INFOSYS DIGITAL RADAR 2020

From digital maturity to living enterprise

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Contents

The **digital journey** gets tougher

For decades, enterprises have achieved great strides in productivity and efficiency by adopting digital technology. But companies are increasingly facing pressures to get the most out of those technologies.

The Digital Radar 2020 report shows that despite rapid adoption of digital initiatives, many companies hit a digital maturity ceiling. The report further shows that while customer-centricity is important, the most successful companies focus on employees as well.

The report builds on and extends recent Infosys work tracking the progress of digital transformation globally. In early 2018, we surveyed more than 1,000 respondents from large companies (more than $1 billion in revenue) in seven countries about which of 22 digital initiatives they adopted. Based on their responses, we categorized companies into Watchers, Explorers and Visionaries. In late 2018, we repeated the survey and reported the results in the inaugural Digital Radar 2019 report. In that report we found a slight increase in the middle cluster, but no movement to the upper end.

In late 2019, the Infosys Knowledge Institute again surveyed more than 1,000 business leaders to assess digital transformation progress. Our research showed that companies readily moved from Watcher to Explorer, but making the leap to Visionary was far less frequent. (See Figure 1.)

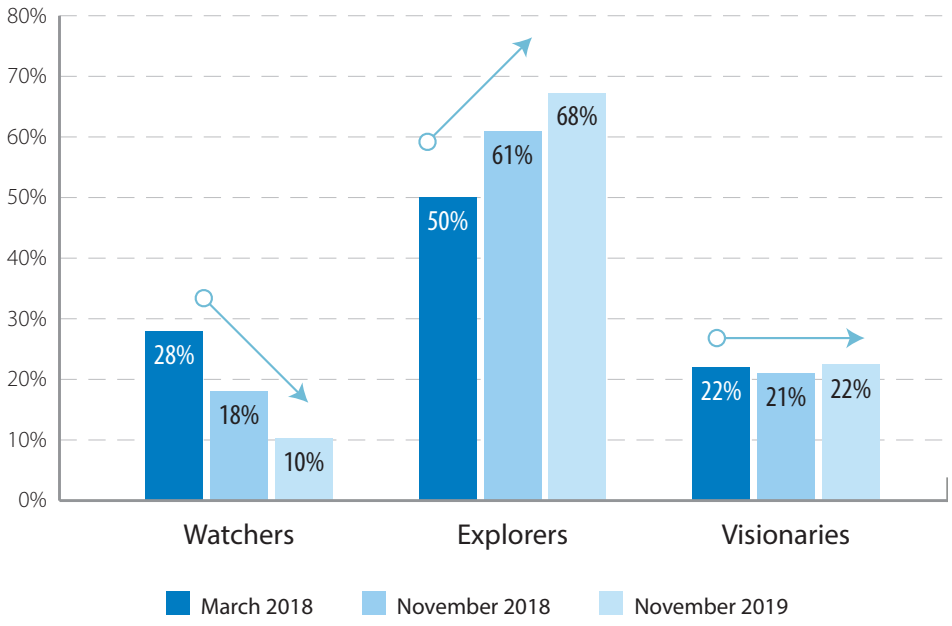
The current study also found greater maturity across geographies, as the majority of companies based in each of the seven regions surveyed are now in the middle Explorer cluster.

Digital Radar 2020 research also shows that barriers to change are evolving. Traditional barriers like insufficient investment and legacy infrastructure have become less pressing than human-centered challenges such as risk-averse cultures and talent shortages.

Finally, enterprises continue leveraging technology to improve efficiency and productivity, but the most successful businesses now also transform to improve customer experience and employee engagement, the survey found.

Figure 1. Stuck in the middle

Companies are stuck after progressing to the middle Explorer tier.



Against a **digital** ceiling

"In any implementation that focuses only on technology rather than business transformation, it's difficult to see return on investment."

– Jonquil Hackenberg,
Managing partner at Infosys Consulting

Leveraging technology to increase efficiency is no longer enough. To differentiate and succeed, leading companies apply technology with an eye to how it affects the employees and customers who use it.

Consider employee expense reimbursements: Companies gained efficiency advancing from paper forms to computer spreadsheets. Enterprises gained further when they replaced the bookkeeper's spreadsheet with intelligent cloud-based systems. However, unless leaders consider how changes touch the employees using the system, incremental investment will only produce diminishing returns.

Companies that have broken through the digital ceiling to the top Visionary tier demonstrate the value of that focus. Visionary companies use technology more frequently to improve customer experiences and empower their employees, research results show. Also, they more frequently apply technology to respond quickly to business changes.

John Romano, former Chief Information Officer (CIO) of Australian telecommunications company Telstra, says that shift in mindset can be a catalyst for change. "Our role in IT is to enable customers to be better served," he says. If a company aims to deliver great service, but defines that as simply doing better than it did yesterday, it will remain behind the industry standard, Romano says.

Customer expectations continue to rapidly evolve, and in uncertain ways. Large businesses must respond differently to compete with the fast and personalized service provided by disruptive digital natives. Think about how Netflix or Uber deliver: "That's how customers now think they should be served," he says. "That is the new standard and anything less is a bad experience. The beauty of that is you can make adjustments very quickly," Romano says.

The **Digital Maturity Index** rates enterprises on tech initiatives

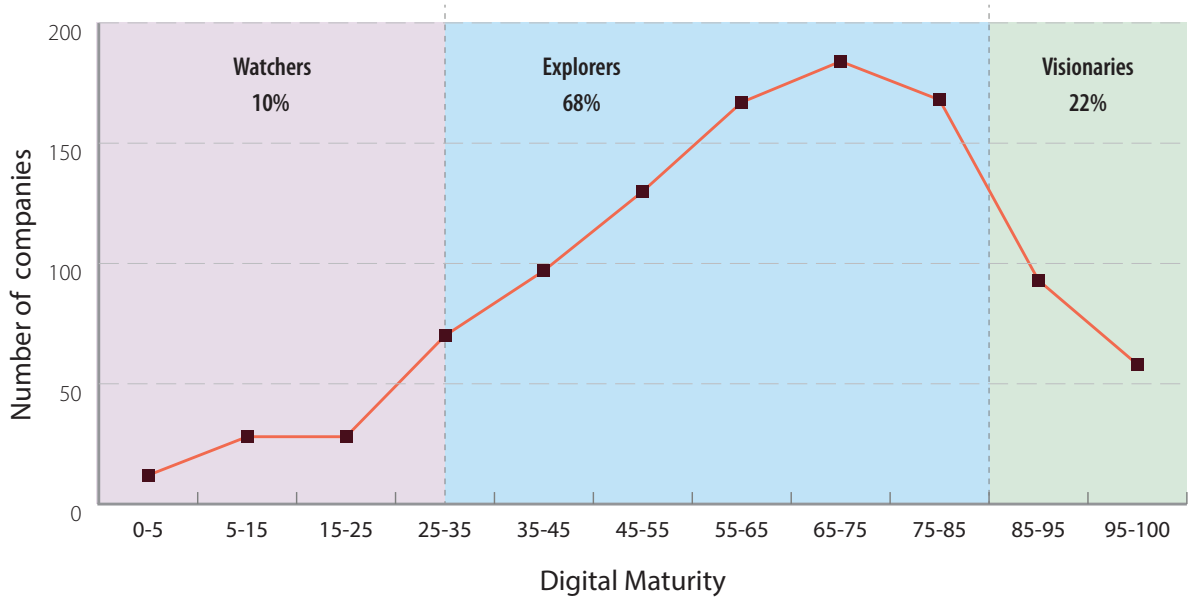
Digital Radar 2020 measured companies on our Digital Maturity Index to compare year-on-year progress toward digital maturity. We created the Digital Maturity Index for Digital Radar 2019, identifying 22 initiatives that signaled digital maturity and asked respondents where their companies stood on implementing each initiative:

1. Not started (or in planning).
2. Completed multiple proofs of concept.
3. Completed pilot projects.
4. Operating at scale.

Responses were analyzed and scored on an index from 0 to 100, assessing progress on the 22 initiatives. We repeated the methodology and approach for the current survey to establish a valid comparison with the previous survey. The majority of companies this year fall into the Explorer cluster, and toward the top edge of that range. (See Figure 2.)

Figure 2. Advanced Explorers

The bulk of companies this year are approaching the upper edge of the Explorer cluster.



