



DIGITAL TRANSFORMS PHYSICAL

Digital Transformation Strategy: Where Executives and End Users Differ on the Future (and Why It Matters)

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WHITE PAPER





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There is a common saying: "the left hand doesn't know what the right hand is doing." This expression describes a situation where a group of people, united in common cause, are nevertheless not sharing knowledge or vision amongst each other. While one subgroup may be very confident they are doing the right thing and making the proper moves, the other subgroup has no idea why any movement is happening at all, nor where its conclusion lies.

Unfortunately, [digital transformation strategy](#) is not exempt from this detrimental condition. In fact, given the growing complexity and diversity of digital transformation initiatives and technologies, it is all too easy for miscommunication to create a disconnect from executives who believe they are boldly leading their organization toward improved viability – and the average employee, who has zero idea as to what is going on.

While each digital transformation demands its own unique approach, PTC research has discovered a common baseline, one that likely fuels the majority of disconnects over perceived value and effectiveness: a lack of education. Many employees working directly with the digital transformation initiative in question (who will be identified as end users throughout the paper) are not seeing the same benefits of digital transformation technologies that executives do, and the opposite is also true.

In this whitepaper, we will explore the data that enforces this claim and outline strategies executives can implement to ensure that, not only does the left hand know what the right hand is doing, both hands are working together to their fullest potential.



Executive Summary

Digital transformation is about more than just technology adoption and the digitization of workspaces. Every organization, regardless of industry, exists as an ecosystem – one where workflow potential can be maximized but only with clear communication, visibility, and vision into its overall direction. Alignment is crucial, especially in larger organizations with hundreds or thousands of employees.

While overall attitudes toward digital transformation are favorable and many report seeing benefits, there are alarming disconnections between the executive and end user employee level that leaders should want to correct before they result in real, lasting damage. This whitepaper highlights the following areas of divergence and offers advice and insight into organizations looking to fully utilize their digital transformation investment in a way that benefits everyone in the company:

1. Only 79% of frontline workers want to work for an organization that embraces digital transformation. While high, this number falls well short of the 97% of executives who believed the same.
2. Many respondents, executives and end users, likely have experienced digital transformation without being aware, indicates failures in contextualization. For example, only 37% of end users believed they had experienced IoT technology, despite the ubiquity of smartphones.
3. Executives are seeing certain benefits of digital transformation, such as productivity improvements, far more than end users. Whereas only 11% of end users listed better overall productivity as a top three personal benefit of digital technology, 26% of executives ranked it highly.
4. All employees, regardless of level, showed a disturbing lack of understanding when it came to the frequency of cyberattacks, with 55% of executives and only 42% of end users believing someone in their organization had been targeted within the last six months. Given the increasing frequency of cybercrime, we believe these numbers to be much too low.
5. The end user group, made up of knowledge employees and frontline employees, showed numerous signs of lacking understanding regarding digital transformation. The most cited barriers included being unsure of a digital technology's purpose, feeling that it was a gimmick rather than useful, and unexplained software adoption.

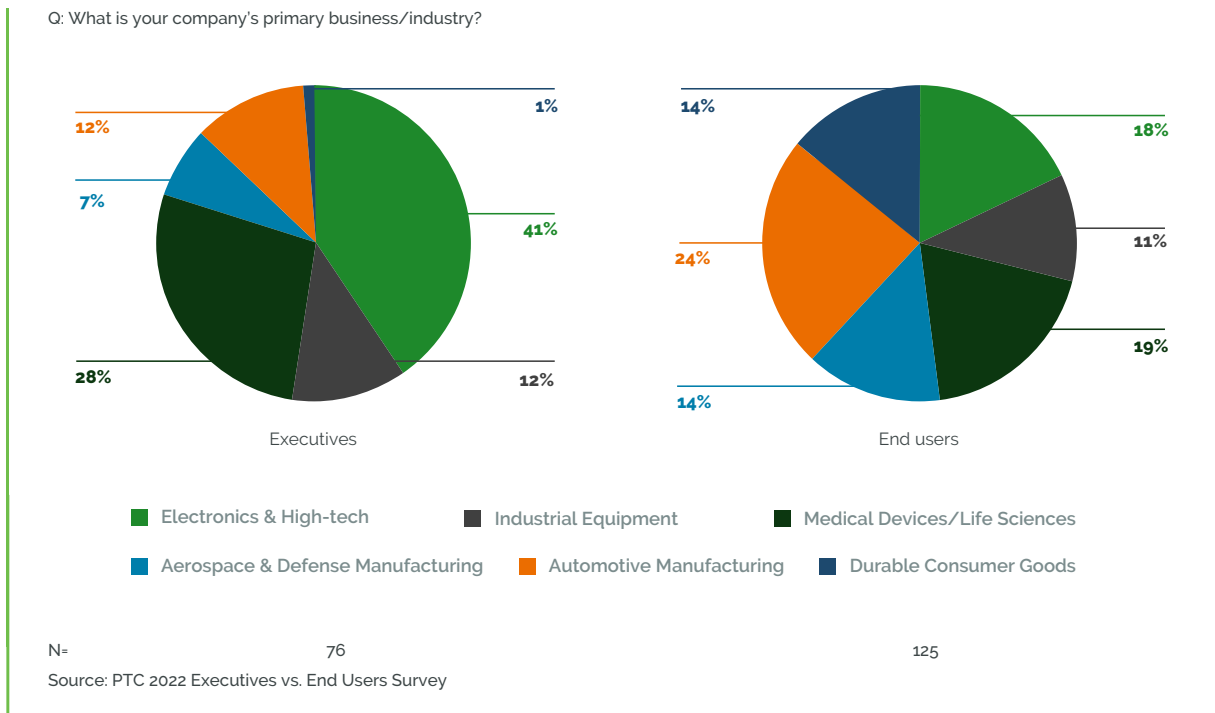
Methodology

To support this whitepaper, PTC launched a comprehensive survey targeting two distinct groups of respondents. Each respondent, regardless of professional experience, was asked the exact same questions to reduce any risk of disconnect or misrepresentation. These respondents were, in large, divided into two subgroups: executives (76 respondents) and end users (125 respondents). All were from the U.S., and all were currently working full-time jobs. Those director level and above were sorted into the executive bracket while managers, frontline employees, and knowledge employees were grouped as end users.

