Expert advice for your digital transformation

ACCELERATING THE FUTURE
The race to stay ahead in an increasingly digital world

AUTUMN 2020
To call 2020 a year unlike any other would be a wild understatement. On the one hand, there has been widespread suffering and economic pain. On the other, many organizations—those Hewlett Packard Enterprise serves and partners with—are embracing digital transformation with unprecedented fervor.

In this Doppler report, we reconsider the principles and guideposts of digital transformation itself, a worthwhile topic considering the myriad ways people use the term. As digital transformation efforts accelerate, how do you make sure to keep sight of your main goals? What are common factors that can serve as a framework to keep your initiatives on track?

Naturally, partnerships play a key role, which we also address. As complexity and speed increase, successfully accessing ideas and IP to advance your transformation is of paramount importance. Then, we explore what lets you get to insights faster and use them to transform and enhance your customer experience and seize new opportunities more quickly—without compromising the security and organizational resilience needed to withstand the unpredictable.

You’ll find tactics to help you do that in articles such as “Five strategic patterns for successful digital transformation,” along with thoughtful predictions in “The reimagined workplace,” which looks at how the workplace and workforce will function on the other side of the pandemic. These articles and more are all designed to help you get through this unforgettable moment in time—by working together and sharing insights to help achieve what a year ago many of us thought was unachievable.

Regards,

ROHIT DIXIT, SENIOR VICE PRESIDENT AND GENERAL MANAGER, ADVISORY AND PROFESSIONAL SERVICES, HP POINTNEXT SERVICES
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IS YOUR COMPANY ACHIEVING BUSINESS OUTCOMES OR FOLLOWING THE HERD?

Here's how to execute a successful digital transformation strategy with the digital journey map.

JORDAN WHITMARSH
Worldwide digital advisor, HPE Pointnext Services

The herd can provide some level of protection for organizations, especially if they are starting out on their digital transformation journeys. It can represent the path of least resistance. But at some point, to make your mark on the world, you must step out from the shadows of others.

One thing is clear: The herd has an opinion about digital transformation, and it's easy to get lost in the noise. This cacophony comes partly from the lack of maturity and specificity of the term itself. But the most significant theme is the result of a fundamental realization about what true digital transformation represents: the coming together of technology and the business to the point where they are indistinguishable. Corporate missions vary widely, and the ways technology underpins specific business models are different for everybody.

I've worked with many organizations at multiple stages of their own digital maturity and have found that people generally don't agree on a definition of digital transformation, which only adds to the noise. What's important is focusing on their own voice. The voice that articulates why digital transformation matters—specifically to them. While every organization's business is unique, as is their approach to their own digital transformation, there are a number of common patterns that can help guide organizations forward.

While constant change is required even to keep up with the rapidly evolving business landscape, simply improving the way a company works is not by definition transformative. You are optimizing what you have but not necessarily transforming it. What really underlies the concept of transformation is something more profoundly challenging: that you're not just doing something better; you're doing it differently. Sometimes these two concepts go hand in hand, but often they do not.

Companies big and small across industries and across the globe are slapping the term digital or digital transformation onto practically every significant change they undertake. New product? New platform? New way of delivering an internal service? Seems like every move is framed as an example of digital transformation in action. Can organizations truly describe why the transformation is important, or are they just following the herd?

It can be tempting to engage in transformation agendas because we see our peers or competitors doing it. But if you blindly follow paths without truly understanding—and communicating—the intention, perceived outcomes, and roles of people, process, and technology, the initiative is doomed.

I was recently working with a company that had nearly 200 digital initiatives in progress in 2019. Not all were known to the CIO, and not all were progressing well. The annual reports of company after company are full of references to digital innovation, but when pressed on the outcomes, targets, or KPIs for measurement, things turn decidedly quieter. Transforming an organization requires more than tackling a lot of projects. It also requires more than prioritizing some individual projects over others. A crucial driver for success is the sequencing and orchestration of those initiatives in their interconnected context.

Transforming your business model

Think about the changes that went on at Netflix. The company used to deploy the de facto hard-goods distribution business model: shipping DVDs. That operating model could have executed (albeit incalculably slowly) on pen and paper. Netflix, of course, drove all kinds of efficiencies through this model through the application of digital technologies, but it didn't fundamentally transform how it operated.

Netflix's transformational moment came when it started streaming content. That didn't just make its ordering and shipping processes more efficient. It changed the business, creating the entertainment machine Netflix is today and the broader market in which it now competes. That shift could not have happened without digital technology. And it certainly would not have happened had the company followed the herd.
As enterprises overhaul their own technologies and business processes, they need to ask themselves: Is what we’re doing really transformational, or are we optimizing? Successful organizations have to continue to optimize. But to be disruptive, or respond effectively to others’ disruption today, they must also transform. It’s not easy. In the digital era, disruption is a constant. Nobody’s immune.

To transform in the real sense, then, business and technology essentially need to hear each other and move together. Your need to find a common language, a common model, and a common approach to be effective and efficient in the way they communicate and integrate. This can be done by exploring this transformation in terms of four business journeys common to almost every organization. The journeys may vary in the paths they take and in the destinations they reach. But each one drives a particular business outcome and has easily identifiable technology goals that align to them.

**Journey: Driving new revenues and productivity (through digital engagement)**

Some of the clearest examples of digital transformation are to redefine experiences—whether for customers, citizens, or the organization’s employees. Great experiences drive engagement, loyalty, and ultimately, sales. And digital is increasingly the point of differentiation in terms of experience. When you buy a car, you’re thinking about the driver experience—the infotainment, the connectedness. Organizations are using digital to differentiate their products, improve them, and also create new business models—subscriptions, gamification—that tie customers closer to the brand.

You can drive productivity, efficiency, and effectiveness in your workforce using similar techniques. Making the workplace more digitally enabled—and more engaging—connects workers more directly to the organization. Giving people the right tools to do the right job has become even more important now because of the increase in remote work.

**Journey: Improving business efficiency (with digitization of the edge)**

As we digitize the world around us by adding sensors and instrumentation, we get access to a huge wealth of information to derive new levels of insight. Using these insights, we can create systems that return control back into the real world through increased levels of automation. Fundamentally, this is underpinned by technology. You can’t automate without technology—it’s one of the definitions of technology itself.

We’ve been conditioned to talk about the edge as where we connect to the system. But it’s more profound than that. It’s about where value is exchanged between either a customer, partner, employee, or systems owned by both. This could be a purely digital interface; it doesn’t have to be a digital experience. If we consider the edge as that point of value exchange, the impact of digitizing that value exchange, and making it more efficient, it maximizes the profundity.

**Journey: Speeding up time to market (with cloud-native)**

To get to market faster, organizations have had to redefine their delivery method. They’ve done this by shifting as far as they can into the cloud-native discussion. Cloud-native technologies like containers and CI/CD pipelines have reshaped innovation. Developers can experiment more freely and deliver newer, better software on a continuous basis. They can do more than just build new products; deliver them to market, and hope users like the new models. They can build prototypes, conduct A/B tests to compare responses to variant A vs. variant B, integrate feedback, and constantly improve the deliverable. This new accelerated time to market and customer responsiveness is being driven by digital technologies.

**Journey: Optimizing costs and increase agility (with the right mix of cloud)**

Enterprises need to constantly push forward just to keep up with business demands. This involves modernizing infrastructure and moving applications to lower impact, more cost-efficient platforms. The business also has to redefine its price-performance point—adding more storage, more compute power, more systems, better systems. The organization is constantly optimizing that link between the infrastructure model and the operating model.

Imagine a situation during a pandemic where an organization could quickly dial down its infrastructure spend and then ramp it back up when demand returns. That’s the very definition of optimization: constantly seeking to do more with less. In recent decades, CIOs’ organizations were supporting functions for the business, and as with every function, their mantra was “do more with less.” Because digital is the differentiator, CIOs have to adapt to become value creators and leaders for the digital transformation.

**Mapping the transformation**

Pursuing the business outcomes described above may seem straightforward enough. But organizations can get overwhelmed when they try to assemble these four agendas to execute on a comprehensive digital strategy. Organizations tend to look at initiatives through the lens of a single problem or a single technology, and the big picture becomes clouded or lost altogether. They need a common set of principles and practices that can not only articulate the digital transformation strategy but also provide a common framework that the business and technology components can agree upon.

