

# Decision Matrix: Selecting a Telepresence Vendor

**An in-depth comparison of immersive video conferencing rooms and the extent each can add value to your business**

Reference Code: OT00082-001

Publication Date: November 2011

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## SUMMARY

### In a nutshell

This report explores the competitive dynamics within the telepresence market, and helps businesses select a vendor based on the strength of its technology, user experience of the product, and its impact on the market. Ovum provides a complete view of vendor capabilities, and advises on those that businesses should Explore, Consider and, most importantly, Shortlist.

This Decision Matrix compares eight telepresence rooms across a broad and deep set of criteria. It identifies the strengths and weaknesses of each offering, and by combining those findings with our analysis of the criteria, provides buying recommendations for organizations globally.

The eight products considered are provided by six vendors:

- Cisco Telepresence System (CTS) 3000 series and Cisco T3
- Huawei TP3106
- Lifesize Conference 200
- Polycom RPX and HP Visual Collaboration Studio
- Teliris Virtualive
- ZTE TPS300.

## Definition

Ovum defines telepresence, alternatively called immersive video, as rooms that are designed specifically for video conferencing. They typically feature a customized design, with screens that permit life-sized images of meeting participants, spatial audio, and custom meeting room lighting and soundproofing. Ovum's definition of telepresence excludes rooms that are normally used for non-video conferencing purposes, as well as rooms that simply contain a video conferencing screen or screens but no additional design.

## Ovum view

Interest in video conferencing from organizations of all types continues to increase. Video conferencing can offer cost savings, productivity gains, and a platform for business transformation. Telepresence is leading that change, and business expenditure is growing rapidly. According to Ovum's forecasts, businesses will spend \$1.1bn on immersive video conferencing in 2016, increasing at a compound annual growth rate of 19.49% from 2011.

The challenge for businesses is how to select the right vendor for their telepresence deployment from a supplier marketplace undergoing rapid change. Businesses may be tempted to turn to their legacy video conferencing vendor for telepresence. Unfortunately, many legacy vendors have not entered the telepresence market, or no longer exist as the same company. In these scenarios, and for the growing number of greenfield deployments, organizations face many choices.

They must firstly understand the reasons for the deployment of video. What business issues will it solve? How will video be harnessed to deliver cost savings, or productivity gains? What new ways of working will it facilitate?

Once businesses have identified their goals, they must consider what features they require from a telepresence vendor. Do they require outstanding video and audio? Do they require particular collaboration tools? Do they require integration with specific applications? Ovum's technology assessment section in the Decision Matrix will help provide food for thought in these areas.

Enterprises must also identify what support they require from a vendor. Will they require a partner for support? What managed services will be required? Where will endpoints be deployed, and can the vendor provide support in those countries? The market impact section of this Decision Matrix provides context and ratings for these issues.

Finally, they must select a telepresence solution that enables their business to conduct effective meetings that support its processes. Ovum's assessment of the user experience addresses this requirement.

The bad news for businesses, which is causing considerable uncertainty, is that suppliers continue to evolve rapidly with new acquisitions, partnerships, and products. Among the largest changes are Cisco's acquisition of one of its chief competitors, Tandberg, and Polycom's acquisition of HP's video conferencing portfolio. Such changes muddy the waters for enterprises trying to assess next-generation products.

The good news is that telepresence products and services are now technologically mature, and offer a range of productivity-enhancing features and collaboration tools like whiteboarding, document cameras, and easel and screen sharing. Some integrate with PC, executive and room-based systems, and mobile devices so businesses can connect workers in these locations. Others now allow connections with unified communication endpoints or corporate software to further speed business processes and connect with more employees.

The possibilities are increasing. The right vendor selection from the start is paramount.

## Key messages

- Ovum awards a Shortlist recommendation for Cisco's CTS and Polycom's RPX because both products perform strongly on technology and usability, and both vendors are very capable of supporting global telepresence deployments.
- Ovum awards a Consider recommendation for Cisco's T3 and Teliris's Virtualive, primarily because of their technical strengths
- Ovum awards an Explore recommendation for the Huawei TP3106, the Lifesize Conference 200, and the ZTE TPS300, which offer a variety of technical strengths.

## Important notes regarding vendor inclusion in the Decision Matrix

Ovum chose the eight products evaluated as the leading telepresence products at the time of commencing work on the report in early 2011. Where a vendor offers multiple telepresence products, Ovum chose to evaluate the product with the most telepresence features.

- Ovum chose to evaluate two products from Cisco because of the volume of sales of both products, and because one, the T3, was the result of an acquisition. Each product is evaluated separately in all categories, including market impact. For market impact, the T3 and the CTS have scores in common (e.g. global company presence) but other scores that are different (e.g. footprint), hence the difference in the ratings the two products receive.



- HP's video conferencing portfolio was bought by Polycom in mid-2011, and accordingly we do not include a market impact rating for HP. Polycom's market impact score is based on the portfolio pre-acquisition.
- We have included Lifesize's top-end room-based product in this Decision Matrix because it is marketed as telepresence, and because the vendor is achieving growing impact in the enterprise video conferencing market.
- Finally, we have included in the "Other players to watch" section some smaller, growing vendors with particularly interesting technology.

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## RESULTS

### Shortlist, Consider, Explore

This report provides a summary of vendors' capabilities based on a quantitative assessment of their market impact and user experience scores, as well as the technology features that they support. Ovum also provides guidance for enterprises looking to deploy telepresence solutions, and places vendors in our "Shortlist", "Consider", and "Explore" categories using the aggregated results of the Decision Matrix. The following definitions are used for each of these recommendations:

- Shortlist – these vendors' products and services should always be placed on an enterprise's shortlist for telepresence. This category represents the leading solutions that Ovum believes are worthy of a place on most technology selection shortlists. The vendor has established a commanding market position, with a product that is widely accepted as best-of-breed.
- Consider – the vendors in this category have good market positioning and are selling and marketing their products well. The products offer competitive functionality and good price/performance, and should be considered as part of the technology selection process.
- Explore – solutions in this category have less broad applicability, and may have limitations in terms of the product's functionality or the vendor's execution capability. However, they will still be suitable to meet specific requirements, and may be worth exploring as part of the technology selection process.

Because realizing the value from a telepresence solution is critically dependent upon the solution's ability to fit into and form a key part of the enterprise's overall communications and collaboration strategy, the decision to purchase one solution over another should be based on a broad array of factors. These include (but are not limited to) the degree of alignment between the solution's features and functionality, and the specific objectives of the enterprise's communications and collaboration strategy. As a result, Ovum's recommendations of Shortlist, Consider, and Explore should be taken only within the context of an enterprise's specific solution requirements.

## The Decision Matrix

### Shortlist: Cisco's CTS and Polycom's RPX

In our evaluation, three products performed strongly across the board: Cisco's CTS and T3, and Polycom's RPX. In our opinion, all three products are extremely technically strong and manufactured by mature vendors capable of providing all the support that businesses require. However, Cisco has made clear its intention to sell the T3 only to government and military customers (as well as for customized installations), which restricts its availability and support for other organizations.

Therefore, Ovum recommends that businesses purchasing telepresence should shortlist both the Cisco CTS and the Polycom RPX.

### Consider: Cisco's T3, Teliris's VirtuaLive

Ovum recommends that businesses should consider the T3.

Teliris's VirtuaLive is technically strong but the company is far smaller than Cisco and Polycom and is therefore unable to provide the same level of global support. Ovum therefore recommends that businesses consider the VirtuaLive.

### Explore: Polycom/HP VCS, Huawei, Lifesize and ZTE

Ovum recommends that businesses explore the remaining four products from HP (the product portfolio has now been acquired by Polycom), Huawei, Lifesize, and ZTE.

- HP's Visual Collaboration Studio (VCS), originally called Halo, offers moderate technical capabilities, and performs well in terms of usability. However, although Polycom has not publicly stated this, Ovum strongly believes that the company will probably not sell HP VCS to new customers. Nor will it release further iterations of the VCS product, though it has said it will support existing customers.
- LifeSize's product lacks the technical depth of the other offerings in the Decision Matrix. Results from Ovum's user experience assessment were lower than for the other products, and the company, although growing, is still small.
- The products from Huawei and ZTE are moderately strong on paper. However, they are not widely deployed relative to the other vendors, and with some small exceptions, the companies do not have significant support in place for international deployments.

Ovum's recommendations for the eight products are summarized in Table 1.

<b>Table 1: Product recommendations, telepresence</b>		
<b>Product</b>	<b>Vendor</b>	<b>Rating</b>
CTS	Cisco	SHORTLIST
RPX	Polycom	SHORTLIST
VirtualLive	Teliris	CONSIDER
T3	Cisco (Tandberg)	CONSIDER
TP3106	Huawei	EXPLORE
TPS300	ZTE	EXPLORE
Conference 200	LifeSize	EXPLORE

Source: Ovum OVUM

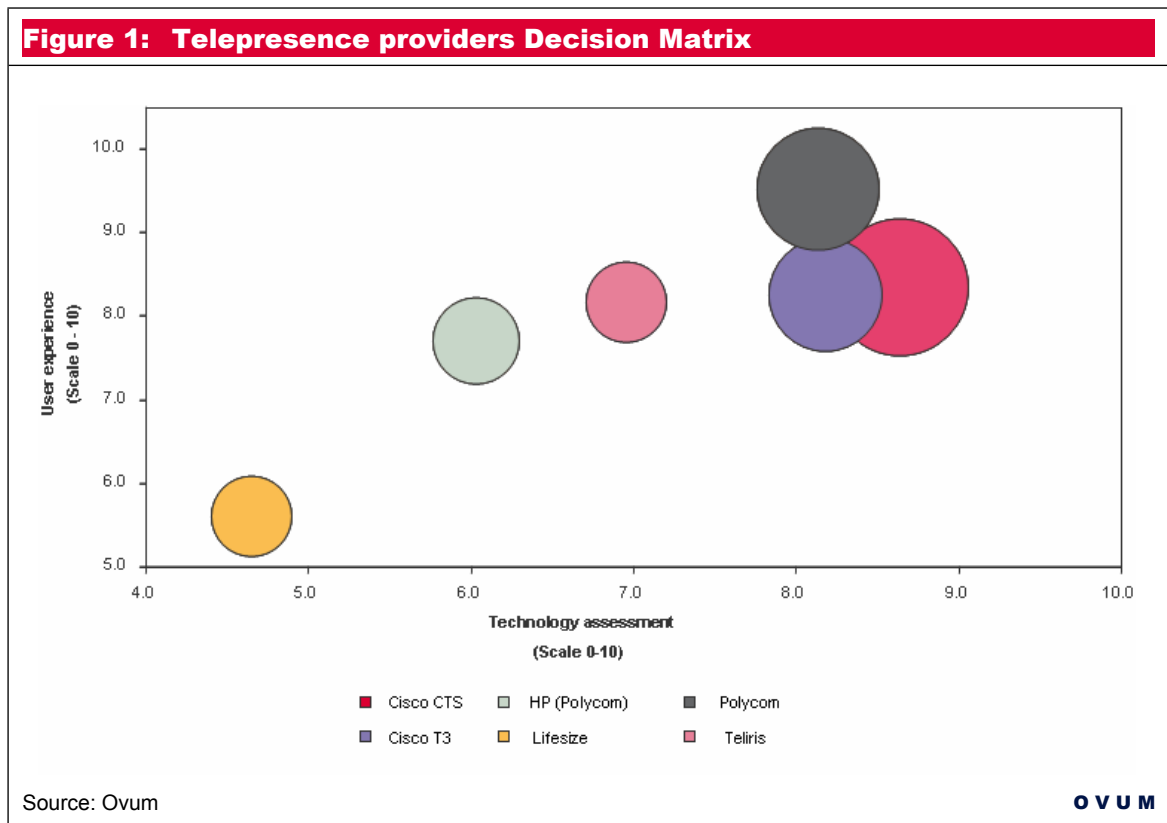
These recommendations are derived from a complex analysis of four groups of factors:

- the strength of the technology (technology analysis)
- the effectiveness of the offering for holding productive video meetings (user experience)
- the ability of the vendor to support its customers (market impact)
- feedback from existing customers (customer sentiment, included in market impact).

Ovum emphasizes that the vendors in both the Explore and Consider categories should be benchmarked in the context of the given deployment scenario, as the respective strengths of each of the vendors may matter more than minuscule variations in the technology assessment score. It is also important to note that vendors in the Explore and Consider categories have proven successful deployments and have delivered measurable benefits to their customers.

Figure 1 depicts the vendors in a bubble chart. The average scores from the technology assessment, user experience, and market impact analysis were used to plot the vendors. In this figure, the greater the size of the bubble, the greater the market impact achieved by the telepresence provider. We did not assess user experience for Huawei and ZTE because the products were not available for evaluation outside of China, and as a result those vendors do not appear in Figure 1. To provide a scale for analysis of these providers, Ovum has also created an

Extended Decision Matrix, shown in Figure 2. The Extended Decision Matrix plots only the average scores from the technology assessment and market impact analysis.

