![GlobalData.]

Seizing the opportunities of industrial digitalization: Governance, innovation and excellence

orange **Business**

Contents

Introduction

Sectors such as manufacturing, energy, transport, and infrastructure are undergoing a shift to industrial digitalization. This has become increasingly feasible due to improvements in technology. Ubiquitous connectivity and IoT create the ability to collect and analyze industrial datasets. Industrial digitalization incorporates advanced IT tools, technologies, and connectivity within the operations technology (OT) space.

OT transformation is gaining importance because of the critical need for secure and scalable digital infrastructures for OT, to improve operational efficiency and enhance the end-customer experience. However, the convergence of IT and OT in enterprises continues to encounter challenges. These include fragmented infrastructural elements, underutilization of data, and ineffective governance.

The industrial digitalization presents many opportunities. These include improved operational efficiency through streamlined processes and reduced downtime. Digitalization is also a prerequisite integrating advanced AI in industrial systems and using it for predictive maintenance and optimized operations. Another benefit of greater digitalization is enhanced cybersecurity. Additionally, digitalization fosters innovation by enabling the development of new business models and products, and it creates new revenue streams and market opportunities.

To fully capitalize on these opportunities, companies must focus on several key enablers, such as establishing robust, scalable digital architectures that integrate OT and IT, implementing effective data management strategies, and integrating IoT devices to connect infrastructure elements. Clear governance across IT, OT, and business functions is crucial, as is ensuring collaborative and well-informed decision-making processes.

Because industrial digitalization is such a broad topic, it is difficult to cover it exhaustively in this brief format. Consequently, the structure of this paper will aim to illustrate some of the key opportunities, challenges and governance requirements of industrial digitalization across the three key domains listed below.

CONNECTING IT AND OT

To fully leverage digitalization, enterprises must explore how IT can enhance OT capabilities while addressing governance requirements. Effective convergence of IT and OT is crucial for unlocking higher efficiency, agility, and infrastructure flexibility. This includes improving data collection, analysis, and monitoring of industrial infrastructure. While some IT and OT systems may need to remain separate (in some critical application, such as electricity transmission network), integrating IT systems management into OT can significantly enhance infrastructure resilience and security.

DIGITAL IT INFRASTRUCTURE FOR OT

Standardized IT technologies when working in tandem with OT technologies, can modernize and secure production environments and help OT gain greater efficiency and reliability and remain productive. This approach helps elevate OT systems to match the sophistication of IT systems, enabling centralized monitoring and management. When feasible, shared infrastructure enhances operational efficiency, provides real-time insights, and simplifies systems management, leading to a more interconnected and automated industrial ecosystem.

SMART CONNECTED PRODUCTS AND SERVICES

Smart connected products offer new services and revenue opportunities across various sectors. They can help businesses address emerging compliance requirements, data sovereignty, and ESG reporting needs. These products facilitate flexible pay-per-use models for the B2B market, and present B2B2C opportunities, such as in automotive or logistics sectors, enhancing value and expanding market potential.

These key aspects of industrial digitalization demonstrate the role of effective governance in bringing about benefits, including increased cybersecurity, improved real-time insights and operational efficiency. Smart connected products extend these benefits beyond the factory floor, enabling new services and revenue models while addressing compliance and environmental goals.

The industrial digitalization process is well underway

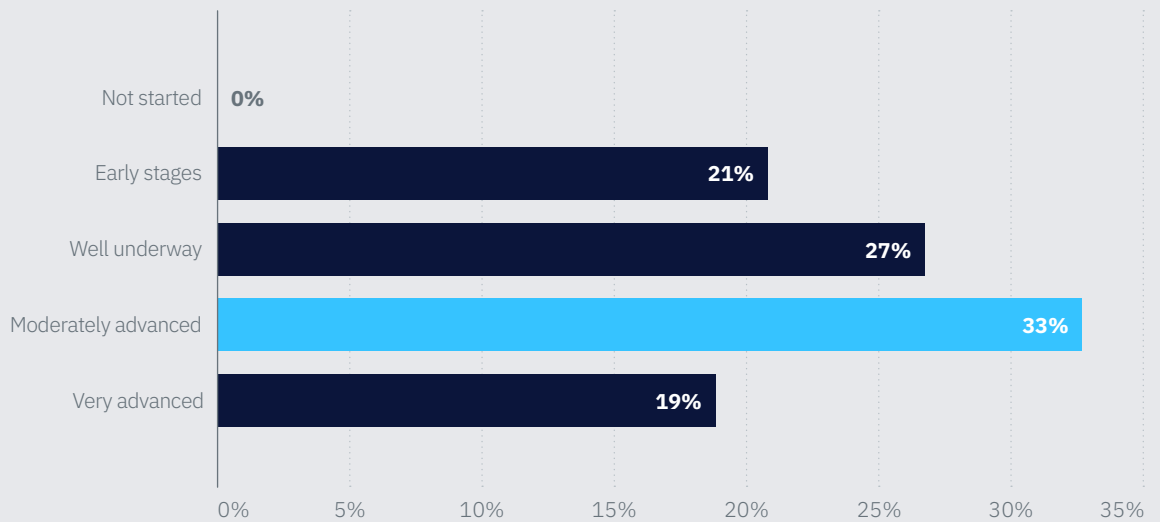GlobalData conducted a survey of 100 IT and OT decision-makers from manufacturing companies globally. Most enterprises participating in the survey are advanced in their industrial digitalization journey. All stated that they have at least started, with 80% saying that the adoption process is well underway or at a more advanced stage.

Clearly, companies are already aware of the value of technology adoption in their industrial infrastructure and willing to invest in advanced new technologies. However, investments in new technologies for OT need to lead to tangible and measurable benefits. A high level of technology adoption can provide a foundation to build new and innovative use cases and greater operational excellence.

At what stage is your company in its industry 4.0 journey?

Stage	Percentage
Not started	0%
Early stages	21%
Well underway	27%
Moderately advanced	33%
Very advanced	19%

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Connecting IT and OT: getting the basics right

## Governance of IT and OT investments is complex

Integration of IT and OT requires careful planning, with an emphasis on business outcomes, rather than IT or OT preferences. Implementing the strategy requires coordination between different parts of the organization and buy-in from both IT and OT teams and support from management and other senior staff. It also requires effective governance of the process of rolling out solutions, maintaining them, and assessing their value. The survey data examines some key features relating to decision making around industrial digitalization deployment and how those investments are assessed and valued.

IT and OT decisions take place at different levels within the organization. The differences between IT and OT are small, but while most decisions for both IT and OT are made at the global HQ, relatively more OT decisions are made in regional HQs and small individual sites.

What are the decisions taken regarding IT or OT investments?

