WORLD ECONOMIC FORUM

COMMITTED TO IMPROVING THE STATE OF THE WORLD

Insight Report

The Digital Enterprise
Moving from experimentation to transformation

In collaboration with Bain & Company

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Introduction

Do not be fooled by the term “digital transformation”. The data-driven changes businesses are undergoing certainly begin with digital technology, but just as important as the technology itself are the surprising ways people react to and interact with it. That combination has made digital technology so disruptive.

Digital technology made it possible for mobile transportation platforms Uber and Didi Chuxing to efficiently match riders with drivers, inexpensively and on a massive scale. Equally critical were customers’ embrace of the service and their willingness to jump into the cars of total strangers. Hospitality platform Airbnb would not be worth $31 billion if customers had not quickly become comfortable with the idea of sleeping in a stranger’s bed. The willingness of consumers to ask 1,000 online strangers if they should buy a certain product, and to write paragraphs of detailed reviews, has moved e-commerce beyond being a digital version of the US retailer Sears’ catalogue to replacing the trusted shop owner.

These are consumer businesses, but companies selling to other businesses are seeing important shifts as well, sometimes influenced by experiences in the consumer realm. At a recent Word Economic Forum workshop, an executive noted that he can order a $1 million piece of equipment with months of lead time, yet have almost no visibility as to its location in the manufacturing process at any given moment. If he’d order a $10 pizza from Domino’s online, however, he’d know almost to the moment when the anchovies are added. Such digitally enabled experiences have created a new normal for all industries.

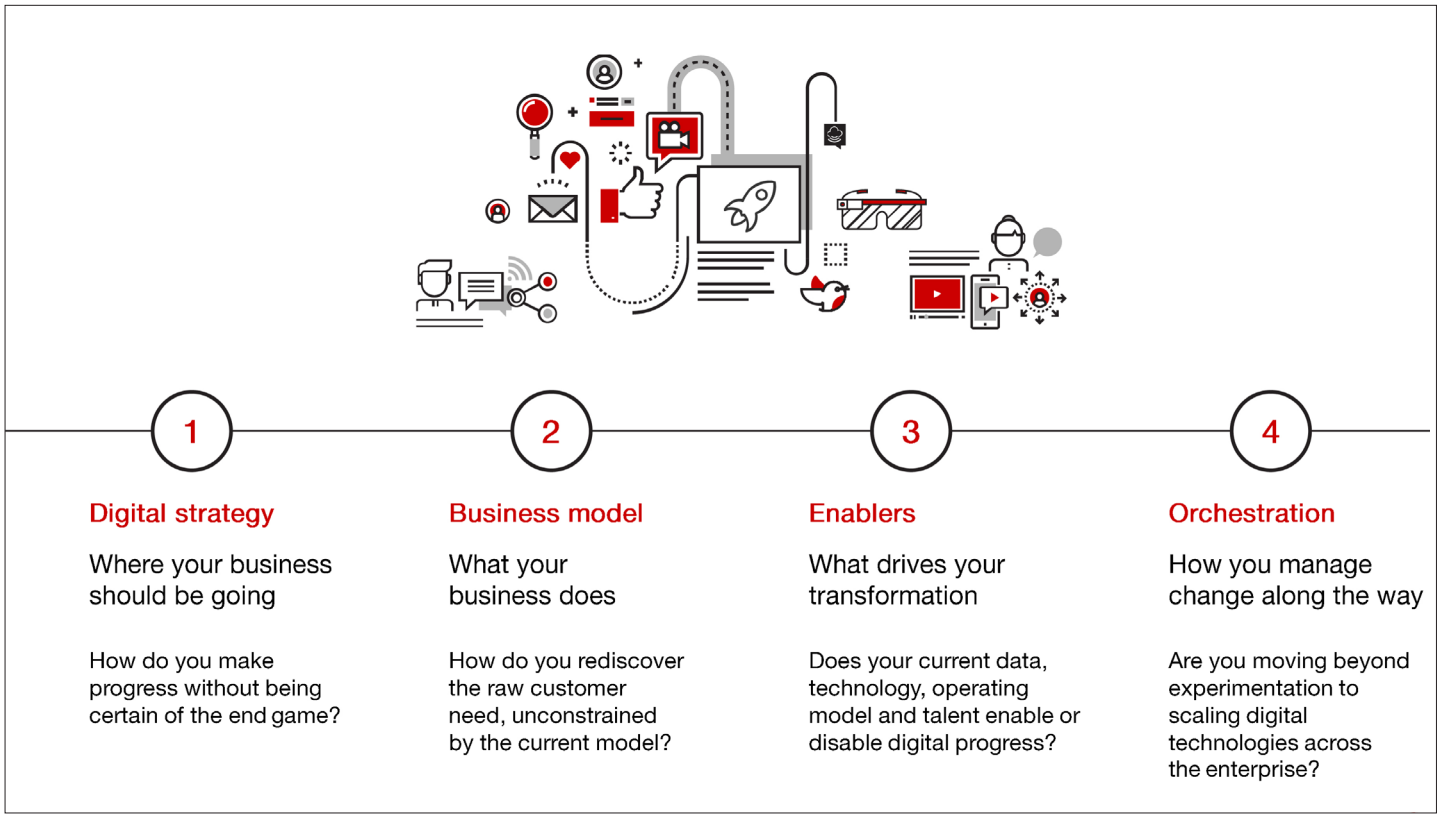
In this environment, executives understand that digital technology is both a threat and an opportunity. The threat is the potential disruption to a business or industry, starting with the broad expansion of its competitive set. The digital opportunity is the chance to spark innovation and lay the foundation for a prosperous future. Over the past decade, this digital duality of threat and opportunity has created a new generation of corporate giants and killed off others. A Bain & Company analysis shows that digital natives have generated 80% of the growth in market capitalization of the top companies over the past 10 years.

In their pursuit of innovation, most, if not all, incumbent companies have digital efforts under way. They effectively think up ideas and test them. The struggle begins with the next step, namely scaling the best ideas. Specifically, it means integrating them across the organization at a size big enough to make a true difference, and then embracing the new ways of working required to maintain the momentum.

To help executives think through these challenges and better execute their digital transformation, the World Economic Forum Digital Enterprise project created a working group of senior executives from 40 global companies. This diverse group is from industries that together represent 70% of global gross domestic product. Meeting periodically at a series of workshops and other events over the past year, the group found that, despite its diversity, clear common themes emerged: that experimentation is easy, but transformation is hard; that digital disruption is not a challenge technologists alone can solve and that business thinkers must play a prominent role as well; and that digital transformations must have clear business objectives.

Importantly, members of the group represented a mix of digitally native firms and well-established incumbents. Their exchange of ideas and experiences was eye-opening and instrumental in identifying four pillars of successful transformation. These pillars became the basis of a clear framework and questions to answer so that companies can begin to build their transformation, understanding what it takes to lead and deliver a digital enterprise (Figure 1).

Figure 1: Transformation framework and sample questions



Source: World Economic Forum/Bain & Company

This Insight Report explains each pillar in detail, but like everything in digital transformations, the framework will clearly have to evolve to remain relevant. That evolution cannot get in the way of action, however. Every company needs to be working on digital transformation; all the working group members agreed on that. Throughout the report, checklists and practical tools, such as questions to ask when addressing the topics, are included to help executives think through how they can apply the framework to their own business.

Digital strategy

Today forward/future back

The current pace of change, while fast, is likely to be slower than the pace of change in the future.

Early discussions among the working group of the World Economic Forum Digital Enterprise project focused on the fundamental changes in the strategic context in which companies operate. In the past, incumbency was such a strong advantage that dominant companies did not have to move as quickly as smaller, more nimble rivals; a market-share leader's many assets bought it plenty of time to respond. More recently, however, digital technologies have allowed good ideas to spread much faster. The value of speed has increased, and the incumbent company's advantage has declined. In some cases, the assets that once made up the incumbent's advantage have almost become liabilities.

Years ago, that an upstart could create a running shoe to compete against the retail presence and manufacturing power of Adidas was a pipe dream. Today, brands such as Allbirds shoes and Bonobos menswear have combined viral marketing and direct sales to consumers to grow into fashion leaders without old-world assets. In this wild environment, every company, management team and board of directors feels pressure to protect their business. Yet they face a challenge: they must begin to make progress now, without knowing precisely where they are headed. For many, this uncertainty can be paralysing.

Digital natives, however, have always operated in an environment of uncertainty. Instead of following traditional processes for strategy, they embrace a "test and learn" mindset and succeed through experimentation. They successfully scale pilots and shut down failures. Months of

analysis are replaced by action and short cycles of customer feedback. Incumbents are used to putting together large fact bases before they act, and focus on the quarterly cycle, often rewarding short-term results at the expense of long-term investment. Doers who excel at tactical execution of near-term initiatives are celebrated. But now, they must find a way to complement the dreamers, many of whom are already in their midst – those who think long-term are comfortable with the unknown and can manage in an environment in flux.

Within this context, executives in the working group posed the question, "Are traditional strategies and strategy processes even relevant anymore?" The group discussed an approach that connects "today forward" and "future back" thinking. Today forward is the term for using digital technology and management approaches to make a business better, faster and cheaper today. Future back is about positioning the company to compete in 10 or even 20 years.

A way to think about this is to envision waves and stepping stones. In this context, waves are the successive evolutions a business must go through to move towards the future it envisions. Stepping stones describe the tactical, near-term actions that start to move an organization in the right direction. Stepping stones are not really about making step-by-step progress; with the current uncertainty, the end state may not be known. Instead, stepping stones support progress while allowing for adaptability – it's hard to know the best second step until the first has been taken.

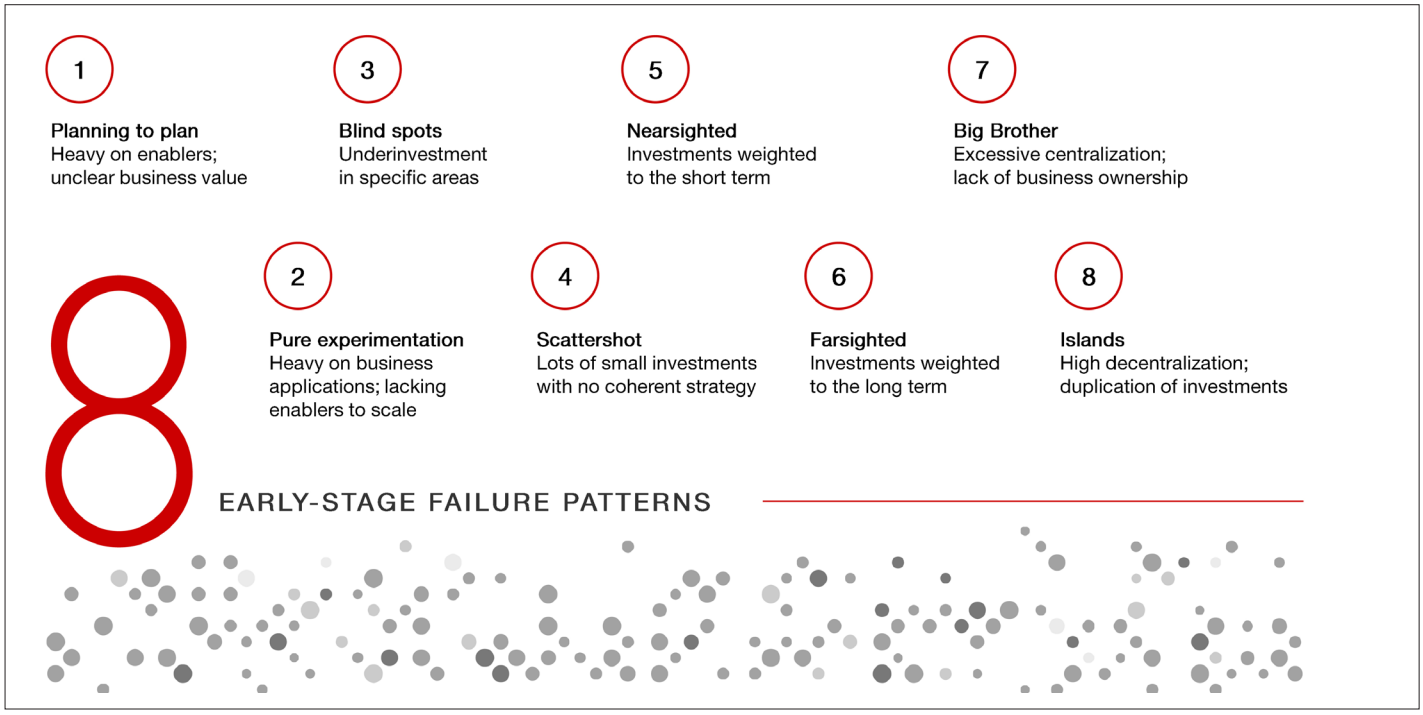
The working group's answer to the question was: Strategy is still relevant, but it is changing. A new approach to strategy is required, one that is more flexible, agile and future-oriented.

Digital departure: 1,000 points of digital light

To make progress in an uncertain environment, a company needs to take stock of its current position. The sheer volume of noise generated by digital technologies threatens to become a distraction. At most companies, piecemeal digital experiments, sometimes hundreds of them, are already under way. These "thousand points of digital light" often lack a clear direction. With no central control or coordination of them, senior executives may have limited visibility into where their investment budgets are being spent.

Taking an inventory of digital initiatives clarifies where investments are being made, highlighting patterns and risks to address first. Companies without a coherent digital strategy often suffer from one or more of these eight early-stage failure patterns (Figure 2).

Figure 2: Eight early-stage failure patterns



Source: World Economic Forum/Bain & Company

Some companies find they are investing too much in enablers and not enough in developing a new business model, i.e. "planning to plan". Others come to recognize that the scattershot approach lacks coherent focus, possibly resulting in overlapping investments. Frequently, an inventory reveals that not enough thought has been given to scaling digital initiatives ("pure experimentation"), but also highlights fruitful activity to build on.

Industry direction: "Autonomous and electric" – what's yours?

Getting a handle on the digital activity in progress is just the first step. To know which activities are valuable and which are not, a company needs a sense of where its industry is headed.

This can feel daunting. Computing power is constantly expanding, available data are exploding and the number of connected devices is proliferating. Artificial intelligence and machine learning add to the complexity. It's understandable that companies might struggle to figure out where their industry fits on the technology curve, and what threat digital natives might pose.

Getting a sense of industry direction is daunting, but not impossible. If they had been asked years ago to imagine their industry's future, automotive executives would have rightly said, "Autonomous and electric". The few who took steps towards a future of autonomous and electric cars are now seeing the payoff. Most expected Tesla to be the first carmaker to produce a mass-market electric vehicle at a price of about $30,000 that could travel 200 miles on one charge, but General Motors (GM) saw where the market was heading and started investing early. In 2010, it introduced the Chevrolet Volt, and seven years later the improved Chevrolet Bolt which, according to Chevrolet's website, can travel 238 miles per charge at a price of $29,995 (after federal tax credits). Motor Trend magazine named it the 2017 Car of the Year. By contrast, Tesla began very small-scale production of its Model 3 in 2017 and has struggled to make its goal of 5,000 cars per month. Rather than focus on its top-selling SUVs and sedans, GM is revving up its electric fleet, aiming to introduce at least 20 new electric models by 2023, with plans to shift to an all-electric fleet further in the future, as reported in "GM aims to have 20 all-electric car models by 2023", ft.com, 2 October 2017.

Every industry has its version of "autonomous and electric," and leadership teams can identify theirs by asking the right questions. Executives who ask them and debate the answers will have thought deeply about the future of their industry and will have given themselves the opportunity to adjust their plans accordingly. The working group developed a list of critical questions:

Questions to help identify where your industry is headed

PRACTICAL TOOL

- If we had a movie of our customers purchasing and interacting with our products and services in 10 years, what would we see?
- Where could competitors use technology to deliver a better customer experience, product or service?
- How might companies radically reduce the cost of serving customers in the future?
- How might the industry ecosystem change in the future? Will we have new competitors or partners? Who will increase their size of the digital pie and why?