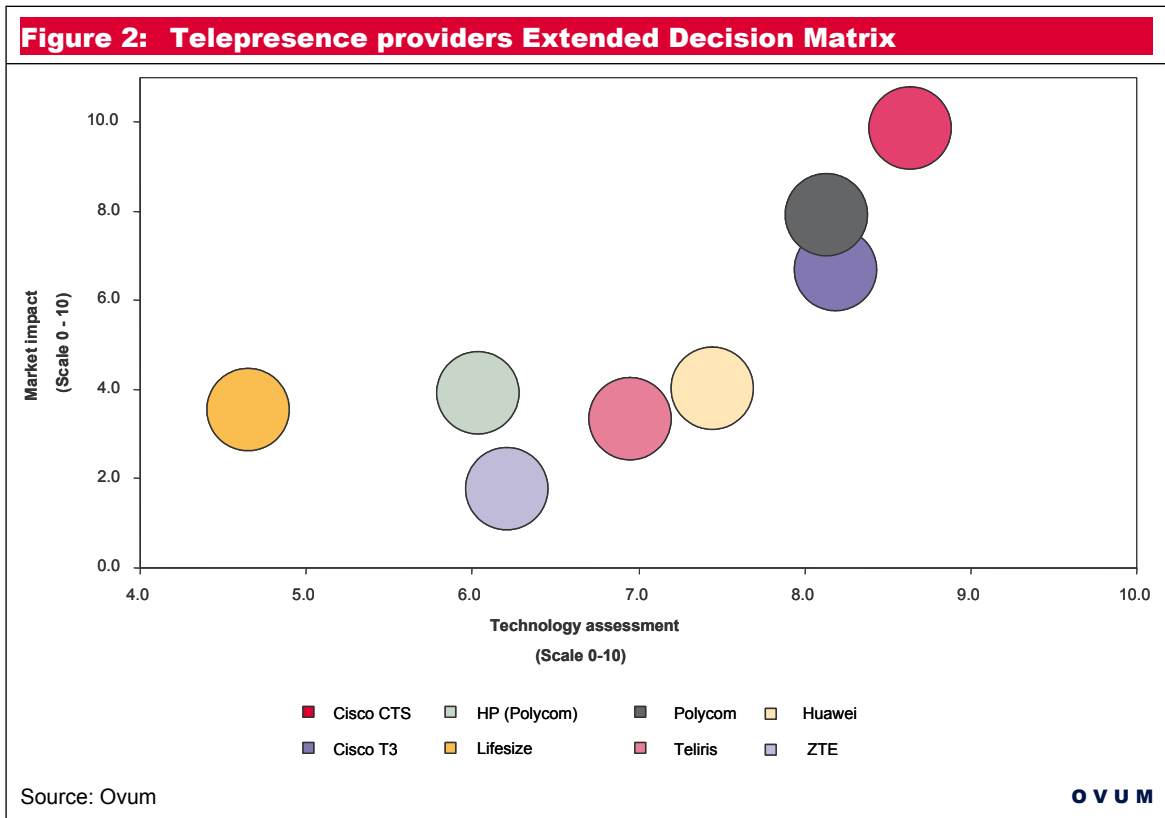


The Matrix shows clearly in the top-right the three products that are leading across the board: the Cisco CTS (Shortlist), the Cisco T3 (Consider), and the Polycom RPX (Shortlist). Closely following on technical grounds to the right of the chart, we see Teliris (Consider), which benefits from a strong usability rating.

## The Extended Decision Matrix

The Extended Decision Matrix does not take user experience into account, and compares telepresence providers on only a technical assessment and their market impact. Unlike the standard Decision Matrix, the bubble sizes of all providers shown in the Extended Decision Matrix

in Figure 2 are the same. The further up into the right corner of the figure a vendor sits, the better that vendor's combination of market impact and technology assessment.



Due to their limited geographic presences, Huawei and ZTE do not yet have the market impact of their competitors, but the Extended Decision Matrix does show their technical strengths. The three leading offers in the standard Decision Matrix are, unsurprisingly, also the top offers in the Extended Decision Matrix.

## **IN-DEPTH ANALYSIS**

### **Market leaders**

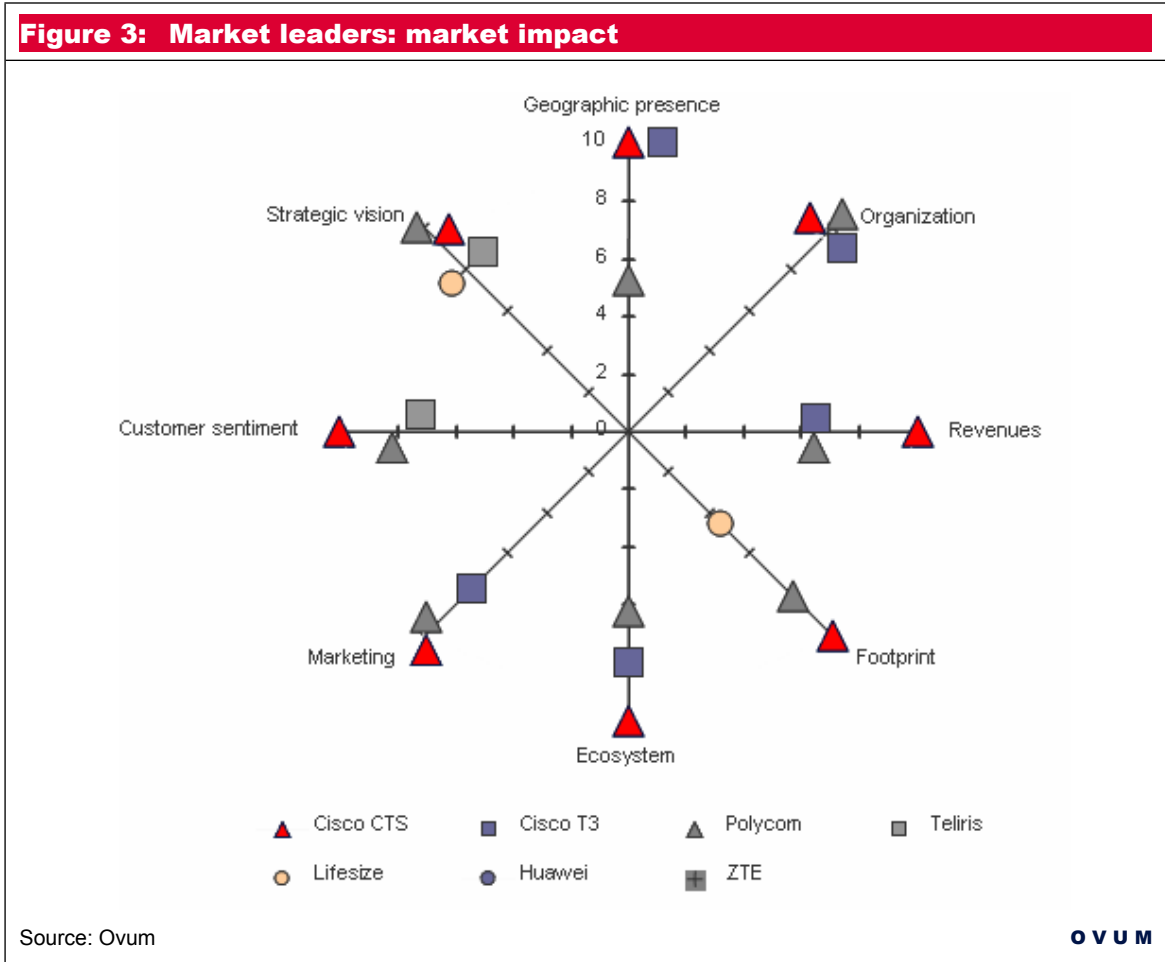
#### **The leaders' radars**

As the competitive landscape may vary significantly across the areas covered by Ovum's Decision Matrix (technology, user experience, and market impact), it is important to consider these categories separately in order to develop a more complete understanding of each vendor's particular strengths and weaknesses, and why it has been assigned a Shortlist, Consider, or Explore rating. In the following section of this report, Ovum will present the market leaders for each area and then discuss how they vary across the sub-criteria within the assessment areas. Three leading vendors are presented for each category, unless multiple vendors have received the same mark, in which case all vendors sharing the same score are displayed.

### **Market impact**

#### **Cisco is the vendor with the greatest impact in the telepresence market**

As seen in Figure 3, Cisco's CTS offer tops the charts in the market impact categories, receiving the highest scores in six of the eight segments.



For geographic presence, telepresence revenues, current footprint, and partner ecosystem, Cisco is dominant. Cisco now has three-screen immersive telepresence rooms rolled out in 150 countries and has been the vendor of choice for such telecoms operators and systems integrators as BT Global Services, AT&T, Orange Business Services, and Dimension Data. Businesses wishing to procure managed video services, such as concierge/helpdesk and network/endpoint monitoring will find substantial advantages in choosing a Cisco offering, and relatively little support for its competitors.

There is a partial end in sight to this monopolization of the channel by Cisco, however. Though Cisco has signed new partnerships, for example with Global Crossing (which originally signed up Teliris), several Tier-1 operators such as Verizon are now branching out to support Polycom's telepresence offerings in addition to Cisco's. Polycom's ecosystem is likely to grow further following its initiation of the Open Visual Communications Consortium (OVCC), a group designed



to foster system-to-system interoperability. Indeed, Polycom is well-positioned to win major enterprise telepresence deals. One of its particular strengths is in marketing: the vendor was able to identify a five-point marketing plan for raising awareness of the RPX offering, and several strong unique selling points (USPs). Its USPs focus on interoperability, the implementation of H.264 High Profile (which reduces bandwidth consumption), the ability for participants to move seats without losing sight of their heads, superior eye-to-eye contact, and the ability to use the RPX as a meeting room without video, all of which should resonate with many businesses. Interoperability remains an ongoing concern for businesses, and these messages can be expected to appeal.

Polycom has achieved an across-the-board strong market impact score and lies second to Cisco's CTS. In addition to its cohesive marketing strategy, it has a broad international footprint and availability of support. As a dedicated conferencing vendor, all its local offices across North and South America, Europe, the Middle East, and Asia, support telepresence. Additionally, the company lists 12 support partners globally, as well as growing telecoms operator and systems integrator relationships to offer managed video services as well as design, installation and maintenance.

Cisco and Polycom will encounter growing competition from China-headquartered vendors Huawei and ZTE, which both boast vast R&D resources. Though neither of those vendors currently employs a significant proportion of their R&D resources in telepresence, the sheer scale of their total research operation marks them out as strong future potential suppliers.

### **The emerging competition**

Other vendors showed fewer strengths in our ratings. We would include Teliris and the two Chinese vendors, Huawei and ZTE, in this bracket, though for different reasons.

In terms of user experience, Teliris is the second strongest offering of the eight. On paper, its technical features rate highly, too. However, its ability to execute on these strengths is limited by the small size of its sales and support operations: after 12 years in business, it still trades out of just two countries, demonstrating that it has grown less than its competition. Businesses considering its VirtualLive solution should ensure that support is in place in all countries in which the system will be deployed, whether through Teliris, a channel partner or internally, if in-house personnel are suitably trained.

Huawei and ZTE are far larger organizations backed by incredible R&D budgets, but neither has the international partnerships, or indeed reputation, to reap significant international deals at present. Telepresence is as yet a relatively unimportant product for ZTE in terms of volume, though Huawei is now stressing its importance. Businesses should ensure support structures are





in place before purchase. Huawei is making investments to improve its international presence, particularly in Europe. It now has a strong European headquarters in Germany, is in the process of signing contracts with at least one Tier-1 telecoms operator, and has won a major government contract in a developed market. Therefore Ovum expects the impact and ability to execute of Huawei to increase notably within two to three years.

