



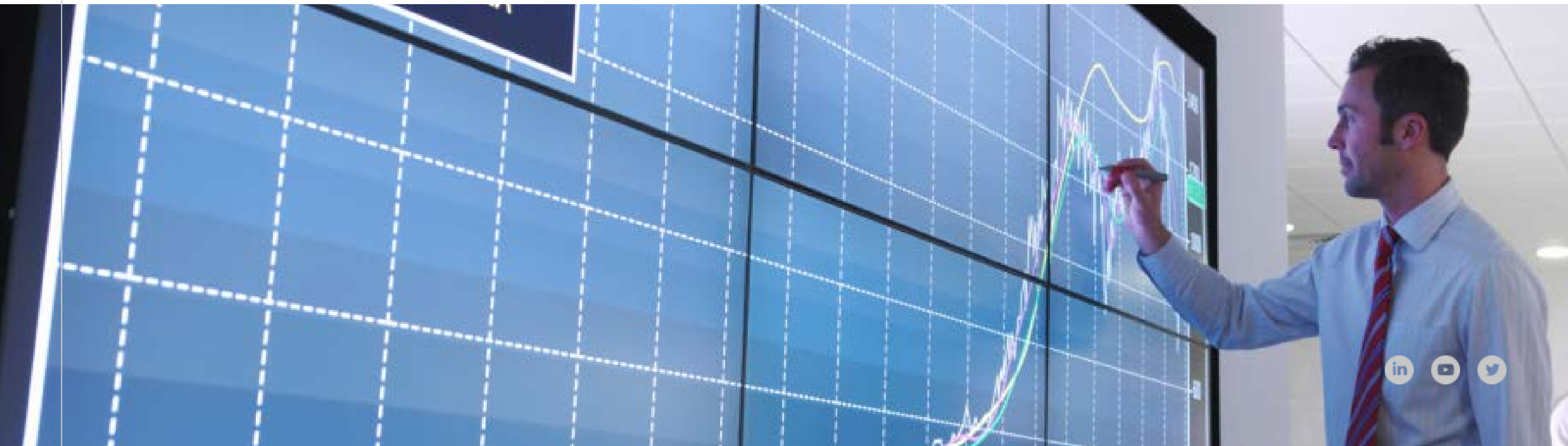
Staying on Course Along the Operational Excellence Journey



If you are like most consumer packaged goods (CPG) companies, you have two concerns: cash flow and profitability. To stay competitive, you need to wring the highest level of productivity from your existing assets while combating manufacturing costs to maintain product margins. The safety of consumers, your employees, and your brand cannot be compromised, but revenue is paramount if you want to be in business tomorrow.

What do you do?

Operational Excellence is not a new idea, but given today's innovations, the topic has evolved. Take a break from focusing on today's tactical issues for just a few minutes, and let's explore the journey to Operational Excellence.





Start at the beginning

**Operational Excellence?
We tried that, it didn't work.**

**With my resources,
you're kidding, right?**

**I don't need Operational Excellence.
I need a better manufacturing line.**

Any of these sound familiar?

The fact is, Operational Excellence is not easy. But, that doesn't make it impossible. It just means that you have to plan the journey and set up checkpoints to note your progress. Usually, these checkpoints will provide an opportunity to smile, reward your team, and see how far you've come. Sometimes, they provide a time to reflect on changes made and the need for some course correction.

The fact is, today, plant automation tends to be an assortment of disparate old and new systems. Most were implemented to resolve immediate manufacturing needs rather than as part of a larger Operational Excellence plan. Information exists in silos and results fall short of projections.

Identify your current challenges

Reduce energy, water, and waste costs:

Cost has always been (and will always be) a top priority for manufacturers, this is especially true in food and beverage (F&B) and CPG companies, as margins are razor thin. These costs come in many forms, from material and labor costs, to packaging and shipping expenses. However, a large portion of operational costs for manufacturers in this space are sustainability related (energy, water, wastewater, etc.). In the past these costs were primarily viewed as givens, just the cost of doing business, but that mindset is beginning to change. A reduction of even a small percentage in energy or water consumption can result in millions of dollars saved over time, making sustainability a perfect area to target for Operational Excellence.

Increase production efficiency:

Maximizing productivity and cost reductions go hand-in-hand in manufacturing. Improvements in yield reduce the amount of waste that occurs in the form of scrap and rework. Unscheduled asset downtime results in higher maintenance costs, late shipments, and lost business. Maximizing productivity is easier said than done though. The top challenge normally cited by manufacturers when trying to increase their production efficiency is the need to improve repeatability and decrease variations in production processes. Continuous improvement methodologies like Lean and Six Sigma are seeing a resurgence in manufacturing to help ensure

predictability and cut out waste from production processes.

