



Service Provider Business Performance Improvement Through Digital Transformation

CHANGING PRIORITIES IN 2021

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Introduction

2020 may stand as a watershed year for service providers (SPs) globally. Worldwide telecommunications services revenues were flat at \$1,531 billion in both 2019 and 2020. Stagnant revenue growth was expected due to the worldwide impact of the Covid-19 pandemic, resulting in slower growth across all segments (See IDC report US47092319 for more detail).

The pandemic also created new demand. New behaviors and expectations for how individuals learn, consume, work, and socialize have emerged over the past year. SP networks have become the delivery mechanism for education, entertainment, healthcare, food services, and many other things. SPs needed to rapidly deploy new infrastructure to meet the demand for dramatically increased bandwidth, secure connectivity, support for new traffic types and address new traffic patterns. While Digital Transformation (DX) helped SPs scale up quickly, the pandemic also disrupted the DX that was driving the SP business model.

Not all SPs were equally impacted by the pandemic, however, 73% of the most digitally mature SPs (Pioneers), reported as follows: exceptionally prepared - we barely missed a beat in terms of business continuity. For the rest of the SPs surveyed, only 15% fell into the exceptionally prepared category.

In this IDC white paper, the following topics are discussed:

- ▶ The impact of COVID-19 on business operations and DX
- ▶ An analysis of the progress that SPs have made in their digital maturity
- ▶ A discussion of what SPs are doing to recover in each of the seven domains of SP operations
- ▶ Quantification of the business benefits that digital maturity leaders (Pioneers) are achieving
- ▶ A description of the best practices of Pioneers which provides a roadmap for SPs to follow as they recover and develop their Digital Resiliency strategy

What is Digital Resiliency?

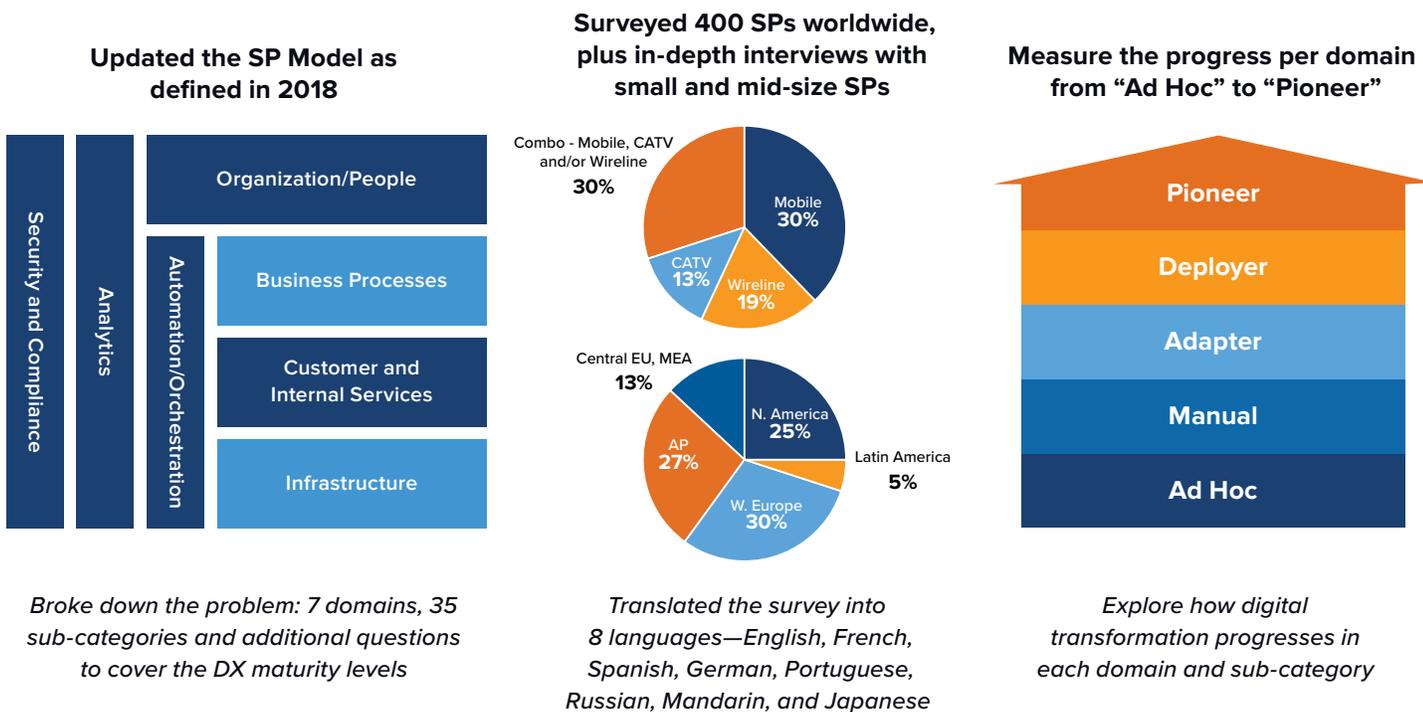
It is the ability of an organization to rapidly adapt to business disruptions by leveraging digital capabilities to both restore business operations and capitalize on changed conditions.

Service Provider Digital Maturity Index Methodology and Demographics

Recognizing the scope and complexity entailed in the DX journey of a typical SP, IDC worked with Cisco to simplify that framework with the goal of making it manageable and measurable. The outcome of this research effort was the creation of the SP Digital Maturity Index. This Index describes various levels of SP digital maturity and provides a guide to help SPs improve the effectiveness of their DX initiatives and to measure the progress of their digital journey. This white paper is based on IDC’s SP Digital Readiness Survey which comprehensively studied 400 SPs worldwide regarding the business benefits derived from their digital initiatives (Figure 1).

IDC first conducted this research in 2018 with a similar survey sample size. The 2018 research was used to develop the initial Maturity Index. IDC conducted an updated study in 2021 that allowed comparison with 2018 results and the ability to identify where SPs have made progress in their Digital Transformation, both overall and within specific domains.