While the executive group tended to be more representative of electronics & high tech (41%) and medical devices/life sciences industries (28%), the end user respondent pool was far more evenly divided, with no single industry segment taking more than 24% (automotive manufacturing) and no fewer than 11% (industrial equipment).

Figure 1

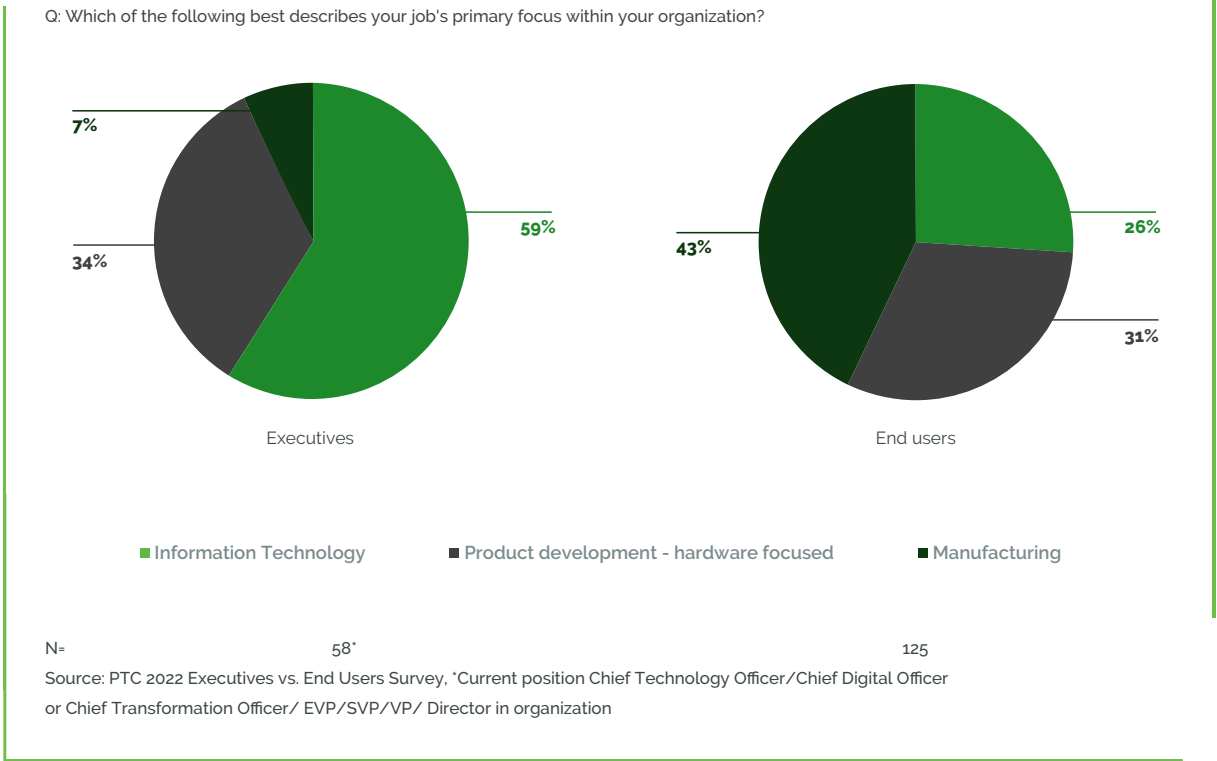
WHO OUR RESPONDENTS REPRESENT



When breaking respondents out by primary job focus, executives were much more likely to label themselves as information technology (59%) than end users (26%). Conversely, end users were far more likely to identify as manufacturing over executives, 43% vs. 7%, respectively. PTC further segmented end user data for certain questions, asking respondents to identify whether they were knowledge employees or frontline workers. Roughly 34% identified as frontline or field employees, whereas 64% said they were knowledge employees.

Figure 2

UNDERSTANDING RESPONDENT PERSONAS



This survey was fielded between October and November 2022 and carries the respondents' views, perceptions, and opinions from that time.



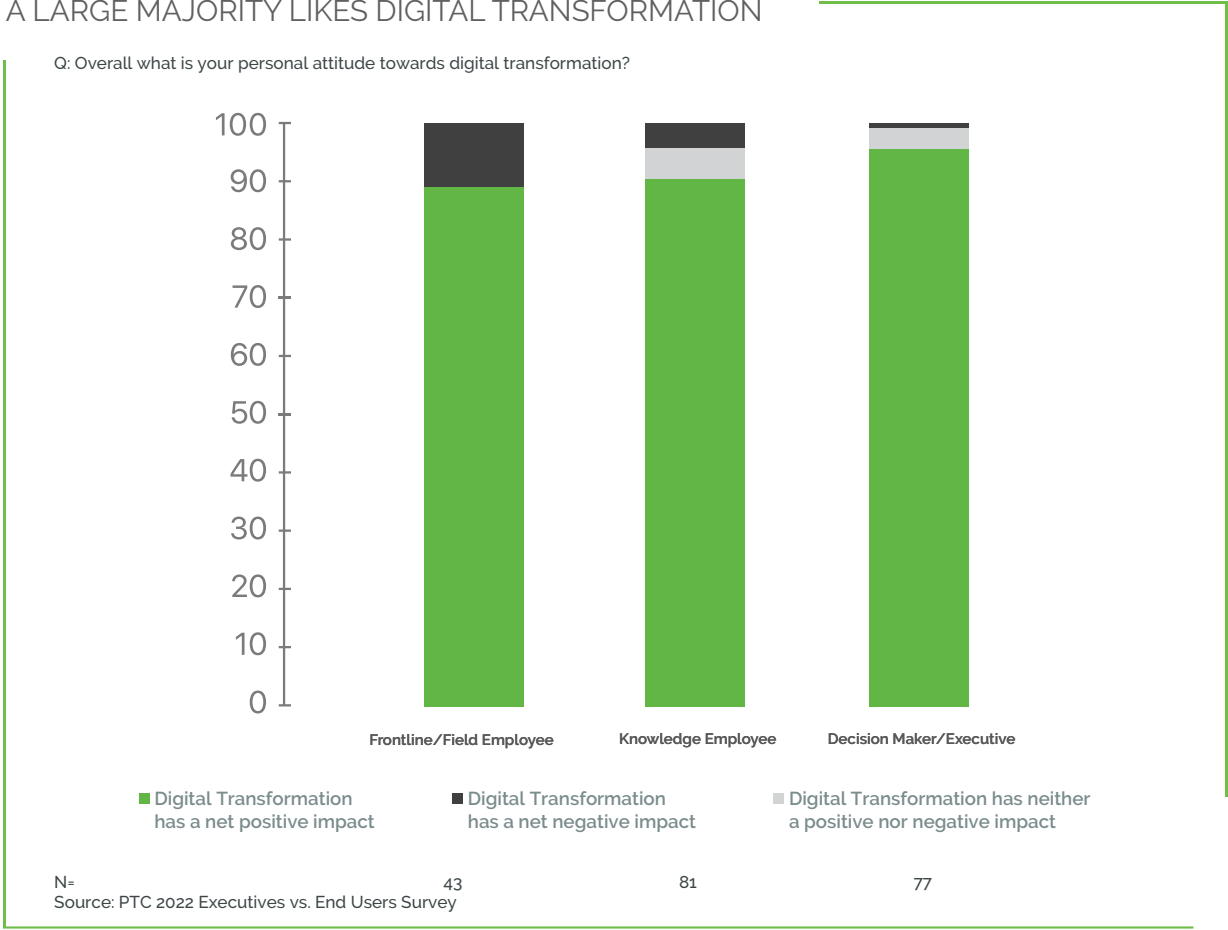
PTC is a leader in providing software solutions for manufacturing and industrial companies. Our software solutions help our customers improve their productivity, reduce costs, and increase their competitiveness in the market. We are committed to providing the best possible customer experience and are constantly innovating to meet the needs of our customers.



