

Putting customers at the centre of the OEM supply chain



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Executive summary

Around the world, original equipment manufacturers (OEMs) have earmarked their supply-chain operations for digital transformation. The reasons for this technological undertaking are clear: manufacturers are on a mission to improve customer service and build stronger, closer links with the end-users of their products.

A vital part of this picture is the emergence of so-called smart products, enabled by the Internet of Things (IoT). These products, which transmit data back to an OEM about their condition and usage, present an opportunity for OEMs to communicate directly with end-customers and offer them add-on products and new services. At the same time, these smart products vastly extend the scope of the OEM supply chain.

New technologies that support data-driven decision-making are key to addressing the challenges posed by today's extended supply chains. But how willing are OEMs to deploy them, and how prepared are they to identify and act on the valuable insights new technologies will deliver? What are OEMs' aspirations for intelligent supply chains? And how can supply-chain transformation improve customer experiences?

These questions are the focus of this report by The Economist Intelligence Unit, which was sponsored by Microsoft. The research is based on a survey of more than 250 senior business executives at OEMs in North America, Europe and Asia-Pacific.

Key findings include:

- **Ninety-nine percent of OEMs believe that the digital transformation of their supply chain is important to meeting their organisations' strategic objectives.**
- **OEMs identify many emerging technologies as important to the collection, analysis and use of supply-chain data.** These include robotics (83%), IoT (71%), AI (63%) and blockchain (53%).
- **According to the survey results, AI, IoT and blockchain are the least widely used technologies.** Fewer than half (47%) of all respondents surveyed have either widely used or used at least one for specific projects. However, early adopters of these emerging technologies more frequently identify their organisations as better performers in terms of financial success relative to those that are still piloting and evaluating or have yet to implement at all. This trend suggests early adopters are already successfully integrating new technologies into the organisational strategy and deriving business value.

- **The stakeholders that OEMs most frequently partner with for collecting, analysing and using supply-chain data are B2B customers.** Forty-nine percent of respondents say they partner with them “a great deal”. Contact with direct customers, however, lags behind, with 43% of OEMs saying they partner with downstream B2B2C customers a great deal.
- **However, only half (51%) say that they use metrics relating to customer or stakeholder satisfaction to measure the success of digitisation in their supply chain, suggesting significant room for improvement when it comes to accurately identifying and meeting customer needs.**
- **OEMs are optimistic they can achieve meaningful business benefits from supply-chain transformation, including an improved ability to compete.** Eighty-seven percent agree that five years from now it will be easier for their organisation to collect, analyse and use supply-chain data to meet their strategic objectives.

CHAPTER 1: Introduction

The supply chains of original equipment manufacturers (OEMs) have always been complex and often unpredictable—but in the past, the supply chain typically ended once a product was successfully delivered, preferably on time, to a customer.

In today's hyper-connected world, OEMs are encountering new levels of complexity. Not only must they manage the inbound delivery of the supplies needed to make their products and the outbound dispatch of finished goods to customers, but also they increasingly find themselves overseeing an extended supply chain that continues once smart, connected products are received and installed by end customers.

Once in situ, these smart products use Internet of Things (IoT) technologies to transmit data back to the OEM about their condition and usage, alerting the OEM when they require maintenance work, or need a new part installing, or run low on vital consumables such as printing ink, detergent or sanding discs.

The good news is that the added complexity of the extended supply chain also brings added business opportunity. The smarter the product, the more an OEM knows about how it is being used and what the customer might need from them, creating a closed feedback loop between OEM and customer.

For forward-thinking OEMs, the extended supply chain is a chance to launch a whole range of often highly personalised add-on services to customers and, in return, gain vital new insights about their needs. It may even give rise to entirely new business models: when an OEM has real, data-based insight into exactly how and when a product is being used, it can move away from selling products to customers on the basis of a one-off, upfront purchase price, and charge them regular, pay-per-use fees. Rolls-Royce, for example, takes a monthly fee from customers of its jet engines that is based on flying hours. Sellers of industrial machinery such as Sandvik Coromant and Tetrapak are exploring the concept of charging customers for parts machined and containers filled, respectively.

OEMs agree that new technologies hold the key to better customer insight and service, fuelled by data collected at every stage in this extended supply chain. In a new survey of more than 250 senior business executives at OEMs worldwide, conducted by The Economist Intelligence Unit and sponsored by Microsoft, executives are almost unanimous in their agreement that digital transformation of their organisation's supply chain is important to meeting its strategic objectives and competing in the marketplace. Nearly all respondents (99%) think it is important, with more than six out of ten (62%) regarding it as very important.

The hope is that a more intelligent extended supply chain, powered by data from both internal sources and smart products, when combined with advanced analytic capabilities, will create new opportunities for competitive differentiation.

But in order to take advantage of these new opportunities, OEMs must cast their net much wider, collecting data from many different sources, in unprecedented volumes, in order to gain new insights into product performance, customer usage and business outcomes, as well as end-to-end supply-chain performance.

In order to do so, they will need to continue to invest in cloud, in order to access the almost limitless computing power and storage capabilities that it offers. They will need to use global cloud infrastructure to collect, store and process huge volumes of IoT data gathered from their own assets and systems and from smart products already installed with customers.

They will also start to explore how newer, emerging technologies such as artificial intelligence (AI) and blockchain might help to introduce intelligence, traceability and increased security to their data infrastructure and analytics capabilities in order to get the most from the extended supply chain.

“Senior supply-chain professionals have typically been accustomed to working with a fairly limited set of data to drive their decisions—but that’s all changed now,” says Daniel Helmig, group head of quality and operations at Swiss-Swedish industrial group ABB.

“Big data is a massive opportunity for supply-chain management because it has the potential to deliver real transparency and totally change our view of supply-chain performance. Our thinking can be guided by a clearer view of reality, rather than our best guesses of what we think is happening in the supply chain, based on an incomplete set of rather fragmented information,” he says.

“But being able to take advantage of the huge volumes of data available to us—and these are growing every day—demands a mindshift among supply-chain professionals, based on using new levels of visibility to respond to issues quickly and decisively. Supply-chain transformation is not about digital technology itself, but about the insights and actions that digital technology can enable.”

