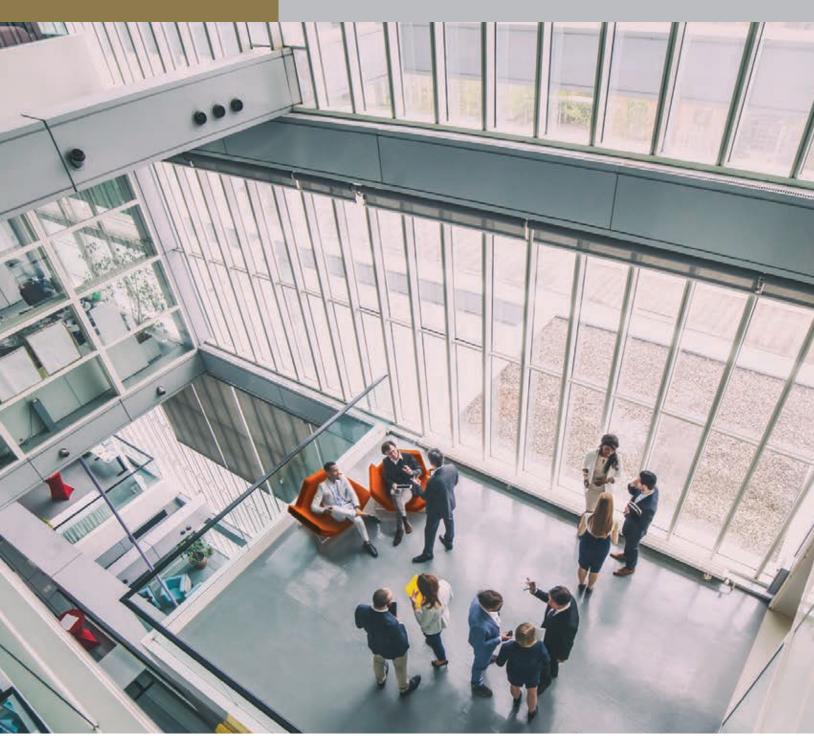


# HOW TO WIN AT DIGITAL TRANSFORMATION

INSIGHTS FROM A GLOBAL SURVEY OF TOP EXECUTIVES



IN ASSOCIATION WITH:



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## **EXECUTIVE SUMMARY**

Digital transformation sits atop the strategic agenda for enterprises, according to a Forbes Insights and Hitachi survey of 573 top executives worldwide. The next two years are critical in this regard, as half of them believe that their organizations will be vastly digitally transformed in that time.

It won't be an easy undertaking. Technology is at the core of every digital transformation, with the digital transformation imperative ushering in an era of unprecedented change. However, digital transformation is not about technology. Rather, it uses technology as a means to an end and goes beyond business. Digital transformation (DX) is as much about the transformation of how individuals work and the cultures of organizations as it is about technology. Its most difficult task is to change the way we think.

Digital transformation concerns every business, not just the likes of Uber or Airbnb. Large, long-time industry leaders also need to be innovative if they don't want to be replaced by the next hot startup.

How ready are companies for this complex and difficult undertaking? Survey results and one-on-one conversations with top executives reveal that a transition toward digital maturity involves five major steps, some of which will be easier to take than others.

There are some areas where a majority of companies seem to be on the right track:

- Make transformation a top strategic priority. Digital transformation is the top strategic priority (50%), confirms the Forbes Insights and Hitachi survey. The strategic emphasis on digital transformation is reinforced by executives' focus on investment. Investing in new technologies to enable digitization is the top investment priority over the next two years (51%), along with increasing data and analytics capabilities (51%).
- Business outcomes need to drive digital transformation. New business models are the top driver of DX (41%), followed by new technologies (40%). It is a sign of maturity that the ability to innovate is the top measure by which the success of DX is measured (46%), along with revenue growth (46%), followed by cost reduction (43%).



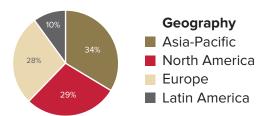
At the same time, there are also issues companies still grapple with and need to resolve:

- The potential of data and analytics is not fully utilized yet. While less than half of companies (44%) see themselves as advanced or leaders in data and analytics, a vast majority (91%) have already seen revenue increases due to the use of data and analytics. Only a third of companies consider themselves leaders in customer experience based on their digital transformation, which points to underutilized potential.
- An enterprise-wide approach to DX needs to be adopted. Currently, cross-functional teams are not involved enough in developing (40%) or implementing (35%) strategy, with the bulk of this work done by IT (50% and 54% respectively). IT is the function considered the most prepared for digital transformation (53%), while other functions lag, with just over a third of survey respondents deeming them ready.
- Companies need to learn how best to marry technology with human resources. Technology cuts both ways. It is seen as the biggest challenge (29%) and the top contributor to a successful digital transformation (56%). People (defined as talent and capabilities), on the other hand, are not seen as equally significant contributors to the success of DX.

## **METHODOLOGY**

This report's findings are based on responses of 573 C-level executives from North America, Latin America, Europe and Asia-Pacific. The majority of respondents were chief executive officers (23%), chief technology officers (20%), chief information officers (15%), and chief financial officers (7%), and all were involved in the planning or implementing of digital transformation in their organizations.

