

IT Infrastructure Becomes a Strategic Topic for All Business Executives

Sponsored by: Kyndryl

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January 2023

EXECUTIVE SUMMARY

For decades, the idea that IT infrastructure can both support and enable better enterprise-wide performance has been accepted in theory, but in practice, IT infrastructure has primarily been in a support role, and the purview of the IT function only. This pattern is changing as more organizations transform and modernize their IT infrastructure to enable innovative digital products or services; often, this modernization expands the scope of IT infrastructure from an on-premises-centric view toward a cloud-centric view, and also that expands to the computing network's edge. Increasingly, IT infrastructure modernization efforts are gaining the attention of executives outside the IT function because of their possibility to enable new digital business revenue streams that were previously not possible or practical. This pattern is also part of a larger transition underway where organizations see the goal of their digital transformation not simply as a technology upgrade but more importantly as the rotation to a digital business model where new digital products and services will coexist with traditional ones and where the revenue streams from these new digital products and services will grow larger and larger in proportion to total revenue. With this transition and an increased reliance on IT infrastructure to deliver business value, the need for increased business resiliency becomes more acute.

In a survey conducted by IDC, most worldwide IT decision makers (60%) indicated that digital infrastructure resiliency is a priority or a top priority for their business (see Figure 1). They recognize that the ability to collect, analyze, and act on data depends on having a robust, integrated set of infrastructure resources that can harness the power of emerging and existing technologies while maintaining cost-effective security, compliance, and performance. The majority (70%) are committed to implementing consistent operating models and automation across all digital infrastructure resources, and 66% expect to rely on hybrid cloud architecture built using a mix of on-premises and public cloud infrastructure to support a range of traditional, virtualized, and containerized workloads.

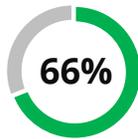
FIGURE 1

Worldwide Digital Infrastructure Priorities, 2022

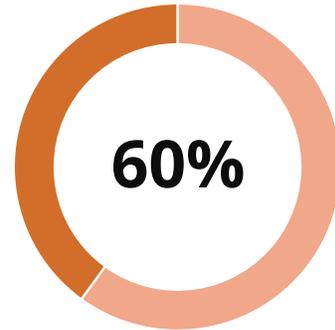
Q. To what extent do you agree that the following statements apply to your digital infrastructure and cloud strategy over the next three to five years? (Respondents that agree or strongly agree that this is critical to achieving their business goals)



Implementing a consistent operating model and automation framework across all digital infrastructure resources



Rely on hybrid cloud architectures, built using a mix of on-premises and public cloud infrastructure, to support a range of traditional VM and containerized workloads



of IT leaders say digital infrastructure resiliency investments are a **priority** or **top priority**

n = 796

Note: Data is weighted by country GDP (500+ employee size).

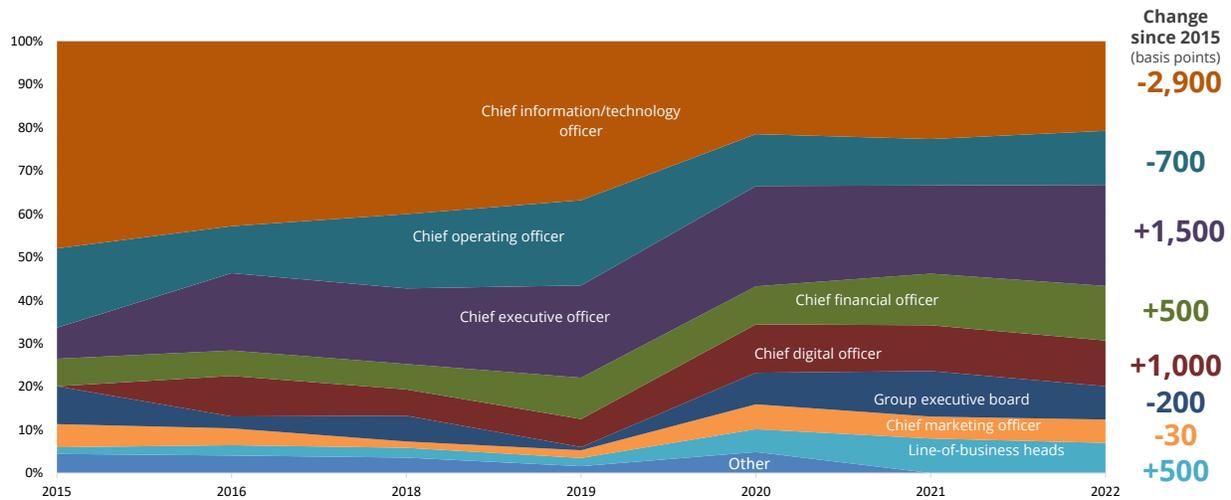
Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 2*, March 2022

