IDC FutureScape

IDC FutureScape: Worldwide IT Industry 2021 Predictions

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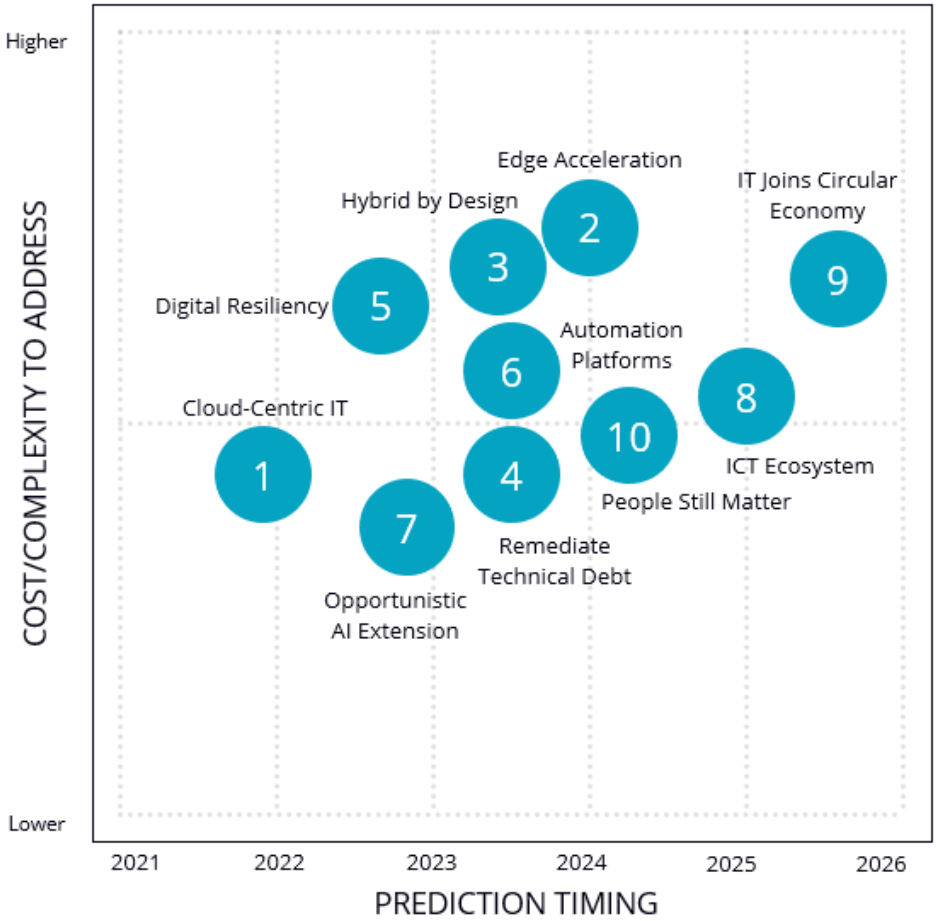
IDC FUTURESCAPE FIGURE

FIGURE 1

IDC FutureScape: Worldwide IT Industry 2021 Top 10 Predictions



Note: Marker number refers only to the order the prediction appears in the document and does not indicate rank or importance, unless otherwise noted in the Executive Summary.

Source: IDC, 2020

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EXECUTIVE SUMMARY

Spurred on by the world reaction to the disruptions caused by the global pandemic in 2020, the global economy remains on its way to its "digital destiny," as most products and services are based on a digital delivery model or require digital augmentation to remain competitive. The majority, 65%, of global GDP will be digitalized by 2022, driving $6.8 trillion of IT spending from 2020 to 2023. This IDC FutureScape highlights key trends in IT industrywide technology developments and presents the top 10 predictions and key drivers for the next five years:

- **Prediction 1**: By the end of 2021, based on lessons learned, 80% of enterprises will put a mechanism in place to shift to cloud-centric infrastructure and applications twice as fast as before the pandemic.
- **Prediction 2**: Through 2023, reactions to changed workforce and operations practices during the pandemic will be the dominant accelerators for 80% of edge-driven investments and business model changes in most industries.
- **Prediction 3**: By 2023, 75% of G2000 companies will commit to providing technical parity to a workforce that is hybrid by design rather than by circumstance, enabling them to work together separately and in real time.
- **Prediction 4**: Through 2023, coping with technical debt accumulated during the pandemic will shadow 70% of CIOs, causing financial stress, inertial drag on IT agility, and "forced march" migrations to the cloud.
- **Prediction 5**: In 2022, enterprises focused on digital resiliency will adapt to disruption and extend services to respond to new conditions 50% faster than ones fixated on restoring existing business/IT resiliency levels.
- **Prediction 6**: By 2023, an emerging cloud ecosystem for extending resource control and real-time analytics will be the underlying platform for all IT and business automation initiatives anywhere and everywhere.
- **Prediction 7**: By 2023, driven by the goal to embed intelligence in products and services, one-quarter of G2000 companies will acquire at least one AI software start-up to ensure ownership of differentiated skills and IP.
- **Prediction 8**: By 2024, 80% of enterprises will overhaul relationships with suppliers, providers, and partners to better execute digital strategies for ubiquitous deployment of resources and for autonomous IT operations.
- **Prediction 9**: By 2025, 90% of G2000 companies will mandate reusable materials in IT hardware supply chains, carbon neutrality targets for providers' facilities, and lower energy use as prerequisites for doing business.
- **Prediction 10**: Through 2023, half of enterprises' hybrid workforce and business automation efforts will be delayed or will fail outright due to underinvestment in building IT/Sec/DevOps teams with the right tools/skills.

This IDC study presents the top 10 predictions and key drivers for the IT industry for the next five years. It highlights the midterm and long-term challenges that enterprise IT teams face as they navigate their ongoing response to the business disruptions triggered by the COVID-19 pandemic and seek to gain competitive advantage in the next normal.

