Panasonic CONNECT

Adoption of advanced wireless technologies

Foreword

In the 126 years since the first wireless transmission was made in 1897, wireless communications have become intrinsic to every aspect of how we live and work. Wireless technology changed the world – and continues to do so.

The wireless industry is characterized by rapid innovation and constant evolution as experts develop new ways to facilitate communication, collaboration, and ever-faster data delivery.

The advent of 5G, the evolution of WiFi, and the innovation around Bluetooth low energy and Long Range Wide Area Networks are all driving the connected world in ways that would have been hard to imagine for those wireless pioneers. For business leaders responsible for making decisions on technology investment, this constant pace of change presents enormous opportunities, but also challenges.

Communication leaders see investment in a wider range of wireless network technologies as a route to productivity; they expect to see an **average 32% boost in productivity** in the three years after implementation.

There is also evidence that this is a crucial period in wireless technology decision-making and adoption, with the majority of organizations in the consideration or planning stage.

However, it's not all plain sailing as our research shows that decision-makers see several barriers to progress. These typically arise from a lack of confidence about the different technologies on offer, and centre around confusion over standards and concerns about future-proofing investment.

As Panasonic's business-to-business solutions arm, we want to help the business leaders we work with every day understand the dominant drivers for wireless technology investment, the key technologies and their applications, and how to overcome barriers. Our expertise in wireless connectivity, its application, and implementation, is at the disposal of all our customers and the wider industry.

We combine advanced hardware and intelligent software solutions with our business consulting and process optimization skills, based on our wealth of experience in technology and manufacturing accumulated over our 100-year history. We are committed to taking the uncertainty out of wireless technology investment, unlocking new value to ensure businesses achieve fast ROI and realize their objectives successfully. If you are undertaking a wireless technology project, I hope you find this research valuable. Please do not hesitate to get in touch if the challenges and concerns identified here resonate with your experience.

Jan Kaempfer,

Marketing Director at Panasonic Connect Europe

Research details

Panasonic Connect Europe commissioned independent research into the adoption of advanced wireless technologies across a range of markets. The research explores the appetite for different wireless technology adoption, expected applications and benefits, the maturity of rollout projects, any barriers to adoption and general viewpoints about each technology.

The research was conducted among 306 participants total X 50 per industry sector equally split across UK/France/German x senior decision makers (Middle Management +) responsible for wireless & network technologies in their organisations working in companies with an annual turnover of 50 million+ Euros.

Sectors

Education

Location-based entertainment (e.g., venues, museums, etc.)

Logistics & Supply Chain

Manufacturing

Retail

Public sector

Targeting these job titles

1. Director / Head of Engineering
2. IT Manager
3. Project Manager IT
4. Director of Technology
5. Head of Innovation
6. Chief Product Officer (CPO)
7. Facilities Manager
8. Telecommunications Manager
9. Operations / Production Manager.

The five wireless technologies featured

5G

Access to 5G private campus networks

A private 5G network provides dedicated, optimized, and secure communication within a specific area. It combines the power of 5G with the flexibility and security of private networks, opening up possibilities for industries, businesses, and individuals.

5G

Access to 5G public networks (for on-site operations)

5G public networks, owned and operated by telecom companies, provide high-speed internet for consumers and businesses, supporting voice calls, messaging, video streaming, and browsing. Offering higher data speeds and lower latency, they're ideal for augmented and virtual reality applications.

LoRa

LoRaWAN (Long Range Wide Area Network)

LoRaWAN, a low-power wide-area networking protocol, manages communication between IoT devices and network gateways, connecting devices to the internet wirelessly. It supports bi-directional communication and end-to-end security. With long range, low power, high capacity, and low-cost hardware.

High frequency and low energy Bluetooth technologies

High frequency and low energy Bluetooth technologies are perfect for applications needing occasional data transfer over short distances with minimal power. Ideal for microcontrollers, sensors, and actuators monitoring environmental conditions. Bluetooth low energy uses 40 channels, has short wake-up times, is mobile device compatible, and works well in challenging environments.

WiFi 6

WiFi 6

WiFi 6, the next-gen WiFi, significantly upgrades previous versions. It expands the WiFi band to 160MHz for faster connections and improved network resilience with multiple devices and high data volumes. Technologies like prioritization, OFDMA, and beamforming enhance speed. It boosts throughput in high-density environments like offices and residential buildings.

Executive summary at a glance

Our research shows that businesses are actively investing in a range of wireless technologies as they seek faster and more effective collaboration, greater automation of operations, and faster data communications.

They expect these benefits to translate into higher profitability, competitive advantage, and increased productivity – anticipating a 32% uplift as a result of their investment.

5G

Emergence of 5G

The emergence of 5G is transforming everything, with its ultra-fast data speeds, low latency, massive network capacity, and high reliability making wireless connectivity an option for more diverse and mission-critical use cases. Unsurprisingly, 36% of respondents say they believe 5G is the most important investment for their business in the next three years.

Interestingly, within this cohort, 5G private campus networks are more popular than public, with 21% prioritizing their rollout. This indicates that companies may be concerned about security over public 5G and feel that public 5G networks do not meet their needs in the tailored way that private networks can.

WiFi 6

WIFI 6 and other technologies

Just over one in five respondents (22%) view WiFi 6 as the most important type of technology for their company to deploy or use in the next three years. A substantial upgrade over its predecessor, it offers faster connections and improved resilience for networks with a high connected device load.

There's clear evidence of the evolution of wireless technology and an expansion of the types of technology under consideration. Five years ago, investment in WiFi was the clear priority, but now interest in Bluetooth and LoRaWAN is at a similar level, as organizations seek the right technology for their proposed applications.

Complementary use

It's important to remember that the different types of wireless technology should not necessarily be viewed as competing. 5G and WiFi 6 can be used in tandem to ensure high-speed connectivity, while Bluetooth and LoRaWAN can combine to deliver in-building and outdoor coverage for a range of IoT applications. Therefore, organizations may be pursuing multiple wireless investments simultaneously.

Rapid progress

There is undoubtedly a lot of activity in progress, as 41% of the decision-makers surveyed have already made the decision to invest in a wireless project and are in the planning process, and a further 38% are already in the implementation phase.

Barriers still to be overcome

In terms of barriers to deploying wireless network technology, just under a quarter (24%) of those surveyed said they have concerns about the IT security implications, while 22% are worried about interoperability and/or connectivity with existing IT infrastructure. One in five respondents are concerned about the manageability of the wireless network technology and the same proportion reports a lack of confidence, and a lack of internal IT people resource and skills. It appears that the wireless industry has a role to play in supporting organizations with expertise and education to instil greater confidence and plug some of the resource gaps.