Your role in a digital future

Even when a company's leaders know where their industry is heading, deciding on the company's role for the future is not always easy. A company vision involves identifying and evaluating choices, including:

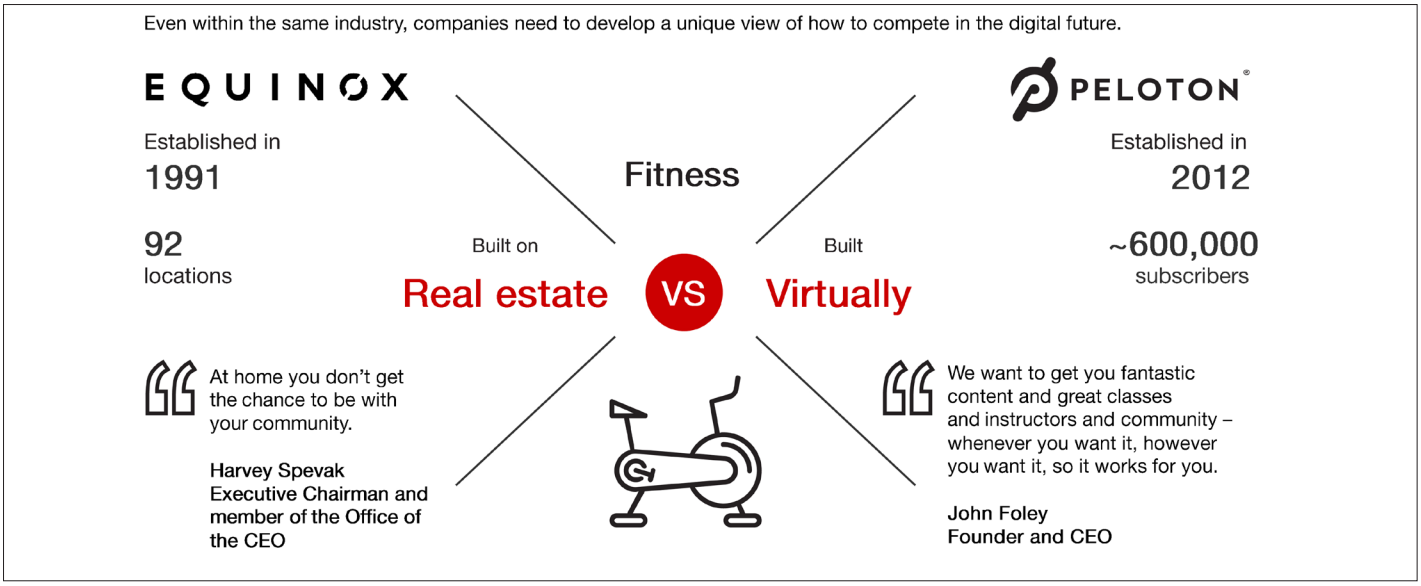
- **Ambition**: What is our goal? How far and how fast do we want to move?
- **Market selection**: In which parts of the value chain and customer segments should we participate?
- **Business model**: Is a new business model required, or can our old one evolve?
- **Critical assets and capabilities**: Are those that differentiate us today the ones we need in the future?

Leadership teams will make different choices. As with traditional strategy, every company will have its own view on how to compete in the digital future. An incumbent may not be able to shift to an asset-light model, instead developing a digital strategy grounded in its distribution assets or network of suppliers. Alternatively, a company with a historical cost advantage will likely want to invest first in technology to drive efficiencies rather than in technology to support a personalized customer experience.

Case study: Equinox and Peloton

Equinox and Peloton both recognize that the fitness industry has moved towards connecting with community while working out. The two businesses have different visions, however, for how to best address that shift. Equinox has created spaces and hosted events throughout its network of high-end fitness locations to encourage members to meet in person. In contrast, the cycling company Peloton has built a robust, mostly virtual community through Facebook and other social networks (Figure 3).

Figure 3: Company vision is not the same as industry direction



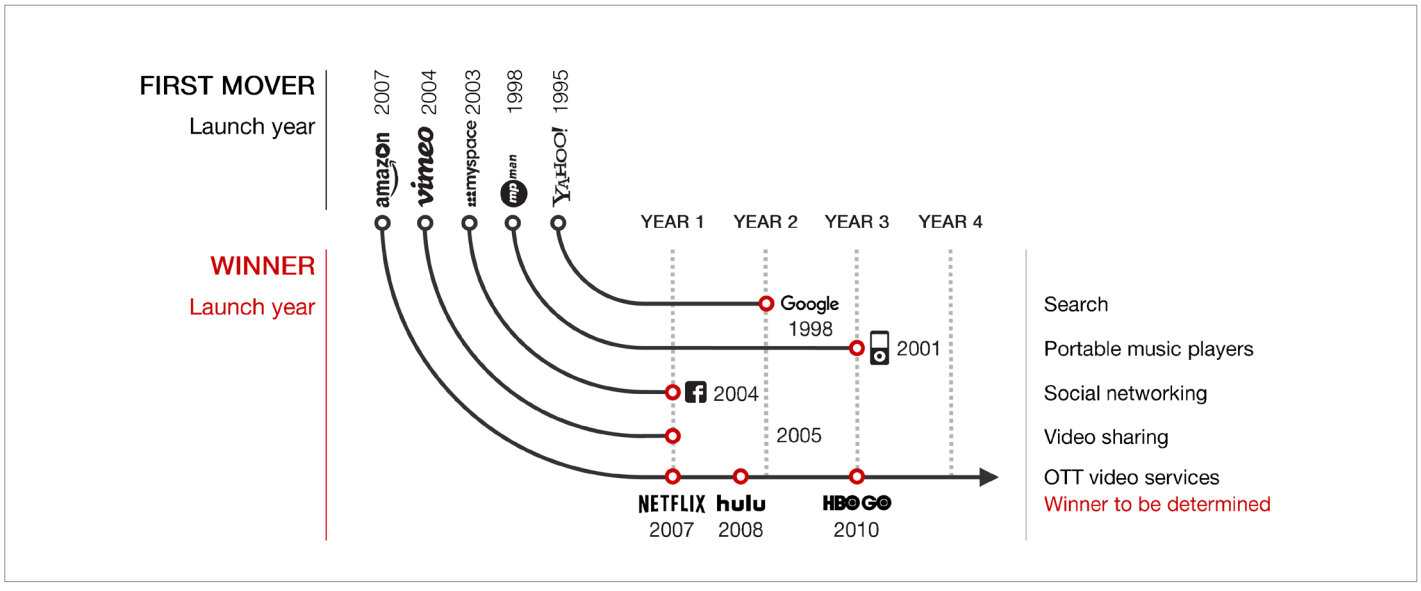
Source: World Economic Forum/Bain & Company

Many questions that companies ask as they develop their strategies are battle-tested, but new questions have also emerged. For example, a critical topic for all executive teams to debate is, "Are the assets that differentiate the company today still assets, or have they become liabilities, particularly in light of disruptive competitors?" Or, "How fast does the company need to move – what does our future look like if we're a first mover versus the fastest follower?"

The answers can be surprising. Being a first mover is not necessarily the key to success (Figure 4). In many industries, the dominant digital natives were not first movers, but rather fast followers who built on the lessons and failures of their predecessors.

The critical question is whether an advantage exists in acting now, i.e. is there a first mover advantage due to network effects?

Figure 4: First mover advantage or fastest follower?



Note: OTT = over-the-top (video services), which are transmitted via the internet and bypass traditional cable distribution
Source: World Economic Forum/Bain & Company

Waves and stepping stones: Traditional plans start too late and are too static

Once a company has a clear vision, the next step is to translate it into action, moving from the long-term vision to something that is currently practical. Many working group members have struggled to develop this path forward.

The group agreed that traditional roadmaps are too linear and too static. Instead, companies need an aspirational view of the future that helps to set a direction. They also need to make progress now while retaining the flexibility to pivot and evolve. The group concluded that a strategy's output must include two new concepts: waves (the successive evolutions the business must go through to realize its envisioned future) and stepping stones (the tactical, near-term actions that start to move the organization in the right direction).

Imagine hikers about to cross a creek. Standing on the bank, they look towards a point on the other side. They choose a first step, without knowing the exact series of stones they will follow, but the options become clear with each step taken, and momentum helps carry them across. Similarly, a company's future may require different investments, partnerships or other steps. As the next step becomes clearer, having different options to pursue is good practice, the group concluded. It is easy to forget that Uber launched not as a ride-sharing pioneer but as an on-demand black-car app. Subsequent waves of innovation brought transformative technology that enabled drivers to use their own cars, uberPOOL ridesharing and, most recently, self-driving cars.

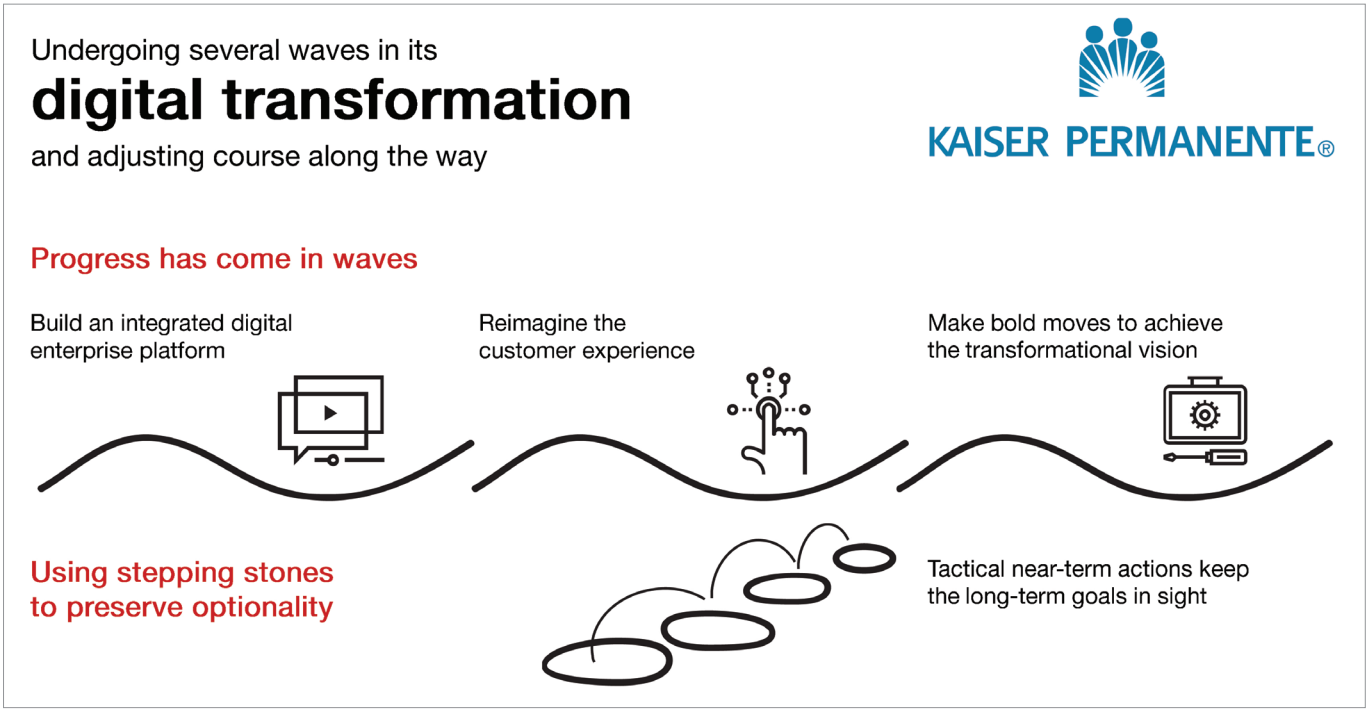
Case study: Kaiser Permanente

Kaiser Permanente has undergone several such waves in its digital transformation and has adjusted course along the way (Figure 5). The healthcare company's initial digital focus was on creating a multibillion-dollar digital enterprise platform, including electronic health records (EHRs) for all individual customers. The stepping stones taken during this process included identifying and collecting patient information needed for the EHRs. Goals included reducing the average length of stay in hospitals.

Data from electronic health records helped point the way to the next wave, a phase of transformation the company is still implementing. These steps focus on changing individuals' experience as they interact with healthcare providers, for example by introducing tools like mobile apps for patients. Despite bumps along the way, more than 50% of Kaiser Permanente's ambulatory patient encounters in 2016 were conducted through virtual digital channels. Patients are changing how and where they get their medical care, and more change is foreseen (for example, recently initiated data-informed medical decision-making). Kaiser Permanente's journey is ongoing.

Source: Interview with Jamie Ferguson, Vice-President, Health Information Technology Strategy; Fellow, Institute for Health Policy, Kaiser Permanente

Figure 5: Kaiser Permanente's digital transformation



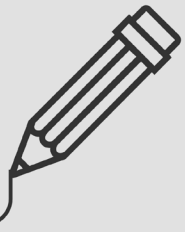
Source: World Economic Forum/Bain & Company

DIGITAL STRATEGY

Getting started

From grasping the company's point of digital departure to evaluating industry direction, setting company vision and heading out towards that future, each company will travel its own journey. As executives think through how they can begin to set their own digital strategy, four critical questions are worth asking:

1. What digital activities are under way across the enterprise?
2. What will your industry look like in 5, 10 and 20 years?
3. How will your company play and win in a digital future?
4. How will you make progress without being certain of the endgame?



Company vision – The special challenge of complexity

For large companies with a complex portfolio, the company vision may be set at different levels – at the business unit level, or by function or theme. Each company needs to determin e the level based on its own organizational structure and complexity, but must hold the visions together with common strategic threads and objectives, the group concluded.

Case study: Vehicle manufacturer

A large global vehicle manufacturer recently faced this challenge of complexity. It has a number of brands, each with different customers, products and requirements. The overall industry direction is clear – automated, electric and connected – but how it will translate across the company's broad portfolio is not always evident.

To address that, the company created a centre of excellence organized around multiple themes, such as electrification, that cut across all its brands to help each business create its own strategy. All resulting plans involve electric vehicles, but each is tailored to a particular customer base.

Business model

Rediscovering the raw customer need unconstrained by the current model

Strategy is foundational, but it cannot be taken to market. A business model built for a digital enterprise is also required and should include four essential elements: customer and channel engagement, products and services, an economic model, and operations.

During a workshop on business models, the working group concluded that focusing on the customer's raw need is an effective way to unleash innovation and reimagine the business model. Raw need is the essence of what customers value in a product or service, and digital insurgents, unencumbered by history, may more easily zero in on it and find a better way to meet it than other companies.

Like other innovators disrupting their fields, cycling company Peloton, ride-share pioneer Uber and entertainment platform Netflix have thought through and articulated their customers' raw need especially well (Figure 6, for Netflix). Longer-established competitors, on the other hand, understood the raw customer need at one point, but many have allowed their focus to drift. In other cases, incumbents may have built up baggage – assets and ways of doing things that no longer truly serve that need.

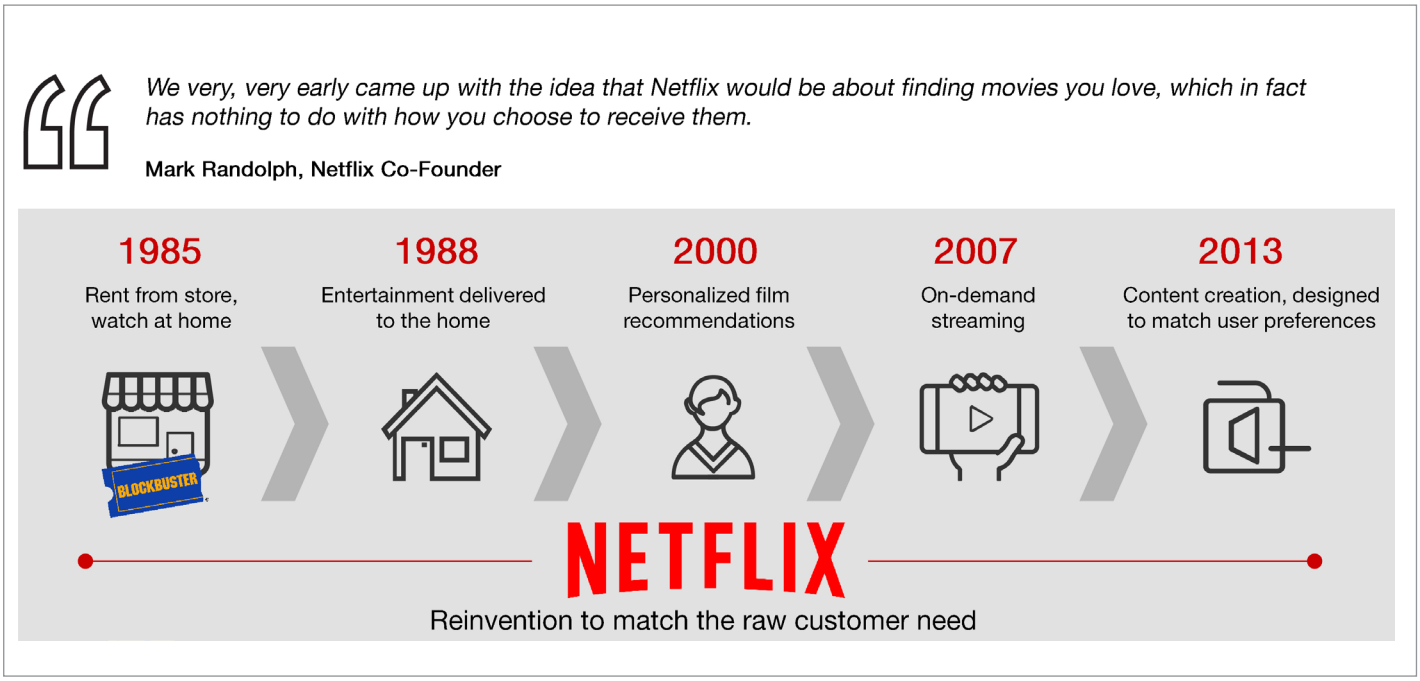
A whole breed of competitors is likely rediscovering the raw need of a company's customers right now, and creating innovative ways to address it. To remain competitive, those challenged companies may well have to deliver a customer experience quite different from what they deliver today.