According to Rick Villars, group vice president, Worldwide Research, IDC, "The COVID-19 pandemic highlighted that the ability to rapidly adapt and respond to unplanned/unforeseen business disruptions will be a clearer determiner of success in our increasingly digitalized economy. A large percentage of a future enterprise's revenue depends upon the responsiveness, scalability, and resiliency of its infrastructure, applications, and data resources."

IDC FUTURESCAPE PREDICTIONS

Summary of External Drivers

IDC's 2021 drivers incorporate the disruptive forces of the COVID-19 pandemic, which will dramatically alter the global business ecosystem for the next 12-24 months and beyond. Impacts from COVID-19 are ubiquitous. The term *unprecedented* is warranted. It seems that everything is different.

With this, and the accelerating pace of other changes, business and technology leaders need to be prepared for disruptions and opportunities. 2021 IDC FutureScape drivers document highlights 12 critical drivers – important external forces that are driving change. And rather than having a specific COVID-19 driver, we have integrated COVID-19 impacts into all the drivers from a topical perspective.

The complete list of drivers for all IDC FutureScapes can be found in *Critical External Drivers Shaping Global IT and Business Planning, 2021* (IDC #US46859220, October 2020). All 12 of these drivers underpin IDC's IT industry predictions:

- **Accelerated disruption –** Crisis, resilience, and opportunity
- **Strategic innovation –** Shaping the future enterprise today
- **The next normal –** Resilient business and operating models
- **Intelligence everywhere –** Data drives action
- **Geopolitical risk –** Societal and economic tensions escalate
- **Rethinking globalization –** Disruptions challenge resilience
- **Digital platform –** Ecosystems at scale
- **Crisis of trust –** Meeting rising expectations
- **Customer engagement redefined –** Safe, secure, and sustainable digital experience
- **Digital divide –** The imperative of connectivity
- **Work transformation –** Redefining teams, skills, and leadership
- **The learning organization –** Asymmetrical advantage

Expanded summaries of these external drivers can be found at the end of this document.

Predictions: Impact on Technology Buyers

Prediction 1: By the End of 2021, Based on Lessons Learned, 80% of Enterprises Will Put a Mechanism in Place to Shift to Cloud-Centric Infrastructure and Applications Twice as Fast as Before the Pandemic

At the core of any enterprise's transition to the digital economy will be making the most of cloud, in all its diversity. The transition to cloud-centric digital infrastructure, which was already underway, will accelerate following the pandemic. It is clear that a large percentage of a digital enterprise's revenue depends upon the responsiveness, scalability, and resiliency of its infrastructure, applications, and

data resources. CIOs must accelerate their organization's transition to a cloud-centric IT model to maintain competitive parity.

The adoption of cloud cannot just happen in central enterprise or cloud datacenters. It must also include assets/resources that enhance customer experiences (CXs), embed intelligence/automation into business operations, and support ongoing industry innovation at edge locations.

Associated Drivers

- **Accelerated disruption** – Crisis, resilience, and opportunity
- **The next normal** – Resilient business and operating models
- **Digital platform** – Ecosystems at scale

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to cloud-centric IT:

- By 2021, over 51% of software revenue will come from the recurring business model that includes on-premises software sold as subscription and software as a service (see Prediction 1 in *IDC FutureScape: Worldwide Monetization 2021 Predictions,* IDC #US46246920, October 2020).
- By 2024, two of the three largest public cloud providers will be among the top 5 largest managed security services providers following multiple, multibillion-dollar acquisitions (see Prediction 3 in *IDC FutureScape: Worldwide Future of Trust 2021 Predictions,* IDC #US46912920, October 2020).
- By 2024, 75% of the enterprises will prioritize infrastructure agility and operational efficiency, leading to a 5x increase in the adoption of cloud-native architectures for core business applications (see Prediction 8 in *IDC FutureScape: Worldwide Future of Digital Infrastructure 2021 Prediction,* IDC #US46470820, October 2020).

IT Impact

- Optimizing clouds will determine the pace and direction of technology introductions for infrastructure, applications, and data services.
- Making the enterprise more digitally resilient will set the terms for how and where IT teams need to consume/deploy cloud resources.
- Managing and connecting diverse cloud resources/data sets will pose the most critical IT operational challenges.

Guidance

- Leverage new cloud-optimized software, new data and resource representations, and functional convergence by evaluating all trends toward optimizing cloud solutions and strategies.
- Weigh all advantages and disadvantages of location, asset usage, and consumption models to enable the innovative yet resilient infrastructure required for anywhere and anytime access.
- Progress toward intelligent operations through workload portability, consumption-based usage, and highly dynamic applications.

Prediction 2: Through 2023, Reactions to Changed Workforce and Operations Practices During the Pandemic Will Be the Dominant Accelerators for 80% of Edge-Driven Investments and Business Model Changes in Most Industries

Navigating the current COVID-19 pandemic-influenced business environment while completing planned business transformation efforts requires an increased focus on the deployment and operation of IT resources in dispersed edge locations that are proving vital to many businesses. This is especially critical in the hospitals, factories, transportation hubs, and a wide range of spaces where businesses now deal with rapidly changing conditions and long-term alterations in expectations and processes. They are where critical innovations — tied to augmented real/virtual reality, Internet of Things (IoT), robotics, autonomous vehicles, 3D printing, cognitive intelligence/AI, and rapid image processing — will have the greatest impact.

The need to deliver infrastructure, application, and data resources to edge locations will spur adoption of new, cloud-centric edge and network solutions that enable faster responses to current business needs while serving as a foundation for boosting long-term digital resilience, enabling business scaling, and ensuring greater business operational flexibility.