Hewlett Packard Enterprise has outlined a digital journey map to help organizations cut through the noise and guide the way. The map starts with the understanding that companies need to establish their digital ambitions. Blending a human edge (digital engagement focusing on people) with a physical edge (controlling physical spaces through data and automation), they create a digital edge.

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1. “Digital transformation: A map for the path forward,” HPE Enterprise.nxt, June 4, 2020
A staggering 70% of all digital transformations fail—largely due to inexperience, ineffective execution, or misalignments in the company culture.

Organizations can drive their digital transformations to success—if business and technology strategies are aligned. They need to be guided by a clear understanding of the business outcomes they're trying to achieve and the role technology can play, removing obstacles along the way. In the absence of clear guidance, it's not surprising that initiatives default to the path of least resistance, a path that is by definition well trodden. Trodden by our old friends and our worst enemy: the herd.

Jordan Whitmarsh is a worldwide digital advisor for HPE Pointnext Services. He focuses on helping clients identify a common framework to communicate and position their digital initiatives, better sequence and orchestrate them, find new value propositions, and accelerate their path to successful execution.

Remember, bringing together these two strands of the organization is critical to success.

The digital journey map enables you to navigate not only up and down but also across. If a line of business needs to improve business outcomes, the map translates the demand into key initiatives and then into technology. It contemplates how to secure the technology, derive intelligence from it, and use it to reduce time to market. The map guides those initiatives from where they start through to the implications they have on the rest of the technology ecosystem.

Execution is key
A staggering 70% of all digital transformations fail. There are many reasons for this. The lack of a singular definition for a transformation and a clarifying vision for a company’s digital agenda confuses the process. But what it really comes down to is execution. Transformations stall at different parts of the process largely due to inexperience, ineffective execution, or misalignments in the company culture.

FIVE STRATEGIC PATTERNS FOR SUCCESSFUL DIGITAL TRANSFORMATION

YARA-YASEMIN SCHUETZ, worldwide digital advisor, HPE Pointnext Services

A new study gives guidance businesses can reuse and adapt as they pursue their digital strategies. Recognizing that traditional, non-digitally native companies often struggle to develop and implement a digital strategy, a new study from Hewlett Packard Enterprise unveils five essential patterns that can help companies transform digitally on all levels of their organization: business, operations, culture, and infrastructure. The HPE study was built on in-depth case studies from seven traditional, non-digitally native companies and looked at how these companies pursue digital transformation successfully from a strategic perspective. The conclusion is that they share common pain points in developing and implementing their digital strategies, and while those may arise in varying degrees in different organizations, they tend to solve in similar ways. The following five most essential patterns offer guidance that businesses can reuse and adapt as they pursue their digital strategies.

A pattern is defined as the repeated way in which something happens or is done. In our personal lives, patterns often emerge as negative tendencies, such as being late or emotional eating. Once we recognize these as being repetitive behaviors, we strive to form new patterns to overcome them and transform our lives. In today’s hyped culture of self-optimization, we constantly keep reevaluating these patterns and adjusting as necessary.

In businesses, the same cycle exists. Established companies often find themselves stuck with their traditional business models, hesitating to innovate and transform digitally to meet the needs of their customers today and tomorrow. They know they need to reinvent themselves, but they don’t know how. To successfully achieve and simultaneously respond to digital transformation from customers and competition around them, they develop and execute strategic plans to replace their old patterns with new ones.
1. Innovate the business models

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<thead>
<tr>
<th>TRADITIONAL APPROACH</th>
<th>DIGITAL TRANSFORMATION PATTERN</th>
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<tbody>
<tr>
<td>Product lifecycle management</td>
<td>Agile product lifecycle management</td>
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<tr>
<td>Design adjustments (e.g., facelifts)</td>
<td>Technology adjustments (e.g., artificial intelligence)</td>
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<tr>
<td>New features in new releases</td>
<td>New value for your customer</td>
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This sounds daunting, but it doesn’t have to be. Companies can recombine concepts and components of their existing business models to achieve minor or radical changes.

Your customer is constantly evolving, and it’s entirely likely that the way you’ve always satisfied your buyer no longer works. It’s time to reevaluate your business model. But this doesn’t necessarily mean starting over with different products or moving your entire sales cycle online. Even minor shifts to a business model can yield dramatic results.

For example, consider a manufacturer with decades of success selling industrial machines. In the old business model, that company sells a product, makes a profit on that sale, and aims to scale. Innovating its business model, it also sells the outcome of the product it manufactures. So, instead of simply selling its machines, it now offers those machines as a service with a subscription model. The buyer doesn’t own the product; it essentially leases it like a car, paying a tiered monthly or yearly fee depending on the product utilization. The customer gets the satisfaction of always having the latest and greatest model without making huge investments in machinery. The manufacturer is in the same line of business with an entirely modern business model.

2. Evolve the operating model

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<tr>
<th>TRADITIONAL APPROACH</th>
<th>DIGITAL TRANSFORMATION PATTERN</th>
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<tr>
<td>Sales cycle</td>
<td>Customer buying cycle</td>
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<tr>
<td>Business process automation</td>
<td>Automation focused on improving customer journey</td>
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<tr>
<td>Self-owned value creation</td>
<td>Distributed, connected ecosystem</td>
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Business model innovation will almost certainly lead to new operational patterns both internally (how your employees collaborate) as well as externally (how you create value for and interact with your customers). Evolving your operating model is not just about adjusting and automating your processes. It’s about completely reinventing your entire value chain, the way of working, and the mindset of your organization.

One example might be partnering up with outside organizations such as universities, technology companies, or even competitive peers in order to broaden your ecosystem and collaboratively seek solutions for your customers. The old way of looking at the value chain is in isolation and operates on the assumption that it ends once a customer has plucked your product from the shelf. A key to success is the understanding that the moment of purchase is the beginning of the customer value chain. Partnerships can help complement and scale the technical requirements, skills, and expertise to deliver an innovative solution for customers and a new revenue stream for printer manufacturers.

Operational evolution requires a cultural transformation within your organization, too. This includes training employees and rescaling them through practicing multi-modality and digital solutions such as remote working. According to a recent survey by McKinsey, 49 percent of employees who cited successful automation efforts at their company attributed it to coordination across business units and functions.1

3. Modernize and adapt the infrastructure model

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<tr>
<th>TRADITIONAL APPROACH</th>
<th>DIGITAL TRANSFORMATION PATTERN</th>
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<tr>
<td>Monolithic applications</td>
<td>Loosely tangled microservices</td>
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<tr>
<td>Single IT sourcing—e.g., cloud-first strategy</td>
<td>Hybrid IT model—e.g., right-mix strategy</td>
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<tr>
<td>Technology-centric teams</td>
<td>OT and IT convergence along the value chain</td>
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Your legacy infrastructure and systems will likely no longer meet the demands of your transformed value chain. This goes beyond just IT systems. Digital transformation creates opportunities to consolidate, store, and analyze data from various sources in a hybrid IT environment to drive insights throughout your business. Developing a data-driven mindset must be integrated not only in culture and workflows but also in all your IT systems hidden in the background, to connect different data points and leverage their full value across and beyond your organization.

One way that companies can modernize their operational backbone is through standardizing heritage infrastructure or creating modular system solutions. For example, bringing together all of your common management systems to operate in a more standardized way will help your company meet new and emerging requirements more easily and flexibly. Similarly, developing a modular approach to product development leads to faster execution.

For example, instead of using a monolithic application, a company might use three connected software microservices to monitor product maintenance for its existing customers. Then, as the company looks to offer predictive maintenance service, it can use the same microservices as its building block and invent on top of them. It can test and deploy faster.

4. Turn data into assets to create measurable economic benefits

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<th>TRADITIONAL APPROACH</th>
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<tr>
<td>Data analysis</td>
<td>Data-driven digital business models</td>
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<td>Data collection focus</td>
<td>Insights focus</td>
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<td>Data center</td>
<td>Centers of data—at the edge, at the core, and in the cloud</td>
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Every interaction a customer has with your product or service produces data your organization could gain insights from. After the initial step of making any relevant data available to the organization, enterprises must go one step further and integrate and contextualize all this data to turn the data into insights and turn the insights into new experiences or services for customers.

The ultimate goals are to achieve organizational intelligence—for example, through the use of digital real-time representations of physical objects (digital twins)—and to elevate customization into the next sphere. Real-time insights from data analytics can present a game changer between an intent or not-yet-articulated desire of a customer and the company’s action.