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CHAPTER 2:

New technologies, new opportunities

At China-based ICT provider Huawei Technologies, a more digitised, extended supply chain plays a key role in the company’s strategy to put the needs of customers at the heart of everything it does, according to Lorenzo Fornaroli, senior director of global logistics and supply chain.

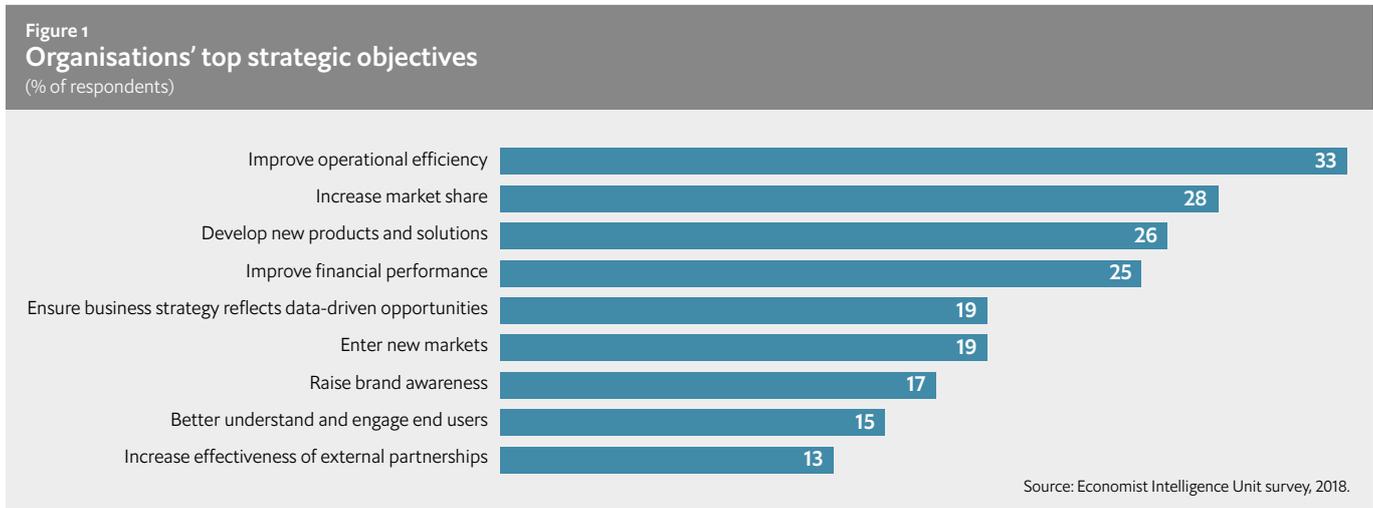
“Our high-level objectives are ones that we share with other companies: we want to be responsive to customer demand and deliver the best customer experience possible,” he says.

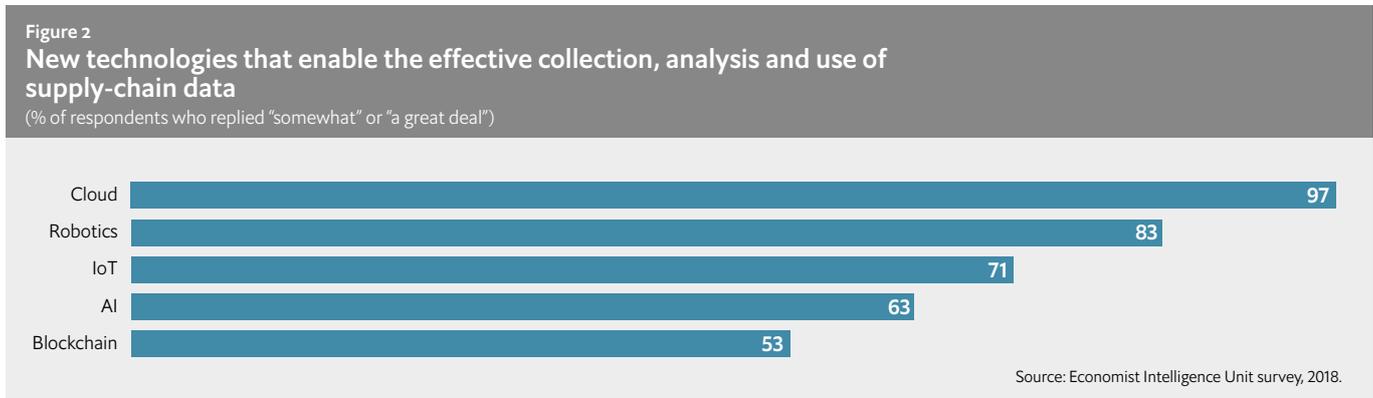
But, he concedes, the company has a “distinct advantage” over many other OEMs, “because as an ICT company, we have the internal resources needed to identify new technologies early and deploy them effectively. Skills and experience with these technologies are readily available in-house,” he says.

The bedrock of the enhanced customer experience that Huawei targets, he adds, is operational efficiency. “Digitisation delivers operational efficiency by reducing manual work, increasing automation and speeding up access to information to make decisions faster,” he says. “It’s about achieving a higher level of intelligence across the end-to-end supply chain.”

That view is echoed by survey respondents. When asked about their organisations’ top strategic objectives, improving operational efficiency is the number one response among OEMs surveyed, cited by one in three (33%) respondents.

But at the same time, they’re looking beyond day-to-day activities, citing increasing market share (28%), developing new products and services (26%), both goals with the customer at their heart, as well as improving financial performance (25%). And beyond that, ensuring that the business strategy reflects new data-driven opportunities and entering new markets are each cited by 19% of respondents.





They see great promise in several new technologies in helping them reach these goals. The technologies that they consider most important to the effective collection, analysis and use of supply-chain data are cloud (97%), robotics (83%), IoT (71%), AI (63%) and blockchain (53%).

The emphasis on cloud makes sense: it is, after all, an OEM's best chance of being able to gather data at unprecedented scale and low cost and put it to use. It's also an opportunity to experiment with new approaches such as high-performance computing for analysis and simulation. Few, if any, have ever had the on-premise infrastructure or skills available, most commonly associated in the past with universities and research laboratories, to use such advanced techniques on growing volumes of IoT data from supply-chain assets and smart products in the field.

But there is still much work to do. When asked which of these technologies are already widely used across their companies, respondents put cloud in front (61%). Lagging by some distance are robotics (18%) and IoT (16%), while blockchain and AI have yet to see widespread usage, cited by just 5% and 4% of respondents, respectively.