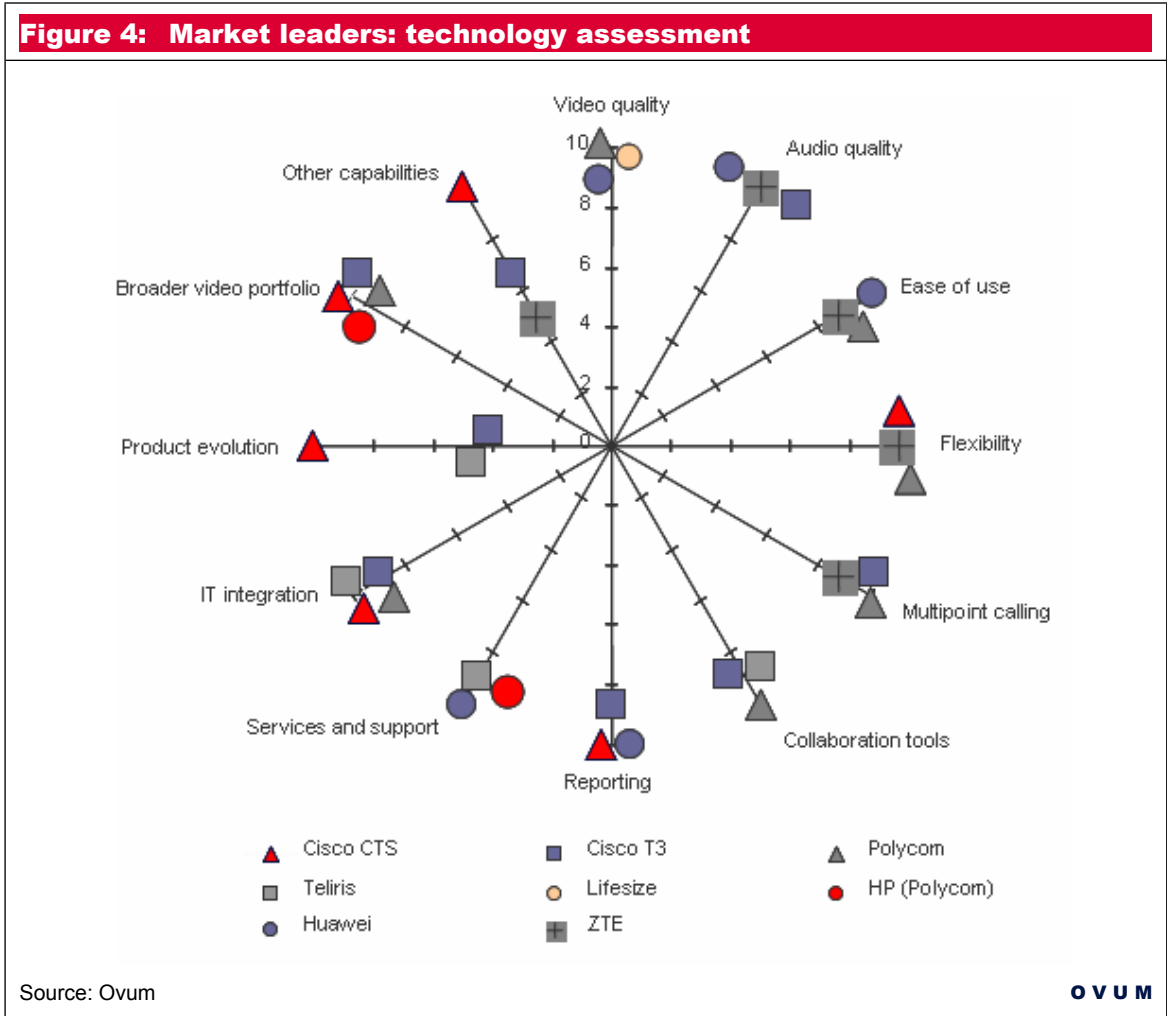
As a small organization of just over 400 people, LifeSize scores a low market impact rating, particularly for company revenues and the number of employees that support, research and develop its products. LifeSize was unable to identify a strong marketing campaign to support the Conference 200, and we would question the strength of its USPs, such as “highest quality”, which is difficult to argue in comparison with other telepresence products.

However, LifeSize has worked hard to establish numerous channel partnerships across multiple regions, and these are bearing fruit. Some of these partners are technical audio-visual specialists that innovate around LifeSize's high-definition equipment to produce offerings that feel more like immersive rooms. Its partners are also building collaboration tools that deepen LifeSize's proposition. These partnerships are helping LifeSize win significant deals from mid-sized companies. It also acts as OEM for Alcatel-Lucent and Avaya, vastly increasing its footprint.

## Technology assessment

### Polycom leads on technology strength; Cisco is close behind

The technology assessment section of the Decision Matrix is an analysis of product feature sets and technical capabilities. It is comprised of the ten elements shown in Figure 4. This analysis found that most core telepresence features are supported by all vendors, but that the way features are implemented varies widely. In terms of technology, and because of a lack of standards covering many of the finer technical aspects of telepresence, offerings vary widely. Furthermore, the requirement for vendors to differentiate their offering results in further product differences.



The result is that businesses can expect to find that only some of the eight offerings will suit their precise requirements. The complete list of technical differences is very long indeed, but some of the main ones are:

- number and size of screens
- number of people shown per screen
- how the view changes according to how many sites are on the call and when the speaker changes
- number of cameras, microphones, and speakers
- resolution and frame rate of video and spectral range of audio

- means of setting up and scheduling a call
- collaboration tools
- reporting metrics
- services and support offered to businesses
- user interface
- integration with the rest of a business's ICT infrastructure and applications.

### **Findings: technology assessment scores showed relatively little variation**

As a core set of features is supported by all products, and because the feature set and implementations vary across vendors, the range of technology assessment scores is actually fairly small.

Both of Cisco's products, along with those from Polycom, Teliris, and Huawei, performed strongly in the technology assessment, meaning that they provide technology that allows highly effective video meetings. HP's Halo product has suffered a little from under-investment, though still has strong technical parameters in many aspects. It is one of the older telepresence products, having been launched in 2005. ZTE's product is still in its early days, and we expect it to develop over the next two to three years. LifeSize's Conference 200 contains fewer essential telepresence features than most of the other products, and its implementation is also slightly more clunky. LifeSize does, however, offer a range of other room-based high-definition endpoints which, in Ovum's experience, rate much more highly in their category. These endpoints are, however, outside the scope of this Decision Matrix.

It is also worth noting that both Cisco and Polycom are due to release next-generation products, potentially in 2012. These could vary from the existing products because of the vendors' respective acquisitions of Tandberg and HP's video conferencing portfolios. The next-generation products are likely to more closely resemble the current CTS and RPX, so Tandberg and HP customers may have to undergo significant architectural change.

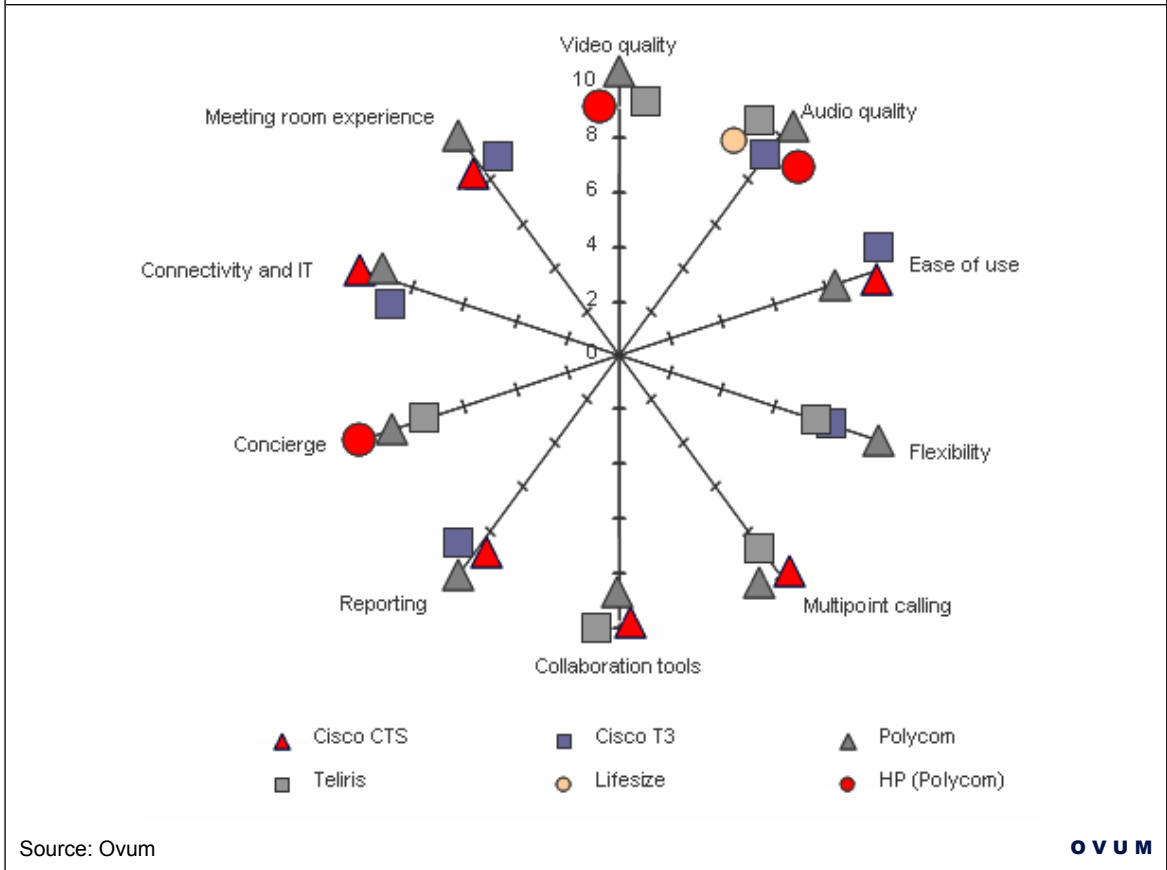
## **User experience**

### **Polycom scores highly on user experience; Cisco and Teliris also show well**

Whereas the technology assessment section of the Decision Matrix recognizes technological strength, the user experience section identifies those telepresence offerings that in practice enable the most effective meetings. User experience scores are derived following a lengthy evaluation of

multiple meeting scenarios by an Ovum analyst, carried out in the telepresence room itself for up to two hours. Ovum was unable to test the offerings from Huawei and ZTE and has therefore produced no user experience evaluation for those two manufacturers.

**Figure 5: Market leaders: user experience**



The remaining six vendors are assessed for user experience across the ten segments shown in Figure 5. Some of the criteria used included:

- video, including loss of video and jerkiness of movement
- eye contact
- size of images
- audio clarity
- lipsync
- ease of setup

- flexibility
- effectiveness of multiparty calls
- integration with non-telepresence users
- effectiveness of collaboration accessories
- general meeting room experience.

Each of the segment scores is weighted according to its importance for businesses. For example, both video and audio quality are fundamental, and both receive the heaviest weighting. Collaboration tools receive the second-heaviest weighting. Therefore, businesses can be confident that vendors with a high overall score possess an offering that can comfortably support the most business-critical executive meetings.

Polycom's RPX offers an outstanding immersive video experience that provides an excellent platform for effective and efficient meetings. The RPX excels in almost all aspects of usability, top-scoring in five of the 10 categories.

Teliris is the surprise player in telepresence. A small company with a modest international footprint, it possesses a compelling offering that supports effective video meetings. Teliris's video and audio performs consistently well, and Ovum has scored it second in both.

What are apparent from the usability comparison of Polycom and Cisco are the companies' respective backgrounds. As a video specialist, Polycom continues to excel in video and audio, while Cisco performs particularly highly in disciplines more related to its networking business: that is, collaboration tools and integration with IT. Integration with WebEx is the most significant unique selling point here, bringing with it the capability to broaden telepresence meetings out to multiple remote participants. Cisco has also built-in algorithms that will flex the bandwidth consumption of telepresence meetings according to network conditions. The 3000 series is also easy to use in terms of call setup and extension.

The two distinct telepresence products from Cisco achieved similar usability ratings. Consideration of the individual scoring segments highlights the differences. In particular, the T3 is customizable, whereas the 3000 series is not. There were also some additional video weaknesses in our evaluation of the T3 compared with the 3000 series.

HP (now Polycom) provides a strong immersive environment with its Visual Collaboration Studio, enabling the building of convincing relationships with other meeting participants. HP has invested considerably in the meeting room environment (albeit several years ago) to provide an enclosed yet comfortable environment where attention is likely to be 100% focused on the video wall.



While LifeSize has a broad and technically strong portfolio, Ovum's user experience evaluation of the Conference 200 was a letdown, and the product garnered only mediocre scores in many of our ratings categories.

## VENDOR PROFILES

### Cisco

As the vendor with the highest number of telepresence rooms sold, a global presence, and a considerable marketing budget, Cisco is well-placed to protect its number one position in market share. Ovum identifies Cisco as the vendor that is making the most impact with telepresence, meaning that it is in the best position of any vendor to support its telepresence customers.

Its partner ecosystem, in terms of value-added resellers, telecoms operators, and systems integrators, is impressive, and we believe Cisco will create significant leverage from these partners to increase its telepresence sales. It has been the first and primary partner of choice for most of these partners, which means that businesses investing in Cisco have a broad choice of support and value-added services.

#### Balance of strengths in technology

Ovum's evaluation demonstrates that Cisco boasts two technically sound, mature, and highly effective products that perform strongly across the board. Both products perform highly on collaboration tools and integration with other IT systems, endpoints, and applications.

One of the critical current improvements for the CTS is the implementation of Telepresence Interoperability Protocol (TIP), which will better enable interworking between Cisco telepresence and other vendors' equipment. The T3 will not support TIP, though the interoperability gateway Cisco Telepresence Server will, as will the EX and C-series systems. Completion of TIP testing for multiscreen-multiscreen and bridged telepresence calls was completed in May 2011, meaning vendors are now able to implement the protocol without fear of further change. TIP-compliant telepresence rooms will be of particular use to businesses that wish to make telepresence calls between different vendors' telepresence equipment. Though TIP was originally a Cisco protocol - which it was forced to divest to a standards body in 2010 as a condition of acquiring Tandberg - Huawei, Polycom, and Teliris have all been active in working with the TIP standard, and TIP implementations have already been implemented by some of these vendors. To further improve interworking, Tandberg is strong on support for H.323 devices.

Cisco has also been notable for its continuing evolution of the 3000 series since its launch in 2006, which explains why the vendor top-scores in the "maturity" category. One of Cisco's enhancements, utilized by both the 3000 series and the T3, has been to introduce a "film strip" capability, which Cisco calls ActivePresence. This is a feature for multipoint calls involving five or more sites that displays non-speaking sites in a strip along the bottom of the screen. When a

participant at one of the non-speaking sites starts speaking, their site appears in full-size on one of the screens. The advantage of ActivePresence is that the speaking site always appears in full-size while the remaining sites remain visible, presented tidily on-screen. Other vendors deal with having five sites or more on a video call by reducing the size of the image, and presenting more than one site on a screen. This can give a less satisfactory video experience, particularly for those businesses that purchase telepresence for the full-size images of meeting participants.