Category	OT	IT
Individual site (factory, warehouse, etc.)	9%	4%
Regional / Country HQ	28%	22%
Global HQ	63%	74%
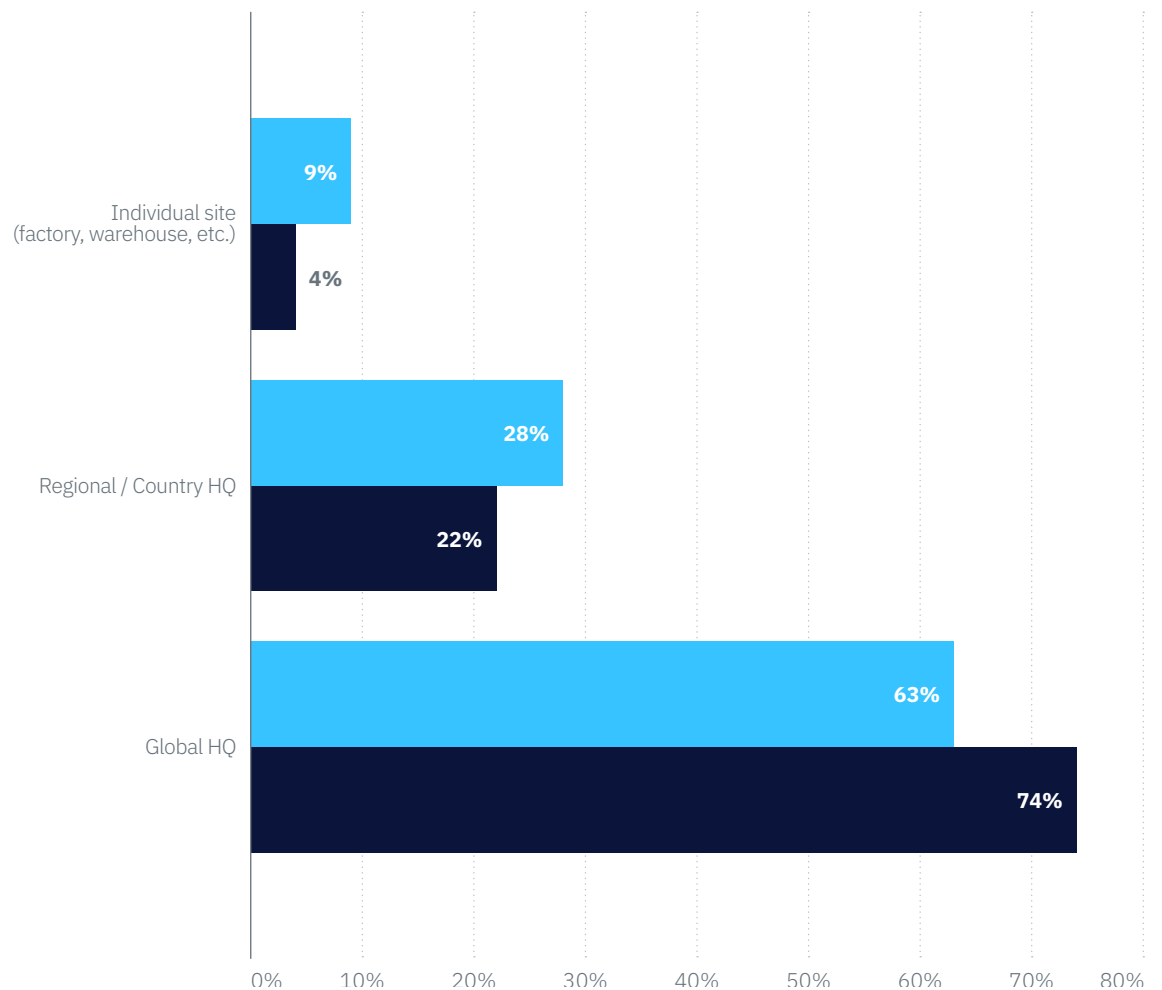
● Where OT decision making takes place   ● Where IT decision making takes place

Role	Involved in OT decisions	Involved in IT decisions
IT	68%	92%
Senior Executive (C-Suite)	57%	85%
Regional or Country Management	45%	74%
Engineering	61%	45%
Line of Business (e.g. Sales, Marketing)	14%	35%
Operations / supply chain	82%	32%
Finance / Procurement	53%	25%
Facilities / Site Management	32%	20%
Others	1%	2%
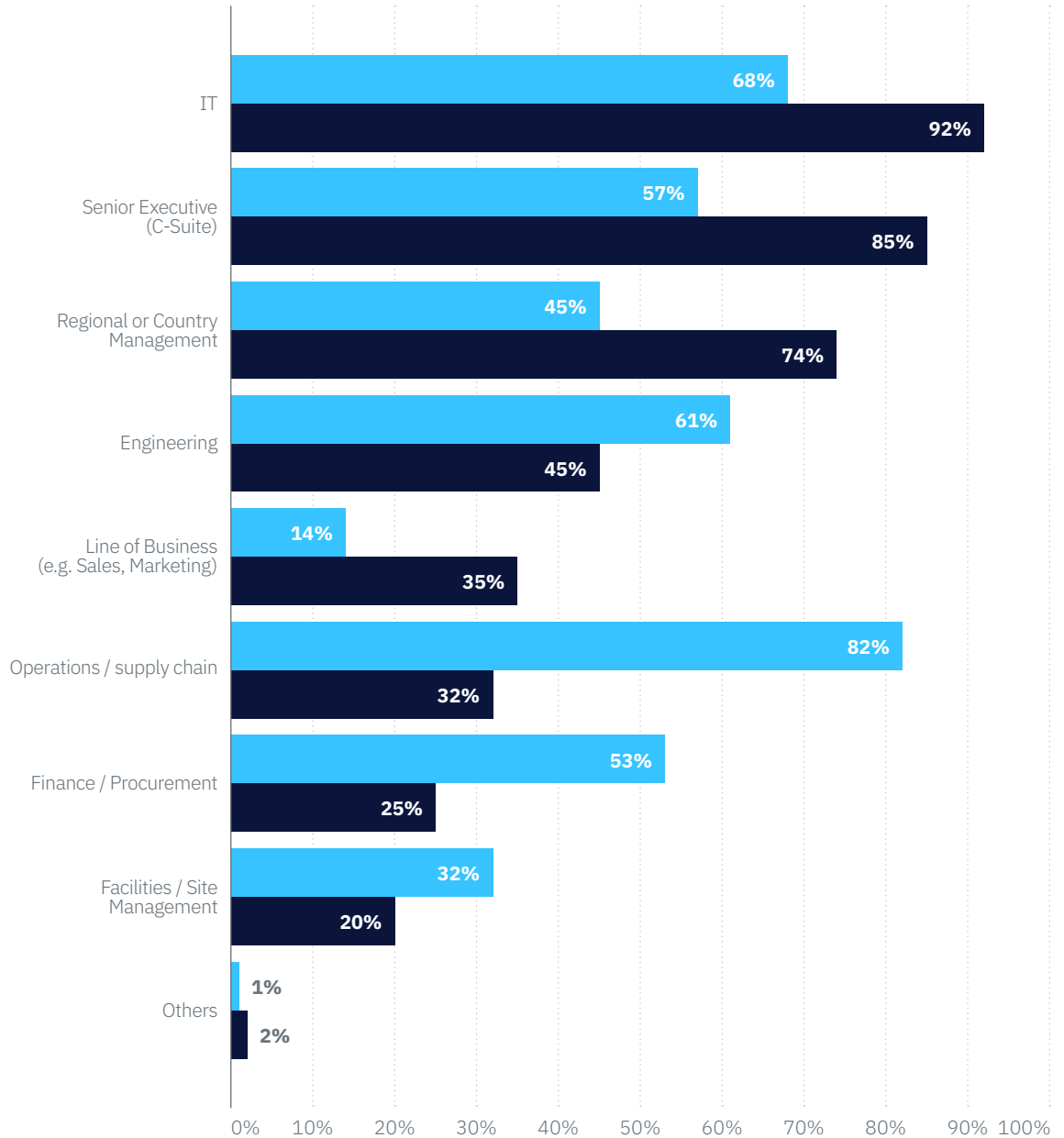
Source:
Bespoke GlobalData Survey

● Invovled in OT decisions ● Involved in IT decisions

There are also big differences between IT and OT in terms of the people making decisions. The biggest differences are with IT, C-level executives and region or country management, which are less involved in OT strategy. Operations and supply chain teams, engineering departments and finance and procurement have limited influence on IT strategy but substantial involvements in OT strategy.

IT decision making is mostly controlled by IT teams and senior management. OT decisions also involve the IT team and senior managers but are balanced out with high levels of

engagement from engineering teams, facilities management, and finance. The global company HQ has a dominant position in deciding strategy for both IT and OT, but with OT there is relatively higher involvement of regional management and individual sites.

Bringing together a wider range of people within the organization and ensuring local and site-specific needs are taken into account is key to the successful governance of Industrial digitalization projects that integrate both IT and OT.