Respondents represented a wide range of industries, including technology and services (20%), telecommunications (10%), financial services (14%), and healthcare (10%).



Note: Does not add to 100% due to rounding.



Note: All monetary figures in this white paper are listed in US dollars unless otherwise specified.





## STATE OF PLAY

What is digital transformation? The definition varies depending on the company, its leaders, and industry. However, there are areas where executives agree. Digital transformation uses technology as a means, not an end. "We don't think of it as just a digital transformation. We're driving an end-to-end business transformation," says Simeon Preston, chief operations officer of AIA, a leading life and health insurer in Asia.

It also goes beyond business itself. Digital transformation is as much about the transformation of individual human beings and cultures of organizations, as it is about technology. "The biggest part of our digital transformation is changing the way we think," says Monique Shivanandan, group chief information officer of Aviva, a British multinational insurance company.

Digital transformation concerns every business, not just the likes of Uber or Airbnb. Large, long-time industry leaders need to be innovative as well. "They have no choice. Either they move forward full throttle with digital transformation, or there's a risk that the next hot startup would displace them, no matter what industry they are in," says Peter Russo, vice president of product marketing at SAP.

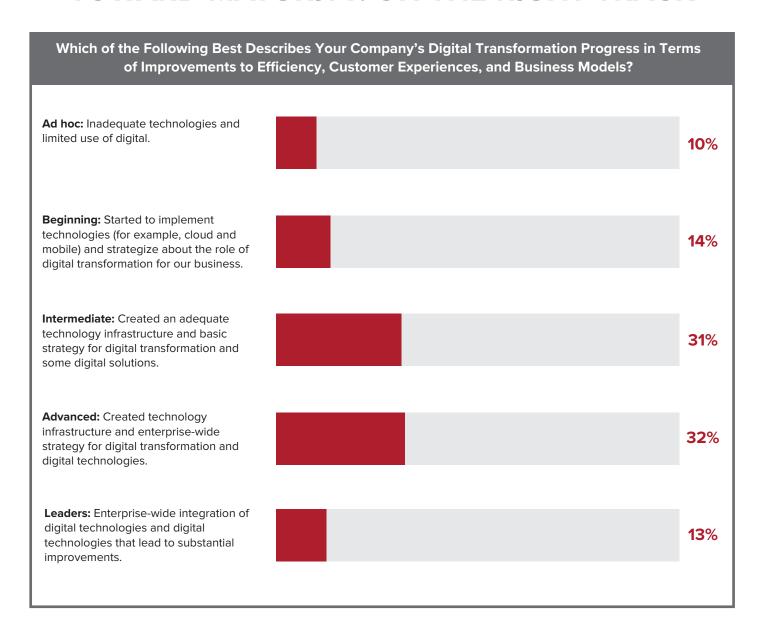
In terms of understanding and implementing all aspects of digital transformation, we are past the early stages. Forty-five percent of companies believe they have moved beyond the intermediate level in terms of their digital transformation and consider themselves either advanced or leaders. The 55% that remain are either just beginning their digital transformations or have some technologies in place, but not on an enterprise-wide level.

French telecommunications company Orange is among the leaders in digital transformation. Digitization is embedded in the company's DNA, according to Pascal Viginier, the company's CIO. Its 2020 strategy calls for digital interactions with all customers, both business-to-business (B2B) as well as more than 250 million individual customers. The company's objective is for over half of customer interactions across Europe to be through digital channels by 2018. Internally, the company is involving all employees in digitization. It monitors internal adoption rates by conducting and publishing surveys of employee usage.

Orange has also announced that it will increase revenues in the new digital verticals, such as banking and Internet of Things (IoT), by more than US\$1 billion by 2018. Internally, the company involves all employees in digitization. It monitors internal adoption rates by conducting and publishing surveys of employee usage.