Case study: Netflix

Netflix has evolved over the past 20 years by focusing on its customers' need to find movies they love. Headquartered in Silicon Valley, the company delivers digital content to any device and produces TV shows and films using data from its 130 million subscribers. Netflix got its start, however, as the media-industry equivalent of Sears – shipping DVDs by mail from large warehouses located across the country. Its current business is just the latest chapter in the story of a company repeatedly reinventing itself, always focused on delivering what its customers want.

Source: Media.netflix.com, "About Netflix"

Figure 6: Netflix: Entertainment just for you – where you want it, when you want it

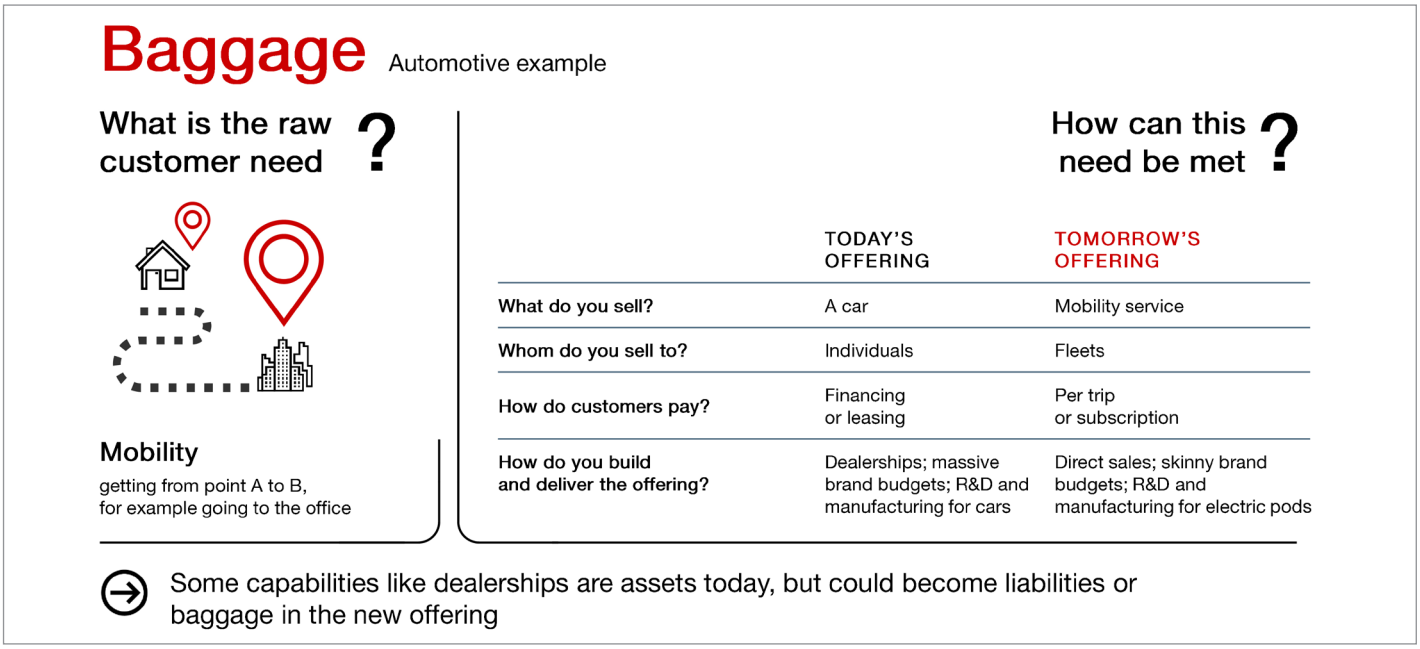


Source: World Economic Forum/Bain & Company

As Netflix shows, an unburdened view of customers' raw need can enable a company to pivot and thereby protect its position in the market. The process can be challenging; in fact, well-established companies may need to set aside what made them successful in the past and start with a blank slate. They then must think about what they really want to accomplish and how they can innovate in product, service and delivery. From their analysis, they may determine that things that were valuable in the past, such as brands, dealer networks and operations, are now distracting them from focusing on the customer.

Automobile manufacturers face this challenging situation as well (Figure 7). While they focused on making great cars in the past, their customers' current true need is not car ownership but mobility and getting from point A (home) to point B (the office); thus, the business may need to evolve dramatically. What the product is, who buys it, how to sell or lease it, and how to market it are all subjected to re-examination. Expertise in big-budget, mass-market advertising (as in the US National Football League's Super Bowl) or networks of thousands of dealers were once great assets and part of these companies' competitive advantage. Now, they may represent baggage, waiting to be unpacked so the company can move on to its future. With the world focused on transportation rather than car ownership, the customer is Uber and not the individual. Subscriptions become a viable replacement model for direct sales, and social marketing trumps 30-second TV ads.

Figure 7: The raw customer need



Source: World Economic Forum/Bain & Company

In a recent working group workshop, executives each answered a series of questions about their organization. The goal was to have them all thinking about their customers' raw need and what baggage they face in business model innovation. Simply asking the question, "What is the raw customer need that the company serves, regardless of today's offering?", can open up many possibilities for business model innovation.

Case study: Walmart

Over time, many well-established companies lose the ability to respond, the strength and the acuity to lock into the raw customer need. Recapturing that is the first step in building a business model for the future. In the early 2010s, the multinational retailer Walmart found its comparative store sales declining. Chief Executive Officer Doug McMillon acknowledged in 2017 that in that period, "We hired talent, invested, and just kind of meandered along rather than hammering down, being aggressive, and making it [e-commerce] a must-win aspect of our business. That is partly because we had a bird in hand. We knew that if we continued to open Walmart Supercenters, they would do well. Traffic in the United States is still going up."

Walmart started to make changes, refocusing on its raw customer need of saving time and money. That meant embracing new digital technologies and affirming its focus on e-commerce. The retailer acquired Jet.com in 2016, followed by a spree of other e-commerce acquisitions, and its online sales grew 44% in 2017. At the same time, Walmart was also reassessing how its brick-and-mortar stores, historically its biggest asset, could help fuel the company's e-commerce growth in the United States. As of early 2018, Walmart offered in-store pickup for groceries in about 1,200 US stores, with plans to add 1,000 more locations during the year. By the end of 2018, it will also offer grocery delivery in more than 100 metropolitan areas, covering 40% of US households. To meet this goal, Walmart is leveraging its store footprint, using them as fulfilment centres for grocery pickup and delivery to address the challenges associated with last-mile delivery. In January 2018, Walmart announced the conversion of 10-12 Sam's Club locations into fulfilment centres to increase the speed of online order delivery.

Sources: Wal-Mart Stores, Inc., "Fiscal Year 2011 13-Week Comparable Store Sales" (PDF); Ignatius, A., "We Need People to Lean into the Future", Harvard Business Review, March-April 2017; Interview with Lori Flees, Senior Vice-President, Next Gen Retail, and Principal, Store No. 8, Walmart; Y. Chen, "What you need to know about Walmart's e-commerce acquisition spree", Digiday.com, 11 August 2017; J. Risley, "Walmart's US online sales grow 44% in 2017 despite Q4 stumble", Digital Commerce 360/Internet Retailer, 20 February 2018; P. Gardner, "Walmart will convert 10 closed Sam's Club stores to online fulfilment centers", MLive.com, 12 January 2018

Customer and channel engagement: Digital technology makes excellence viral but mediocrity short-lived

Digital technology puts pressure on mediocrity; it takes a six-star (out of five stars) customer experience to stand out and compete effectively. Customers' expectations quickly rise to the best experience they have had, regardless of the industry.

Yet, digital technology exposes flawed operational processes to customers. The transparency that comes with a digital business gives customers a window into lax execution, broken flows of information, fumbled transactions and rework. A key design principle of successful digital businesses is to avoid digitizing complex legacy operations. Successful digital businesses simplify in part by focusing on end-to-end customer episodes. They often put together cross-functional, Agile teams that own each of those episodes and have the mandate to delight the customer. Companies structured in this way can deliver change at a pace and scale that allows them to evolve with their customers' desires and needs.

It takes more than traditional customer research to deliver six stars. With technology evolving so quickly, simply asking customers what they want does not work, in part because customers often do not realize they have a need until a solution comes along and reveals it. A trip to the video retailer Blockbuster didn't seem so inconvenient until Netflix figured out that busy people would rather get a movie on a DVD delivered by mail, and later at the touch of a button on a remote control.

Instead of focus groups and other standard research approaches, companies now have to do ethnographic research, going beyond talking and listening to customers to almost living with them – delving into who they are and what they want. No market research department can substitute for business leaders spending significant time one-to-one with power users, observing their behaviour and exploring the frustrations they have and the compromises they make. Brian Chesky, Co-Founder, Airbnb, recounts commuting back and forth from California to New York City in the company's early days to meet hosts and use their feedback to "handcraft" Airbnb's service. By asking them questions, he learned that user profiles would make homeowners feel more comfortable about having guests, and that those profiles should include a photo and certain specific information, including where they work and where they went to school. All these insights fed back into the Airbnb offering before it grew to a large scale.

Products and services: The raw customer need is permanent; a company's products are temporary responses

Digital technology and new digital competitors have reshaped product and service innovation in some important ways. First, the product development process has evolved; the emphasis is now more on "test and learn" experimentation and bold innovations than on incremental improvements. Second, digital technologies are now inside the product, providing real-time information about product usage as well as more opportunities for companies to engage directly with customers.

All types of products are now designed as if they were software, with a mindset of test-and-learn experimentation, prototyping and speed. The resulting offerings are forcing established leaders to acknowledge that even their most beloved product or feature may soon be obsolete.

In a test-and-learn approach, early prototypes show customers something they want, and companies then use customer input on that prototype to further improve their offering. In this way, good products can quickly become great, and even bad products can become good with the necessary adjustments. Recently, when influential US product reviewer *Consumer Reports* declined to recommend Tesla's Model 3 due to the car's long stopping distance after its first test drives, Chief Executive Officer Elon Musk vowed to get the problem fixed within days. One week later, Tesla had sent out an over-the-air software update to all Model 3s that improved their braking distance by almost 20 feet. *Consumer Reports* called the turnaround "unprecedented" and quickly reversed its rating on the car. Contrast that with the normal length of an automotive recall, or even worse, the long list of lemons scrapped altogether after problems surfaced.

Companies do wrestle with the trade-off between quickly developing something extraordinary and building in scalability. Airbnb takes a "design backwards" approach, which CEO Chesky describes as "design the extreme to come backwards to something amazing". Thinking creatively about how to really change travellers' experience earned the company a $31 billion valuation, reported in March 2017 (greater than that of most incumbent hotel companies) and an average stay more than twice that of the average hotel guest.

Incumbents may not have the luxury some digital natives enjoy of launching a product without a clear path to return on investment (ROI), but they, too, benefit from being big and bold at the outset. However, the baggage sometimes embedded in incumbent business models may also show up in product features. As the working group discussed, one of the greatest obstacles to experimentation for many companies can be beloved elements of well-established, successful products. The click wheel and keyboard on BlackBerry phones were features that customers adored and that the company logically grew to see as competitive advantages. By protecting these features, management

missed (or failed to invest enough in) major digital innovations, such as the touchscreen. Disruption comes quickly, and the company's fatal mistake was to confuse its product with its customers' raw need for connectivity and communication. Raw need is here to stay; a company's product just temporarily responds to it.

The product, too, has changed. Cloud-connected products, whether a car, a tractor or a piece of machinery on a manufacturing line, have altered the relationship between the manufacturer and user. Data from the product can dramatically change service models, giving manufacturers something to talk about with customers, a reason to reach out that can strengthen relationships and build new lines of service revenue.

For data-driven companies like Peloton and the streaming music company Spotify, the customer relationship has become an extension of the product. At Peloton, which delivers a live cycling studio to customers' homes through a Wi-Fi-connected stationary bicycle, people can send information to the company every time they ride their bicycles. That allows Peloton to send encouraging notes back to the riders. The bicycle is not just a bike, but a real-time connection to the community which customers see riding along with them and an instructor who may sit 500 miles away. In addition, it tracks personal data and performance. When customers think about Peloton, they are not only thinking about the bicycle, but also about the entire experience.

The combination of accurate usage data and the ability to influence customer behaviour (particularly in real time) has altered the strategic dynamics within many industries. In agriculture, the story of the connected farm – one that uses technology and the internet of things – shows how digitization could ultimately create new sources of data-driven profits even in well-established sectors. If farmers can use decision support services to analyse data from their farms, and then use that knowledge to boost yields and more efficiently care for their crops, it could have significant implications for major global markets, altering long-term demand for seed, chemicals and fertilizer.

Economic model: Don't layer a new economic model on top of a legacy business

Economic models – the way businesses make money – are actually fairly enduring. What has changed is the massive proliferation of data and technology, with the power to turn existing profit flows or ideas about customers on their head and shift the competitive landscape. Entrepreneurs continue to find additional variations, but three models in particular are flourishing:

- **Platform**: A model uniting suppliers and users, where an intermediary leverages the power of digital economics – limited incremental cost per unit but exponential value – to increase usage and the resulting network value. The result: "Winner takes most" of the profit pool.
- **As a service**: A model exploiting the digital capability to analyse data remotely in the cloud in real time, forcing producers to prove their value to users every day. The result: sticky customer relationships that disrupt traditional models.
- **Free/mium**: A model offering value free to users, either by upselling them with "freemium" offers or by using free offers to leverage one industry data set to win in an entirely different market. The result: drained profit pools as incumbents compete against free offers.

For many digital businesses, the models are often linked, sometimes tightly, thanks to data flows and underlying technology. For example, Uber is an as-a-service business, built on a platform of drivers and riders.

New economic models often demand a new customer experience or operations. Consider the way that an as-a-service offering creates a regular daily or weekly cadence of tangible value. Purchases that were made once every five years, such as buying a car, are now giving way to decisions made daily – for example, whether to order a ride with Lyft or Uber. In this world of subscription services, every interaction with customers becomes a chance to wow or win them for life, or to fall short. As-a-service models demand that a company wins its customers every day.

This process is playing out in a wide variety of cloud-based businesses delivering technologies, tools and products as a service over a network, often digitally. Even digital natives such as Peloton have evolved further towards this model. When it launched, Peloton's customers paid upfront for their bicycle and its delivery ($2,245) and paid a small ($39/month) subscription fee to ride, according to Peloton's website. The model has quickly evolved to one where, starting this fall, a new customer will be able to pay $150/month for a bicycle plus the $39 subscription, thus closer to an as-a-service model.

Incumbents competing against these models will say: The threat to your business is real. Successful platforms in particular are creating a winner-takes-most dynamic across many industries. In fact, seven of the 10 most valuable companies in the world are based on platforms. Moreover, insurgents often have different strategic motivations. They may make money in a different industry, simply moving into another to extend their relationships with customers, or they may pursue a venture capital-funded race for subscribers at the expense of profits. New competitors, particularly those with freemium models, may pursue business at a price point at which an incumbent cannot envision long-term profitability. For incumbents, a significant barrier to innovation in this arena is mobilizing the organization against a new business with seemingly worse economics than the current one.

What is the answer? For starters, trying to layer a new economic model on top of a legacy business is not a solution. A new model puts enormous pressure on all aspects of an existing business, which must be prepared to adjust the legacy customer experience, products, services and operations to match how it plans to make money.

To focus the effort, leadership teams and boards can ask themselves some critical questions:

- What are the best economic models to satisfy the raw need of customers in our ecosystem? Who is best positioned to exploit them? What signposts will show how fast they will develop?
- Are we playing offence or defence with these models, and what partnerships will be critical to winning?
- How can we adjust our investment to support these new models?
- What capabilities will it take to deliver a new economic model, and how do we pivot our existing organization while protecting its core profit pools?

Operations: Synchronize operations and the front end to achieve the vision for the business

Customer engagement is essential, great product and services are mandatory, and an innovative economic model may be table stakes, but without operations all of that fails. Operations is the critical last mile in translating business strategy into reality. Whether substantially improving existing operations or preparing operationally for a complete redefinition of strategy, getting operations right is critical to achieving measurable business outcomes.

But as was quickly apparent in the working group meetings, getting operations right in a digital world is hard. Almost certainly, more money has been wasted than gained on digital investments to date, and much of that has been in operations. Making the right investments, picking the best technology and finding the most qualified vendors are the first challenges; integrating those digital technologies and ways of working into existing operations are the next ones. This is much to get right, and even good programmes rarely deliver the value they could.

Involving operations early in digitally enabled strategy ensures being able to synchronize business objectives with operational execution. Because operations covers so many costs, from sourcing of raw materials to manufacturing, logistics and managing the supply chain, much value can be gained from smart digital integration. The early involvement of operations is vital to understanding where a company stands. Moreover, if a complete redefinition is in order, operations can determine as soon as possible what new capabilities will be necessary and how they can be obtained.

