# Digital Transformation Survey

## Creating Products and Services in a Digital World

EXCLUSIVE RESEARCH FROM

CorporateLeaders
BUSINESS TRANSFORMATION NETWORK

SPONSORED BY

ptc

# CONTENTS



# Introduction: Strategic Transformation

Manufacturing processes and Product Lifecycle Management (PLM) are being transformed by the digital revolution. The digital PLM solutions now available provide seamless product data management throughout the entire production process – from inception through to design, engineering, customer services, even after-sales performance feedback in the field. Traditional production lines have been revamped with connected technology offering real-time information, allowing for faster innovation, improved efficiency, increased quality and shorter time-to-market. Closed-loop PLM now allows manufacturers to plan and develop new products while the service team has the most up-to-date product information.

However, many firms are lagging behind and failing to compete in this world of continuous product innovation. The new market opportunities offered by a common digital product platform are being missed by firms that remain tied to traditional processes. Despite the clear benefits of digital PLM, IoT (Internet of Things) and the cloud, some companies are putting their futures at risk by letting the digital revolution pass them by. To highlight the benefits and barriers organizations face on the road to digitalization, CorporateLeaders and PTC undertook an international, multi-sector survey of 128 executives involved in product development from April to May 2018. The results offer a fascinating insight into where companies are at on their strategic transformation journey.

The new market opportunities offered by a common digital product platform are being missed by firms that remain tied to traditional processes.

# PLM: Realizing the Benefits

The concept of Product Lifecycle Management (PLM) – managing the entire lifecycle of a product from inception, through to design and manufacturing, to service and disposal – has long existed. But digital PLM has transformed this process by replacing guesswork with precise data sourced at every stage of production, even after sale.

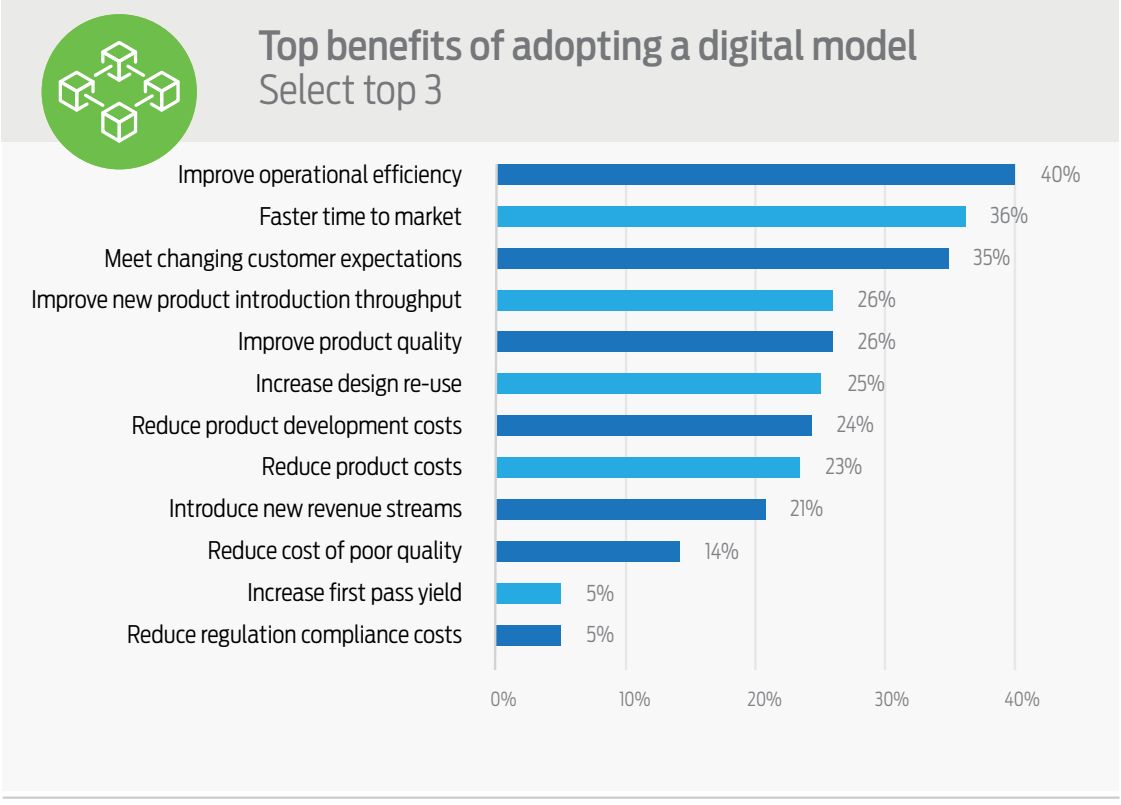
The survey findings suggest that the organizations that have digitalized their processes have leveraged digital data in customer services, digital operations, manufacturing, and benefited from internet-connected products across a range of engineering applications. The top three benefits of adopting a digital model cited by the survey respondents were improved operational efficiency (40%), faster time to market (36%), and meeting changing customer expectations (34%). Close behind in joint 4th place (each on 26%) are improved product quality, increased design re-use and improved new product throughput.