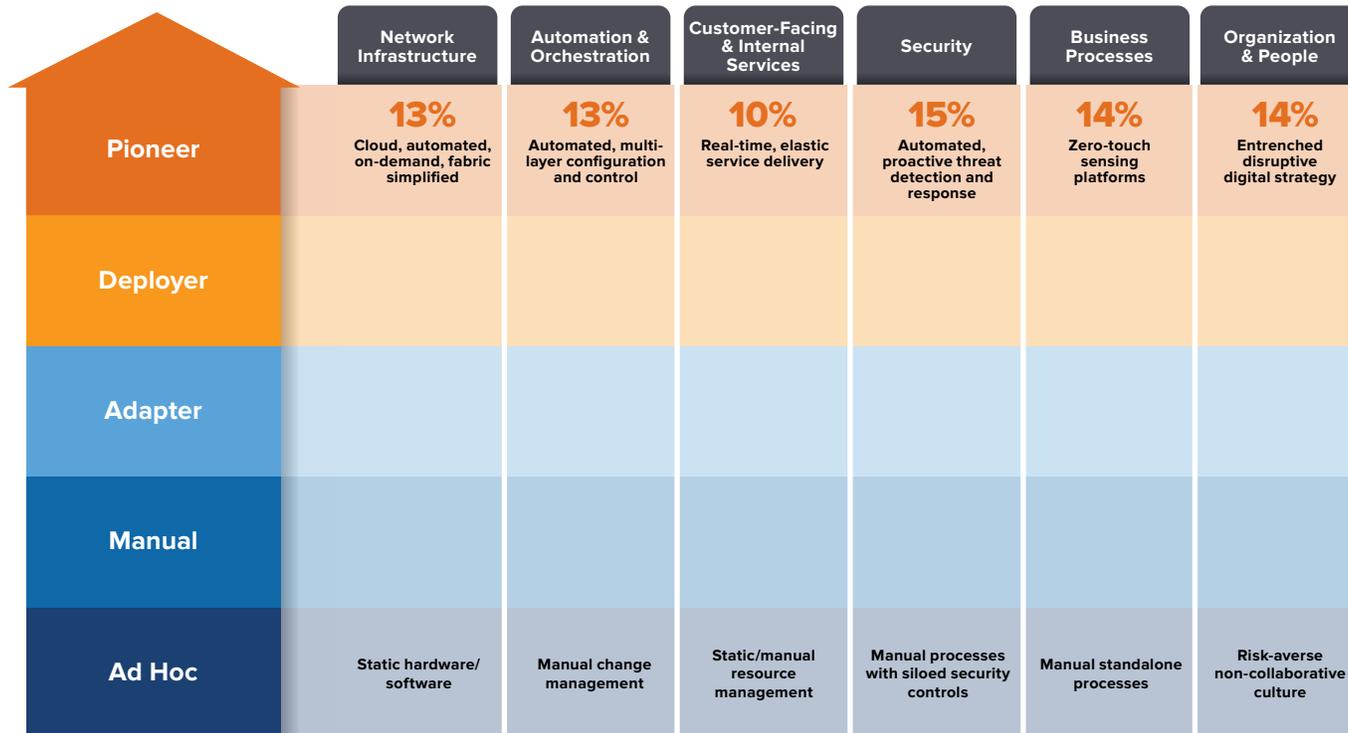
FIGURE 1
Survey of 400 SPs Worldwide



N = 400, Source: IDC SP Digital Readiness Survey, 2021

The SP Digital Maturity Index shows SPs where their company is on in its DX journey, provides guidance on what steps to take to advance to the next digital level, and measures business improvements resulting from digital readiness. The model describes 5 stages of SP maturity (Figure 2).

FIGURE 2
Service Provider Digital Maturity Index



N = 400, Source: IDC SP Digital Readiness Survey, 2021

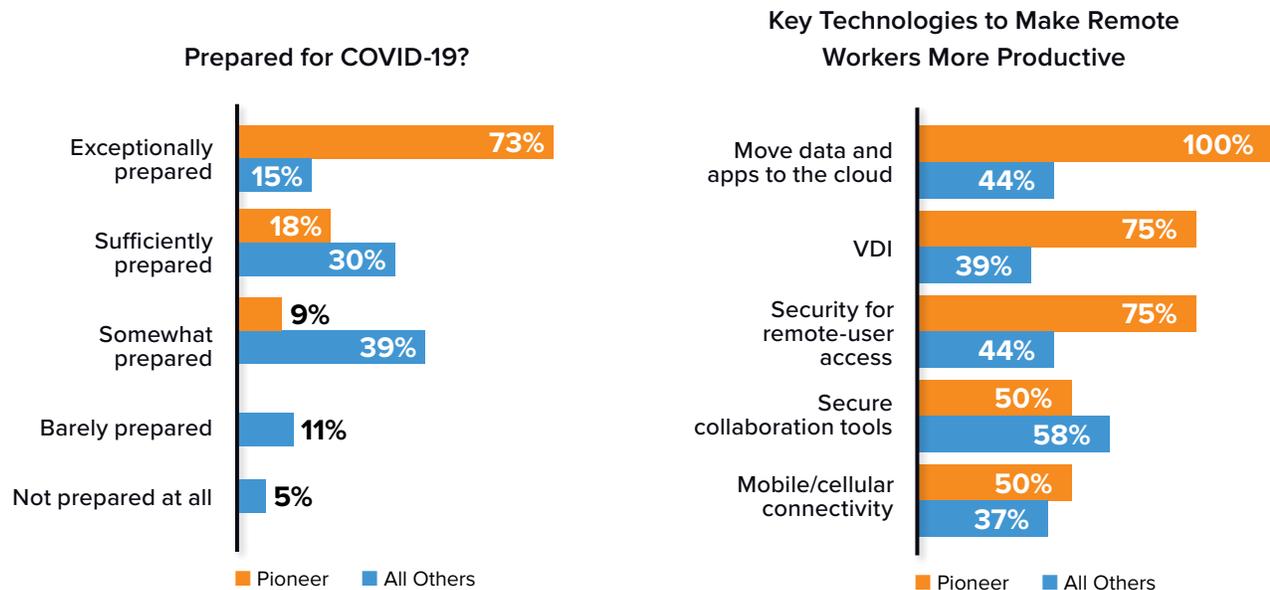
In addition to the quantitative survey, IDC conducted in-depth interviews with SPs at the highest level of digital maturity. In this analysis, we focused on quantifying the impact of initiatives in four key domains: network infrastructure, operations and orchestration, customer-facing services, and security. The research also sought to uncover how DX in each domain was turning challenges into opportunities for the respective SPs.

