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White Paper

Use IT modernization to accelerate and scale business transformation

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Imagine renovating a beloved old house and adding a new room, blending old and new seamlessly. Now imagine being able to blend IT in a similar way, modernizing mission-critical systems and integrating them with new digital solutions. To make this vision feasible — to enable successful IT modernization at scale — you need to deploy a secure digital foundation that integrates technology platforms and enables change at the speed and pace your firm requires.

All enterprises seek to differentiate themselves or disrupt their industry. They want to enhance customer experience, offer innovative products and services, and improve productivity and efficiency. IT modernization is an enabler of transformation, because fast and effective information streams and collaborative business teams are key to beating competitors and improving business performance. This means delivering data in new ways, unlocking "trapped" data, and combining this with new processes and business models to extract more value. To do this, organizations must have an agile and efficient digital foundation.

A digital foundation equips organizations to respond to market changes and outpace the competition. A digital foundation helps organizations deal with mission-critical IT systems that aren't up to the task, and makes it possible to adapt others for new digital services. As well, a digital foundation can expose trapped data to digital platforms and the methods needed for new business models, streamlined processes and market intelligence (see **Figure 1**).

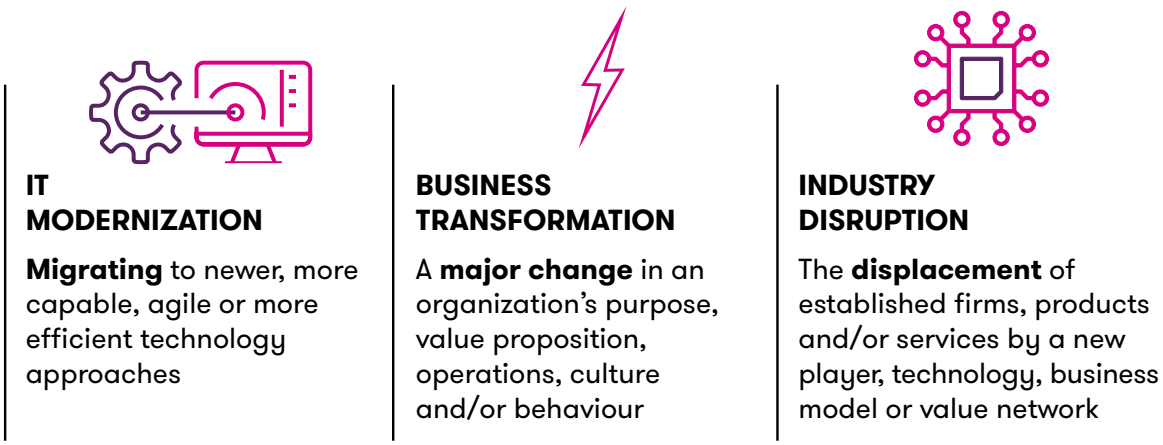


Figure 1. IT modernization lays the foundation for business transformation and, ultimately, industry disruption.

Source: Leading Edge Forum, "A Tale of Two Missions: From IT Modernization to Business Transformation," *https://leadingedgeforum.com/research/from-it-modernization-to-business-transformation/*

Modernization efforts to create a digital foundation typically require organizations to simplify and optimize their IT estates, move applications to the cloud, operate hybrid IT architectures at scale, build innovative business platforms and transform their systems for speed. However, these efforts often stall for a variety of reasons, including:

- **Inability to scale.** While 90 percent of companies engage in some form of digitization, only 16 percent have successfully scaled.[1]
- **Overly complex systems.** Integration with mission-critical systems is one of the biggest hurdles blocking digital transformation, say over a third of executives.[2]
- **Lack of a common platform.** Organizations need a common platform to access broad-based enterprise information and collaborate and execute quickly, securely and at scale. They also need an environment where they can easily develop and test new solutions.
- **Talent/skills shortage.** People with advanced skills are hard to find and costly to hire. As a result, fewer than one in five executives calls his or her organization capable of transformation at scale.[3]
- **"Paradox of choice."** Organizations facing the many complexities of a digital journey can feel stymied on where to go next. Every application and workload represent challenging decision points and the potential for implementing a system that is too costly or complicated to maintain or provide a return on investment (ROI). A related paradox is maintaining control in a shared (multi-tenant) environment.
- **Insufficient — and locked — funding.** Cost or lack of funding is a top barrier to implementing a digital strategy, cited by 35 percent of executives,[4] because nearly 85 percent of IT budgets are still used to either maintain existing systems or make incremental business changes.[5]