The need for speed, quality and efficiency are the big emerging themes.

The need for speed, quality and efficiency are the big emergent themes from the survey data. Design re-use has a clear impact on cost of goods sold, as the cost of managing a brand new product through an organization is significant. Slow manual processes affect innovation: if design engineers have to go down to the factory floor to fix their yield, it is taking them away from their core role: to innovate the next big product.

When asked 'How familiar are you with Product Lifecycle Management?', on a scale of 1 to 5, roughly half of respondents (52%) chose 1-3 – in the learning stages of PLM – while the other half (48%) chose 4-5, with an expert level of understanding.

The manufacturers polled in this survey are therefore aware of the benefits of digital PLM and the need to transfer. In order to capitalize on that value, they need really good digital data, and that data needs to be controlled and it needs to be traceable. This digital thread starts with their PLM system.



# Stages in the Digital Transformation Journey

The survey found that the most successful companies are the quickest to embrace digital PLM: 52% of companies with more that €1b revenue are already in the process or have completed the digital transformation of PLM, compared to just 22% of companies with up to €50m and between €200m - €1b in revenues, and only 4% of companies between €50m - €200m of revenue.

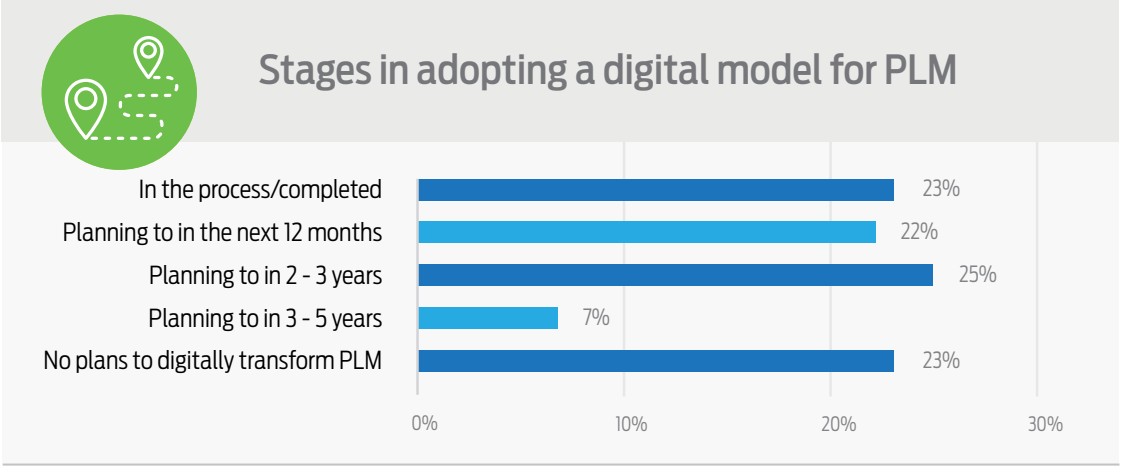
When asked to rate how their organization leverages digital to create products and services, more respondents agreed that they are able to gather data about their products, processes, and systems (62%) compared with those that disagreed (21%) – the remaining 17% neither agreed nor disagreed. Similarly, more companies (50%) agreed that they are able to leverage activities and technologies to deliver new value for smart, connected products throughout their lifecycle, compared to those that disagreed (25%). However, the balance shifted in response to 'We are achieving results through proactive decision-making and simulation based on real-time product usage and performance analytics' – 39% disagreed while 37% agreed, and 24% remained uncertain.