Creating the space for dialogue between IT and OT teams is challenging. The chart below outlines the current governance models for IT and OT, showing diversity (or even confusion) on how they deal with joint governance. It is somewhat easier to work jointly on IT and OT among the 40% of companies that have some level of joined up strategy bringing IT and OT teams together. This process is much harder in the rest of the sample. Just under 20% of respondents have separate decision making, and a further 11% have conflicts between IT and OT teams. A further 30% of the sample has most decisions dominated by IT teams, with OT having limited involvement.

This suggests that 60% of respondents have governance approaches that are likely to hinder the development of a joint and integrated strategy around IT and OT investments and planning.

Effective governance is crucial for integrating IT and OT. The data indicates that while some companies have established shared strategies, others are still navigating conflicts, emphasizing the need for clear governance frameworks and for support for improved joined up strategic thinking that considers ideas, requirements, and ways of working from both sides of the IT-OT divide.

Governance approaches for IT and OT estates

- IT and OT are separate – Technology strategy and decisions beyond shared assets are made with minimal consultation **(19%)**
- IT makes all technical decisions, except ones dictated by OT solution needs **(30%)**
- Shared high-level strategy between IT and OT – but function-specific solutions handled by the respective teams **(40%)**
- In Transition – Responsibilities for strategy and solution decisions are not well defined – IT and OT are occasionally in conflict **(11%)**

Source:
Bespoke GlobalData Survey

ArcelorMittal, a major global steel producer, invested in a large scale private 5G network as well as extensive data collection and processing infrastructure within its industrial sites. The company benefited from greater control on and visibility of energy use and emissions, as well as the ability to monitor staff in high-risk areas to improve safety. The infrastructure created high-throughput data exchange and connectivity and is the foundation for future benefits.
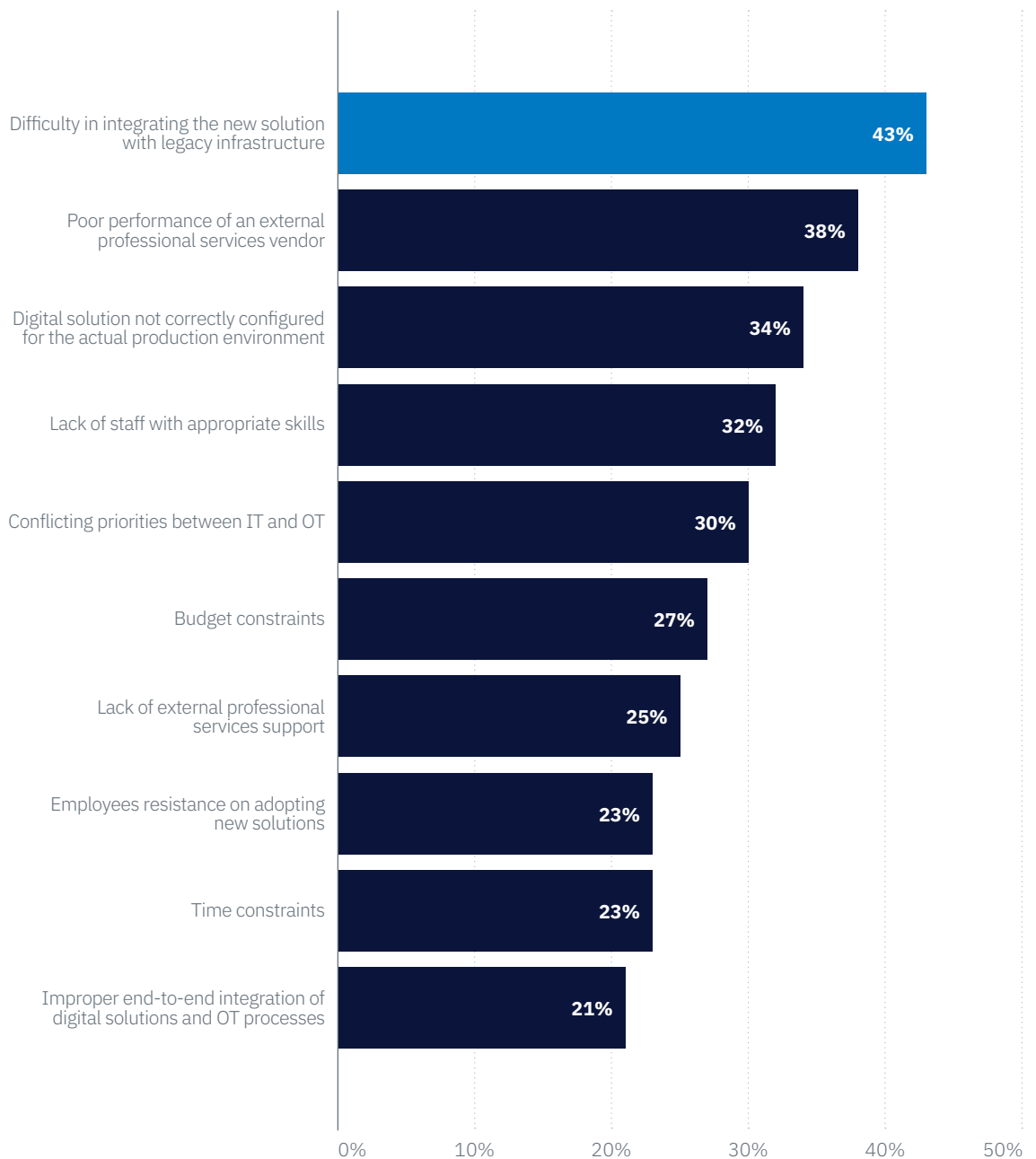
Better governance of IT-OT integration can address many industrial digitalization challenges

Effective governance models are essential, as indicated by the varying degrees of IT and OT strategy integration. Companies that establish shared high-level strategies are better positioned to achieve strategic alignment and operational efficiency to support the resolution of many business challenges around Industrial digitalization.

The top challenge is nominally technical, but most stumbling blocks in industrial digitalization are organizational and governance challenges. The list below includes issues like the need for good quality external professional services, lack of staff skills, conflicts between IT and OT, employee resistance to change, and lack of resources.

Investing in governance, planning, external support and fostering better strategic alignment between OT and IT are all vital to overcoming these stumbling blocks.

Stumbling blocks that made implementing a digital solution in the OT environment difficult, or lowered solution efficacy

Stumbling block	Percentage
Difficulty in integrating the new solution with legacy infrastructure	43%
Poor performance of an external professional services vendor	38%
Digital solution not correctly configured for the actual production environment	34%
Lack of staff with appropriate skills	32%
Conflicting priorities between IT and OT	30%
Budget constraints	27%
Lack of external professional services support	25%
Employees resistance on adopting new solutions	23%
Time constraints	23%
Improper end-to-end integration of digital solutions and OT processes	21%

Using IT to augment the capabilities of industrial systems

The discussions around IT-OT convergence are not new and are unlikely to conclude any time soon. There are many organizational barriers, such as differences in goals and priorities between IT and OT staff that impede progress. There are also technical issues like the heterogenous nature of OT systems, different data standards and reliance on legacy communications infrastructure as an example. These barriers mean that progress towards IT-OT integration will sometimes be a slow and require significant effort and commitment.

Companies rely on critical OT systems with different priorities compared to IT systems. Taking critical communications in the utilities sector as an example, while this can be an optical network with similarities with IT systems, there are also fundamental differences: firstly, OT networks need to be fully synchronized across the network, be orders of magnitude more reliable than IT networks and be fully deterministic in their behavior.

However, this does not mean that OT and IT cannot work together here and now. There are many opportunities for organizations to combine the power of innovative data analytics, advanced connectivity, and automation developed in the IT domain to address specific use cases that link with OT. For example, by retrofitting OT systems with IoT sensors capturing relevant data and creating dashboards and actionable analytics from that data, but without affecting the OT systems themselves. Besides retrofit cases there is an opportunity to leverage new architecture principles such as Unified Namespace based on MQTT to enable real time data flows between OT and IT layers of a company.