Greater education required

Respondents report a degree of confusion around wireless technologies, some of which is a legacy of how wireless solutions and standards have been developed, launched, and superseded over the years. 29% said there is confusion around the standards used and the same percentage cited uncertainty on how future-proofed the technology is. 27% noted confusion over cost influencers and what the technology can support.

Clearly, there is a need for greater education and transparency within the industry to help business leaders navigate the best route to choosing and deploying wireless network technologies. Without it, businesses will struggle to make key decisions and achieve the ROI they're looking for.

Overall, the picture for wireless appears positive, with a strong appetite for innovation and advanced deployments to power the digital, connected future of life and business.
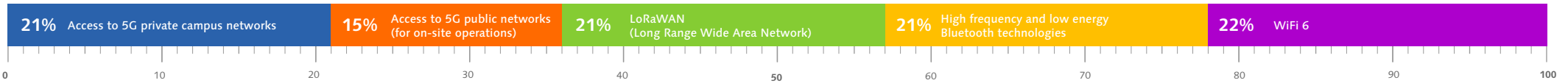
Full breakdown of findings

" **Which of the following types of wireless network technologies, if any, do you see as the most important for your company to have deployed or be using in the next 3 years?**
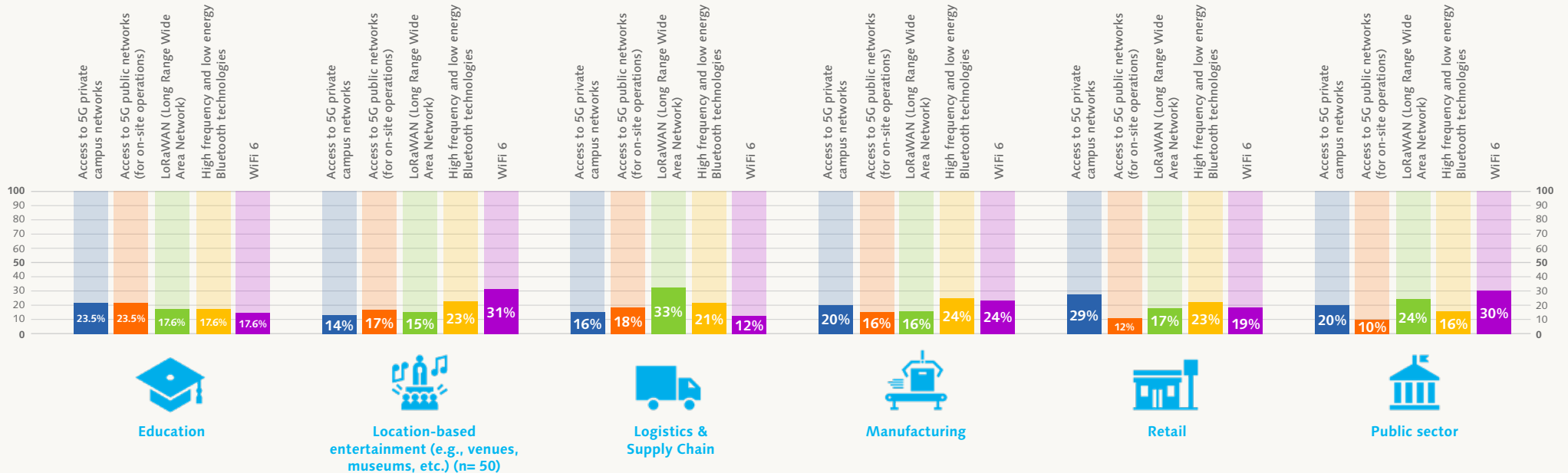
Which of the following types of wireless network technologies, if any, do you see as the most important for your company to have deployed or be using in the next 3 years?

Overall percentage from people surveyed

21% Access to 5G private campus networks	**15%** Access to 5G public networks (for on-site operations)	**21%** LoRaWAN (Long Range Wide Area Network)	**21%** High frequency and low energy Bluetooth technologies	**22%** WiFi 6

Scale: 0 — 10 — 20 — 30 — 40 — 50 — 60 — 70 — 80 — 90 — 100

Selections by sector

Sector	Access to 5G private campus networks	Access to 5G public networks (for on-site operations)	LoRaWAN (Long Range Wide Area Network)	High frequency and low energy Bluetooth technologies	WiFi 6
Education	23.5%	23.5%	17.6%	17.6%	17.6%
Location-based entertainment (e.g., venues, museums, etc.) (n= 50)	14%	17%	15%	23%	31%
Logistics & Supply Chain	16%	18%	33%	21%	12%
Manufacturing	20%	16%	16%	24%	24%
Retail	29%	12%	17%	23%	19%
Public sector	20%	10%	24%	16%	30%

9

Wireless technology choices by sector

Analysing the different sectors surveyed, their differing priorities and applications are evident in the three most common choices they made:
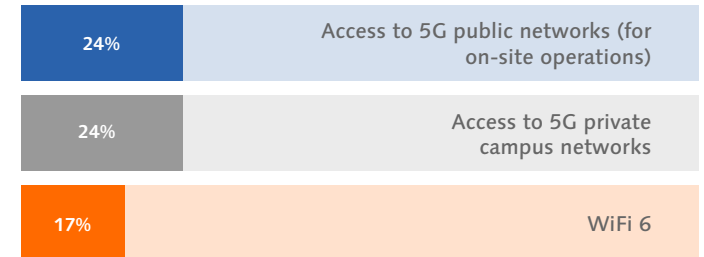
Education

5G is the dominant area of interest for respondents from the education sector, with an equal focus on deploying private 5G networks and accessing 5G public networks.

Private 5G networks offer the advantages of higher levels of security and the ability to focus bandwidth on critical academic and administrative functions

Top three wireless technologies
Education

24%	Access to 5G public networks (for on-site operations)
24%	Access to 5G private campus networks
17%	WiFi 6

Wireless technology choices by sector

Education

The security aspect of private 5G is particularly relevant for research-focused institutions such as universities, which are increasingly targeted by malicious actors seeking to exfiltrate valuable research data and intellectual property. Similarly, all educational institutions handle students' personally identifiable information, making their communications a key target for attackers.

5G – both public and private – also supports advances in teaching and learning, with high speeds necessary for virtual reality (VR), augmented reality (AR) and extended reality (XR)-supported lessons. From learning about the natural world through VR in primary schools to practising surgery techniques with instant haptic feedback in medical school, 5G offers enormous potential for experiential learning.