A classic example of this is in the business of printer cartridges. As the world turned digital, ink and printers threatened to become obsolete. But once the manufacturers created smart printers that could be monitored for activity, customers readily agreed to pay for a service that would replenish their ink cartridges before they ran out. It was simultaneously an innovative solution for customers and a new revenue stream for printer manufacturers.

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5. Cultivate trust within and beyond organization

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<th>TRADITIONAL APPROACH</th>
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<td>Trust</td>
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<tr>
<td>Data protection</td>
<td>Data privacy and ethics</td>
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<tr>
<td>Unclear data use and sharing</td>
<td>Transparent data use and monetization</td>
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In any industry, data collection comes with privacy concerns. Companies must make decisions about data and privacy in a customer-centric way. They must be proactive and transparent in communicating what data they are collecting and how they will use it. A secure and compliant foundation builds the basis for all the above.

The examples of this are everywhere: Uber knows your travel patterns; Amazon knows you’re having a baby; Instacart knows you’re dieting. Figure out what data you need for your business model to work, but also know where your customer’s line of comfort is. If you step over it, your digital transformation will be over faster than you think.

Actively design your digital future

So, which patterns should your company leverage now? There is no one-size-fits-all approach to digital transformation. But consider all five patterns and derive the conclusion that is appropriate for the business you’re in today or in which you’d like it to be in the future. It is continuous. It requires new thinking and openness for the new, like with your self-optimizing efforts. Make digital transformation a strategic imperative beyond tactical benefits, put your customers in the center of your endeavors, and assess where you currently are. And often, an outside expert can trigger and help with certain steps.

Enterprises, particularly non-natively digital ones, must stop focusing on the past and instead address needs and demands that their customers aren’t even aware of yet. Look for opportunities to diversify your business. For instance, a traditional manufacturing company in today’s world might have enough data and insights that it could create a data science service to sell to its peers. Step into new businesses thoughtfully and proactively—don’t wait until your peers approach you.

VERENA THIEL, data business architect, HPE

Practical insights for companies trying to disrupt their own business models before someone else does.

Have you ever felt a bit of anxiety over how others seem to be having more fun than you? You may be suffering from FOMO, or Fear of Missing Out.

The corporate equivalent of FOMO is alive and well in boardrooms around the globe. Should we be using blockchain? Everyone seems to be talking about blockchain. What about AI? Let’s go find some opportunities in artificial intelligence to boost our market position. How can we make our products more connected with the Internet of Things?

People love IoT.

It’s the wrong approach to digital transformation, and unfortunately, it’s far too common. Fear of missing out on IT trends won’t help corporate leaders figure out which technologies will lead to new revenue streams. Instead, they need to start with their business strategy and goals.

Companies seeking to transform their business models should identify their customers’ problems first and then find the technologies that are best to build a solution. When rethinking the solution for customers’ problems, you might stick with your existing capabilities and knowledge. At this point, new digital technologies can help you tackle the problems in a new, differentiated, more meaningful way for your customers. But start with the new concepts and potential of digital technology, not the product or the solution that is offered to you.
Closing the delivery gap,

We’re living in the age of insights and pursuing the idea that making them available for management teams to act upon is the key to unlocking new kinds of customer interactions.

Consider technology as both a short-term cost-cutting measure and a long-term investment in new value. Here are some practical insights for management teams to embrace when they set out to innovate their business models with digital transformation.

Become the disruptor

Traditional, non-digitally native companies often don’t see innovation as the key differentiator. Blockbuster, Kodak, Xerox—the list goes on and on. Companies like these don’t have a sense of urgency to reinvent themselves. They’re too focused on what their direct competitors are doing to even see the true disruption coming. If they decide to try to digitally transform, they often take the easiest route instead of the most impactful one.

In the digital era, customer experience will overtake price and product as the key differentiator. The key question you need to answer is how is your business redefining the delivery of value to your customers?

Applying digital technology to the core value proposition of your business can put you at the leading edge of new kinds of customer interactions. Consider technology as both a short-term cost-cutting measure and a long-term investment in new value. Here are some practical insights for management teams to embrace when they set out to innovate their business models with digital transformation.

Empathize with your customers and employees

We’re living in the age of insights and pursuing the idea to understand the past and predict the future by applying artificial intelligence to data. But AI remains artificial. New ideas and experiences need empathy with your customers to see, feel, and understand their needs. Radical new experiences can emerge when AI, based on combined data sources, and human empathy come together—the combined power of data insights with emotional, cognitive, and social empathy. That creates competitive advantage and is true customer focus.

Becoming customer focused is a cultural step, and it’s equally important for both B2B and B2C companies.

With business customers, the relationship is often more complex and the expectations on the part of the buyer may be greater. It’s often easier to empathize with customers, but the impact of that empathy can be much more significant with business customers. Either way, it’s about exploring your customers’ unsatisfied needs and creating solutions to overcome them.

It’s also important to show empathy for your own employees and co-workers in a digital transformation. Adopting a digital mindset requires breaking down traditional silos and becoming cross-functional. There is no one-size-fits-all approach to doing this—it’s a very unique process to the company going through it.

Craft your story

It is understandable that many companies will tackle the low-hanging fruit first when they embark on their digital transformation. They’ll start within their comfort zone, which often means automating internal processes. This is not necessarily wasted time—automation and digital tools can make all areas of your company faster, stronger, and more flexible. But addressing business efficiencies alone won’t get you where you need to go.

So, how should companies start their journey? Before you invest in an innovation, you want to craft the compelling need: What is the value proposition for the customer, and how can you create unexpected relief for your customer’s problems? Having that, you can start to test your ideas with friendly customers to get their reaction and convince stakeholders to buy your idea, based on a crafted, meaningful narrative.

Get buy-in from your management team and think holistically about your organization. Take pragmatic first steps that are tangible and build on small successes as you go. Develop and communicate constant principles that keep you guided.

Balance is sometimes the key—you need to develop an innovation pipeline that allows you to profit from current revenue streams while also giving the opportunity to invest in new ones. This kind of organizational ambidexterity is a way of constantly embracing and seizing change, and it will help beyond digital transformation.

Create a digital ecosystem

The World Economic Forum estimates that 70 percent of new value created in the economy over the next decade will be based on digitally enabled platform business models. Ask yourself: “If I could start a company to compete with my own, what would I do?”

It starts with an open ecosystem. Your company alone might not be able to fix your customers’ problems. Develop relationships and systems where others can deliver value along the customer journey. For example, Apple fosters an immense developer community that has collaborated and innovated countless solutions for Apple’s customers.

A digital ecosystem also requires entrepreneurial spirit within your ranks. It’s a cultural transformation as much as a technological one. Employees must learn to constantly ask themselves, “How can this be automated or improved?”

And it’s impossible to understate the importance of data in a digital ecosystem. You can’t redefine your customer experiences without having the right data. The entire organization must become centered around data, both internal and external data that can help you redefine customer experiences and differentiate you from your competitors.

Fail fast, but show successes

“Fail fast” has become a cliche, but so many organizations claim this paradigm that no one is really living it. It requires a cultural shift—employees need the psychological safety to go beyond their boundaries, and leadership needs to be a role model. Work iteratively and look for opportunities for minimum viable products (MVPs).

This allows you to release innovations in short cycles, and more important, it gives you an opportunity to test new products and features with your customers, leading to early successes. Alternatively, if your customers don’t respond well to a new innovation, you haven’t burned up too much time and money.

It’s helpful to think holistically and use management techniques of the full innovation spectrum. Agile product management is one of them and focused on MVPs. But without the right idea, there is no innovative MVP. The key to making your idea tangible is to start with design-thinking techniques followed by a design sprint. A continual deployment pipeline allows for faster release cycles.

A common problem when companies embrace an agile environment is that they try to use it for all projects even though some aren’t fit to be agile. Try a hybrid approach instead. Run everything in a stable and consistent manner, and at the same time, allow employees to innovate. Most important, know that transforming your business model won’t happen overnight.

Looking ahead

In a few years, it is possible that no one will be speaking of digital transformation because the term will have become irrelevant: Non-digital businesses simply won’t exist.

Fear of missing out on a hyped technology won’t drive your journey to digital transformation. Reinvent your business model by merging innovation and efficiency. Advancing existing revenue streams and create new ones. Focus on solving your customers’ needs both today and tomorrow in innovative ways that are enabled by digital technology.