Associated Drivers

- **Intelligence everywhere —** Data drives action
- **Rethinking globalization —** Disruptions challenge resilience
- **Customer engagement redefined —** Safe, secure, and sustainable digital experience

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to edge acceleration:

- By 2021, 65% of organizations will have shifted to digital first through automated operations and contactless experiences, as physical interactions become an amenity of the past (see Prediction 1 in *IDC FutureScape: Worldwide Future of Customer and Consumer 2021 Predictions,* IDC #US46909620, October 2020).
- The number of new operational processes deployed on edge infrastructure will grow from less than 20% today to over 90% in 2024 as digital engineering accelerates IT/OT convergence (see Prediction 8 in *IDC FutureScape: Worldwide Future of Operations 2021 Predictions,* IDC #US46929820, October 2020).
- By 2022, 80% of organizations that shift to a hybrid business by design model will boost spend on AI-enabled and secure edge infrastructure by 4x to deliver business agility and insights in real time (see Prediction 2 in *IDC FutureScape: Worldwide Future of Digital Infrastructure 2021 Predictions,* IDC #US46470820, October 2020).
- By 2024, 25% of organizations will improve business agility by integrating edge data with applications built on cloud platforms, enabled by partnerships across cloud and communications services providers (see Prediction 9 in *IDC FutureScape: Worldwide Cloud 2021 Predictions,* IDC #US46420120, October 2020).
- By 2025, digital shelves, RT inventory visibility, robotic fulfillment, and automated checkout accelerate investment in connected store edge platforms by two years and 10x over current forecast levels (see Prediction 2 in *IDC FutureScape: Worldwide Retail 2021 Predictions,* IDC #US46921120, October 2020).

IT Impact

- The need to deploy and manage a growing range of edge-based infrastructure, code, and data sets across geographically dispersed locations linked to centralized cloud resources will increase.
- The monitoring and management of a rapidly expanding edge portfolio of assets and services will become a top priority.
- Dealing with the increasing likelihood that much of the actual underlying infrastructure is not under the corporation's ownership or control (is owned/operated by a network or cloud provider) will become an important new challenge.

Guidance

- Adopt flexible IT resource delivery models that enable on-premises and network-based deployment/consumption of resources that are also closely linked to major public cloud environments.
- Develop tools for the migration, integration, and automated management of applications, code, and data sets across on-premises and off-premises cloud deployments.
- Establish security, governance, and asset management best practices to ensure optimal use of the growing pool of resources deployed at the edge for new workloads.

Prediction 3: By 2023, 75% of G2000 Companies Will Commit to Providing Technical Parity to a Workforce That Is Hybrid by Design Rather than by Circumstance, Enabling Them to Work Together Separately and in Real Time

This prediction is from *IDC FutureScape: Worldwide Future of Work 2021 Predictions* (IDC #US46248920, October 2020). IDC defines technology parity as the requirement that all workers have secure access to the resources required to do their jobs — with the same, consistent experience and context — no matter their preferred device or if they are local, remote, in the field, or switching between locations. The emergence of an intelligent digital workspace in 2020 is a core technology market being used to connect hybrid workers and a hybrid workplace. The workspace will provide a personalized and federated view of the resources that workers require to get their jobs done, including access to subject matter experts and other collaborators. Hence applications that enable real-time collaboration across all environments are critical to its effectiveness and success. This extends to deskless or frontline workers, who are themselves digitally enabled "knowledge workers" and valuable touch points for the enterprise.

Successful organizations understand that the workforce of the future must be hybrid by design rather than driven by circumstance. The result will be a more collaborative, informed, and productive workforce. Effective teams do not have to live in the proximity of the corporate offices — many can and do work from anywhere. These teams will, in fact, work together, but separately, by design.

Associated Drivers

- **Strategic innovation —** Shaping the future enterprise today
- **The next normal —** Resilient business and operating models
- **Work transformation —** Redefining teams, skills, and leadership

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to hybrid by design:

- In 2021, 33% of G2000 operations employees will work remotely or in a hybrid environment that is enabled by a 20% increase in operations technology investments in remote capabilities (see Prediction 2 in *IDC FutureScape: Worldwide Future of Operations 2021 Predictions,* IDC #US46929820, October 2020).
- By 2021, at least 70% of digitally enabled SMBs will operate under a hybrid model of working, with remote work emerging as a norm (see Prediction 7 in *IDC FutureScape: Worldwide Small and Medium-Sized Business 2021 Predictions,* IDC #US45927020, October 2020).
- By 2022, over 90% of vendors' innovation centers will be repurposed as hybrid virtual and physical innovation networks rather than as dedicated spaces where people must meet face-to-face to innovate (see Prediction 4 in *IDC FutureScape: Worldwide Services 2021 Predictions,* IDC #US45374020, October 2020).
- By 2023, enterprises get a 30% boost in productivity by re-architecting networks to include a "branch of one" operating model, enabling the same secure application experience as they get on premises (see Prediction 6 in *IDC FutureScape: Worldwide Future of Connectedness 2021 Predictions,* IDC #US46921520, October 2020).
- By 2024, more than 33% of Global 2000 companies will have deployed smart assistant-driven work-from-home (WFH) solutions to facilitate more frictionless collaboration and improve employee productivity (see Prediction 9 in *IDC FutureScape: Worldwide Connected Devices and Consumer DX 2021 Predictions,* IDC #US46920320, October 2020).

IT Impact

- IT must embrace remote locations as part of the overall corporate environment, ensuring secure access to corporate resources and appropriate infrastructure including computing resources and adequate bandwidth.
- IT must evolve IT support and maintenance procedures to include remote and field workers and workers that may be in different time zones.

Guidance

- Filter digital transformation down to individuals and teams. Rethink traditional principles about how and where people work.
- Think beyond the office worker. Intelligent digital workspaces can transform a team and individual workers across a multitude of vertical industries and use cases — including at-home and field workers.
- Seek out vendors that are offering innovative solutions that support a hybrid workforce in all new end-user computing investments.