Seven key attributes of a digital foundation

The exact composition will vary from organization to organization, but most digital foundations share seven key attributes:

- **Adaptability.** Organizations with an effective digital foundation can make changes quickly and innovate continuously. They replace rigid elements with new elements, often cloud-based, that can respond quickly and at scale. IT assets are provisioned on demand, providing consumption elasticity while eliminating the IT's traditional fixed assets.
- **Speed.** Organizations can accelerate functional velocity and throughput with the right platforms and tools, new skills and operating methods, automation and lean processes. These new approaches eliminate handoffs by colocating full-stack, multidisciplinary teams. And with swift cloud-based infrastructure provisioning, new systems can be implemented quickly.
- **Data-centricity.** IT modernization breaks down legacy silos and unlocks data from previously incompatible systems, providing new insights and enabling new business processes. To become data-centric, an organization must establish a generalized data taxonomy, which is crucial to enable APIs to join and cross-reference data across systems for new insights and to enable new business processes.
- **Deep analytics.** Organizations need real-time insights into their business and operations. By using technologies such as data mining, machine learning and predictive analytics, they can proactively address opportunities, reduce costs and innovate. Over time, an organization can also learn from its data, using that knowledge to optimize the business and offer new products and services.
- **Collaboration and scalability.** Business developers need a platform for rapidly integrating and scaling business services to create continuous information-driven business value, such as new offerings or productivity enhancements.
- **Comprehensive security.** Mission-critical data is too important to be protected with security that's added as an afterthought. Instead, security needs to be part of each step of IT modernization. All data is encrypted for security and privacy. Identities and roles are verified as organizations phase out passwords. Data traffic is monitored for cloud-to-edge awareness and response. And DevSecOps can be adopted to dramatically shorten time to market, reduce errors and make security an essential skill for all developers.
- **Economic viability.** IT modernization must deliver a quick and clear ROI and position the enterprise for continuous optimization.

By 2022, 75% of IT operations will be supplanted by AI or analytics-driven automation, resulting in over 25% OPEX savings.

Source: IDC FutureScape: Worldwide Analytics and Artificial Intelligence 2019 Predictions (Doc #US44389418/Oct. 31, 2018)

Five steps to a digital foundation

The building of a digital foundation can be organized into five main activities. The precise order in which these activities will be undertaken may vary depending on the organization and business priorities.

1. Simplify and optimize IT

Overly complex systems prevent organizations from focusing on their strategic agendas. Aging IT estates can run up costs, impede quality and slow the pace of change.

To optimize for costs, organizations can make changes that include implementing lean processes and automation, optimizing workload placement, and eliminating unused or underused systems, services and data. Organizations can also continuously optimize the cloud environment with automated workload-management tools and implement software-defined networks. Modernizing IT frees up resources that can be immediately applied to innovation and driving the digital agenda. This provides a welcome relief from otherwise tight funding.

When a large bank sought to comply with critical regulations while simultaneously undertaking a digital transformation, it realized it first needed to consolidate 150 existing systems and applications, some as old as 35 years, into an analytics platform. This solution enabled the bank to integrate new front-office systems with back-end data on existing systems, and to standardize its data. With help from Luxoft, a DXC Technology company, the bank moved to a new architecture, significantly reduced its number of systems, standardized data and interfaces, and deployed modern technologies for analyzing and displaying data that improved decision making.

Compelled to curtail IT spending, improve enterprise IT agility, and accelerate innovation, 70% of CIOs will aggressively apply data and AI to IT operations, tools, and processes by 2021.

Source: IDC FutureScape: Worldwide CIO Agenda 2019 Predictions (Doc #US44390218/ Oct. 31, 2018)

2. Move applications and data to the cloud

Many traditional enterprises struggle to identify and implement a workload-placement strategy. Often the barriers are both technical and financial. These can be overcome, in part, by justifying the business case for each application on a case-by-case basis, then retiring, modernizing or transforming them. This process includes workload placement — essentially, deciding where an application and data should live. Once the business priorities have been established, the organization can assess and rationalize the application (leading to cost savings), modernize or transform the application (enabling speed, agility and further savings), or deploy a cloud-based operating model — all while considering the security, performance and financial requirements.

A European aerospace and defense supplier worked with DXC to modernize its IT architecture. The company is building an agile platform to enable the development and deployment of next-generation smart factories, optimize use of assets and support artificial intelligence (AI) for everyday business challenges.