Improving Business Performance Through Digital Transformation

IDC's Service Provider Digital Readiness research tightly correlates digital maturity with improving business outcomes. Those SPs at the highest level (Pioneers) have developed digital resiliency which enabled them to be more prepared for COVID-19 and to bounce back more quickly from it. According to IDC research, 73% of Pioneers were *exceptionally* prepared for COVID-19 compared to only 15% for all other SPs. The Pioneers were prepared because, prior to the onset of COVID-19, they had invested in key technologies to support remote workers, built their digital resilience, and lowered their risk of business disruption not only from this pandemic but for the next "Black Swan" global crises. (Figure 3).

FIGURE 3
Level of Preparedness for COVID-19

Q. How prepared was your organization to adopt new ways of working in response to the COVID-19 pandemic?
Q. Which of the following technologies has your organization adopted to make remote work more productive?

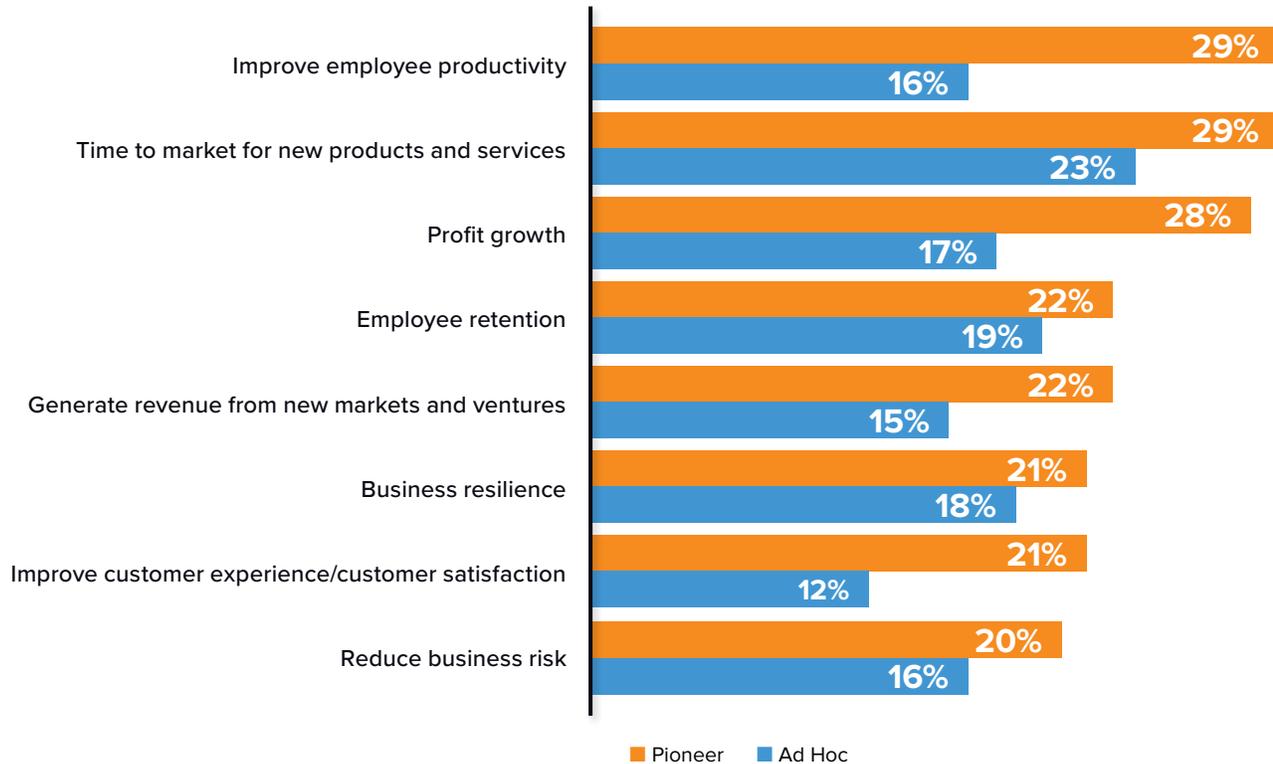


N = 187 Respondents knowledgeable about organization and people
Source: IDC SP Digital Readiness Survey, 2021

The results of the two surveys conducted in 2018 and 2021 consistently show that Pioneers enjoyed significant improvements in business outcomes, especially when compared to the lowest level of digital maturity (Ad Hoc). (Figure 4). The most notable improvements in 2021 were in customer experience (86%), employee productivity (77%), profitability (62%), and growth of new revenue sources (45%).

FIGURE 4 Pioneers Get Better Business Outcomes

(The data shows annual percentage improvements)