Prediction 4: Through 2023, Coping with Technical Debt Accumulated During the Pandemic Will Shadow 70% of CIOs, Causing Financial Stress, Inertial Drag on IT Agility, and "Forced March" Migrations to the Cloud

This prediction is from *IDC FutureScape: Worldwide CIO Agenda 2021 Predictions* (IDC #US46010920, October 2020). Faced with the need for speed in reacting to rapidly shifting business conditions, many CIOs have had to shortcut normal IT protocols to get digital solutions in place, sometimes literally overnight. While they may have solved the immediate problems, they have created technical debt: infrastructure and systems that aren't as robust, flexible, and scalable as normal IT solutions would be and which will need to be dealt with when the current pandemic crisis passes. Left unchecked, technical debt continues to grow and eventually becomes an untenable drag on IT. Fragile systems soak up dollars and IT resources for continuous maintenance, limiting the IT organization's ability to provide needed services. More importantly, the growing mountain of technical debt can

eventually stymie CIOs' ability to fund IT innovation — the lifeblood of business transformation and innovation.

Savvy CIOs proactively identify sources of technical debt and create plans for retirement, upgrade, or replacement of these systems. Instead of viewing these creations as purely a technical debt problem, they look for opportunities to design next-generation digital platforms that modernize and rationalize infrastructure and applications while delivering flexible capabilities to create and deliver new products, services, and experiences to workers and customers.

Associated Drivers

- **Accelerated disruption —** Crisis, resilience, and opportunity
- **Strategic innovation —** Shaping the future enterprise today
- **Digital platform —** Ecosystems at scale

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to remediating technical debt:

- By 2021, 30% of G2000 companies across industry activate digital, "contactless" service to minimize customer defection and increase data sharing among industry ecosystem partners (see Prediction 2 in *IDC FutureScape: Worldwide Future of Industry Ecosystems 2021 Predictions,* IDC #US46918520, October 2020).
- By 2022, budgets for modern software-defined secure access solutions will quadruple as flaws in legacy VPN remote access solutions are illuminated by the massive work-from-home migration (see Prediction 1 in *IDC FutureScape: Worldwide Future of Trust 2021 Predictions,* IDC #US46912920, October 2020).
- Standing up apps rapidly during the pandemic resulted in three out of four organizations incurring technical debt around design, quality, and security reviews that will require remediation work through 2022 (see Prediction 2 in *IDC FutureScape: Worldwide Future of Digital Innovation 2021 Predictions,* IDC #US46417320, October 2020).
- By 2021, external shocks and resulting uncertainty will drive 75% of G2000 companies to discard existing decision models and focus on a new framework for decision environments to improve resiliency (see Prediction 1 in *IDC FutureScape: Worldwide Future of Intelligence 2021 Predictions,* IDC #US46923720, October 2020).
- By 2022, 90% of G2000 companies will revisit their commercial real estate footprint post-COVID-19; many plan augmented workspaces yet do not address the connectivity needs to support a hybrid work model (see Prediction 3 in *IDC FutureScape: Worldwide Future of Connectedness 2021 Predictions,* IDC #US46921520, October 2020).

IT Impact

- CIOs have had to take whatever actions were necessary to enable rapid pivoting of business and operating models.
- The "need for speed" resulted in the creation of solutions that are less robust and well architected.
- Adding new technical debt was unavoidable, resulting in future obligations to mitigate deficiencies.

Guidance

- Triage pandemic-driven emergency solutions into "good enough to keep," "need to be remediated," and "must be retired or replaced."
- Collaborate with line-of-business (LOB) executives to "divide and conquer" the elimination of technical debt using LOB developers and funding to extend IT capabilities.
- Merge technical debt elimination efforts with platform modernization initiatives.

Prediction 5: In 2022, Enterprises Focused on Digital Resiliency Will Adapt to Disruption and Extend Services to Respond to New Conditions 50% Faster than Ones Fixated on Restoring Existing Business/IT Resiliency Levels

Businesses and CIOs are facing the confluence of many challenges — from coping with massive shifts to remote work from home to unpredictable closures of business to radical changes in the wants, needs, and behaviors of customers and many more. At the same time, dispersed teams and frontline workers need to function more autonomously, making decisions in the face of great uncertainty. These changes are bringing into question traditional assumptions about and approaches to resiliency at the business and IT levels:

- Business resiliency is about the ability of an organization to respond to business disruptions, restore business operations in a timely fashion, and maintain its core sense of purpose.
- IT resilience is about as an organization's ability to maintain acceptable service levels through, and beyond, severe disruptions to its IT systems.

The COVID-19 pandemic highlighted that the ability to rapidly adapt and respond to unplanned/unforeseen business disruptions is a clearer determiner of success in our increasingly digitalized economy compared with a heavy reliance on tradition approaches such as business continuity and IT recovery. Leading enterprises will focus more on digital resiliency. They can rapidly adapt to business disruptions, leverage digital capabilities to maintain continuous business operations, and quickly adjust to take advantage of changed conditions for competitive advantage.

Associated Drivers

- **Accelerated disruption —** Crisis, resilience, and opportunity
- **Geopolitical risk —** Societal and economic tensions escalate
- **The learning organization —** Asymmetrical advantage

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to digital resiliency:

- Industrial enterprises that fail to implement an enterprise data governance model enabling the foundation for resilient decision making by 2021 will underperform on profitability by 10% (see Prediction 10 in *IDC FutureScape: Worldwide IT/OT Convergence 2021 Predictions,* IDC #US45853820, October 2020).
- By 2022, 65% of CIOs will digitally empower and enable frontline workers with data, AI, and security to extend their productivity, adaptability, and decision making in the face of rapid changes (see Prediction 1 in *IDC FutureScape: Worldwide CIO Agenda 2021 Predictions,* IDC #US46010920, October 2020).
- By 2023, over two-thirds of G2000 organizations will have incorporated service delivery resilience assessment and assurance into over 75% of all their externally sourced business

and IT services (see Prediction 7 in *IDC FutureScape: Worldwide Services 2021 Predictions,* IDC #US45374020, October 2020).