IT systems can be used to improve data collection, management and analysis across both IT and OT. This availability of data and analytics can support more informed decision-making around investments and maintenance in industrial systems, helping to implement predictive maintenance and reducing unplanned downtime. The additional visibility afforded by more integrated and holistic data analytics can also help measure energy and resource use, supporting sustainability and ESG initiatives and preparing for increased reporting requirements.

Adopting common data standards, formats and infrastructure means that the same data sets can be used across many use-cases, including monitoring workers in high-risk areas and support greater health and safety for staff. This OT data also has benefits on the technology side, in terms of an increased ability to monitor and manage communications systems and endpoints and enhanced security.

Electricity distribution network operator (DNO) Enedis integrated data collection capabilities within its network to ensure the safety of connecting new elements to the electricity network (such as renewables, smart meters, and electric vehicle chargers) and enable more efficient maintenance. Such solutions in the energy sector (particularly in energy networks) are vital to allow new energy technologies like demand response, vehicle-to-grid and battery storage, while also increasing the reliability of the network.

Digital IT infrastructure for OT: maximizing operational excellence

Fully integrating OT with the digital IT infrastructure has become increasingly important. Remote connectivity is has become ubiquitous in the production environment and the use of cloud technologies, AI/ML, and analytics for industrial applications is also common. Datasets that are locked inside OT systems also represents a great resource that companies can extract value from.

The move towards an ideal of an integrated IT / OT infrastructure promises many benefits. These include:

● **Reduced complexity and simplified management of infrastructure:** Integrating two parallel communications and IT management systems, in cases where that is possible, can result in reduced duplication in terms of procurement, management, and administration. Instead of managing two supplier relationships, two maintenance teams, two monitoring systems and two update schedules, this deduplication can result in reduced costs and free up capacity to engage in innovation and enhance IT and OT systems. It will also enhance the monitoring and security of the OT system, creating benefits for the OT team as well.

● **Increased scalability, agility, and flexibility:** moving towards closer alignment between the IT and OT infrastructures means that any systems shared by IT and OT can scale more easily to new sites or geographical locations or expand to accommodate higher usage. Additionally, such an integrated system can create opportunities to reuse services and applications available on the IT side in OT applications. For example, rapid developments in AI and analytics could more easily be applied to OT use cases if there is already a higher baseline level of IT-OT integration and interoperability.

● **Improved infrastructure visibility and monitoring, as well as improved management and orchestration:** IT systems have the potential to be 'smarter' in the sense of allowing greater visibility into the infrastructure, better logging, and unified monitoring dashboards. This type of visibility also has cybersecurity and reliability benefits through the use of technologies like security information and event management (SIEM) and IT system management (ITSM) and system orchestration, coming from the IT side of the divide. Greater IT-OT convergence means that many of these benefits can also be applied to operational systems and the teams that run them.

● **Enabling new products and services and supporting innovation:** The resulting flexibility and agility for OT system has direct benefits to product and service innovation. It enables faster development, testing and deployment of solutions. New industrial digitalization technologies like digital twins, AR/VR and data-driven AI can be more quickly implemented and accelerate innovation.

Companies understand the benefits and use-cases of IT/OT integration
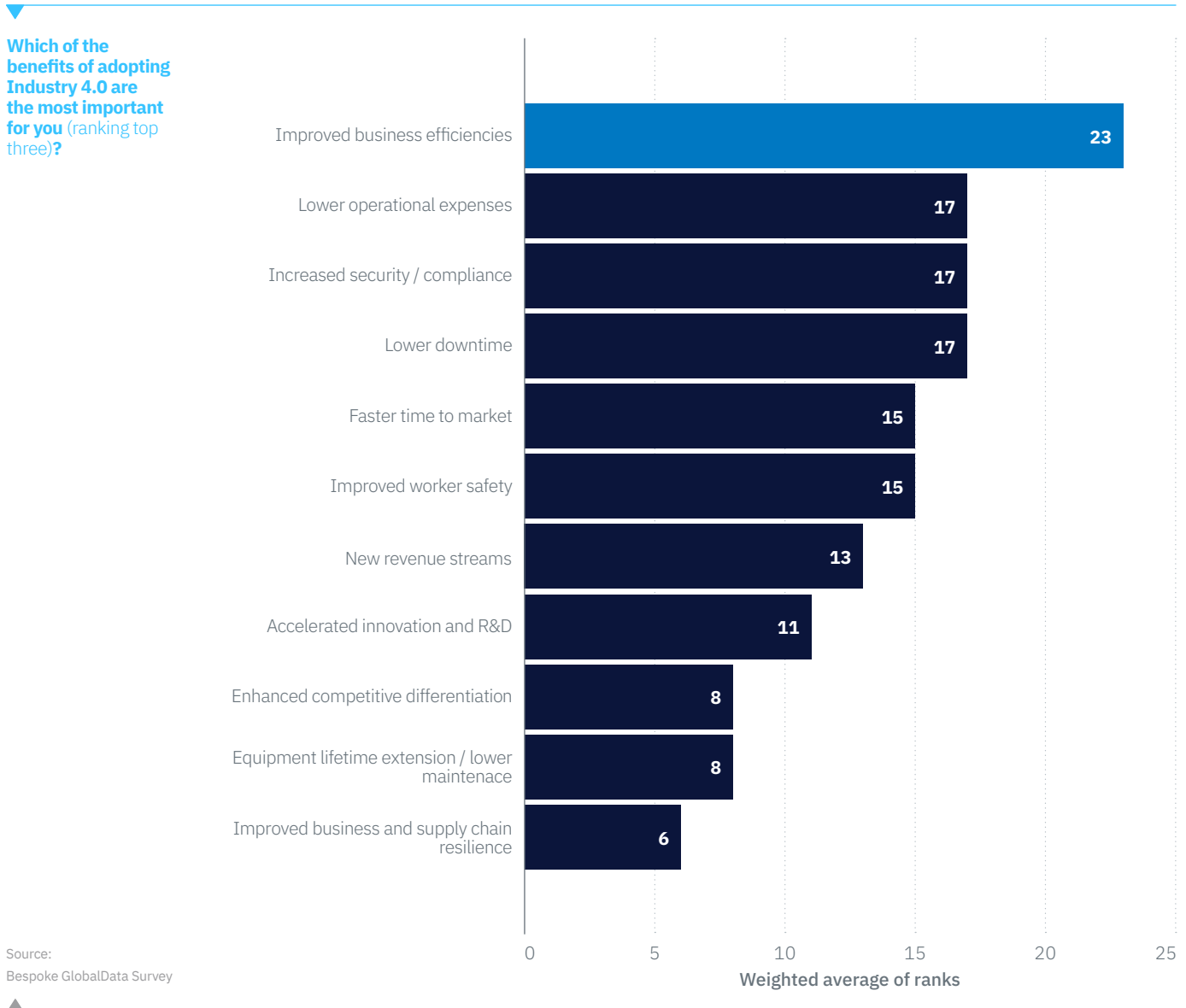
In terms of business outcomes, greater IT/OT integration supports use-cases emerging from greater visibility and data collection in industrial environments. This includes predictive maintenance, better resource planning, and greater security and compliance, as well as worker safety applications. Other business benefits emerge from improving the flexibility and agility of OT. This varies by sector, but for example the electricity sector would benefit from ability to integrate new energy technologies and sectors like manufacturing

can benefit from the ability to retool the factory floor or expand the production lines more quickly and with less disruption.