Beyond the practical applications of 5G, there are also high expectations from students regarding the data speeds they want to access within the learning environment. Settings supported by 5G availability will prove attractive to mobile-native students. Indeed, "better quality of engagement" is the top benefit respondents from the education sector expect to achieve with their wireless technology investment.

WiFi 6 can act as a valuable complement to 5G networks, with a lower cost to implement and scale. It provides excellent connectivity high volumes of devices such as PCs, monitors, displays, and tablets, all of which are heavily used in the educational environment.

"5G technology brings many advantages to higher education, such as: fast data transfer, low latency, improved connectivity, support for IoT devices, flexibility and mobility that is not tied to WiFi hotspots. This will not only improve future teaching methods (VR & AR or MR) for immersive learning experiences but also enhance overall communication and collaboration thanks to fast connections (VC) and ultimately increased security thanks to the advanced protection functions."

Hilmar Salac

Business Development Manager, Higher Education

Panasonic Connect Europe
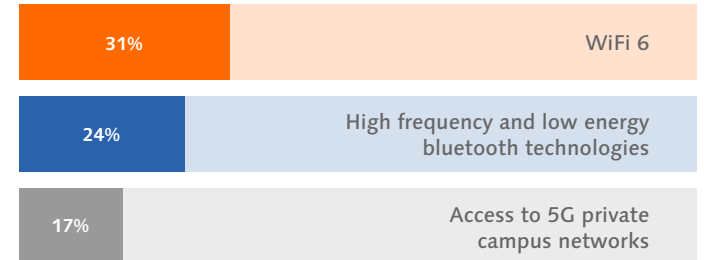
Wireless technology choices by sector

Analysing the different sectors surveyed, their differing priorities and applications are evident in the three most common choices they made:

Location-based entertainment

WiFi 6 is the technology that the majority of respondents working in location-based entertainment believe is most important for deployment and use in the next three years.

Top three wireless technologies
Location-based entertainment

31%	WiFi 6
24%	High frequency and low energy bluetooth technologies
17%	Access to 5G private campus networks

Wireless technology choices by sector

Location-based entertainment

WiFi 6 is the next generation of WiFi connectivity and is a substantial upgrade over its predecessor. It expands the WiFi band from 80MHz to 160MHz, creating faster connections and improving the resilience of networks when multiple devices are connected, and high data volumes are involved. Applications can include controlling and synchronizing multi-projector blends in a Digital Art installation or positional tracking data in a gamification applications like interactive Kart racing.

Almost a quarter of respondents from this sector mentioned high frequency and low energy Bluetooth technologies as an important focus area. These can enhance the location-based entertainment experience and deliver commercial intelligence in a variety of ways. Applications include managing visitor flow, tracking children to improve safety, and pushing context- and geolocation-driven prompts to mobile devices to drive visitor actions and revenue.

The third most popular technology for deployment is 5G private campus networks. These can be tailored for the venue-specific needs to deliver bandwidth where and when it is needed. This is desirable in locations such as sports stadiums, allowing large numbers of visitors to share videos and social media updates enhancing the visitor experience, as well as powering high volume, secure activities such as financial transactions.

"In the location-based entertainment industry we are seeing a race to innovate and provide show-stopping immersive experiences. Technologies such as AI and generative content creation are being used creatively by artists like Refik Anadol, or in stage design for concerts as used to fantastic effect in the Ed Sheeran tour. Digital twins and modelling are also coming into their own during design and testing phases in major theme parks before new attractions go live."

Thomas Vertommen

Business Development Manager LBE

Panasonic Connect Europe

Wireless technology choices by sector

Analysing the different sectors surveyed, their differing priorities and applications are evident in the three most common choices they made:

Logistics & Supply Chain

One third of respondents from the logistics and supply chain sector choose Long Range Wide Area Networks (LoRaWAN) as the most important wireless technology for deployment and use over the coming three years. The LoRaWAN protocol is based on the LoRa radio modulation method and is a low-power wide-area networking protocol. It manages communication between end-node IoT devices and network gateways and connects devices to the internet via wireless connections

Top three wireless technologies
Logistics & Supply Chain

33%	LoRaWAN
22%	High frequency and low energy Bluetooth
18%	Access to 5G public networks (for on-site operations)

Wireless technology choices by sector

Logistics & Supply Chain

LoRaWAN's advantages are long-range and coverage, low power, high capacity, and low-cost hardware (sensors). These benefits are particularly valuable in logistics and supply chain processes where high volumes of goods need to be tracked and monitored over long distances. LoRaWAN enables the optimization of supply chains and streamlining of logistics routes, inventory management, cold chain monitoring, and theft prevention. LoRaWAN can link with GPS for outdoor asset tracking and Bluetooth for indoor tracking. Public LoRaWAN networks are available across major transportation routes, and private networks can be deployed at low cost.

The second-most commonly selected wireless technology for supply chain and logistics respondents is high-frequency and low-energy Bluetooth networks, which may link with the LoRaWAN applications described above and assist in tracking shipments.

Third on the priority list among supply chain and logistics respondents is access to 5G public networks, which have various applications in the sector. These include supporting autonomous vehicles in warehouse environments and augmented reality applications to help stock pickers.

"At Panasonic we see some diversity in approaches across Europe. While some countries are prioritizing LoRaWAN, others rely heavily on 5G as a key technology. The future will show what technology will become dominant in each country or region, and we will need to address how to manage data traffic across borders. It's an exciting area to watch."

Jens-Michael Pohl

Sr Manager Technical Field Engineering
Panasonic Connect Europe
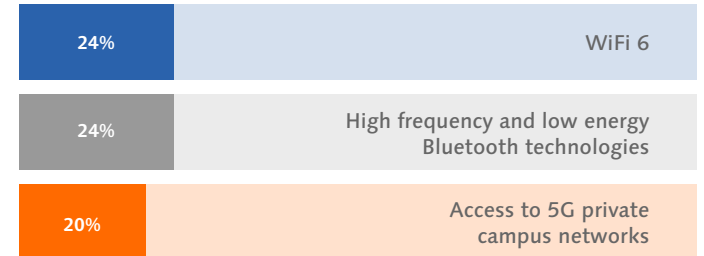
Wireless technology choices by sector

Analysing the different sectors surveyed, their differing priorities and applications are evident in the three most common choices they made:

Manufacturing

WiFi 6 and high frequency and low energy Bluetooth technologies were selected by equal proportions of respondents from the manufacturing sector. For industry 4.0 applications and as digital transformation towards autonomous manufacturing continues, WiFi 6 can power solutions helping manufacturers gather, analyse, and apply real-time data to optimize manufacturing processes, or assist remote operations on the shop floor.