Given the size of the investment required to execute many digital strategies, and their need for flexibility and experimentation, synchronizing strategy and operations has become increasingly important. In addition to improving execution, this synchronization can identify important new opportunities. Historically, the goal of digitizing operations has been to reduce costs, with robots and automation pushing down per-unit manufacturing cost. But digital technologies can support much more than cost-cutting, and flexibility now trumps lowest-cost production in many industries.

One example is the semiconductor industry, with its rapid technology upgrade cycle of every two years – in keeping with Moore's law – and staggering amounts of capital (estimates vary, but one manufacturing facility currently being built may cost more than $15 billion, according to a workshop participant). Players that want to stay competitive must prioritize the time to market and then quickly fill their factories to take advantage of their lead. Using a variety of digital tools, such as digital planning for fab (microchip manufacturing plant) construction and scheduling, and digital sales and operating tools, companies can emphasize agility and flexibility and thus maximize the use of the factory.

Digital technologies can help build flexibility into operations, allowing a company to evolve over time and excel for different reasons. Companies can use them to customize products, adding functions to existing hardware through software upgrades. Tesla does this with its cars, delivering more horsepower or greater battery range with a software patch. For Apple, the ability to orchestrate a large, complex supply chain and ramp it up rapidly for new product launches is a crucial, if less recognized, part of the company's success.

Operating digitally raises some tricky questions about what parts of a company's operations need to be owned in-house versus what an outside provider or network of third parties can supply. The sensors in a warehouse or the machine learning algorithms that turn sensor data into useful information could be the source of the next great product innovation or strategic shift. But does that company want to become an expert in sensors and artificial intelligence, or would it be better to access the innovations of the developer ecosystem?

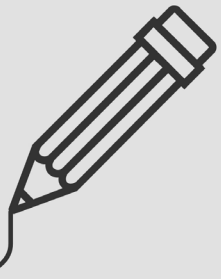
As innovation comes in, legacy must go out. To avoid increased complexity and dual cost structures, the true transformation of operations requires integrating new capabilities and retiring old ones. Similarly, redesigned upstream and downstream processes are necessary to achieve the full value of the digital investment. As with many technology investments, companies benefit from first simplifying their existing processes and then introducing new digital technologies to support the new structure.

BUSINESS MODEL Getting started

Creating a business model for a digital enterprise poses the ultimate test for executive teams. Can they translate their strategy for how they will win in the future into the customer experience, products and services, economic model and operations required for success?

Key questions when assessing your digital business model:

- Are we staying true to customers' raw need and focused on delivering what customers really want?
- Are we winning our customers every day?
- Are we leveraging connected devices and data to monetize and create new economic models?
- Are we playing a relevant role in the ecosystem?
- Are we integrating new capabilities and retiring old ones to avoid digitizing complexity?
- Are operations and front end synchronized to deliver speed and magnitude of change?



Enablers

The engine of a transformation

Launching an ambitious strategy and building a flexible business model are both essential parts of a digital transformation. Just as important to success is how well and how quickly a company can assemble the capabilities required to execute that strategy as it evolves.

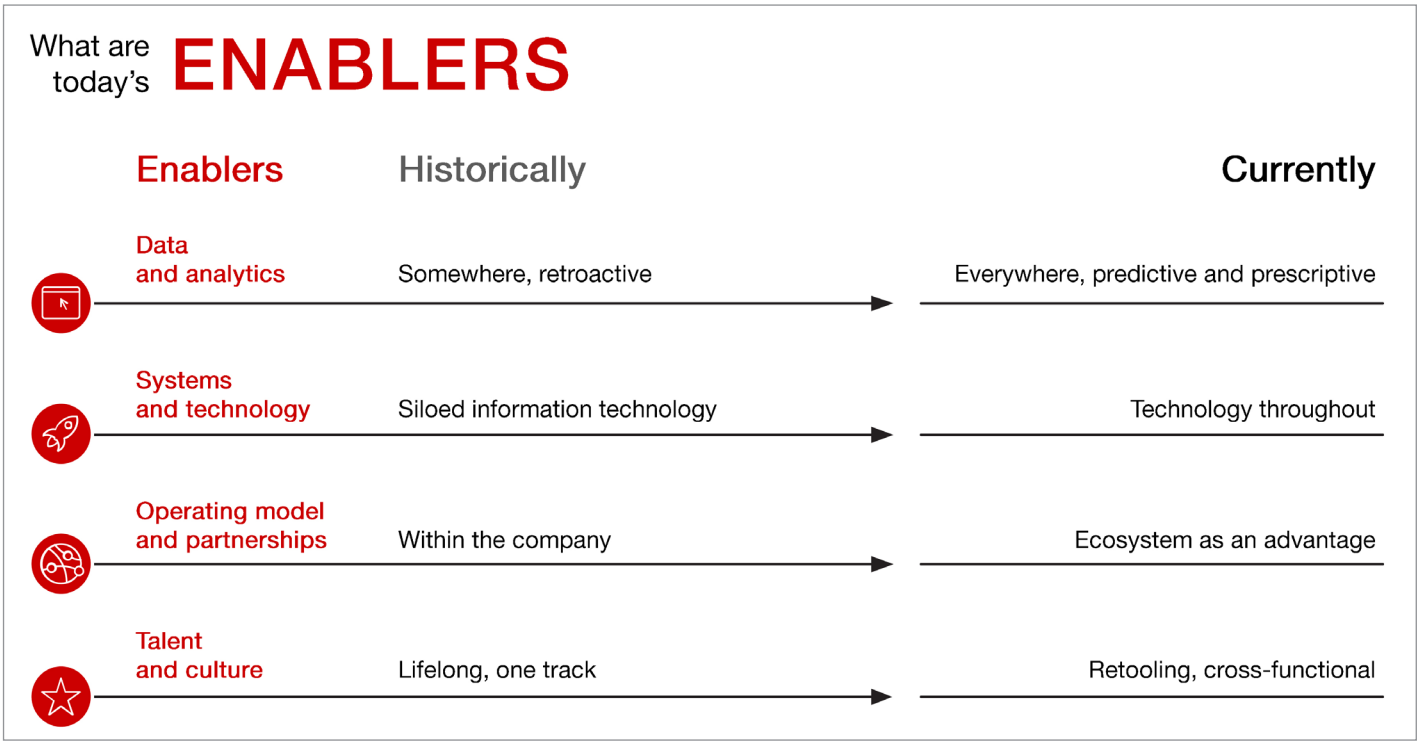
The task facing managers is both difficult and a bit dangerous. As with a crew repeatedly rebuilding an airplane in mid-flight, they must launch their company's digital transformation and simultaneously begin to build the capabilities to support later waves of change. While the capabilities (enablers) driving a transformation are sometimes an afterthought in the strategy phase, they are fundamental and collectively form the engine that allows the company to achieve its vision. When working well, four enabling factors can power and radically accelerate a digital transformation:

- The data and analytics that inform critical decision-making
- The systems and technology employed to get things done
- The company operating model and partnerships that determine how the other three enablers are deployed
- The talent and culture – the "people inputs" harnessed

Just as companies are transforming, these enablers are transforming, too. Data and analytics were often focused on retrospective analysis and targeted at limited parts of a business. Today, leaders in data and analytics use these capabilities to help inform decisions throughout the organization, focusing on predictive and prescriptive

analysis that points the way to future opportunity. Similarly, while technology was at one time a back-office function operating in a silo, it is now in every facet of an organization and is a critical component – in fact, a differentiator – for leading companies. Incumbent companies often eschewed partnerships in favour of focusing inside their own four walls. Today, no company can act on its own, and success requires building an ecosystem of partnerships. In talent and culture, too, new dimensions are emerging. The old model of employment – a lifelong career spent developing deep expertise in a single function – has started to give way to a new model, focused on cross-functional skills and agile deployment (Figure 8).

Figure 8: Enablers: Capabilities that drive a transformation



Source: World Economic Forum/Bain & Company

The dramatic pace of change in these enablers is not slowing. In the future, perhaps augmented reality or virtual reality technology will give way to implantable chips as a new normal, or a Fortune 500 company will have an employee base that works entirely at home. Agility, the only constant, is required to meet the accelerating demand for innovation.

Case study: Facebook

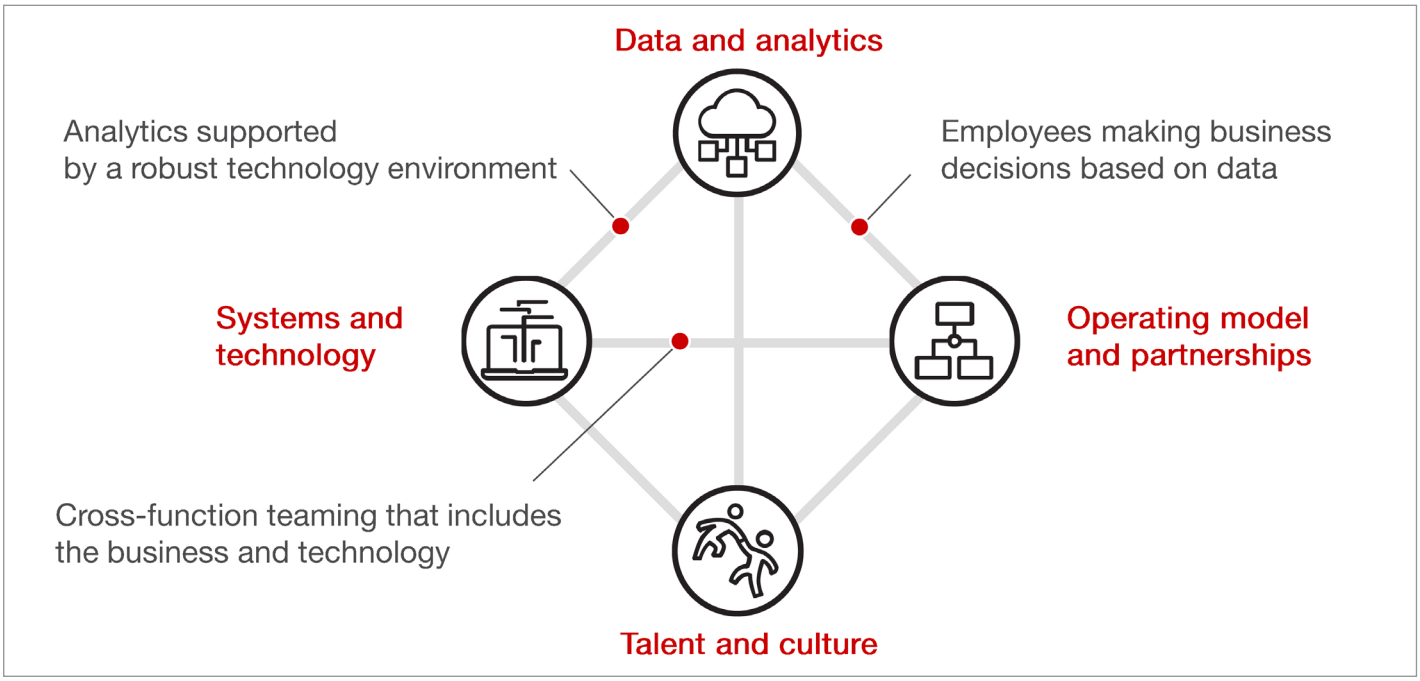
Facebook's shift from a desktop platform to one that is primarily mobile is illustrative. At the time of its initial public offering in 2012, the social network's data showed customers increasingly accessing the site from their phones. The company had not anticipated the shift, though, and remained focused on its desktop interface for too long. Revenue from mobile advertising was nearly zero. Only eight years old, Facebook had become an incumbent.

Chief Executive Officer Mark Zuckerberg communicated the urgency of refocusing on mobile by instructing all the company's product developers to come into their reviews with a mobile product to discuss. If they arrived with a desktop product, he kicked them out. Developers responded, and the rest of the company quickly realigned. Reflecting the nimbleness of the company's operating model, revenue from mobile advertising had grown to 25% of total revenues by the end of 2012 and to 50% the following year. By 2015 it was 80%, and the company's revenue and profits hit new highs. As Facebook's experience shows, enablers, with proper coordination, can turbocharge a transformation.

Sources: M. Rosoff, "Facebook is officially a mobile-first company", Business Insider UK, 5 November 2015; M. Ingram, "What Media Companies Can Learn From Facebook's Incredible Mobile Turnaround", Fortune.com, 28 January 2016

These enabling factors – data and analytics, systems and technology, operating model and partnerships, and talent and culture – are strongly interconnected (Figure 9). Too often, companies focus on only one of these four areas at a time, neglecting their interlinkages. They may decide to revamp information technology (IT) or build a data lake (data repository) as an isolated effort, which can lead to bottlenecks or wasted efforts. Changes to enablers need to be addressed in concert with one another.

Figure 9: Enablers are deeply interrelated

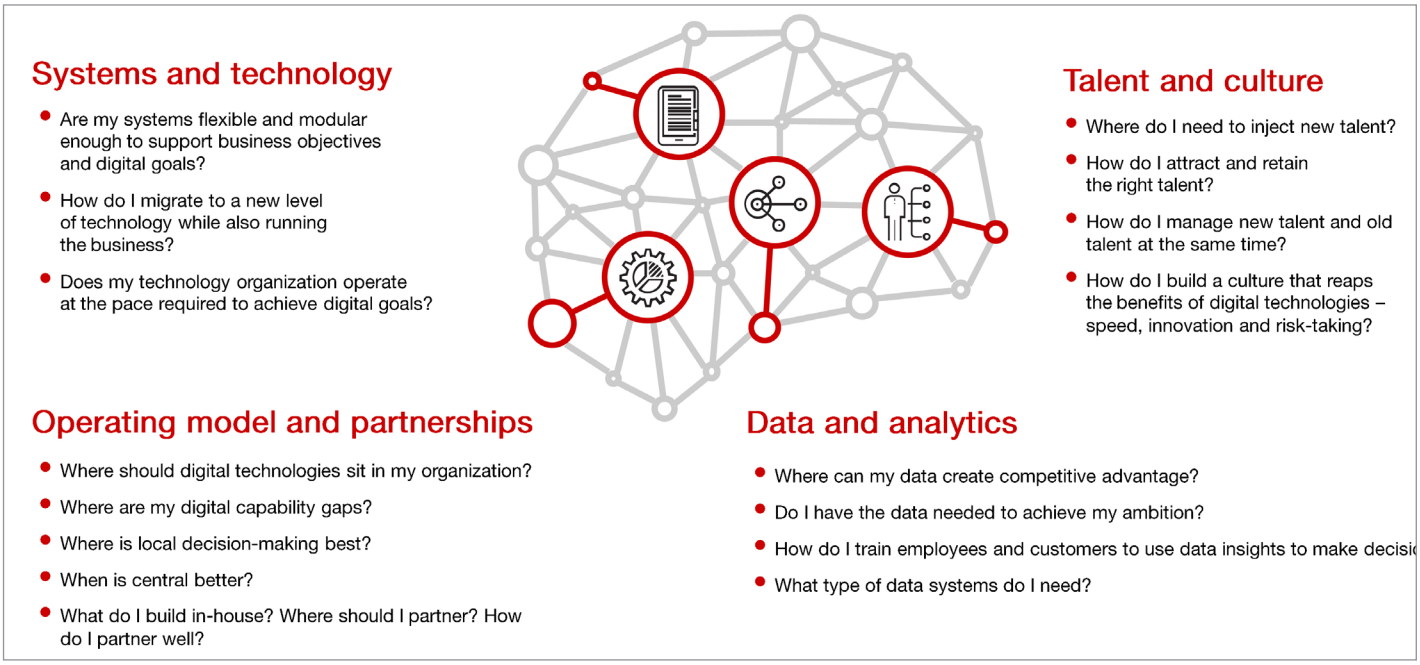


Source: World Economic Forum/Bain & Company

With everything more integrated, success is more likely. A company revamping customer segmentation might have once approached it as an isolated initiative focused on salesforce training, not necessarily involving its in-house analytics or technology teams. Now, it will learn by doing, being more likely to build a customer development model that takes full advantage of data and analytics by updating in real time, automatically ingesting information from the field and using that information to reprioritize the sales plan. A new piece of customer information, such as a change in leadership, could move that customer to the front of the contact list. An alert could encourage the sales staff to reach out quickly, while the new leadership is making initial choices.

To make the most of enablers as important assets, executives must think through where they stand at the present time, where they want to go and how these assets must change to support the journey. Informed by a series of questions companies need to ask about each enabler (Figure 10), the working group discussed how enablers are highly interconnected.

Figure 10: Thinking through a company's key digital assets



Source: World Economic Forum/Bain & Company

Data and analytics: Start with value, not data

Starting with the first of the four enablers, data and analytics, companies need to examine the capability they have, decide what they need to achieve in their ambitions and figure out how to move forward.

Great analytic leaders start with value, not data. They first identify important sources of new value to customers and the business, and then build the data and analytics capability required to capture it. Without this focus, companies risk wasting valuable time and money. Often the difficulty is not generating new ideas but prioritizing the ones they have. The right question to ask is, "Where is the company uniquely positioned to capture value?"