Current Attitudes Toward Digital Transformation

The perception toward digital transformation is currently very favorable, albeit with notable discrepancies. When asked their personal attitude, respondents overwhelmingly stated they believed digital transformation had a positive impact. This was most true for respondents who identified as decision makers or executives, with 94% stating their agreement. The least favorable subset were respondents who identified as frontline or field employees, but the positive response was still at 88%. While these percentages are high, we urge readers to make note of the 88% because, while still strong, it represents a 6% disconnect from the employees at the top and – as the data will show – will only grow more notable as the analysis continues.

Figure 3
A LARGE MAJORITY LIKES DIGITAL TRANSFORMATION

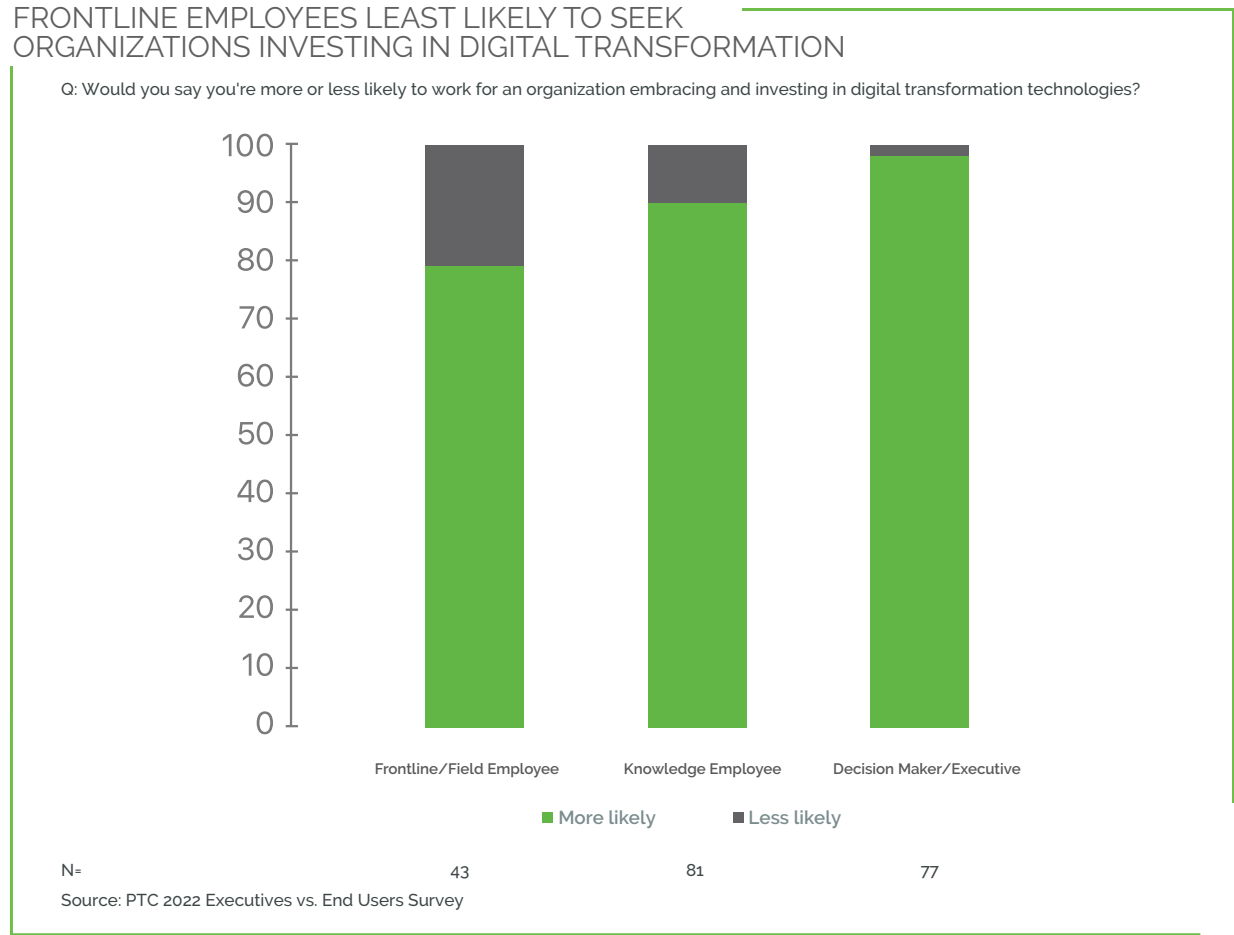


When asked if they would be more or less likely to want to work for an organization embracing digital transformation technologies, once again favorable response was high. Ninety-seven percent of executives and 88% of knowledge employees stated they would be in favor, while the number of frontline workers fell to 79%.

