently following them, despite failures, was part of Sony's culture. Kenichi Ohmae, a management guru, pointed out that Sony 'has failed in the past with its Beta video format and its purchase of Columbia Pictures. But it has repeatedly displayed the dynamism to bounce back.'[88] Kunitake Ando emphasised his company's determination: 'We don't want to go back to being a box company. If we lose our dreams it's not Sony at all.'[89]

Appendix A

Table A1 Sony's consolidated income statement (for the year ended 31 March 2002)

Consolidated Statements of Income Sony Corporation and Consolidated Subsidiaries – Year ended 31 March	Yen in millions			Dollars in millions
	2000	2001	2002	2002
Sales and operating revenue:				
Net sales	¥6 238 401	¥6 829 003	**¥7 058 755**	**$53 073**
Financial service revenue	412 988	447 147	**483 313**	**3 634**
Other operating revenue	35 272	38 674	**36 190**	**272**
	6 686 661	7 314 824	**7 578 258**	**56 979**
Costs and expenses:				
Cost of sales	4 596 086	5 046 694	**5 239 592**	**39 396**
Selling, general and administrative	1 478 692	1 613 069	**1 742 856**	**13 104**
Financial service expenses	389 679	429 715	**461 179**	**3 468**
	6 463 457	7 089 478	**7 443 627**	**55 967**
Operating income	223 204	225 346	**134 631**	**1 012**
Other income:				
Interest and dividends	17 700	18 541	**16 021**	**120**
Royalty income	21 704	29 302	**33 512**	**252**
Foreign exchange gain, net	27 466	–	**–**	**–**
Gain sales of securities investments and other, net	28 099	41 709	**1 398**	**11**
Gain on insurances of stock by equity investees	727	18 030	**503**	**4**
Other	50 603	60 073	**44 894**	**337**
	146 299	167 654	**96 328**	**724**
Other expenses:				
Interest	42 030	43 015	**36 436**	**274**
Loss on devaluation of securities investments	2 015	4 230	**18 458**	**139**
Foreign exchange loss, net	–	15 660	**31 736**	**239**
Other	61 148	64 227	**51 554**	**386**
	105 193	127 132	**138 184**	**1 038**
Income before income taxes	264 310	265 868	**92 775**	**698**

Table A1 Sony's consolidated income statement (for the year ended 31 March 2002) (*continued*)

Sales and Operating Revenue by Business Segment	Yen in millions			Dollars in millions
	2000	2001	2002	2002
Current	¥120 803	¥121 113	**¥114 930**	**$864**
Deferred	(26 159)	(5 579)	**(49 719)**	**(374)**
	94 644	115 534	**65 211**	**490**
Income before minority interest, equity in net losses of affiliated companies and cumulative effect of accounting changes	169 666	150 334	**27 564**	**208**
Minority interest in income (loss) of consolidated subsidiaries	10 001	(15 348)	**(16 240)**	**(121)**
Equity in net losses of affiliated companies	37 830	44 455	**34 472**	**259**
Income before cumulative effect of accounting changes	121 835	121 227	**9 332**	**70**
Cumulative effect of accounting changes (2001: Including ¥491 million income tax expense 2002: Net of income taxes of ¥2,975 million)	–	(104 473)	**5 978**	**45**
Net income	121 835	16 754	**15 310**	**115**
Electronics –				
Customers	4 397 202	4 999 428	**4 793 039**	**36 038**
Intersegment	273 800	473 966	**517 407**	**3 890**
Total	4 671 002	5 473 394	**5 310 446**	**39 928**
Game –				
Customers	630 662	646 147	**986 529**	**7 418**
Intersegment	24 074	14 769	**17 185**	**129**
Total	654 736	660 916	**1 003 714**	**7 547**
Music –				
Customers	665 047	571 003	**588 191**	**4 422**
Intersegment	41 837	41 110	**54 649**	**411**
Total	706 884	612 113	**642 840**	**4 833**
Pictures –				
Customers	494 332	555 227	**635 841**	**4 781**
Intersegment	394	0	**0**	**0**
Total	494 726	555 227	**635 841**	**4 781**
Financial Services –				
Customers	412 988	447 147	**483 313**	**3 634**
Intersegment	25 774	31 677	**28 932**	**218**
Total	438 762	478 824	**512 245**	**3 852**
Other –				
Customers	86 430	95 872	**91 345**	**686**
Intersegment	55&7132	60 526	**55 042**	**414**
Total	141 562	156 398	**146 387**	**1 100**
Elimination –	(421 011)	(622 048)	**(673 215)**	**(5 062)**
Consolidated total	¥6 686 661	¥7 7314 824	**¥7 578 258**	**$56 979**

Note: Electronics intersegment amounts primarily consist of transactions with the game business. Music intersegment amounts primarily consist of transactions with game and pictures businesses. Other intersegment amounts primarily consist of transactions with the electronics business.