For example, Alibaba is one of the best companies across all industries in its ability to extract the benefit from the roughly $450 billion in transactions it sees every year from more than 454 million shoppers. It combines external search engine and social media data with fully owned data from Alipay (payments), AntWealth (wealth management) and MyBank (financing) to inform which products to cross-sell customers on its retail site.

The list of capabilities needed to generate value from this data is quite long. Companies have to determine how data can help deliver meaningful business improvements and what data (both internal and external) need to be collected to do so. They need several other capabilities:

- Adaptable infrastructure to collect data properly and systemically deploy them
- A scalable process to develop and then improve algorithms that deliver business insights and excellent customer experiences
- Analytics talent to run the engine – not just data scientists to analyse the data, but also data engineers to bring the data together and, in many cases, new executives as well
- Embedded, responsible data practices at the heart of their organizations to avoid unintended and socially harmful consequences
- The rest of the organization to buy into making decisions with data, arguably one of the hardest things on the path to becoming an analytics leader

Thoughtfully structured teams help embed data-driven decision-making into the business. Hybrid analytics teams that pair technical experts with business experts can ensure analytics remains focused on the day-to-day realities and priorities of the business. Depending on its goal, such a team might include a product owner, software engineers and designers, data architects, data engineers, analysts and, in some cases, much more specific experts, such as ethnographic researchers, data visualization experts or social media-listening experts. By working together, they push to create sophisticated and actionable insights for the business.

Having the right data and analytics is not enough; they must become part of decision-making day in, day out. For years,

executives in the TV industry approved series based on gut instinct, a practice that continues in some places. Netflix, by contrast, uses viewing data and analytics. The company knows how long individual subscribers watch shows before they get bored, which actors and actresses interest them most, what types of shows they want to watch, when to add a chase scene to avoid boredom and how to encourage viewers to try new shows recommended just for them. Using this data-based approach, Netflix has outperformed traditional TV and cable companies, boosting its series renewal rate to 93% versus about 70% for competitors, as reported in "Spending $6 billion a year on content, Netflix admits each show now needs an actual audience", qz.com, 18 July 2017.

Case study: Airbnb

Getting to Netflix-level analytics requires training everyone, even digital natives. Hospitality platform Airbnb recently launched a data university to train managers to use data when making everyday decisions. The curriculum starts at the 100 level with data awareness, then moves on to the 200 level (data collection and visualization) and finally to the 300 level (data at scale). Product manager Jeff Feng explained the need for the university: "To inform every decision with data, it wouldn't be possible to have a data scientist in every room. People [need to] have the capability to … understand the data on their own, and we want to give them the tools to do it." In the programme's first year, about 23% of all employees, or 700 people, participated in at least one class. The weekly active users on the company's data platform climbed from 30% of employees to 45% in 2017.

Sources: J. Feng, E. Coffman and E. Grewal, "How Airbnb Democratizes Data Science With Data University", Medium, 24 May 2017; B. Christian, "To increase data skills, Airbnb has started its own university", WIRED UK, 7 December 2017

Most companies are far from achieving this level of digital engagement, but the best way to learn is by getting started. Data analytics teams that quickly start on high-priority projects refine their model as they work. Along the way, they build success stories that management can then use to market data-driven decision-making internally, fostering demand for data and analytics from within the company. Analytics becomes a muscle, strengthened over time.

Systems and technology: Technology questions are now questions for CEOs

The rise of digitally enabled business models and the increasing focus on data-centred management means technology is now a strategic topic, earning a spot at or near the top of the CEO's agenda.

Unfortunately, the technology that successfully served business models in the past is most often a bottleneck to current innovation. And fixing that is difficult – only 25% of technology transformations succeed. Why? For one thing, the bar keeps increasing and technology keeps evolving. Overcoming technology talent barriers is a challenge as well. Most companies have a history of quick-fix solutions or promised transformations that have failed to deliver, wasting effort and generating cynicism about technology in organizations. Technology architecture is often a direct reflection of a company's organizational model and governance mechanisms. Pivoting quickly is costly, risky and extremely difficult to execute.

A winning formula includes a digital-ready technology architecture reinforced by an intelligent and collaborative technology operating model. It often embraces modern ways of working, such as the Agile cross-functional approach, and is turbocharged by an ambitious but balanced technology investment model. A flexible, modular and integrated architecture allows a company to operate with speed and customization while still achieving many of the benefits of scale.

Most business executives can grasp the operating model and funding requirements, but they lack the background to understand what best-in-class architecture looks like. Getting under the hood of technology – to understand it and make informed decisions – is a new C-suite muscle that must be developed.

Non-tech executives must be intent on immersing themselves in technology, while an organization's tech-savvy executives need to demystify jargon and translate technology to business language. In one large financial services firm, the CEO led the way by engaging in multiple technology discussions and creating the space for direct reports to learn without inhibition. This team is now able to unpack the "black box" and make informed decisions. When they were subsequently facing a billion-dollar decision to replace technology, for example, the members of the executive team collectively came up with a creative dual-engine strategy, using an old system for old products and a new system for new ones, which saved a large expense and avoided risk. Their journey of bringing the nuances and complexity to life was eye-opening for them and created a common understanding of the technological challenges they faced in the transformation.

All members of the working group are focused on enhancing their technological environment and operating model. Predictably, the biggest challenges involve the architecture's flexibility as well as managing old systems, achieving organizational agility and building the right engineering talent and culture. While very few claimed to have found the solution, it has become increasingly clear how to frame the issues, what levers to pull and which challenges to solve.

One executive mentioned the value of starting with a healthy internal debate over which systems need to change and which do not. Too often, existing systems are labelled "legacy" as a pejorative when, with some work, they can be updated to serve the new business objectives. The companies that get this right align their choices of architecture with their strategy. Those that need to upgrade have many options to choose from, and cost has declined with the advent of cloud computing, open source solutions and loosely coupled architecture approaches. Building the right engineering DNA and establishing routines that reward the right management and developer behaviour are critical. Incumbents can benefit from this area by borrowing practices from digitally advanced companies, such as Google, Airbnb and Netflix.

In cybersecurity, the working group agreed the cyber-risk profile is ever increasing. One view was that a foreign state actor could hack any corporate system. The key themes discussed were determining and planning for acceptable risk, raising the cost of attacks for attackers, and educating and testing employee alertness and responsiveness to cyberthreats. To ingrain cybersecurity in the organization, the companies in the working group are offering training at many levels, covering topics such as how to deal with common phishing attacks, and tracking by function and level whether people respond to internal phishing experiments.

Case study: Electronic Arts

Companies that get technology right stand to win big payoffs. A decade ago, Electronic Arts (EA) was one of the largest packaged game producers in the world. Recognizing that gaming was about to be revolutionized, the company invested $250 million in technology, modernizing its cybersecurity, infrastructure, and data and analytics. Technology became a strategic function, moving from the finance group to report into an elevated Chief Technology Officer. EA moved to a new cloud-based, platform-agnostic game development platform; instead of shipping software around the world and having separate technology platforms for each gaming platform, code was instantly accessible globally and could be reused by other development teams. The company also built mobile app capabilities to allow customers to buy and sell players on the go. New technology allowed for a new digital sales and subscription model. As a result of this foresight, EA is a leader in monetizing digital video games, offering in-game micro-transactions, new subscription revenue models and full-game digital downloads. In 2012, 30% of its net revenue was from digital products; in 2017, it was 59%, or nearly $3 billion.

Sources: C. Campbell, "EA's Moore comes to grips with the digital transformation", Gamasutra.com, 19 June 2012; T. Olavsrud, "Electronic Arts Embraces BYOD, Consumerization of IT and Cloud", CIO.com, 1 October 2012; EA.com, "Frostbite"; EASports.com, FIFA, "Fut Web App"; S. Needleman, "Electronic Arts Embraces Subscriptions for New PC Games", The Wall Street Journal.com, 9 June 2018; J. Norton, "The monetisation challenge driving innovation in the gaming industry", Eureka.eu.com, 14 February 2018; Electronic Arts, Proxy Statement and Annual Report (fiscal years 2012 and 2017)

The operational challenge in systems and technology faced by established businesses should not be underestimated. They do not have the luxury of starting with a clean slate; changing technology while running the day-to-day business is hard, potentially expensive in the near term and quite risky. To evaluate how well their technology supports their company's needs, executives can begin by asking a few critical questions. The following set from the working group is a good kick-off to what will certainly become a critical element of long-term success.

Questions to help assess how well your technology supports your company's current needs

PRACTICAL TOOL

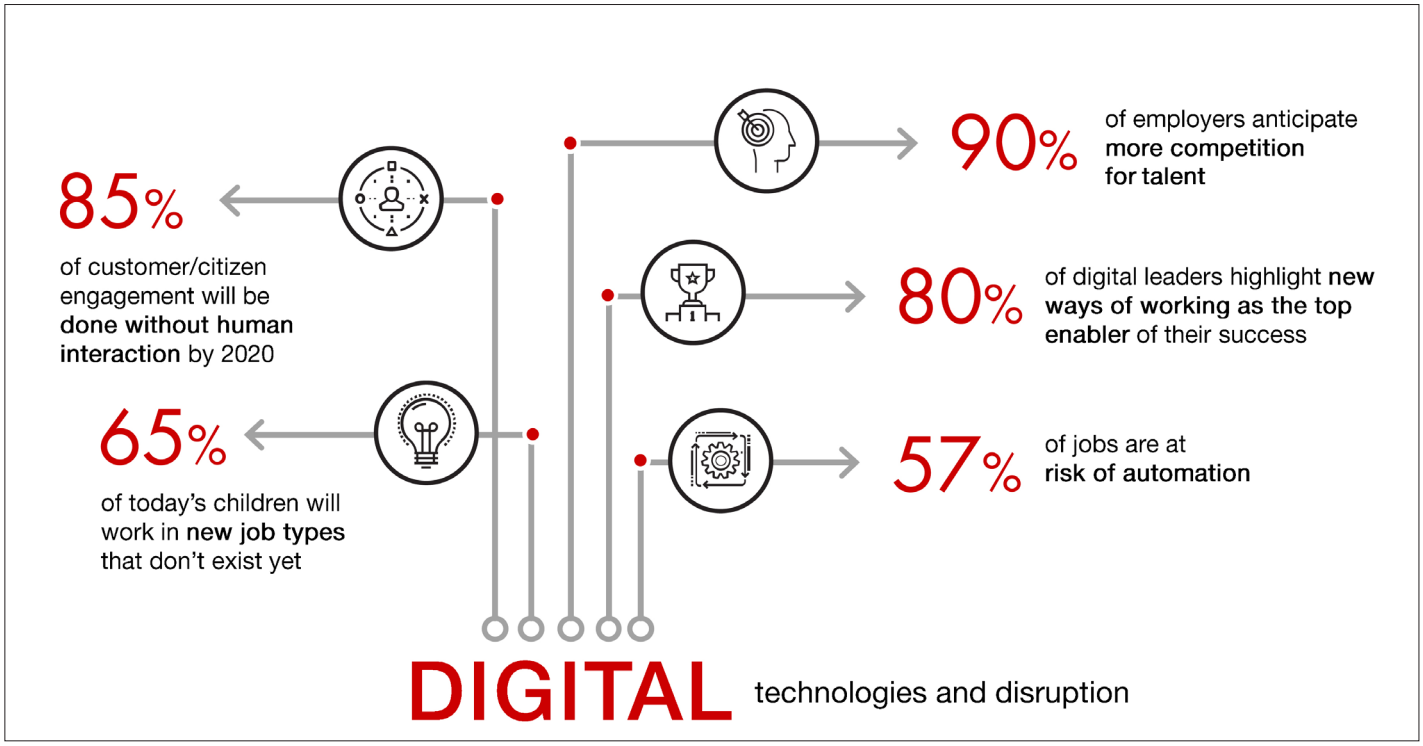
- Have we translated our digital goals into a clearly prioritized set of IT and systems investments?
- Is our IT organization able to operate at the speed required to support our digital goals?
- Is our technology architecture modular and flexible enough to support our digital goals?
- Are our data accessible and our systems secure, and do we have clear security policies and protocols that everyone in the organization adheres to?

Talent and culture: With digital technologies, they matter more than ever

A culture that favours agile innovation, cross-functional collaboration and risk-taking will strengthen the operating model and make the most of data and IT investments. It will also support another vital task: attracting and retaining great talent. The war for talent is not new, but it is growing more intense in the context of a broader workforce environment that is fundamentally changing (Figure 11). Employees want to feel like their work matters, to be part of a culture that fits their values and to be engaged and inspired by their jobs. Companies want a workforce with contemporary skills, the freedom to operate more nimbly with a more fluid and flexible workforce, and to use talent to catalyse digital operations.

The concept of career seems to be changing as well and is becoming much more sophisticated. Career fulfilment is less about climbing a ladder, taking one planned step at a time, and more like piecing together a puzzle, assembling critical elements from diverse fields to create a cohesive picture. At the same time, companies have access to employee-related data and analytic tools that didn't exist previously. These allow companies to more precisely manage their most important resource – human capital – and to better address specific employee needs.

Figure 11: Digital technologies are disrupting traditional organizations and work



Source: World Economic Forum/Bain & Company

Many companies are worried about the clear talent gap they face in vital skills, such as cloud computing and systems design. They place their digital units in Silicon Valley, London or Singapore because they do not believe the required talent can be found in Milwaukee, Sheffield or Qiqihar. And they are right, as it is difficult to attract digital talent to a traditional company located in a place perceived to be the middle of nowhere. But this is not the only talent issue to address, and may not even be the biggest one. Executives need to help the more than 80% of their workforce that will still be there in the future to adapt to new requirements.

Successfully acquiring, developing and deploying talent starts with a strategy that dictates what work will be done in-house (as opposed to work done by partners), how it will get done (whether by people or technology) and by whom (whether full-time employees, contractors, partners or technology). Subsequently, companies need to create a compelling value proposition for talent that includes training in new skills as well as development opportunities – namely, a new "deal" for talent. This not only concerns training and development, but also financial and developmental rewards, and those tied to mission and purpose. From there, firms can design modern talent management systems that smartly integrate digital tools to identify, recruit, engage, reward, deploy and develop talent.

A new deal for talent?

The working group debated about what motivates modern employees and what type of deal is required to attract and retain them. To attract the best and brightest, does a company need to offer nap rooms, free lunches, a foosball table and a corporate mission to save the world, or will a steady pay cheque suffice? The answer likely varies significantly by sector, generation and skill set, but some themes appear to be emerging.

Employees will likely still want security, predictability and status, but in different forms and in a different context: one of learning, impact and purpose. Security becomes less about lifelong employment and more about lifelong employability, achieved through constant acquisition of new and relevant skill sets. Employees are not giving up predictability, but their timelines are shortening and their willingness to experiment in different roles and functions is growing. And employees still want status, to some extent, in fair compensation, benefits and rewards for outperformance.

This creates a new set of challenges and opportunities for employers. A renewed emphasis on development will likely require investments in training, apprenticeships and cross-functional rotation. Employers will benefit from creating strong, clear links between employees' work and the purpose it serves.

New systems reflecting these changes will need to be developed. Pay, for example, was historically linked to revenue growth and profitability targets, both based on what an individual or team had accomplished. Different metrics must now capture an individual's contribution to a cross-functional group, or, in some cases, to unquantifiable goals that span the entire company.

Analytics-based tools provide new opportunities to support and manage employees. The working group heard from the founder of Microsoft Workplace Analytics, which provides insights into what the most inspirational managers do based on analysis of Outlook data. Eventually, the group posited, it should be possible to segment employees similarly to how customers are segmented. Different types of employees will have different needs and motivations, and will require a different value proposition to be recruited, retained and engaged. Employee segmentation could enable companies to understand and create those differentiated value propositions.

Training of current employees is critical, especially as companies will probably not be able to fill their skills gap entirely through new hires. That also may not be the best solution, as it risks creating a "two-speed" workforce of highly compensated technologists on the one hand and longstanding, traditional employees on the other. Boeing, Daimler and other companies use virtual reality and other technologies to retrain workers, both on new ways of manufacturing complex products and on repairs. Soft skills will also need development, such as effectively working in cross-functional Agile teams. Many companies have found that training programmes with on-the-job components, such as a capstone project actually built on a company's platforms, are most effective at building employees' skill sets.

Case study: Equinor

In the midst of its digital transformation, the energy company Equinor (formerly Statoil) created its Digital Academy to increase digital literacy and capabilities across all levels of the organization. Through the programme, the company teaches employees about everything from IT to machine learning. It introduced a "digital word of the week" to raise awareness and interest, established a Yammer (social networking) group to share knowledge and create engagement, and invited people to become digital ninjas, training them in "digital ninja gyms" and giving them secret tasks, such as being ambassadors and helping to drive the digital agenda. The first group to graduate included members of the executive team. Equinor has since started to roll the programme out to the rest of the organization, with a number of current employees already able to switch roles and functions based on their new skills.