The widespread usage of cloud is notable given that, in just the past few years, manufacturers have largely overcome concerns about its adoption. This suggests that many now consider it a foundational component of their organisation's onward digital strategy. This is hardly surprising, given the vast geographic footprint of many supply chains and the impact that IoT technologies are having on them in terms of the need to collect and store huge volumes of data, often in real time.

IoT, in particular, via real-time data collection, offers a potential bridge between the cloud and the advanced algorithmic decision-making available from AI. Indeed, IoT may potentially fuel the analytics capabilities of AI by collecting and aggregating the data most useful to businesses, across every stage of the extended supply chain.

Blockchain, however, remains in the early stages of commercialisation. Use of distributed ledger technology will likely increase in coming years as more OEMs experiment with and scale up different blockchain-based solutions like smart contracts or inventory tracking.

Importantly, OEMs that have already taken bets on these technologies believe they are already reaping the benefits of competitive advantage.

According to the survey results, AI, IoT or blockchain are the least widely used technologies. Fewer than half (47%) of all respondents surveyed have either widely used or used at least one for specific projects. However, early adopters of these emerging technologies more frequently identify their organisations as better performers in terms of financial success, relative to those that are still piloting and evaluating or have yet to implement at all. This trend suggests early adopters are already successfully integrating new technologies into the organisational strategy and deriving business value.

Take cloud adoption, for example: among respondents at organisations that have already implemented cloud, 58% describe their organisation as being moderately or significantly ahead of their industry peers in terms of financial performance, compared with 50% at organisations that don't use cloud.

Five key supply-chain technologies

1. Cloud

Cloud has played an increasingly important role in supply-chain transformation in recent years, thanks to its facilitation of hosted platforms where supply-chain data can be easily shared and analysed at scale and at low cost. This change has liberated a great deal of useful data previously locked away on in-house, back-office systems at individual companies. It is also the logical destination for collecting, storing and processing the data that stream from smart products, giving clues into their condition and the ways that they are being used by customers.

2. Robotics

In factory and warehouse environments, robotics often perform tasks such as product assembly and order picking, typically faster and with a greater degree of accuracy than humans. Modern robotics integrate well with other supply-chain technologies, which enable them to sense their surroundings, work co-operatively with people and more rapidly adapt to new tasks.

3. Internet of Things (IoT)

The "Industry 4.0" trend has led many warehouse and plant-floor assets to bristle with sensors, offering factory managers a real-time view of inventory levels and production processes. Machine-based sensors can help

predict equipment failures, and telemetry systems on connected vehicles enable them and the goods they carry to be tracked at every stage of the delivery journey. This is also the foundational technology underpinning smart products, enabling them to communicate directly with original equipment manufacturers (OEMs) and creating a direct link between an OEM and its customer.

4. Artificial intelligence (AI)

AI is changing supply-chain activities by aiding decision-making and process automation in areas such as demand forecasting, production planning and order fulfilment. Complex AI algorithms can analyse large quantities of data, learn from the results and use this knowledge to continuously refine and improve business strategies, operations and processes. With smart products, it is used in approaches such as predictive maintenance, to forecast when a product might require servicing, based on the data it transmits back to the OEM.

5. Blockchain

This technology helps make supply chains more transparent and efficient. It provides multiple parties in an end-to-end supply chain (such as parts suppliers, OEMs and logistics providers) with a shared and immutable record of the delivery of goods, as parts and then products make their journey to the end-user.

In terms of IoT, among respondents that have already implemented this technology, 67% describe their organisation as being ahead in terms of financial performance, versus 48% at those that have yet to adopt it.

With AI, 63% of respondents at organisations that have adopted the technology describe these organisations as being ahead of peers in terms of financial performance, compared with 53% at organisations that haven't adopted the technology. This strongly suggests that early adopters of technologies that drive greater supply-chain visibility and lay the groundwork for an extended supply chain are already reaping the financial rewards.

CHAPTER 3:

Data fuel the intelligent supply chain

Collecting data from existing and new technologies is a step in the right direction. But true transformation of the extended supply chain can only happen by using data-driven insights to improve customer service, cost and agility.

“In the past, a great deal of supply-chain decision-making was based on intuition, because data wasn’t available,” says Sheri Henck, vice-president of global supply chain, distribution and logistics at Medtronic, a US-based manufacturer of medical equipment and devices.

“Today, there’s plenty of data available, but there’s also a recognition that skills and competencies for supply-chain leaders and their teams need to change if we are to make the most of data and use it to make data-driven recommendations and decisions,” she adds.

That’s a view echoed by analysts at strategy firm McKinsey in a mid-2017 report, *Digital supply chains—do you have the skills to run them?*. Its authors write: “To drive digital supply-chain transformations, supply-chain leadership must combine traditional functional and leadership capabilities with new technical skills that span data, algorithms, and technology. And they need to understand more than just what these innovations are: they must also understand whether—and how—they create real value for the businesses they are supposed to support.”

At present, they continue, significant skills gaps can be detected in the supply chain teams at most organisations—and recruitment alone won’t tackle the problem. “In the short term, automation and digitisation will create more roles for data scientists, analytics engineers, and IT and big-data specialists, who bring new knowledge to the supply-chain organisation. But to produce lasting results, this new talent will need training in supply-chain management, or support from ‘translators’ who blend functional and digital knowledge.”

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Sheri Henck, vice-president of global supply chain, distribution and logistics, Medtronic

Figure 3
Wide range of data collected, used and analysed
(% of respondents who replied they were “very successful” at collecting, using and analysing these types of data)



Source: Economist Intelligence Unit survey, 2018.

Additionally, OEMs need to be sure they have the “right” data when making decisions. Indeed, it is one challenge to make sure data are available but entirely another to ensure it is the type of data most useful for business decision-making.

When asked which types of supply-chain data they consider most helpful in meeting their organisation’s strategic objectives, customer data comes out on top, cited by 52% of respondents, followed by supplier data (47%), internal manufacturing data (45%) and logistics data (43%).

The survey reveals that a wide range of data are considered valuable in supply-chain transformation. When it comes to collecting, using and analysing the data very successfully, supplier data comes out on top, according to 51% of OEMs. Next on the list come end-user data (48%), and customer data and internal manufacturing data (both 47%). Logistics data (41%) and contract manufacturing data (34%) are also cited by survey respondents.