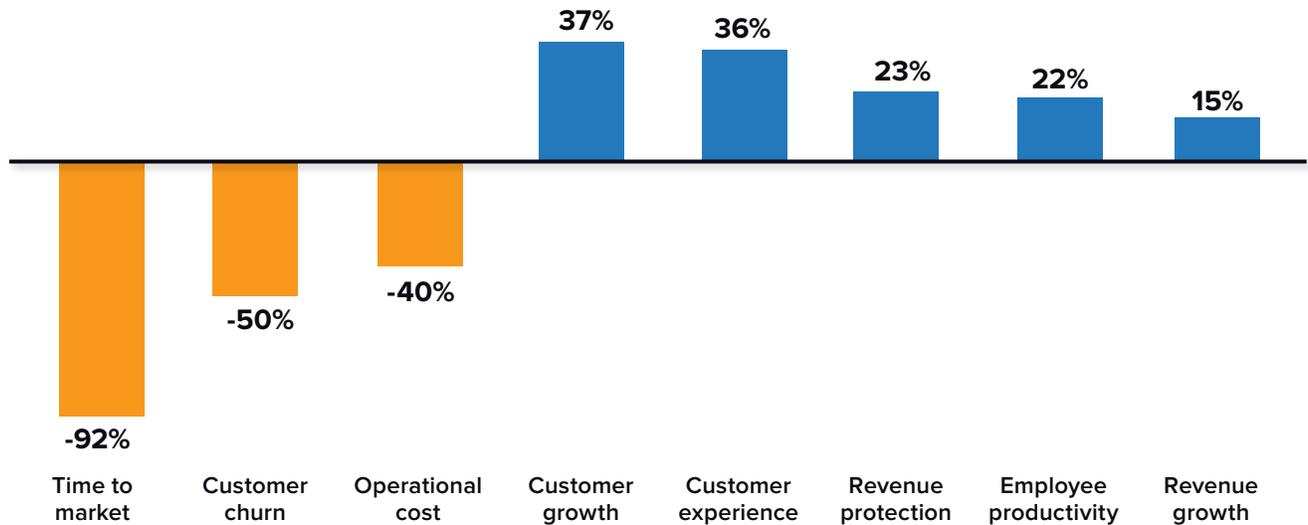


N = 400, Source: IDC SP Digital Readiness Survey, 2021

The in-depth interviews also revealed that the most digitally advanced SPs (Pioneers) experienced compelling business benefits, as shown in Figure 5, because of their digital initiatives. In each case the SPs identified the KPIs they were seeking to improve and then tracked the improvements resulting from DX initiatives they had implemented. DX is not new to these SPs and the projects we investigated were merely their latest initiative in a single domain — either infrastructure, automation and orchestration, security, or customer services.

FIGURE 5

Digitally Advanced “Pioneer” SPs See Significant Business Benefits (Average Improvements Resulting from DX Initiatives)



Source: IDC, 2021

Comparison of 2018 vs. 2021 Survey Results

The Role of IT

In 2018, most SPs had only a limited number of digital initiatives in place and had no real digital strategy. According to the 2018 survey, 62% of organizations had developed DX task teams to be responsible for driving individual DX projects as there were no DX programs then. Most initiatives (76%) were driven by senior business leadership. IT primarily had a supporting role to be responsible only for implementing technologies related to DX projects. When it came to driving DX projects, IT ranked third behind business leadership and special DX organizations. In 2021, the roles for driving DX initiatives have shifted; IT has become the primary enabler (66% of DX initiatives), followed by specialized groups (30%) and senior business leaders (25%).

Shifting Business Priorities

In 2018, SPs were trying to recover from some lean revenue years as demand for services shifted. In the 2018 survey, IDC asked SPs to rank the reasons why they undertook DX initiatives. Improving customer experience (#1) and driving revenue growth (#2) topped the list. Then COVID-19 happened, and SP businesses shifted their priorities. Now in 2021, revenue growth has dropped to #4, giving way to a focus on organizational efficiency (#1) and operational efficiency (#2). Customer experience is #3.

Challenges Are Less Daunting

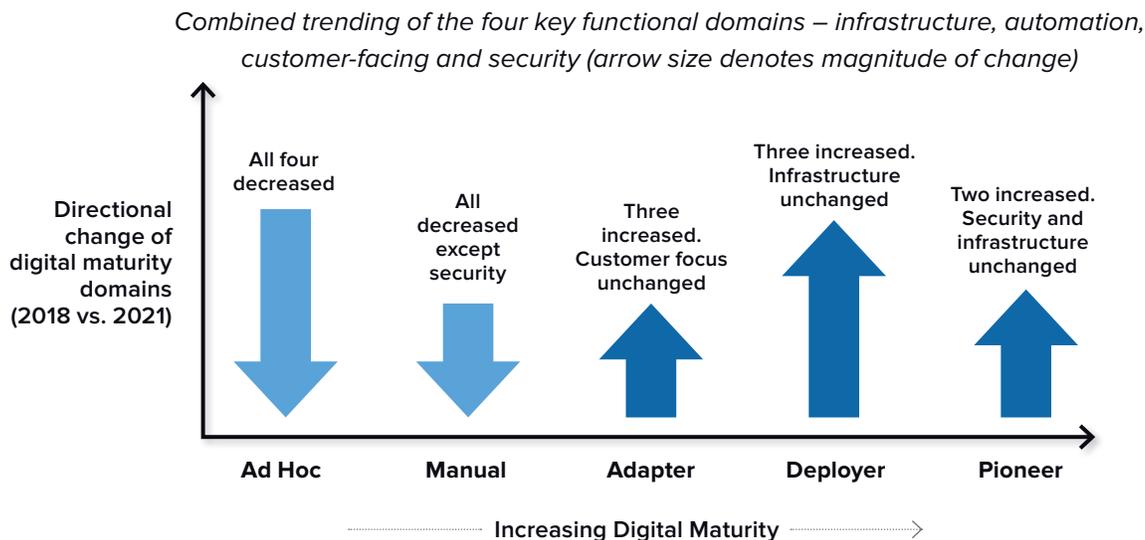
In 2018, when asked “What are your top three challenges in meeting your Digital Transformation (DX) priorities?,” 55% of SPs replied, “Our culture is too risk averse.” Risk averse means that corporate leadership is not going to invest in DX. SPs are no longer risk averse as that reason has dropped to #4 on the list. Now SP leadership is committed to DX, perhaps spurred on by COVID-19. The top challenges today are more structural: 1) their organizations are siloed, and 2) they do not yet have the right people. These challenges can be overcome. For example:

- ▶ **Eliminating silos.** 22% have a centralized organizational structure which provides for digital collaboration; 35% have a program office that manages digital initiatives across business units; and 10% have a Corporate Digital Operations group that manages/coordinates all digital operations.
- ▶ **Building a digital workforce.** 36% of SPs have developed metrics for assessing digital talent which can be used for both hiring and retention; 20% have internal-external digital sourcing which is being applied to all business units; and 11% have digital capabilities requirements integrated into hiring, required training, and retention.