Top three wireless technologies
Manufacturing

24%	WiFi 6
24%	High frequency and low energy Bluetooth technologies
20%	Access to 5G private campus networks

Manufacturing

Autonomous robots can be guided via WiFi 6 connectivity, engineers can be supported with WiFi 6-connected AR headsets so that troubleshooting, service and maintenance is more efficient, and production lines can be monitored for fast – or even autonomous – problem resolution. Similarly, in the same way as NFC/RFID, Bluetooth technologies enable monitoring and tracking of assets or moving materials in carriers across the shop floor to ensure process optimization.

5G private campus networks offer manufacturing environments similar benefits to those achieved in other sectors, including superior security and an advanced data experience for on-site personnel. They are well-suited to supporting smart factories, offering low latency, high bandwidth, resilient communications in sometimes challenging manufacturing environments.

"We are in the fortunate scenario that we have multiple state-of-the-art communication technologies available to fit the needs of each application, and we have the freedom to choose between them. Depending on power consumption; size or distance of coverage; amount of data to be transmitted and the infrastructure of our customers, we can choose the right communication methods. 5G private campus networks offer some clear benefits and are an interesting alternative to Wifi in the transformation to an autonomous factory"

Andreas Prusak

Senior Product Manager, Panasonic Factory Solutions

Panasonic Connect Europe
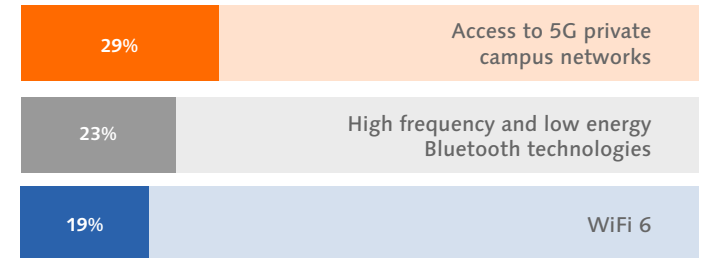
Wireless technology choices by sector

Analysing the different sectors surveyed, their differing priorities and applications are evident in the three most common choices they made:

Retail

5G private campus networks were the most commonly selected wireless technology among retail respondents. 5G technology will be widely deployed to improve in-store workflows and connectivity in large retail chains with big stores. The retail sector is under pressure to attract customers back into physical stores, and providing immersive, interactive shopping experiences is one way to do this.

Top three wireless technologies
Retail

29%	Access to 5G private campus networks
23%	High frequency and low energy Bluetooth technologies
19%	WiFi 6

Wireless technology choices by sector

Retail

Innovations such as smart mirrors offering customers an instant picture of how they'd look in clothing or makeup, and 'endless aisles' that allow shoppers to purchase items that aren't immediately available in-store all require bandwidth that 5G private networks can guarantee.

Similarly, high frequency and low energy Bluetooth technologies can be used to enhance the retail experience, powering geolocated push notifications alerting shoppers to offers and opportunities in their vicinity.

WiFi 6, important for 19% of retail respondents, delivers reliable, high-bandwidth in-building connectivity at retail venues, supporting shoppers and enabling staff to provide an enhanced, digitally supported sales experience

"Retail is very cost-driven and has experienced staffing challenges over many years. Now the deployment of new technology and new uses of existing technology (such as Bluetooth Beacon) can help improve the customer experience and boost in-store efficiency."

Jens-Michael Pohl

Sr Manager Technical Field Engineering
Panasonic Connect Europe
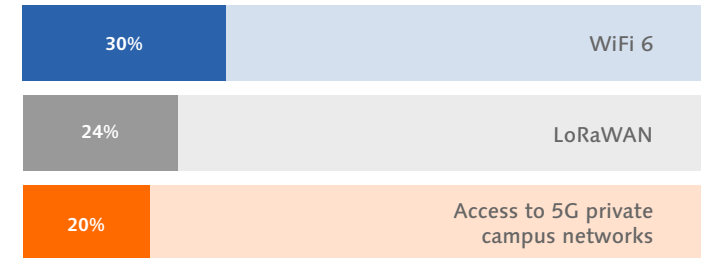
Wireless technology choices by sector

Analysing the different sectors surveyed, their differing priorities and applications are evident in the three most common choices they made:

Public Sector

WiFi 6 headed the list of wireless technologies respondents in public sector organizations see as most important in the coming three years. WiFi 6 delivers faster connections and greater network resilience when multiple devices and high data volumes are involved, compared to its predecessor WiFi standards. It also improves battery life performance, contributing to greater efficiency and productivity for public sector employees and potentially reducing the environmental impact of power consumption. The provision of WiFi 6 connectivity to power accessible citizen services and facilitate smart city innovation are other key areas that public sector organizations are exploring.

Top three wireless technologies
Public Sector

30%	WiFi 6
24%	LoRaWAN
20%	Access to 5G private campus networks

Wireless technology choices by sector

Public Sector

The second most popular wireless technology among public sector respondents is Long Range Wide Area Networks (LoRaWAN). These can play an integral role in smart city provision, with applications across traffic management, public safety, environmental monitoring, and more. Local government in the UK is also investing in LoRaWAN to support IoT investment among local enterprises, such as here in Suffolk and Norfolk. In Wales, government-backed housing companies are deploying LoRaWAN networks to prevent anti-social behaviour and crime, as well as monitor climate change.

Third on the list is access to private 5G campus networks – again delivering the security, bandwidth and scalability benefits common to all sectors. Security is of particular benefit to public sector entities, with the handling of citizens' personal identifiable information being a central element of their role. Similarly, security is essential for systems that provide, control, and monitor key public services, to avoid the disruption that critical service interruption can cause.

"To establish a 5G private network, even public services must navigate varying local regulations and complete necessary paperwork. We provide 'out-of-the-box' 5G hardware and software, guiding customers through the setup process. Our rugged devices, designed for challenging environments, are also ideal for connecting to these networks for mobile workers operating in areas such as emergency services through to maintenance and logistics."