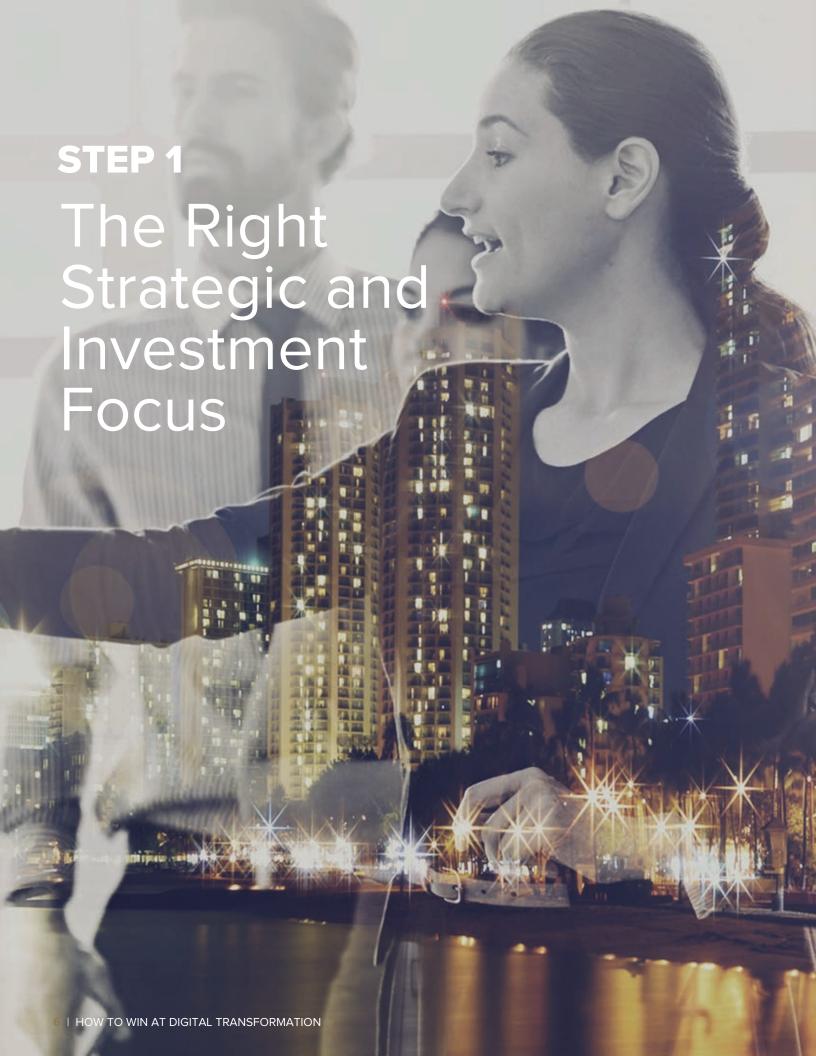


## TOWARD MATURITY: ON THE RIGHT TRACK



The next two years will bring significant change, as almost half of companies (49%) believe that they will be vastly digitally transformed over the next two years. In terms of timing, the biggest group (32%) expect transformation to take one to two years. Forty-two percent think it will take less than one year, and 27% more than two years.

Future trend: What happens over the next two years may reinforce the current division between companies in terms of DX maturity rather than bringing those lagging behind up to speed. More leaders plan to continue the transformation, with 61% who believe they will be significantly transformed over the next two years. Only 47% of non-leaders think so.



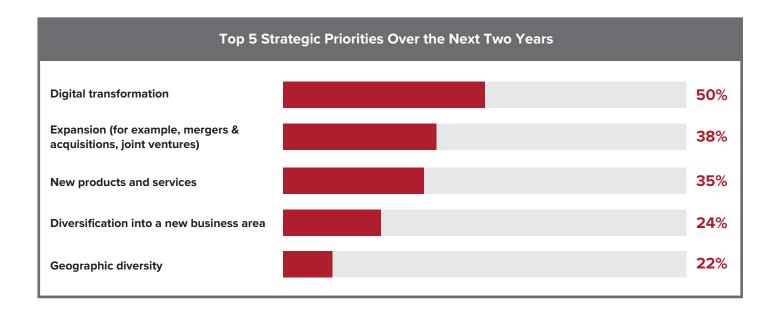
"IT has grown from a function that was largely about back-room process improvement to becoming a boardroom topic, spanning issues ranging from risk management to corporate strategy," says Kim Stevenson, chief operating officer for the Client and Internet of Things Businesses and Systems Architecture (CISA) Group at Intel. Survey results confirm her statement with the finding that digital transformation is the top strategic priority (50%).

How do companies execute their digital strategies? Executives interviewed by Forbes Insights agree that the best strategy is not to "boil the ocean." People who start too big and are overly ambitious tend to fail. It is simply too hard to transform the organizational culture and people's conceptions of the business all at once, according to Malcolm Frank, chief strategy officer at Cognizant.

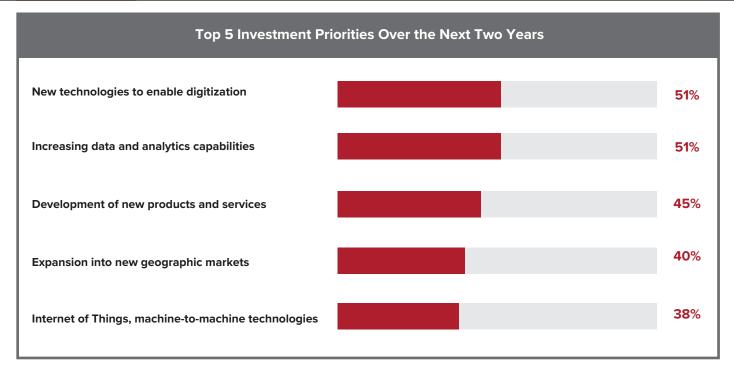
A top-down approach is most effective when corporate executives create a fund and run it like venture capital would, Frank adds, and accept that two out of ten ideas will work and kill those that don't. British insurer Aviva has created such a fund, which invests in local and global digital startups, either to infuse their knowledge into the company or to leverage breakthrough products within its environment.

In contrast, AIA performs many pilots and prototypes, and starts typically with one business line or function before it goes full scale. For example, it first launched iPoS, an interactive point of sale platform that allows agents to engage with customers electronically, in Taiwan in 2011. After a successful pilot program, it was scaled quickly across the organization and today more than half of the new premiums come through the iPoS platform.

The strategic focus on digital transformation is reinforced by executives' focus on investment in this area. Investing in new technologies to enable digitization is the top investment priority over the next two years (51%), along with increasing data and analytics capabilities (51%).