Survey responses indicate a good understanding of the potential value of investment in industrial digitalization and IT/OT integration. A summary of priorities from survey responses shows that efficiency benefits followed by lower operational expenses are the top reasons for this investment. However, enhancing security and compliance, lowering unplanned downtime, faster time to market, and worker safety are all rated high.
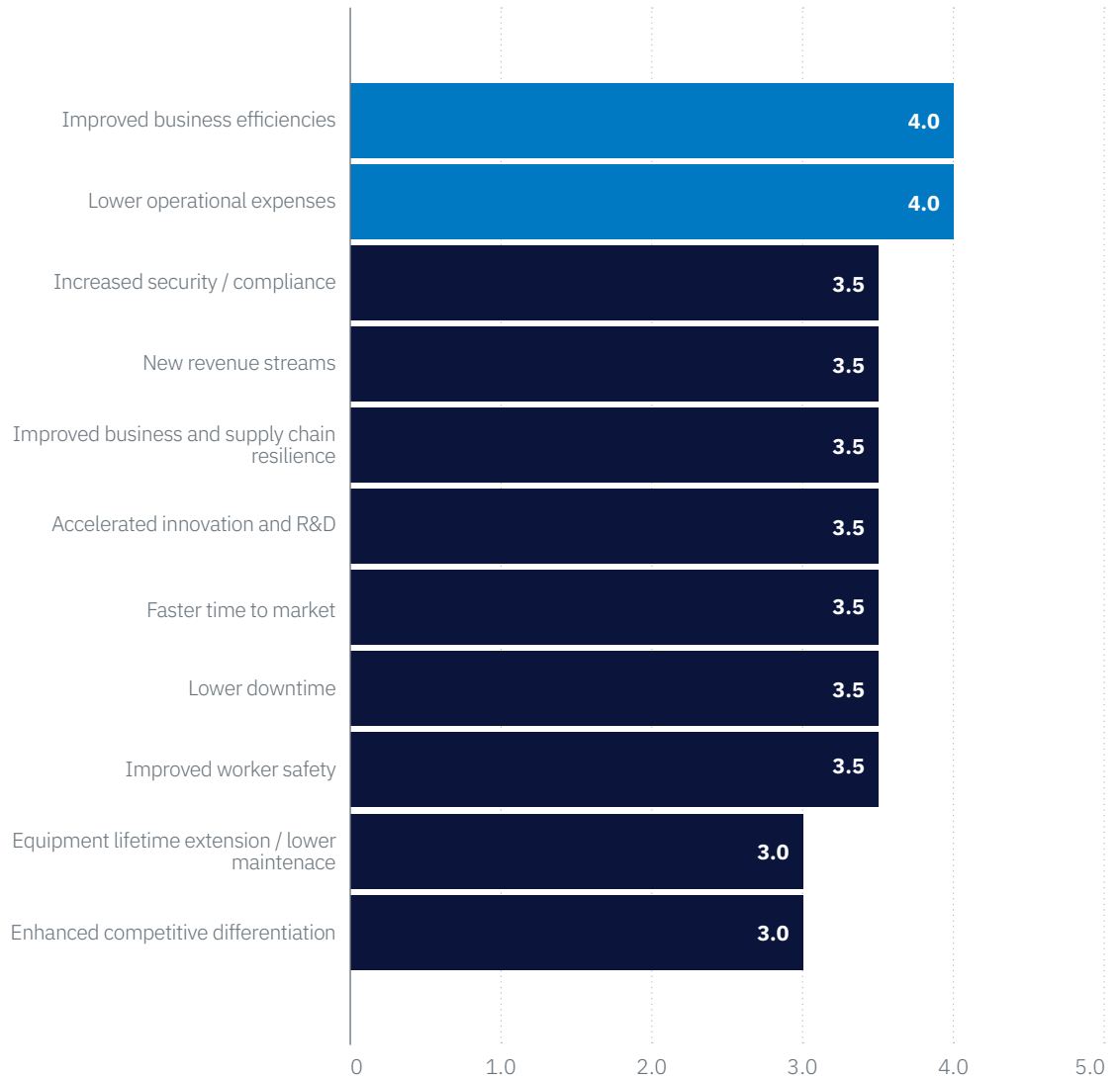
Looking at the current level of satisfaction with these benefits, they align very well to priorities. However, this implies that these benefits around business efficiencies and operational costs are approaching maturity and that other priorities will come to the fore in the medium term.

The deployment of key technologies such as private 5G, industrial LAN, and edge computing are supporting the large amounts of data being generated from sensors and monitoring devices across the infrastructure. There are also solutions that can collect, store, process and make sense of this data and extract value from it. Different industries will deploy and use these systems in different ways, but the enhancements of communications capabilities, security, and data handing that will come with industrial digitalization technologies will enable new innovative ways of using existing industrial assets and, in time, lead to new applications.

Which of the benefits of adopting Industry 4.0 are the most important for you (ranking top three)**?**

Benefit	Weighted average of ranks
Improved business efficiencies	23
Lower operational expenses	17
Increased security / compliance	17
Lower downtime	17
Faster time to market	15
Improved worker safety	15
New revenue streams	13
Accelerated innovation and R&D	11
Enhanced competitive differentiation	8
Equipment lifetime extension / lower maintenace	8
Improved business and supply chain resilience	6

Weighted average of ranks

Benefit	Rating
Improved business efficiencies	4.0
Lower operational expenses	4.0
Increased security / compliance	3.5
New revenue streams	3.5
Improved business and supply chain resilience	3.5
Accelerated innovation and R&D	3.5
Faster time to market	3.5
Lower downtime	3.5
Improved worker safety	3.5
Equipment lifetime extension / lower maintenace	3.0
Enhanced competitive differentiation	3.0

Source:
Bespoke GlobalData Survey

The cost of downtime is an immediate demonstrable benefit for OT digitalization
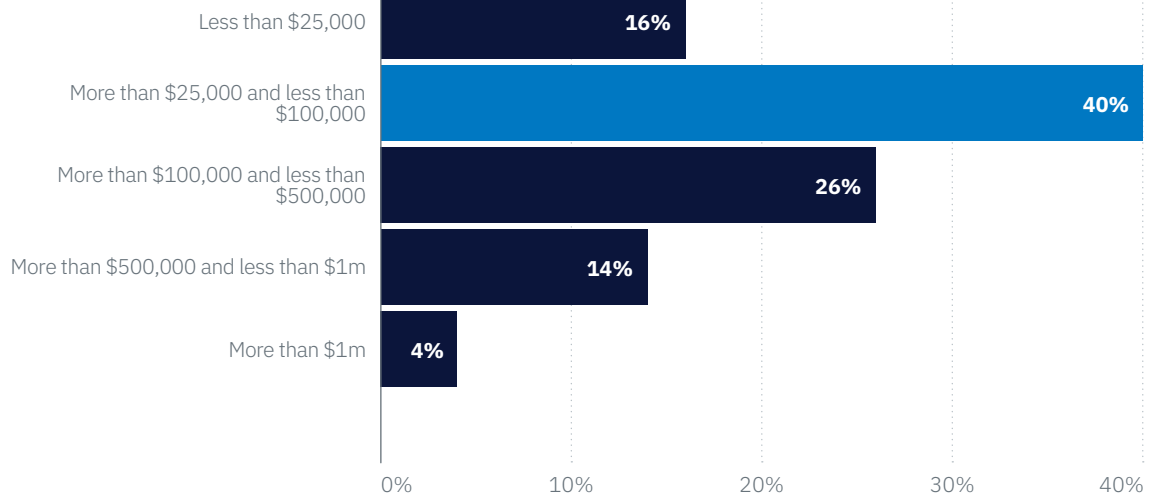
Reducing unplanned downtime has always been a key priority in the OT environment. Any contributions that digitalization can make to minimizing disruption to production, for example by reducing unplanned downtime, making repairs faster, or pre-empting equipment failures would ensure buy-in from those on the OT side of the divide. Respondents to the survey indicate that performance on downtime is merely 'adequate' (details in the chart below) which implies that respondents feel that there is room for improvement.

Reducing downtime is clearly something that Industrial digitalization technology can contribute to and that can serve as a clear and measurable test case for IT/OT integration. As the chart below shows, disruption is expensive, with the majority of respondents saying that an hour of disruption costs more than $25,000. For around 30% of respondents, the cost of an hour of disruption is substantially higher, at more than $500,000. This suggests that there may be many cases where reductions in downtime would easily pay for upgrades to the OT infrastructure.

How well is the organisation performing against its KPIs for downtime?