Comparing **clusters** on their digital transformation journeys

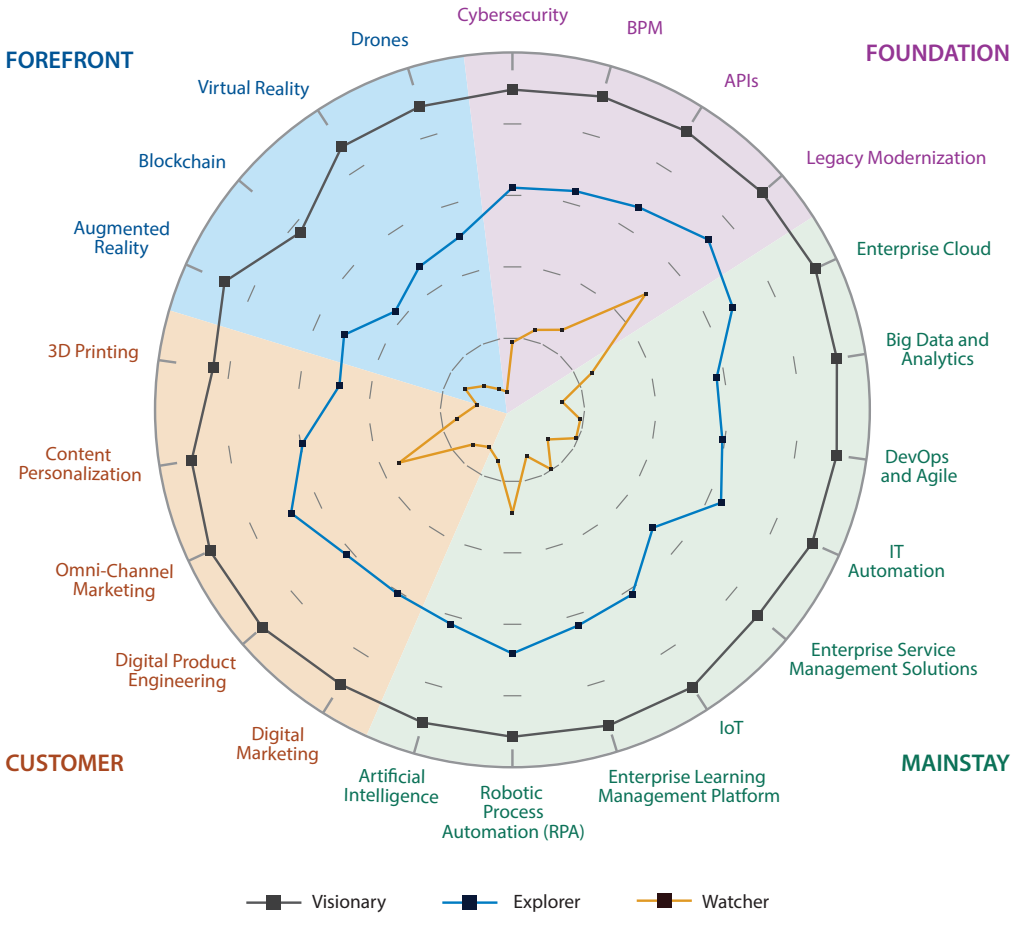
In our previous research, we found that as enterprises progress from Watchers to Explorers to Visionaries, they operate a progressively larger number of digital initiatives at scale. While still true, what is new this year is that digitally mature companies report scale across the full range of initiatives, as shown in the nearly full outer circle (representing Visionaries) in Figure 3.

As in Digital Radar 2019, we grouped the initiatives into four categories:

- **Foundation** initiatives must be implemented to modernize legacy systems.
- **Mainstay** initiatives represent the core elements of digital transformation, including automation and artificial intelligence.
- **Customer** initiatives primarily impact the customer experience. They include omni-channel marketing and content personalization.
- **Forefront** initiatives harness cutting-edge technologies, such as augmented reality, drones and blockchain.

Figure 3. Cluster analysis

Visionaries stand out with strong progress across 22 digital initiatives.



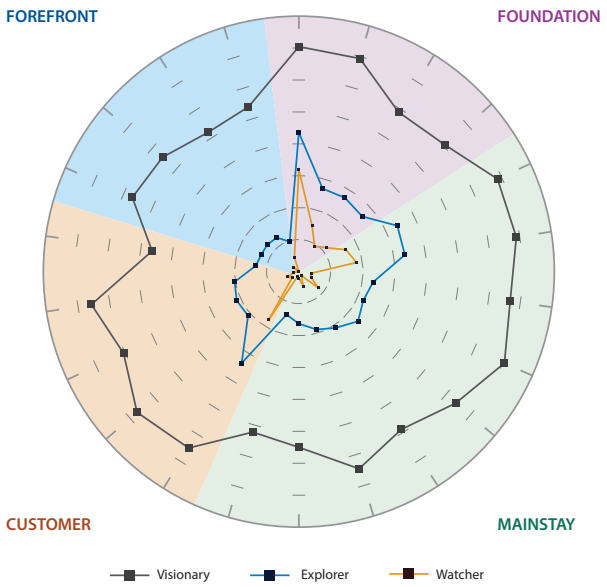
Explorers and **Visionaries** exhibit consistent progress across initiatives

The Visionaries continue to digitally advance and move closer to scale. Similarly, Explorers progressed on digital initiatives, just not at the scale of Visionaries. The lagging Watchers were less prominent and more uneven in their progress, making gains primarily in legacy modernization and omni-channel marketing. This uneven progress is reflected in the comments of Watcher-grade survey respondents, many of whom lamented that risk-averse leadership and cultures mean that significant change in their organizations doesn't happen fast enough. A director at a Canadian IT firm, for instance, related that their biggest challenge involved spending "an enormous amount of time to prove that risk to the organization is minimal."

The unevenness in the lowest cluster also recalls last year's cluster progress, when companies across the board were all less digitally mature and more uneven in their progress toward these initiatives. (See Figure 4.)

Figure 4. Uneven progress

A year ago, Explorers reported more uneven progress toward our 22 digital initiatives.



Visionaries:

Far ahead of their peers, motivated by customer demands and employee needs

- Visionaries are far ahead of their peers, with an average of 13 digital initiatives at scale. Even the initiatives not yet at scale have advanced to the pilot project phase.
- Nearly half of Visionaries describe "empowering employees" as a major business objective for transformation, compared with less than one-third of Explorers and less than one-fifth of Watchers.
- Visionaries report more motivation to pursue new technology than other clusters in every possible category.
- Visionaries prioritize using technology for customer acquisition more frequently than Explorers and Watchers do. In the past year, Visionaries have most frequently completed projects in cybersecurity, big data and digital marketing.
- Drones is the initiative with the lowest completion percentage for Visionaries, with 55% at scale.

Explorers:

Pursuing many digital initiatives but not at scale

- Cybersecurity, big data and enterprise cloud are Explorers' top competencies that achieved scale in the past year.
- Explorers prioritize robotic process automation, drones, AR and virtual reality for the coming year.
- Explorers are more engaged in tech transformation initiatives. They have the most digital initiatives in proof-of-concept or pilot phase.
- Explorers lag in current VR, AR and blockchain competencies.
- Explorers prioritize initiatives that improve business responsiveness, separating them from Watchers.

Watchers:

Behind the curve, using technology mostly for efficiency

- Cybersecurity, digital marketing and enterprise cloud are the most mature digital initiatives for Watchers, according to survey data.
- Watchers average one or two initiatives operating at scale, according to the survey.
- The Watcher cluster this year averaged four or fewer initiatives at scale, according to the survey.
- A smaller number of Watchers plan to tackle new digital initiatives this year.
- AI has the strongest appeal for Watchers, with 14% planning to begin work in the coming year.
- Watchers say they are the most motivated to improve productivity and upgrading customer experiences.

Digital marketing, enterprise learning show gains

"Companies have the opportunity to use digital platforms to drive learning for anyone in the way they need."

– Thirumala Arohi,
Vice president of education, training and assessment at Infosys

Of the 22 digital initiatives studied, cybersecurity remains the most widely developed capability, with 51% of all respondents saying they are operating at scale. Cybersecurity topped the 22 initiatives in last year's survey as well.

Digital marketing jumped to the second most adopted initiative, followed by big data and analytics. This signals an expanding emphasis on data and personalization — attributes that digital disruptors have been using as a competitive advantage against incumbent businesses for years.

Companies increasingly recognize the importance of promoting learning in organizations [1], and our data bears that out. Enterprise learning management platforms showed the greatest increase in popularity year over year. (See Figure 5.) More than 37% of respondents reported operating at scale in this area, up from 29% last year. This finding reinforces a consistent theme: an emphasis on employees is a trait of successful organizations.