Readiness: 2021 vs. 2018

According to the 2018 SP Digital Readiness Survey, establishing solid business change was nascent at best during the time the survey was conducted. However, a comparison of the survey results from 2018 with 2021 yields an important directional find. Respondents from the 2018 survey from any of the major functional domains — infrastructure, automation, customer-facing, and security — show that their domains made solid movement in 2021 from the lower tier (Ad Hoc and Manual) digital maturity levels toward the middle and upper tier (Adopter, Deployer, and Pioneer) as reflected in **Figure 6**. Certain functional domains saw greater percentages of increase or decrease in the race to digital maturity, with the automation and customer-facing domains showing the most change.

FIGURE 6
Directional Change of Digital Maturity Levels 2018 to 2021



Source: IDC, 2021

A prime example of how quickly SPs can make significant change occurs within the automation domain. In 2018, over 70% of respondents indicated their organizations were at the low end (Ad Hoc or Manual) digital maturity levels, while the 2021 survey shows this number dropping in half. This is a positive move toward full automation. In the same light, the percentage of automation Pioneers grew from 8% in 2018 to more than double today. However, these results fall far short of reaching full automation status, which will take more time to achieve. Reaching full digital maturity is an absolute necessity for satisfying the E2E operational challenges of business complexity, continued improvement of the customer experience, and enabling SPs to address new market opportunities.

IDC believes these trends are consistent with market changes across the globe as new technology is deployed and greater complexity is introduced to all SP networks in the race to meet changing customer expectations.

Overall DX Findings Including Impact of COVID-19

For SPs, the COVID-19 pandemic created a shift in business and consumer behavior that led to a greater dependence on secure network connectivity. With countries on lockdown and organizations around the world shifting to a work from home model, SPs experienced a significant increase in demand for bandwidth as e-commerce exploded, use of public cloud services increased, distance learning became the norm across the education sector, and the healthcare industry made greater use of telemedicine services. The importance of keeping these services and others up and running put an emphasis on establishing resilient operations.

Domain Analysis

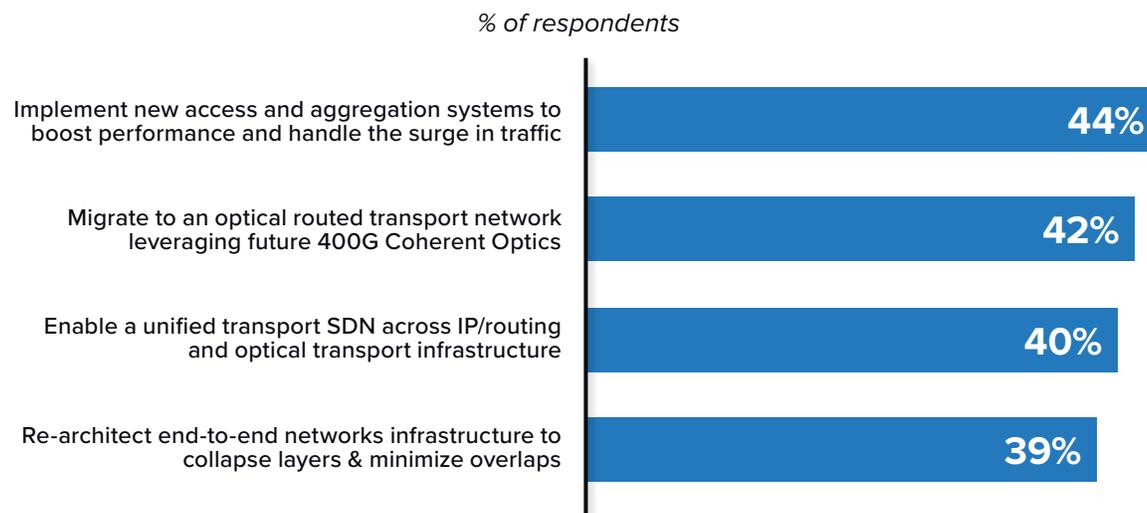
Network Infrastructure

With changing customer expectations to consume seamless connected experiences, addressing the transformational needs of networks requires change at the base engineering level to make the end-to-end network massively scalable, agile, and more affordable. For service providers, the incremental cost (or marginal cost) of adding new services and/or capacity must be significantly reduced from current practices, while technology decisions must allow for continued investment protection and greater flexibility in future decision making.

A proven approach is by converging the IP and optical layers into a simplified architecture, blending the access and core domains to adapt to rapidly changing traffic patterns, and defining network capabilities to satisfy specific solution needs tied to 5G, IoT and telco cloud services. If engaged, these improved networks bring an enormous amount of value creation through efficiency and service agility.

But establishing this secure, highly efficient, and optimized cross-domain converged infrastructure is hard. For example, the 2021 SP Digital Readiness Survey shows that for xHaul (fronthaul and backhaul) and core network priorities, only 14% of respondents knowledgeable about network infrastructure are network convergence Pioneers. However, 43% aspire to achieve this level of digital maturity over the next two years. The survey also shows that 41% of Pioneers are planning for wireline and wireless convergence within the transport network. Further insights concerning network convergence are shown in **Figure 7**.

FIGURE 7
xHaul and Core Network Convergence Priorities



N = 214 respondents knowledgeable about network infrastructure
Source: IDC SP Digital Readiness Survey, 2021

The 2021 SP Digital Readiness Survey also brought to light a real-life example of how a strong digital transformation mindset can bring about positive business results. A small regional service provider was losing customers from a lack of agility in providing faster responsiveness to customer service requests. To meet this challenge, the company needed to redesign the way it deployed services while also increasing traffic carrying capacity. By upgrading its networking hardware to multiply the traffic carrying capacity of its fiberoptic network, 90% of the time required for customer turn-up of new and advanced services was eliminated.