3. Operate hybrid at scale

One cloud *doesn't* fit all. In fact, many organizations prosper by locating some data and systems in the public cloud, some in a private cloud, and some in their traditional on-premises data center. The move to digital is not "a flip of the switch." It requires coexistence in multiple environments during transformation. Remember, the data is the value; technology is the enabler.

Managing this type of hybrid architecture can present challenges, including the need to scale and integrate cloud systems with the current IT environment. This, in turn, requires organizations to develop new strategies for working in harmony with resources on premises, in the cloud and at the edge.

Organizations also need an operating model that provides continuous and integrated operations in a multi-cloud environment, enabling them to respond rapidly to new events. They also may need help with providing intelligent automation at scale, and with leveraging analytics, AI and lean processes for greater insights, speed, security and efficiency.

When a global manufacturing company adopted a high-performance computing hybrid cloud solution, it enjoyed the best of both worlds, retaining its on-premises cluster while adding the ability to "cloudburst" when additional computational power was needed. And the company did this while managing the economics of both environments.

4. Build an innovative business platform

Digital transformations require the business and IT to work together in agile teams to create solutions. It is crucial that ideas be developed and tested quickly as prototypes and minimum viable products (MVPs). That requires a digital "sandbox" where teams can set up technical environments with one click that provide API access to common functionality, integration with mission-critical systems, easy-to-use analytics and AI, and access to internal and external data sources — all with strong security.

To leverage the potential of the internet of things (IoT) and Industry 4.0, a global automotive supplier recognized it needed to provide fast, easy access to secure cloud environments and common analytics functionality. The company built a Microsoft Azure environment that uses Docker and Kubernetes, which aligns with its mission-critical IT and security management and its SAP-based API management. That enabled rapid experimentation of many different IoT-as-a-service use cases, such as machine maintenance, for clients.

5. Transform for speed

Every organization wants to move faster than the competition. But gaining speed also requires challenging technological, organizational and cultural changes. A multidisciplinary approach can drive cultural change, enable IT architectures to make data more accessible, improve software throughput, and deliver more speed from developers.

Security needs to be factored in, too. Automation can speed remediation, allowing systems to detect security anomalies and then automatically remove threats. DevSecOps practices are the new best practices, ensuring that security is a natural part of the development and continuous delivery process.

One DXC client had developed approximately 900 applications with a waterfall approach, with no continuous integration/continuous delivery and all manual processes on outdated systems. DXC led training sessions on value-stream mapping and DevOps and chose four apps for DevOps pilots. The pilots reduced the time to package releases from 3 hours to 20 minutes.

Real-world digital foundations

Many real-world organizations are building a digital foundation for business transformation. Here are three leaders:

BMW Group accelerates autonomous driving

The well-known automaker BMW needed a digital foundation to support its vision of becoming a world leader in autonomous vehicles, with a near-term goal of offering a secure and reliable Level 3 system — in which the car manages most driving, prompting the human driver only when needed — by 2021. BMW also wanted to reduce the cost and time of bringing autonomous vehicles to market.[6]

BMW partnered with DXC to adopt a new approach to operations and technology. This included designing, delivering and supporting BMW's High Performance D3 Platform (short for Data-Driven Development), a system that includes end-to-end services and intellectual property to collect, store, manage, find, analyze, harvest and simulate test data from BMW's testing fleet of autonomous vehicles.

Now BMW is harvesting data from its test-vehicle sensors and making that data available for AI training — all in mere seconds. The system's hybrid cloud setup lets BMW engineers cooperate easily, regardless of their location. And by using a single platform for storage, processing and AI training, BMW lowers both costs and complexity. It also allows data to be gathered globally and made available centrally.

Italian ports connect to accelerate logistics

Seaports are under tremendous pressure to adapt to the rapidly increasing global maritime trade. The overwhelming volume of containers, other freight, vehicles and passengers all need to reach their destinations on ever-shorter schedules. Increasingly, ports no longer have the option to expand their harbor footprint because of land constraints, environmental regulations, economic disruption and escalating costs.

In Italy, Logistica Digitale (LD) was established to transform the logistics of the country's main seaports, interports, railway yards and freight centers. DXC was chosen to help LD establish a national Port Community System that consolidates customer data and commercial processes from 16 multi-port entities, serving 60 commercial ports, on a single platform. Applications are standardized on the DXC Connected Transportation Platform in a Microsoft Azure cloud, allowing multi-tenancy while maintaining data segregation on a single-tenant system. A strategy of "write once, configure as needed, deploy everywhere" increases the ports' speed and optimizes support costs.