One example of the importance of learning in digital transformation comes from Yvonne Burkhouse, CIO of HAAH Automotive, a California-based startup that imports Chinese car brands into the U.S. While HAAH is not burdened by legacy systems, its leaders must avoid legacy practices as it deploys a first-of-its-kind cloud-based, transparent dealer management system.

That's where the company aims to bring the power of enterprise learning management to bear, Burkhouse says. Beyond training employees and partners to use the platform, everyone needs to learn to collaborate in new ways of working as well.

Having a single unified platform (instead of the status quo of two or three connected but not integrated systems) will be a competitive advantage for HAAH once it launches, particularly in providing better service to customers, she says. It's also the most challenging thing in launching a new automobile business.

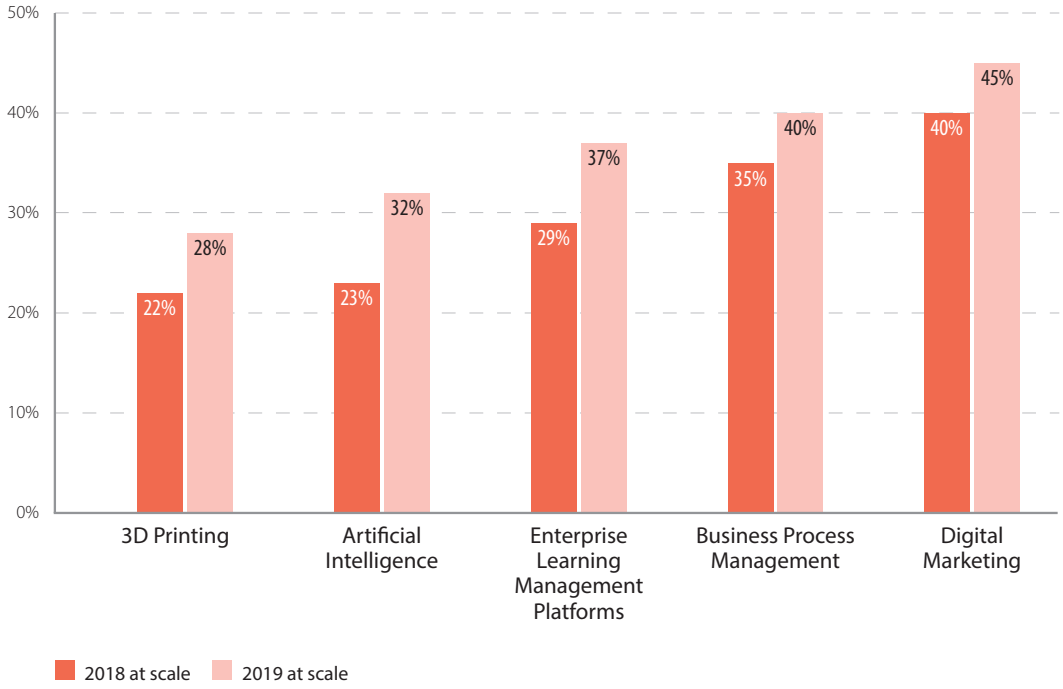
"Before I roll out the cars at the dealerships, I've got to train and stand up these systems – I have to train the parts department at the dealership, I have to train the finance and insurance and I have to train the sales, in addition to HAAH's own team," Burkhouse says.

Similarly, incumbent companies need to put learning platforms to work as they retool their systems and reskill their workers, says Thirumala Arohi, vice president of education, training and assessment at Infosys.

When a company gets it right, the learning platform functions like a company's own internal search engine, where everyone finds what they want and what is relevant to them, Arohi says.

Figure 5. Top initiatives achieving scale

These initiatives had the biggest jumps in number of companies operating at scale – all increased by 5% or more.



Not technological, but **cultural barriers** block progress

"Companies actually advancing are two types: green fueled and relatively young, and those under huge margin or EBITDA pressure. If there's no way to ensure that you keep yourself afloat, then you're going to go the AI way, because there's no other way."

– John Gikopoulos,
Global head of AI and automation at Infosys

Respondents said their technological barriers are declining, but human hurdles persist. Compared with last year, all barriers decreased. (See Figure 6.) Notably, the very human challenges of lack of change management and lack of talent show the smallest declines (3%). The related obstacle of risk-averse culture now stands tied with lack of talent as the most-cited barrier to digital transformation, along with legacy modernization (35%).

The talent famine, discussed in the Infosys Knowledge Institute's Talent Radar research [2], is the prime concern for one mid-tier Explorer manager based in Washington, D.C.: "We continue to experience significant staff turnover and, with Amazon coming to town, it is likely to get much worse. Amazon's entry into the D.C. metropolitan area is going to make it quite difficult to retain top-quality staffing."

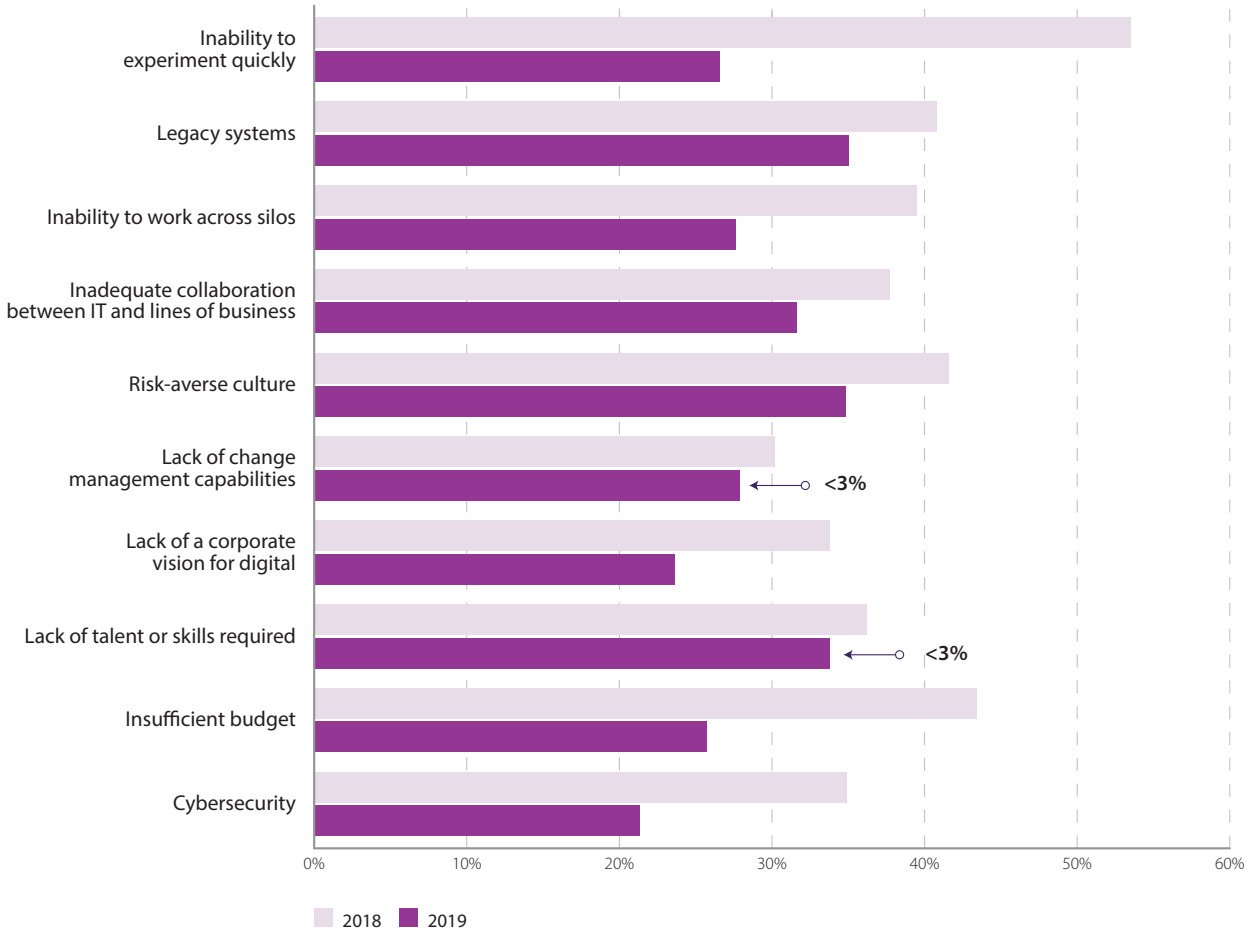
Infosys education leader Arohi argues that the information age is really an age of talent: How well a company is able to leverage and reshape its talent will determine its success. The challenge is both systems-based and human. This aligns with the research in the Journal of Economic Perspectives showing that advancing technology and automation first displaces labor, but then reinstates labor into a broader range of tasks [3].