Almost half of survey respondents have plans to complete their digital PLM model within the next 1-3 years showing the move towards digitalization is well underway.

While only 23% of all companies have already completed or are in the process of completing their digital PLM model, almost half of survey respondents (47%) have plans to do so within the next 1-3 years. This shows that the move towards digitalization is well underway. A smaller number (7%) are looking to longer term plans of 3-5 years out. Worryingly, quite a high number (23%) have no plans at all to digitally transform PLM. This opens them up to significant risk regarding the lack of oversight of downstream operations.

Digital PLM offers less engineering hours per product, more efficiency, faster turnaround, reductions in cost, increased yield, drives down warranty costs, and allows engineers to innovate more because they spend less time chasing down quality issues. The business implications of not adopting a digital model for PLM means opting out of all these opportunities because there is less access and control over digital data.

When asked more directly, 'Where is your organization in the digital PLM transformation journey?' Here, the largest percentage state 'implementation' (39%), while 22% are developing a digital PLM strategy and business case, and 22% are in the 'Monitoring and continuous improvement' stage. Just 9% are still assessing different options and solutions.



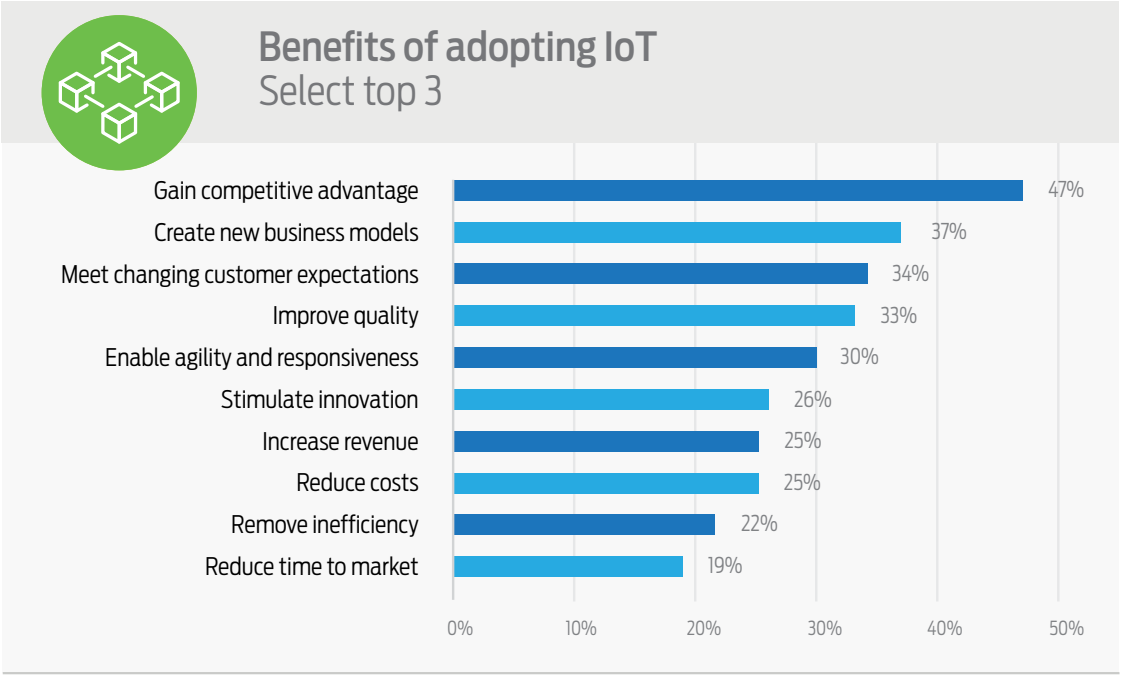
# IoT: A Connected World of Opportunity

The Internet of Things (IoT) – whereby products can connect to the internet and communicate with each other, with the consumer, and with their original manufacturer – offers both market-facing and internal benefits. The top four benefits cited by survey respondents reflect this mix of opportunity: gain competitive advantage (47%), create new business models (37%), meet changing customer expectations (34%) and improve quality (33%).