DON’T GO IT ALONE. THREE SUCCESSFUL STRATEGIES FOR MAKING PARTNERSHIPS WORK

RALF LENNINGER, head of strategy and future solutions, Continental
CHRISTIAN REICHENBACH, worldwide digital advisor, HPE Pointnext Services

Successful innovation in the digital economy increasingly requires an ecosystem of partners.

Based on our experience since we introduced our first connected car products in 1996, we knew we needed to partner with an experienced enterprise technology company to help us collect, manage, and analyze that data. We chose Hewlett Packard Enterprise. Now, with more than 33 million cars on the road connected to the Internet using Continental technology, that partnership has grown by leaps and bounds.

Even then, we were just getting started. We thought if tens of millions of our products are connecting with thousands of HPE servers, it would make sense for the leaders of both companies to connect as well.

The more our top executives talked, the greater potential we saw for collaboration. McKinsey estimates the revenue from monetizing automotive data could reach $750 billion by 2030, and revenue from new digital services is projected to grow by 30 percent a year. We quickly realized that the potential market for this data was enormous. What if we worked together to create a borderless way for automakers to securely share vehicle data and create new products from it?

That’s how we ended up creating the Data Exchange Platform, which uses blockchain technology to enable auto OEMs to share their data securely and monetize it. After the first successful proofs of value, we’re moving toward the pilot phase with various OEMs and ecosystem players from other industries.

A partnership of equals
In many ways, this was an unusual partnership. HPE is a legendary technology giant with a rich history dating back to the 1930s. It’s the archetypal Silicon Valley success story of two entrepreneurs in a garage who began with a simple idea and ended up creating a multibillion-dollar company. Continental started out in the 1870s by supplying rubber products to makers of horse-drawn carriages and bicycles. We made our first car tires in 1898. Now, we employ more than 240,000 people in nearly 60 countries and supply a wide range of parts to every major auto manufacturer.

At Continental, we’re no strangers to technological innovation. We were experimenting with driverless cars as far back as 1968 and since then have introduced many innovations to the automotive market, such as remote keys, full-colored head-up displays, and telematics. But we realized that managing tens of millions of connected cars requires know-how from companies outside of the automotive industry. We needed to find ways to work more closely with HPE and to figure out how to blend two very distinct corporate cultures.

Here are the three most valuable lessons we learned along the way.

Find common ground
The first thing every partnership needs to do is to figure out how to speak the same language. That’s even more important when similar terms have different meanings in each other’s industry.

So we had to agree on how each company defined certain terms. For example, at Continental, we use the term back end to mean the entire software stack for the connected car. At HPE, the term means the data center and infrastructure.

Cars today run on gasoline and batteries, but the automotive experience of the future will be driven by data. Modern vehicles already generate 25 gigabytes of data every hour—from dozens of internal sensors monitoring vehicle speed, engine performance, tire pressure, road conditions, proximity to other vehicles, and much more. Once fully autonomous cars become common, the amount of data will increase by an order of magnitude.
Overcoming these difficulties of understanding requires sometimes unconventional approaches, especially when dealing with strong and experienced executives from both companies. We adopted a technique like that used on the quiz show “Jeopardy,” whereby executives are presented clues in the form of answers and they phrase their responses in the form of questions. We’ve earned many rolling eyes, but it has helped us all gain more comprehension of one another.

Another difference between the companies is how we define product lifecycles. In the auto industry, we traditionally design products many years in advance and expect them to be on the road for 10 years or more. But technology changes far more quickly than that. When HPE builds new solutions, it assumes that the technology, the code, and the features will be enhanced and upgraded during the years of usage. We had to arrive at a common mindset around this fundamental concept. That includes the volume of products and their associated development costs.

Without a shared vocabulary, it is difficult to understand each other’s business models and identify common goals, objectives, and approaches.

**Identify champions of change**

Change is hard. People get set in their ways, and it’s a challenge to convince them to alter old habits. That’s especially true when your old ways of working have been successful in the past. It’s just human nature.

One of my guiding principles around partnership is that it’s not companies but people working together. And people need a leader who will guide them into uncharted territory.

If you’ve come up with a way to partner with a new company that requires you to change established processes and encourage out-of-the-box thinking, you won’t get very far unless you have leaders on both sides who can host your idea onto their backs and carry it through the approval process. The higher up the chain your leader is, the more likely your ideas will take root.

At Continental, I took over this role as I continued to advocate our partnership across levels from CEO to developer and organizational groups. In doing so, I not only got the necessary support from our executive board but also set up a great team, which drives the collaboration in many different aspects. HPE’s primary change agents were account executive Michael Holstein along with Christian Reichenbach as digital adviser, who worked closely with me to get the budget required to make things happen. And my CEO, Helmut Matschi, as well as HPE COO John F. Schulz get constantly updated on our progress and achievements.

With very large companies like HPE and Continental, you’ll never have a situation where everyone is in favor of doing things in a new way. You need an executive who has the passion and the influence to drive new initiatives forward.

**Demonstrate value early**

Before you can persuade anyone to adopt your new ideas, you need to prove they’re viable. Pilots and proofs of concept are good starting points, but ultimately, you must create small initiatives that deliver real value and drive real outcomes.

Engineers often believe they can simply develop a wonderful new technology and everyone will immediately see how wonderful it is and sign off on it. (As an engineer, I am sometimes guilty of this myself.) You need to identify a project you can collaborate on with your partner that demonstrates the value of this technology to business leaders. You also need to decide who the customer is for this new product or service and who will pay for it once the project is completed.

In the case of the Data Exchange Platform, we challenged the team to show how a customer would benefit from the solution. It’s not just the technology that is important. It’s the experience we have to focus on and the unfulfilled needs that can be satisfied with the right technology from the right partner. That approach guides us in everything we do, like our companies’ respective purposes.

**Seamless data exchange is key**

In the end, it’s really all about enhancing the customer experience—or in our case, our customers’ customers. We want the people who drive the cars powered by the technology enabled by Continental and HPE to have a safer, more enjoyable experience on the road. We want to provide them the information necessary to make that happen.

But no single company controls the entire customer journey. There are too many moving parts and too many players involved. A single car is composed of 30,000 parts from dozens of suppliers, not including the infrastructure outside the car, including the connectivity, edge servers, and analytical tools required to make modern vehicles work.

Empowering the next generation of drivers requires the ability to share information across the entire automotive ecosystem. That’s why we built our Data Exchange Platform and invited the entire industry to join us.

And it requires partnerships, like Continental and HPE’s, that are willing to work across industries and find common ground to drive innovation forward.

Ralf Lenninger started his professional career as a development and application engineer in the Siemens Infineon division in Munich in 1984. In 1988, he joined the chassis business field of Siemens Automotive. After several career steps in strategy, development, and management for Siemens and Continental (after Continental took over the automotive business of Siemens) in Germany, Mexico, Portugal, and the U.S., Lenninger became head of strategy and future solutions within Continental’s vehicle networking and information business area.
Why Your Digital Transformation Initiative Requires a Partner That's Both Broad and Deep

CRAIG PARTRIDGE, senior director, Advisory and Transformation Practice, HPE Pointnext Services
CHRISTIAN REICHENBACH, worldwide digital advisor, HPE Pointnext Services

Every industry today is undergoing some kind of digital transformation. And every enterprise is looking to technology to help it evolve its value proposition.

But digital transformation is not about doing the same things more efficiently. It’s about using technology to do things a company has never done before. It’s about changing fundamental processes and unlocking the value of data so organizations can create new customer experiences and uncover new revenue streams.

Even a 100-plus-year-old industry like automotive is turning to data, and the insights from it, as a mechanism to digitally transform customer experience. With Zenuity, Hewlett Packard Enterprise is exploring how data modeling for the autonomous driving industry can be used to set new benchmarks for safety and security. “The paradigm shift we’ve seen in the past few years has been remarkable, with autonomous vehicles presenting the biggest opportunity we’ve seen in decades to disrupt and revolutionize the automotive industry,” says HPE CEO Antonio Neri.

Digital transformation on that scale is too big a job to go it alone. Most enterprises understand they need a new ecosystem of digital partners to help them make it happen. But what kind of partner is needed, and how do you choose the right one? The answers to these questions aren’t always obvious.

The temptation for most companies is to look for partners within their own industries—to find solutions that are tailored specifically to automotive, or manufacturing, or retail, or hospitality. Or they look at what competitors within their industry have done and try to replicate their success.