Companies dramatically improved their ability to experiment from last year, reporting a 49% decline in companies who called it a barrier this year. However, the challenge of risk-averse cultures proved to be challenging for 9% more respondents this year than was projected last year. For the rest of the barriers assessed, executives made more progress on their challenges than they forecast in last year's research.

Risk-averse cultures become stronger and more pronounced in the case of larger transformational initiatives, says John Gikopoulos, global head of AI and automation at Infosys. Companies understand the need to transform, but prefer modest, safe changes. True transformation and adoption require deeper motivation, like corporate distress or the threat of disruption. "If you look out in the market, the companies that are actually advancing are two types: One is green fueled and relatively young and the other is a company under huge margin or EBITDA pressure. If there's no way to ensure that you keep yourself afloat, then you're going to go the AI way, because there's no other way."

Figure 6. Tech barriers tumble

Companies report strong progress against technology barriers and less progress on human barriers.

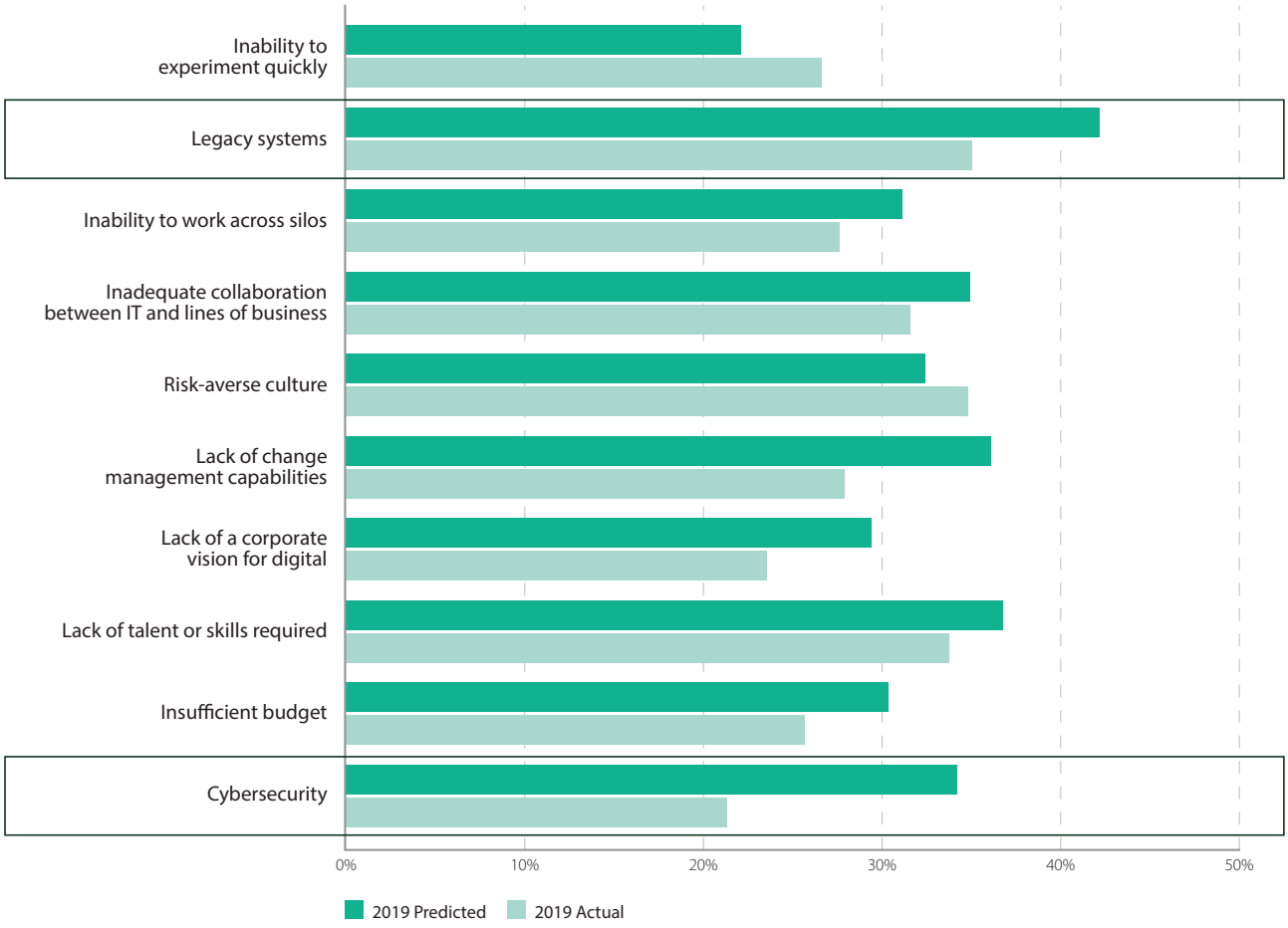


Embarking on new technology initiatives requires clarity on the end objective and an understanding of the task at hand, notes Alok Uniyal, head of enterprise quality solutions for Infosys. "Many times I find that CXOs hear a buzzword in the market and jump in," he says. "They're not always clear on how it relates to what they are trying to achieve at an Enterprise level. They underestimate the roles that culture & mindset change are going to play in the underlying processes."

The Digital Maturity clusters showed divergent views on most challenging barriers to technology transformation in the year ahead. Visionaries predicted that the inability to experiment quickly and cybersecurity would be their greatest challenges in 2020. Explorers expressed the greatest concern about their own lack of corporate vision for digital. Watchers said insufficient budget would be their greatest challenge.

Figure 7. Risk reduction

Companies made more progress on legacy systems than predicted, while cybersecurity concerns were less prominent.



Companies across the board made more progress on legacy systems than they predicted in the previous survey. This is consistent with the number of companies progressing from Watcher to Explorer. Cybersecurity concerns turned out to be much less prominent than anticipated one year before.

As a group all survey respondents predicted that risk averse cultures and a lack of talent would be the top challenges for their companies in the coming year. Respondents called risk averse cultures and legacy systems the top reported challenges for the year just completed. (See Figure 7.)

Digital maturity by industry

The high-tech and telecom industries continue to have the highest Digital Maturity Index scores in this year's survey. (See Figure 8.) This was expected, given their strong scores last year and heavy reliance on technology enablers. However, the survey also shows that customer-focused initiatives are driving digital maturity across all industries.

Segments impacted by changes in customer behavior — manufacturing, consumer packaged goods and logistics — exhibited the most improvement in digital maturity this year compared with last year.

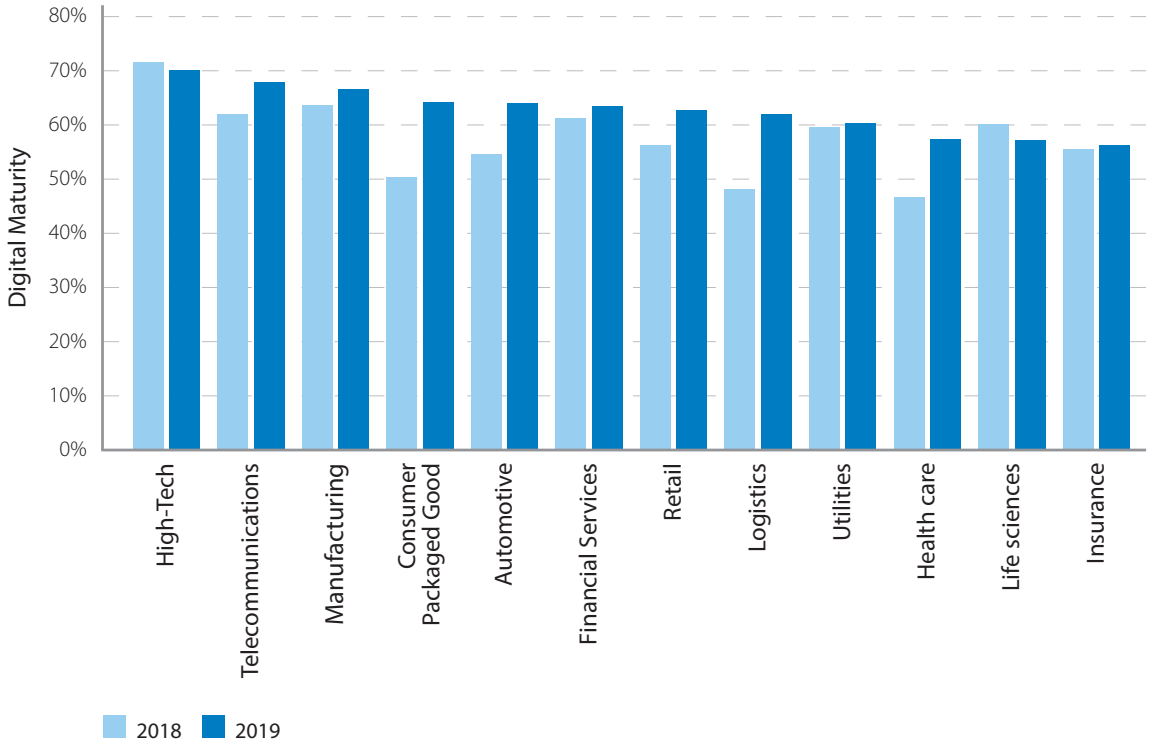
Increasingly, large enterprises say they leverage technology to retain customers and acquire new ones.