Ensure product safety and quality:

While the need to reduce costs and maximize productivity are pressing concerns for all food and beverage (F&B) manufacturers, these organizations also realize that product quality and compliance are equally as important. The introduction of regulations like the Food Safety Modernization Act (FSMA) has caused major changes in how food and beverage (F&B) manufacturers focus on the safety and quality of their products, as well as how organizations will have to handle any issues. Tighter control, documentation, and tracking of every ingredient and process used throughout the enterprise is now required. Even though FSMA was signed into law back in 2011, companies today are still scrambling and focused on complying with this continually evolving mandate and others like it (HACCP, GFSI, FSIS, etc.). These regulations are all geared towards the same goal, keeping the products that customers consume safe and of the highest quality. Focusing Operational Excellence efforts on product safety

To begin your journey to Operational Excellence, identify your challenges. Which of these fit your manufacturing plant?



Explore today's innovations

In addition to realizing functionality needed for Operational Excellence, look to recent innovations to provide systems that won't be antiquated before they are implemented.

Data is everywhere in manufacturing plants. You need to be able to capture, sort, and present operational intelligence to the right people at the right time, in real-time. Better yet, you need to present it to them on mobile devices with simple user interfaces so they can act on that data. Imagine integrated data sets that work seamlessly with your standard operating procedures to help inform and influence workflow.

Machines generate thousands of data points each minute. How valuable would it be to have your system collect and analyze that data to predict process or operational upsets rather than merely reporting after the fact? Imagine the cost savings.

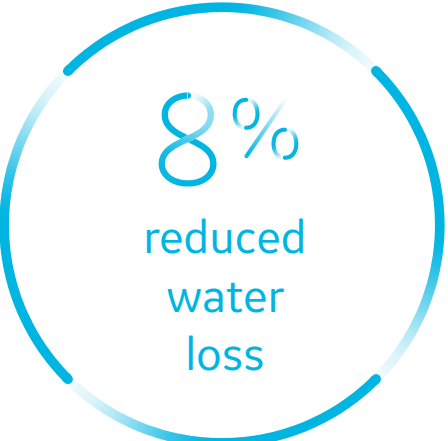
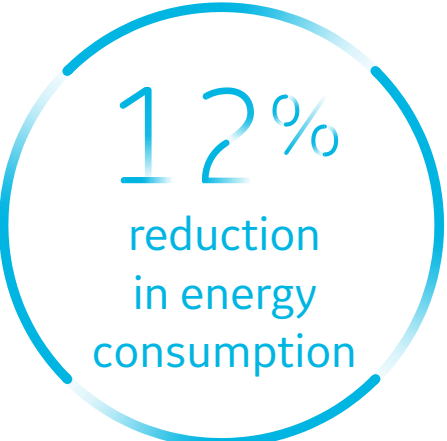
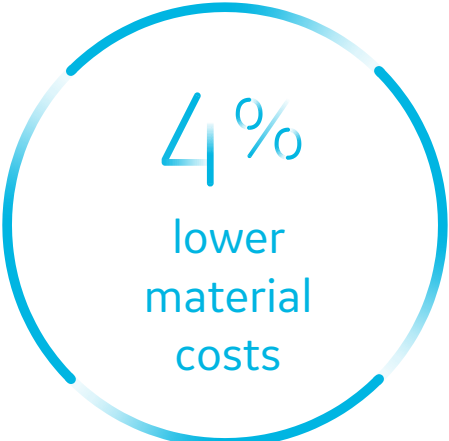
Real-time Operational Intelligence (RtOI) systems turn data into actionable knowledge. With plant operators and engineers typically spending 25% of their working days building reports for data analysis, automation of data management can effectively give this time back to workers so that they can instead focus on making products. RtOI should be a core component of your Operational Excellence program.



How much can you save?

Operational Excellence programs can mean the difference between staying ahead of your competition and being extinct. At GE, we have seen double digit revenue increases due to reduced inventory costs, lower energy consumption, and decreased rework. In fairness, these numbers were not achieved overnight, but as part of a phased strategy implemented over multiple months or years.

Improvements realized through Operational Excellence programs:



The building blocks of Operational Excellence

GE Digital has developed a four step strategic framework, called the Operational Excellence Journey, to drive manufacturing process stability and repeatability. This step-by-step approach helps you maximize the profitability of your existing assets. It begins with visibility into your data and culminates with integration of that data with your supply chain. The return on investment from each step justifies advancement to the next. Let's look at each step.

Operational Excellence journey: Stairway to success

With our approach, Operational Excellence is broken down into a series of steps that aligns with key business initiatives.