Very well – downtime has been much lower compared to our goals / KPIs	13%
Well – total downtime has been lower compared to our goals / KPIs	20%
Adequate – downtime has been in line with our goals / KPIs	39%
Unsatisfactory – downtime has been high compared to our goals / KPIs	23%
Poorly – our downtime has been very high compared to our goals / KPIs	6%
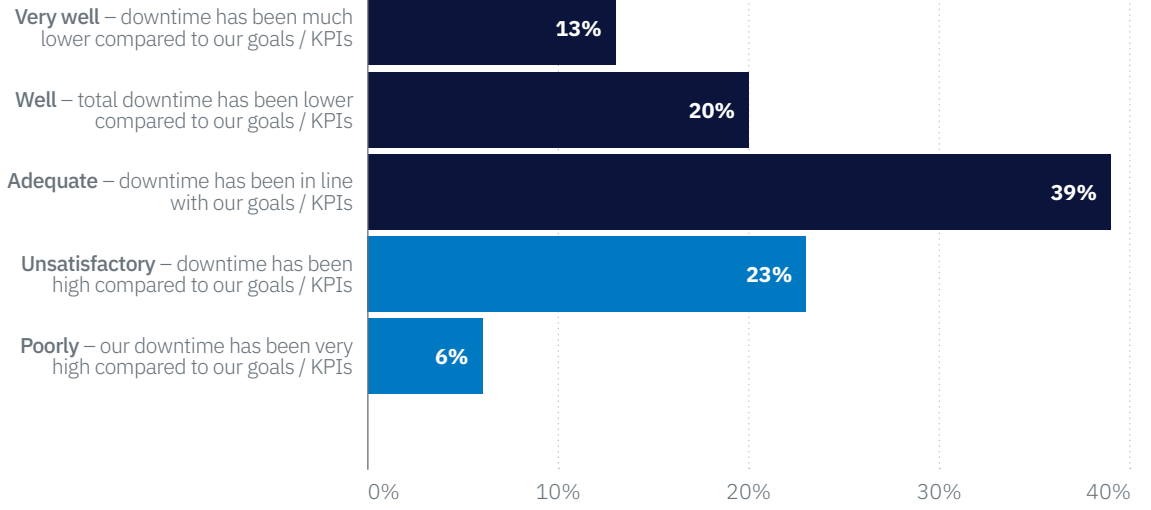
Hourly cost of unplanned disruptions across the sample

Less than $25,000	16%
More than $25,000 and less than $100,000	40%
More than $100,000 and less than $500,000	26%
More than $500,000 and less than $1m	14%
More than $1m	4%

There has been substantial uptake of digital IT technologies in the OT space

The survey results show a strong focus on deploying modern technologies like industrial IoT and private 5G. These technologies are foundational for modernizing OT environments and achieving seamless IT-OT integration.

IT-OT integration is not the explicit driver for these investments. There is a strong interest in and active deployment of critical technologies essential for industrial digitalization, with cybersecurity and IoT leading the way. This trend underscores the emphasis on securing and connecting industrial operations. Addressing cybersecurity risks is the top priority for executives and boardrooms, especially considering the ongoing high-profile cybersecurity failure that result in data loss and/or significant down time and loss of customer confidence.

Penetration and deployment plans for key technologies
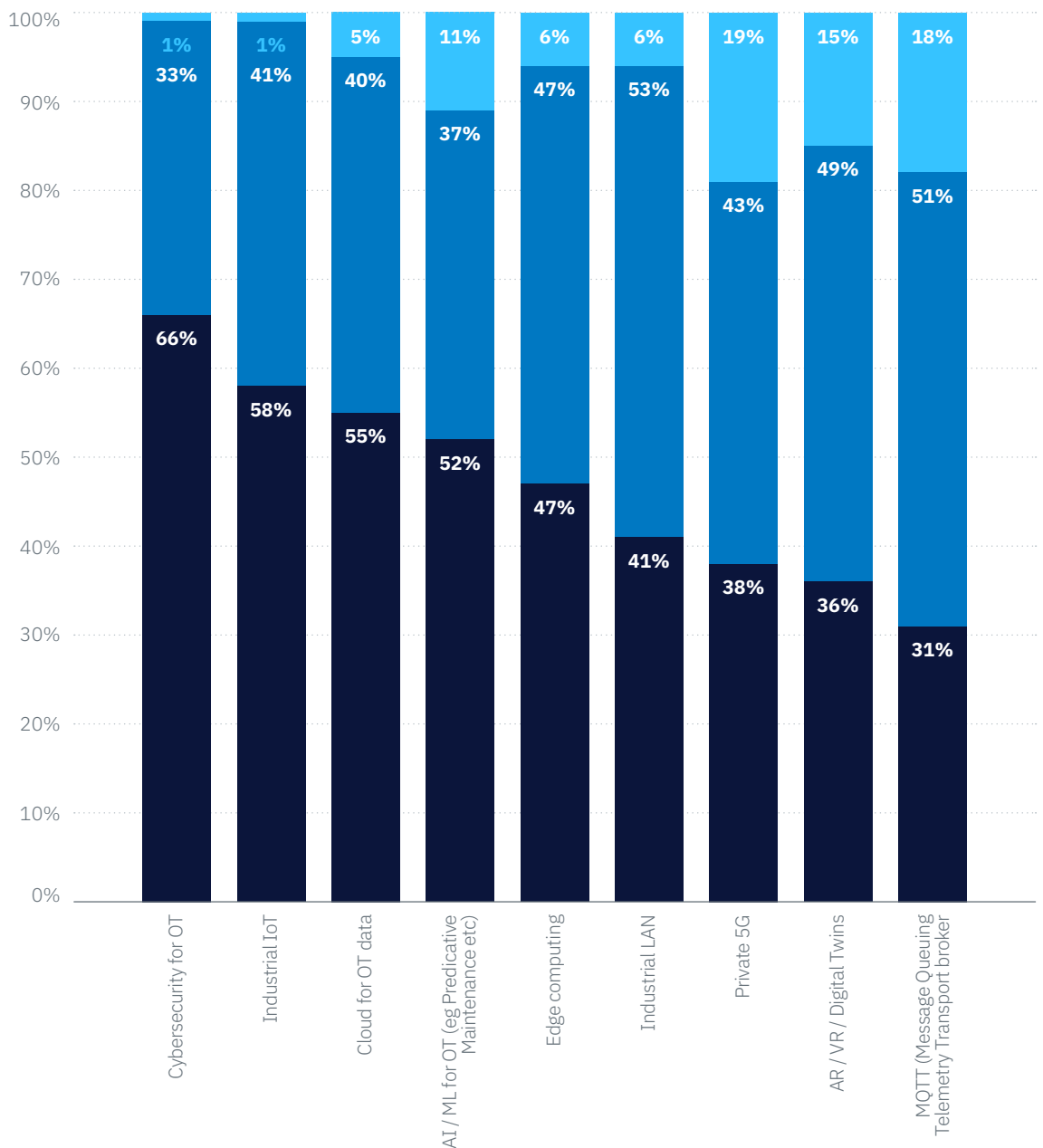
Chart: Penetration and deployment plans for key technologies

Technology	Currently deploy	Considering within next 12 months	Not currently considering
Cybersecurity for OT	66%	33%	1%
Industrial IoT	58%	41%	1%
Cloud for OT data	55%	40%	5%
AI / ML for OT (eg Predicative Maintenance etc)	52%	37%	11%
Edge computing	47%	47%	6%
Industrial LAN	41%	53%	6%
Private 5G	38%	43%	19%
AR / VR / Digital Twins	36%	49%	15%
MQTT (Message Queuing Telemetry Transport broker)	31%	51%	18%

● Currently deploy ● Considering within next 12 months ● Not currently considering