When asked 'How familiar are you with IoT?', on a scale of 1 to 5, the majority of respondents 70%) chose 1-3 – in the learning stages of IoT – while the remaining 30% chose 4-5, with an expert level of understanding. The benefits are not limited to simply seeing how a product performs in the field, in terms of productivity, yield and fault prevention.  IoT also opens up the benefits of Augmented Reality (AR), which presents unique opportunities for companies to develop competitive advantage, consumer value, brand differentiation, and offers cost savings on support services.

IoT also opens up the benefits of Augmented Reality (AR), which presents unique opportunities for companies.

Not all respondents are convinced about the importance of IoT for their organization's products and services. However, the most popular answer 'Moderately important' (31%) suggests at best a relaxed attitude toward IoT, and at worst ignorance or avoidance. Worst still, 13% chose 'not important at all'. More reassuringly, 47% chose 'extremely' or 'very' important.

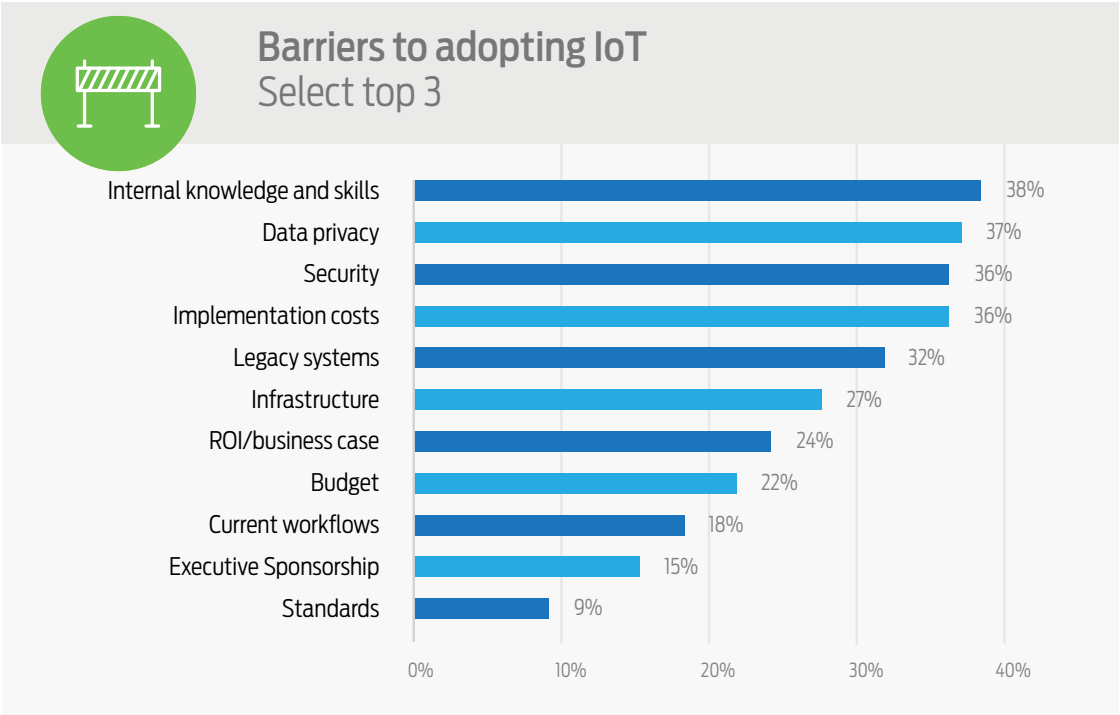



# Myth Busting: Perceived IoT Barriers

There are three common reasons cited by companies for holding back on moving to IoT platforms. These are a lack of internal knowledge and skills (cited as a barrier by 38% of respondents), data privacy (37%), and joint third security (36%) and implementation costs (36%).

With data privacy and security amongst the common concerns in the survey, this suggests it is up to digital services providers to reassure customers by offering flexibility of deployment: platforms that are not just cloud-based but can also be deployed on-site, kept safe behind an impenetrable firewall.

The survey also uncovered a small number of people with no plans to go to digital PLM but want to jump straight to IoT. This suggests a risk within the market regarding organizations failing to get their product house in order first: product data, CAD and PLM for specific products, need to be adding value for an IoT ecosystem to function properly, with the data built in and ready to go, before building a successful IoT solution.



# Cloud: Accelerating Product Deployment

Uploading your data to the cloud means instant, secure access, for your management and engineering teams, wherever they are in the world. This accelerates product development and innovation, increases collaboration across disparate teams, and allows seamless and secure management of high volumes of product data.