According to 2020 research done by the [Center for Economic and Policy Research](#), there are over 31 million frontline workers in the US, so that 21% of frontline workers who said they would be less likely to work for an organization embracing digital transformation translates to roughly 6.5 million field and frontline US workers who would choose to look elsewhere if they learned an organization embraced digital transformation.

For executives trying to attract the best talent possible, it is important to be aware of this notable subset of frontline employees currently dissatisfied with digital transformation. Statistics such as these only underscore the value of communication and transparency when it comes to digital initiatives, and the disconnect that can happen when the frontline does not see the same value as the executive.

Figure 4



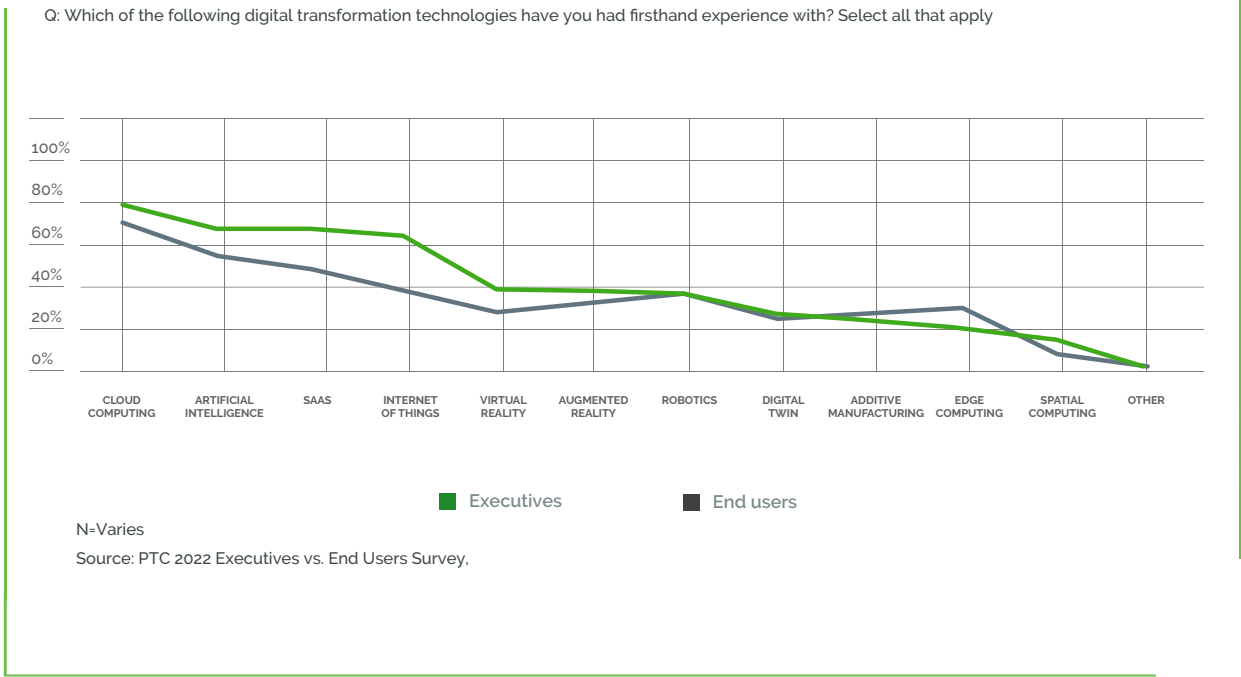
Current Experience with Digital Transformation

Understanding current experience levels with digital transformation warrants clarification: which digital transformation technologies? Rarely does any employee, executive or end user, become familiar with every aspect of digitalization. For most respondents, the answer is cloud computing, with 78% of executives and 70% of end users saying they had used

the technology. SaaS was another high-ranking response, with 67% of executives and 48% of end users reporting they had SaaS experience. Given that SaaS and cloud computing are terms that are often used interchangeably, it is possible that some confusion occurred within the responses.

In general, PTC believes these numbers are not likely fully accurate to reality and reflect the core disconnect around education and clarity we reported earlier. For instance, only 64% of executives and 37% of end users reported interacting with Internet of things (IoT) technology. This may sound believable until the reader is reminded of two important caveats to consider. Firstly, many organizations, including cybersecurity experts like Norton, consider the smartphone an integral aspect of IoT technology, and the latest PEW data states that 85% of US adults had a smartphone in 2021. Secondly, while hardware like a smartphone is often used for personal reasons, the question was not limited to professional experience. Respondents were asked to evaluate their overall digital transformation experience, not simply in the workplace.

Figure 5
 RESPONDENTS FAMILIAR WITH WIDE RANGE
 OF DIGITAL TRANSFORMATION TECHNOLOGIES

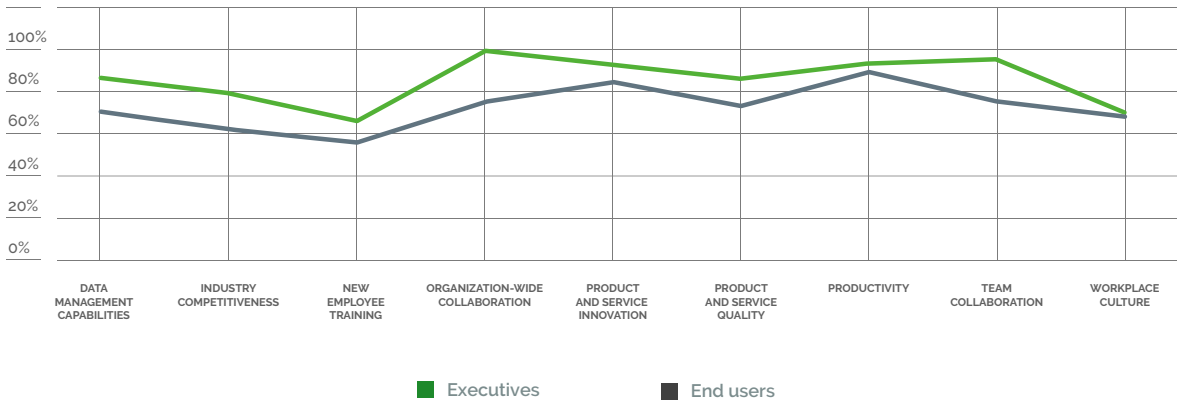


Understanding what digital transformation technology is directly tied to determines its impacts. Respondents reported strongly positive effects of digital transformation, with executives being consistently more positive than end users. Two data points should be focused on here. The first is new employee training, which saw the lowest reported positive impact for both executives (66%) and end users (56%). Second, the largest disconnect occurred for organization-wide collaboration, with 99% of executives stating digital transformation had a positive impact, but only 75% of end users agreeing.