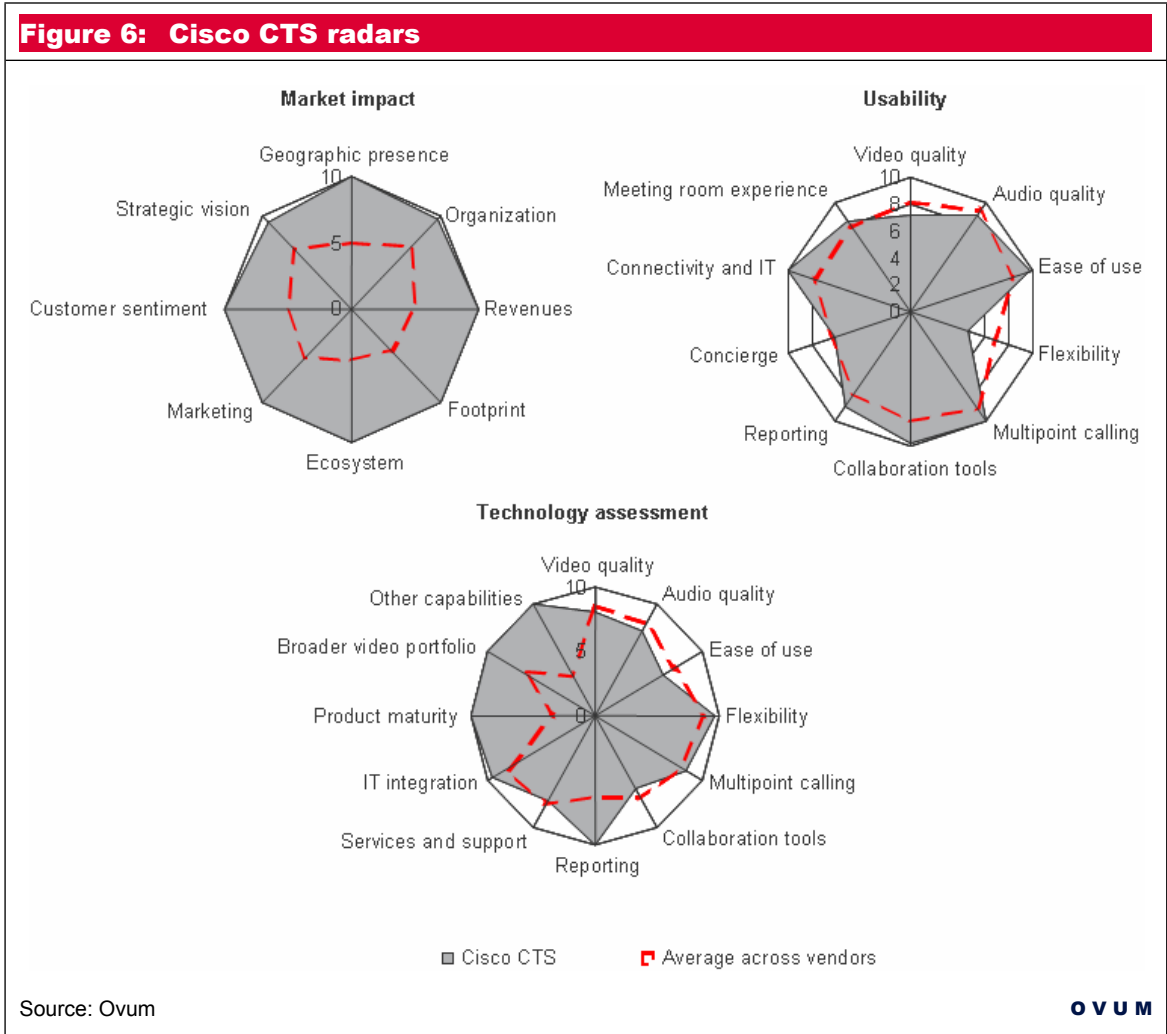
ActivePresence provides a particularly elegant means to display multipoint calls, and the implementation of TIP on the 3000 series will provide businesses with a much-needed additional means for internetworking with non-Cisco telepresence endpoints. Call setup, extension, and recording are relatively easy, and integration with Movi offers a seamless and compelling way to connect PC users to a telepresence conference.

Tandberg offers a graceful additional feature where a concierge can appear in video on one screen, which adds to the interaction between user and concierge. That feature is reliant on provision by a service provider.

#### ***Cisco CTS recommendation: Shortlist***

Cisco offers the most complete video conferencing portfolio, with a broad choice of room-based, executive desktop, and PC-based endpoints, and though it has end-of-lifed a number of products, it has had the luxury of picking the best products from its legacy Cisco and former-Tandberg portfolios. Figure 6 presents the various ratings for Cisco's CTS offer.





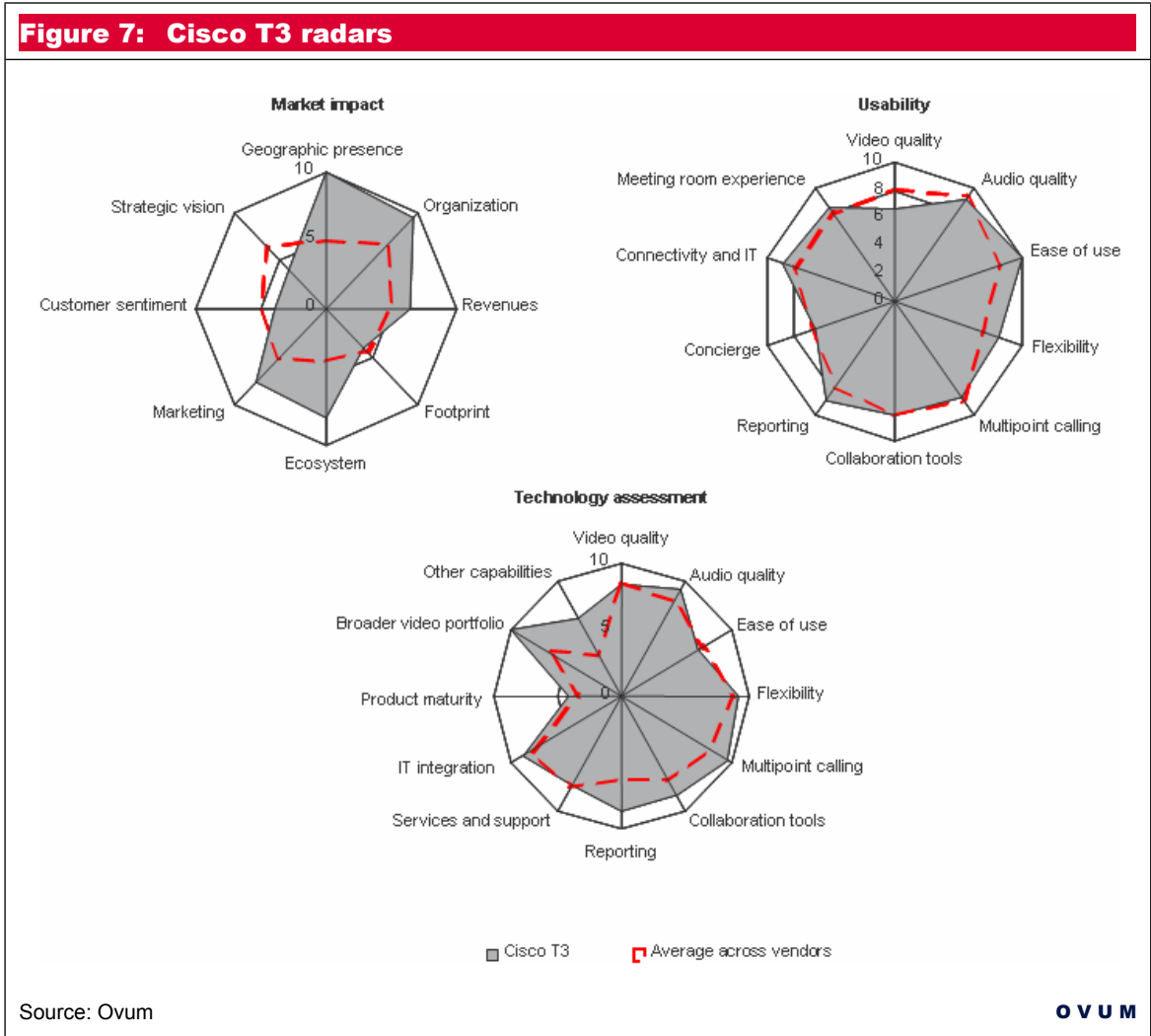
**Cisco CTS builds on the company's strength as an IT vendor**

Cisco stands out with both the CTS and the T3 when it comes to multipoint presentation. Both systems allow the display of sites in a filmstrip at the bottom of the screens, which means that non-speaking parties remain visible while speaking parties are given precedence in full-size. In our opinion, this is a more elegant solution compared with the “Hollywood Squares” approach of the other vendors, where each party appears in a square or rectangle of similar sizes. Cisco's voice-activated switching works well – albeit with slight delay – in bringing the speaking party up to full size.



Overall, CTS is an excellent platform for effective meetings. Its video is, on the whole, a very satisfactory experience. Our tests were thorough, and did pick out some minor visual glitches, less than ideal eye contact between some combinations of seats, and some lack of continuity and headlessness if individuals move. CTS is yet to support 60 frames per second video, and this may explain some of the slightly lower video ratings. The vendor has pledged to add 720p60 video in due course. The audio quality was more than satisfactory, and although Cisco achieved marginally the lowest score for audio, we have no concerns with the audio quality of any of the six systems evaluated.

Some minor concerns include the fact that the call must be placed on hold to connect an audio participant, that there is little customization that can be done, and that CTS cannot comfortably be used for non-video meetings.



**Cisco T3 recommendation: Consider**

Figure 7 presents the various ratings for Cisco's T3 offer.

The T3 offers an engaging immersive environment, and its customizable nature will make it particularly attractive for businesses that wish to communicate via telepresence in non-standard meeting room environments. As it stands, the T3 does retain some video weaknesses compared with other telepresence rooms, including occasional image duplication and reduced eye contact, but since all the products in this comparison are of a high standard, this is a minor concern.

However, Cisco is intending the T3 for use only in government and military organizations, and for customized projects. Lack of clarity with regards to the future of the T3 is causing uncertainty for customers, and Cisco must ensure their needs continue to be addressed. Should Cisco end-of-life the T3 it will face an enormous challenge to integrate its assets with the technically dissimilar 3000 series. The potential fusion of these two products means that Cisco's next-generation product could look and interface in a very different way, which may create training and support issues for businesses on both products. Ovum does expect, however, that the next-generation product will look and feel more like the 3000 series. As always with a new product, bugs are likely to persist after launch. The 3000 series does not yet support 60 frames per second, which means a marginally lesser video experience. Due to their design, neither Cisco product can effectively support non-video meetings.

### **T3 matches CTS for usability**

At a high level, the panel and lighting design of the T3 creates the feel of an engaging, immersive meeting environment. The quality of the video more than matched expectations most of the time, but a small number of faults are worthy of being raised. Our evaluation did experience a major video glitch where an unused part of the screen did not refresh for around 30 seconds. Cisco argues that this may be due to a network issue, but errors affecting only part of the screen are often software-related. Furthermore, when a meeting participant moved he was shown briefly in duplicate, and eye contact was not as close as other telepresence offerings. All these experiences are likely to distract from the purpose of a meeting. We also noted that, in our evaluation, it was not possible for the host to disconnect sites from a multipoint call - only the remote site could choose to disconnect. This could be a problem if the remote participants left the room and forgot to disconnect, or where the host wanted to disconnect a remote site.

Audio generally performed reasonably well relative to a highly successful set of tests across the board, though we did notice some latency in speech. It is not possible from the evaluation to determine whether that latency was due to a network issue or a delay in system processing. Connection to a remote audio user also proved troublesome.

As with CTS, setup features scored well, and it is easy to connect, extend, and record calls. Integration with Cisco's (former Tandberg) Movi client was seamless, and as Movi is deployed quite widely at present, this is likely to be a significant benefit for T3 customers.