Despite the challenges involved in collecting such a wide variety of data, most OEMs have prepared for, initiated and begun to benefit from the data in a number of ways. Forty-nine percent have digitised information from supply-chain operations a great deal and made it available across their organisation, while almost the same proportion (51%) have identified supply-chain data of business value. Meanwhile, 50% of respondents have used supply-chain data a great deal to better manage their customer service operations.

Other steps taken include:

- Assessing and preparing for data-related risks (44%);
- establishing policies and procedures to gather supply-chain data (47%);
- identifying strategic insights from the data (51%);
- using the data to better manage factory operations (54%); and
- using the data to inform new products and services (41%).

Third-party data from supply-chain partners are an important part of this picture, too. The OEM model, after all, often involves business-to-business (B2B) customers who are responsible for reselling and distributing products to downstream end consumers, or B2B2C customers.

The effort to partner with supply-chain stakeholders is already under way among OEMs, but they anticipate much work ahead. Compared with five years ago, 75% partner with stakeholders more frequently. Looking ahead, this collaboration looks set to continue, with 89% expecting to partner with supply-chain stakeholders more frequently in the next five years.

The stakeholders that OEMs most frequently partner with for collecting, analysing and using supply-chain data are B2B customers. Forty-nine percent of respondents say they partner with them “a great deal”. Contact with direct customers, however, lags behind, with 43% of OEMs saying they partner with downstream B2B2C customers a great deal. Still, that’s ahead of the companies that deliver finished

Figure 4
The importance of stakeholder partnerships
(% of respondents who partner with other supply-chain stakeholders a great deal to collect, analyse and use supply-chain data)



Source: Economist Intelligence Unit survey, 2018.

products to customers (outbound logistics partners) and those delivering materials, parts and components to OEMs (inbound logistics partners), with 41% and 37% of OEMs, respectively, saying they partner with these companies on supply-chain data “a great deal”.

However, only 51% say that they use metrics relating to customer and/or stakeholder satisfaction to measure the success of digitisation in their supply chain, compared with 62% using improved profitability. This suggests that links with end customers are still not as strong, or offering as much insight, as OEMs would like.

CHAPTER 4: Mapping the journey

There is still much work to be done and, for many supply-chain professionals, significant barriers to more efficient analysis and use of data persist.

Respondents do not underestimate the challenges ahead. Top of the list of barriers is cost (cited by 32%), followed by the difficulty of integrating new technologies with legacy systems (24%), changing customer needs (23%), an overwhelming amount of data (23%) and security concerns (22%).

For most OEMs—and most businesses in general—the journey to the intelligent supply chain will likely be based on incremental improvements. Maturity levels in overall digitisation or adoption of emerging technologies may be low for many businesses today, but companies are already building foundations for real benefits over time.

For example, a 2017 cross-industry study from McKinsey suggests that the average supply chain has a digitisation level of just 43%.¹ (Of course The Economist Intelligence Unit study just looked at OEM manufacturers). But the same study points to potentially huge wins from supply-chain transformation, suggesting that, on average, companies that aggressively digitise their supply chains might expect to boost annual growth of earnings before interest and taxes by 3.2% and annual revenue growth by 2.3%.

Survey respondents are optimistic that they can achieve meaningful business benefits from supply-chain transformation. Five years from now, 34% expect supply-chain data to have improved operational efficiency at their company, while 32% believe it will improve supplier management. Respondents also anticipate improvements in cyber-security, employee productivity and customer engagement (each cited by 28% of respondents).

On this last issue of customer engagement, Mr Helmig points to a trend he has seen in recent years. ABB may be in the business of selling large-scale industrial products—from high-voltage power lines to electric propulsion systems for ships—but its customers have increasingly high expectations for delivery. “They expect transparency,” he says. “They expect to be able to have real-time insight regarding

¹ <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-case-for-digital-reinvention>

Figure 5
Top strategic challenges
(% of respondents selecting their top three)



Source: Economist Intelligence Unit survey, 2018.

the location of their delivery and an estimated time of arrival—and we agree they should have those things, too. It's something we're working on right now, using a range of analytics.”

And once smart products are installed with customers, they can be a rich source of demand data, alerting the OEM to customer needs when it comes to maintenance services, for example, or consumables. In other words, this could be the start of an ongoing conversation between an OEM and the customer around a product's maintenance, replenishment and eventual replacement.

It can also open up entirely new business models: a smart product that constantly transmits data on how it is being used is a prime target for being offered on a pay-per-use basis, rather than merely for a one-time, upfront purchase fee. As previously mentioned, these charges are likely to focus on business outcomes: flying hours, parts machined, bottles filled and so on.

Finally, an in-depth understanding of how a product is used by the customer offers opportunity for individualisation, particularly in the case of high-value products, which might be tailored or customised based on individual end-customer needs.

In the survey, for example, 49% of respondents say their organisation is “somewhat prepared” for new business models such as renting versus selling, while 37% say they are “very prepared”. This is clearly a goal towards which OEMs want to move. That said, the effort involved should not be underestimated; the focus on customer outcomes and customised products introduces new complexities, in the form of services tailored to the individual needs of customers and a greater number of product variants. OEMs will potentially need to tweak their field service provision and inventory strategies in order to be able to fulfil their promises to every customer.

The evolving demands of customers are a central issue for any business strategy, including those regarding supply-chain transformation. A primary objective of digitisation and the uptake of advanced tools like IoT and AI is the continuous improvement of customer service. Having real-time access to data, from end-users to suppliers, with predictive decision-making tools offers businesses the opportunity to constantly monitor metrics like performance and customer satisfaction, and in turn adjust their operations based on new insights.

Indeed, for Ms Henck at Medtronic, supply-chain innovation is about making a meaningful contribution to the overall business improvement, “because so much of how well a business operates comes down to supply-chain processes,” she says.

Ms Henck adds, “For example, an executive team needs to know the company can meet customer demand, without spending money unnecessarily on storing excess inventory, but instead using it to develop and ship new products. So for supply-chain professionals, I see my role as being a trusted informant to the business, who helps it run better and identify new strategies for growth.”

“For example, an executive team needs to know the company can meet customer demand, without spending money unnecessarily on storing excess inventory, but instead using it to develop and ship new products. So for supply-chain professionals, I see my role as being a trusted informant to the business, who helps it run better and identify new strategies for growth.”