- In 2024, 85% of G2000 see the network admin as strategic since it involves working with app developers, the CISO office, and line of business to ensure business continuity, compliance, and resiliency (see Prediction 9 in *IDC FutureScape: Worldwide Future of Connectedness 2021 Predictions,* IDC #US46921520, October 2020).

IT Impact

- IT will be tasked with assessing and assuring the resilience of all IT/network services and not just conducting business continuity/disaster recovery exercises in the traditional sense.
- IT will be asked to participate in new teams spanning business, technology, process, governance, and risk management to establish new resiliency expectations.
- IT will need to allocate more resources to evaluating the risks and potential benefits of taking greater advantage of as-a-service-based solutions for infrastructure, data, and process resources.

Guidance

- Segment your portfolio of IT/network assets (those you own/operate and those you consume as a service) into priority lists based on business criticality, tangible/intangible brand value, and vulnerability to external shock.
- Establish trust with your business colleagues and critical partners through clear, honest two-way communication about the pace of adaptation required to be able to respond to changing business conditions.
- Evolve the parameters of the vendor evaluation to assess the extent of service delivery diversification and risk mitigation built into providers' service delivery value chains, including revisions to existing contract pricing structures and benchmarks.

Prediction 6: By 2023, an Emerging Cloud Ecosystem for Extending Resource Control and Real-Time Analytics Will Be the Underlying Platform for All IT and Business Automation Initiatives Anywhere and Everywhere

Key developments in the areas of digital infrastructure and digitalized business products and services are a strong commitment toward self-regulating physical and logical resources and a shift toward autonomous IT/OT operations.

This shift movement toward automation can be likened to the transition from cold-blooded to warm-blooded animals. Cold-blooded animals such as amphibians and reptiles were highly successful and remain important parts of the earth's biological system today. The advent of warm-blooded animals such as mammals and birds has dramatically altered the biosphere. Warm-blooded animals developed new systems for processing and storing energy that provide them with the speed and endurance to expand into a dramatically wider range of climatic and ecological niches than their cold-blooded compatriots. The survival of warm-blooded animals in a much wider range of conditions depends on their development of an underlying control system that enables self-regulation of body temperature. This same system also served as the platform for controlling the respiratory, digestive, and endocrine systems.

A transition is underway when it comes to IT and business processes/systems. Enterprises must shift away from relying solely on well-established models for acquiring, deploying, and operating siloed IT assets and business processes. They need to build new automated solutions built on an adaptive, self-regulating, cloud-centric platform that can reach anywhere but remains centrally governed. Achieving

these objectives requires aggressive integration of proactive AI/ML-powered analytics, adoption of policy-driven automation, and greater use of low-code, serverless workflows to enable consistent self-driving IT, business, and even industrywide automation.

Associated Drivers

- **Digital platform —** Ecosystems at scale
- **The next normal —** Resilient business and operating models
- **Intelligence everywhere —** Data drives action

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to automation platforms:

- By 2022, 45% of repetitive work tasks in large enterprises will be automated and/or augmented by using "digital coworkers" (powered by AI, robotics, and IPA), furthering human-machine collaboration (see Prediction 1 in *IDC FutureScape: Worldwide Future of Work 2021 Predictions,* IDC #US46248920, October 2020).
- By 2022, to support autonomous operations, organizations will increase their investments in data governance, digital engineering organizations, and digital operations technologies, by 40% (see Prediction 1 in *IDC FutureScape: Worldwide IT/OT Convergence 2021 Predictions,* IDC #US45853820, October 2020).
- By 2023, 75% of Global 2000 IT organizations will adopt automated operations practices to transform their IT workforce to support unprecedented scale (see Prediction 6 in *IDC FutureScape: Worldwide Future of Digital Infrastructure 2021 Predictions,* IDC #US46470820, October 2020).
- By 2024, deployment of ML-based automation for intelligent optimization will instead solidify rigid processes, resulting in the inability of 25% of G2000 to rapidly react to external market factors (see Prediction 7 in *IDC FutureScape: Worldwide Future of Intelligence 2021 Predictions,* IDC #US46923720, October 2020).

IT Impact

- Enterprise IT and business processes (CX and OT) will depend more on a consistent set of operations technologies including asset control systems, asset management systems, and distribution management.
- IT will need to coordinate cloud services commitments more effectively with line-of-business teams that are seeking to automate digital service processes and operational business processes.
- IT will have to adopt new technologies and processes that support the use of analytic models that support business KPIs across the enterprise, not just IT.

Guidance

- Create an IT culture, with accountability mechanisms that use data, analytics, and business KPIs to drive faster adoption of automation across IT and business processes.
- Bring together the skills and vision of technology and business users to identify how a more complete service picture can be developed and utilized internally for all stakeholders.
- Adjust people, processes, and technology, and have an elevated business focus to tie cloud metrics that correlate to business KPIs to drive strategy and outcomes.

Prediction 7: By 2023, Driven by the Goal to Embed Intelligence in Products and Services, One-Quarter of G2000 Companies Will Acquire at Least One AI Software Start-Up to Ensure Ownership of Differentiated Skills and IP

This prediction is from *IDC FutureScape: Worldwide Future of Intelligence 2021 Predictions* (IDC #US46923720, October 2020). While many enterprises experienced the limitations of their AI/ML models due to the unexpected jolt of COVID-19, other organizations continue to benefit from and invest in AI/ML and advanced analytics. The lessons learned have already ingested a dose of pragmatism into the euphoria surrounding AI. As a result, a growing number of enterprises are looking to incorporate, inject, or infuse AI-based capabilities into their services and products. Across industries, organizations have come to market with AI-infused healthcare, physical asset management, fraud prevention, customer service, pharmaceutical research, entertainment, and other offerings.