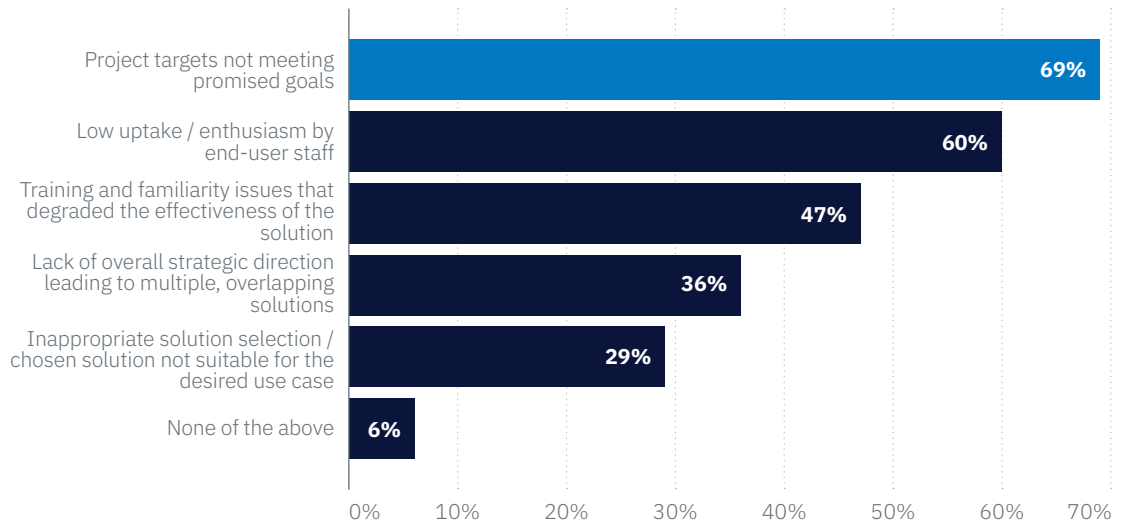## Industrial digitalization transition is challenging despite clear benefits

Despite clear benefits, the adoption of digital technologies into operations poses many organizational challenges. As the chart below shows, a majority of respondents expressed disappointment with current projects underdelivering on their promise. Around 60% also highlight low uptake and a lack of enthusiasm from staff. About half also say that training and familiarity with the solutions being deployed is an issue that needs to be addressed to enhance the effectiveness of the solution.

A key issue to address is low staff uptake and lack of staff skill and training. Companies are aware of this and are investing in improving uptake of technology by staff, as well as investing in training and skills. The chart below shows the types of actions survey responses included.

This level of effort by companies is unlikely to be enough to address the problem, especially as the legacy OT systems are replaced or parallel industrial digitalization systems are installed. This is an area where companies are likely to require greater support from the technology industry, particularly around providing more effective training and business transformation services to go with technology deployments.

Drawback and challenges in implementing Industry 4.0 solutions

Project targets not meeting promised goals — 69%
Low uptake / enthusiasm by end-user staff — 60%
Training and familiarity issues that degraded the effectiveness of the solution — 47%
Lack of overall strategic direction leading to multiple, overlapping solutions — 36%
Inappropriate solution selection / chosen solution not suitable for the desired use case — 29%
None of the above — 6%

Source:
Bespoke GlobalData Survey

Action taken to ensure the uptake of new technologies by staff

● Regular updates before, during, and after implementation **(75%)**

● Video and multi-media self-training **(65%)**

● Executive management messaging to end-user staff **(57%)**

● End user staff are included in planning and implementation **(46%)**

● Pay and / or benefit incentives for compliance (individual or department-wide) **(25%)**
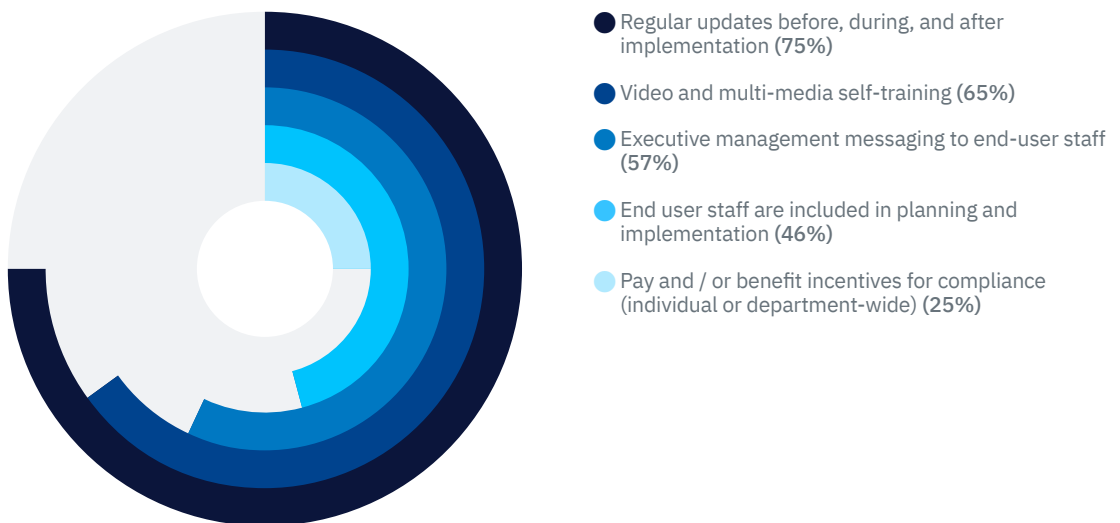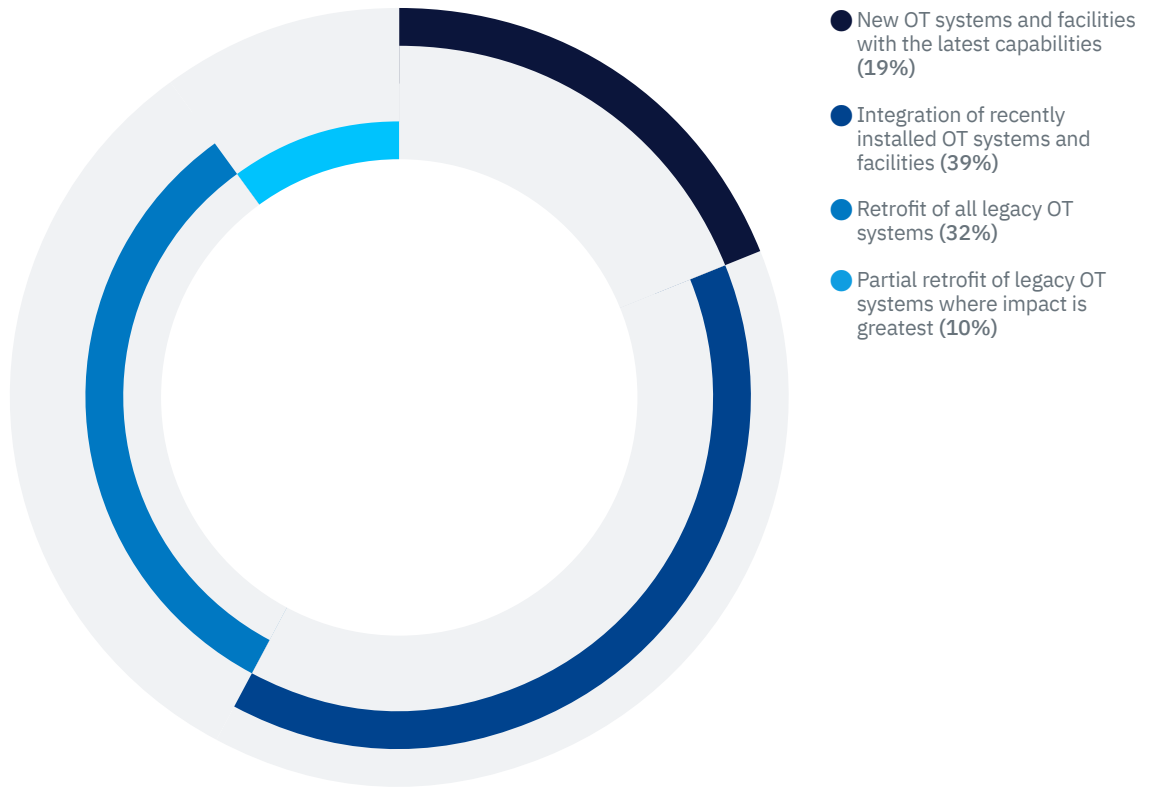
Source:
Bespoke GlobalData Survey

Industry approaches to OT digital transformation range between retrofitting and rip-and-replaces

Respondents have diverse responses in how they manage IT/OT integration. The largest cohort (39% of the sample) said they were still working on integrating new OT systems to get the most out of them. Another fifth is planning to install a completely new OT system with the newest capabilities (which include easier interfaces with IT systems). The remaining companies have opted for a retrofitting approach – about a third are planning to invest in retrofitting all legacy OT systems to enable digital capabilities, and another 10% are planning to only retrofit the highest impact portions of their OT systems.