Jon Tucker

General Manager, Product, Engineering & CRM Mobile Solutions Business Division

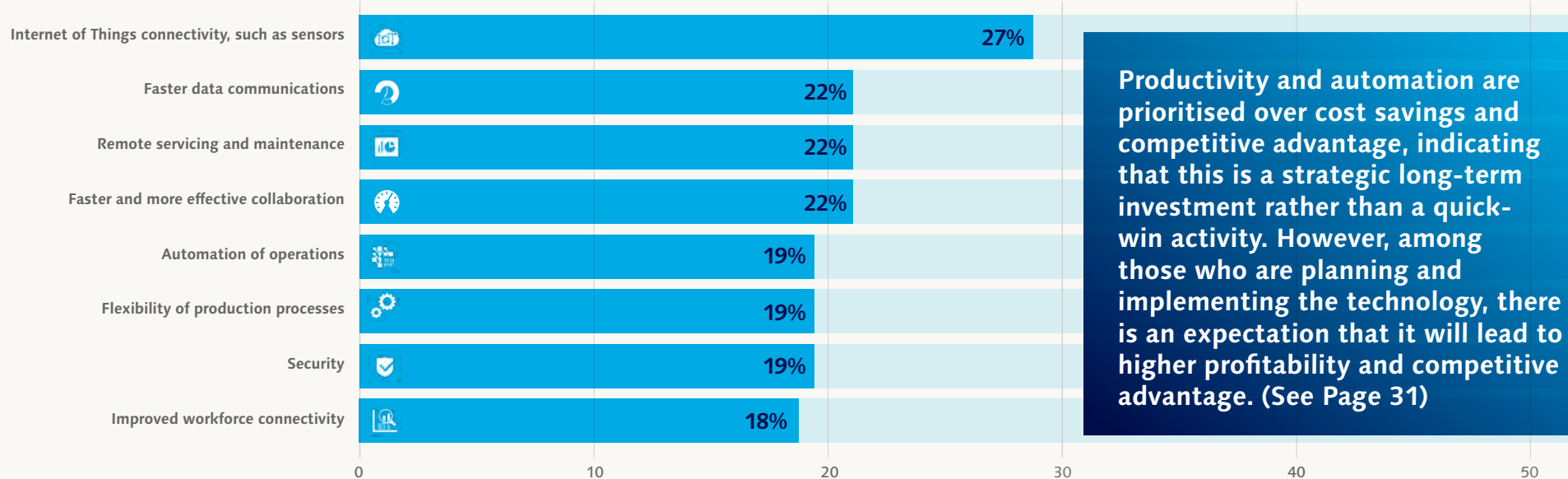Panasonic Connect Europe

PLANS AND EXPECTED BENEFITS

"

What do you expect to use this wireless network technology for?

**What do you expect to use this
wireless network technology for?**

Plans and expected benefits

Benefit	%
Internet of Things connectivity, such as sensors	27%
Faster data communications	22%
Remote servicing and maintenance	22%
Faster and more effective collaboration	22%
Automation of operations	19%
Flexibility of production processes	19%
Security	19%
Improved workforce connectivity	18%

0   10   20   30   40   50

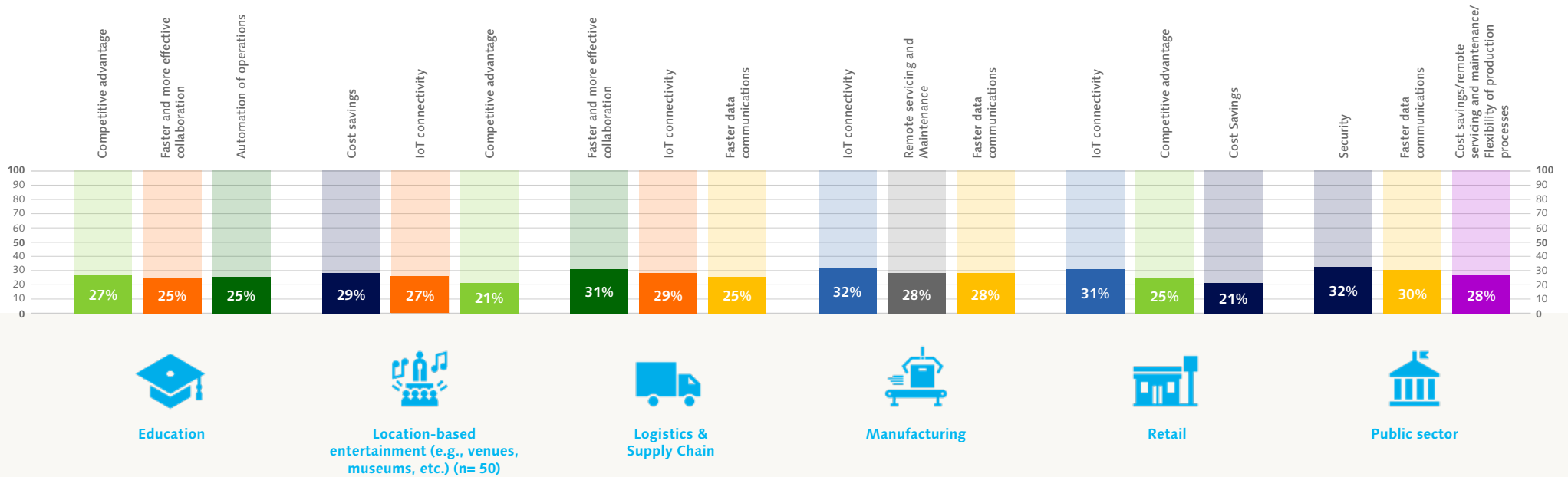**Productivity and automation are prioritised over cost savings and competitive advantage, indicating that this is a strategic long-term investment rather than a quick-win activity. However, among those who are planning and implementing the technology, there is an expectation that it will lead to higher profitability and competitive advantage. (See Page 31)**

What do you expect to use this wireless network technology for?

Plans and expected benefits, by sector

Sector	Benefit	Value
Education	Competitive advantage	27%
Education	Faster and more effective collaboration	25%
Education	Automation of operations	25%
Location-based entertainment	Cost savings	29%
Location-based entertainment	IoT connectivity	27%
Location-based entertainment	Competitive advantage	21%
Logistics & Supply Chain	Faster and more effective collaboration	31%
Logistics & Supply Chain	IoT connectivity	29%
Logistics & Supply Chain	Faster data communications	25%
Manufacturing	IoT connectivity	32%
Manufacturing	Remote servicing and Maintenance	28%
Manufacturing	Faster data communications	28%
Retail	IoT connectivity	31%
Retail	Competitive advantage	25%
Retail	Cost Savings	21%
Public sector	Security	32%
Public sector	Faster data communications	30%
Public sector	Cost savings/remote servicing and maintenance/ Flexibility of production processes	28%

Education

Location-based entertainment (e.g., venues, museums, etc.) (n= 50)