Budgets have been on the rise and the next two years should bring even more significant investment increases in digital transformation. While 22% of budgets increased by more than 10% over the last two years, 41% will see an increase on that level over the next two years. The same is true for the share of revenues devoted to DX. Over the last two years, 20% of companies dedicated more than 10% of their revenues to DX, while 40% plan to do so over the next two years. Over the next two years, almost a quarter of companies (23%) will devote 25% or more of operating expenditure to digital transformation, and the same ratio holds true for capital expenditure.

Econometric study shows that higher technology investments lead to higher revenue growth rates. Independent econometric research conducted by the Department of Business Technology at the University of Miami School of Business in association with Forbes Insights confirms that investment in technology results in higher revenue growth rates. The study of the world's largest companies shows that companies that invested in technology from 2007 to 2009 had a revenue growth rate from 2010 to 2015 that was double the growth rate of companies that did not keep up with investment in technology. (See page 22.)







The ultimate reason for digital transformation (DX) is to achieve business outcomes, so it is a positive sign that new business models are the top driver of DX, followed by new technologies. Especially encouraging is the finding that more IT executives, who live and breathe technology, are driven by new business models (46%) than by new technologies (43%).

"This isn't about technology for technology's sake," says Renee McKaskle, chief information officer at Hitachi Data Systems. "CIOs have a responsibility to recognize that the lines between IT and business are blurring."

For the existing business, digital transformation offers gains in efficiencies and cost reductions. But technology executives interviewed by Forbes Insights consider cost-savings a given. "Increasing efficiency is a low-hanging fruit," says Frank. "As a CIO, it would put me back ten years if I was talking about just cost savings," agrees McKaskle.

The pro-growth outcomes result from the introduction of new business models. They are often based on a wealth of data that companies have gathered over the years, and are only now putting to work, says SAP's Russo. He points to Sabre, originally part of American Airlines, as a company that has positioned itself as a technology leader. It has become a leading technology company for the travel industry. Most of the time when we book an airline ticket, or make a hotel reservation, it is done on Sabre systems. Sabre now looks at the data to help its customers in the travel or hospitality industries to optimize their pricing, marketing, and capacity.

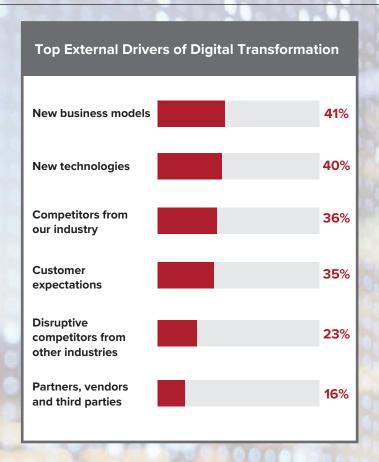
"Digital transformation does not work when it's technology-led, when companies try to blindly emulate what they see out there among the FANG gang (Facebook, Amazon, Netflix, Google), saying 'let's be the Amazon of our space, let's be the Uber of our space,' while not knowing how it's applicable to their business," says Cognizant's Frank.

What is crucial is to observe valid business models and new competitors emerging from across all industries. As an example, Frank cites Under Armour, a sports apparel maker that now uses technology-based activity and diet-tracking mobile and wearable applications. This means that the company is no longer a competitor for Nike and Adidas, but also competes with companies like Apple. With CEO Kevin Plank's statement that Under Armour will "fundamentally affect global health," the company also becomes a competitor for health insurers who also offer wellness programs.

Another example: AIA is creating online experiences and communities for its clients. It has launched AIA Vitality, a science-backed wellness program, across six markets. People can follow their health improvement progress online via mobile devices. The online experiences are paired with real-world incentives. AIA Vitality users who take action to get healthier—say, by exercising more, eating better or stopping smoking—can receive significant discounts on their premiums over time, in addition to near-term rewards such as coffee vouchers and cinema tickets.

With such industry-blurring changes in business models, it is somewhat troubling that a majority (57%) of transformations are driven from the inside out, which may result in missed trends and technologies in the market. This is especially true in the era of open innovation, when different entities, including competitors, startups or trade associations, form ecosystems to better navigate the technologically complex business environment.