Figure 6

RESPONDENTS SEE THE POSITIVE BENEFITS OF DIGITAL TRANSFORMATION

Q: Overall, what positive effect has digital transformation technology had on your organization in the following areas:



N=Varies

Source: PTC 2022 Executives vs. End Users Survey.

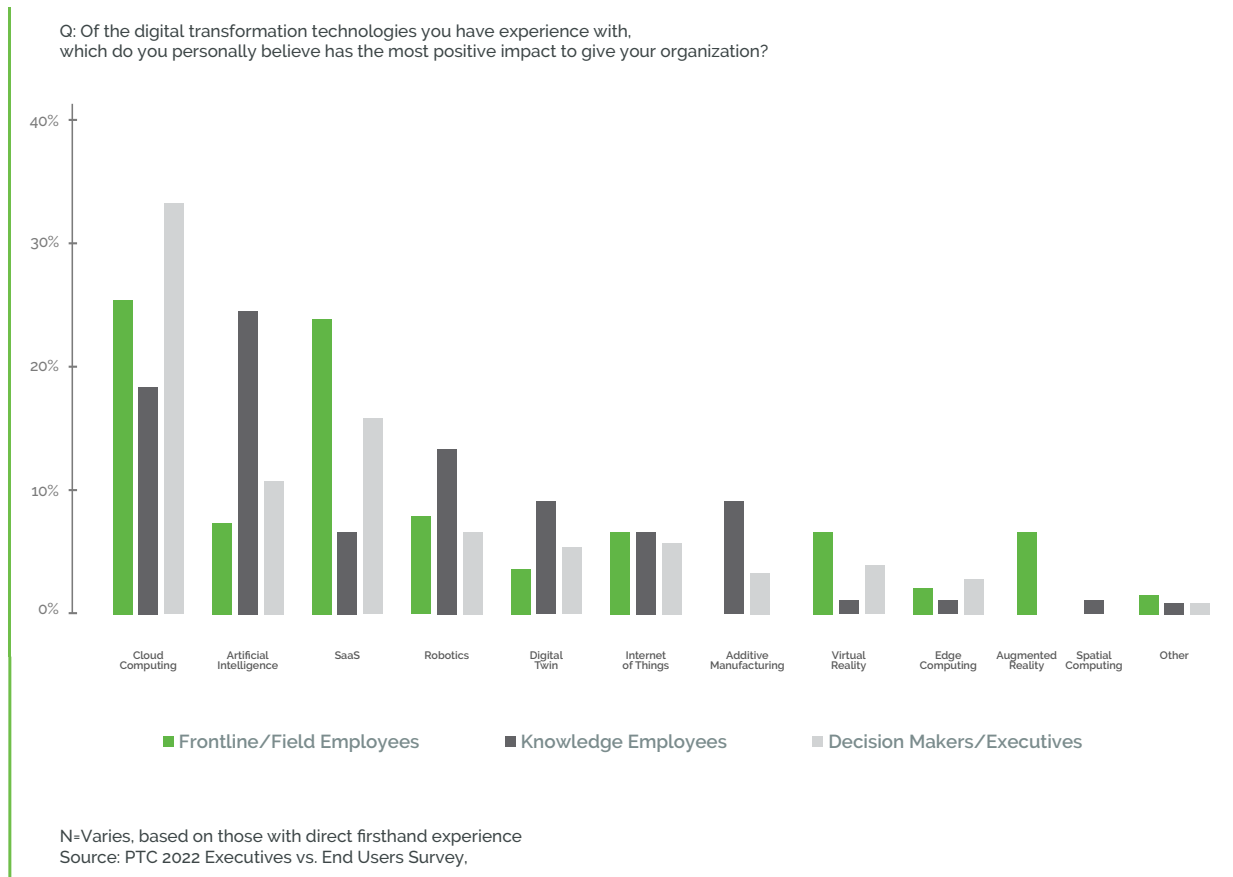
While the majority see positive impacts from digital transformation, the perceptions are not uniform and that may create problems for organizations looking to make massive investments in technology when not every employee sees or understands its value. Compound this challenge with the fact that, for sizeable minorities of subgroups like frontline workers, digital transformation is not perceived as having a positive impact on training and onboarding – and it becomes clear the disconnect may only widen as digital transformation continues to grow and diversify its potential.

Where End Users See Value in Digital Transformation

When asked to identify which digital transformation technology had provided the most positive benefit to their organization, respondents were once again divided by role. Executives were most likely to list cloud computing as the top performer (36%). For knowledge employees, the answer was AI (artificial intelligence) (25%), and frontline employees had close competition between cloud and SaaS (28% vs 26%). Again, given that many use the terms interchangeably, this should not be surprising.