This IT infrastructure enablement is typically designed to bring new products and services to market faster, and with a better customer experience. Consequently, IT infrastructure is becoming a C-level, or even a board-level, concern beyond the traditional reputational risks of a security or data breach. Since 2015, IDC has seen an increasing trend of sponsorship for digital transformation projects moving away from the CIO/CTO and toward other C-level executives (see Figure 2). Simply put, decisions about the transformation of IT infrastructure have become a strategic topic for business executives in addition to technologists.

FIGURE 2

Worldwide Sponsorship of Digital Transformation Projects by Title, 2015-2022

Q. Who is/will be the primary sponsor of your company's digital transformation professional services project? (% of total respondents)



n = 311 for 2015, n = 302 for 2016, n = 304 for 2018, n = 300 for 2019, n = 322 for 2020, n = 431 for 2021, n = 433 for 2022

Source: IDC's *Digital Transformation Professional Services Survey*, June 2022

Even those enlightened organizations that treat IT infrastructure strategically can face many obstacles as they work to execute their digital infrastructure strategies. The most frequently cited inhibitor is the cost and complexity of supporting multiple generations of infrastructure on premises and in public clouds. Most organizations lack the full breadth and depth of skills and resources needed to effectively optimize their mission-critical infrastructure technologies and operations to fully achieve their digital business goals. Many IT teams find it difficult to hire, train, and retain experts in complex infrastructure, cloud, DevOps, data pipeline management, and security strategies. Lack of skills can slow digital business innovation and put organizations at a competitive disadvantage. As a result, the majority (81%) are looking to work with one or more technology partners to help optimize digital infrastructure architectures and support.

As is often the case, the central challenge with IT infrastructure as an enabler of new business models and revenue streams is the need to adapt the people and processes involved to succeed in this new digital life, rather than just implement the underlying technology, and more likely than not, organizations will need to rely on third-party assistance to get this right as the skills and experience to implement modern IT infrastructure are hard to come by.

SITUATION OVERVIEW

While IT infrastructure (both on premises and IaaS) grows increasingly commoditized, the *cloud professional services* required to architect and implement modern IT infrastructure correctly (both the technology and the related data) are not a commodity. Consider the following example: A bank would like to migrate its financial transaction processing system off of the current mainframe platform on to

public cloud infrastructure. In addition, it would like to enhance the solution with powerful analytics capabilities. The core public cloud building blocks (IaaS/PaaS) are readily available as commodity services, as are the basic analytics capabilities. However, implementing the solution in a way that makes use of hyperscaler-specific capabilities to ensure business resiliency and financial regulatory requirements are fully understood and met requires specialized knowledge and experience. Enhancing the solutions with analytics will also require a strong knowledge of integration capabilities in the cloud as well as a good understanding of the network traffic implications of building data lakes that can be evaluated by cloud analytics engines on public cloud infrastructure.