The custom version of the T3 can be expected to perform well in a number of environments, with changes to the number of seats, cameras, microphones, and speakers. However, businesses evaluating the T3 Custom Edition should ensure that audio quality in their non-standard



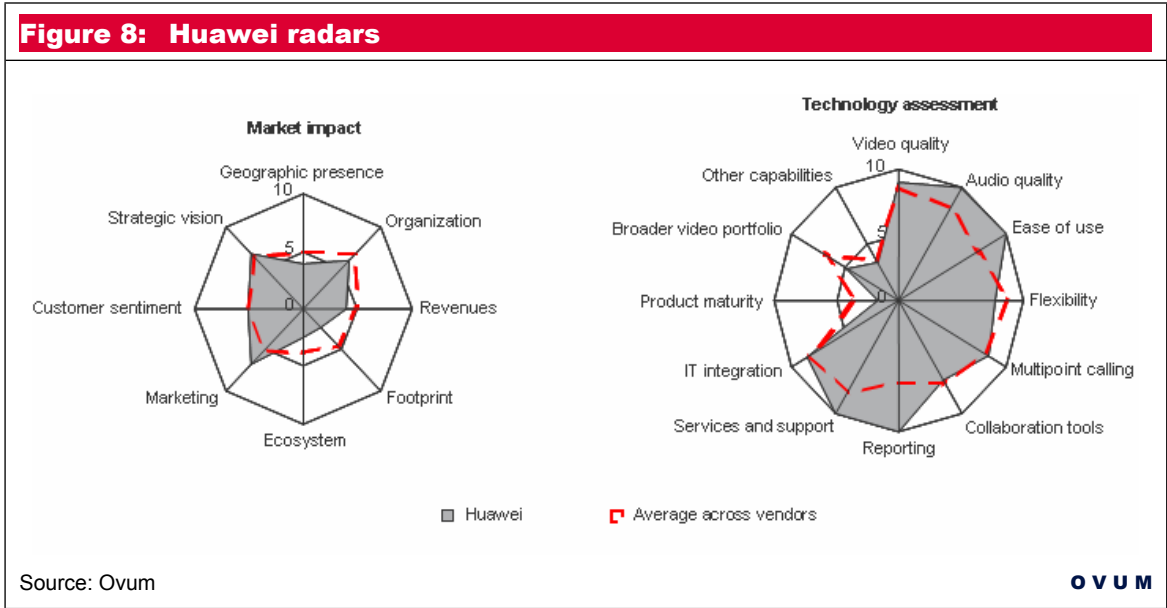
environment meets their expectations. Video quality is likely to be less affected by a custom environment, but should be intensively tested.

Other strengths of the T3 are its powerful document camera, which passed our test with flying colors, and the fact that, like CTS, the system can adjust bandwidth according to network conditions.

For both CTS series and the T3, a live concierge was not available in the demonstration, and therefore our score in that category is based on capability discussions with Cisco.

## Huawei

Huawei has demonstrated considerable potential, both in terms of technical product and the ability to market it. With its telepresence offering, Huawei is at a critical point in its product's adoption, and it is entirely possible that it may make major inroads into a market that has so far been dominated by Western-headquartered companies. Whether it succeeds will depend on trust from potential customers, in both its relatively new product and in its support. Major partnerships and deals that Ovum is aware are being signed as this report is being published will help it achieve that trust among enterprises. Accordingly, we expect Huawei's impact and ability to execute will increase notably within two to three years.



### Huawei surprises on technology

Given that Huawei's TP3106 is one of the two youngest telepresence products that we have compared, it performs surprisingly well from a technical standpoint, achieving the fourth-highest score in our technology evaluation. Though it is not widely deployed, and is still not a major priority for the vendor compared with its operator products, the TP3106 has a depth of features unusual for such a young product. It has clearly benefited from Huawei's focused R&D operations, and has now spawned three sister products, with different numbers of screens and seats.

Huawei's ongoing R&D investment can be expected to produce a high-quality audio and video experience for businesses. Huawei is one of only two vendors to support 1080p60 video (that is, a resolution of 1080 horizontal lines per screen, refreshing at 60 frames per second), as well as 1080p on the collaboration screens, which are located handily on the desk and measure a sizeable 22 inches. The latter is likely to benefit businesses that wish to share documents or videos with fine details. To support this high-quality video, Huawei has developed its own proprietary audio capabilities and is offering one microphone per person to boost its directional audio capabilities. One small compromise here is that there are only three collaboration screens, so meeting participants have to share with one other person, and the collaboration screens are not located directly in front of the participant

In Huawei's case, the quality of the video and audio is a result of support for international standards (of which it supports more than most of its peers), as well as proprietary algorithms. Unlike many other vendors, Huawei has been active in standardizing the TIP protocol, which is now supported by the TP3106. The vendor has also achieved interoperability with Microsoft Lync, which will aid the inclusion of desk-based workers into telepresence calls. For audio, Huawei has developed its own techniques for telepresence regarding echo cancellation, automatic gain control, and noise suppression, and samples a wide spectral audio range, which has the effect of increasing audio clarity. The TP3106 also offers one microphone per person and four speakers, which can be expected to create better directional audio.

Huawei also scores highly for its user interface, an Android-powered tablet device. Ovum believes that an easy-to-use desktop device with a well-understood graphical interface is the most desirable set-up for business users, some of whom may not be technically-minded or who will not have the time in meetings to play with technology. As both tablets and the Android UI are widely understood by employees due to their popularity in consumer devices, such an interface is likely to smooth the telepresence experience for businesses. Some of the other vendors use more clunky touch panel devices or remote controls.

Huawei's interface offers several advantageous features, including allowing businesses to switch the layout of sites onscreen, pass chairing rights, and mute sites.

Huawei has also scored high marks for additional capabilities. For example, it claims to offer its own whiteboard solution (which most telepresence vendors do not), recording, and live streaming, as well as providing endpoint monitoring and user-adoption services in addition to the more common design and installation services.

### ***Huawei recommendation: Explore***

Huawei has outlined to Ovum its intention to expand its enterprise sales internationally, particularly in Europe, where it has a strong base in Germany. The company has labeled telepresence as a level one strategic product, earmarking it for investment. However, it is early days for Huawei in terms of international expansion in the enterprise market. Accordingly, it currently does not yet have a strong international ecosystem of partners, support or installed base, and may struggle in the short term to win many significant deals outside China.

Nonetheless, the vendor has a strong product and we expect it to expand significantly on a global scale in the 2013–2014 timeframe.



## LifeSize

LifeSize is a small vendor, but is growing significantly and provides several strong room-based offerings. It has built an enviable channel to market for its broader portfolio that includes resellers and key OEM deals with Alcatel-Lucent and Avaya. However, Ovum is disappointed with LifeSize's Conference 200 product, which underperforms relative both to its peers' products and the rest of its own portfolio, and we feel the Conference 200 has lacked the attention of LifeSize's other products.

The Conference 200 performed unsatisfactorily in terms of video in our usability assessment and it lacks the technical depth and capabilities of competing products. It offers just one central microphone and speaker unit, which does little to aid video quality, and it lacks some of the extras, in particular collaboration tools, that enterprises have come to expect from a telepresence offering.

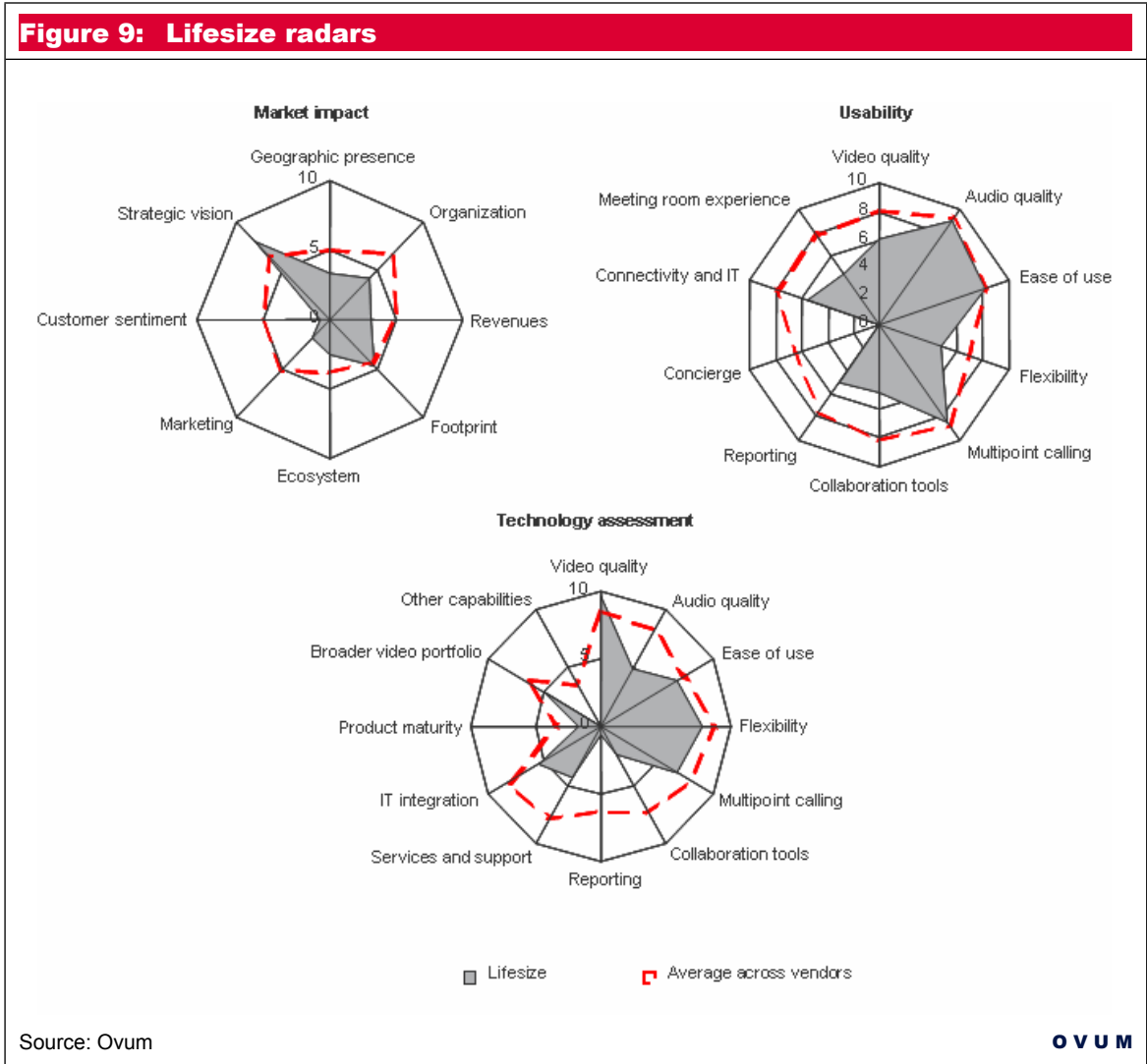
### **LifeSize's greatest achievements are with its mid-tier products**

LifeSize's Conference 200 also achieved the lowest score in the technology assessment, and is significantly weaker than its peers. The Conference 200 should be capable of providing a telepresence-level experience at relatively low cost, but Ovum feels that the offering has not received the same attention from LifeSize of some of the vendor's other products, such as the Room 220, a non-immersive high-definition room offering. Ovum remains surprised that a company with significant successes in room-based systems has not translated this success into a high-quality telepresence product. The Conference 200 is relatively light on telepresence-grade features.

Drawbacks of the product include the fact it operates with just one central microphone/speaker unit. The unit does contain 16 microphones arranged in a circle, but this arrangement is unlikely to be able to provide the spatial audio that microphones and speakers in multiple locations can offer.

LifeSize is limited in the display of multiple sites, and is short of extras, in particular collaboration tools. For example, it does not feature even a document camera. Bandwidth consumption is also higher than its other offerings: each codec consumes up to 6Mbit/s, which is higher than many far more immersive offerings. This is particularly surprising for a vendor that prides itself on producing low-cost room-based endpoints with low bandwidth demands. Furthermore, LifeSize could not mention any partner that currently provides a concierge service, meaning users may not receive the in-meeting support they require.





LifeSize also encourages the use of a remote control as a user interface. Ovum considers this approach dated, limited in capability, and potentially difficult to use, particularly for the younger generation of workers who require a more PC-oriented interface.

Enterprises considering the Conference 200 should also make their own plans to conceal rackspace within the room because the product does not allow this. LifeSize was unable to provide any customer references for the product.

### ***LifeSize recommendation: Explore***

On the positive side, LifeSize supports a choice of 1080p30 or 720p60 video, and this can be adjusted downwards in the event of heavy network load. A major strength is its ability to allow businesses to employ their own legacy screens as part of the offering, as long as those screens are sufficiently large and uniform. This is likely to be beneficial to businesses that have large legacy investments in video infrastructure.

There are two further strengths: LifeSize's international reach has meant it is able to support multiple languages on the user interface, and it has a broad base of resellers that are able to add unique value to its proposition.

### **LifeSize's video qualities underperform with the Conference 200**

In Ovum's user experience tests, the Conference 200 experienced a major video impairment on the left-hand screen which would be completely unacceptable in a customer environment. LifeSize insists that the impairment – where the screen displayed multiple broad horizontal deficiencies across the screen – was due to a network issue, but in our experience these issues, particularly where they occur in one screen, could also be caused by the codec.

The Conference 200 also suffers from poor eye contact that might be tolerated in a standard room environment, but that would be unlikely to be tolerated by many businesses in a telepresence environment. Eye contact from the edge seats in particular was very poor, and participants' heads could not be seen if they stood up.

Multipoint functionality and options for collaboration remain limited. With a remote control as the main user interface, there is a possibility that some users will be left disheartened. The demonstration room also contained a comms rack situated behind meeting participants, making quite an ugly intrusion into the meeting. Ovum believes all IT in telepresence suites, should be concealed from users.

Other than the major cases outlined above, video quality was smooth and there were no further concerns. Audio performed well, and ease of use was satisfactory. LifeSize boasts a broad channel that enhances and customizes its offerings, and enterprises looking for a strong room-based offering will find some compelling offerings through its partners.

## **Polycom**

Polycom's RPX provides an excellent platform for effective immersive video meetings. RPX rooms provide a comfortable yet efficient environment in which to build effective relationships, without

worrying about the technology. Polycom has invested enormous planning and development in room design and layout, and the company's heritage in video and audio shines through with this product.