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CHAPTER 5:

Conclusion

As supply chains become more intelligent, a huge opportunity exists for OEMs to become more responsive to customer demand and ultimately differentiated in the marketplace.

"I always tell my team that bottlenecks are inevitable, and so are gaps in the supply chain. These will always occur when an organisation of significant complexity is operating at scale," says Mr Helmig of ABB.

He adds, "What really matters is that we are able to identify these gaps quickly and then devise with a viable plan to fix them in ways that lead to longer-term process improvements across the company."

As digital transformation of supply chains takes hold, there is plenty of opportunity for manufacturers to use their data and analytics capabilities to drive business decision-making, continuously improve customer service and yield innovations in business strategy. But on top of that, there are potentially far greater opportunities to introduce new add-on services, as well as entirely new business models, to customers, as products become smarter.

Those OEMs that are most successful at closing the digital feedback loop, or leveraging the proliferation of data to generate new business insights and create customer value, will likely prioritise the following steps:

Keep customer needs top of mind

Today's customers expect far more than just on-time delivery of a product order. In the extended supply-chain model, they're looking for ongoing support and services from OEMs. This will require OEMs to take a fresh look at the data coming from smart products sold to customers and the clues this might give to keeping the OEM-to-customer conversation going throughout the whole lifetime of a product and to sell that product in new, innovative ways, with a firm focus on customer outcomes. These data can also be a valuable source of information on wider trends in demand, by which an OEM can gauge wider market dynamics that will influence future customer buying decisions.

Identify valuable sources of data

Begin with structured data from back-end ERP systems but widen the net as soon as possible to include data, for example, from sensors, meters and devices on the IoT-enabled factory floor and warehouse, and from telemetry systems on delivery vehicles. Don't neglect information from supply-chain partners and, in particular, B2B customers in the distribution channel and the B2B2C end consumer. Perhaps most importantly, be sure to have in place a data strategy to support the telemetry data coming from smart products that is capable of scaling as new products are launched and richer data are fed back from those already in the field.

Develop analytical approaches that create transparency and traceability

Beyond the descriptive analytics that provide basic metrics on supply-chain operations (how many widgets are sitting in the warehouse or when an order was loaded on a delivery truck), OEMs must start to explore predictive analytics that alert them to possible future scenarios and prescriptive analytics that suggest remedial actions. In this way, they will be able to shine a light on areas of supply-chain operations that might otherwise be hidden from view.

Share findings with the wider business and other companies in the supply chain

Improvements in supply-chain performance will affect many other areas of the business, such as strategy, manufacturing and customer service. Supply-chain professionals who provide regular and valuable feedback on how smart products are performing in the field to colleagues from other areas of the business will likely be seen as trusted advisers to top-level executives and perhaps be given a bigger say in future company decisions.

Appendix: Survey results

Percentages may not add to 100% owing to rounding or the ability of respondents to choose multiple responses.

What are your organisation's top strategic objectives?

(% of respondents)



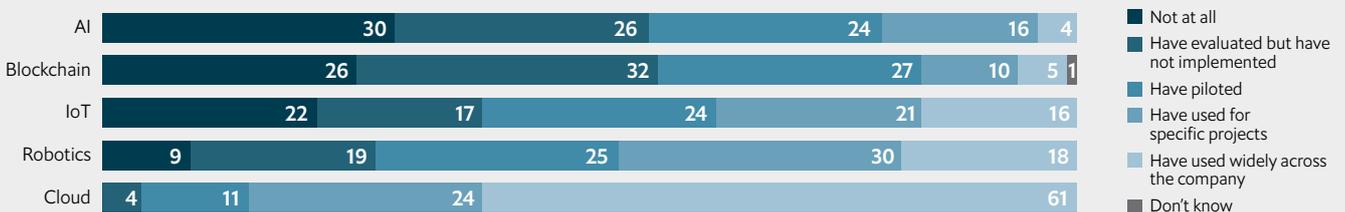
How important is the digital transformation of your organisation's supply chain to meeting your strategic objectives?

(% of respondents)



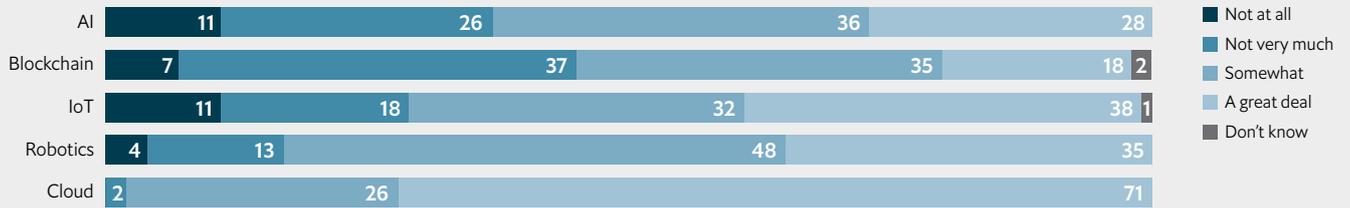
To what extent, if at all, is your organisation adopting or implementing each of the following technologies?

(% of respondents)



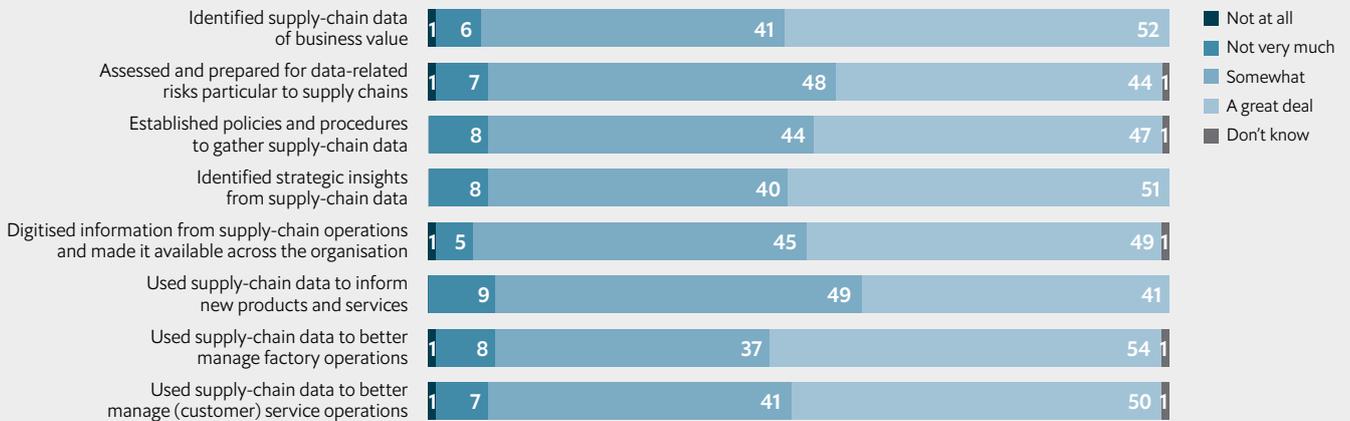
How important, if at all, are each of the following technologies to the effective collection, analysis and use of supply-chain data?