Likewise, even though the major cloud service providers are increasingly automating the operational tasks that used to require human labor, in support of customers increasing their consumption of IaaS/PaaS/SaaS, the need for *cloud managed services* to operate cloud infrastructure on behalf of a client is also not a commodity. This is especially true in hybrid operating models that include a mix of on-premises and cloud-based IT infrastructure and/or that involve multiple cloud service providers. Why? Notwithstanding all the focus on "customer success," each hardware or software provider tends to specialize in its own solutions rather than in the combination of solutions a given customer chooses to implement and then operate. Consider the following example: A managed services provider operates a hybrid environment for a customer involving two different hyperscalers plus dedicated infrastructure colocated in datacenters belonging to the managed services provider. Some of the applications span multiple platforms and others have integration points to external SaaS applications. To provide operational and financial transparency to the end customer, the managed services provider must collect, integrate, correlate, aggregate, and analyze the operational data from the hyperscaler-specific tooling, from the SaaS providers, from its own operational tooling, and from the customer's application operations teams.

There are three key aspects important to understanding how IT infrastructure can be used more strategically to enable new digital business models and revenue streams:

- **Digital IT operating models.** The shift from traditional IT infrastructure to a digital IT infrastructure requires an associated change of operating model. Figure 3 illustrates that a highly automated digital platform underpins this new model, which balances the activities of IT management and governance with those of IT strategy, architecture, and intelligent IT operations. The interplay of these activities is what allows a digital IT operating model to embrace DevSecOps and site reliability engineering, both of which are fundamental to building and operating a modern digital IT infrastructure. The important factor for non-IT executives to take away from this is that this new operating model is designed to reduce the friction between an IT infrastructure group and other parts of an organization through better management and governance.
- **Reskilling.** Organizations will have to invest in reskilling staff, and possibly hiring third-party service providers, to learn how to manage new digital IT infrastructures and how to use the insights gathered from the data collected as a by-product of operating these new IT infrastructures. For example, consider data migrations between an on-premises environment and a cloud service provider like AWS. AWS has three different options to choose from (Elastic Block Store, Elastic File System, and Simple Storage Service), so it's important to understand which storage technology service is most appropriate for a given data set. Beyond the required training for any given cloud service providers' storage technology, the performance and ease of implementation insights gathered from past data migrations using those providers' technologies can help inform future choices for data migrations between on-premises and cloud locations. Learning how to build and operate the software platforms that can deliver these types of insights is a major benefit that third-party service providers can provide as a complement to their existing professional and managed services.