Port employees, importers/exporters and other stakeholders at Italian seaports can connect to this shared Port Community System through any authorized desktop or mobile device from any location. By digitizing and streamlining paper-based processes, the port can operate faster with greater accuracy. Customs approvals, shipment breakdowns and storage can be extended from harbors to the hinterlands to further improve operational performance. The ports are now able to accommodate larger ships while minimizing harbor footprint issues, increasing efficiencies in the supply chain and generating faster throughput.

By 2021, 65% of CIOs will expand agile/DevOps practices into the wider business to achieve the velocity necessary for innovation, execution, and change.

Source: IDC FutureScape: Worldwide CIO Agenda 2019 Predictions (Doc #US44390218 / Oct. 31, 2018)

Uniper lays foundation for transformation

The international energy company Uniper is bringing IT into the future by innovating in digitization, automation and mobility. Uniper is building a digital foundation to deliver fast, reliable changes; increase customer satisfaction; enable easy consumption of IT services in a hybrid-IT environment; ensure governance control; and deliver visibility into the performance of suppliers.

These innovations are essential to the business. "I refuse to recognize a demarcation between what people call IT and the business," says Uniper Chief Information Officer Damian Bunyan. "If electricity didn't work, society would break down. And if IT doesn't work, Uniper breaks down."[7]

With help from DXC, Uniper has built an independent Service Integration and Management (SIAM) module for ServiceNow, including a dedicated global service desk to meet new business demands.

Building a business case

Chief information officers need to build a justifiable business case for a digital foundation. A best practice is to respond to at least one of digital transformation's three main triggers:

- **Business strategy.** Show how IT modernization can empower the top priorities of the business, whether that's a new capability, function or response to competition. Focus on benefits to the business.
- **Resources for innovation.** With IT budgets tight, seek service providers that can help you fund digital transformation by providing up-front savings via reduced IT operating costs. Show how you (or your vendors) can shed assets and free up resources (funding and people) by modernizing IT and adopting the cloud. These savings can then be applied to digital innovation. (One major airline recently signed a 7-year contract with DXC to do just this.)

To realize up-front savings, consider these tactics:

- **Shift the asset base.** Move to the cloud, divesting the organization of computing, storage and other hardware. This also translates into less IT in your way.
- **Get traditional "lean and good enough."** Stabilize mission-critical systems, unlock trapped data and pair it with new digital systems as you move forward.
- **Ramp up speed to value.** In the past, incremental changes every 9 to 15 months were fast enough. Not now. Through IT modernization, the organization becomes more agile and better able to respond quickly to market changes. That can mean greater competitiveness and market share. Employees get more productive, too.
- **Ease cost pressure.** Optimize the cost of supporting existing systems. One way: Make technology platforms high quality and low cost.