Further evolution of this trend has already driven some enterprises to invest in owning their own AI software to control the associated intellectual property (IP). McDonald's, AB InBev, IKEA, Mastercard, Nike, Walmart, TD Bank, and Deere are just a few enterprises that have already made such acquisitions. Others will follow as the fight for top AI and data talent will intensify and, in the short term, some of the cash-strapped technology start-ups become more attractive acquisition targets.

Associated Drivers

- **Intelligence everywhere —** Data drives action
- **The learning organization —** Asymmetrical advantage
- **Strategic innovation —** Shaping the future enterprise today

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to opportunistic AI extension:

- By 2022, a consortium of healthcare, insurance providers, and technology vendors will adopt a digital identity framework used for contact-tracing applications using distributed ledger technologies (see Prediction 8 in *IDC FutureScape: Worldwide Future of Trust 2021 Predictions,* IDC #US46012920, October 2020).
- By 2023, 45% of the world's largest agrifood companies will have implemented a blockchain-based food traceability solution to provide customers with transparency from farm to table (see Prediction 8 in *IDC FutureScape: Worldwide Agriculture 2021 Predictions,* IDC #US45941620, October 2020).
- By 2024, 50% of G2000 enterprises will sell internally developed industry-specific software and data services as a subscription, leveraging deep domain knowledge to open profitable new revenue streams (see Prediction 6 in *IDC FutureScape: Worldwide Future of Digital Innovation 2021 Predictions,* IDC #US46417320, October 2020).
- By 2025, 40% of the G2000 will augment human staff with "digital coworkers" (powered by AI, robotics, and IPA) to navigate and manage large ecosystems to perform complex cross-business interactions (see Prediction 2 in *IDC FutureScape: Worldwide Future of Work 2021 Predictions,* IDC #US46248920, October 2020).
- By 2025, 50% of all new vehicles manufactured will be connected to a cross-industry blockchain that offers access to payment, customer support, safety, and transportation services (see Prediction 6 in *IDC FutureScape: Worldwide Future of Industry Ecosystems 2021 Predictions,* IDC #US46918520, October 2020).

IT Impact

- IT will be called to incorporate newly acquired AI/ML technology with existing tools, applications, and IT solutions. This will require an associated change in data and application development and upgrade practices.
- IT will also need to incorporate new colleagues from the acquired firms into their broader team and, in many cases, adapt its culture to accept a start-up spirit.

Guidance

- Identify short-term goals for incorporating the newly acquired AI/ML technology to ensure rapid time to value — even if the initial project is limited in scope. Under the auspices of the broader AI/ML/analytics/data strategy, ensure that the acquired technology is continuously enhanced and extended to build on the initial IP.
- Retain the new staff members who come with the acquisition by ensuring they can highlight their expertise in the context of an existing center of excellence (COE). This may require the establishment of a new AI/ML/analytics COE, which often collaborates with but is not part of the IT organization.

Prediction 8: By 2024, 80% of Enterprises Will Overhaul Relationships with Suppliers, Providers, and Partners to Better Execute Digital Strategies for Ubiquitous Deployment of Resources and for Autonomous IT Operations

A key impact of the accelerated digital transformation triggered and redefined by the COVID-19 pandemic is a reimagining of business models. For many, becoming a digital business requires a shift from traditional, linear processes that start and end in the organization toward platform-based, data-driven value chains that link to an external partner ecosystem.

Ecosystem business models are emerging across multiple industries, and some of the most significantly affected by this change will be the ICT industries themselves. These are the companies with which CIOs and their teams have long-standing relationships and well-accepted approaches to management.

Many traditional ICT providers face disruptions, while the entire industry will undergo an accelerated rate of acquisitions and divestitures. To succeed, however, ICT providers require different engagement and commercial models, which has significant implications for how your team will need to evaluate and engage with ICT providers of all types.

CIOs also face a new challenge when it comes to their relationships with ICT companies. Your own C-suite executives are focusing greater attention on current or possible collaborations with leading silicon component vendors, cloud service providers (SPs), communications SPs, enterprise application ISVs, and business services and support providers to foster market disruption, gain greater agility, and improve time to market. One often overlooked new relationship will be between LOBs that want to deploy IT assets in their own systems or at customer locations and IT support SPs that have long histories of providing 24 x 365 onsite support for such equipment on a global basis.

All of these partnerships involve greater direct sharing, leveraging, or joint creation of intellectual property and data to enhance value and increase engagement with an enterprise's more digitally oriented customers.

Associated Drivers

- **Accelerated disruption** — Crisis, resilience, and opportunity

- **Digital platform –** Ecosystems at scale
- **The next normal –** Resilient business and operating models

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to the ICT ecosystem:

- By 2023, operational complexities due to enabling robust employee connectivity will shift 25% of connectivity budgets to CaaS solutions to bundle bandwidth, security, collaboration, and mobile services (see Prediction 5 in *IDC FutureScape: Worldwide Future of Connectedness 2021 Predictions,* IDC #US46921520, October 2020).
- By 2025, 15% of the current enterprise application market will be displaced by software co-developed and owned by an industry consortium; software vendors will have an opportunity to play a central role (see Prediction 5 in *IDC FutureScape: Worldwide Future of Industry Ecosystems 2021 Predictions,* IDC #US46918520, October 2020).
- By 2025, 60% of G2000 customers with OT infrastructure will partner with services vendors to leverage their global infrastructure and experience related to engineering and digital deployments (see Prediction 5 in *IDC FutureScape: Worldwide IT/OT Convergence 2021 Predictions,* IDC #US45853820, October 2020).