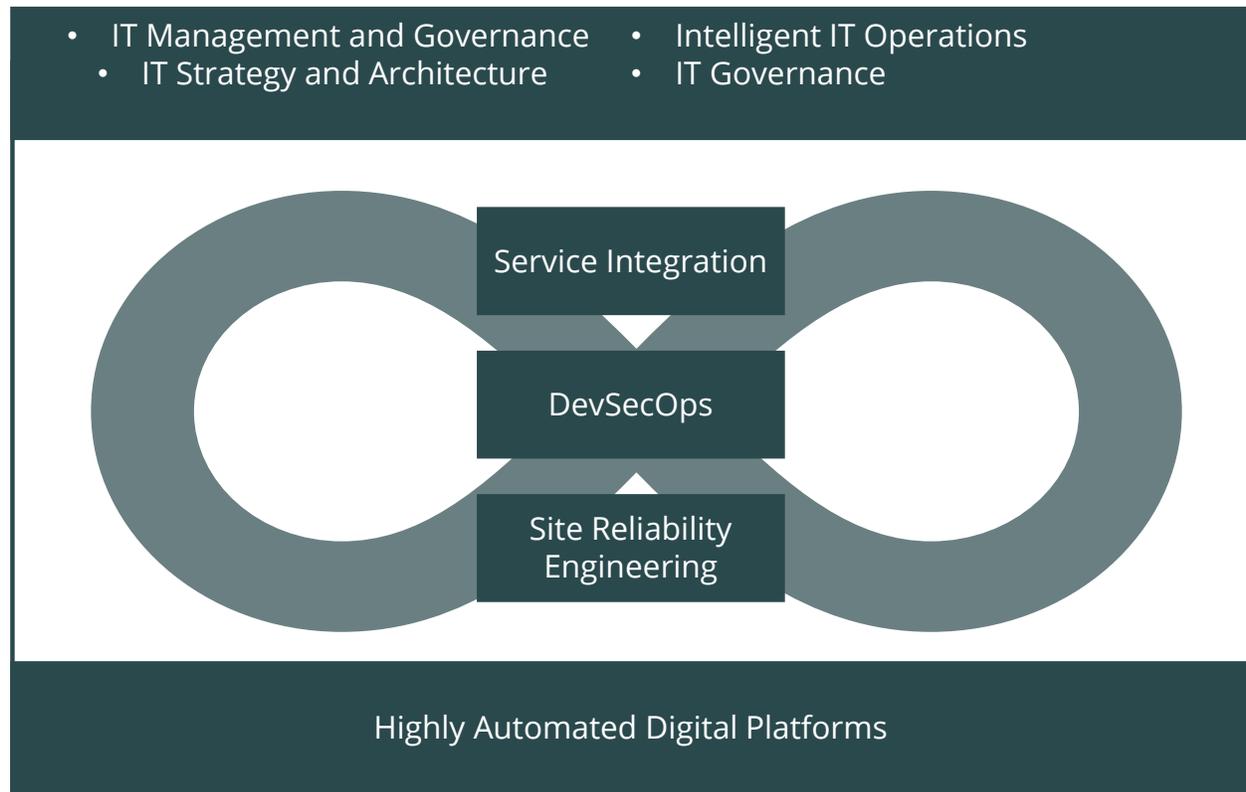
- Tooling.** Some advanced tooling is needed to bring the digital IT operating model to life. Early examples of organizations that have adopted a new digital IT operating model highlight an increased emphasis on ecosystemic thinking (i.e., no single provider can meet the totality of a client's IT needs, which increasingly involve multiple applications and cloud providers as well as industry ecosystems) and thus all parties need tools to help manage these integrations. Increasingly, organizations are looking to build these tools into what IDC calls a digital control plane to better run IT infrastructure for the business and to create tighter business value integrations between parties. IDC predicts that by 2027, 70% of organizations with advanced digital ecosystem participation will have internal teams that use digital control planes to operate as value integrators to the business. The know-how to create these types of innovative control planes is another example of why the related professional and managed services are not likely to become commoditized.

IDC Prediction

By 2027, 70% of organizations with advanced digital ecosystem participation will have internal teams that use digital control planes to operate as value integrators to the business.

FIGURE 3

Digital IT Operating Model



Source: Kyndryl, 2022

The IT Infrastructure Services Enabling a Digital Business

Full-service technology partners can provide consulting and advisory assistance in addition to technical expertise to help customers streamline internal decision making. They can help business, DevOps, and IT decision makers align on goals and investment criteria while simultaneously providing proven reference architectures, operational models, and staff to get the job done quickly and effectively.

Experienced technology partners have already identified patterns and best practices for implementing digital infrastructure transformation programs, and they often bring with them deep industry-specific knowledge, up-to-date technical expertise, and a well-integrated set of ecosystem partners.

Kyndryl Consult's offerings directly address the organizational needs and challenges described previously. For example, it brings together technical capabilities with the insights of Kyndryl Bridge and the cocreation of Kyndryl Vital and its partner ecosystem for accelerated business transformation. Specific offering examples are included along with some customer examples:

- **Digital transformation strategy and road map:** Define and implement a holistic, business-driven strategy for an IT-enabled and -driven transformation that digitizes parts of an enterprise.
- **Target architecture for digital transformation:** Architect and implement an overall IT architecture, including an SRE-driven platform-centric approach to modern IT infrastructure built using a combination of commodity and specific value-added services.
- **Digital IT operating model:** Define an IT operating model that reflects the requirements of the digitally transformed enterprise (with integrated business/IT teams focused on digitalized business value streams) and operating the target architecture described in the previous offering.
- **Migration and modernization services for data, applications, and IT infrastructure:** Support the digital transformation outlined in the strategy defined previously and the adoption of the target architecture and operating model through dedicated migration and modernization services.