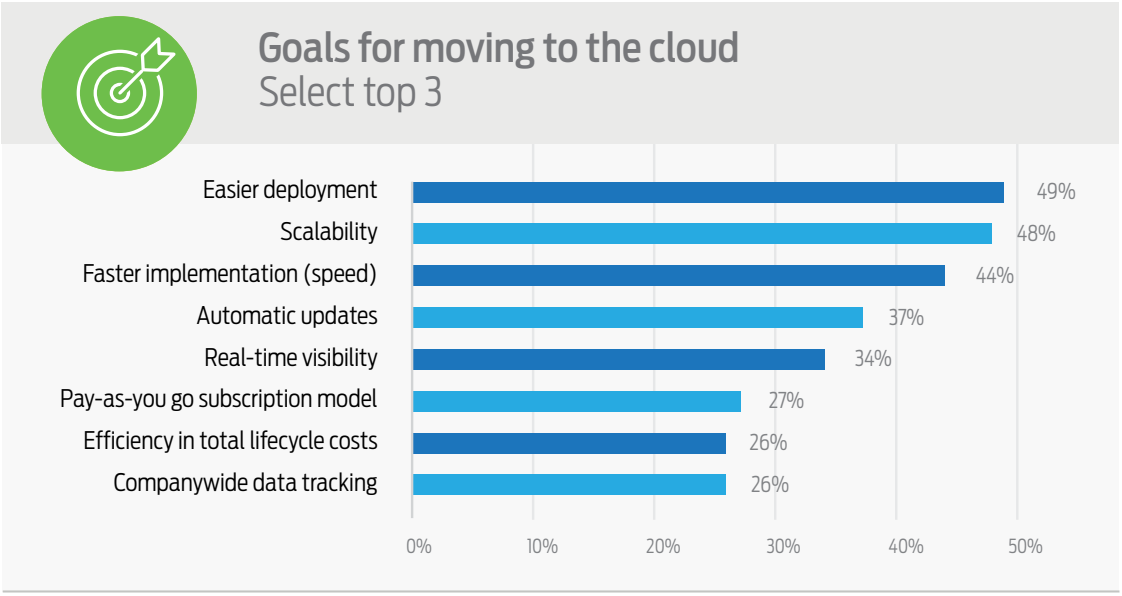
In the survey, the top five benefits of moving to the cloud were cited as: easier deployment (49%), scalability (48%), faster implementation speed (44%), automatic updates (37%) and real-time visibility (34%).

When asked 'At what stage is your organization in moving applications or infrastructure to the cloud?', the most common answer was 'Already moved applications or portion of infrastructure' (32%). A further 15% are lagging only slightly behind, with plans to do so within the next 12 months. These findings paint a picture of progressive organizations moving out of their own data centers and trying to get back to what they do best: building products.

Progressive organizations are moving out of their own data centers and trying to get back to what they do best: building products.

However, a surprisingly large number – 27% - have no plans to move to the cloud at all. The implications of not moving to the cloud are becoming clear: organizations will have to maintain the ability to operate their own PLM and data centers internally. That means a heavy labor, training and IT maintenance cost for a business, resulting in the loss of flexibility and vulnerability to sophisticated cyber-attacks. The 5% of organizations planning to move to the cloud in 3-5 years may also be leaving it too late compared to their competitors, given that well over half (62%) of the survey respondents will have already moved to cloud-based systems by that point.