(% of respondents)



To what extent, if at all, has your organisation done each of the following?

(% of respondents)



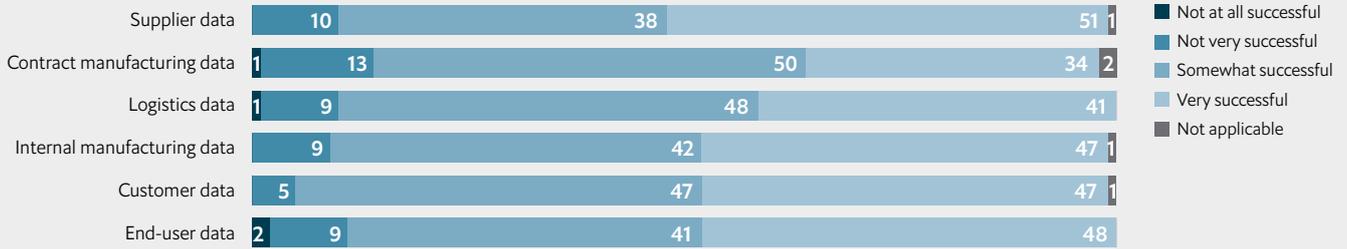
What type of supply-chain data do you expect to be most helpful in meeting your organisation's strategic objectives?

(% of respondents)



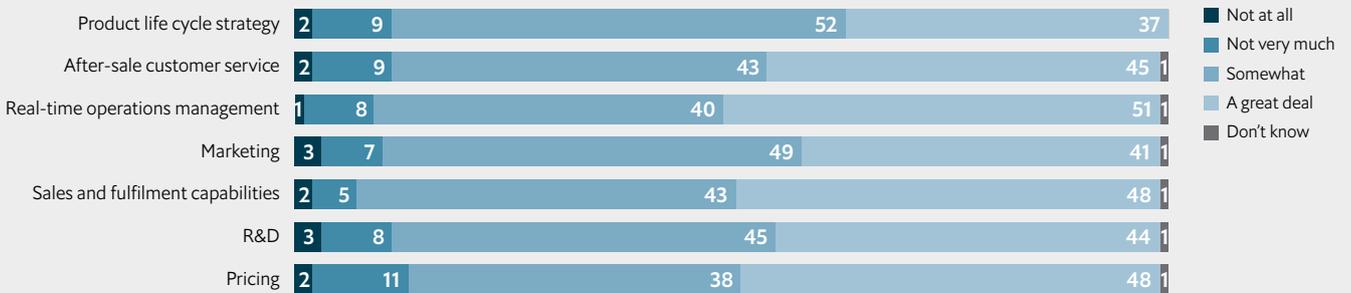
To what extent, if at all, has your organisation been successful at collecting, using and analysing each of the following types of supply-chain data?

(% of respondents)



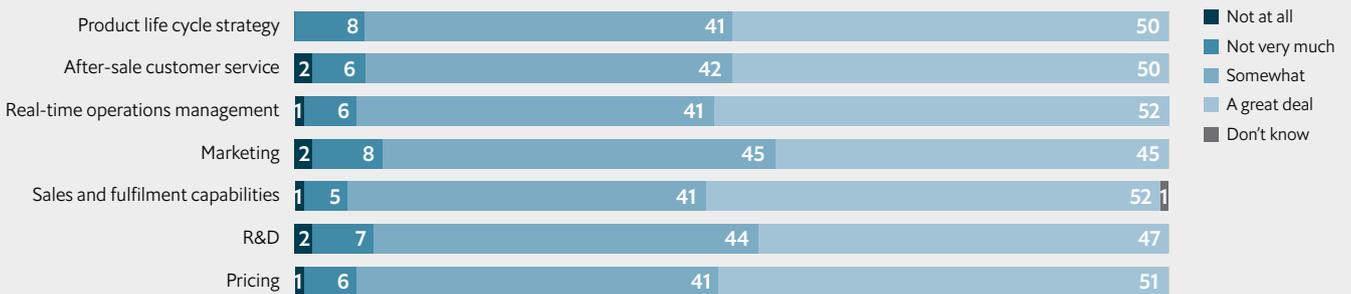
To what extent, if at all, are supply-chain data currently used to inform each of the following practices in your organisation?

(% of respondents)



To what extent, if at all, do you expect supply-chain data to improve the effectiveness of each of the following areas of operations as they relate to your organisation over the next five years?

(% of respondents)