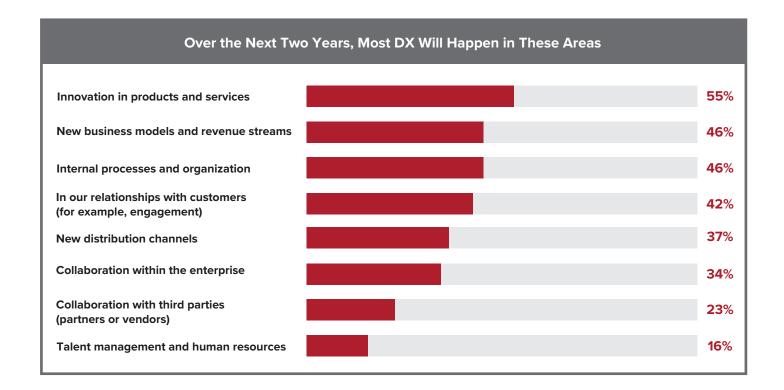


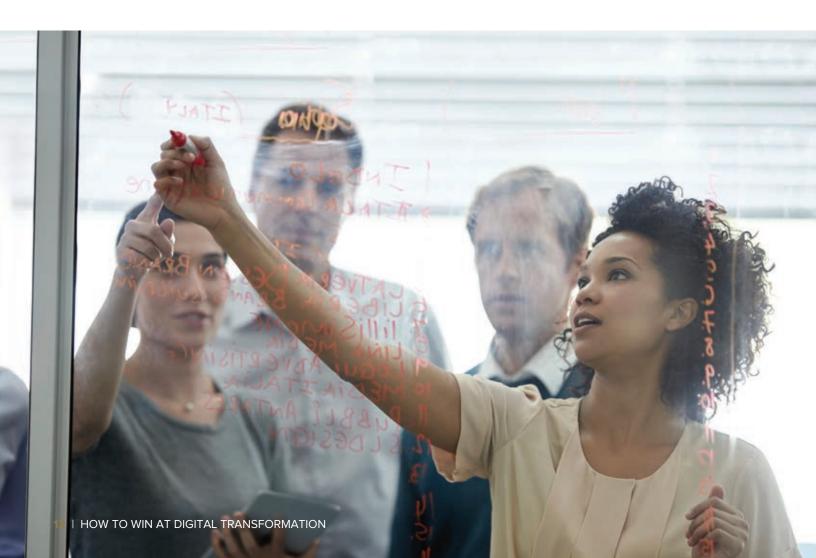
Bright spot: Innovation emerges as the top measure of DX success. Ability to innovate, along with revenue growth, is a top measure of the success of digital transformation initiatives (46%), followed by cost reduction (43%). The biggest groups of companies also report tangible results for the ability to innovate (40%) and cost reductions due to DX (41%). To view DX through the lens of innovation attests to the maturity of companies, who no longer see straight cost reductions as the sole purpose of digital transformation.

Products and services is where most of the innovation will happen over the next two years (55%), followed by new business models (46%) and internal processes (46%). Innovation is the top area where DX is predicted to happen across all regions, while there are some differences across industries.









# The Potential of Data and Analytics



# TOWARD MATURITY: ISSUES TO FIGURE OUT

"Winners and losers in the digital world get separated at the data level."

- Malcolm Frank, Chief Strategy Officer, Cognizant

While less than half of companies (44%) see themselves as advanced or leaders in data and analytics, a vast majority (91%) have already seen revenue increases due to the use of data and analytics. Of that number, almost a third (31%) experienced increases in revenues of 5% or more.

Intel has achieved over a billion dollars in incremental revenue and productivity gains in the last two years thanks to its investments in the company's data layer. Data and analytics allowed the company to see transactions from the customer all the way back to product engineering, which helped forecast the right product mix and demand. Intel also created a predictive model that fundamentally transformed how it engages in its reseller channel, which also generated a couple of hundred million dollars in revenue.

And this is just the opening phase of realizing the potential of data. "If this was a movie about data, we would be still at the opening credits," says Intel's Stevenson.

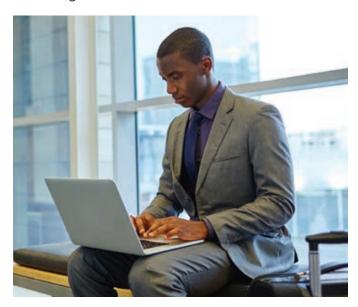
There are interesting differences by industry in this area. Aviva's Shivanandan points to a data-related paradox in the insurance industry. While on one hand, insurers have always been immersed in actuarial science, they typically looked at data from a product perspective.

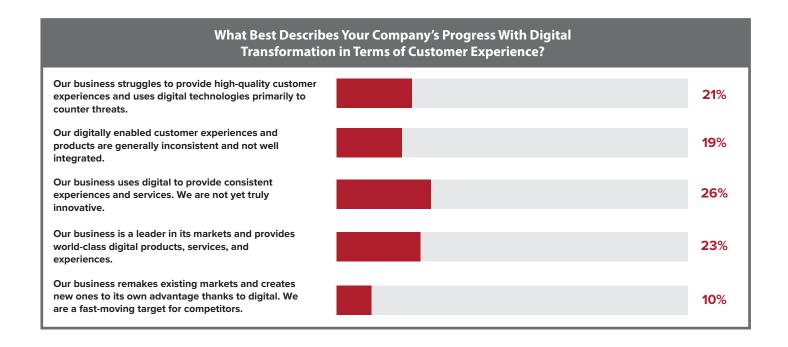
But they are not equally strong in customer analytics. "We need deep customer insights to be the Google of insurers," says Shivanandan.

Use data and analytics to bolster customer experience. Only a third of companies consider themselves leaders in customer experience based on their digital transformation. This is somewhat surprising considering that digitization and data have created possibilities for new customer segmentation, omni-channel engagement and personalized messaging.

These results are significantly lower than for the maturity of digitization overall. Why? In short, because customer experience is a transparent area, where companies compare themselves to the likes of Amazon when it comes to website navigation, product offering, or return policies.