Table A2 Sony's segment-wise sales information (for the year ended 31 March 2002)

Electronics Sales and Operating Revenue to Customers by Product Category				
	Yen in millions Year ended 31March			Dollars in millions Year ended 31 March
	2000	2001	2002	2002
Audio	¥733 431	¥756 393	**¥747 469**	**$5 620**
	16.7%	15.1%	**15.6%**	
Video	665 429	791 465	**806 401**	**6.063**
	15.1%	15.8%	**16.8%**	
Televisions	636 213	703 698	**747 877**	**5 623**
	14.5%	14.1%	**15.6%**	
Information and communications	1 031 661	1 322 818	**1 227 685**	**9 231**
	23.5%	26.5%	**25.6%**	
Semiconductors	164 196	237 668	**182 276**	**1 371**
	3.7%	4.7%	**3.8%**	
Components	568 387	612 520	**572 465**	**4 304**
	12.9%	12.3%	**12.0%**	
Other	597 885	574 866	**508 866**	**3 826**
	13.6%	11.5%	**10.6%**	
Total	¥4 397 202	¥4 999 428	**¥4 793 039**	**$36 038**

Note: The above table is a breakdown of electronics sales and operating revenue to customers by product category. The electronics business is managed as a single operating segment by Sony's management. However, Sony believes that the information in this table is useful to investors in understanding the sales contributions of the products in the business segment. In addition, commencing with the first quarter ended 30 June 2001. Sony has partly resigned its product category configuration in the electronics business. In accordance with this change, results of the previous years have been reclassified to conform to the presentation for the year ended 31 March 2002. Sales of mobile phones are no longer recorded in the 'Information and Communications' category as of the third quarter of the current fiscal year. From the third quarter, sales of mobile phones manufactured by Sony Ericsson Mobile Communications are recorded in the 'Other' product category.

Table A3 Sony's profit or loss by business segment (for the year ended 31 March 2002)

Profit or Loss by Business Segment				
	Yen in millions Year ended 31 March			Dollars in millions Year ended 31 March
	2000	2001	2002	2002
Operating income (loss):				
Electronics	¥98 573	¥247 083	**¥(8 237)**	**$(62)**
Game	76 935	(51 118)	**82 915**	**623**
Music	28 293	20 502	**20 175**	**152**
Pictures	35 920	4 315	**31 266**	**235**
Financial Services	23 309	17 432	**22 134**	**166**
Other	(9 648)	(9 374)	**(8 584)**	**(64)**
Total	253 204	228 840	**139 669**	**1 050**
Elimination	10 520	13 503	**16 207**	**122**
Unallocated amounts:				
Corporate expenses	(40 698)	(16 997)	**(21 245)**	**(160)**
Consolidated operating income	223 204	225 346	**134 631**	**1 012**
Other income	146 299	167 654	**96 328**	**724**
Other expenses	(105 193)	(127 132)	**(138 184)**	**(1 038)**
Consolidated income before income taxes	¥264 310	¥265 868	**¥92 775**	**$698**

Table A4 Sony's profit or loss by geographic segment (for the year ended 31 March 2002)

Sales and Operating Revenue by Geographic Segment				
	Yen in millions Year ended 31 March			Dollars in millions Year ended 31 March
	2000	2001	2002	2002
Japan	¥2 121 249	¥2 400 777	**¥2 248 115**	**$16 903**
	31.7%	32.8%	**29.7%**	
United States	2 027 129	2 179 833	**2 461 523**	**18 508**
	30.3%	29.8%	**32.5%**	
Europe	1 470 447	1 473 789	**1 609 111**	**12 098**
	22.0%	20.2%	**21.2%**	
Other Areas	1 067 836	1 260 434	**1 259 509**	**9 470**
	16.0%	17.2%	**16.6%**	
Total	¥6 686 661	¥7 314 824	**¥7 578 258**	**$56 979**

Note: Classification of geographic segment information shows sales and operating revenue recognised by location of customers.

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