Figure 7

RESPONDENTS MOST VALUE CLOUD COMPUTING, AI, AND SAAS



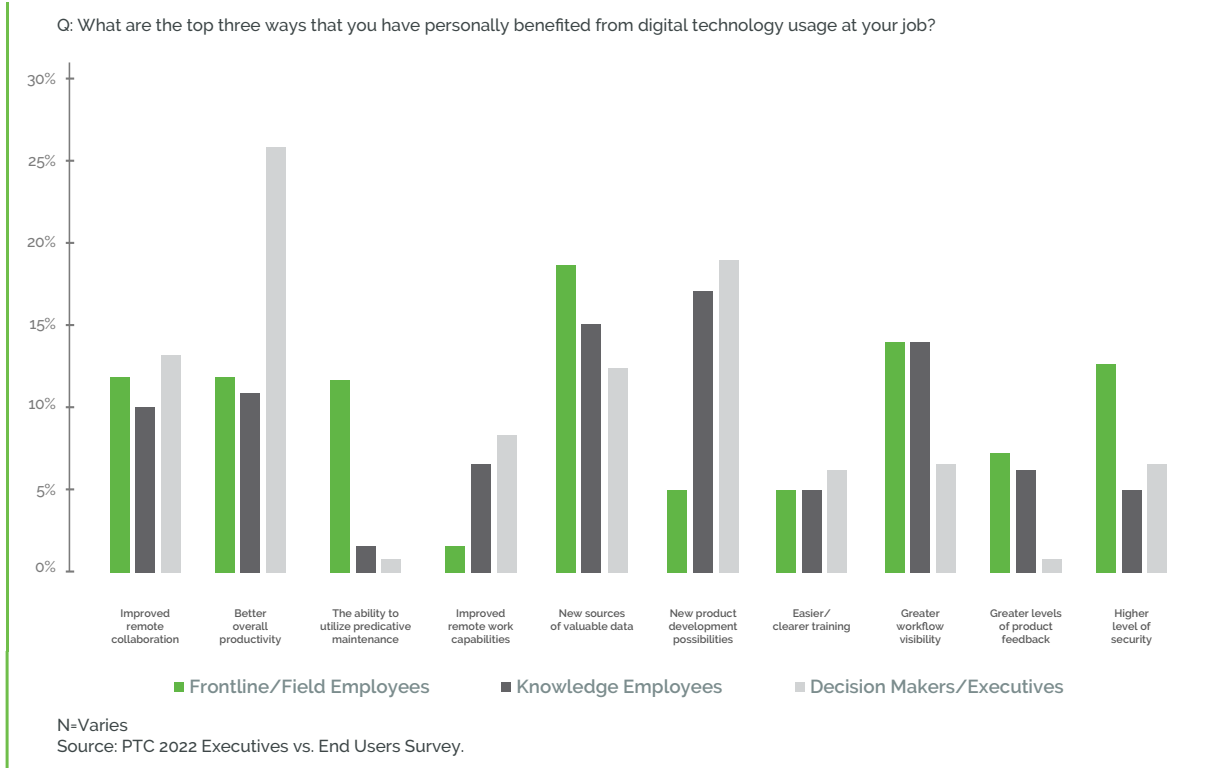
The differences became more manifest when respondents were asked to pick the top three ways they had personally benefited from using digital transformation technology at their job. Executives saw better overall productivity, with 26% picking it in the top three (compared to only 12% of frontline employees and 11% of knowledge employees). This indicates that the average worker may not be seeing the productivity benefits, which could create a motivational challenge as productivity increases are often a primary selling point as to why employees should embrace digital transformation.

Where end users do see value, however, is in data sourcing and product development. Specifically, 19% of frontline employees felt that digital transformation provided new sources of valuable data, and 17% of knowledge employees said they believed digital transformation provided new product development possibilities.

Encouraging that, while end users do not share executives' rosy views on productivity, they are still seeing what can be described as key values from implementing digital transformation. Going further, it is possible to say the two concepts are linked: Frontline workers have access to more data, thus rendering them more productive. It is a perfect example of both the compounding nature of digital transformation benefits, as well as the disconnect that can occur when said benefits are not fully shared or explained on a company level.

Figure 8

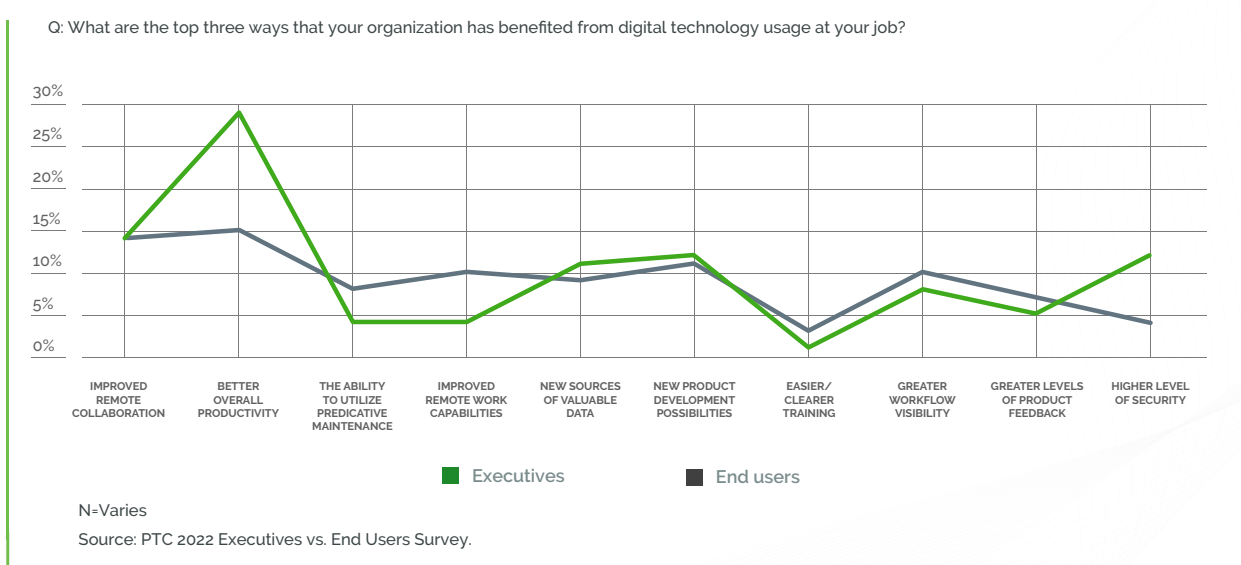
END USERS AND EXECUTIVES DON'T SEE SAME DIGITAL TRANSFORMATION BENEFITS



These views were further reflected when asked to list the top three ways respondents believed their organization had benefited from digital technology usage. Executives remain very detached from end users on perceived productivity bonuses. More alarming still is that easier/clearer training ranked low, regardless of if it was personal or organizational benefit or which group of employees were surveyed.

Figure 9

RESPONDENTS AREN'T SEEING TRAINING BENEFITS OF DIGITAL TRANSFORMATION



The Importance of Cross-Departmental Integration

Siloed data and fragmented teams are two major obstacles against building a successful organization. When [PTC polled respondents](#) on digital transformation implementation, we found that, over and over, organizations with stronger cross-functional communication and integration outperformed those that had more segregated departmental structures.