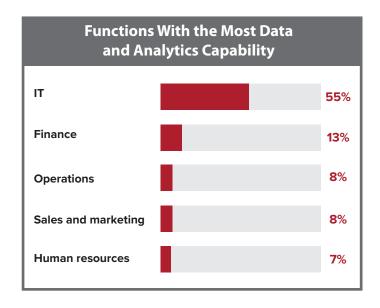
There is also more urgency to improve customer experience. The customer is instantly dissatisfied when something goes wrong and companies often learn about it in real time by tracking online usage. Speed matters as customers quickly find another provider online. To prevent this, Aviva introduced agile processes to respond to customers who may drop online activities or complain to a customer service agent.

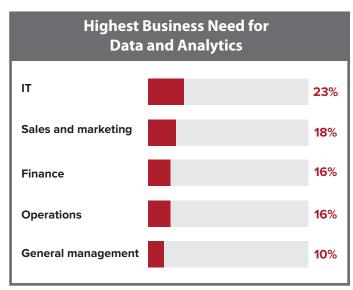




Synchronize data and analytics capabilities with needs. The IT function has the highest data and analytics capability (55%), but just 23% see IT's need for data and analytics as the highest. Marketing has the biggest negative correlation between capability and need, with capability at 8% and need at 18%. The very low level of capability among marketers is especially troubling, since a chief marketing officer is seen as a function that will undergo significant change over the next two years. The significant discrepancy between IT and everyone holds true across regions, industries, and functions. The only difference is the degree of this gap.

Overall, the trend is that many more IT executives believe they have the highest capabilities (63%), while only 46% of line-of-business executives see this dominance of IT (46%). At the same time, fewer line-of-business (LOB) executives (18%) than IT executives (27%) believe that IT has a high need for data and analytics capabilities.







It is often said that these days every company is, in effect, a technology company. As an extension, every executive becomes a technology executive. With the lines between business and technology blurring, so are the lines between executives' responsibilities. For starters, this means closer collaboration between IT and line-of-business executives. "Marrying IT with business functions is where the power comes in," says Stevenson. She is the embodiment of the shifting executive responsibilities, with a recent promotion from chief information officer to chief operations officer.

Collaboration should mark the top of the list of things to do, but currently only about a third of executives plan to focus on it over the next two years. An enterprise-wide approach to DX, to ensure it does not live in silos, is key to success. In this area, companies still grapple with several issues.

Where are the champions? There are plenty of decision makers, but not enough champions. Digital transformation needs more champions. The biggest decision makers when it comes to investing in digital transformation initiatives are the CEO (62%), chief technology officer (43%), and chief information officer (40%). However, the levels at which executives champion DX are much lower, with chief technology officers as the biggest champions (29%). This view is shared across functions, including chief technology officers.

#### Readiness for transformation across all functions.

Currently, IT is the function considered the most prepared for digital transformation (53%), while other functions lag with just over a third of survey respondents judging them ready for DX. Not surprisingly, LOB executives believe that non-IT functions are better prepared to take on digital transformation than do IT executives.

Everybody needs to get involved with strategy design and implementation of digital transformation. Currently, cross-functional teams are not involved enough in the development or implementation strategy (40% and 35%, respectively), with the bulk of this work done by IT (50% and 54%, respectively). Dedicated teams are active at the development stage (51%), but unfortunately fall off at the implementation stage (29%). This is not a good sign, since implementation often calls for business and technology adjustments, some of which may be beyond the scope of IT.

Initially, both sides need to have a better sense of how technology helps them achieve business goals. Stevenson recalls a conversation she had with a business leader after becoming Intel's chief information officer. When asked about the IT department, line-of-business executives responded that the department was great because their PCs worked well and the automated phone systems functioned flawlessly.

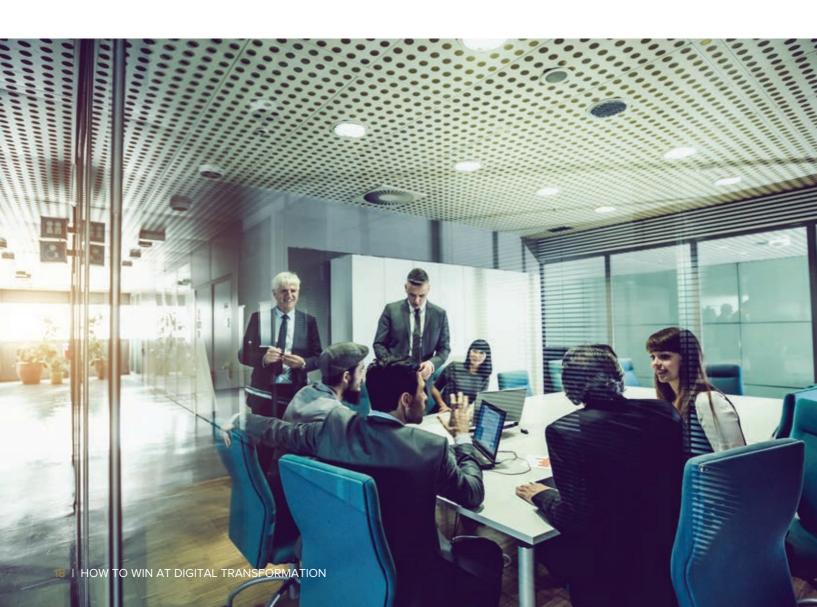
That was Stevenson's "aha moment," when she realized that business was missing IT's potential. She told the executive: "Look, your expectations are too low. If you have higher expectations of us, then we'll rise to the occasion and we'll help you define and execute your strategy."