For a Swiss insurance firm, Kyndryl provided coaching on how to approach the infrastructure aspects of its cloud transformation, including applicable practices from other industry and client examples. This cloud transformation was seen as part of the firm's overall digitalization and had board-level support as part of its strategy to expand its offerings while retaining the key interface with its customers. Since 2017, Kyndryl has been working with the firm on implementing the SAFe methodology using agile DevSecOps skills to bring new cloud services to the business faster than before, also with greater flexibility. Because the firm runs its IT operating model by defining and provisioning infrastructure using definition files containing code, the development teams can make most of the adaptations required quickly in applications. Roughly 15% of the firm's IT staff are focused on infrastructure, and it still has a majority of its infrastructure on premises, but clearly, the move to cloud has signaled a big change, and its impact on employees must be managed. Reskilling and upskilling is a central challenge for this cloud transformation, in particular as IT roles increasingly will involve cloud service management and integration. The interaction of parties within the overall insurance ecosystem is changing, but over the next few years, the firm expects the work it has done with Kyndryl's help will position it to maintain its position as the central client interface while developing new, differentiated insurance offers.

For a large airline, Kyndryl has been working for over a year focused on modernization of its critical applications and increasing resiliency. Availability issues led to multiple ground stop events that were costly to the firm. In addition, its legacy technology stack was inhibiting its ability to modernize technology in support of its customer initiatives to drive better logistics, reservations, loyalty programs, and operations. The client selected AWS as its primary choice of landing zone to modernize across

its larger IT ecosystem and to migrate to Red Hat OpenShift and EC2 targets on AWS. Kyndryl has transformed over 500 applications, and an estimated 5,500 virtual servers are in scope for modernization and migration to AWS. Kyndryl has also deployed patterns for OpenShift on AWS and OpenShift on Azure as a primary focus and supported patterns for cloud-native instances on AWS and Azure.

Mitsubishi Motors Australia worked with Kyndryl to migrate its SAP infrastructure to IBM Cloud. Mitsubishi Motors Australia's customer-focused approach has brought about impressive growth, but as its business volume increased, the reliability of its IT infrastructure declined, particularly during peak times. Keeping the company's infrastructure running reliably while managing continued growth and a variable sales cycle was becoming increasingly difficult. Based on Kyndryl's efforts, its infrastructure scales automatically to seamlessly handle natural fluctuations in automotive sales volume. Salespeople can access the system quickly from the sales floor without interrupting the momentum of a vehicle purchase. And the resilience of the new solution has improved disaster preparedness, reducing potential downtime from days to hours.

After a severe network outage that shut down banking services for 16 hours, Turkey's Isbank realized a more agile IT infrastructure was a top priority. The company needed to migrate its servers, applications, and data to a new datacenter to ensure resiliency, without disrupting network operations during the transition. Working with Kyndryl, Isbank migrated its servers, applications, and operational data to a tier 4 datacenter in 9 months. Meticulous planning and execution during migration ensured minimal downtime and no loss of data. The new datacenter helps ensure banking services are available to customers 24 hours a day, 7 days a week and prepares Isbank for migration to cloud computing.

ESSENTIAL GUIDANCE

Act on the knowledge that for your organization new digital products and services, and experiences, are increasingly required to stay competitive or relevant. Build the business case for evolving the current state of your enterprise toward a more modern IT infrastructure that can scale up or down as needed. And ensure that you have sponsorship for this initiative, beyond the office of the CIO/CTO, before you start. Use examples from other organizations (like the case studies included in this document) to help make the case.

Conduct a candid evaluation of your organization's ability to implement and operate a new digital IT infrastructure and consider how you will source any gaps in your needs. This will likely highlight reskilling needs for your organization. If you do consider use of third-party service providers, make sure they are fit for purpose and are able to interoperate. For example, the professional services organization of a cloud service provider may be the most highly skilled at implementing or operating their own kit, but you may be in a hybrid/multicloud environment that also requires the skills and experience of an agnostic systems integrator.

MESSAGE FROM THE SPONSOR

Kyndryl is a full-service provider with a complete portfolio of offerings that can help every sized enterprise with their digital transformation journey through continuous modernization of hybrid cloud. For more information about how Kyndryl can help you, please refer to the content below:

Kyndryl Consult (<https://www.kyndryl.com/us/en/consulting>)

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