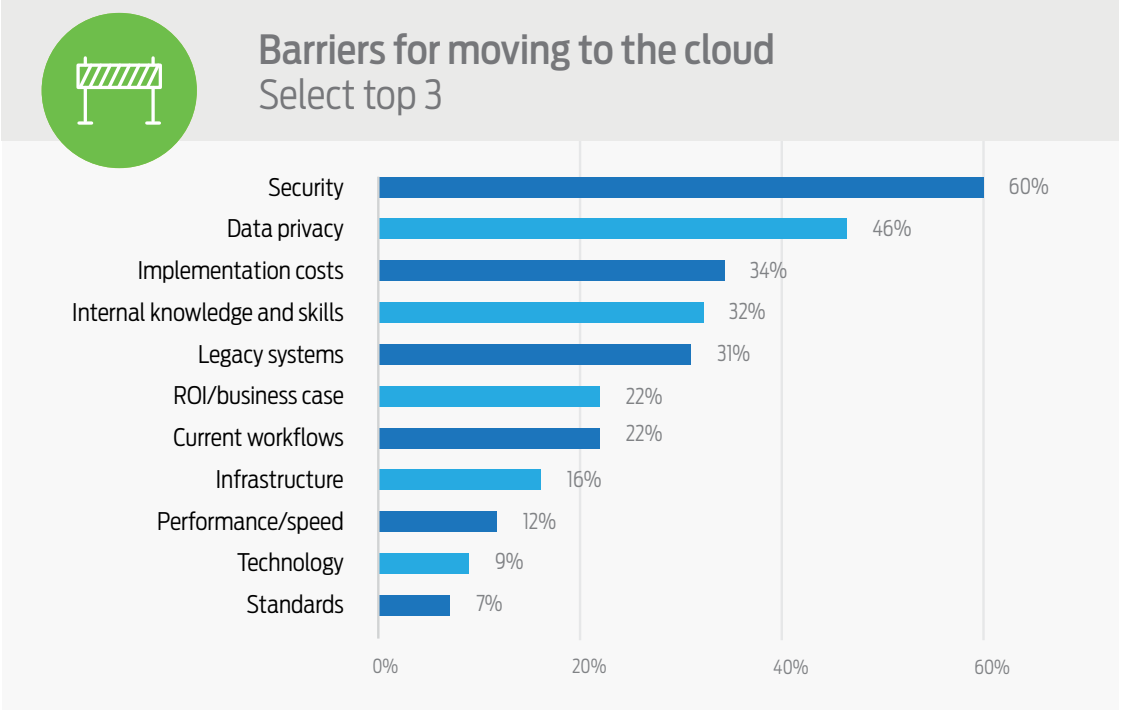
In terms of which engineering systems respondents are planning to move, or have already moved, to the cloud, ERP is the most common cloud-based platform (23% have already moved it to the cloud or are planning to within the next 12 months). Whereas supply chain management is the slowest to move over (17% have already moved to the cloud or are planning to within the next 12 months). Worryingly however, over a quarter had no plans to move any of their engineering systems to the cloud, including PLM and compliance management.



# Myth Busting:
# Perceived Barriers to the Cloud

The perceived barriers preventing companies from moving to the cloud are very similar to the lingering concerns over IoT: security (60%), data privacy (46%) and implementation costs (34%). Internal knowledge and skills, which is the number one barrier to IoT, here comes in forth, at 32%, while legacy systems come fifth at 31%.

Interesting, however, when you split the data between organizations with existing cloud-based services versus those without, the perceived barriers are different. Amongst companies that have already transformed PLM, are integrating IoT into products and are leveraging the cloud, the top barrier by far in moving to the cloud was legacy systems (80%). Whereas amongst companies that have no plans to transform PLM, IoT or leverage the cloud, security (57%) and implementation costs (57%) were the two biggest perceived barriers. These findings suggest that the fears over security and cost may not match the reality: in fact, it is problems caused by poor internal systems that should cause the bigger concern.



# Conclusion: A Trusted Digital Partner

The 2018 CorporateLeaders and PTC Digital Transformation Survey finds companies moving towards digital processes to make money, save money, mitigate risk, and discover new business opportunities, within their organizational processes. With digital PLM, IoT and the cloud, all these boxes are ticked. The companies that can't or don't tick these boxes, are now finding themselves to be digital laggards within their industries.

Amongst the respondents that have already transformed PLM, integrated IoT into products and leveraged the cloud, 80% say they are now able to leverage activities and technologies to deliver new value for smart, connected products throughout their lifecycle. They are achieving results through proactive decision-making and simulation based on real-time product usage and performance analytics – an impressive 60% say they have created new business models as a result.

80% respondents that have already transformed PLM, integrated IoT into products and leveraged the cloud say they are now able to leverage activities and technologies to deliver new value for smart, connected products throughout their lifecycle.

However, amongst the companies that have no plans to transform PLM, IoT or leverage the cloud, 66% say they are not able to leverage activities and technologies to deliver new value for smart, connected products throughout their lifecycle. With no real-time product usage or performance analytics, they are likely to get left behind quickly within a digital marketplace.