IT Impact

- IT teams will need to develop more fact-based, agile, and flexible processes to aid in refocusing and reprioritizing existing ICT industry relationships as existing partners change business models and/or alter product portfolios through acquisition/divestiture.
- Intersections between different ICT groups (e.g., communications SPs and cloud SPs, industry-specific ISVs and cloud SPs, IT and OT providers) will force IT to continuously adapt and reevaluate supplier/provider relationships and priorities, often linked to new relationships between LOBs and ICT companies.

Guidance

- Focus on portfolio optimization as a real-time capability with embedded intelligence that allows situation analysis, prediction, recommendations, automation, and performance monitoring across a wide range of products and services from multiple providers.
- Continually assess ICT partner priorities based upon the partner's importance in running the business, growing the business, and transforming the business.

Prediction 9: By 2025, 90% of G2000 Companies Will Mandate Reusable Materials in IT Hardware Supply Chains, Carbon Neutrality Targets for Providers' Facilities, and Lower Energy Use as Prerequisites for Doing Business

This prediction is from *IDC FutureScape: Worldwide Future of Digital Infrastructure 2021 Predictions* (IDC #US46470820, October 2020). Big technology services and datacenter providers are setting a vision and developing an ecosystem to drive a fundamental change in the way that technology impacts the environment.

Being a better citizen of the earth is top priority for companies of all sizes. Some are actively taking initiatives, while others are fast followers. The ability to build and sustain awareness for a company's brand and attract investors and talent for an organization hinges upon the ability to demonstrate progress on environmental sustainability goals. As organizations create a strategy for progress, IT organizations have a critical role in finding new ways to innovate and leverage technology to improve

efficiency and reduce waste. As IT takes on increasing responsibility for driving positive change within the organization, it will be even more important to ensure that the IT vendors and datacenter partners share similar goals and help accelerate progress.

IT vendors that incorporate circular economy principles into their product designs and have expertise in maximizing the value of assets and driving technology that drives lower power while optimizing efficiency will be the standard. Service providers and datacenter partners that have invested in cleaner sources of energy and highly efficient technology can further progress because they operate at a scale that most enterprises cannot. For some organizations, shifting from owning equipment to procuring it in an as-a-service way from a vendor that can maximize asset usage and recycle responsibly is an effective plan.

Looking for ways to maximize resource usage will often point to leveraging partners, and these partners will be under increasing scrutiny and held to standards to ensure that they are truly sustainable and not merely "greenwashing" their solutions. Transparency will be the pillar to building trusted partnerships.

Associated Drivers

- **Rethinking globalization –** Disruptions challenge resilience
- **Customer engagement redefined –** Safe, secure, and sustainable digital experience
- **Crisis of trust –** Meeting rising expectations

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to ICT joining the circular economy:

- By 2024, 90% of providers will have sustainability initiatives that force digital transformation of sourcing, production, and manufacturing of printed goods and services (see Prediction 5 in *IDC FutureScape: Worldwide Imaging, Printing, and Document Solutions and 3D Printing 2021 Predictions,* IDC #US46910220, October 2020).
- By 2025, 80% of chief trust officers will demand vendors incorporate security and risk capabilities to measure corporate trust including vendor relationships and employee reputation (see Prediction 4 in *IDC FutureScape: Worldwide Future of Trust 2021 Predictions,* IDC #US46912920, October 2020).

IT Impact

- Executive leadership will look to IT organizations to innovate and drive sustainability in addition to resilience and continuity plans.
- Increased attention on energy consumption, waste reduction, replacing rare earth materials, and ways to implement circular economy goals will put IT organizations in a critical role.
- IT organizations will be tasked with vetting all suppliers and choosing partners that can accelerate their progress along the sustainability journey.

Guidance

- Look for IT vendors that have designed products with circularity in mind. The ability to reuse components, extend useful life, and recycle responsibly will contribute to your organization's broader sustainability goals.

- Consider using "as a service" procurement models from IT vendors that can implement circular economy principles in ways that your organization cannot, from owning equipment to procuring it in an as-a-service way from a vendor that can maximize asset usage and recycle responsibly.
- Seek service providers and datacenter partners that have committed to renewable energy sources and highly efficient technologies as part of their cloud infrastructure.

Prediction 10: Through 2023, Half of Enterprises' Hybrid Workforce and Business Automation Efforts Will Be Delayed or Will Fail Outright Due to Underinvestment in Building IT/Sec/DevOps Teams with the Right Tools/Skills

In 2019 and early 2020, IDC spoke about enterprises becoming digital innovation factories. The pandemic and the changed business landscape in the next normal forced organizations to digitally mature even faster than predicted before to remain competitive. IT and LOBs must be in sync. Across all regions and enterprises, a key imperative for executive teams during the crisis was to create a shared vision and align everybody to the same business goals within a clearly articulated enterprise strategy. CIOs and their IT teams played (and will continue to play) a critical role in enabling adaptability, flexibility, and resilience in the face of rapidly changing conditions, made more challenging as global and local needs are evolving at different speeds.

For example, work from home has shown itself to be good for many employees and good for the business. IDC expects work from home will remain at a higher level after the recovery, but the longer-term issue will be accommodating a broader and continually changing set of work locations with flexible technology capabilities. The challenge for the CIO will be to ensure that their own IT operations and development teams are not "left behind" when it comes to participating in the new hybrid work model. This commitment must encompass both enabling more flexible hybrid work/collaboration solutions for IT teams and being more flexible in accessing talents and skills across wider geographic ranges.

CIOs have a unique opportunity to help their enterprise mature by leading cross-organizational initiatives, educating about technology, and developing digital infrastructure, but only if they can ensure that their teams are and continue to effectively engage with LOB teams to support enterprise initiatives. As roles across both sides of the organization change, confusion and misperception will emerge as critical risk factors, and it is essential to ensure that their own teams can participate in the LOB/IT partnership that must take place.