The RPX achieves our highest ratings for technology and usability, with strong scores across the board. It has also achieved a high market impact score due to its successful marketing strategy, international footprint, and availability of support. Furthermore, it is expanding its list of global partners, including key telecoms operator and systems integrator alliances.

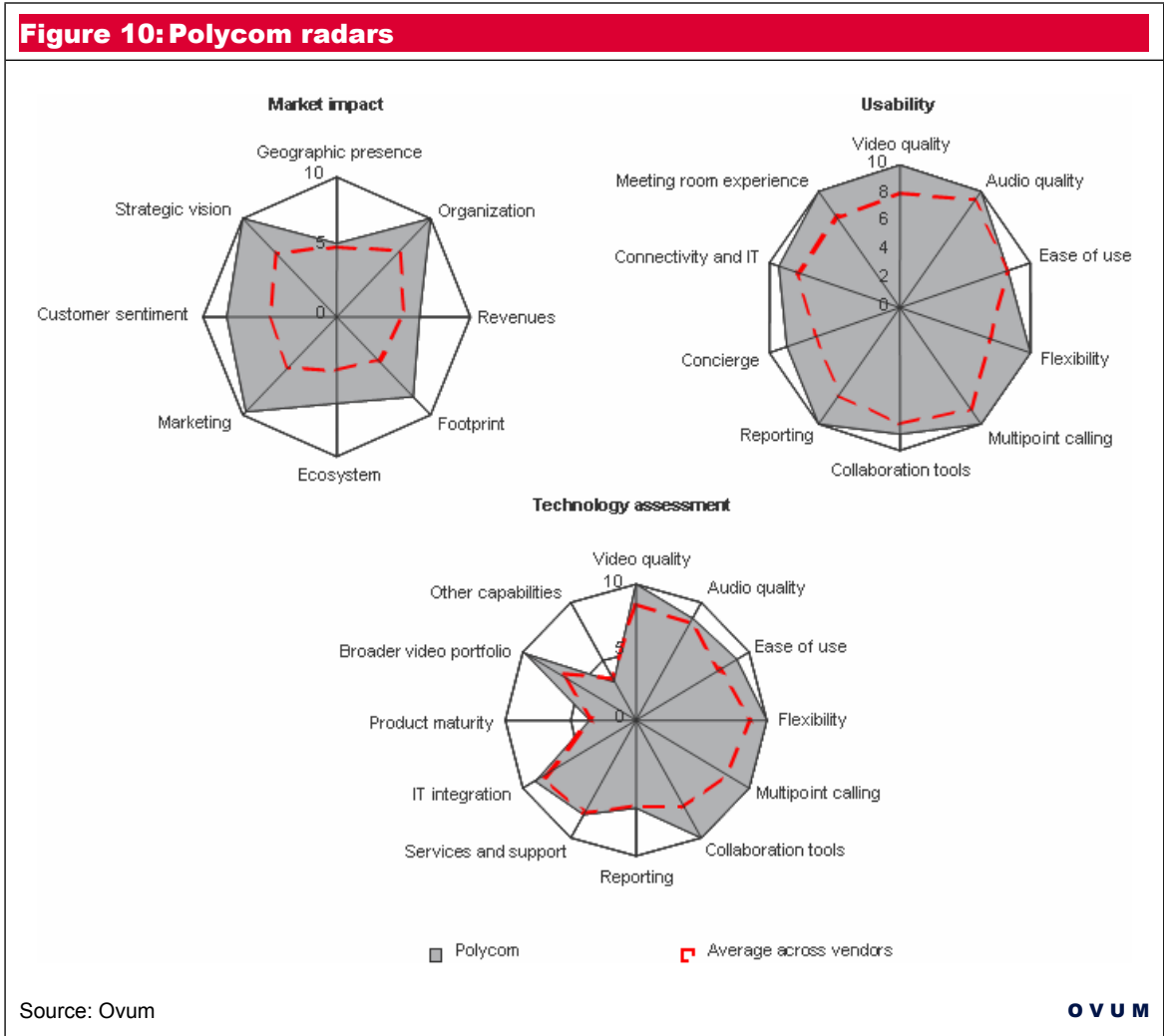
### **Technically very strong**

Technical assessment of Polycom's RPX shows the product to be a comprehensive all-rounder with strong scores across the board. Polycom rated the highest for video, collaboration capabilities, multipoint calling, audio, flexibility, and ease of use.

A large part of the appeal of the RPX to businesses is its flexibility. Polycom offers seven models that vary in the number of screens and seats, meaning businesses can choose the room they require according to the number of meeting participants, space, and cost. Some of Polycom's rooms are also usable as general meeting rooms, meaning the space can be utilized even when video is not required.

### ***Polycom recommendation: Shortlist***

Polycom also excels with the quality of its video. One key reason for this is that Polycom is the only vendor reviewed that locates cameras between the screens, which results in the best eye-to-eye contact because the cameras are closest to the eye-level of meeting participants. The gap between the screens is also very small, giving an almost continuous view of participants. Collaboration is another forte for Polycom: the RPX benefits from having retractable collaboration screens in the desk in front of meeting participants, which can be less distracting for some employees than looking at a separate collaboration screen above or below the video wall, and encourages better continued eye contact.



Additionally, audio quality in reality exceeded the on-paper specs, particularly with regards to the implementation of spatial audio.

There are very few technical weaknesses in the RPX: one is the visually cluttered layout of large multipoint calls. However, these issues can either be resolved live by the concierge, or by predefining screen layouts. Polycom also has exacting design and installation requirements to ensure its product is properly installed. These may appear burdensome to some businesses, but will ensure the best performance.



## **Polycom leads by a distance on usability**

The RPX offering led the pack in Ovum's user experience ratings. The solution provides a comfortable meeting room environment where participants can focus on the meeting and the other participants and not be concerned about the technology, an experience paramount for exploiting the potential of telepresence.

Polycom's experience in providing a broad range of high-quality video and audio endpoints shines through in the RPX, its flagship product. In our tests, conducted from multiple positions in each telepresence room, Polycom offered the best eye-to-eye contact of any of the six offerings. Perfect eye-to-eye vision is impossible in video meetings, but Polycom provides the best experience by locating the cameras between the screens, rather than above them like the other vendors. Polycom also benefits from having an extremely small gap between the screens, meaning that if individuals move while in the meeting, they only marginally and briefly disappear from view.

The vendor also offers the capability for the concierge to view the meeting through a webcam fitted at the back of the room. This enables the concierge to see the screens as meeting participants see them, and to make any infrastructure changes required. The concierge plays a vital role in enabling effective meetings and relieving participants of workload. In our tests, the concierge was responsive, and their actions took place relatively quickly. Polycom offers both in-meeting voice and IM as channels to communicate with the concierge. The latter is a useful addition for more discreet communication that does not disturb the flow of a meeting.

Multipoint calls were easily set up and torn down and a variety of layouts used, though the layout of large, multipoint calls on-screen was cluttered for a considerable period of time. Businesses wishing to carry out large multipoint calls, particularly on different endpoints, would be well advised to contact their concierge before the meeting to discuss the required layout.

Audio quality excelled in our usability tests, with clear audio throughout, even for difficult sounds (such as v, ch, th, and f), when two participants spoke at once, and when a participant spoke loudly or quietly. Audio was heard according to the location in the room of the speaker, otherwise known as spatial audio, which aids concentration of meeting participants. Polycom has also implemented an algorithm that cuts out flat noise such as that made by air-conditioning units, further improving the clarity of the audio. A remote audio participant was added successfully with clear audio, though the concierge was required to effect the extra connection.

Polycom also scored well on collaboration tools, benefiting from on-desk collaboration screens and the option of a delegate-facing lectern and a back-of-room camera that enables the delivery of

broadcast-style telepresence meetings. This application can be expected to be well-used for remote learning or CEO broadcast scenarios.

There are no major downsides to the usability of the RPX. Existing systems use a Crestron tablet, which is looking dated. Current releases are shipping with an Android tablet.

### **Polycom's HP Halo showed signs of early innovation but subsequent lack of investment**

In July, 2011, Polycom completed the acquisition of HP's video conferencing portfolio, including the VCS, and in so doing took over all VCS engineering and development. Polycom said it will continue to support both RPX and Halo customers, including concierge/managed services and the HVEN overlay network, and that HP will operate as an exclusive reseller of Polycom video conferencing offerings.

HP's telepresence offering was a technical leader when it was launched in 2005. Working on the assumption that businesses would require the highest standards of immersive video backed by a dedicated overlay video network and 24/7 support in order to carry out their meetings, HP brought in tier-1 room design and video consultants to create the HP Halo Studio. This assumption was ambitious – if not far from reality for some MNCs – and HP's subsequent loss of interest in supporting Halo's evolution through continued R&D and marketing spend is noticeable.

Polycom faces the challenge of maximizing its investment in HP while continuing to support HP's customers in terms of kit, network, and managed services. HP's customers will not get a further release of VCS, and will have to make a critical decision as to which vendor to move forward with for future product investment.

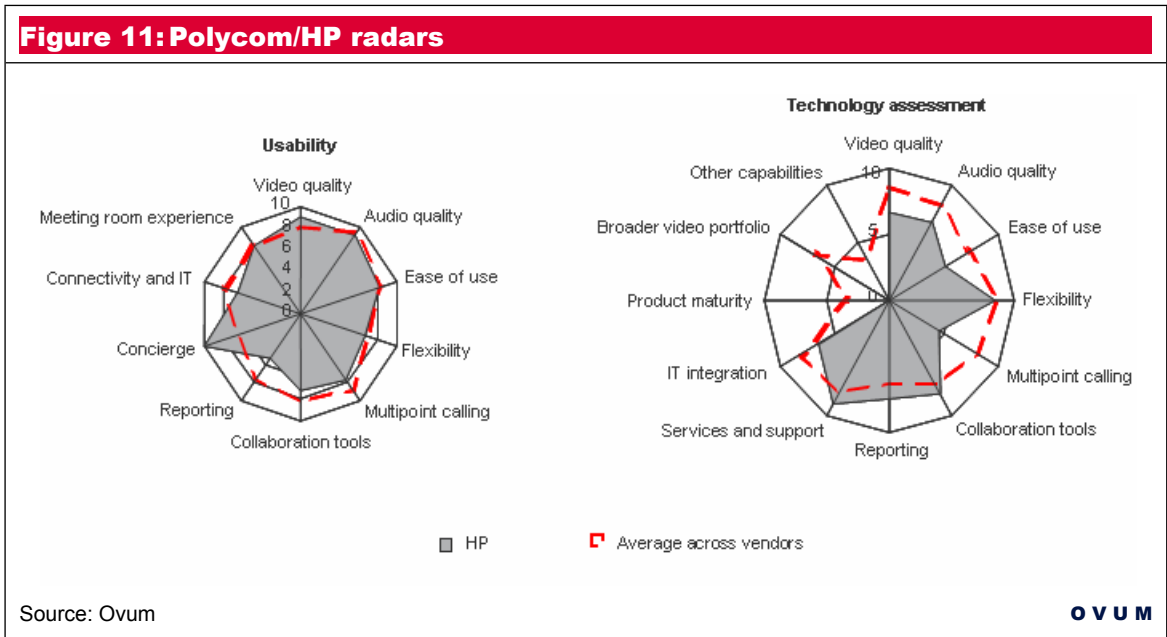
Currently, the VCS does offer clear technology benefits. The presence of HVEN, the dedicated network that supports VCS, means that video and audio rarely suffer glitches. It also provides a reliable means of connectivity for B2B calls. But as well as being a strength, HVEN is also a weakness. While an overlay network improves uptime, latency, and packet loss, it also means that the VCS is isolated from the corporate network, and does not feature integration with corporate applications or other endpoints.

HP offered its own VNOC and concierge. This will be, for the time being, continued by Polycom, increasing the level of manageability for businesses that do not wish to manage their own video deployments. VCS also offers a webcasting feature that enables, for example, C-level executives to deliver presentations to all their employees live from the Halo suite.

However, VCS has shown a lack of innovation since its early days. HP did discuss with Ovum plans for a next-generation product, which would have been available during 2012. That product has since been cancelled by Polycom, although some of the proposed features may find their way into the next version of the RPX.

Halo also suffers from an inability to support multipoint calls. HP is limited to four sites because there is no mechanism to support multiple sites on one screen.

In terms of video characteristics, Halo ships rooms with 50-inch screens. These give the impression of smaller-than-life images and natively employ a 480 line resolution at 30 frames per second, notably lower quality than peers that offer 1080p30.



Ovum believes that new customers will not be offered the VCS. Polycom has invited conversations with existing VCS customers regarding migrating to other Polycom offerings. For customers sticking with the VCS for now, Polycom has said that contractual terms will not change. Polycom will start offering these customers interoperability with Polycom video and UC endpoints in stages. However, interoperability will not be easy due to HP's proprietary codecs.

## VCS's immersive strengths create a platform for effective meetings

HP invested considerably in the meeting room environment (albeit several years ago) to provide an enclosed yet comfortable setting where attention is likely to be 100% focused on the video wall.

The support from its concierge services has the capability to provide a significant unique selling point, and the fact that connectivity is provided over an overlay network should guarantee video quality and ensure simplicity.

The immersive nature of the solution and the overlay network are arguably VCS's biggest strengths, though it performs solidly across all segments. VCS achieves a good video score with very few visual glitches, though it did lose video marks in some areas:

- eye contact
- the gap between screens in the video wall
- some headlessness if meeting participants move
- the fact that meeting participants were shown marginally larger on some screens
- slight limitations in the capability of voice-activated switching.