Source: Interview with Åshild Hanne Larsen, Chief Information Officer and Senior Vice-President, Corporate IT, Equinor

Culture, inextricably linked to talent, is the most difficult piece of the enabler puzzle to tackle, according to the working group. While culture is a feature of successful companies, how to move from good to great culture is difficult to articulate because it is amorphous and intangible. But getting it right leads to wide-ranging benefits. As Tony Hsieh, Chief Executive Officer, Zappos.com, said, "If you get the culture right, most of the other stuff like great customer service, or building a great long-term brand, or passionate employees and customers, will happen naturally on its own."

Culture can be defined as a company's behaviour at scale. While every company has its own culture that helps to create success, the digital era has increased the premium on agility, collaboration and innovation. Agile companies can act quickly based on customer and market feedback, and are willing to forgo "the way things have always been done" to better meet a customer need or competitive threat. Collaborative cultures are able to work across functional divides to deliver better results, putting the needs of the customer or company ahead of team or individual considerations. Innovative companies are comfortable with generating ideas from the bottom up, taking risks, learning from mistakes and making ambitious but well-informed bets to reap big returns.

Enel, an energy company based in Italy, has approached this in two ways. The top management team is fully committed to innovation. Executives are personally involved in new projects, have freed employees to work on innovation and have deemphasized some short-term performance metrics. In addition, the team has created programmes such as My Best Failure Rewards, where front-line employees highlight a failure and describe what they learned from it.

Investments in culture can create tangible, near-term results. Moreover, positive changes to culture almost always generate virtuous cycles of improving employee morale, productivity and, ultimately, business performance.

Operating model and partnerships: Traditional models are inhibitors

The operating model is one of the biggest challenges of digital transformation, according to the working group. Successful operating models in the digital era enable speed of both action and decision-making, collaboration across functions and with external partners, and effective risk-taking. Too often, traditional operating models are inhibitors, marked by slow, hierarchical decision-making, rigid functional silos and a strong focus on optimizing for the short term. They, too, often reward incremental improvements rather than innovation, and can be inward rather than outward looking.

Digitally enabled operating models increase their chances of success by doing four key things differently from traditional models. They:

- Create a mechanism to centrally coordinate and incubate meaningful initiatives and embed them back into the business at the right time
- Design systems to encourage cross-functional collaboration, nimbleness and risk-taking
- Create Agile teams that take on innovations that matter and consider reorganizing around customer episodes or products
- Engage actively with the ecosystem to fill talent, technology and capability gaps, looking for ways to create mutual advantage and competitive differentiation through partnerships

Coordinate without centralizing

Early on, any company making this kind of transition faces a critical decision: whether to create separate digital groups that allow for rapid progress (but in isolation from the rest of the business), or to strive for a digital infusion everywhere and accept that it might sharply slow transformation.

One way to capture the benefits of both is to "coordinate without centralizing". Many executives in the working group mentioned using a heavy "influence model" to drive the digital agenda from the centre. In this approach, management creates a structure that allows for the coordinated oversight of digital initiatives, but leaves much of the work and decision-making in the hands of the teams, retaining agility and responsiveness. Teams tackle new initiatives in a targeted way, using their special status to accelerate and scale exceptional ideas. As ideas gain traction, they can graduate back into relevant business units. In this way, the organization will be ever evolving, focusing time and attention where they are most needed.

Such significant transformation of the operating model represents a major departure for many companies. They may be able to make only some of these changes now, but even limited progress is valuable. Any flexibility built into the operating model will help their eventual full evolution.

Case study: Equinor (No.2)

Equinor has successfully launched many digital products. Its Digital Centre of Excellence, a central group, collaborates closely with IT and the business units to coordinate digital initiatives that test new technologies in relevant use cases before broader rollout to the organization. The ideas can come from business functions or individuals anywhere across the company. An example is Microsoft HoloLens, recently tested as a tool to capture and record field data.

Source: Interview with Åshild Hanne Larsen, Chief Information Officer and Senior Vice-President, Corporate IT, Equinor

This idea of coordination at the corporate centre suits many emerging technologies, such as advanced analytics, digital marketing, robotics, augmented reality and virtual reality. During incubation, as their uses become clear, a plan for embedding them into the business is developed. Launching them from the centre enables exploration of the technologies' potential without forcing them to compete for funding with ongoing business that the company's current financial results depend on. Still, a connection back to the business units must be part of the plan. Without that, a separate digital entity risks creating exciting proofs of concept that never move to the next stage.

Design systems to encourage collaboration, nimbleness and risk-taking

With most digital activities requiring the involvement of several different functions or units, a premium is put on strong accountability rather than rigid reliance on reporting lines. Interestingly, companies must often deal with simultaneous centralization and decentralization of decision rights. For example, a retail company with an online and offline presence may want to standardize (and potentially centralize) product pricing, regardless of the sales channel. This requires the e-commerce and physical businesses to cede some control over how they manage their respective businesses, in addition to sharing information about assortment and customer behaviours.

On the other hand, empowering the front line to make quick decisions is both critical and now feasible. Companies need to rethink decision rights, who within the company "owns" the customer, and the role of the corporate centre. The front line may then be given increased authority to make decisions in real time with better information, but within clear guardrails (i.e. rules or requirements).

Executives align staff and make them accountable using both incentives and formal governance mechanisms. Few if any organizations have this completely figured out. The difficulty of creating incentives for people to interact and share ideas, or to support digital efforts in other areas where they have no direct responsibility, is a thorny, unresolved issue. Some in the working group cited using customer or digital metrics in balanced scorecards as a way of focusing a team on emerging priorities. Others mentioned asking businesses to explicitly reference their cross-functional digital priorities in the strategic planning process.

Encouraging risk-taking also requires adjustments across the entire operating model. The challenge is particularly acute for companies that focus primarily on quarterly results, or that have a cost mentality. No silver bullet exists, but some ideas are emerging, such as aligning incentives to encourage risk-taking, creating separate funding mechanisms for experimentation, and celebrating the learning that comes from failure in addition to successes. Promoting dreamers, creating separate innovation groups and/or venture capital arms, and even mixing teams with outside hires coming from companies with a higher tolerance for risk, are all successful approaches as well.

Create Agile teams to take on innovations that matter

Many companies are shifting to Agile methods, and not just in software development, to embed speed, cross-functional collaboration and a test-and-learn mindset throughout the organization. Agile may not make sense in some areas, such as for legal functions in highly regulated businesses, but areas of innovation, for example product development, are a good place to start. Cross-functional Agile teams are empowered to use deep customer or user insights to create a series of short-cycle, minimum viable product prototypes, each tested with customers (including internal ones) and then incrementally improved. Later, a company can field a set of teams to scale these up, in connection with those who must execute innovations in the field.

Leading-edge companies realize that simply adding digital capabilities to their existing operating model is insufficient to drive real transformation, no matter what structure or approach for implementation they choose. These companies often find themselves redesigning their entire operating model, frequently around customer episodes or products – for example, creating cross-functional teams with representation from product development, operations and marketing to address issues with an app for customers. This can break down silos and bring disparate disciplines into the same, much-need conversations.

Engage the ecosystem to supplement capability gaps
Roughly 80% of capabilities will change as a result of digital technologies. Some of those are new greenfield skills that companies will have to hire for, but many represent augmented skills for existing employees. With the need for new capabilities, organizations will have to go beyond their own boundaries. Strategic partnerships have been the norm for decades in some industries, but for companies used to owning all their essential assets, permanently integrating partnerships into their ongoing business can be a big shift.

Organizations must be able to identify, build and strategically manage partnerships if they hope to compete effectively in the future. This means seamlessly and wholly incorporating partnerships into the day-to-day operations of the business – namely, redesigning critical process flows, clarifying relevant decision rights, and building a common culture in which the value of the partnership is understood and embraced by teams on both sides.

Case study: Nokia

As Nokia has diversified – from predominantly selling network infrastructure to telecom service providers to targeting the enterprise market with a portfolio of integrated industry solutions – its partnership needs have changed. Previously, the company collaborated primarily with traditional technology infrastructure providers, overseeing those partnerships in a fragmented way driven by local managers. Now that Nokia works more broadly across the communications ecosystem, forging relationships with providers in key segments, such as the internet of things, industrial infrastructure has become pivotal. These new partnerships help Nokia both to improve its own offerings and solutions, and to better understand clients' current and future needs. The company now manages its partnerships on a global basis, recognizing that sharing insights gained at the local level adds significant value to the overall organization.

Source: Interview with Christopher Johnson, Vice-President, Transportation, Energy and Public Sector, Nokia Corporation

In a system of partnerships, being easy to work with becomes a source of competitive advantage. This can be difficult to accomplish, however. Many partners will be start-ups that think and act differently from a typical Fortune 500 company. Digital natives told horror stories at one workshop about trying to collaborate with large incumbents; for example, they were not able to reach the right decision-makers, relationship managers changed (or were fired) due to reorganizations, and rigid procurement processes required jumping through too many legal and financial hoops. Clearly, partnerships must create value for both parties, so it is important to understand what each side is looking for in a relationship, and to design a partnership thesis that builds and sustains value over time.

Companies that do this well put 80% of their effort into the 10% of partnerships that really matter – namely, the strategic ones where executives of both parties are aligned and aim to create a joint offering that can drive significant value for each side. Designing an operating model for partnerships that is repeatable and scalable moves these efforts beyond striking a few useful partnerships to making collaboration a strategic differentiator for a company.

A full operating model transformation, spanning everything from partnerships to Agile teams and other organizational shifts, can only happen in phases over a number of years. Companies first need to build the structure that will support things like innovation and data-driven decisions. Early success during this phase will help convince the organization of the value of a next-generation operating model. The next phase involves transforming legacy functions and ways of working, embedding digital talent and pushing more work out to teams in the business units. The final phase accelerates business unit autonomy, benefits from new capabilities being developed, and has established a clear culture of digital innovation.

A useful question executives can ask themselves to get to the heart of this topic is: Does our current operating model accelerate or inhibit our digital progress? If it inhibits progress, where are the obstacles? Are they in misaligned incentives, bureaucratic processes or antiquated structures? Answering these questions will help shine a spotlight on the places where more work needs to be done.

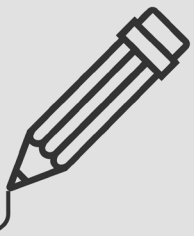
ENABLERS **Getting started**

Are your key assets – data and analytics, systems and technology, operating model and partnerships, and talent and culture – enabling or disabling your digital transformation?

Historically, speed was key to successfully deploying a strategy. Once aligned on a direction, it was a drag race to see which company finished the fastest. Today, companies increasingly follow a zigzagging path, requiring multiple changes in direction. Agility is the essential quality.

This set of questions can illustrate how well prepared your company is to align around its digital strategy:

- Are you clear about the data you will need to improve your company's decision-making and speed its innovation? This data may be quite different from the data you have today.
- How high is technology on your CEO's agenda?
- Does your current operating model accelerate or inhibit your digital progress? Can it support your digital transformation without affecting near-term performance?
- Are you building talent and culture as a powerful source of digital advantage?



Orchestration

Experimentation is easy; transformation is hard

Companies have always had to get things done. But in the same way digital technology completely changes how they approach strategy, it also completely changes the approach to accomplishing things. A new playbook is required for orchestration – that is, how to manage the transformational change.

In the old game, all competitors were under the same pressure to earn profits. Now, some companies seem to be released of that burden (think of Walmart vs Amazon, or Ford vs Tesla). ROI had been the measure for determining an initiative's success. Digital progress is now often tracked using other measures, such as future net asset value.

How decisions are made is different, too. How companies get their people aligned around a strategy has become less hierarchical and more viral. Work is done in Agile teams that iterate, testing prototypes, gathering feedback and testing again. The organization is flattening, and flexibility and the ability to pivot are now essential corporate characteristics. Everything has to happen faster in order to reduce the cycle time required to scale up change.

Digital efforts typically start as a series of tests. These tests generally benefit from dedicated funding, top talent and strong leadership support. Once proven in these hothouse conditions, they face the next challenge: to thrive and grow into something much bigger in the messy world of everyday operations. Experimentation was easy;

transformation will be much harder. For many executives, very little they did in the past prepared them for what they have to do now. How business transformation works really has changed.

Companies that succeed at transformation are masters of orchestration and typically exceptional in five respects:

- **Scaling**: They are good at breaking initiatives down into components that can be tackled by small, loosely coupled and empowered teams, and then finding the best way to deploy them and build momentum through the company.
- **Good governance**, metrics and risk management: They set clear goals and guardrails, monitor risk, track performance and know when to stop things that are not working.
- **Leadership and engagement**: Their leaders align on a clear vision and cultivate a better understanding of technology and the "art of the possible" at all levels of the enterprise to build a critical mass of engagement.
- **Funding and investor management**: Their approach to funding encourages experimentation outside the grip of annual budget cycles, while devoting sufficient resources to infrastructure and bringing investors along on the digital journey.
- **Regulatory and community engagement**: They take a proactive approach in this area.

To assist with the formidable task of taking an experiment and scaling it through the enterprise, the balance of this report aims to uncover some of the intricacies of the five building blocks inherent in any successful digital transformation.

Scaling: Win, scale, amplify

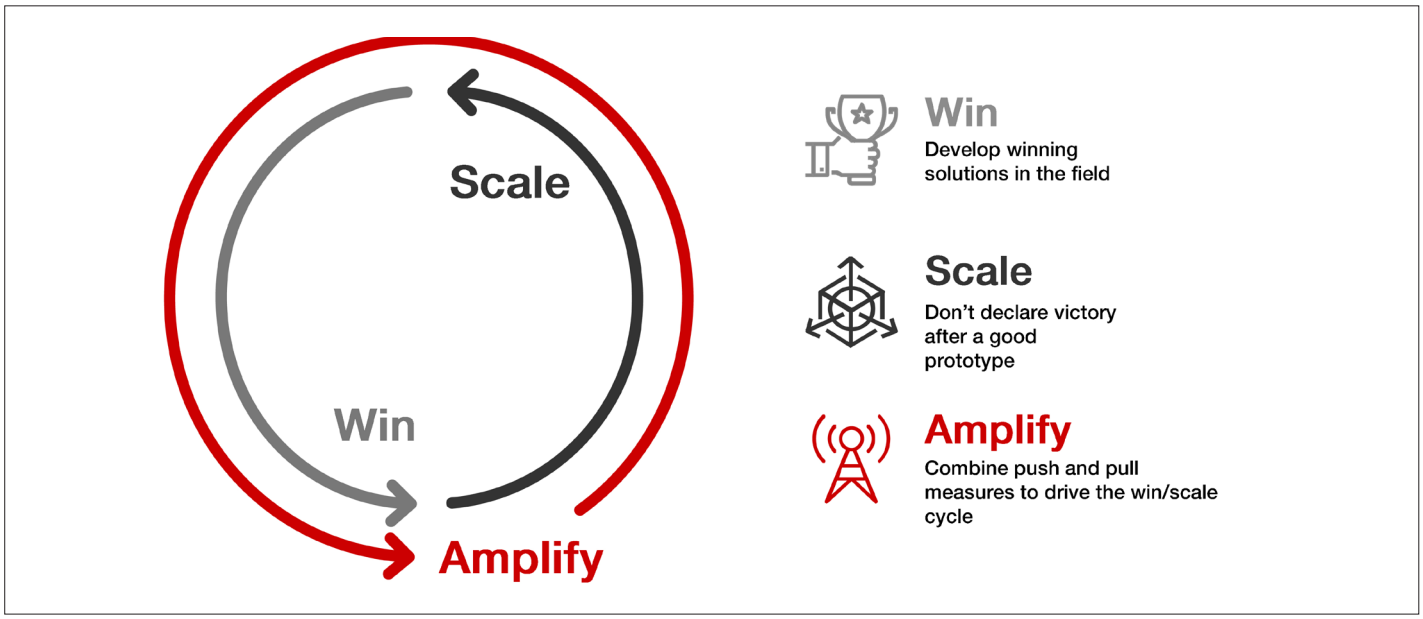
Scaling is the element of digital transformation that worries the working group members most. Naturally, they want to test new ideas in a lab, in a sandbox or on a few customers before rolling them out to the broader enterprise. The challenge is that the very attributes of the "perfect prototype" often make it unscalable.

Future-back ideas, or those that start with a vision of the desired future and work back to a current offering, may prove unfit for the current workforce. Test-and-learn experiments are an excellent way to improve an offering but can be difficult to make production-grade. While disruptive thinking is wonderful in the lab, it quickly become overwhelming for an operating business.

Digital natives use Agile principles culled from software engineering to address the lab-to-market conundrum. By breaking initiatives into small, incremental steps, Agile fosters innovation by reducing risk and making it easy to test and learn. Spotify, for example, implements new functionalities in its recommendation engine in bite-sized releases, testing them first with a subset of users. Once proven with that group, the features roll out to the broader customer base. The same logic applies to the physical world, but incumbent companies will quickly recognize that it requires focus and discipline to make an Agile approach work across multiple locations, product lines or business units. The approach will also bear higher frictional costs and may suffer from delayed feedback loops, depending on the organization's complexity.