But that approach tends to be narrow and myopic. While a vertical partner might have deep understanding of a particular emerging topic or singular constraint, it’s not in a strong position to apply lessons learned across industries. It won’t know how an innovative approach used in retail can be applied to agriculture or the public sector, for example.

The right partner has the resources to uncover unique use cases for each organization, not generic solutions that apply to every enterprise within a particular vertical. Emirates and Ryan Air are both in the airline industry, for example, but they have very different operating models, customer bases, and value propositions. The same digital agenda is unlikely to work equally well for both.

That’s why at HPE, we’ve developed the Digital Next Advisory framework. It allows us to get to the heart of each customer’s specific needs and uncover new value propositions unique to that organization. Your company’s manufacturing line doesn’t look like every other manufacturing line. One shopping mall or stadium or hospital doesn’t look like every other one. But they are all exploring technology-enabled use cases that can be leveraged to generate new digital experiences for their customers.

When we talk to our customers, regardless of the vertical they’re in, we are talking about similar objectives in the IT supply chain. This includes conversation about cloud service delivery models and APIs, and about microservices and containerization. They ask us how they can architect for better scale, availability, and agility. It’s a conversation that’s happening inside the IT organization to establish a digital backbone to take advantage of emerging use cases at their edge. This capability is not unique for a specific vertical that is digitally transforming—it’s just table stakes.

A value-based partnership builds upon these capabilities and in turn extends the field of vision toward the compelling new use cases at the customer’s edge. RX is an edge-to-cloud play. It’s about access to new data streams and applying analytics to gain new insights and potentially generate new revenue streams.

Continental, for example, supplies the electronics for 30 million cars, which every minute transmit large volumes of data to HPE servers on the edge. So the next question becomes: How can we take that data and turn it into additional digital services for its customers? What if we created an exchange to share that data across all car manufacturers, so they could turn out value adds of their own? Our partnership with Continental led to the creation of the Data Exchange Platform, a decentralized marketplace based on blockchain.

Or look at the U.K. football team Tottenham Hotspur. It’s building the most technologically advanced stadium in the world, bringing a brand new sports experience to the fans in every seat. With HPE as its technology partner, HPE solutions enable the stadium’s critical services, such as CCTV, building management systems, audio-visual, ticketing, and much more.

Another example is the partnership between HPE and CenterPoint Energy, enabling the smart energy grid of the future. With new smart meters, CenterPoint Energy is managing 8 billion more data while eliminating 7 million service calls and boosting customer satisfaction by 10 percent. That data needs to be collected, acted upon, and stored in a true edge-to-cloud architecture.

When you think of HPE, you probably don’t think of autonomous, connected cars, football stadiums, or smart energy grids. But those are just three of the many areas where our horizontal approach helped enterprises find new ways to differentiate their value proposition through digital technology.

Having a 30,000-foot view across all major industries allows us to bypass the vertical discussion and collaborate on bespoke solutions that address each customer’s needs, pains, strategies, and value proposition. For digital transformation to succeed, enterprises need a partner that’s both broad and deep—one with expertise like HPE, which turns desired digital transformation outcomes into differentiated use cases and customer experiences, enabled and delivered through digital technology.
The pandemic is hastening the process where society redefines what the workplace is. It’ll no longer be just the place people go work, punching the clock each day. Companies will need to adapt their workplaces—that much is clear. But the severity of response will vary widely by industry. Here’s a description of three different kinds of workplaces and some predictions of how each will evolve in a post-pandemic world.

**Modern knowledge worker environments**

These are the modern work environments where the pandemic has provided the clearest look yet into a future where the workplace doesn’t operate with strict boundaries. The office is one component, but it’s less of a primary focus. Many people routinely work remotely, from home environments or from the road. Knowledge worker environments such as technology companies and financial services firms were best positioned to shift to almost entirely virtual environments in 2020. In the future, they’ll have to reinforce the IP they have in house with more targeted technology investments and more refined processes.

Part of the challenge will be to reimagine the people functions of the workplace in these environments. The office has always been the hub of collaboration, the place where paperwork is processed, the place where information is stored. In a future of hybrid work, the office may be less focused on work and more focused on providing a place to build connections with the company. Working at home used to be a “nice to have” perk—dialing into a teleconference on a Friday. In the future, it might be more standard. Knowledge workers could do most of their real work Monday through Thursday at home and come into the office one day a week to attend meetings, hand out employee recognitions, and socialize with staff.

This realignment could save on real estate costs, but it will force companies to invest more in other areas. One area of focus will be the overall employee experience. Technology will be an important delivery mechanism in this area, providing employees with a wider array of programs, services, and other resources to reduce isolation and make their workdays more stimulating. Another area is employee safety. Although knowledge worker environments will require fewer trips to the office, companies will need to provide more protections for those on site. Spacing of desks to allow for social distancing and better filters to capture germs will be part of the solution. Digital technologies will be as well, with offices installing infrared cameras and contact tracing apps to ensure workers aren’t transmitting viruses throughout the staff.

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**The Reimagined Workplace**

*SAADAT MALIK, VP for IoT and Intelligent Edge services, HPE Pointnext Services*

Predictions and recommendations for the future of work

When the pandemic first started to spread in early 2020, business leaders weren’t concerned about what their workplaces would look like in the 2030s. They were focused on making it through the first wave of disruption. Get the workers communicating remotely. Keep people safe. Keep the business running.

Now, approaching the end of 2020, leaders are still dealing with the pandemic’s effects. At the same time, they’re starting to look ahead. They’ve learned how to adjust to a new mode of work and tested out new practices. In some cases, the pandemic has changed the way organizations think about the workplace. In other cases, it has simply accelerated workplace transformations that were already underway. Either way, these leaders are now ready to reimagine the workplace of the future.

What’s it going to look like? What will change? How will businesses’ responses to the pandemic reshape the way they work in the 2030s and beyond? How will employee experience change? What will success look like for those embarking on the journey of transforming the workplace? These are all questions that need to be answered.

As with most things in life, there is no one size that fits all. There are shades of grey. Much will depend on how specific workplaces are structured and what they are used for. Different work environments have different needs. Traditional office settings, manufacturing floors, hospitals, and retail sites each have their own ways of communicating, dealing with customers, and generating business value. They each face different pressures today, they’re each going to react differently to changes in the future, and they each need leaders with an ear to the ground trying to figure out the pace of change their people can sustain.

What ties them all together is an increasing reliance on digital technology to help employees deliver value. Organizations across industries and geographies have been investing in digital workplace models for years, seeking ways to become more efficient, cost competitive, and customer focused. Those digital models came in handy during the rapid transition to virtual work forced by the pandemic. As remote work takes on a greater role and other societal trends cast a wider influence, we will see a greater reliance on digital models as hybrid workplace models—enabling seamless productivity regardless of physical location—become the norm.

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Companies also will have to double down on collaboration technologies. In 2020, knowledge worker environments did a good job equipping workers with the hardware and software they’ve needed to get basic tasks done at home. But in a workplace without boundaries, companies will need to do more to create access to different work experiences for different roles within the organization. At this point, remote connectivity is pretty much following that one-size-fits-all model. Going forward, that can’t be the case. A CEO who has to address 50,000 employees from home will need different levels of connectivity, quality of service, and security than someone delivering code late at night.

Operations and manual labor environments

Environments associated with businesses that have heavy operational requirements—manufacturing plants, oil rigs, construction sites—can’t operate without boundaries the way knowledge worker environments can. The work is on site, and companies will need to reconfigure those workplaces to allow for more collaboration, security, and cost effectiveness. Safety will be a big concern. Even more than in knowledge worker settings, companies in operational environments will need to equip workplaces with modern health safety measures, including automated screenings for disease as well as infrared cameras, contact tracing apps, and filtration systems. New configurations allowing for better social distancing can protect workers on sites where work needs to be done and can’t be outsourced.

A new division of labor will take place in these environments. First, this will be about greater automation to reduce the number of tasks that need to be done manually. Second, this will be about the augmentation of on-site resources with off-site resources to undertake the manual tasks that remain. Automation will reduce the reliance on humans to perform operational tasks ranging from assembly to final packaging. While the workplace of the future will reinforce the need for employees with higher level skill sets, such as the ability to design, program, and fine-tune machines, more automation and technologies such as augmented reality and remote collaboration will mean fewer workers on site.

But technology will provide opportunities for collaboration on actual operational processes. When a machine needs to be maintained, it may not be possible or cost effective to have skilled engineers on site. Using augmented reality, skilled workers who are off site can fix a machine or guide a lower level worker through the process.