Relative to other vendors, audio scores slightly less well: it is a bit muffled at times and is not perfect when meeting participants speak loudly or quietly.

One of its major weaknesses is the fact that not more than four sites can be connected to a call, which could be a major hindrance for global corporations. As well as being a strength, the overlay network will be a weakness for some businesses because of the cost and the lack of integration with the rest of the corporate network. Before the sale to Polycom was finalized, HP had planned to address this by allowing Halo to run over shared networks. We expect this capability to be enabled in due course.

Ovum also noticed that the location of the second row of seats (which are optional) is such that meeting participants in the second row cannot always be clearly seen. This could be an issue for capacity meetings where second-row participants need to be visible.

## Teliris

Teliris is a niche specialist in telepresence that punches above its weight. It has a long history in video conferencing, and strong products, but has not grown at the same pace as the rest of the market. Nevertheless, Teliris's offering is technically strong and receives the second-highest user





experience rating. Its VirtuaLive is a high-quality video and audio experience with few glitches, and Teliris complements this with a concierge and managed video services that will appeal to many businesses by bringing potentially greater visibility and management of the video network and endpoints, as well as comprehensive usage reports.

### **Teliris offers the potential for a strong technical experience**

Teliris offers strong video and audio capabilities that can be run over non-class of service networks. It is also strong on interoperability with legacy devices, supporting communication with H.323, H.320, and SIP devices through its gateway, for example.

Teliris also scores highly for collaboration: it offers a third-party conferencing and collaboration tool called Fuzebox Meeting that can connect users on PCs and mobile devices into the telepresence conference. This works by connecting a PC running Fuzebox Meeting to the VGA cable in the VirtuaLive telepresence suite. Participants will then be able to see PC and mobile users on the collaboration screen, and remote users will be able to view the other meeting participants through their client software. Fuzebox Meeting allows the annotation of documents, meaning telepresence participants in separate locations can work in the same session on the same document, and also enables the recording of telepresence sessions.

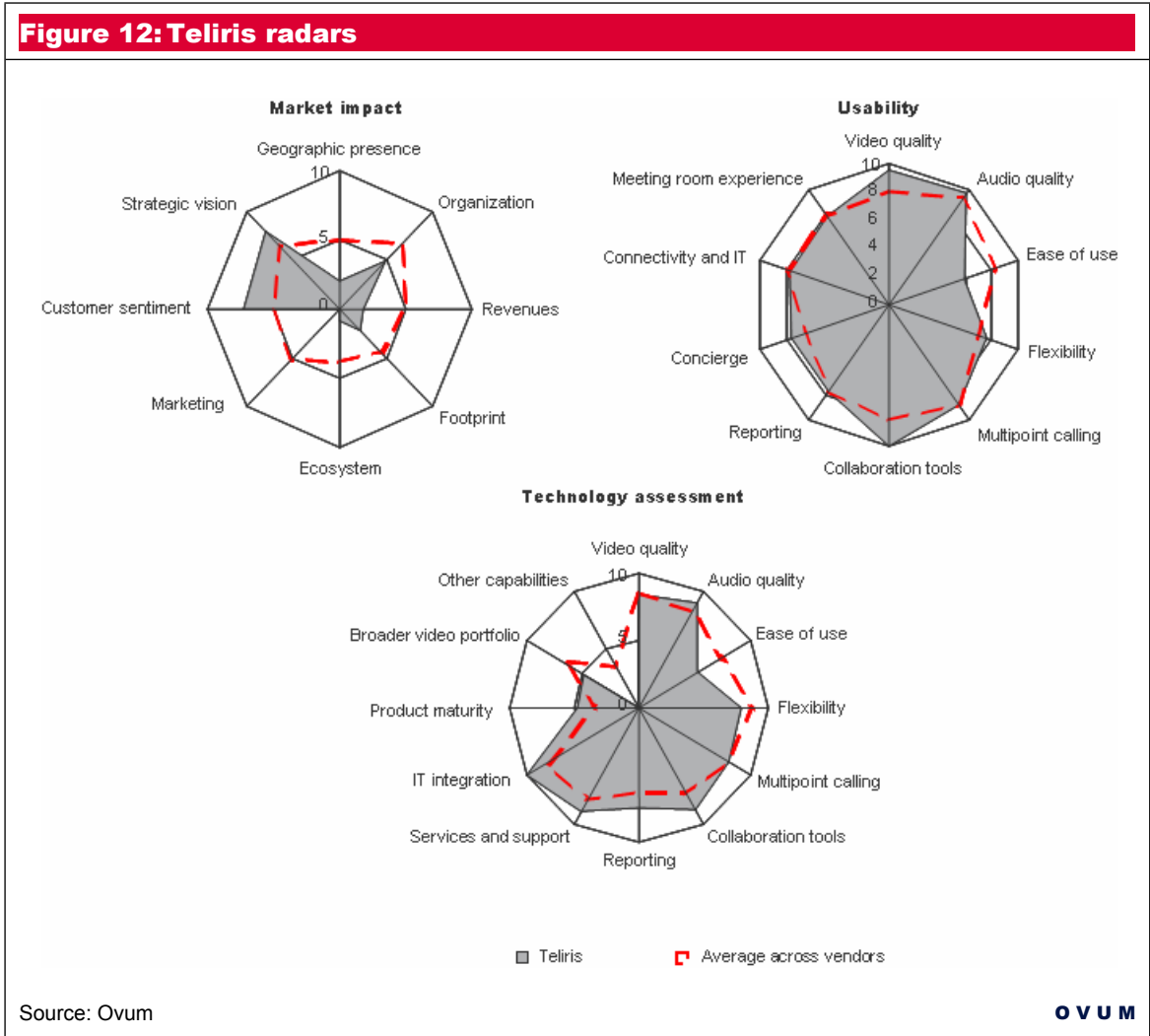
Aside from the document camera, which is standard to most telepresence suites, Teliris can also handle streaming video through an in-room DVD player, and is developing an application, Easel, that allows participants to display electronic post-it notes on the wall using an in-room projector. These post-it notes are likely to be useful for meeting participants who are required to remember key points of information over a period of time during a meeting.

In terms of services, Teliris runs its own video network operations center (VNOC) and managed services, giving it greater control and visibility of businesses' video networks and endpoints. Teliris argues that VirtuaLive will run well over networks with no class of service, which could be an advantage for emerging market locations. However, for emerging markets, enterprises must ensure they receive the level of support they need: Teliris possesses just two office locations and limited language support, and has a limited partner ecosystem. Some of Teliris's customers have decided to purchase additionally from a managed services provider to supplement the vendor's own support services.

### ***Teliris recommendation: Consider***

Teliris also offers interoperability with legacy devices through multiple protocol support, which is sorely missing from some competing offerings. Its collaboration tools are broader than many of its

rivals, and include a document camera, streaming DVD capability, Easel (in development), and integration with Fuzebox Meeting software that can connect remote PC and mobile users to the telepresence conference.



There are some technical limitations. Teliris does not offer call recording or streaming, and there is a gap between the screens that means participants disappear briefly if they move or gesture horizontally. In our trials of the product, the collaboration screen was located to the side of the video wall, which is unnatural and results in a loss of eye contact with participants, though Teliris



does allow it to be repositioned. So far, ad hoc calling has not been possible, but this feature has been introduced in Teliris's latest platform release. If these weaknesses do not cause a hindrance, Teliris's strengths may make it a worthy investment.

### **Teliris provides a strong user experience**

Ovum's user experience tests show that Teliris provides excellent video and audio quality. Video quality is clear and rarely suffers glitches, while participants' movements are smooth and eye contact is strong in the central seats (though less strong at the periphery). The system performs less well if participants move around the room or gesture horizontally: they tend to disappear briefly between screens. We would expect this to be only a minor issue, dependent on whether the business in question requires mobility of participants around the meeting room.

Audio quality during the difficult sounds test was outstanding, and there was little audio loss throughout the trial. The only slight downside in terms of audio capability was that the system did not appear to adjust to two people talking over each other, a feature that we did note in some of the other systems.

The length of Teliris's expertise in telepresence also shines through in its broad range of collaboration tools, from document camera to Easel to its integration with Fuze Meeting. Though Easel is not yet in general release, we have included it in Teliris's usability score as a promising trial accessory, and believe it is a useful differentiator: it is not an application that any of the other vendors demonstrated.

Another key strength of Teliris is its concierge and the visibility of the customer network and endpoints, though in our tests the concierge was relatively slow to act. Teliris is also fairly flexible in its design approach, and will customize its telepresence rooms on request. It also offers a range of options to set up a call: Outlook, customer portal, and concierge. Customers on its latest platform can launch ad hoc calls, a major attribute that was previously missing.

Teliris also demonstrated to us comprehensive reporting from its VNOC that provides customers with in-depth information on usage metrics.

In terms of weaknesses, the collaboration screen was located to the side of the video wall, which we find unnatural because it causes a continued loss of eye contact.

For the other segments, Teliris performs in line with its peers. The vendor is keen to stress that its demonstration ran "over the Internet", though clearly that statement requires rather more parameters to be of use. We would urge businesses to ensure quality of service is in place for a telepresence implementation, regardless of vendor.

## ZTE

ZTE is a dark horse for non-Chinese enterprises. Its credentials in supplying high-quality telecoms equipment for operators are clear, but it has yet to make a large investment in supporting enterprise telepresence.

### **ZTE has the raw ingredients but is a step behind Huawei**

There are a number of reasons to be optimistic about ZTE's future. It is investing heavily in R&D, and judging by its product's technical attributes some of that expenditure has clearly been allocated to telepresence. The TPS300 offers 1080p60 video (ZTE is the only vendor besides Huawei to do so), and it has strong support for standards with broad sampling of audio. Also, like Huawei and Polycom, it offers collaboration screens on the desk. However, it lacks some of the extras that businesses might expect from a mature telepresence offering.

ZTE therefore scores reasonably highly for video capabilities, though the score is tempered by the fact that the system uses just one camera. It scores highly for audio, and samples a broad spectral range. It can also cater for a range of meeting sizes, with the larger room accommodating 27 participants stacked into three rows. For large meetings with a defined hierarchy among participants, this layout could work well.

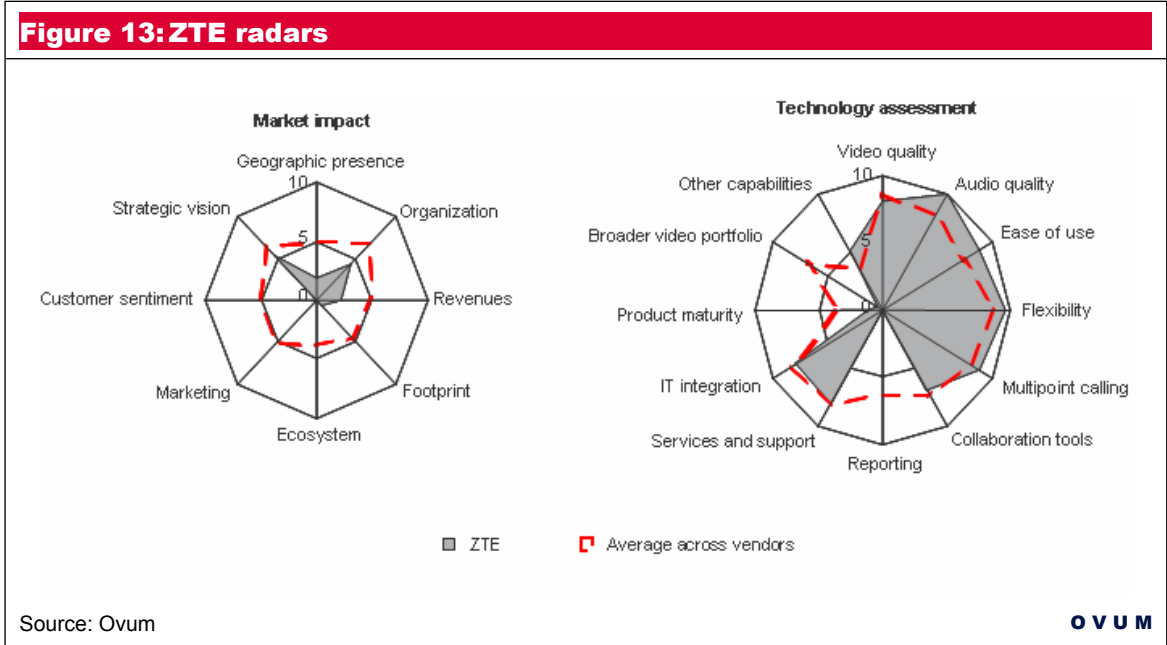
ZTE's telepresence product also offers H.323 and SIP interoperability, which will assist businesses with legacy video conferencing infrastructure and UC equipment that they wish to integrate with their telepresence rooms.

As would be expected in a young product, some capabilities have yet to be developed, in particular integration with enterprise software and in-depth reporting. Scheduling through Outlook and extensive reporting, for example, will have to wait for future releases. It also does not offer a broader video portfolio. The TPS300 also has only one camera, and each codec requires a hefty 8Mbit/s at its maximum, more than any other vendor. Finally, language support is limited: only English and Chinese are supported in the user interface, which will limit its attractiveness in Latin America and parts of Europe where English is not widely spoken.