One way that companies focus on their biggest strategic priorities and develop scalable solutions is through micro-battles, or discrete time-boxed initiatives (which allocate fixed time periods to accomplish tasks) that rapidly bring strategic choices to action. Central to this approach is the cycle of win-scale-amplify, which companies can use to scale digital innovations (Figure 12).

Figure 12: Win, scale, amplify



Source: World Economic Forum/Bain & Company

Win and scale

Companies that scale effectively have a knack for turning their vision into a backlog of discrete initiatives. These steps are small enough to permit short cycles of testing and collection of customer feedback. Critically, they are also of real potential value for the customer and the company. The term used here for these initiatives is “units of transformation”.

The process begins with companies envisioning the future they aim for and then thinking back to a minimum viable product that can help them start moving towards that future. Experimenting with a minimum viable product helps to test several important things: the viability of the new idea, the customer appetite for it and the operational benefits, among others. It also illuminates the new front-line behaviours, systems and ways of working required to make this new product or service work. Over time, the minimum viable product will be revised and in increasingly ambitious ways until, eventually, the business model is transformed.

A key factor for success is to think about scaling from day one, all while developing the prototypes. The question of where to deploy a prototype naturally arises. A retailer may choose certain branches or sites; in fast-moving consumer goods, the question is which product lines it should apply to. An industrial business may select certain manufacturing plants, while an insurance company or a mobile carrier would likely focus on customer episodes, when services are effectively delivered to customers. Once established, these scaling vectors need to be prepared for fast deployment, and supported with the right training and change efforts. In turn, the real-world experience and data collected through deployment will help refine the model and develop a playbook for the broader rollout.

Amplify

The role of the leadership team is to amplify the transformation. Indeed, concurrently rolling out multiple units of transformation increases the chances of success. The effort works best when managed dynamically: empowering individuals, spotting patterns, sharing lessons across teams, shifting resources to support winners as they emerge from the data and experience, skipping ahead when better versions of a given unit test successfully, and, most important, pivoting or shutting down trials when they fail. As the transformation starts to have an effect at both the individual unit and vector levels, it will accelerate across the enterprise. More parts of the organization will see the success and get involved.

A large European company recently developed a tool that its corporate customers could use to manage their business (reservations at their restaurants), but in the first year following the launch uptake was low despite positive customer feedback. By breaking the problem down into smaller pieces, management realized that the key to scaling was to build the training, marketing material and sales approach to distribute the product. After testing and learning in a pilot region in Paris, the winning proposition was scaled throughout France. The leadership team amplified the wider scaling by creating a central team that worked with and trained local country teams for the global rollout, and secured commitment from individual country CEOs by making deployment of the digital solution one of the key performance indicators tracked by each region.

Governance, metrics and risk management: Set priorities and guardrails to govern grass-roots innovation

Two communication approaches are critical during a transformation: to convey a sense of long-term direction to employees and other stakeholders, and to articulate the concrete steps the organization needs to take in the near term. Digital roadmaps need to evolve with success and failure, and to incorporate new information from the market, customers and the organization itself. The way to balance future goals and immediate actions, and to retain flexibility without descending into chaos, is through robust governance, including risk management.

Good digital governance begins with setting clear priorities and guardrails. With these established, a company can free its front line to innovate autonomously, while avoiding a level of chaos the organization simply could not deal with. Early in their development, digital natives often exhibit highly honed priorities in the form of a laser-guided focus on a simple vision. A leading digital marketing firm, for example, has remained dedicated to improving e-commerce marketing performance throughout its journey from a start-up in 2005 to a company with over $2 billion in annual revenue today. The company applies a high bar to new endeavours, not hesitating to shut them down when they deviate too far from its original vision. At the same time, it has evolved by pursuing innovations that augment its core, such as offline/online customer matching and brand/retailer data cooperation platforms.

After setting clear priorities and guardrails, the next step towards good digital governance is to create the systems and culture that encourage teams to do three things consistently: fail fast, pivot after failure and then permanently reprioritize. Digital natives’ strong culture of empowering teams to experiment embraces this idea. For instance, as part of its core values, ridesharing company BlaBlaCar promoted a Fail, Learn, Succeed motto. Employees can discuss their experiences at a weekly company-wide event called BlaBlaTalk, during which teams share in-depth updates on projects. This promotes autonomy, helps teams learn from each other and takes the drama out of failure. It also helps teams reprioritize for themselves before any formal process begins.

When companies grow beyond a certain stage, a more formal, structured process can be helpful. Periodic reviews embedded in an Agile development process help prioritize the most promising opportunities and focus resources on them (e.g. talent and funding), while stifling those that have not passed the test. This involves demonstrating prototypes often and to all key internal and external stakeholders, a tactic that can help ensure the right opportunities get the

freedom, time and resources to grow. Amazon exemplifies a large firm with diverse operations that has built this type of structure into its everyday work. The e-commerce company cultivates a large number of early pilots, but always within the broad set of themes it has established as guardrails. Failure is accepted; teams, which enjoy significant independence, commonly terminate their own efforts if they do not pan out. Such autonomy fosters loyalty and commitment to the company, but Amazon does pair it with a formal mechanism for management to periodically review the experiments and eliminate those not making the cut.

All of that hard work, however, is likely to fall short of true business impact without some measurement of key metrics, which need to be established for leaders to push ahead with change. Once again, most successful digital natives have figured this out. They clearly define the metrics they are trying to improve, designing them as a proxy for the customer or industry problem to be solved. They must choose wisely; if a company really wants to have an effect on its customers, it should not select metrics that only focus on deployment. Moreover, they must choose measures that come quickly enough to be useful. Traditional outcome metrics like financial results arrive too late and risk stifling innovation in its infancy. The best metrics illuminate an innovation's penetration and engagement with its intended users. They illustrate how an organization can remove impediments to progress and foster the things that work. In addition, they show when it is time to declare failure, learn from the mistakes and pivot to the next idea in the pipeline.

Case study: Kaiser Permanente

Kaiser Permanente sometimes gives operational metrics greater weight than pure traditional financial metrics, such as ROI, growth or profitability. Medication safety, quality of service and quality of care are all operational metrics to prioritize in decision-making.

Source: Interview with Jamie Ferguson, Vice-President, Health Information Technology Strategy; Fellow, Institute for Health Policy, Kaiser Permanente

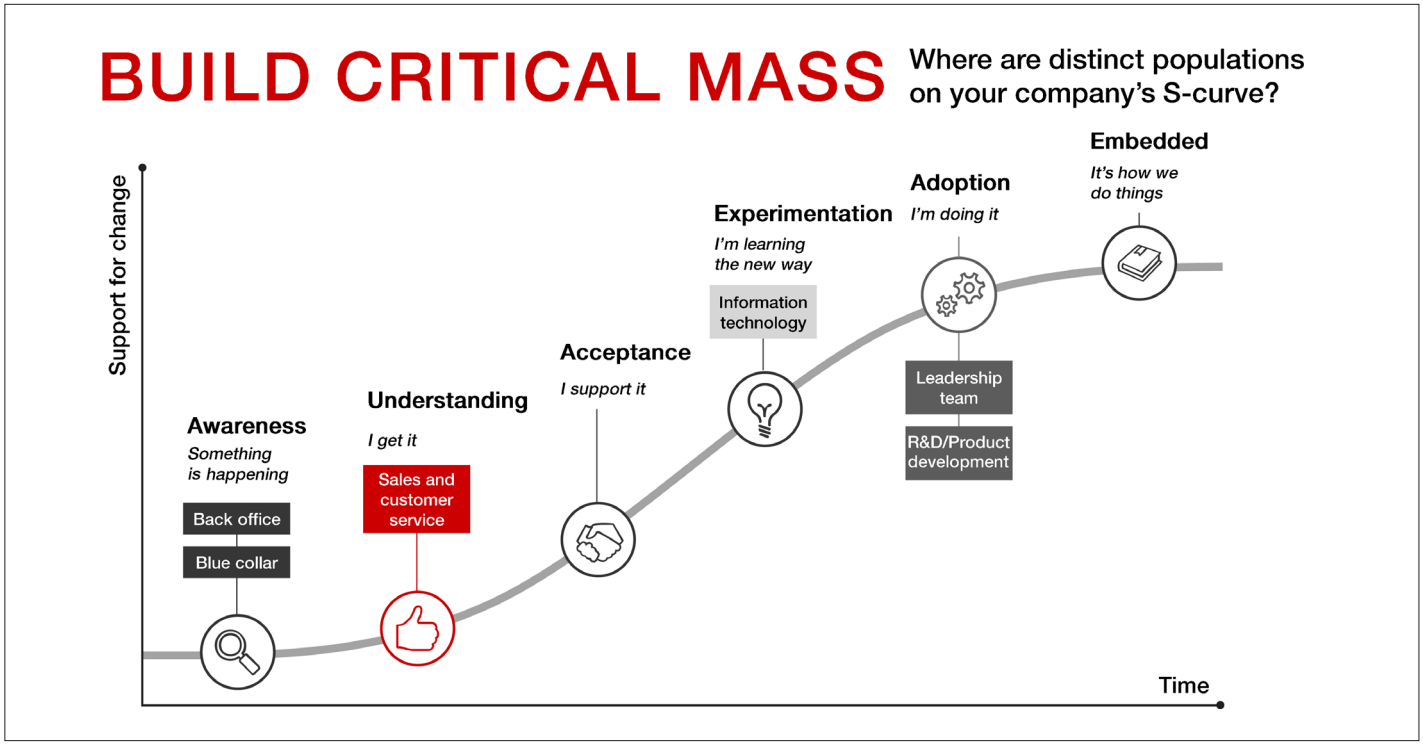
Other companies may rely on proofs of achievement, such as the rate of customer contact or electronic statement penetration, to enhance customer experience. Over time, the combination of clear guardrails, a fail-fast and pivot culture, and a focus on the right proofs of achievement will increase an organization's capacity for change; it will also remove bottlenecks and facilitate the flow from idea to prototype to deployment at scale. That is the reward for good digital governance.

Leadership and engagement: Harness the power of communities through digital and physical channels

As more companies face the kind of industry disruption in which they must evolve or risk perishing, managing disruption and stress becomes critical. People lose focus under high stress; they exhibit distracting behaviour, such as reacting more to the messenger than to the message or responding to perceived threats rather than reality. Leading in this environment can be tough, but those meeting the challenge are able to tap their organization's energy and use it to build momentum for the change ahead. Effective leaders of digital transformations act as role models for change. They also effectively engage internal and external communities to help them build a critical mass of support for the corporate evolution.

Building critical mass for a digital transformation requires thoughtful orchestration of engagement from the start. Various populations within the enterprise will adopt change at different paces. Mapping out where different groups are on the path to supporting change is a critical first step to building a plan to engage staff and creating a self-sustaining movement. Indeed, as part of a workshop, executives in charge of their companies' digital transformation were asked to place the various groups along an S-curve (Figure 13). This exercise showed that those on the front lines are typically too busy operating the business to spend much time thinking about the future's new models.

Figure 13: The change S-curve

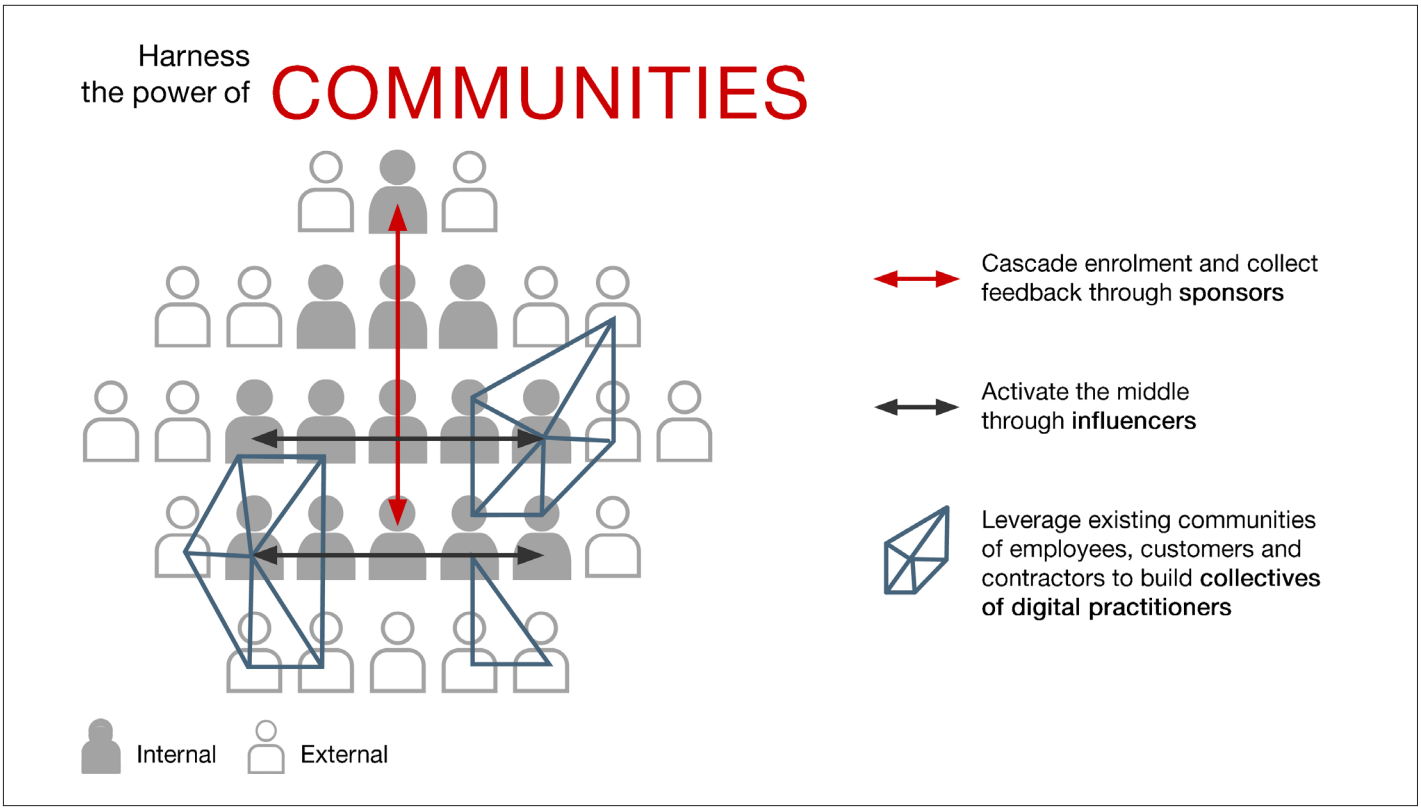


Source: World Economic Forum/Bain & Company

An organization will have difficulty changing to a new culture while living in the old one. Thus, leaders must personally embrace the change. Ben van Beurden, Chief Executive Officer, Royal Dutch Shell, announced that his next car will be a plug-in hybrid, and Jessica Uhl, the company's Chief Financial Officer, drives an electric car: both are choices that convey their belief in a clean energy future for the company. Similarly, when German publisher Axel Springer embarked on its digital journey, Mathias Döpfner, Chief Executive Officer, made the unusual decision to send top management to work in Silicon Valley for a time. It was "to push them out of their comfort zone," according to Döpfner. "I wanted people to be in student mode." By exemplifying and embracing corporate aspirations and new ways of working, these executives created stories that are remembered and retold, reinforcing the change moving through the organization.

Making a personal example of taking action is commendable, but winning over influential internal and external peer networks is one of the most effective ways to amplify staff engagement in change. By sponsoring these communities' involvement, listening to the front lines, endorsing grass-roots movements, and encouraging experimentation and learning from it, leaders stand a better chance of identifying and overcoming the issues that could stall change. Distinctions between internal and external networks are rapidly dissolving; and, during digital transformations, leaders find themselves concurrently managing employees, suppliers, customers and outside employees in a porous web of communication and engagement (Figure 14).

Figure 14: New sponsorship spine



Source: World Economic Forum/Bain & Company

A variety of new digital channels and tools – from corporate social networks to online collaboration tools – help engage these distributed organizations. While the tools can help foster new communities, they have the most impact when harnessing pre-existing ones. Digital learning start-up Learn Assembly recently proposed leveraging the messaging application WhatsApp to disseminate operational training at a client in the hospitality industry. According to a Learn Assembly representative, to reach staff with no access to corporate email and intranet, the start-up identified existing WhatsApp groups used to communicate about staffing issues and advised tapping into those channels to spread its training messages. In a networked model, information originating from existing influencers within the community has the best odds of being absorbed. Top-down communication, by contrast, is often ignored.

Although very useful, these digital channels do not replace the need for personal communication: according to Bain & Company's Engage the Organization Digitally Survey, 67% of front-line employees report preferring in-person engagement during change programmes. Indeed, although software company SAP makes ample use of digital workplace technologies, such as communities, voice over Internet Protocol communications, unified messaging and all kinds of mobile apps, it also leverages its strong "coffee corner" culture. Employees engage informally over a free barista-made coffee in all buildings, aligning on business topics and SAP's own transformation. At the same time, executives hold informal coffee-corner question-and-answer sessions to discuss issues openly and honestly, and to provide guidance on business priorities and relevant topics.