Move to real-time visibility

- Connect machines and data for an integrated view of one's entire operations.
- Gain visibility across the plant and enterprise
- Identify issues with cause analysis; take fast action to minimize production impact



Gain insights

- Use advanced data analytics to understand what drives factors such as OEE, equipment downtime, waste, production quantity, inventory, and more
- Predict when issues are about to impact plant performance
- Take proactive action toward no unplanned downtime
- Boost production output with longer periods of continuous operation

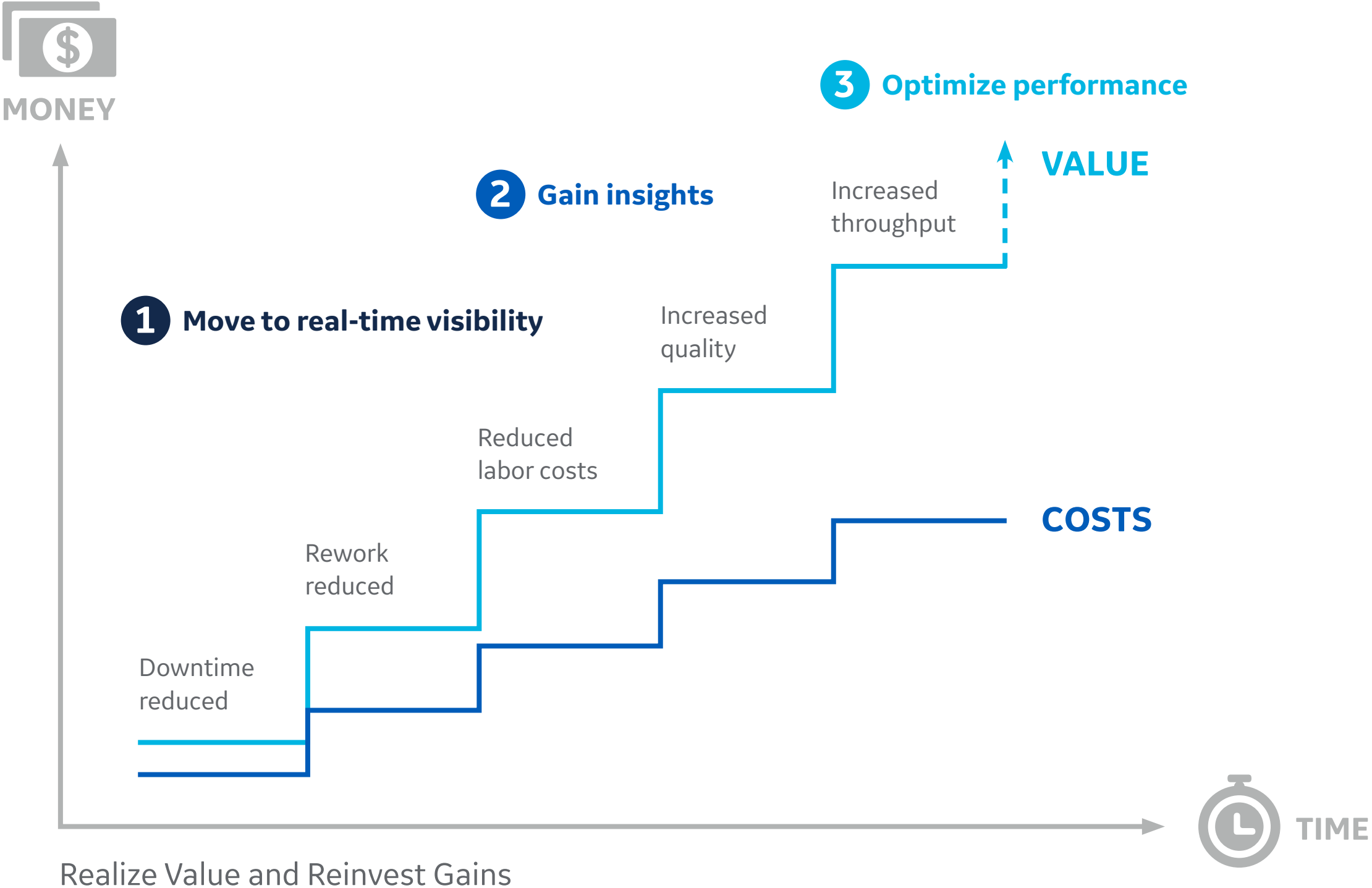


Optimize performance

- Maximize production performance across the enterprise
- Create more efficient operating processes for production and equipment maintenance
- Leverage history of plant performance to create best capital investment decisions

How long will it take?

You will see significant returns along each step of the Operational Excellence Journey. The average timing shown here will differ depending whether you choose to tackle a single plant or multiple plants on your journey.



Connecting your assets and providing operational visibility can result in performance improvements in as little as **six weeks**.

Are you ready to begin?

Operational Excellence begins with you.

- What steps can you do now, what steps can you do in three months, in six months, or next year to keep your operations moving along this journey?
- What can you do to increase product quality and safety without sacrificing asset uptime and productivity?
- Do you have time to start slowly, or will your competitors overtake you? Where is your weakest point?
- Can you begin there?

You need a master plan to begin this journey. At GE Digital, we're ready to help. Our portfolio of applications, including Predix HMI/SCADA and Predix Manufacturing Execution Systems (Predix MES), are helping F&B/CPG manufacturers digitize production on the factory floor to reduce costs, improve quality, and increase efficiency. Are you ready to unlock Operational Excellence?

[LEARN MORE](#)





About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry.

Contact Information

Americas: 1-800-322-3616 or 1-434-978-5100

Global regional phone numbers are available on our web site.

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