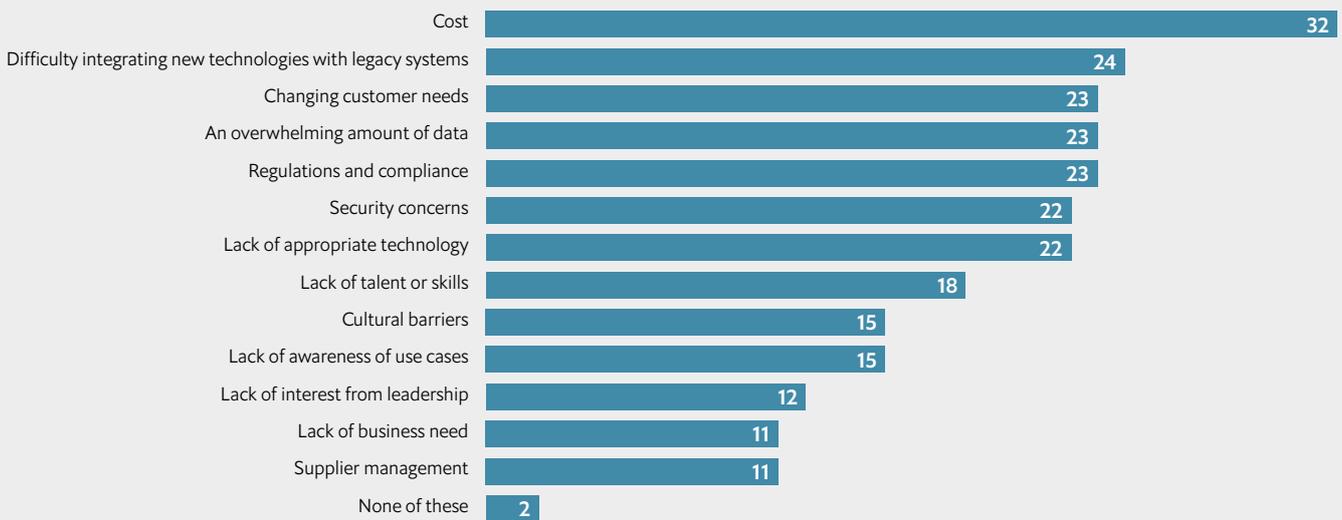
Five years from now, in which of the following business areas would you expect to see the greatest improvements from use and analysis of supply-chain data at your organisation?

(% of respondents)



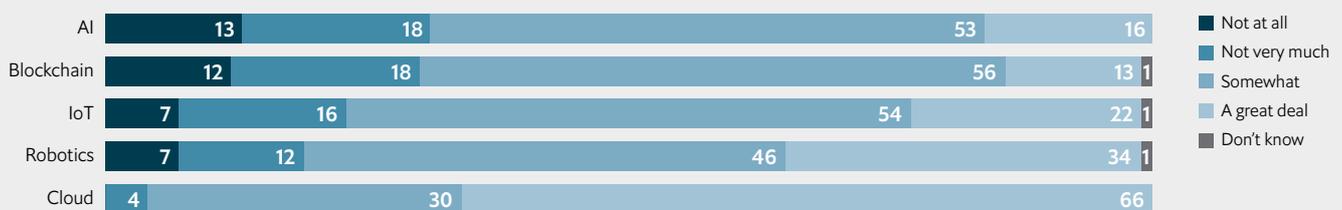
What are the greatest barriers to more efficient use and analysis of supply-chain data at your organisation?

(% of respondents)



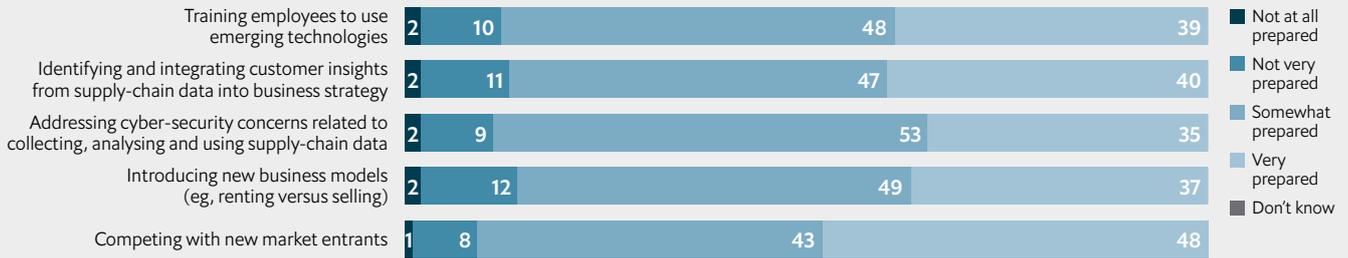
To what extent has each of the following technologies been integrated into supply-chain processes?

(% of respondents)



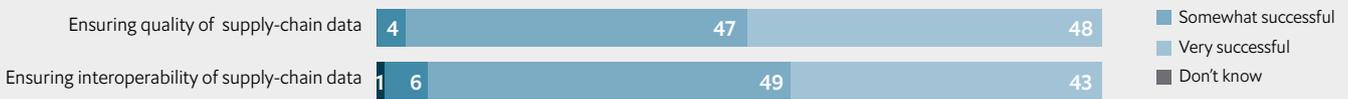
To what extent, if at all, is your organisation prepared to address each of the following challenges?

(% of respondents)



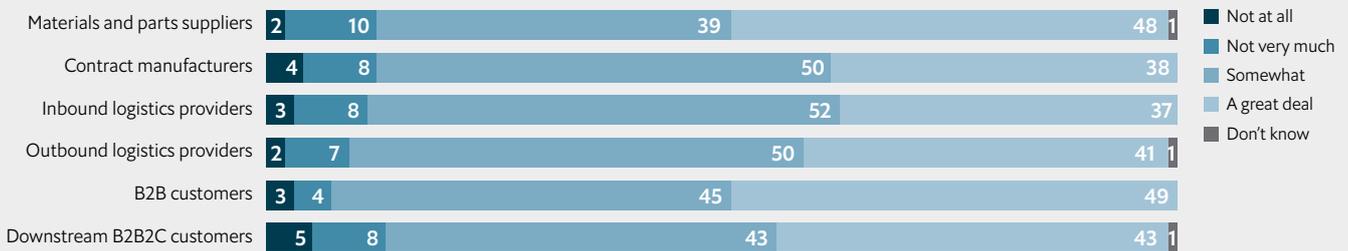
How successful is your organisation at each of the following practices?

(% of respondents)



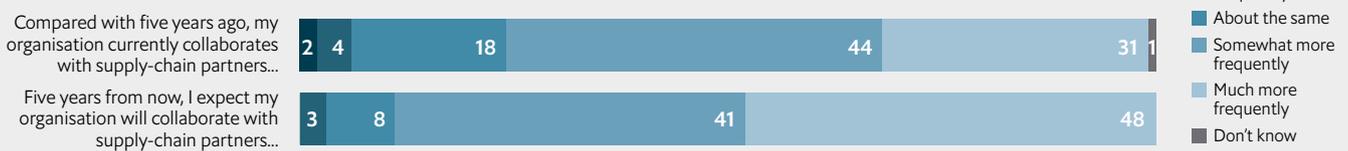
To what extent, if at all, does your organisation partner with other supply-chain stakeholders to collect, analyse and use supply-chain data?