Today, this service provider deploys customer services whenever infrastructure is deployed. In doing so, the digital upgrade process reduced customer churn by 86%, which ultimately protected 20% of the company's revenue. By shortening service delivery time to market, this service provider increased revenue by 4% annually, and enabled the recognition of an additional \$10 million in annual revenue.

The service provider in this example described its current operations as working in the new normal. Going forward to the cloud, the company expects better functionality, reliability, and a lower cost of operations. The company presently outsources the management of on-premises equipment, so switching to the cloud is expected to lower operational costs by as much as 70%.

In the new normal, the enhanced network must be open and disaggregated, which comes from leveraging Dev/Ops, open-source, and cloud-native solutions. This type of network design allows for an agile execution environment to optimize where, when, and how services are instantiated across locations and regions for cost, uptime, resilience, and proximity to the end user. The 2021 SP Digital Readiness Survey backs up these ambitions, since:

- ▶ Pioneers on average, have a growth factor of nearly 1.5 times their Ad Hoc peers. They attribute the growth to cloud and edge capabilities as a prerequisite to ongoing growth.
- ▶ 57% of Pioneers are looking into an OpenRAN ecosystem for the deployment of 5G.
- ▶ 37% of Pioneers are experimenting with Edge Compute and Telco Cloud for new services.

Operations and Orchestration

Technology evolution and customer demand are driving service providers to automate all service management systems and customer experience processes. Complexity within the four major service management functions—infrastructure configuration, service creation, service orchestration/activation, and service assurance—makes change slow and often difficult even though service providers realize the strategic roles these functions play in getting services to market, satisfying customer needs, managing new revenue streams, and maintaining existing services.

Insights from the 2021 SP Digital Readiness Survey show that there are some important differences between Pioneers engaging in automation to improve their business. For example, the research indicates that Pioneers:

- ▶ Are 2.4 times more likely to improve the level of service satisfaction for their customers than Ad Hoc service providers.
- ▶ Are 2.3 times better at business resilience (flexibility) than their Ad Hoc counterparts.
- ▶ Have an employee productivity rate that is 1.8 times higher than Ad Hoc service providers.

While the survey shows that all sizes of service providers are investing in automation, with most still in the early stages of digital maturity, smaller service providers presently seem to be more focused on automation than the larger ones. For example, it is well understood that involvement in a multi-vendor service delivery platform, so important to the provisioning and activation function, is a solid step toward achieving full automation. As Figure 8 shows, the mid-range small service providers (more than 100K customers but less than a million) are two times more invested than large service providers (10 million+) in the platform concept.

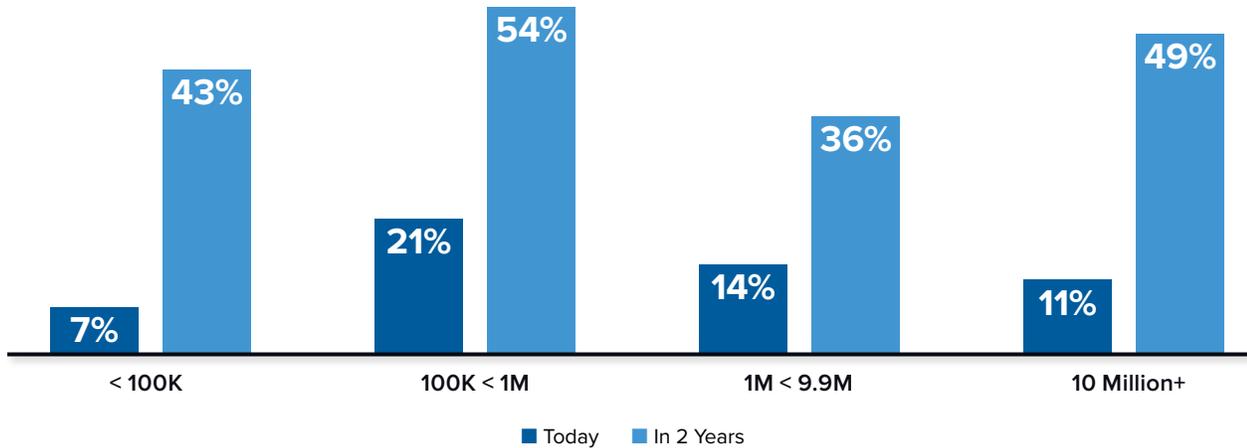
While many implications could be made, the most likely reason for this difference is tied to operating costs. In the past, larger providers often had more people to attend to customer needs, while smaller operators needed automation to keep up with demand. In the future, it is expected that increased use of automated platforms will be a key part of any service provider's business strategy. This level of understanding is also borne out by **Figure 8** when comparing the use of service delivery platforms today versus two years from now.

FIGURE 8

Automation Example – Multi-Vendor Service Delivery Platform

Q. Which statement best describes your organization's service creation function?

A. We use an automated multi-tenant, multi-vendor cloud-native service delivery platform.



N = 147 Respondents knowledgeable about customer-facing and internal services
Source: IDC SP Digital Readiness Survey, 2021

By way of example, the 2021 SP Digital Readiness Survey revealed how a large service provider manages its secure, high-performance network via automation initiatives and device virtualization. Prior to implementing its automation strategy, when network capacity needed an upgrade, planning teams would submit proposals, get expenditure approvals, procure the right supplier, and sign off purchase orders. This process often took several weeks and sometimes months to move forward.

Several of this service provider's 5G provisioning functions are now self-installs thanks to automation. For example, if a physical device is involved, it is first connected to Wi-Fi where the device auto loads all configuration (bootstrapping) files and self-activates on the network. Other advanced virtual network services work in a similar zero-touch manner.

Offering a great customer experience for one type of service, this service provider also found that customers expect the same type of streamlined capabilities in other areas of business. Responding to customer interests significantly enabled upselling, which resulted in a 10% increase in average revenue per customer and 6% growth in number of customers when compared to where the service provider was for the 2018 SP Digital Readiness Survey.