A top technology executive at a leading financial services firm says his organization is moving to a completely new operating model to become more nimble and customer focused.

"From an external perspective, we have continued to build customer journeys. We take a customer journey approach to figure out where we want to target investment in systems, in terms of automation, user interface and simplification," he says.

Figure 8. Differences diminished

Technology still achieves the highest digital maturity, but other industries have closed the gap.



The world is filled with **digital explorers**

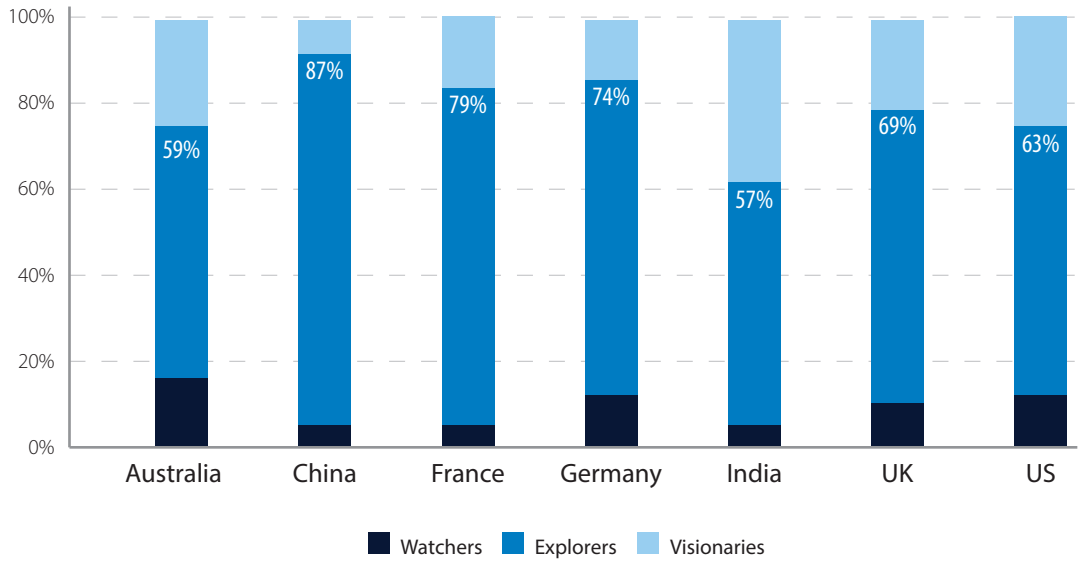
In much the same way that companies across industries have advanced from the basic Watcher cluster, respondents from all seven regions surveyed reported improvements in their digital capabilities. (See Figure 9.)

China made significant strides in digital maturity — improving from 28% of respondents in the Watcher cluster in 2018 to just 5% this year. Yet China still has the smallest proportion of Visionaries (8%). This mirrors the global challenge of the digital ceiling. Companies in China achieved quick growth to the Explorer tier but now face a different challenge to reach the Visionary tier. Efficiency and the ability to respond to change motivated Chinese companies to improve their technology at much higher rates than businesses in other countries.

No single region showed differentiated leadership in customer- and employee-focused motivations most closely associated with Visionary companies. Indian companies reported strong motivations to use technology to improve customer relationships.

Figure 9. Explorers the world over

The majority of companies from every region in the survey fall in the Explorer cluster.



The synergy of **sustainability** and **technology**

To break through the digital ceiling, companies must bring a different mindset to their technology initiatives. By expanding focus from profits to customers, employees, and society, companies bring human concerns into harmony with business objectives. This holistic view enables enterprises to accomplish more than traditional program success metrics and achieve the emerging goals of stakeholder capitalism.

Employees and customers typically assume that companies focus on the financial bottom line. However, a company best serves its customers when it meets their needs and earns their trust with transparent words and actions. Likewise, employees who trust their leaders and have a clear view of corporate governance remain engaged in the workplace and are most apt to advocate for ways to improve the organization.

For supply chains, shifting from linear development models to quick, circular cycles enables companies to break from extended, one-way supply chains into a life-cycle mindset.

Infosys Consulting's Hackenberg describes a consumer goods maker completely rethinking its shampoo business with the comprehensive circular economy in mind. "You package shampoo in a plastic bottle that goes in one direction, out of sight, out of mind," she says. "Now, that's not a fit-for-future process."

Their new challenge is to ship shampoo and be accountable for the full life cycle of that product.

Underlying that challenge is the more complex business process of changing an entire supply chain in a timely and cost-conscious manner, Hackenberg says.

Expectations from customers and clients have evolved more rapidly than large enterprises can keep pace. Beyond a good product at a fair price, customers now demand better behavior from businesses on multiple fronts — that corporations act as global citizens and as stakeholders themselves [4].

Also emerging is an emphasis on reuse and repurpose. This circular approach to talent, process and tech landscape is key to a future, sustainable organisation. This strategy aligns with United Nations Sustainable Development Goal #8, Decent Work and Economic Growth.

When companies shift to focus on stakeholders and not just shareholders or even customers, decisions have greater impact. In fact, this emphasis on the triple bottom line of people, planet, and profits, actually drives companies to increase digital maturity.

Our interviews with executives across enterprises, governments and NGOs have reinforced that both sustainability and employee welfare have become essential considerations in customer preferences and regulatory requirements. Our research shows that this broader view, in combination with the digital initiatives outlined earlier, helps companies attain Visionary status — making the triple bottom line an imperative, not merely a nice stretch goal.

The case for the **living enterprise**

"The idea of sensing, responding, learning, and evolving is a continuous cycle. You get better and better until it becomes natural and instantaneous."

– Jonquil Hackenberg,
Managing partner at Infosys Consulting

The survey showed the progress respondents achieved in digital initiatives since the previous report. The individual findings are useful as data points, highlighting gaps between industries and countries, year-over-year changes, and even digital maturity. However, gaps manifest themselves most clearly in the business problems and opportunities they present. After all, fundamental metrics like profit margin, employee engagement, and societal impact require a broader perspective.

To understand this wider view, the study examined six transformation objectives, spanning customers, employees, and efficiency. A common theme distinguished the behavior of Visionaries from Explorers and Watchers. In simplest terms, these successful capabilities can be classified as sense, respond, learn, and evolve.

Sense

Management guru Peter Drucker said the greatest skill is intellectual integrity, "the ability to see things as they are, not as you want them to be, or as you fear them to be." The capability to sense requires instrumenting the edge, and coincides with the explosion of the internet of things. The plummeting cost of sensors is a positive dividend of the smartphone wars, and cloud computing power has provided the loose decoupling that enables alerts. For industrial applications, this means that equipment has burst free from the sheltered plant floor and into the executive suite, and is even connected to the customers themselves.

Respond

Once a stimulus is sensed, an individual processes and then responds. The traditional response to increasing market complexity has been to increase business complexity to address it. However, business complexity carries its own overhead and corresponding delays due to governance, communication and interpretation. Numerous studies have shown the pace of business change exceeds the pace of an enterprise to respond. Visionaries take a different approach to this dilemma — simplify rather than make more complex. Of course, even a simple response requires strong processes and enterprise scaffolding to provide context and deliver consistent execution.