### ***ZTE recommendation: Explore***

The vendor declined to answer our market impact survey, nor would it provide customer references. However, from the technical information it did provide to us, the product shows

promise. How seriously the company takes telepresence, and how thoroughly it can build global presence and support will be critical to the success of its product.



## Other players to watch

Though it is necessary in any product evaluation to define a finite market, Ovum notes the wide disparity of related video conferencing products. Sometimes there is little difference in the marketing and positioning of high-end room-based offerings and some low-end telepresence offerings, despite the varying degrees of immersive technology. There are also codec-only offerings, which leave businesses to supply their own screens, and potentially leave the business or a channel partner to do some integration work. We consider three such offerings below. The attractiveness of the codec-only approach is primarily cost, but design is also a factor. By taking only the codecs and minimal hardware from these players or from the telepresence vendors above, businesses can create bespoke immersive video rooms to their exact requirements, in some cases permitting additional choices that may not be available with full immersive offerings.

News Corporation is a great example of a multinational business that has installed immersive (RPX) rooms from Polycom as well as its own bespoke immersive rooms built around Polycom's standalone codecs. In doing so it has created the meeting room experience it required at relatively low cost. However, businesses should be confident of their own in-depth understanding of video before undertaking this do-it-yourself approach, as technical engineering is required. If skills are

not available in-house, enterprises should seek appropriate design, installation, and maintenance support from the vendor or a skilled third party such as an audio-visual reseller or integrator.

### Magor Communications

<b>Table 2: Magor Communications details</b>	
Product name	HDWorkPlace
Immersive video	No
Location of product	Desktop, room
Number of screens	Up to three
New to market	Yes (2010)
Source: Ovum	

Magor is a sister company to unified communications vendor Mitel, and is owned by serial telecoms investor Terry Matthews. It launched its products commercially in 2010, and currently has a low level of market impact. However, it has some compelling technical features, which we explore briefly below.

Magor is one of a growing number of video conferencing vendors that do not manufacture every element of a room-based video conferencing offering. Instead it provides software-based codecs that run on standard web servers, plus audio hardware, and its offering can be used with any third-party screen. This makes its solution highly adaptable and allows businesses to use their existing screens, in which some businesses have considerable investment.

Magor is unusual for an enterprise vendor in that its systems work on a peer-to-peer basis, with no MCU (multipoint control unit, or bridge), which could reduce capital expense. On the downside, multiple video streams are required for each endpoint, increasing the bandwidth, and it is also complicated to establish a multipoint call without first establishing a point-to-point call. Accordingly, HDWorkPlace is best suited to ad hoc calls; scheduling meetings is burdensome.

HDWorkPlace is moderate in terms of ease-of-use. The click-to-call graphical interface and telephone-based interface are simple. The product offers a compelling feature where participants can manually move images of the other participants, and screen-shares, around their screens (including window-in-window) as best suits them. Another handy feature is that the laptop being shared does not need to be in same room as the endpoint.



Despite the negative bandwidth impact of its peer-to-peer architecture, there are significant bandwidth benefits. Image size can be manually shrunk to reduce the quantity of data sent, though bandwidth reduction techniques are automated too. Nine codecs based on Scalable Video Coding are used per screen. This means the video stream can be segmented into layers, which also means that if no changes occur in a segment, no data is sent. Furthermore, transmission of traffic between each segment of the screen can be staggered.

In terms of collaboration, screen-sharing is basic and not as interactive as other products. A whiteboarding facility is planned for release in August 2011. Also, multiple PC screens can be shared at once.

A demonstration of the technology to Ovum showed a high degree of video and audio quality, albeit with two separate moderate glitches, one audio and one visual. Screen-sharing setup was not smooth.

The company is developing a mobile client interface, but this is in its infancy. As might be expected, interoperability with Mitel unified communications equipment has been completed.

Based on the benefits outlined, we expect Magor to make substantial progress in the market from its current small base. This will be most likely in mid-size businesses with existing video conferencing endpoint investment and moderate levels of usage, and among the Mitel customer base.

## Radvision

<b>Table 3: Radvision details</b>	
Product name	Scopia XT Telepresence
Immersive video	Not as sold, but yes with partner customization
Location of product	Room
Number of screens	Typically three
New to market	No (company established 1992)
Source: Ovum	

Radvision sells a range of video conferencing equipment and software, enabling employees to connect to conferences through room, PC or mobile endpoints. At the top end, its SCOPIA XT Telepresence platform consists simply of three codecs, cameras, microphones, and endpoint software.

With SCOPIA XT Telepresence, Radvision’s strategy is two-fold: one, to enable businesses to utilize their existing investment in conferencing screens and two, to enable its channel partners (typically audio-visual resellers) to build on its offering with their choice of screens and room furniture/design to create immersive environments for businesses. This approach gives resellers considerable scope for innovation.

Radvision is not a large company, but it has leveraged channel partners such as Orange Business Services and IBM to deliver large-scale deals. Organizations should seek the right channel partner for the particular levels of customization, implementation, type, and geographic reach of support that they require.

On the technical side, Radvision contains a number of video strengths that mean that its customers’ video traffic should perform well over poor quality connections. Its implementation of Scalable Video Coding (SVC, an ITU standard) enables it to break video traffic into bitstreams of different frame rates and resolutions, meaning that over poor connections it can still provide a basic but reliable video transmission. The product also permits bandwidth to be changed dynamically according to network conditions.

Radvision has a substantial background in H.323 protocol stacks, and has leveraged this background to provide interoperability through its MCU with other telepresence and non-telepresence endpoints. It also provides a gateway to connect Microsoft Lync with video endpoints.



Radvision supports the attractive filmstrip display of sites for multipoint meetings where the number of sites exceeds the number of screens.

It also facilitates control of meetings through an iPad application, increasing ease-of-use, and permits the annotation of documents in telepresence meetings through its PC client software.

## Vidyo

<b>Table 4: Vidyo details</b>	
Product name	Vidyo Panorama
Immersive video	No, but can be customized
Location of product	Room
Number of screens	Up to nine, with plans for up to 20
New to market	No (company founded 2005)
Source: Ovum	

US-headquartered Vidyo is a smaller vendor making quite a splash in corporate video with a growing collection of success stories. Its high-end Vidyo Panorama offering, released in mid-2011, provides the codec, router, and endpoint software for HD video calls, but not the cameras or screens. This means its offering is low-cost yet provides high-spec 1080p60 video.

Because customers are not forced to buy conferencing screens, they are able to utilize their existing investments, as long as those screens are large enough, of high enough resolution, and of uniform size. In addition, Vidyo works with a number of channel partners to provide customized implementations of its offerings with screens and cameras included. Alternatively, Vidyo allows businesses to design their own immersive rooms using its kit as a basis, with their choice of screen configuration, furniture, and room layout.

One of Vidyo's unique strengths is that it allows the use of nine screens per site, most likely in a 3x3 layout. This caters for businesses wishing to make large multipoint calls where participants are always visible. It plans to increase maximum capacity to 20 screens in a future release. Nine screens would consume considerable bandwidth at 1080p60, so Vidyo offers the option for businesses to use a lower resolution or frame rate where required, for example with lower-ranking employees and/or desktop participants. Vidyo also permits one-way data sharing from multiple PCs and allows control of the meeting through an intuitive tablet interface.



The router provides the intelligence behind the system, monitors video performance, and acts as a replacement for an MCU. It includes an implementation of Scalable Video Coding (SVC) that Vidyo calls Adaptive Video Layering, which means a low-bandwidth but reliable bitstream is sent in the case of poor quality network conditions. Because of this, and the fact Vidyo is a small company, Vidyo Panorama is likely to appeal mostly to small to mid-sized businesses that may not run class of service-enabled video networks.

Vidyo offers the capability to connect PC-based and mobile workers in the same conference. The company has also acted as OEM and supplied codecs for Teliris and the former HP Visual Collaboration Suite.

## APPENDIX

### Methodology

#### Market impact

The market impact rating measures a vendor's ability to support telepresence customers. The rating is determined by analyzing information from a variety of sources, including one-on-one dialog with the vendor concerned and a questionnaire circulated to all vendors; vendor financial statements, press releases, and presentations; analyst events and conferences; material stored by Ovum; customer interviews and questionnaires; and the Internet in general. The market impact rating comprises the following eight segments. For each segment, the vendor with the highest score is awarded 10/10, with all other vendors awarded scores in proportion. For example, if vendor x obtains the highest score in a segment of 500, it is awarded a score of 10 for that segment. If vendor y scores 400 in a segment, it is awarded eight. If vendor z scores 250, it is awarded five. Each segment score is then weighted by the figure in brackets to give the overall market impact rating.

- Geographic presence and support (30)
- Organization (support, company and product maturity, company structure, number of employees, R&D operation) (105)
- Revenues (present and historical company and telepresence revenue) (50)
- Footprint (installed base: size, geographic coverage, and vertical reach; pace of sales) (130)
- Ecosystem (partners, including telecoms operators, systems integrators, and distribution partners; suppliers) (100)
- Marketing (marketing strategy, unique selling points) (70)
- Customer sentiment (from customer interviews and email questionnaires and from case studies) (100)
- Strategic vision and roadmap (innovation, vision, and strategy) (75)

## Technology assessment

The technology assessment is an on-paper assessment of the technical capabilities and features of each product. Practical usage of the product is covered by usability. Because technology assessment and usability are quite similar – one is theory and the other practice – the segments are similar. The technology assessment rating is achieved by analyzing information and data from a wide variety of sources, including one-on-one dialog with the vendor concerned (comprising a questionnaire, vendor datasheet(s), and other product literature including customer support documents); analyst briefing materials, and press releases. The technology assessment rating comprises the following 12 segments. The same weighting and scoring methodology as market impact is applied.

- Video quality (factors include the number, size and aspects of video wall and collaboration screens; number of people shown per screen; resolution and frame rate; cameras; protocol support; and video technology) (100)
- Audio quality (microphones, speakers, spectral range, protocol support) (80)
- Ease of use (call scheduling/setup, user interface, language support, recording and streaming) (65)
- Flexibility of room layout (35)
- Multipoint calling (including methods of displaying multiple sites) (50)
- Collaboration tools (collaboration screens, devices and capabilities) (75)
- Reporting tools and software integration (20)
- Services and support (design; implementation; maintenance; endpoint monitoring, concierge and adoption services; service level agreements; and guarantees) (50)
- Integration with enterprise IT (connectivity, interworking, B2B exchange capability, facilities requirements, bandwidth, and security) (105)
- Product maturity (enhancements made to the product since launch) (50)
- Broader video conferencing portfolio (other telepresence, room-based, executive desktop, PC, and mobile offerings by the same vendor) (50)
- Other capabilities unique to the vendor that are not covered by the above (50).

## User experience

User experience measures how effective the product is in practice in enabling businesses to hold efficient and effective video meetings. Ovum assessed user experience in 10 segments, as detailed below, using an in-depth series of tests in-person in the telepresence rooms of six vendors, lasting up to two hours per vendor. The same weighting and scoring methodology as market impact is applied.

- Video (visual glitches, jerkiness of movement, loss of video, gaps in video coverage, eye contact) (100)
- Audio (lip sync, audio clarity, loss of audio, loud and quiet conferences, two people speaking at once) (100)
- Ease of use (ease of establishing a conference, ease of extending a conference, call recording) (55)
- Flexibility and customization (how well in reality different customer needs can be provided for) (40)
- Multipoint calling (ease of multipoint conference setup and termination, presentation of multiple sites on-screen, voice-activated switching, ease and effectiveness of inclusion of remote audio participants, ease and effectiveness of inclusion of remote PC-based participants) (50)
- Collaboration tools (tests of all collaboration tools present, including document camera, with a focus on ease of use and effectiveness; also included in this category is ease of reference to collaboration screens) (75)
- Usage and network reporting (30)
- Concierge effectiveness (30)
- Connectivity and IT (provision for LAN ports and telephones, housing of comms equipment, bandwidth) (35)
- Meeting room experience (analyst assessment of soft factors that improve the video conferencing experience) (60).

## Score summary

Table 5 summarizes all vendor scores in the telepresence Decision Matrix.

**Table 5: Telepresence Decision Matrix: vendor scores summary**

Vendor	Technology assessment	Market impact	User experience	
Cisco CTS		8.6	9.9	8.4
Cisco T3		8.2	6.7	8.3
Huawei		7.4	4.0	-
Lifesize		4.6	3.5	5.6
Polycom		8.1	7.9	9.5
Polycom/HP		6.0	3.9	7.7
Teliris		7.0	3.4	8.2
ZTE		6.2	1.8	-
Average		7.0	5.1	7.9

Source: Ovum OVUM

## Further reading

*Enterprise Business Video Forecast: 2011-2016 (OT00081-002)*

*The Future of Video Conferencing (OT00084-005)*

## Definitions

Ovum defines telepresence, alternatively called immersive video, as rooms that are designed specifically for video conferencing. They typically feature a bespoke design, with screens that permit life-sized images of meeting participants, spatial audio, and bespoke meeting room lighting and soundproofing. Ovum's definition of telepresence excludes rooms that are normally used for non-video conferencing purposes, and it excludes rooms that simply contain a video conferencing screen(s) and no additional design.

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Decision Matrix: Selecting a Telepresence Vendor (OT00082-001)

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