Mixed environments

Mixed environments blend some aspects of knowledge worker and operational settings. These include hospitals, where there is a heavy focus on knowledge-intensive activities such as those undertaken by doctors to analyze patient data and create medical records. However, that aspect is matched in equal measure by the manual labor and operational activities that take place in physically managing the needs of patients. Retail also includes a mix of on-site, off-site, and virtual activity, which poses unique challenges in configuring workplaces of the future.

These environments traditionally have been resistant to the move toward a modern virtualized setup. Some of this has had to do with regulatory types of concerns, while in other cases, it has had to do with long-held beliefs that customers (or patients in the case of hospitals) can best be served in person only. These environments will start operating more like knowledge worker setups, more frequently taking advantage of virtual work and creating “hot office” environments. For example, in a hospital, a doctor traditionally walks the halls and meets patients every day for consultations. Instead, doctors will do more remote collaboration with patients and more remote consultations with staff. Team reviews will be conducted virtually, and administrative functions will be distributed across departments and geographies through better information-sharing practices.

In retail, the shift to online sales will accelerate. Brick-and-mortar stores will play a reduced role, serving more as a display or a place to pick up goods. Automation and digitization will further reduce dependency on physical presence in the retail space.

Other trends will take shape, forcing industries to change the way their workplaces operate. One involves fierce shifts in supply and demand spurred on by major events like a pandemic. Demand for certain products and services suddenly surges. Healthcare is an obvious example. So are telecommunications services when everybody’s working from home. So are certain types of retail products, like sanitizer and toilet paper. The workplace of the future will require more agile technologies and processes to anticipate sudden changes in the market and ramp up supply to meet spiking demand.

We’ll also see a new and more streamlined social contract emerging around privacy. Today, there are a lot of variations around the globe when it comes to privacy. It may take a while, but it’s likely that countries will standardize more privacy-related measures. This would give workplaces more ability to implement tracing and tracking systems to control pandemic spread in return for some compromises on privacy.

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As enterprises turn to hybrid IT, they find that conventional identity and access management doesn’t keep up.

In a rush to digitally transform, enterprises embrace mobile, smart devices, machine learning, and new, more agile methods of application development, deployment, and management. Never have companies faced so much technological change.

The transformation isn’t just about new mobile apps and intelligent new features. The changes run deep into the enterprise’s core with emerging cloud platforms and microservice architectures working with more static legacy systems.

“This creates a lot of challenges when it comes to managing systems across the enterprise, especially when it comes to security and access management,” says Scott Crawford, information security research head at 451 Research, a part of S&P Global Market Intelligence. How can organizations make certain that systems and people can access only the right systems and data?

There’s no easy answer. With the increased interconnectivity and dynamic nature of computing across disparate cloud platforms, as well as cloud services, microservices, and software components, how enterprises decide whether they can trust users or systems to connect to any given resource at any given time has grown markedly complex. How can a user be trusted when attempting to perform an action? And with increased automation, how can a server, workload, or software component be trusted to connect between cloud systems and legacy on-premises systems?

More enterprises are turning to zero trust. Zero trust is a philosophical approach to identity and access management, establishing that no user or software action is trusted by default. In other words, authenticate everything. Zero trust demands that all users, devices, and application instances prove they are who or what they purport to be and that they are authorized to access the resources they seek.

Enterprises are investing in the tools and services that enable zero trust. According to MarketsandMarkets, the zero-trust market will reach nearly $39 billion by 2024, up from roughly $16 billion in 2019—an annual growth rate of 20%.

Traditional identity management falls short
In modern multicloud and microservice environments, traditional means that authenticating once and trusting indefinitely don’t hold up. At any moment, new workloads and software services can call upon any resource to perform some task.

“In non-zero-trust environments, once a user or device was inside, connectivity between resources was trusted,” says Colin l’Anson, a Hewlett Packard Enterprise fellow. “Now, with zero trust, we’re not willing to do that. We want to authenticate in real time and to a much more granular level. And to access any workload or functionality, entities have to prove who they are.”

How is zero trust achieved? Enterprises must authenticate users, workloads, and data and continuously monitor that access for anomalies. That’s easier said than done in modern enterprises with dynamic and hybrid architectures. A critical step in achieving zero trust among users and systems is to standardize and automate the zero-trust authentication processes whenever possible. This is something that is especially suited for cloud-native environments.

A push to unify access control
Consider HPE’s recent acquisition of zero-trust firm Scytale. Scytale initiated a set of efforts to unify access control for complex hybrid environments. The first initiative, SPIFFE (Secure Production Identity Framework For Everyone), defines a set of specifications that, among other things, defines an API to easily establish trust among workloads and system actions. Because it’s API-based, unlike manual key generation and distribution processes, SPIFFE attestation and authentication can be fully automated.

“SPIFFE puts in place the underpinnings for enterprises to utilize existing on-premises service authentication protocols (such as Kerberos and OAuth) with workloads running upon increasingly dynamic computing platforms, including cloud and containers,” says Sunil James, former Scytale CEO and currently senior director at HPE.

The second Scytale effort is SPIRE, the first software implementation of SPIFFE. SPIRE’s components can be integrated with call providers, middleware layers, and hardware trust mechanisms such as trusted platform modules and hardware security modules. SPIRE can be used by workloads in any environment, such as within Azure, Kubernetes, or an application running in the data center. “This enables a finer level of authentication, right down to the specific action of a user or workload that is requested,” says l’Anson.

Zero trust solves real-world business problems
The purported benefits of zero trust would matter little if they didn’t solve real and pressing business challenges. Not only does zero trust help improve security, proponents say, but more important, zero trust enhances security cost effectively and can make security as agile and elastic as the technical environment demands.

Because zero trust is a security system that attempts to understand what the user is trying to do as they’re doing...
it and introduce the appropriate security policies based on the context of that action, it can also improve user experience. “Zero-trust frameworks help enterprises get their security hands around an increasingly dynamic enterprise IT environment while simultaneously improving the user experience of their infrastructure, security, networking, and software engineers,” James says.

When zero-trust attributes can be codified and automated, zero trust will readily scale with modern cloud and microservice architectures. And while it would be much more straightforward to deploy a zero-trust architecture in a new, all-cloud environment, it’s not strictly necessary. Zero-trust success in established environments is still attainable.

**Successful zero-trust implementations**

“There are many discussions among our customers about what zero trust means to them and how to best implement it,” says Simon Leech, senior adviser, worldwide security and risk management practice, at HPE Pointnext Services. “But you want this discussion to be business led rather than technology led. Zero trust is about business led more than technology led. Zero trust is that it’s not attained by flipping a switch suddenly. You can come to zero trust by taking it step by step,” says I’Anson. “You build a business case, which could be a business unit or certain domain, and introduce zero trust that way.”

James agrees. “Spot potential quick wins and their associated use cases when implementing zero trust.”

**Where to start**

James says the first step is to assess where the organization currently stands. “You need to first baseline your current state of operations, and you need to understand where you want to go. Then you need to build your business case to be able to get yourself there,” he says.

Initially, those business cases are likely to revolve around security policies and regulatory demands. “While considering those business cases, be certain to take advantage of the fact that zero trust provides the tools and capabilities needed to finely tune access, rather than just thinking in terms of username and passwords or access via basic network segmentation such as that obtained via VPN,” Crawford says.

While thinking of identity in terms of granular user access and dynamic workloads may appear to complicate identity management, Crawford says it’s worth the effort for the long term. “How broad do you want this access to be? How narrowly defined does it have to be for a given target? What do you have to consider for things like regulatory requirements as far as who has access to what types of assets? Bringing identity and access management to this level will help improve security and provide a better experience for everyone,” explains Crawford.

**Build off existing implementations**

“If does take some upfront work to get the most out of zero trust,” I’Anson says. The good news is that existing identity management investments and maturity levels will help with the transformation. “The more mature the existing identity management program, the easier the move to zero trust will be. You can use existing LDAP implementations as a starting point because they already establish a good initial foundation of roles and identities,” I’Anson says.

The next step is to identify those business cases with winnable implementations. “One of the key things about zero trust is that it’s not attained by flipping a switch suddenly. You can come to zero trust by taking it step by step,” says I’Anson. “You build a business case, which could be a business unit or certain domain, and introduce zero trust that way.”