Speed is the other dimension of response. Even if accurate, a response is valuable only if executed before the context changes. The good news is that quick response reduces the need to be perfect at predicting over longer horizons. Here, businesses can borrow from the exponential smoothing forecast method, where recent values carry more weight. The faster the rate of change, the more recent the data points needed, and the more weight given to those data points. Since the market moves fast, systems need to respond fast. This goes for humans as well. In fact, Visionaries view humans and machines as symbiotic partners.

Learn

Our research has shown learnability — the ability to learn — to be a foundational skill core to all others. Less obvious but also important is that this learning occurs at both micro and macro levels. At a micro level, this is the recognition and evaluation of whether a transaction is correct. This requires measurement systems that are regularly validated. Also, if a decision is made in error, a feedback loop updates the standard. Learning also applies at the macro level. Nearly all companies in our recent surveys train employees for a specific project or purpose. However, the leaders differentiate by improving the capability of both humans and machines to learn, taking a talent rather than a transaction perspective.

Evolve

It is one thing to learn that a new value is needed or to understand a policy needs to change. It is quite another to make the changes required. While change management has long been studied, a review of the literature indicates a typical focus on observable activities, not underlying capabilities. It is straightforward to create a communication plan or a newsletter, but Visionaries also build the systems that establish trust and accomplish the adoption that is ultimately the proof of change.

Our research found these four pillars are important to address the gaps identified in our research. We further studied how these four factors related to each other, and found that they naturally form a virtuous cycle of sense, respond, learn, and evolve.

Shifting technology transformations from long, linear processes to a quick, circular, human-focused practice allows organizations to move away from one-time transformations, Hackenberg says.

As we interviewed executives, speed and evolution emerged as consistent themes. We looked to other fields for comparisons to enterprise systems. Living organisms exhibit similar characteristics of sense, respond, learn, and evolve — and their very life often depends on speed. We applied this logic to the enterprise context, and tested the concept of a living enterprise. We designed our survey and interviews to draw out the characteristics that allow a company to move closer to the living organism metaphor. We tested five areas that emerged from our initial research: architecture, operating model, experience, circularity and resilience.

Architecture is the skeletal structure of an enterprise. If too rigid, it will be unable to evolve and will be at risk of breaking. The *operating model* is how work actually gets done. Structure is necessary, but not at the expense of flexibility to meet changing conditions. *Experience* is the feeling that accompanies the transaction. *Circularity* is a closed-loop, perceptive consciousness across all aspects of the enterprise. *Resilience* allows enterprises to function with confidence in a changing, uncertain world. While buffers are necessary, not all risks can be insured, and self-healing is the ideal.

Shifting from **digital maturity** to **live enterprise**

We identified five approaches with leading practices and actionable recommendations that can help companies move beyond individual transformation programs to living enterprise capabilities.

1. Architect for evolvability
2. Operate with accountable agility
3. Value employee interactions over transactions
4. Move from linearity to circularity
5. Build resilience through velocity and trust

1. Architect for **evolvability**

Every company uses architecture to describe enterprise structures and relationships spanning the organization, data, and infrastructure. Recognition of architecture's importance has led to high expectations, but the ensuing rigor also slows ability to change. The leading companies in our study have an experimental, evolutionary mindset. Beyond evolution, it also allows a componentized approach to maintain flexibility. "Isolate, abstract and standardize so that it becomes easy to integrate the innovations that are happening into the architecture on an ongoing basis," advises Mohammed Rafee Tarafdar, senior vice president and unit technology officer, Infosys.

Iteration over perfection

The technique of segmenting big systems into overlapping but distinct and manageable elements is a powerful ingredient for agility and speed at scale. This allows portions of the architecture to evolve on an ongoing basis, instead of requiring periodic wholesale change.

Our study found that leading companies begin with an imperfect but flexible system that is primed for revision and improvement. They then bring structure to that flexibility by codifying every aspect, including infrastructure, monitoring, policy and configuration. An emerging example of evolutionary architecture is the six-layered model developed by Infosys for its own transformation:

- **Shared digital infrastructure.** Provides a common backplane that abstracts the public and private clouds and provides a common interface.
- **Systems of record.** Acts as the technology backbone for data capabilities and processes.
- **Intelligence.** Captures insights from transactions and also from mapping complex behavioral interactions.
- **Serve.** Provides a set of microservices to simplify user interactions, make them contextual, personalize them, and improve them using telemetry.
- **Process.** Where all process modeling, orchestration, and routing are done.
- **Interact.** Where applications communicate with the process and serve layers through APIs.

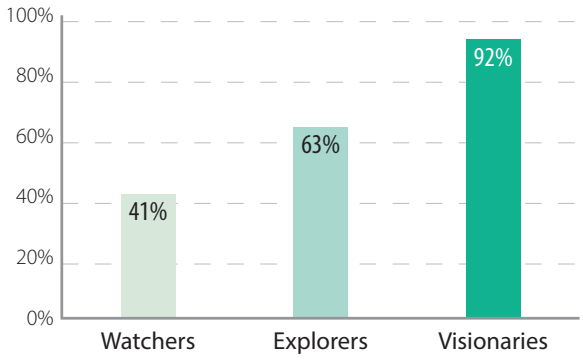
Pursue polycloud

Cloud has emerged as a critical architectural component, with its impact expanding beyond infrastructure into the business itself. In the spirit of flexibility, Visionaries pursue a polycloud strategy, which increases opportunities to leverage open-source innovations and vendor sourcing, allowing flexibility and choice.

The use of multiple cloud vendors was the most distinguishing characteristic separating top-tier Visionary companies from those in the middle-tier Explorer cluster. Practically all Visionary companies (92%) are working toward polycloud. Explorers (63%) and Watchers (41%) were less likely to have polycloud strategies. (See Figure 10.)

Figure 10. Visionaries' head in (multiple) clouds

Nearly all Visionary companies report using multiple cloud vendors.



2. Operate with accountable **agility**

"We're a few months into this journey, with a big focus on changing the way we fund initiatives and supply resources."

– Chief information officer,
Leading US financial services firm

Success leaves clues, and incumbent enterprises can look to digital disruptors to deconstruct superior practices. The Infosys Knowledge Institute studied the operating models of Google, Amazon, Facebook and Apple as well as China's Baidu, Alibaba, and Tencent. A common theme is that despite scale, each derives power from its ability to engage in two-way conversations with users with near-zero latency. This allows these enterprises to understand user motivations and adjust their operating models to anticipate customer needs [5].

Study nimble to become nimble

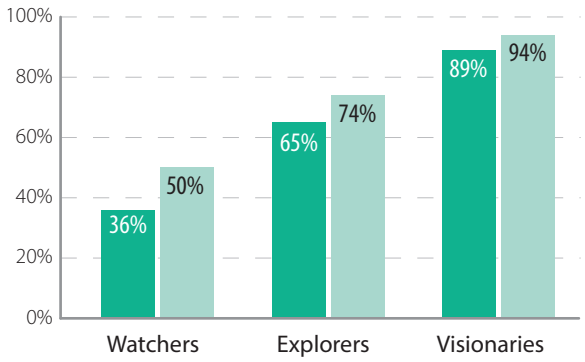
Enterprises find success in this approach, becoming more nimble by studying the practices of nimble firms. The application team at a leading industrial equipment company followed an established linear development path, and at best could deliver requirements in half a year. "The business wasn't getting the results we wanted," according to an executive. "What you need right now is not going to give you value six-months down the road."

In need of a quicker operating model, the company studied the examples of faster-moving startups. That led it to build a development team and operating model that brought together multiple disciplines and now delivers quick, usable results with potential for scalability, according to Amit Sreedharan, senior director of client services at Infosys.

Nimble, self-directed teams cannot operate in a vacuum, and governance still matters. To achieve agile at scale, firms balance autonomy with accountability. In the industrial example above, as the group moved faster, Sreedharan says they faced the challenge of balancing the quickness of autonomy with the governance that accountability requires. If there is too much control, flexibility suffers, while too much autonomy contributes to unclear standards and system integration issues, he says.

Figure 11. Fast and loose

Visionary companies employed rapid deployment strategies (left) and multidisciplinary teams more frequently than did less advanced enterprises.



Launch a startup inside the enterprise

That's the strategy taken by an international staffing agency as it looked for ways to guard against disruptive startups in its space, says Manesh Sadasivan, Infosys associate vice president and senior principal technology architect. While the company initially considered a regular technology consulting engagement, both sides realized the company needed a different model after studying competitive threats on the horizon, desired time to market and the potential hurdles in transforming the core legacy systems of the large enterprise.