Logistics & Supply Chain
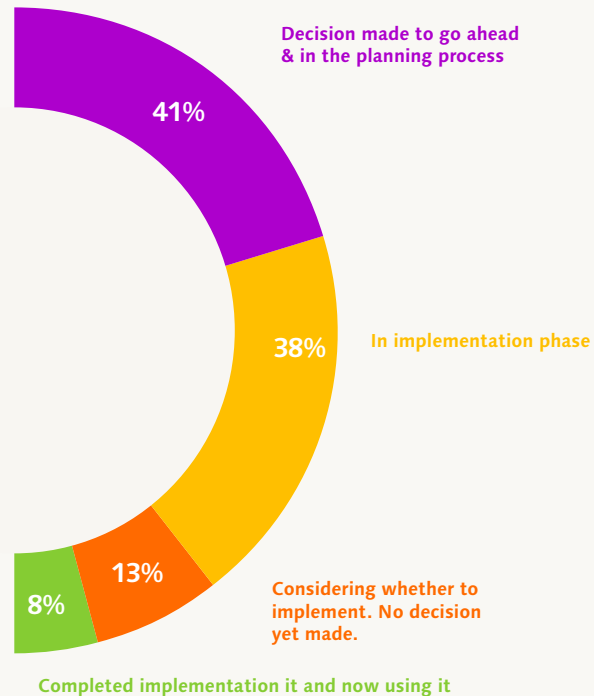
Manufacturing

Retail

Public sector

MATURITY

"Where is your company in relation to its strategy in this particular wireless network technology?

**Where is your company in relation to its strategy in this particular wireless network technology?**

Maturity

Decision made to go ahead & in the planning process

41%

In implementation phase

38%

13%

8%

Considering whether to implement. No decision yet made.

**Completed implementation it and now using it**

Implementation and completion by sector

What percentage of businesses have either started implementing or completed implementation of wireless network technology?
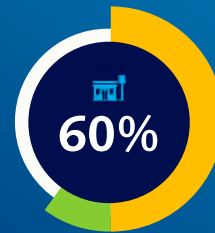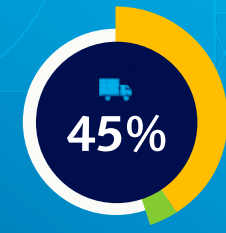
60%
Retail

With the highest combined completion and implementation rate of our sectors, 50% of retail respondents are in the implementation phase, and 10% have completed.
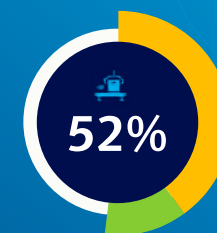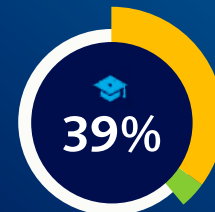
52%
Manufacturing

Slightly less advanced overall, but with a higher completion rate of 12%, the majority (40%) of manufacturing respondents are in the implementation phase.

45%
Logistics & Supply Chain

41% of logistics respondents are implementing wireless network technology with an equal percentage having started the planning process, but only 4% have completed.

39%
Education

Just 4% of education respondents have completed implementation, and 35% are in the implementation phase, which leaves a vast majority still in consideration and planning stages.

39%
Location-Based Entertainment

Among location-based entertainment repondents, just under 4% had completed, while less than 35% were in the implementation stage.

38%
Public Sector

Although only 24% of respondents from the public sector are in the implementation phase, an impressive 14% are now using the technology – the highest completion rate of all six sectors.
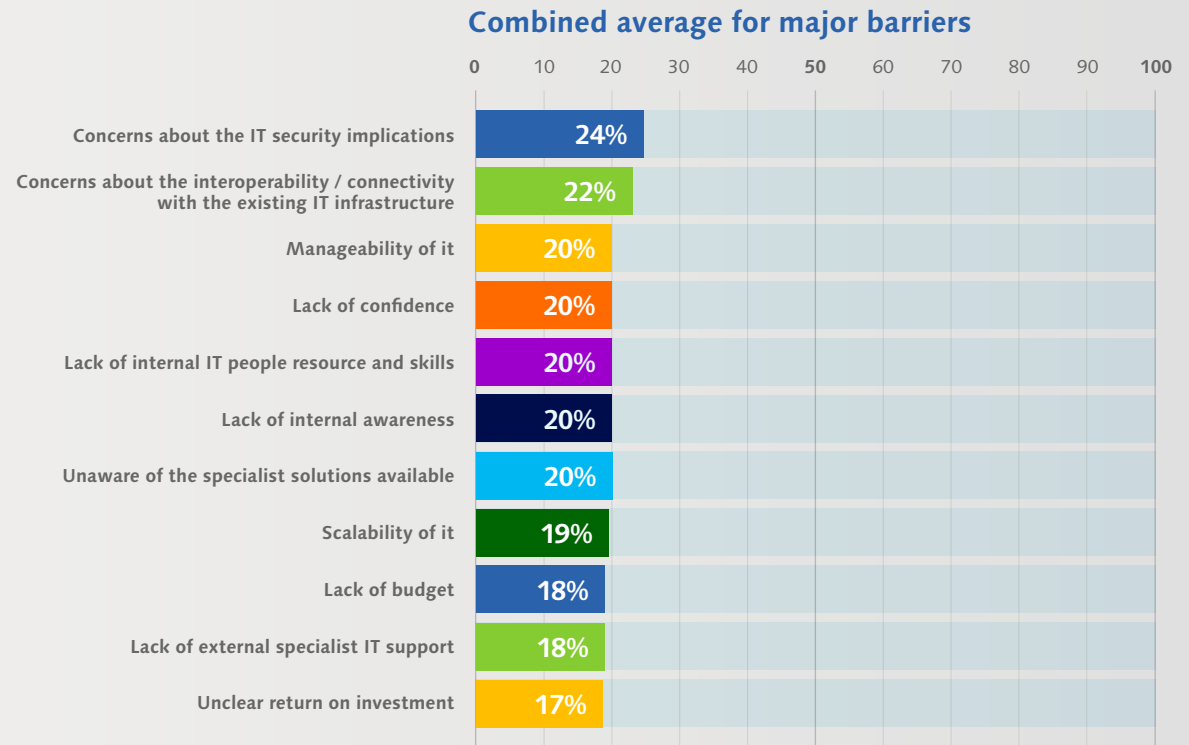
BARRIERS

" **From the following, what barriers are there, if any, to you deploying this particular wireless network technology in your company's strategy?**

From the following, what barriers are there, if any, to you deploying this particular wireless network technology in your company's strategy?

Major barriers

Integration with legacy is the chief concern, but there is also an education/awareness aspect that vendors can work to address. One in five lacks confidence in the proposed technology (and this figure is higher – 30% - among respondents from the logistics sector). Lack of budget is a concern for 30% in the location-based venues/entertainment sector.