The specialist systems, experience and expertise that PTC can provide instantly removes the barriers for businesses, while offering instant access to these benefits. Kevin Wrenn, PTC's Divisional General Manager, PLM, puts it simply: "we are better at managing PLM systems, because we do it for a living; we are more secure, because it is our business to pay close attention to that; and we can do it at a cheaper price than doing it yourself".

Security has to constantly keep ahead of the hackers with the latest firewall defenses, with automatic updates, and software patches – all of which is very hard for organizations to do internally, especially where they lack the internal knowledge and skills. Working with a partner that continually updates its security software and certificates to ensure that entry points are closed is essential.

Having a partner that can demonstrate how secure your systems are through security penetration tests is a good first step to protecting your business and IP. PTC continually updates and tests its security, not just in software but in procedures and processes. Having a single tenant solution in place will help to alleviate customer data privacy concerns – as data should not be co-mingled with competitors in a generic cloud, multi-tenant environment. With clients including government departments and defense contractors, PTC's cloud is well-placed to deal with the world's most security sensitive information.

## When choosing a partner, the majority of companies are looking for one that has:

- ☑ An understanding of their business
- ☑ Technical capability
- ☑ Speed of response and implementation

The survey found that when choosing a partner, the majority of companies are looking for one that has an understanding of their business (57%), followed by technical capability (50%) and speed of response and implementation (39%). PTC is the clear leader on all three points, with global and local experts ready to work with your business at a pace that works for you. With both a leading PLM system and IoT system, being able to connect and manage throughout the entire product lifecycle process, with scalable, flexible deployment options and subscription pricing removes some of the barriers to digitalization.

Through digitalization and working with a trusted partner, value for end user customers is created. Outcomes including universal access for digital engineering data, performance-driven engineering using real data from machines, traceability for IoT, data-driven design, predictive performance, design for evergreen, AR and VR in design: these are transforming companies and transforming industries and creating solutions for the future.

For those companies that want to access these benefits but are unsure where to start, Rob Patterson, VP, Strategic Marketing at PTC offers the following advice: “If you are going for digital transformation, you should start small, prove value, and then scale out. That’s the best approach.” PTC makes this possible by unifying the major elements of your design, while streamlining the development process into a coordinated, connected, secure, digital package, that future-proofs your business.

# Want to Know More?

Find out more about how digital engineering is transforming businesses by geography.

Choose a detailed report from:

Germany

France

Northern Europe

# About the Survey

CorporateLeaders and PTC surveyed 128 executives in product development, engineering, production, corporate management, IT and marketing between April and May 2018.

The survey is international in scope, with respondents from Europe, North America, the Middle East and Asia. Most respondents come from industrial sectors, including manufacturing (23%), automotive (13%), healthcare and pharmaceuticals (9%), aerospace and defense (9%) and energy (8%). Over a third of companies (39%) surveyed are €1 billion-plus revenue businesses, 19% have revenues between €200m and €1b, 14% between €50m and €200m, and the second largest cohort of respondents, at 28%, are emerging businesses with revenues below €50m. The majority of respondent are senior within their organization, with 24% at director or C-suite level, 34% at manager level, and 11% are specialist industry consultants.

## EXCLUSIVE RESEARCH FROM

CorporateLeaders
BUSINESS TRANSFORMATION NETWORK

CorporateLeaders is an exclusive independent network that inspires business and leadership by providing a trusted forum for executives to network, exchange ideas, share lessons learned and drive business forward in an ever-changing environment.

We focus on providing exclusive membership services, intimate and content rich networking events, research, content, leadership development and advice on business transformation with the executive needs and experiences at its core.

For more information visit:
www.corporate-leaders.com

## SPONSORED BY

ptc

Since 1985, PTC enables customers to stay one step ahead of the competition by combining strategic vision with leading, field proven technology. PTC´s technology helps companies quickly unlock the value now being created at the convergence of the physical and digital worlds through the IoT, AR, 3D Printing, Digital Twin, and Industrie 4.0. With PTC, global manufacturers and an ecosystem of partners and developers capitalize on the promise of physical digital convergence to drive the future of innovation.

For more information visit:
www.ptc.com

**CorporateLeaders**
info@corporate-leaders.com +32 472 434 731
www.corporate-leaders.com