To involve multiple functions in digital transformation, AstraZeneca follows a process called Flight Deck, which grew out of the commercial part of the business, says David Smoley, AstraZeneca's chief information officer. Flight Deck is essentially a demand management and prioritization process. cross-functional and connects people so they share best practices, and green-light the best ideas. It also helps leverage common methodologies. Over the last year, Flight Deck considered 219 initiatives and green-lighted 129. Forty-nine of these initiatives have been implemented.



IT and LOB executives do not see eye to eye on who designs and implements DX. IT executives think they do more than others, but LOB executives do not share their view. Who is right?

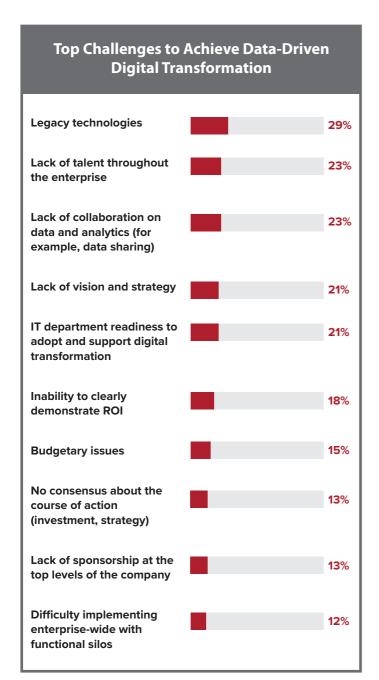
	IT executives think:		LOB executives think:		
Who is most involved in the development of DX strategy?	A dedicated team A cross-functional committee	54% 47% 41%	A dedicated team  IT  46% A cross-functional committee  56% 38%		
Who is most involved in the implementation of DX strategy?	Each function independently  Consultants and system integrators	61% 36% 32%	A cross-functional committee 39% Each function independently 36%		

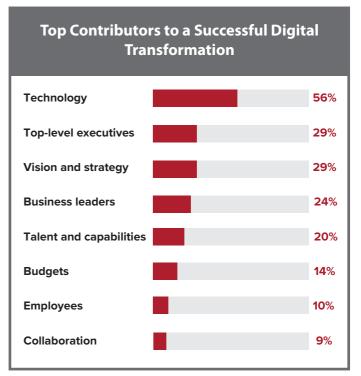


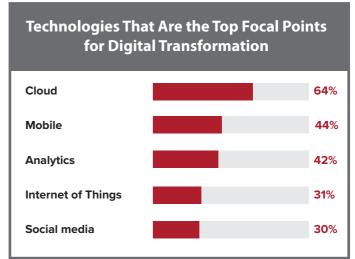




**Technology:** A double-edged sword. Technology cuts both ways. It is seen as the biggest challenge (29%) and also the top contributor to a successful digital transformation (56%).







Cloud leads the list of top DX technologies, followed by mobile. Forbes Insights spoke with executives about what's next in technology. Hitachi's McKaskle foresees a world where data becomes agnostic from its containers, with a layer on top that allows for predictive analytics, insights, and competitive advantage. AIA sees artificial intelligence, blockchain, and digital health as the three pillars that have enormous potential to transform the health insurance industry. To stay on the cutting edge, AIA partners with external parties, including Nanyang Technological University in Singapore, and is currently testing various artificial intelligence technologies. AIA has also joined the R3 blockchain consortium, along with many of the world's biggest financial institutions.

#### **Bring People With You**

"Digital transformation is an organizational and human capital commitment. It's not a technology commitment. The change management is the most important investment you can ever make," says McKaskle.

To follow her lead, companies must change their approach in the following areas:

Talent as a contributor: People, defined as talent and capabilities, are seen as the second biggest challenge (23%) to successful digital transformation, but are not considered a highly significant contributor to success. Talent and capabilities as well as employees scored relatively low in the ranking of the top contributors to success, at 20% and 10% respectively, with more of the credit attributed to the top executive ranks. This view is shared across functions and regions.

Dealing with challenges: It is people that are on top of the list when it comes to dealing with challenges of DX. New hires come first (57%), followed by internal training (54%). In this area, investing in technologies is ranked lowest (24%), which indicates that companies understand that, while they have the technologies to gather data, they may not have the skills yet to use it effectively. While overall hiring is most often on top of the list, there are some geographical differences. The financial industry stands out with its eagerness to hire new talent before resorting to other solutions.

Changing executive roles: Digital transformation will soon start affecting non-IT roles more than IT roles. Technology executives have so far undergone the biggest change due to DX. Over the last two years, the role and responsibilities of the chief technology officer have changed the most by a large margin (55% for chief technology officer and 34% for COO). However, the next two years should see COO jobs changing more than chief technology officer roles (37% versus 31%).

Hitachi understands how disruptive and uncomfortable the new digital reality may feel for employees. IT employees who used to rack and stack servers and crimp cables may have to become system integrators. Others may be asked to help create scripts so that robots will do some of their work. "That can be a very scary proposition unless you bring people along up the knowledge worker chain with you," says McKaskle.