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**Design and build a flexible architecture that can deliver value across those use cases,**” he says. “Doing so delivers a stronger foundation that you can build upon rather than simply piecing together ad hoc components and technologies.”

That’s why it’s important to standardize on an approach to zero trust. “If you standardize, in two years, you won’t have five different approaches to zero trust spread throughout your organization, much of which probably won’t work together and won’t provide value,” James says.

**Use readily available technology**

Finally, when it comes to initial authentication, Crawford advises organizations to take advantage of the authentication methods available. “We’re seeing increased availability of what not that long ago would have been very sophisticated techniques for access control, including biometric authentication that comes packaged with a lot of commodity consumer endpoint technologies. Take advantage of these authentication methods,” says Crawford.

As enterprises race forward in their digital transformations, they’re embracing many different technologies to succeed: cloud computing, machine learning, containers and microservices, mobility, and more. If they’re going to win this race, they’ll need an approach to identity management and authentication that is as agile, elastic, and smart as the computing environments they’re building. Zero trust can be that approach.
SHIFTING IT FROM A CENTER OF OPERATION TO A CENTER OF INNOVATION

FRANK CARATOZZOLO, vice president, infrastructure, Allergan

Delivery time for key infrastructure items to business units shortened from up to four weeks to just two to three days.

In the past decade, our pharmaceutical and medical device company, Allergan, has seen a lot of changes. We’ve been involved in more than 60 mergers and acquisitions during that time—10 with companies of similar size. We’ve introduced and purchased well-known brands in our focus area: medical aesthetics, eye care, central nervous system, and gastroenterology. Our most recent deal, which closed in May, made us an operating unit of AbbVie.

During that time of constant change, our infrastructure team did its best to keep up with business demands. We ran lean—about 10 people serving the needs of a $16 billion corporation—on IT budgets traditionally about half the size of many of our peers. While the team performed admirably with the resources we had, by 2018, we reached a point of inflection. The business side felt we weren’t delivering services fast enough, and we ourselves felt we could be more strategic in the way we operated.

So, we adjusted. We embarked on a transformation journey that moved key resources to the cloud, realigned our processes, and improved our overall methods of delivery. The moves we made allowed us to become more agile and scalable. They primed our operation to adjust to the demands of the pandemic and positioned us to provide more value as part of the AbbVie ecosystem.

Two key components of our journey involved making investments in hybrid cloud and automation. Allergan had outdated data centers that we were looking to close and a lot of consolidated workloads that had to be reassigned. We needed to develop a comprehensive strategy that not only supported our current initiatives but also scaled for the future. To continue to function as a small team, we had to embrace automation throughout our IT operations.

Earning a seat at the table

One of the most important goals of the transformation was to shift ourselves out of the traditional IT role and into what we call business technology, or BT. This meant one thing: Stop acting just as order takers and free ourselves up to support the next generation of revenue-driving technology. Everything we did as an infrastructure team had to be focused on delivering for the business. We had to earn our seat at the table.

Once we formulated our vision, we moved quickly to implement a plan. The plan focused on technology and on the people that had to drive the change.

To create a foundation for cloud transformation, we had to ensure that all the building blocks were in place: security controls, networking, automation for provisioning, log management, monitoring capabilities, and more. All of this had to be embedded early on. If done right, it allows you to face change and scale faster, because all of the underlying components are there to do so.

After completing our assessment of our full technology landscape, the team was able to rapidly pull together full data on the applications themselves. We separated out the apps we would keep in our optimized data centers and the ones we’d shift to private clouds, Microsoft Azure, or Amazon Web Services. The assessment had to do many things: address the decade of integrations; formulate a clear plan for technical debt, risks, and opportunities; and establish a new clean configuration management database.

It also had to create an actionable roadmap that would address residual technical debt and update operating systems and other licensing as needed.

Creating a cross-sectional, cross-functional team

Ultimately, a transformation is about people. We were operating in silos—the server group, storage group, and backup group—and that had to change. All these groups had to come together to deliver services on behalf of the business.

So we created a cross-sectional, cross-functional team that was focused on delivering cloud transformation as an ongoing perspective. We made decisions as a team, we measured improvements, and we continuously added capabilities that the business demanded of us. Many companies don’t do this upfront and learn hard lessons later on. We avoided a lot of pain points because we addressed the process improvement aspects upfront.

One key step was to establish a centralized governing body, called the Cloud Business Engineering (CBE) team. This is similar to what others may call a Cloud Business Office, or CBO. Our CBE team guides all ongoing infrastructure as well as partners with our business units to support the future innovations that drive our business. Having an empowered, effective, and well-run CBE has enabled us to achieve increased satisfaction with our internal customers, decrease time to delivery of infrastructure from over three weeks to under three hours, and enable a culture and model of agile DevOps throughout our organization. As we covered in our strategic vision, achieving high levels of automation and self-service was key. But without the people and process that enable this, it wouldn’t have been possible.

We didn’t do it alone. Hewlett Packard Enterprise had extensive experience on cloud transformations, so we engaged with the company to assist technology assessments, the development of the CBE, and other underappreciated tasks. Cloud costs, for one, can derail a project quickly if they’re not managed. With HPE’s help, we were able to avoid a lot of the usual pitfalls in this area.

We also worked with HPE to implement about 700,000 lines of infrastructure as code across environments in a matter of months. If we had to face that ourselves, it would have taken us more than two years.

Proactive vs. reactive

We still have some work to do, but after two years our transformation journey is succeeding beyond our initial expectations. Our team is delivering services much faster than we used to: two to three days vs. three to four weeks prior to 2018. We’re responding to the business faster and engaging more fully on higher value business projects. Rather than always trying to catch up, we’re helping the company drive change in a much more proactive way.
A DATA FABRIC ENABLES A COMPREHENSIVE DATA STRATEGY

LARRY SELTZER, managing editor, HPE Enterprise

A data-driven enterprise needs a strong foundation for managing and working with data regardless of format or location.

For the modern enterprise, data is both the core asset and a big problem. The whole body of a company’s data contains the sum of knowledge about its products, its assets, its customers, and its people.

And yet, that data likely exists in a large variety of formats, managed by a large variety of applications, residing all over the world. Gaining access to the data an employee needs can be difficult and fraught with risks attendant to redundancy.

There may well be no person or group with a full picture of the company’s data, and indeed it may be impossible to achieve that. Only a sufficiently advanced software infrastructure can do so.

Such an infrastructure is a data fabric. With a data fabric, an enterprise can make the full assortment of company data available to all who have rights to it, in the form they need it, no matter where the data resides.

The challenge of the unmanaged data ecosystem

Where is your enterprise’s data stored? Chances are that some of it is in a cloud or multiple clouds, managed by different cloud systems. Some of it is in SQL databases on corporate servers. Some of it is in Microsoft Office documents. Some of it is in text files.

There may be several copies of some of the data. Administrators may consider it too risky to allow direct access to the main store of a critical database so they may give the user just a snapshot of the data or subset of it.

The employee may prefer this anyway, because they wish to work with the data in different formats, and the software they want to use might not work with the main database directly, at least not efficiently.

In the end, the user gets their snapshot, but by then, the data may no longer be current. Any results they derive from it may already be unrelated to the current state of the data.

The normal data mess is not acceptable

If you’ve been working with computers long enough, this situation may just seem normal to you, maybe even inevitable. But it’s not. It is the result of a lack of a comprehensive data strategy that supports a truly multi-tenant system.

Certainly, it is not optimal for users not to be able to access data on the company network when they need it and have the rights to it, using the applications they prefer. Nor is it optimal for users to have to work with partial datasets of uncertain accuracy.

Nor is it optimal or necessary for data requests to present a burden to IT, making it a chokepoint for those just trying to get their work done. Nor is it optimal for all of these inefficiencies to impose high costs for new projects, innovation, and the ability to pivot as situations change.

All of these problems, owing to the lack of a managed, consistent data strategy, threaten companies by endangering service-level agreements they have with customers and partners. When legitimate but stressful applications like machine learning and large, analytical queries are running, enterprises cannot ensure that scheduled events will start and complete on schedule, as promised in their SLAs.

It’s hard for even the most skilled IT professionals to anticipate all the ways users will want to access data. This is why so much shadow IT persists: because the facilities provided by the company don’t meet users’ needs. How much better would it be if the company really could provide access to the data users need, using the software they prefer?

What does a comprehensive data strategy look like?