Case study: Shell

To spread a digital culture through its entire organization, the energy company Shell nurtures business unit leaders as digital champions willing to engage with management and raise awareness of digital opportunities and challenges. A strong digital focal point network supports them, tackling opportunities and challenges in an integrated and agile manner. At the same time, business unit leaders have enough freedom and autonomy, given their proximity to customers and suppliers, to decide which digital tools to deploy and the best way to do so. Shell's internal Yammer network provides a forum for exchanging ideas about digital technologies and has led to burgeoning interest groups on artificial intelligence, such as machine vision and natural language processing (as well as blockchain and other topics, including best practices and ways of working), thus cultivating communities that might otherwise have struggled or at least remained hidden.

Source: Interview with Alisa Choong, Executive Vice-President, Technical and Competitive IT, Royal Dutch Shell

Funding and investor management: Make the case for funding and investing in digital transformation

Executives will need to make the case for funding digital transformation both within the company and to investors and other key external groups. Internally, the challenge is finding a way to make long-term, moonshot digital investments with unproven metrics competitive for securing capital against conventional opportunities with proven ROIs. Externally, investors may balk at the increase in capital expenditure required by some digital initiatives, or may doubt that digital success is possible for a more traditional company. To them, investing in an established retailer's digital ambitions may seem less appealing than simply buying stock in Amazon.

Incumbents must make a convincing argument that they have the right strategy, talent, operations and financing to succeed, particularly against well-funded insurgents. They will also need to firmly understand the nature and mix of their digital investment portfolio. Insurgents have it easier; they may focus solely on new digital investments, and the risk and potential reward of those bets may be clearer.

In digital transformations, what is funded determines how it is funded. Digital investment can be split into four types: business initiatives, foundational investments, trial investments and big bets. Each is suited to particular initiatives.

- *Business initiatives*, focused on revenue or cost, typically generate a positive ROI in the near term. They often face no challenges getting through the traditional funding cycle because the business case is clear.

- *Foundational investments*, whether in IT infrastructure or talent, are essential for executing a transformation, and are often large with enterprise-wide benefits.

- *Trial investments* are small-scale experiments undertaken to explore what will and will not work. Many of these investments do not have a clear ROI, and some may cannibalize existing businesses.

- *Big bets* are sizeable strategic investments, such as major acquisitions. These occur outside the usual funding process because they are large, with benefits that may spread across many business lines.

Digital transformations will include a dynamic mix of these four investment types. For example, when a successful trial investment is ready to scale into something broader, foundational investment may become warranted.

For internal funding, the first two questions management must answer are how much to spend and who will provide the budget. The amount of risk to take on is then evaluated, followed by an assessment of how to best distribute the investments across various resources and initiatives. Monitoring the funding will require defining appropriate measures of success and then identifying the best people to evaluate how well those goals are met. How and when to stop funding are inevitable questions for efficiently allocating funds.

All these questions will have implications for how to balance the centre's role with that of various business lines. A more interventionist centre will allow funding of big-ticket items (foundational, acquisitions), ensure adoption of common standards, encourage and take risk out of experiments, and move faster. Nevertheless, the business lines also need to own the efforts to ensure business value, proximity to the customer, an intimate understanding of implementation issues, and a clear sense of ownership and execution responsibilities.

Case study: Munich Re

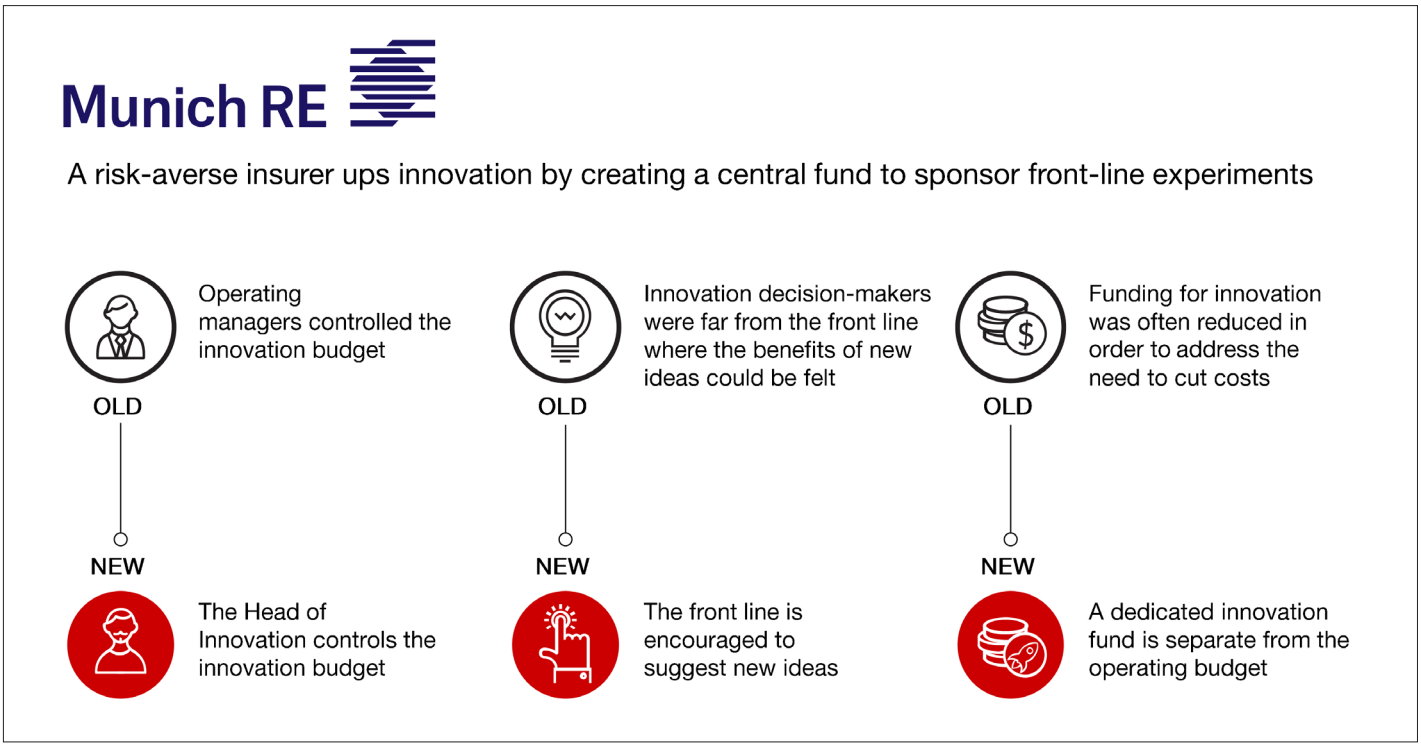
Reinsurer Munich Re created a central innovation fund to drive digital transformation in its historically risk-averse business. In the past, innovation did not spontaneously occur because managers with the budget and authority to approve innovative projects faced two barriers. First, they were responsible for cutting costs and funding innovation, forcing nearly impossible propositions, such as reducing headcount to fund financially risky investments. Second, even when financial trade-offs were not required, budget holders were frequently too far from the front line to understand the value of the innovation and therefore less likely to provide the funding required.

To address this, Munich Re established a stand-alone fund to invest in innovation, regardless of topic, investment vehicle or expected ROI. By putting its central innovation fund outside the operating budget, the company ensured that innovation efforts would not conflict with cost-cutting. Appointing an enthusiastic Head of Innovation with a mandate to drive experimentation made it more likely that employees would receive resources required to pursue their ideas (Figure 15).

Munich Re's investment strategy changed the company's culture and fuelled its digital transformation, resulting in new digital businesses such as Digital Partners, which provides product development support, technology resources and other services to insurance start-ups.

Source: Interview with Andrew Rear, Chief Executive, Digital Partners, Munich Re

Figure 15: Munich Re

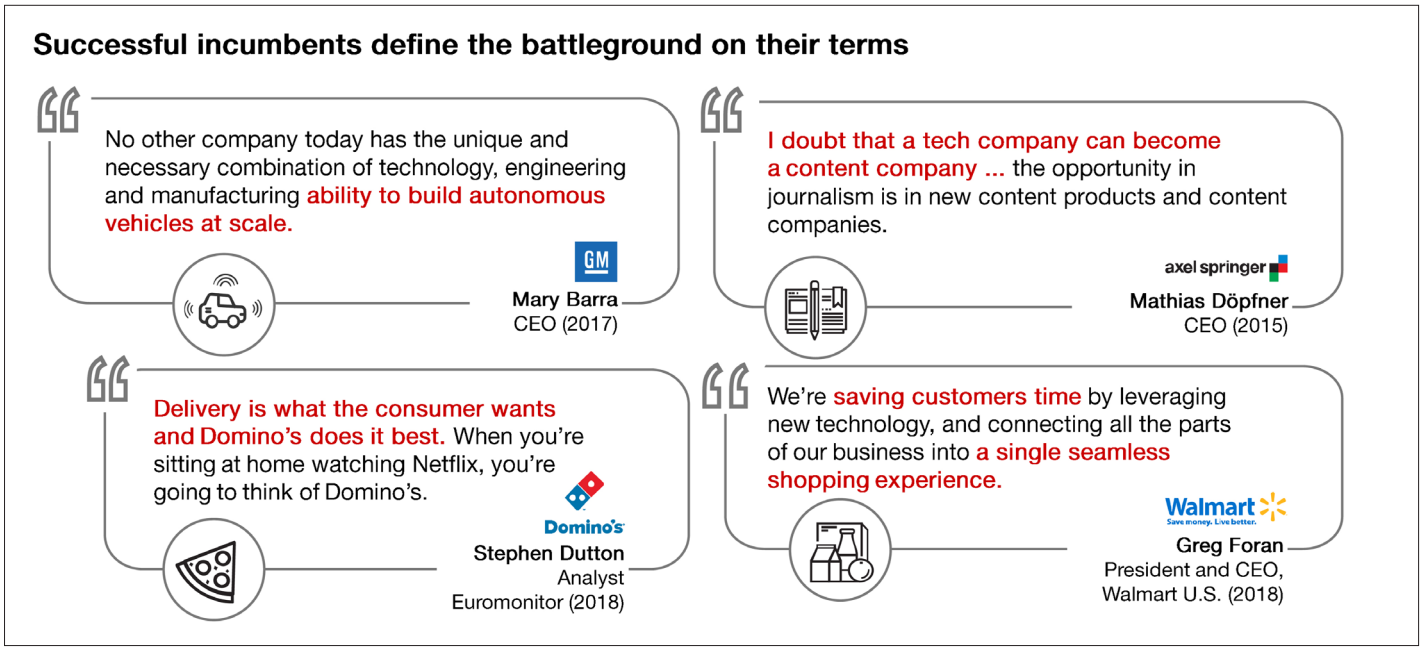


Source: World Economic Forum/Bain & Company

Externally, bringing investors on the journey raises the question of whether to adopt an overt or covert approach to communication. Covert strategies include making the digital investments but not talking broadly about them. An overt communications strategy places the investments front and centre in external discussions. As the investment modes change from foundational investments to big bets, external communication tends to increase, evolving from a covert to an overt approach. Some tipping points, such as industry disruption, action by competitors, major investments or major milestones of success, might accelerate the transition.

As part of that communications strategy, companies must get ahead of investor questions, identify the right messengers, craft the right story, and demonstrate commitment, progress or even success. They must convince their investors that they have ways to win in the industry that digital natives don't (Figure 16). Successful incumbents define the battleground on their own terms.

Figure 16: Funding – Why an incumbent and not a digital native?



Source: World Economic Forum/Bain & Company

Case study: Domino's Pizza

In 2001, the pizza chain Domino's and its franchisees started to make foundational investments to modernize the chain's point-of-sale system. At the time, the company described these investments as technology upgrades. Starting in 2007, that improvement led into a series of bigger bets on revamped product and customized online ordering, which have since led to a strong rebound in the company's overall performance and prospects. Keeping investor communication at a reduced level until early signs of success began to show made sense. Once the efforts were clearly successful, however, Domino's began describing these technology upgrades in much more strategic terms as part of the digital transformation, eventually characterizing digital technology as a key pillar of its strategy. Investors today describe Domino's as a tech company that makes pizza. The strategy has paid off handsomely: Domino's is now the fifth-largest e-commerce company in the United States and since 2000 has been the best-performing stock in the Standard & Poor's 500, better than Amazon or Google.

Sources: "Domino's Pizza and Breakaway Complete Corporate Rollout of New POS System [inactive]", Hospitalitynet.org, 6 February 2003; "Domino's Pizza and Breakaway rollout new Pulse POS system, PizzaMarketplace.com, 4 February 2003; "Domino's Launches Revolutionary Customer Tool: Pizza TrackerTM", Biz.Dominos.com, 30 January 2008; P. Gillin, "12 digital transformation strategies from GE, Domino's, Scotiabank", Hewlett Packard Enterprise/enterprise.nxt, 28 September 2016; A. Kelso, "How Becoming 'A Tech Company That Sells Pizza' Delivered Huge for Domino's", Forbes.com, 30 April 2018

Regulatory and community engagement: Take a proactive and positive approach

Emerging technologies have societal benefits and risks. The digital advances currently spurring medical research, education and other social improvements are matched by new fears (e.g. data theft, AI-powered fake news) emerging from the very same technologies.

In this environment, businesses leading the change cannot simply focus internally. They have a responsibility to work with the global community to shape new governance standards and collectively protect the emerging digital commons. These leaders focus on five critical issues:

- **Define and communicate a broader sense of purpose.** Getting implicit permission from internal and external stakeholders will be critical to engaging in bold moves. This sense of purpose should relate directly to the raw customer need underlying a company's strategy.
- **Involve customers on the company's digital agenda and its implications**. Being mindful of any customers that could be left behind by digital initiatives, as well as ensuring processes are in place to ease their transition, helps protect a company's brand and integrity.
- **Hold everyone responsible for regulatory and community outcomes, including suppliers and partners**. Companies can only move as fast as the community around them. The wider ecosystem can be encouraged to come along on a digital journey by anticipating the collateral impact of the company's business and operating model choices on other groups' models and social footprints.
- **Identify reputational risks and develop a clear code of conduct to help employees build and enforce guardrails**. The fast pace inherent in digital transformations prevents companies from anticipating everything that could go wrong. Instead, they must increasingly rely on their employees to make the right choices. Given the magintude of some of the implied risks to both the company and broader community, companies cannot afford to let employees make – and should not put them in the position of making – such choices without the support of the firm's careful thinking and planning. Clear guidelines and codes of conduct must be created that employees can rely on to inform the many everyday choices they will have to make in today's more agile, distributed and autonomous world.
- **Engage with regulators and government**. As the most advanced and connected agents in the digital innovation ecosystems, companies should feel responsible for developing the digital commons and take a positive approach to external engagement. They need to listen, empathize with people and avoid being defensive or economic with the truth to help constructively develop the agenda of any new regulatory efforts.

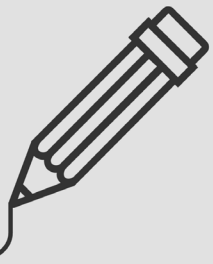
ORCHESTRATION

Getting started

Orchestrating a transformation can be challenging, from launch through execution. Still, some worthwhile approaches are clearly emerging in the key areas of leadership and engagement, scaling, governance, funding and broader community engagement.

The following set of questions can indicate whether your digital transformation is under control.

- How many of our prototypes have actually made it to market at scale?
  Have we managed to reap measurable benefits from our digital investments?
- Are we measuring progress against clear indicators of our digital transformation?
  How many of these are leading vs lagging?
  Have we truly course-corrected against the initial plan already?
- Are we as an executive team really aligned behind a common digital ambition,
  or are we competing for resources under a broad, catch-all vision?
- Have we engaged the broader company on that vision?
  Are we building a critical mass of digital practitioners instead of an elite of digital champions?
- Have we clearly defined and communicated the broader purpose of our digital efforts?
  Do we have a clear understanding of the duties that come with it?



Conclusion

This Insight Report is only a starting point. In the time spent exploring digital transformation, the working group members have seen important changes take hold in their own enterprises. Members have, among other things, undertaken global listening tours to better understand where digital technologies can have the most effect, gotten new products into market, tried new funding models, embraced a more structured way of thinking about partnerships, and launched more of them as well. They have taken ideas learned from each other through these discussions back to their organizations and have embraced their own personal learning journeys.

Maybe most importantly, the questions everyone is asking continue to evolve. Early in the journey, the question is typically where to start – which products, services or experiences are most at risk? Later, the questions centre on the next phase of the journey, namely how to make the most of the new technology and capabilities that have been installed.

The one constant for all of us is that there is no constant. New questions, different questions, are being asked, and hopefully better questions. Our journeys are evolving.

Undoubtedly, all of yours are, too. What has digital transformation meant at your company? What lessons would you offer to others?

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