The engagement turned into a digital native startup inside the incumbent organization. This helped the new startup to leverage an integrated product-oriented approach at rapid speed. The company has subsequently rolled out that startup model in a series

of countries. Each iteration achieved higher quality and stability, Sadasivan says. In the initial phases, the tech team produced iterations in a rapid fail-fast mode with less focus on quality issues inherent due to the pace of change. They also had to manage with constantly changing requirements, but that's become smoother in subsequent iterations. "Now we're in an established run mode," he said. "We've been able to stabilize on a regular, consistent approach."

A top technology executive at a leading financial services firm says the company has embarked on a change in its operating model. This was required because its traditional waterfall project-based organization simply wasn't as nimble or agile as the market required. Even at an early stage, he says, changing the operating model has created an opportunity for more strategic business changes.

"We're a few months into this journey, with a big focus on changing the way we fund initiatives and supply resources," he says.

Digital Radar survey respondents showed a high tendency to take new approaches to operating models and software development. Some 76% of survey respondents said their companies used multidisciplinary teams for development. Of our survey respondents, 72% said they broke down large development projects into smaller parts and 68% indicated they employed micro change management in software development. (See Figure 11.)

3. Value **employee** interactions over transactions

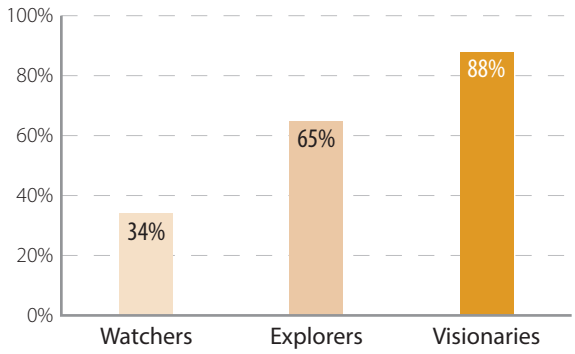
In the same way that dominant digital enterprises have reaped benefits by engaging digitally with users, incumbents have a massive opportunity to improve employee engagement through better use of digital tools. By constructing their digital ecosystem with employees at the center, an enterprise can execute business services with intelligent routines built into business processes and adapt at the speed of data.

Switch from transactions to interactions

A transaction is an act of performing a task, where tasks are performed as part of one user experience; analytics and insights are done through a different user experience; and collaboration and sharing is performed through yet another set of tools. While this siloed approach functionally works, it is not sufficient for the hyper-productivity required today. With an interactions-based approach the tasks, insights, actions and collaboration between stakeholders is done in the context of the same user experience, creating higher value with more speed and fewer handoffs.

Figure 12. Customization and personalization differentiate Visionaries

The ability to allow users to customize company systems to their needs showed the sharpest split between top Visionaries and the bottom Watcher cluster.



In that spirit, a leading consumer goods company uses the concept of "moments that matter" when defining employee interactions. Those moments then are combined into interactive service blueprints — effectively an end-to-end story punctuated by employee interactions that can deliver a moment that matters in each release. This improves employee experience for each release through incremental micro changes rather than the "grand reveal" of yesteryear, and enhances productivity. One of the key success metrics is to give time back to the employee. This highlights a shift in mindsets for leading-edge companies, moving away from busy-ness and toward productivity with purpose.

Simplify interactions

Simplify interactions by understanding users and their context. The executives we interviewed used several terms — "digital brain," "knowledge graph," even "sentience" — but essentially it is a central intelligent repository that can record information from anywhere within the organization and recall relevant details rapidly and easily. This extends to artificial intelligence and computational design, designed to anticipate and address user needs, not treat people as passive cogs to be made more efficient.

Employee portals have harnessed the synergistic power of mobile and cloud to allow employees to customize and access relevant information via any method or device they choose. Consumer-like app experiences are replacing the plodding corporate intranet that was functional and safe but a drag on employee productivity and engagement.

"The most important aspect of user experience is simplification, creating an experience that understands me and my context and makes available relevant information and services, and eventually becomes intelligent to predict my intent and needs ahead of me," Tarafdar says.

In the Digital Radar survey, the ability to allow users to customize company systems to their needs showed the sharpest split between the top Visionary cluster and the lowest Watcher cluster. Visionaries were 61% more likely than Watchers to allow personalization. (See Figure 12.)

4. Move from linearity to **circularity**

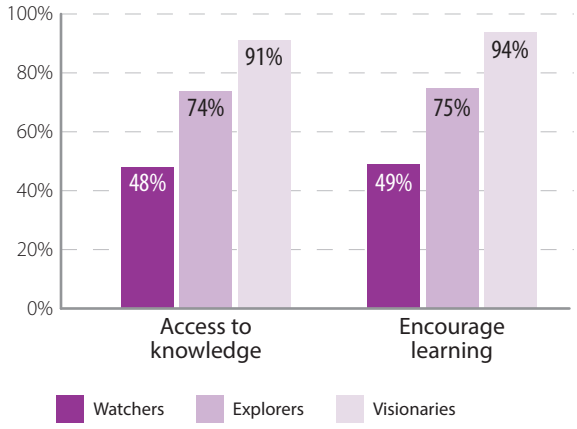
In the Antarctic, king penguins huddle together to escape the icy temperatures that reach negative 50 degrees Celsius. Each huddle is constantly changing in response to ambient temperature and penguins overheating. Those in the middle get too hot, move to the outside, cool, and find their way back into the crowd. This mechanism keeps the birds alive and works when all penguins work in unison and react quickly.

Empathetic intelligence

This sort of conscious empathetic intelligence with feedback is relevant for the enterprise, with employees cooperating at speed to respond to visual cues across an array of channels. While this perceptive consciousness can readily occur at the workgroup level, enterprise scale requires supporting systems that are hyperaware and ensure that the information is available to all who need it — essentially, contextualized collaboration. These systems need to be designed using principles across experience, process and technology, optimizing finite resources and removing negative externalities.

Figure 13. Knowledge is power

Visionary companies regularly give employees access to company information and encourage employees to learn.



What makes the Visionaries successful is their ability to connect the dots between different microprocesses to exploit synergies and drive intelligent routines that users quickly understand. They repurpose rather than replace current talent, product, and process.

Infosys' Tarafdar related an example of booking a ticket for a flight, where the digital brain is the intelligence in the technology layer. "The brain looks at historical data, your preference and where you stayed. Then it identifies an insight; perhaps this person always stays in a Marriot hotel, and she has booked a particular one in this city on a previous trip. And that is an insight that the digital brain can recommend while booking travel," says Tarafdar.

Visionary companies in our study develop the capability to understand information and develop insights, using artificial intelligence, automation and machine learning. They also use data and insights to offer relevant actions and meaningful recommendations. The key is to create responses with relevance, says Hackenberg. "Companies today are bogged down with data, but they don't have much information. Unless you get information out of your data, it's useless."

Customize enterprise consciousness

Infosys training chief Arohi notes that consciousness has different meanings to different kinds of people: "You have to have a customizable platform that will appeal to different types of people." Most platforms "typically fall into the trap of assuming everyone behaves the same way." Leading companies have begun applying a more refined view of work, Hackenberg says. "Productivity with purpose is becoming more important than just being busy," she says. A client has set itself a goal of giving back four hours per week to employees by streamlining and updating systems with its users at the center.

Consciousness attributes distinguished the middle-tier Explorer cluster from Watchers to the greatest degree. This is seen in the efforts of Explorers to encourage employee learning (75% agree) and share access to company information (74% agree). Visionaries scored far ahead on those questions, with 94% encouraging learning and 91% giving employees easy access to company information. (See Figure 13.)

5. Build **resilience** through velocity and trust

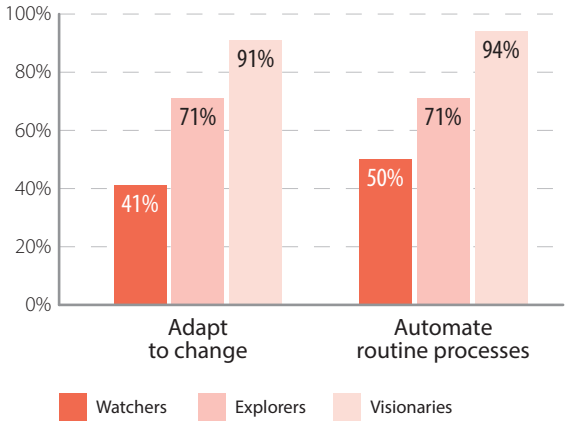
In the past decade, conservation scientists have turned to virtuous cycles as a strategy to slow the pace of extinction. Instead of attempting to restrict human activity, conservationists instead construct a virtuous cycle that changes behaviors by "establishing virtuous socio-ecological cycles between people and their environment" that will benefit both [6]." For enterprises, the virtuous cycle — action reinforced by result — holds the promise for companies to change habits and stave off irrelevance or its own extinction.