(% of respondents)



Considering the extent to which your organisation partners with supply-chain stakeholders, please select the answer that most accurately completes each of the following statements.

(% of respondents)



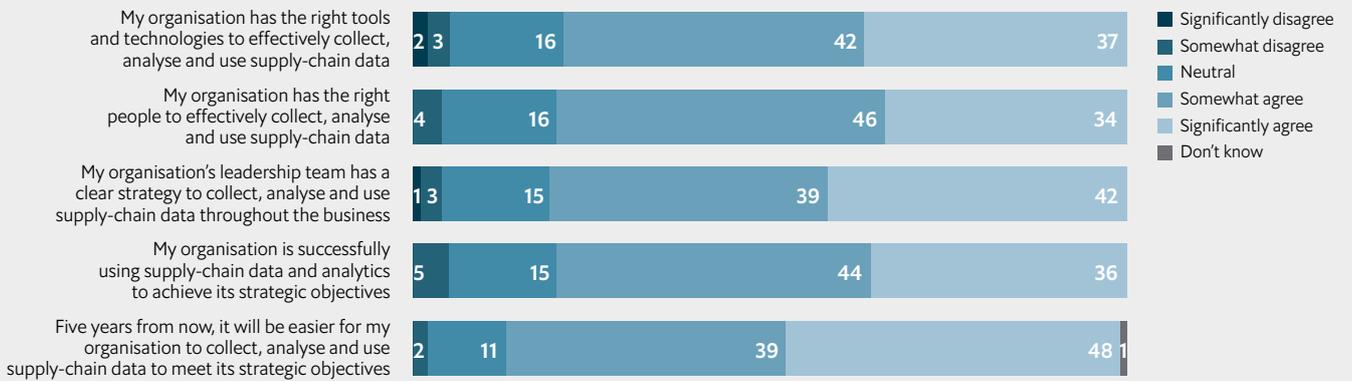
What metrics, if any, does your organisation use to evaluate the role of digitisation in your supply chain?

(% of respondents)



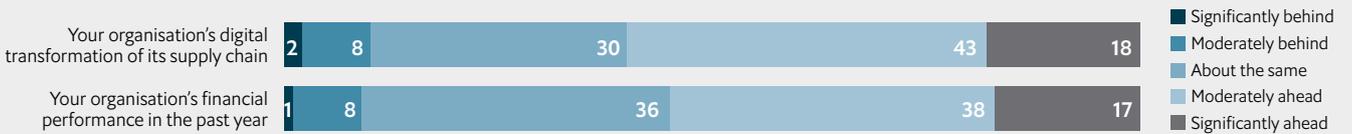
To what extent, if at all, is your organisation adopting or implementing each of the following technologies?

(% of respondents)



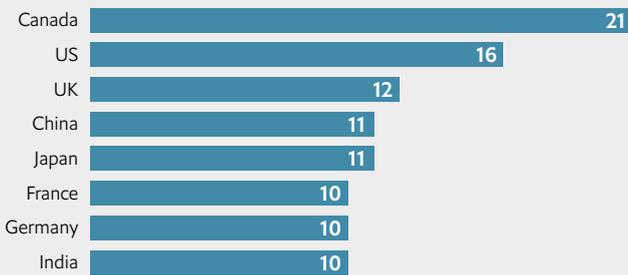
How would you describe your organisation relative to industry peers for each of the following?

(% of respondents)



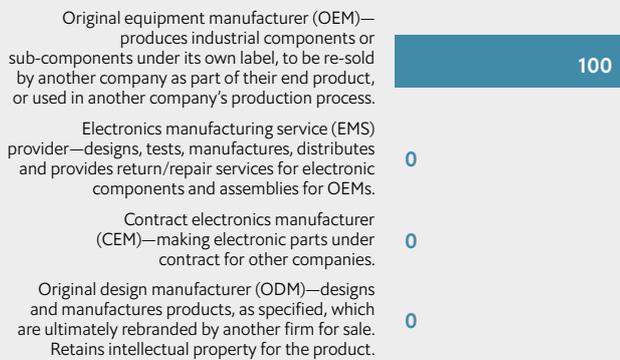
In which country are you personally located?

(% of respondents)



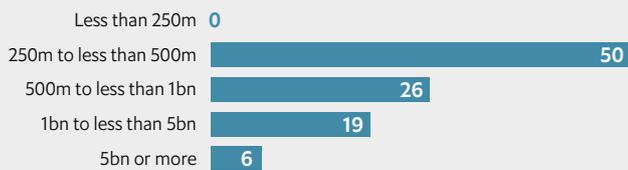
Which of the following best describes your organisation?

(% of respondents)



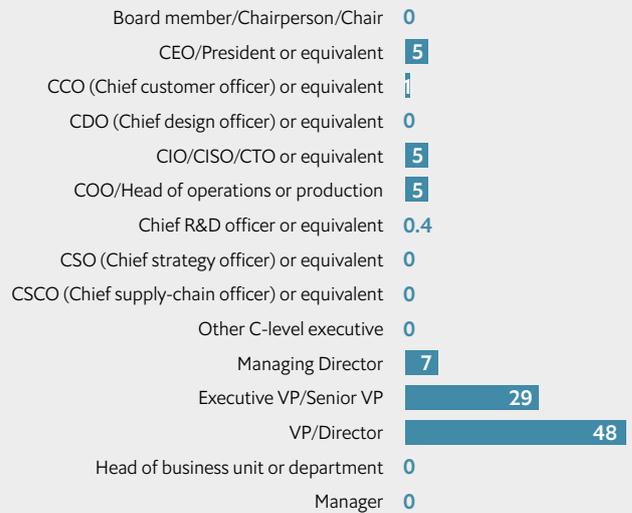
What is your organisation's annual global revenue in US dollars?

(% of respondents)



Which of the following best describes your title?

(% of respondents)



What is your main functional role?

(% of respondents)



To what degree are you familiar with your organisation's strategy and initiatives for digitising its operations and supply-chain management?

(% of respondents)



While every effort has been taken to verify the accuracy of this information, The Economist Intelligence Unit Ltd. cannot accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in this report. The findings and views expressed in the report do not necessarily reflect the views of the sponsor.

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