Only 17% of completely siloed organizations exceeded their ROI on digital transformation investments, compared to 41% of fully integrated respondents. Data is at its most useful when it is most available. While digital transformation unlocks the potential for greater workflow visibility and improved collaboration, it is not going to single-handedly change workplace culture. Organizations, especially industrial players, should look to build on cross-departmental integration, particularly across engineering, manufacturing, and service segments – as these three together form a crucial foundation to digital thread and a comprehensive product lifecycle management ecosystem.

Digital technologies provide numerous tools and pathways for improved communication and collaboration, regardless of department or even employee location, yet the power to really accomplish these goals still lies in human hands, namely it is the responsibility of executives and decision makers to orient their organizations away from data siloes and departmental segregation.

Where End Users Disconnect with Digital Transformation Technologies

The lack of training and the failings in communication more properly manifested when respondents were asked to rank the top three hindrances they had personally experienced due to digital technology adoption. While executives were quick to label cost as the most frequent problem, end users identified a litany of challenges with a common foundation.

Unexplained software adoption, feelings of gimmick-y behavior, lack of training, failure to understand purpose, a lack of expected results, and high complexity – all these hindrances drew strong response rates from at least one subgroup of end users, and they are all fueled by a lack of education.

Employees cannot be expected to effectively utilize what they do not understand, and it is clear that – while executives worry about the cost – end users are more concerned with what the digital transformation initiative is supposed to do in the first place.

It is not just training on how to use the new technology but also on why from the end users' perspective: How is going to make their jobs easier, what is the end goal of the adoption, how long is it expected to take, and so forth. All of these are vital questions that must be answered to ensure there is clarity of purpose.

Figure 10

EXECUTIVES AND END USERS EXPERIENCE DIFFERENT DIGITAL TRANSFORMATION HINDRANCES



The Need for Comprehensive Training and Cohesive Internal Visibility

There is one more startling issue to note that has to do with education and, unfortunately, it impacts all levels of respondents. Cybercrime has been a rising issue for some time, fueled in no small part by the COVID-19 pandemic, which caused much of the workforce to abruptly shift to remote working – thus facilitating a rapid need for decentralized infrastructure. Organizations have been slow to respond to the changing environment regarding cyberattacks, with many still [wrongly believing their in-house IT teams can handle challenges](#) ranging from disgruntled or careless employees to hostile foreign nations.

The most recent [FBI Internet Crime Report](#) found that nearly \$7 billion USD had been lost in 2021, up from roughly \$4 billion in 2020. The number of complaints had likewise increased.

Despite this chilling reality, PTC found that 58% of end users (including 60% of frontline employees and 58% of knowledge employees) did not believe that they nor anyone in their organization had been the target of cybercrime within the last six months. Keep in mind that these respondents

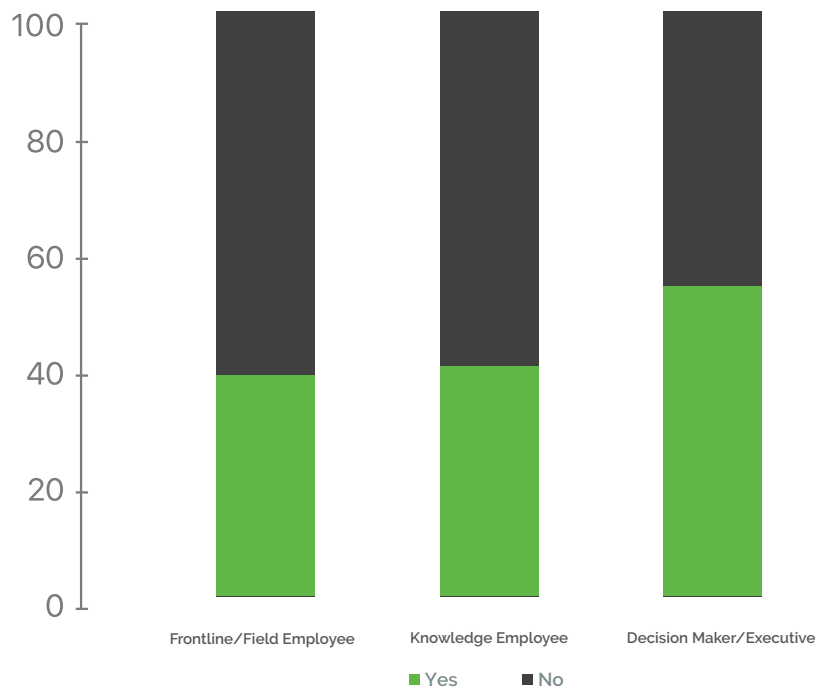
come from a range of industries, and 46% of end users reported working for an organization that made over \$2 billion in revenue per year.

While the numbers for executives were a little better, the message is clear. The lack of education around digital technology is not simply preventing it from reaching its full potential, it is also exposing a dangerous blind spot regarding security, one that cybercriminals will exploit.

Figure 11

RESPONDENTS UNCLEAR ON DANGERS OF CYBER ATTACK

Q: Within the last 6 months, do you believe that either you or someone in your organization has been the target of attempted cybercrime?



N- 43 81 77
Source: PTC 2022 Executives vs. End Users Survey

Cybercrime can take many forms and is constantly evolving and reinventing itself. Decision makers and executives have an obligation to educate themselves and their employees on how to best protect their organization.



Leaders Must See the Opportunities of Digital Transformation

Another key focus area for improving digital transformation ROI centers on executives and the vital leadership required for successful digital transformation implementation. This recommendation notes that technology cannot be expected to solve every problem an organization faces, whether short-term or long. Tech is a tool and every effective tool needs wise judgment. Much like a carpenter would not use a jackhammer to secure a single nail, decision makers must carefully select each digital technology before committing organizational resources.

This selection demands proper knowledge and context. To return to the analogy, the only reason a carpenter might select a jackhammer is they are unaware of the profound structural damage they are about to cause. Likewise, a leader who does not understand digital technologies and the complex role they play in creating a better work environment is less likely to make a positive impact.

In general, PTC found that leaders who understand the value of cross-departmental communication and collaboration, and the role digital technologies play in achieving this potential, were **32% more likely** to exceed ROI expectations (36% vs. 4%). These leaders were committed and did not view digital transformation as just another software upgrade but rather as the transformative force it truly is.