Through a culture of automation across the board, people are driven to bridge much of the zero-touch model, and as a result, this service provider is seeing significant improvement in the morale of employees and customers. From a comparison of company performance between the 2018 SP Digital Readiness Survey and today, this service provider has experienced a:

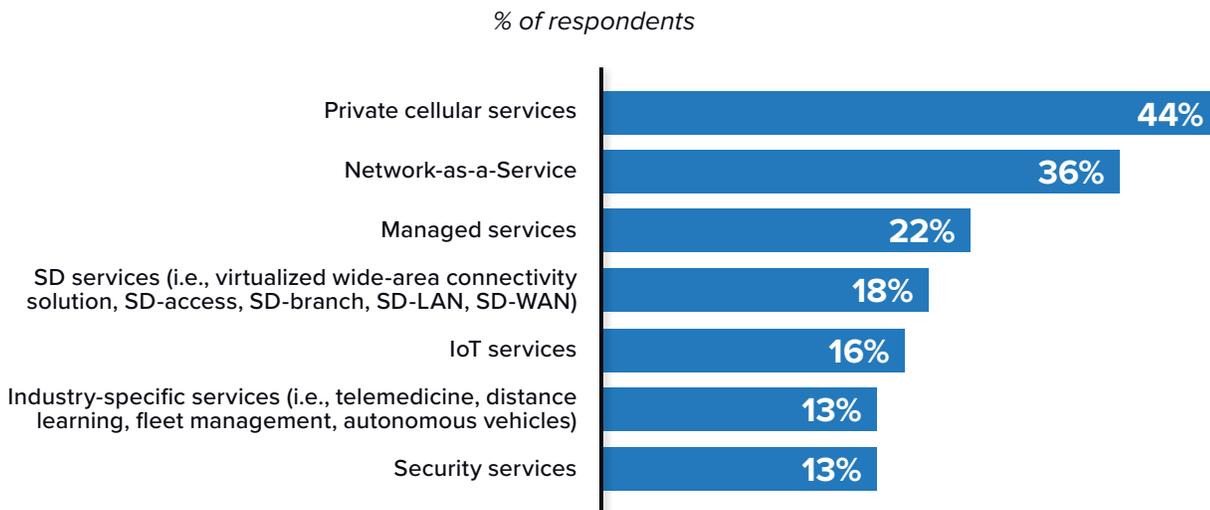
- ▶ 40% reduction in the cost of operations and an 18% increase in employee productivity.
- ▶ Reduction in customer churn rate by 15% and a 10% increase in its NPS.
- ▶ 18% increase in protected revenue and 14% growth in annual recurring revenue, resulting in \$7.6 billion of additional annual revenue.

Customer-Facing Services

With the pending buildout of the 5G cellular infrastructure, there is increased focus on the part of SPs in creating new services and supporting a broad set of services for industry-specific use cases. In this year's survey, SPs were asked to prioritize new services they plan to offer (**Figure 9**).

FIGURE 9
Top Service Priorities for SP Survey Respondents

Q. Which of the following services represent priorities to expand your services portfolio?



N = 147 Respondents knowledgeable about customer-facing and internal services
Source: IDC SP Digital Readiness Survey, 2021

As enterprises across industry sectors such as manufacturing, oil and gas, mining, and healthcare look for secure and scalable connectivity solutions that support IoT use cases with Ultra Low Latency Communications requirements, SPs expect to see increased demand for private cellular services.

Another service priority for SPs is the rollout of Network-as-a-Service (NaaS). While traditional capex methods of procuring IT technology still dominates, there is a growing movement on the part of enterprises to procure infrastructure in an opex fashion. The as-a-service approach has become common for software and IT infrastructure, and as SPs look to address enterprise demand for more flexible consumption models, NaaS offerings will represent a significant service opportunity.

In addition to rolling out new services, SPs are equally focused on upgrading their internal systems to allow for co-creation of new solutions with partners, support flexible pricing models, and generating customer insight that drive upsell opportunities.

In the 2018 SP Digital Readiness Survey, most SPs' customer-facing services efforts were centered around making upgrades to their internal systems, with nearly 73% of SPs surveyed landing in the Ad Hoc and Manual stages of digital maturity. This year's survey results shows that SPs have made steady progress in transforming their internal systems by automating various components of the service ordering process.

The number of SPs in the Ad Hoc and Manual stages of maturity dropped from 73% to 51%. While there is plenty of activity remaining for automating the service ordering process, there is also a larger number of SPs that have completed these upgrades and moving to higher maturity levels. These SPs are now focused on rolling out new services, supporting new pricing models, using analytics to drive upsell opportunities, engaging with partners to expand the customer base and co-creation of new services.

Partnerships have also been an important component of the SPs' services strategy. The buildout of 5G holds the promise of SPs providing industry-specific solutions for enterprises that go far beyond pure connectivity, but to achieve this will require a different partner engagement model. IDC believes that SPs will increasingly seek partners that have deep knowledge in specific industries and have relationships with personas that extend beyond the traditional telecom buyer. This will give SPs the appropriate sales channel to drive innovative services to enterprises. In fact, in the 2021 SP Digital Readiness Survey, the percent of Pioneer SPs engaging with partners to co-create new services is expected to increase more than twofold, going from 31% in 2021 to 69% in two years.

Security

For SPs, effectively managing cyber risk has become increasingly challenging as threat actors use more sophisticated methods to launch attacks, the threat vectors continue to expand, data privacy and compliance mandates evolve, and perhaps most significant, SP transformation initiatives require a completely new evaluation of existing cyber risk management strategies.

This highlights the point that in a constantly evolving market, the cyber strategies employed by SPs must also evolve. Cybersecurity is not static; the measures put in place to identify, detect, remediate, and respond to threats must continually evolve.