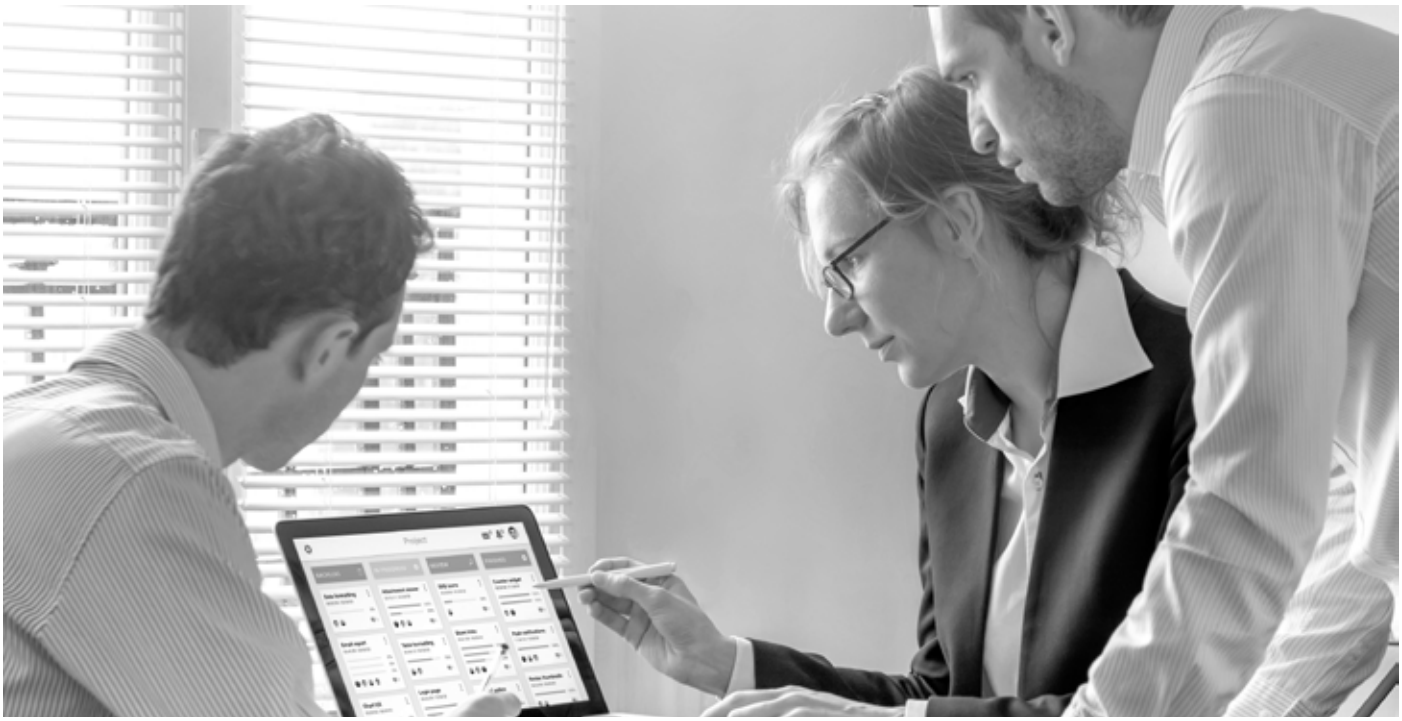
- **Mergers and acquisitions.** Mergers, acquisitions and other related activities may require data centers to be consolidated, moved or closed. Demonstrate how IT modernization will support these activities. To take one industry, hospitals and health systems have since 2014 conducted more than 100 mergers per year.[8] That creates new challenges around data interoperability, staff burnout resulting from the steady barrage of changing workflows, and cybersecurity.

Cultural change is critical. Start with a core team that represents all of IT, and expand outward to scale.

Once the business case has been accepted and the budget allocated, it's time to move on to other tactics, including:

- **Develop (or hire) new digital talent.** Consider getting help from a partner with the scale to move you at the necessary pace.
- **Plan on cultural change.** This is critical. Start with a core team that represents all of IT, and expand outward to scale. Expect to adopt new practices, including DevSecOps, agile and lean. Abandon waterfall development to the degree possible. Move to an MVP model with iterative versioning.
- **Don't go it alone.** Digital transformation is challenging, but you don't have to go it alone. Get help from a supplier with integration expertise and a clear partner ecosystem that delivers technology-independent solutions. Ideally, this supplier will also have undertaken a digital transformation itself. That way, it will have made investments in industrialized delivery technologies that, while built on consistent approaches, can be tailored for each client's unique needs.

There is no better time than now to modernize applications and IT, and build a digital foundation at scale.



How DXC helps organizations establish a digital foundation

DXC Technology helps large firms advance their digital strategies by managing and modernizing mission-critical systems and integrating them with new digital solutions to produce better business outcomes. These outcomes include new business models and processes, better customer experiences, faster time-to-market and increased productivity.

Successful modernization and transformation at scale require a digital foundation that integrates and secures the technology platforms, enabling business change at the required speed and pace. DXC deploys and tailors a digital foundation for each client using a standard framework with configurable process, application, data, operational, development and productivity platform component options.

The path to a digital foundation is supported by DXC's 15 strategic and 200+ solution partners who make up the DXC Partner Network. Together, we ensure that innovative technology platforms and resources are available to build the precise digital foundation our clients need, while minimizing their risks.

In addition to partners, the path to a digital foundation is enabled by leveraging DXC's significant investments in service management and delivery across digital and mission-critical IT systems. DXC Bionix™ is our data-driven approach to intelligent automation at scale; it is underpinned by Platform DXC™, the technology delivery platform that connects mission-critical IT systems with new digital solutions to get the most value from your information.

DXC is Digital Delivered.

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Notes

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Learn more at www.dxc.technology/digitalfoundation

About DXC Technology

DXC Technology, the world's leading independent, end-to-end IT services company, manages and modernizes mission-critical systems, integrating them with new digital solutions to produce better business outcomes. The company's global reach and talent, innovation platforms, technology independence and extensive partner network enable more than 6,000 private- and public-sector clients in 70 countries to thrive on change. For more information, visit **www.dxc.technology**.

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