Combined average for major barriers

Barrier	%
Concerns about the IT security implications	24%
Concerns about the interoperability / connectivity with the existing IT infrastructure	22%
Manageability of it	20%
Lack of confidence	20%
Lack of internal IT people resource and skills	20%
Lack of internal awareness	20%
Unaware of the specialist solutions available	20%
Scalability of it	19%
Lack of budget	18%
Lack of external specialist IT support	18%
Unclear return on investment	17%

Top barrier by sector

Education

37%

Manageability of it

Location-based entertainment

25%

Unclear ROI

Logistics and Supply Chain

33%
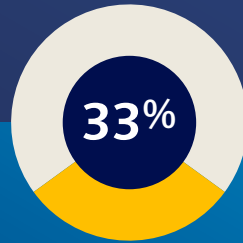
Lack of internal IT people resources and skills

Manufacturing

30%

Lack of external IT specialist support

Retail

27%
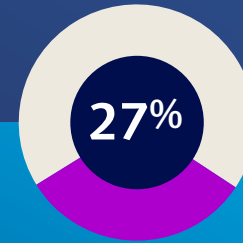
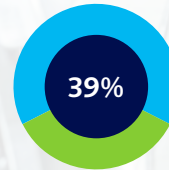Concerns about the IT security implications

Public sector

36%

Concerns about the IT security implications

> **Why do you think there is a lack of confidence in this particular wireless network technology?**

Among those lacking confidence, the 'confusing mix of standards' is the top factor, closely followed by concerns around future-proofing and unpredictable costs of implementation. An overall lack of clarity seems to be influencing decision paralysis.
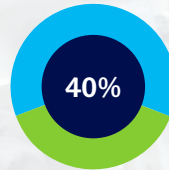
40%	39%	37%	32%	26%
A confusing mix of standards	Likely to be superseded by another technology / concerns about future-proofing	Costs of implementation are hard to predict	Not clear when it will be available to us	Minimal ROI
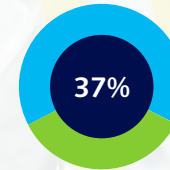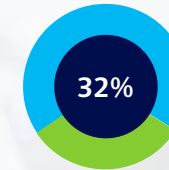
> **What, if any, benefits does your company expect/has your company experienced as a result of implementing this wireless network technology?**

Benefit	Percentage
Higher profitability	29%
Competitive advantage	28%
Increased productivity	25%
Better quality of engagement	25%
Better effectiveness	24%
More efficiency	23%
Cost Savings	21%

What do you expect to use this wireless network technology for?

Plans and expected benefits, by sector

Education

0 10 20 30 40 **50** 60 70 80 90 **100**

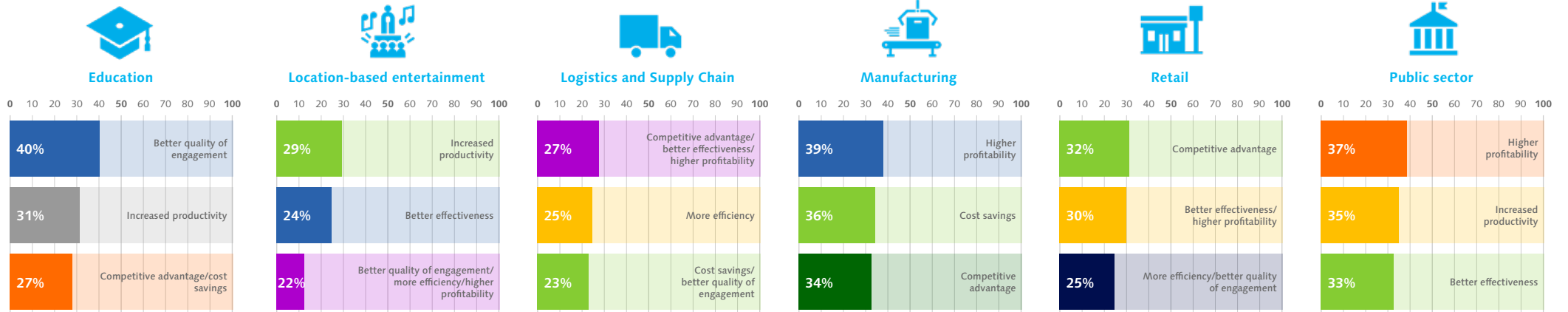| 40% | Better quality of engagement |
| 31% | Increased productivity |
| 27% | Competitive advantage/cost savings |

Location-based entertainment

0 10 20 30 40 **50** 60 70 80 90 **100**

29%	Increased productivity
24%	Better effectiveness
22%	Better quality of engagement/ more efficiency/higher profitability

Logistics and Supply Chain

0 10 20 30 40 **50** 60 70 80 90 **100**

27%	Competitive advantage/ better effectiveness/ higher profitability
25%	More efficiency
23%	Cost savings/ better quality of engagement

Manufacturing

0 10 20 30 40 **50** 60 70 80 90 **100**

39%	Higher profitability
36%	Cost savings
34%	Competitive advantage

Retail

0 10 20 30 40 **50** 60 70 80 90 **100**

32%	Competitive advantage
30%	Better effectiveness/ higher profitability
25%	More efficiency/better quality of engagement

Public sector

0 10 20 30 40 **50** 60 70 80 90 **100**

37%	Higher profitability
35%	Increased productivity
33%	Better effectiveness

" Once complete,
how much, if at all,
does your company expect
this wireless network
technology to improve
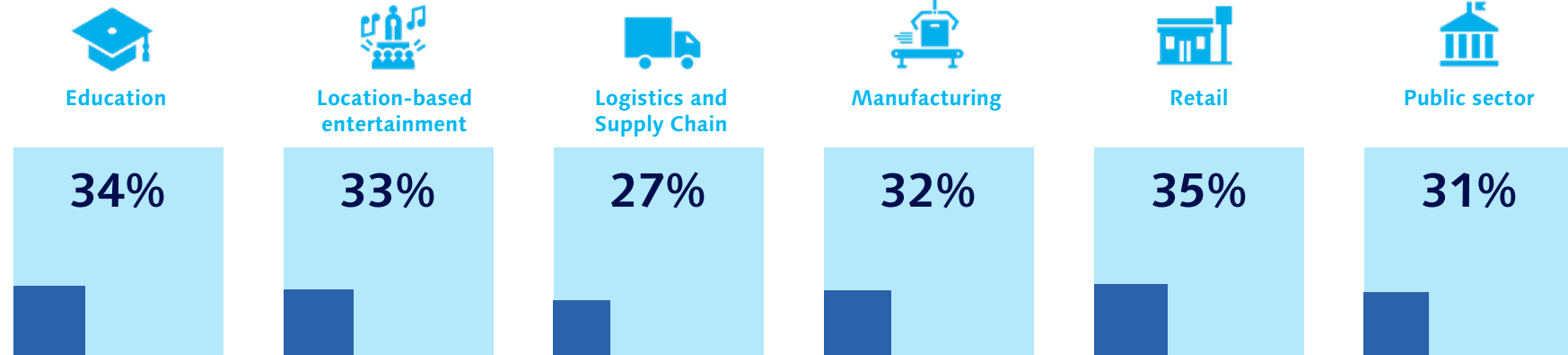productivity by over the
first three financial years?