The results of this year's SP Digital Readiness Survey reveal that most SPs are currently focused on developing an end-to-end security strategy that encompasses the following areas:

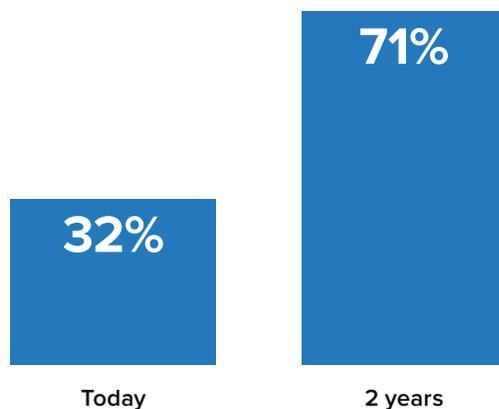
- ▶ Endpoint security
- ▶ Data and identity management
- ▶ Cloud security

Each of the areas above present unique challenges. However, SPs expect to make significant progress over the next two years as they invest in advanced technologies to drive greater efficiencies in their security operations. Below are some of the areas where SPs expect to make the most progress in their security strategies.

- ▶ **Endpoint security:** Over half of SPs surveyed indicated that they are still formulating strategies for unified, access-agnostic authentication, and end-to-end data encryption.
- ▶ **Data protection and privacy:** Today 71% of SPs are in the Ad Hoc stage of maturity, are investing in AI to identify abnormal access behavior. In two years, all SPs surveyed expect to utilize AI, analytics, and automation to accelerate the time to detect and respond to abnormal access behavior.
- ▶ **Cloud security:** The greater use of cloud services and technologies represents an array of security challenges for SPs. Providing end-to-end visibility and security management across a hybrid environment presents technical and procedural challenges that SPs must address. Over 80% of SPs today are in the very early stages of developing a security strategy for a cloud-native architecture. In two years, 71% of Pioneer SPs expect to have implemented automated security controls with AI-based analytics for end-to-end visibility of their cloud infrastructure (**Figure 10**).

FIGURE 10

Pioneer SP: Use of Advanced Technologies for Cloud Security



N=227; Respondent is Knowledgeable about Security
Source: IDC SP Digital Readiness Survey, 2021

As SPs look for ways to drive efficiency and efficacy in security management, the implementation and use of advanced technologies like AI/ML, analytics, and automation is critical. Currently, only 28% of SPs surveyed are in the Deployer and Pioneer stages of maturity, which corresponds to increased usage of advanced technologies in their security operations. Over the next two years, survey results reveal that SPs expect to make significant progress in deploying advanced technologies for data and identity management, endpoint security, and cloud security.

SP Recommendations and Essential Guidance

SPs on the high end of the digital maturity spectrum appeared to enjoy the most significant business performance gains. They not only reported improved operational metrics such as reduced costs and process cycle times but importantly also reported improvements in key business outcomes such as revenue, profitability, customer satisfaction and retention, all of which contributed to their digital resilience. Business benefits improvements impacted revenue across multiple domains. Their best practices can be useful essential guidance.

1. Get your house in order: The top challenges to becoming a DX organization are overcoming corporate silos and not having a digital workforce. Implement a corporate office to manage all digital operations to include coordination of all technology initiatives and purchasing. Only Pioneers have developed such an office today, while 30% of all other SPs plan to have one in 2 years. As for the workforce, 75% of Pioneers have digital sourcing requirements applied to all business units and the other 25% have digital capabilities requirements integrated into hiring, required training, and retention.

2. Transformation in and of itself is inherently a risky endeavor. Trying to drive a holistic transformation initiative is a futile effort. The better approach is to identify the business outcomes that are most important to your organization; find a domain where there is either the most current business pain (i.e., reducing costs of operations, reducing business risk, improving employee productivity, etc.); find one that offers the most business opportunity (i.e., increased revenues, improved customer experiences, or new markets, customers, and solutions, etc.); or finally find ways where digital transformation can drive business value in that area, and then use that success to move into adjacent areas.

3. You cannot do it alone. Engage with a trusted partner who can look at the strategic and market aspects, as well as the technology and automation aspects. 56% of Pioneers have a co-creation model with technology and cloud partners to drive innovative solutions compared to 7% of all other SPs. When looking for help in your transformation journey, consider:

- ▶ Engaging with a partner that has made the digital transformation.
- ▶ Leveraging your tech supplier relationships – from tactical to strategic.
- ▶ Looking for expertise in new technologies such as AI, analytics, etc.

4. There is no defined expiration date. Your organization needs to be constantly changing because the market is constantly changing. The Pioneers in the in-depth interviews are enjoying the business success and digital resilience that results from multiple and continual technology initiatives conducted over several years.

About the Analysts



Randy Perry
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Randy Perry is Vice President of the Sales Enablement Practice at IDC WW Custom Solutions. He is responsible for helping IT providers sell their products and services to C-level decision makers through tying technology initiatives to improved business outcomes. He is currently working on multiple projects linking IT initiatives (cloud, mobility, AI, social and IoT) to improving business outcomes such as increasing agility, improving customer experience and becoming more innovative; and quantifying the financial impact in terms of business metrics (revenue growth and lower operational costs).

[More about Randy Perry](#)



Curtis Price
Program Vice President, Infrastructure Services

Curtis Price is the Program Vice President of IDC's Infrastructure Services group. He oversees all research efforts within IDC's Network Life-Cycle Services, Wireless Infrastructure Services, and Software and Hardware Support Services programs. Mr. Price provides expert insight and analysis of the trends and market dynamics impacting the network services market within the enterprise and telecommunications sectors.

[More about Curtis Price](#)



Karl Whitelock
Research Vice President, Communications Service Provider Operations & Monetization

Karl Whitelock is IDC's Research Vice President, Communications Service Provider (Comms SP) - Operations & Monetization industry practice. He provides strategic insight and global perspectives concerning the operations and monetization functions such as rating & charging, policy management, partner management, subscriber data management, customer service assurance, and network operations. His breadth and depth of coverage allows a holistic operations and monetization perspective relative to hybrid (virtual and physical) networks, customer experience evolution and enterprise partner ecosystems. He also brings several years of insight pertaining to multi-partner (B2B2X) business models, ecosystem management and cloud-based solution architecture. In his current role, he is responsible for market share and forecast reports in addition to global strategic insights.

[More about Karl Whitelock](#)

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