OT digitilisation approach and priorities

- New OT systems and facilities with the latest capabilities **(19%)**
- Integration of recently installed OT systems and facilities **(39%)**
- Retrofit of all legacy OT systems **(32%)**
- Partial retrofit of legacy OT systems where impact is greatest **(10%)**

Source:
Bespoke GlobalData Survey

Smart connected products: data driven innovation and new market creation

The widespread adoption of industrial digitalization is a key enabler of new business models. Companies should shift to viewing data from infrastructure and smart connected devices as a long-term asset, integrating it into their core offerings to drive sustained growth and create innovative products and services.

Enabling usage and subscription-based B2B business models

Extensive monitoring and tracking of assets can allow a shift from ownership and CAPEX-based investment models to leasing and OPEX-based approaches. The ability to monitor assets and their usage means that maintenance, recovery, and replacement are more reliable. It also means that usage-based payments are possible. This approach is similar to an industrial cloud, whereby pricing is based on usage rather than ownership of the asset. This applies to industrial companies themselves (investing in their own infrastructure and manufacturing capacity for example). It can also apply downstream to their customers, meaning that a customer can lease, rather than buy, very expensive industrial equipment or vehicles. Such arrangements can benefit both sides, since the manufacturer receives a recurring source of revenue and the user does not require massive capital investment and can have a contract that includes equipment use, insurance, training, support, maintenance and repair and replacement.

B2C and the B2B2C usage-based models

Similarly to its application to the B2B space, subscription and usage-based models can be very appealing in the consumer segment,

if done right. Rather than paying for assets, customers can now pay based on the output or usage time, facilitated by IoT and asset tracking. For example, Jaguar Land Rover's DrivePivotal and Volkswagen's Car-Net offer subscription services that bill based on usage, enhancing both customer convenience and company revenue. BMW and Volvo have introduced subscription plans where customers pay for usage instead of ownership, offering inclusive mileage and regular vehicle trade-ins.

Monetizing IoT data

A promising (albeit risky) approach is the monetization of IoT subscription services. These services can scale to generate significant revenue and attract a large user base. By leveraging data subscriptions, companies can secure recurring, flexible, and scalable income from each IoT device they deploy. In such collaborations, device manufacturers can earn a portion of the revenue from data monetization, while partners manage data, analytics, and digital infrastructure.

Collecting and analyzing user data provides crucial insights into behaviors, patterns, choices, and activities. For instance, a sleep tracker can collect data and offer personalized coaching or insights via a mobile app, creating a high-value service for users. Similarly, a bicycle company can use geolocation data from connected bikes to offer services such as maintenance alerts, theft recovery, and usage-based insurance.

However, caution is required with these types of models, as some companies have found out, users are loath to cede control of the equipment they are using and their data, regardless of the formal business model. For example, when BMW tried to introduce fees for exceeding the terms of a lease, for example, by charging subscription fees for features like heated seats,

this faced a customer backlash. Similarly, John Deere has faced criticism (and now legislative pushback) for restricting repairs to their network, prompting customer complaints and efforts to circumvent these limitations.

Automatic Fulfillment and just-in-time supply chains

RFID technology and IoT are revolutionizing supply chains by enhancing asset tracking, identifying bottlenecks, and preventing theft. IoT systems can monitor inventory levels, redirect supplies based on global conditions, and ensure timely and safe deliveries, especially in sensitive cases like medical transportation.

These systems help maintain the right supply levels and reduce obsolescence. For instance, connected cars like those from Jaguar Land Rover, Volkswagen, and Volvo provide real-time updates on vehicle conditions, allowing for automatic service scheduling and ensuring the timely delivery of essential supplies. However, these approaches can also risk angering customers if their data is used in ways they find unfair or detrimental, so companies should tread carefully and ensure they thoroughly test and pilot these new business models.

Cheaper connectivity built into a wider range of devices also means that supply chains can automatically respond to consumer demand, even at the household level, or ensure that industrial supplies and manufacturing parts are always available when they are needed, while at the same time reducing wastage and keeping supply chains lean with lower stock levels. While extremely lean supply chains have lower redundancy and potentially lower resilience, connectivity and analytics can make such risks more visible and help mitigate them.

Conclusion

The success of industrial digitalization hinges on effective governance models that harmonize IT and OT strategies, address organizational barriers, and foster collaboration across departments and demonstrate tangible business benefits. While some companies have developed effective strategies to drive this transformation across IT and OT, others continue to struggle with conflicts, resource shortfalls, and misaligned priorities. Overcoming these challenges requires investment in governance, and planning, as well as improved staff training and engagement, and includes external support from trusted partners. Moreover, the rise of smart connected products presents significant opportunities for businesses to innovate and opportunities from combining data and applications from industrial systems, IT and external IoT systems.

Appendix: decision-makers' survey details and demographics

In order to gain a better understanding of the current state, needs and evolution of industrial digitalization and IT-OT overlap GlobalData commissioned a survey of high-level decision makers across industrial verticals.

The survey included 100 responses drawn from senior decision makers including C-level executives (23 responses), directors (38 responses) and managers or heads of departments (39 responses). The survey focused on large and very large organizations, with 64 responses coming from companies with more than 1000 employees, a further 33 coming

from those with more than 500 staff, but less than 1000. The remaining 3 are from companies with between 250 and 499 employees.

To ensure the relevance of the results, respondents were asked two screening questions to ensure that they are involved in decision making for IT, OT, or both.

In terms of the geographical and industry distribution, the survey sampling ensured a balanced response representative of companies that are likely to invest in Industry 4.0 and IoT, as well as having existing OT infrastructure.

NUMBER OF RESPONDENTS BY INDUSTRY VERTICAL	
VERTICAL INDUSTRY	**RESPONDENTS**
Process Manufacturing (Food/ Beverage, Energy/Utilities, Pharma)	35
Discrete manufacturing	35
Transport & Logistics	15
Automotive	15
TOTAL	**100**

NUMBER OF RESPONDENTS BY COUNTRY	
COUNTRY	**RESPONDENTS**
United States	20
Canada	7
Mexico	7
Brazil	6
United Kingdom	14
Germany	11
France	20
Spain	8
Italy	7
TOTAL	**100**

Sponsor

Business

Orange Business, the enterprise division of the Orange Group, is a leading network and digital integrator, supporting customers to create positive impact and digital business. The combined strength of its next-generation connectivity, cloud, and cybersecurity expertise, platforms, and partners provides the foundation for enterprises around the world. With 30,000 employees across 65 countries, Orange Business enables its customers' transformations by orchestrating end-to-end secured digital infrastructure and focusing on the employee, customer, and operational experience. More than 30,000 B-to-B customers put their trust in Orange Business globally.

Orange is one of the world's leading telecommunications operators with revenues of 39.7 billion euros in 2023 and 285 million customers worldwide at 30 June 2024. The Group is present in 26 countries (including non-consolidated countries).vIn February 2023, the Group presented its strategic plan "Lead the Future", built on a new business model and guided by responsibility and efficiency. "Lead the Future" capitalizes on network excellence to reinforce Orange's leadership in service quality.

Orange is listed on the Euronext Paris (ORA) and on the New York Stock Exchange (ORAN).

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