Shorten cycles

Improving resilience is different from achieving "five nines of uptime," says Sreedharan. To build better resilience, think of digital improvements in terms of short, circular projects instead of long, linear implementations. "You could fail, but the impact of failure is much smaller," he says. "A company has to go in with the view that things will go wrong. That's the only way to make progress."

Figure 14. Change, and change quickly

Visionaries excelled in the qualities of adapting quickly to change and on automating routine processes.



Trust matters

Build trust by delivering data, experiences, and interactions in a simple, transparent and omnipresent fashion in order to build trust. Trust is essential for a living enterprise, says Tarafdar. "To develop trust, you have to have access anytime, anywhere," he says. "Second, you have to trust that the data is correct."

Move toward circularity to enable reuse of talent, reuse of product, and reuse of process. If you are reliant upon old-school linearity — for example, the hire-to-retire process — it means your ability to be agile is vastly restricted. A leading food services company takes on the challenge of better matching their contingent workforce supply with the demand that a variable market dictates. Moving from hire-to-retire toward hire-to-retire-to-rehire shortens the onboarding cycle exponentially by being able to trust the data from the original recruitment process to deploy known talent more rapidly.

It's similar for products. For any consumer-facing organization, their ability to move toward end-to-end supply chain accountability is critical to future resilience of resources and of brand equity. Gone are the days of make product, package product, and ship product — out of sight, out of mind. Today is about make, ship, return, and repurpose in a virtuous cycle.

Documenting data-cleaning efforts and checking for accidental bias are at the root of building trust in digital systems, according to Gikopoulos. "If you are to trust the outcome of a data science or machine-learning project, you need to make sure that the data that goes into this effort is as clean as possible," he says.

Companies in all clusters performed well on living enterprise attributes related to resilience, particularly in the area of cybersecurity, but Visionaries excelled in the qualities of adapting quickly to change (91%) and on automating routine processes (94%). (See Figure 14.)

Breaking through the ceiling: The **next evolution** never ends

Digital Radar 2020's reassessment of digital maturity reveals a ceiling — the level where companies that are good with technology cease getting better.

Based on our research and interviews, we recommend traditional businesses adopt a broader stakeholder perspective for digital advancement. Conventional technology implementations are generating diminishing returns in efficiency or productivity. Also, the expectations of employees and customers continue to outpace the implementation speed of even the nimblest of large companies. When companies fail to meet employee expectations, they lose their engagement. When companies fail to meet customer expectations, they lose their business. Last, external stakeholders like communities and regulators increasingly demand more from enterprises.

Our research shows leading enterprises break through the digital ceiling because they bring to technology transformation a broader perspective and a mindset different from those of traditional companies. The stakeholder capitalism perspective — the triple bottom line of people, planet, and profits — ensures comprehensive awareness and empathy, especially with their employees. This different mindset is to adopt the living enterprise metaphor, with the organic pillars of sense, respond, learn, and evolve.

To progress to a living enterprise:

- **Architect for evolvability.** Establish a system architecture that is primed for revision and improvement.
- **Operate with accountable agility.** Study the examples of nimble firms. Encourage speed, and align it with accountability.
- **Put the user first.** Replace employee and customer transactions with interactions and moments.
- **Move from linear to circular.** Repurpose rather than replace current talent, product, and process.
- **Build resilience through trust and velocity.** Act and respond quickly to changes using data and transparent systems. Transparent, user-customized systems increase trust and foster interactions that strengthen systems and allow self-healing.

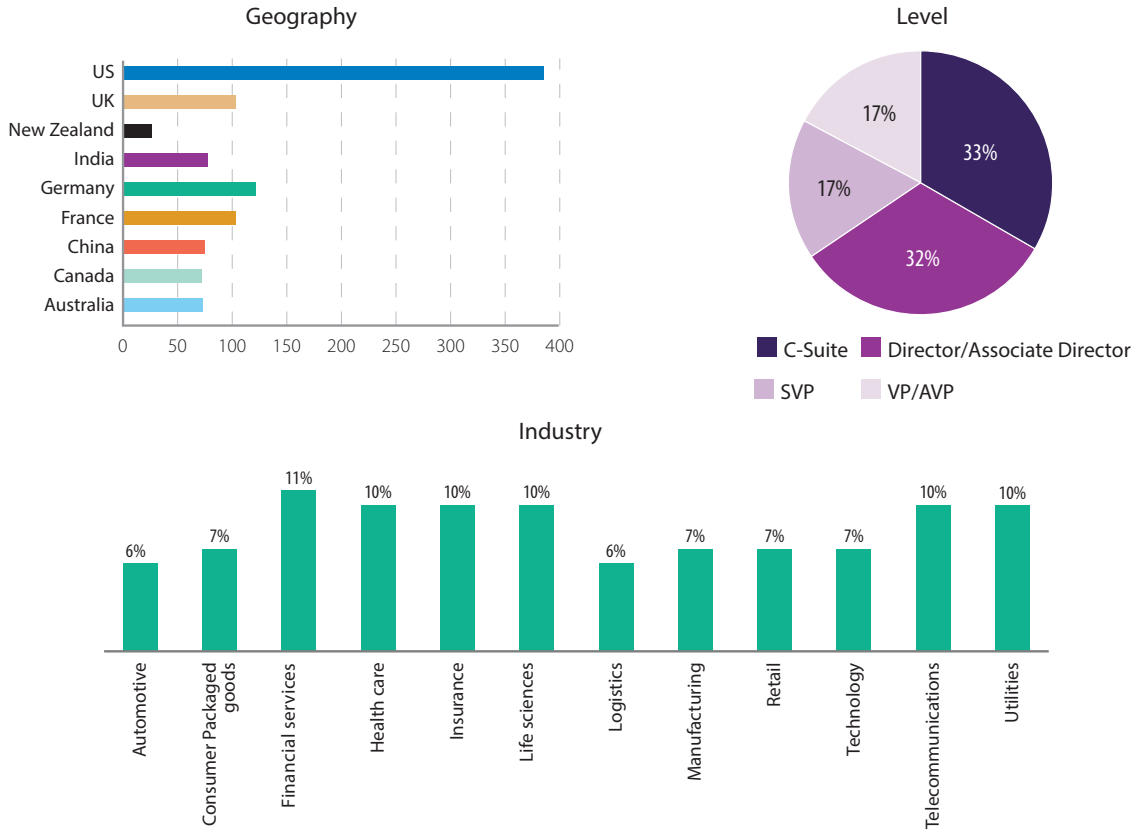
Digital Radar 2020 shows good progress for technology adoption across industries and across regions worldwide. But simply repeating the methods and linear development patterns of years past will not achieve enterprise objectives. Employee and customer expectations evolve, as does technology. Large companies face a paradox: They have never commanded more data about how to deliver value, and yet they have never had less time to use that data before losing its value.

Faster, better, and cheaper technology alone will not provide the improvements enterprises need. Leading firms bring these digital tools to bear with an employee-centered mindset. Employees refine technology to better meet their needs and serve customers, which ultimately provides the economic returns that enable the ability to serve all enterprise stakeholders.

Methodology

In November 2019, the Infosys Knowledge Institute used an anonymous format to conduct an online survey of more than 1,000 CXO and other senior-level executives from companies with more than $1 billion in revenue. Respondents represented 12 industries and were based in Australia, Canada, China, France, Germany, India, New Zealand, the United Kingdom, and the United States.

To enrich insights, we also conducted phone interviews with industry practitioners, executives, and subject matter experts.



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Acknowledgments

The Infosys Knowledge Institute would like to thank the following for their time, insights and contributions to this report:

Thirumala Arohi

Vice President of Education, Training and Assessment, Infosys

Yvonne Burkhouse

CIO, HAAH Automotive

John Gikopoulos

Global Head of AI and Automation, Infosys

Jonquil Hackenberg

Managing Partner, Infosys Consulting

Adarsh Mehrotra

Principal Consultant, Infosys

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Group Practice Executive, Infosys

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Associate Vice President and Senior Principal Technology Architect, Infosys

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