A comprehensive data strategy, in contrast, makes it practical and affordable to run a multipurpose system that takes full advantage of the value of data, bringing useful applications (projects) into production in a timely manner.

Analysts, developers, and data scientists are able to work with a comprehensive and consistent collection of data and add new data sources without either breaking the bank or overwhelming IT.

This comprehensive approach makes it possible to optimize resource use by avoiding unnecessary duplications of hardware or system administration as well as simplifying how people architect a solution.

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To do all this, a data fabric must have certain important capabilities:

- **A global namespace** – All data must be available through a single, consistent global namespace, whether it resides on premises or in a public or private cloud, or it is spread around the network edge.

- **Multiple protocols and data formats** – It must implement a broad variety of protocols, data formats, and open APIs, including HDFS, POSIX, NFS, SS, REST, JSON, HBase, and Kafka.

- **Automatic policy-based optimization of storage and access** – The data fabric must provide a way for the enterprise to specify when data is stored in hot, warm, or cold storage or in a cloud or on premises, and other important storage policies.

- **Rapidly scalable distributed data store** – Enterprise data needs can grow quickly and precipitously; the data fabric needs to make this happen, not obstruct it.

- **Multi-tenancy and security** – The data fabric must have a security scheme that implements authentication, authorization, and access control in a consistent manner, no matter where the data is or what type of system it runs on.

- **Resiliency at scale** – Even under high usage, it must provide instant snapshots, and all applications must have the same view of the data when it is taken.

The security aspect is worth repeating and emphasizing: A data fabric needs to present a consistent security framework for all data across the enterprise. It should have cluster-level permissions and full Boolean expressions for defining access control. Siloed applications don’t have this luxury.

**What a data fabric won’t do**

Relational database management systems are very good at certain tasks, and they should be used for those tasks. It would be as foolish to shoehorn RDBMS work into the fabric as it is to force applications into an RDBMS when they are poorly suited to it, an all too common endeavor.

In fact, RDBMS systems will become an increasingly specialized tool rather than the general one they are often seen as. A data fabric with access to a variety of formats and protocols will allow developers to choose the best solution to the problem, rather than the default one.

There are operations, such as ETL (extract, transform, load), that will not go away but the need for which will decrease. ETL is the copying of data from one system into another, which will represent the data differently. This will still make sense at times, particularly when dealing with an RDBMS and other specialized systems that are not part of the fabric. But in the absence of a data fabric, ETL is often necessary for any access of data.

**Data fabrics are real**

Not all data fabrics are equal, but the HPE Ezmeral Data Fabric meets all the requirements described above, and puts an enterprise in a position to adopt a comprehensive data strategy, with all the benefits that entails.

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1. “Fortune 500 CEO survey: How are America’s biggest companies dealing with the coronavirus pandemic?” Fortune, May 14, 2020

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**ACCELERATING THE INTELLIGENT ENTERPRISE**

**W. MICHAEL MOLAISON**, senior product manager, HPE
**VINAY CHAUDHARY**, managing consultant, hybrid IT, HPE

Harnessing the power of SAP to guide your digital transformation

A few months into the pandemic, Fortune 500 CEOs roundly agreed on one thing: In a May 2020 survey, three quarters of them said corporations need to accelerate the technological transformations of their businesses.

At the same time, many of the departments within organizations are driven by different factors in how to approach transformational change. HR, finance, marketing, and DevOps, for example, each have their own ideas about what digital transformation means and how it should work.

The disconnect between departments is just one factor slowing down the overall process, or even what direction digital transformation should take.

What organizations need during this time of disruption is a holistic vision for how to transform. That vision will require the implementation of new tools and a willingness to cast long-held practices aside. It also requires something else: a commitment to build a methodology around the technology, infrastructure, and processes that have run your organization for years, if not decades.
Let’s take the use case of SAP. SAP applications and platforms are pervasive in most organizations. SAP runs mission-critical processes from manufacturing to CRM to ERP to supply chain enablement. It links processes from the edge to the cloud. To eliminate silos and drive true change throughout your organization, SAP shops need to have to make these legacy investments part of their future.

The following is a look at the four key business goals organizations are trying to achieve with their transformations and the role SAP can play in developing a next-generation transformation model.

### The digital journey map

Businesses vary in size, shape, and focus, so one set of objectives won’t be the exact same as the next. But any company embarking on a digital transformation journey will share at least a few common traits. They’ll all be looking to do the following:

- Drive new revenue
- Improve business efficiency
- Speed up time to market
- Optimize costs

There are different steps organizations can take to accomplish these goals. All will be following roughly the same framework, but on each one’s individual trek a digital journey map can help them successfully navigate their way through. That journey starts at the “digital edge,” the place where companies reach people and partners through digital engagement and tap data to digitize the physical world. It continues through the adoption of cloud-enabled infrastructures and processes that allow organizations to scale transactional systems and unleash the skills of cloud-native app developers.

Propelling organizations through their journeys is a common set of enablers that must be addressed to achieve their goals. These include the ability to derive intelligence from data, define an underlying operating model with built-in agility, and establish trust in the company’s systems and cybersecurity. These enablers can be seen as routers. The bits and bytes are coming in from the edge. The intelligence in the center is routing information to the compute platform to allocate resources to improve efficiency, speed up development, and enhance the experience at the edge.

SAP occupies important spots across this transformation map. Along with running mission-critical operations, it is essentially the entry point for an organization’s data-driven aspirations. SAP S/4HANA, the enterprise-level ERP optimized for SAP’s in-memory database, enables organizations to process and infuse data into every function of every department that’s participating in a transformational journey.

Throughout that S/4-driven digital journey, customers need to be aware of the impacts technology will have on their processes, develop the right business priorities, and understand the business implications so they can plan for these changes.

Looking at SAP as use cases within digital transformation shows how important it is to achieve their four specific core business objectives. What is common to all is data, so while all the stakeholders may be interested in different aspects of SAP, it makes sense to look at SAP holistically from an end-to-end business process and value chain perspective. This provides a higher level of value to the organization by spanning multiple departments and lines of business, therefore breaking down those data silos.

SAP plays a role in driving the four individual journeys businesses take to get to their destination. These four journeys include redefining experiences, gaining insight and control, modernizing and moving workloads, and accelerating development.

### Redefining experiences

A number of SAP customers have successfully used S/4HANA to change the way they do business with their own customers and partners. One major utility provider used data gathered at the edge to formulate models to predict what customers might be calling about. Rather than spend time gathering account numbers, phone numbers, and other information, the utility developed automated responses—effectively converting the operation from a call center to a recommendations engine.

Another customer, a leading payroll processor, used S/4HANA’s memory-driven database to provide real-time responses to customers when they’re doing taxes. It shifted from an online transaction provider to a real-time consultant that assists customers through issues they encounter while filling out forms.

### Gaining insight and control

A metal valve and pipe-fitting manufacturer used cloud-based real-time analytics to launch an operative analytics function, empowering the business to solve complex problems in 14 industries. Integrating and
presenting data through cloud and analytics tools provides full control of trust and consistency of data in real time. This has shortened audit time and enabled staff to shift resources toward innovation and strategy.

Another consumer products giant applied S/4HANA to financial operations to exercise more control over financial processing and profitability analysis. This enabled the firm to make better decisions regarding brand performance, customer spend, and changing consumer tastes.

Modernizing and moving workloads
A global pulp and paper company used SAP cloud and on-premises tools to create a single, unified enterprise across the firm, streamlining processes and reducing IT costs. The move enabled real-time visibility across enterprise-wide operations with immediate access to information. Another telecom supplier did an S/4HANA migration to fully integrate automation and intelligence into its end-to-end business processes.

Accelerating development
A global pharmaceutical supplier needed to speed up drug development initiatives to get to market quicker. It created an automated solution to build a validated environment on customer sites. Validating a so-called golden image accelerates time to market because it eliminates the need to revalidate individual instances and individual environments.

A path to proactive transformation
The examples above show that looking at SAP as a use case, across not just the organization but also across the business goals of the organization, works regardless of the industry in which the company operates. Taking each of the goals, applying an SAP lens, and determining how those goals become value creators—synchronized with the underlying technology transformation—can make the difference in being able to redefine digital experiences, proactively and strategically. It also means having the processes in place to be able to react to situations, even global in nature, rather than stalling. Not doing this can be costly, as many have recently discovered.

Discuss your own situation with an HPE Digital Next adviser. Learn more at hpe.com/digitaltransformation

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