One way to change the culture is to create an innovation lab to develop new technologies and introduce agile processes. Aviva has several such labs, which the company calls garages. They are set up differently than typical day-to-day office environments. Employees who work in such garages catch the bug of agile processes and digitally transformative technologies, and begin to change the culture of the company when they go back to their regular jobs. The company also injects the digital vibe by hiring digital thinkers from other industries, including online gaming.





# ECONOMETRIC RESEARCH

Conducted by the Department of Business Technology, University of Miami School of Business, in association with Forbes Insights.

This study examined the relationship between increasing technology expenditures during the last recession (2007 through 2009) and an increased compound annual growth rate (CAGR) during economic recovery (2010 through 2015). It is based on the analysis of 99 of the world's biggest companies. (See Methodology).

# **KEY FINDINGS**

Companies that prioritized technology expenditures during the recession experienced above-average performance afterward. Their revenue growth rate was almost double that of companies that did not keep up with technology investments.

Average technology CAGR: The average technology CAGR in the 99-company universe was 14.09%. This means that, on average, companies increased technology-related investments by 14.09% each year from 2007 through 2009. Of these 99 companies, 57 increased technology expenditure during the recession, while 42 showed a trend of reduction.

Average revenue CAGR: The average post-recession revenue CAGR was 5.23%. This means that on average, companies experienced a 5.23% increase in sales each year from 2010 through 2015. Total revenue for these 99 companies ranged from \$1.45 billion to \$283.61 billion.

Companies that spent more on technology during the recession (57 companies)

Above-average post-recession revenue CAGR



Companies that reduced technology expenditures during the recession (42 companies)

Below-average, post-recession revenue CAGR



# **INDUSTRY ANALYSIS**

Industries with increased technology expenditures during the recession and above-industry-average post-recession revenue CAGR included communications, conglomerates, consumer products, energy, financials, and technology.

Industries that experienced an average decline in revenue (negative CAGR), despite increased expenditure, included materials and printing and publishing.

The industry with the highest average technology-expenditure growth rate was healthcare. It was also the industry with the highest average post-recession revenue CAGR. The industry with the lowest average expenditure CAGR was industrials, and its post-recession performance was below the universe average.

# **ANALYSIS BY REGION**

Asia Pacific (APAC) had the highest overall average technology expenditure increase and enjoyed the highest average revenue growth rate. Europe, the Middle East, and Africa (EMEA) experienced a lower growth rate than the overall average of the 99-company universe, regardless of expenditures. Companies in APAC and North America (NA) that increased technology expenditures experienced above regional-average and company universe average growth rates. Companies in EMEA and NA that decreased technology expenditures during the recession had below-average revenue growth rates.

	111			Avg CAGR					
	Overall Region Avg CAGR			Increased 1	Tech Capex	Decreased Tech Capex			
4	(	Capex	Revenue	Capex	Revenue	Capex	Revenue		
AF	PAC	16.08%	8.63%	39.99%	10.64%	-18.46%	5.72%		
ΕN	ЛΕΑ	14.89%	2.42%	35.95%	1.52%	-19.05%	3.88%		
N/	4	9.62%	7.19%	43.27%	11.91%	-21.78%	2.78%		

# CONCLUSION

Overall, companies that increased technology-related capital expenditures during the recession were more likely to experience an above-average post-recession growth rate. Companies that reduced technologyrelated capital expenditures during the recession were more likely to experience a below-average post-recession growth rate.

# **METHODOLOGY**

Consideration for inclusion in the study required companies to be publicly traded from 2007 through 2015. Their official reports needed to mention investing activities related to technology (such as software) from at least 2007 through 2009, and these expenditures needed to be capitalized. The final 100 companies were determined by examining 1,068 companies from the Forbes 2000, a list of the world's biggest public companies. After adjusting for outliers, we were left with a 99-company universe. The 2016 list features public companies from 63 countries that together account for \$35 trillion in revenue, \$2.4 trillion in profit, \$162 trillion of assets, and have a combined market value of \$44 trillion. The companies represented the following industries: healthcare, financial services, technology, communications, printing and publishing, conglomerates, consumer products, energy and industrials.



### CONCLUSION

To continue to move forward toward maturity in digital transformation, companies need to maintain focus on DX as a strategic and investment priority, as well as evaluate the success of DX business and innovation-related measures. They also need to become more data-driven, ensure that DX is enterprise-wide, and make certain employees are not left behind.

#### **ACKNOWLEDGMENTS**

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David Smoley, Chief Information Officer, AstraZeneca

**Kim Stevenson**, Chief Operating Officer, the Client and Internet of Things Businesses and Systems Architecture (CISA) Group, Intel

Pascal Viginier, Chief Information Officer, Orange

#### **ABOUT**

#### **HITACHI DATA SYSTEMS**

Digital transformation improves every business's cost-efficiency, time to market, customer experience, and revenue through better management of data. No one knows data like Hitachi Data Systems. Our integrated strategy and portfolio helps enterprises – including the world's largest – to manage, govern, mobilize, and analyze data to uncover insights for better outcomes.

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