Once complete, how much, if at all, does your company expect this wireless network technology to improve productivity by over the first three financial years?

On average, respondents expect to see a 32% uplift in productivity

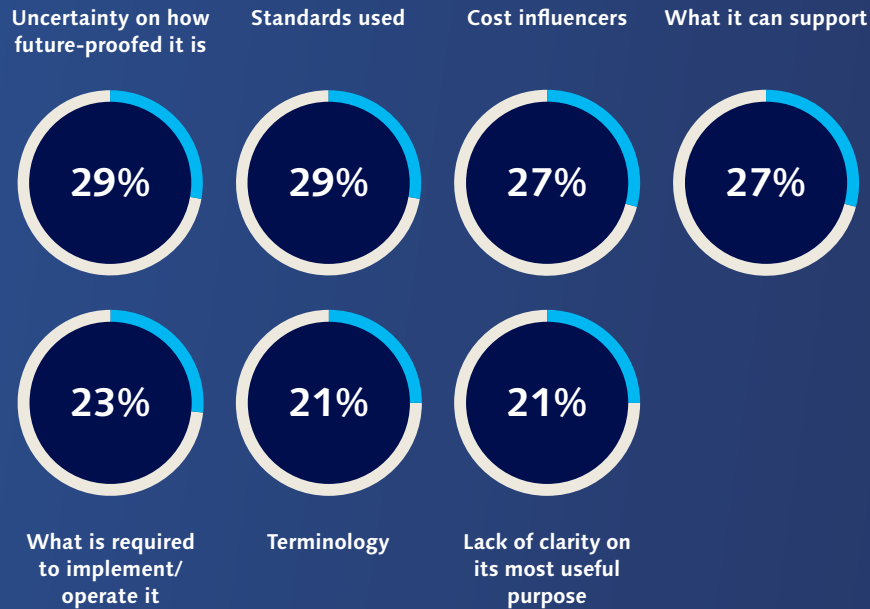| Education	Location-based entertainment	Logistics and Supply Chain	Manufacturing	Retail	Public sector
34%	33%	27%	32%	35%	31%

The public sector has lower expectations of productivity gains in comparison with other sectors, but public sector respondents told us they were looking primarily for cost savings, which may indicate they are less focused on increasing productivity and more on trimming costs.

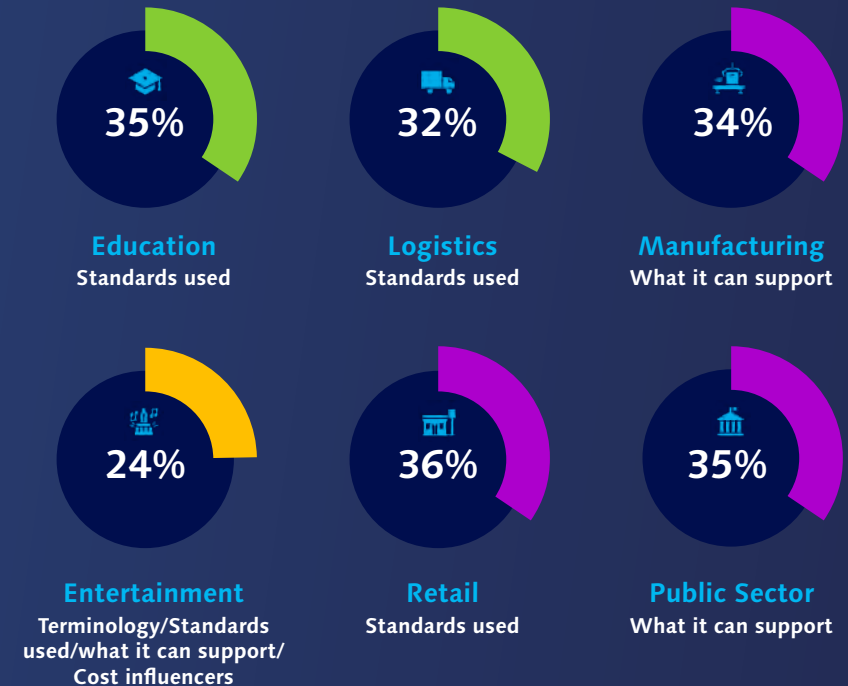Also, the bigger the organisation, the greater the expected productivity benefit.

> **What, if any, confusion is there generally within the industry when it comes to understanding this particular wireless network technology?**

What, if any, confusion is there generally within the industry when it comes to understanding this particular wireless network technology?

Uncertainty on how future-proofed it is

29%

Standards used

29%

Cost influencers

27%

What it can support

27%

What is required to implement/ operate it

23%

Terminology

21%

Lack of clarity on its most useful purpose

21%

Sector splits – top reason for confusion:

The issue of standards used is the main cause of confusion, especially in retail, location-based entertainment and education sectors. This indicates the industry needs to do more work to educate and reassure customers around standards in general.

35%

Education
Standards used

32%

Logistics
Standards used

34%

Manufacturing
What it can support

24%

Entertainment
Terminology/Standards used/what it can support/ Cost influencers

36%

Retail
Standards used

35%

Public Sector
What it can support

Our view

This research shows that European businesses
understand that the latest technology solutions can transform
their business operations and help them take major strides
forward in productivity, but for many there are still significant
barriers to overcome.

Alongside the ever-present request for more investment to accelerate the speed of change,
it seems the biggest barrier. Businesses have a lack of internal expertise and resource and
are struggling to find the external specialist support they need to execute their plans.

Businesses may need to look beyond traditional consultants and systems integrators, towards
organisations such as ours. Those that have a fundamental understanding of the technologies
but also hands-on experience of analysing and optimising operational processes across a
range of business sectors to bring about the transformational changes they desire.

Contact us

Panasonic
CONNECT