Where the Future Lies: What Excites End Users about Digital Transformation

Alignment is a crucial component of any successful digital transformation strategy. To use an analogy, every member of a friend group should agree that they want an international vacation before spending money on travel airfare and a hotel. That said, if 40% of the friend group wants to go to Spain while 30% hope for New Zealand, and the remaining 30% want Japan, the trip planning and preparation could go wildly off track if no one aligns before purchases are made. This is the reality of digital transformation and digital technologies in general. Too often executives commit to large-scale projects designed to better the organization without first ensuring that every level of the company is informed and understands the why behind the initiative, including how it will impact their role and how it will benefit them.

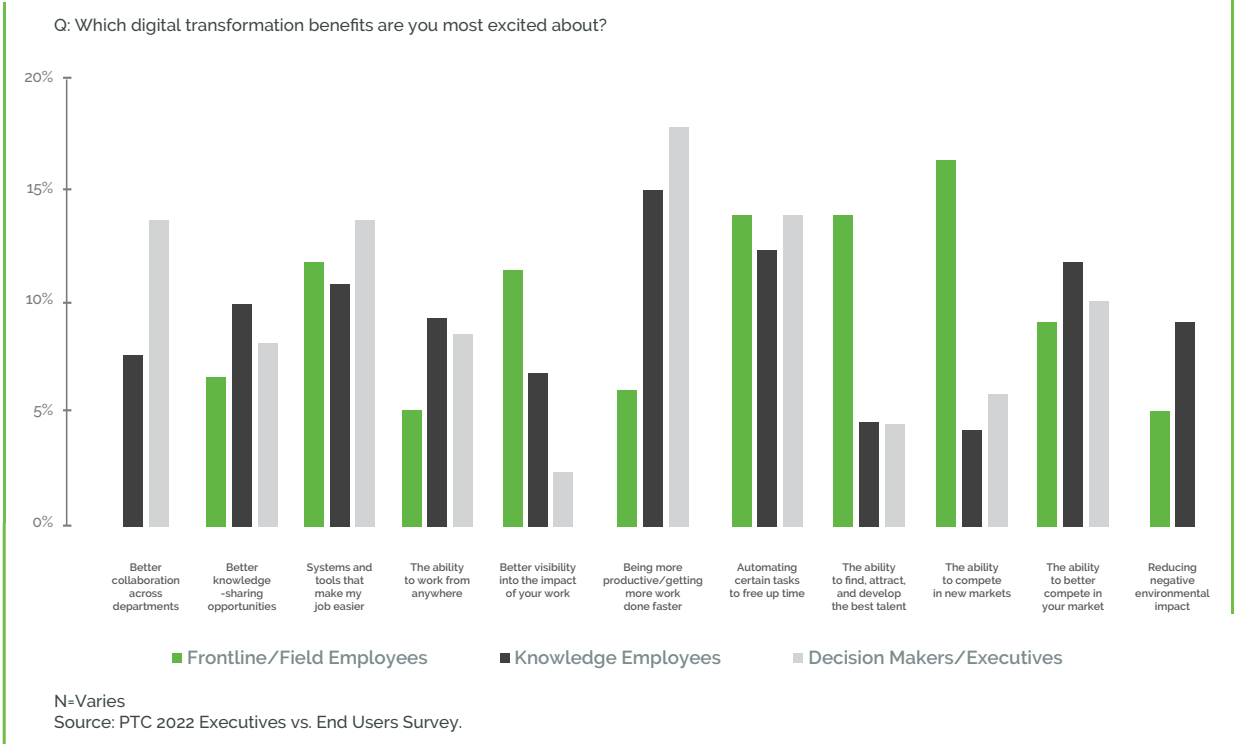
It is not enough to check with directors and above. True leaders should aim for a cohesive internal image of their organization, rather than simply a top-down view. This will expose any misalignments that have been willfully or accidentally covered up and grant a better understanding of where employees see the value of an investment and where they are scratching their heads.

There is more good news on this front regarding digital transformation. The survey found wide-ranging excitement around its benefits, with executives and knowledge employees being – in general – most positive on the idea of being even more productive and getting more work done faster (18% and 15%, respectively).

For frontline and field employees, the ability to compete in new markets was most enticing (16%).

Figure 12

FUTURE IS BRIGHT FOR DIGITAL TRANSFORMATION BENEFITS



While even this last chart shows potential educational disconnects (for example, not one executive stated they valued digital transformation's ability to reduce negative environmental impact, which is [one of its more potent positive impacts](#)), PTC believes that – going forward – industry leaders will find a way to reconcile these educational blind spots and bring everyone on board with the full potential of digital transformation. In some cases, such as cybersecurity, this really is not a choice. Digital illiteracy is already a detriment to an organization's success now and, in the future, it is likely to be catastrophic error.

Work Culture Change Must Be Comprehensive and Complete

Change cannot be solely a top-down initiative or expected to be a bottom-up transition. It is only when executives and decision makers lead, and give their employees the tools, incentive, and shared vision to collaborate on the journey, that digital transformation investment most often exceeds ROI expectations. Our research found that organizations that practiced top-down and bottom-up cultural realignment around digital transformation were [more than twice as likely to exceed ROI expectations](#) as solely top-down organizations, and more than three times as likely to outperform bottom-up competition, as well (35% vs. 16% vs. 10%, respectively).

The message is clear: transparency and communication are paramount to successful digital transformation efforts. The best tools in the world can be almost worthless if the people using them do not understand their purpose or value. Imagine giving Albert Einstein a smartphone and expecting him to master it on his own. Even a genius cannot be expected to grasp and fully utilize technology that is entirely novel and goes far beyond the established realm of understanding. Organizations that commit, that educate, and that collaborate across traditional boundaries on digital transformation will be in much stronger position to not just compete in but lead their respective markets.

The future is digital; this is not new. Yet having the greatest technologies available does not erase the need for education and certainly does not remove the demand for communication. If anything, every advancement of digital transformation has been designed to improve at least one aspect of collaboration, giving employees and executives new capabilities that did not exist before.

To return to the opening analogy, the right hand may have learned to juggle, but it will function much smoother if the left hand also knows what is going on and is ready to help.





Learn More About PTC

For additional information on digital transformation opportunities and insights read more [here](#) or contact us [here](#).



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