Associated Drivers

- **Digital divide —** The imperative of connectivity
- **Work transformation —** Redefining teams, skills, and leadership
- **The learning organization —** Asymmetrical advantage

Contributing/Complementary Predictions

Several predictions from other IDC FutureScapes highlight important contributing/complementary developments that should also be considered when it comes to people still matter:

- By 2023, as 80% of G2000 will embrace flexible data science and engineering talent sources, two-thirds will struggle with visibility into and governance of processes and behavior of these external resources (see Prediction 9 in *IDC FutureScape: Worldwide Future of Intelligence 2021 Predictions,* IDC #US46923720, October 2020).

- By 2024, 25% of organizations will use crowdsourcing for data and analytics innovation initiatives to compensate for the scarcity of advanced analytics skills and speed up the innovation process (see Prediction 10 in *IDC FutureScape: Worldwide Data and Analytics 2021 Predictions,* IDC #US46920420, October 2020).
- By 2024, in part to fill the developer shortfall, 45% of staff in organizations with 1,000+ people will have some development or automation duty, making them the fastest-growing employee type (see Prediction 10 in *IDC FutureScape: Worldwide Future of Digital Innovation 2021 Predictions,* IDC #US46417320, October 2020).

IT Impact

- IT operations and development teams face the same stresses as other employees when it comes to managing work-life balance, and failures to address this issue may have negative impacts on workforce diversity goals in organizations where that is a corporate objective.
- Companywide policies on employment restrictions linked to state/country business presence as well as inflexible connectivity/IP security practices prevent CIOs/CTOs from recruiting high-value/skilled employees who want to work from home or move to a different region.

Guidance

- Reinforce the message to C-level/LOB leaders that IT operations/developer staff are pivotal enablers of digital transformation efforts and that any initiatives linked to improving overall workforce collaboration, efficiency, and resiliency must consider the IT team as a critical group.
- Ensure that any compensation/employee location policies and recruitment processes consider the business risks of not having the right IT staff and the right IT staffing levels, not just cost optimization and close employee oversight considerations.

ADVICE FOR TECHNOLOGY BUYERS

As noted previously in this IDC FutureScape, the disruptions and changes triggered by the global pandemic as well as individuals' and enterprises' responses to those changes will accelerate digitalization globally, with 65% of global GDP digitalized in the next two years. CIOs and digitally driven C-suites need to focus on three developments over the next two to five years to ensure that their organizations are innovators and the new industry leaders in the next normal:

- **Accelerate transformation:** Identify and act on areas where the crisis and enterprises' responses are accelerating existing IT trends in areas such as cloud and edge-centric work models.
- **Remediate and adapt:** Identify shortcomings in existing IT environments such as decision support systems, remote work, and business/IT resiliency as well as addressing shortcomings in areas such as connectivity/security introduced during initial emergency responses.
- **Opportunistic extension**: Leverage technologies such as cloud-based automation platforms, AI-enabled automation processes, and "digital coworker" augmentation to make it possible to take advantage of competitive/industry disruptions and extend capabilities for business acceleration in the next normal.

During this same period, CIOs and their teams will need to navigate major transitions in the existing IT ecosystem. As enterprises overhaul relationships with all their technology, services, and service providers in the next three years, they must focus on selecting partners that enable ubiquitous

deployment of resources, greater automation of business/IT operations, and faster access to innovative cross-industry data and process automation services.

EXTERNAL DRIVERS: DETAIL

Accelerated Disruption — Crisis, Resilience, and Opportunity

Description

The pandemic has redefined disruption. Survival of the fittest is linked not to size or strength but to resilience and the ability to change – to move quickly, adapt, seize opportunities, and be ready for the next disruption. Uncertainty in economic norms, political stability, climate effects, and disruptive innovations can't be ignored, but these challenges have been overshadowed by the immediate impacts of the global pandemic. A sense of urgency pervades companies. Distressed businesses are having to make rapid pivots toward new models and viable markets or quickly adjust their supply chains. The immediate imperative is to manage costs, balanced with strategic investment. Now is not the time to sit back and wait but rather to make bold strategic bets that increase the organization's resilience to keep pace with business change by increasing the speed of business operations and innovation. Past economic crises have proven to be inflection points for organizations that later thrive during the next positive cycle.

Context

In IDC's worldwide *COVID-19 Impact Survey,* 73% of organizations reported that current transformation projects will be reevaluated to deliver more efficiency and ROI and 60% reported that they will focus their organizations on new business and operating models. Worldwide IT spending is now expected to decline 5.1% in constant currency terms this year to $2.25 trillion. Organizations are expecting the slowdown and recession phases to last into 2021. At the same time, "seize the advantage in a downturn" was a winning strategy after the last economic crisis. Intel's profits soared in 2010 because the company continued to invest and release its next-generation chips in 2009. Amazon experienced 28% sales growth, and Lego increased profits by 63%.

Strategic Innovation — Shaping the Future Enterprise Today

Description

The COVID-19 crisis has accelerated the shift to digital and fundamentally changed the business landscape. Innovation is an urgent imperative for overcoming the disruptions, both tactically and strategically, as enterprises with less mature transformations are more challenged to adapt. Organizations are rethinking what the future will look like and what it will take to thrive in the new business landscape. With increased awareness, there is now a strong focus on applying digital technologies to address the future of work, engagement, intelligence, operations, and leadership. Organizations are pivoting to become digital innovation factories. But at the current time, innovating must come without incurring overall incremental costs. To compete, companies must balance digital and industrial competencies and master them at scale. Yet these efforts will not succeed without leadership, talent, and the ability to effect change.

Context

Today, to sustain the business, many small and medium-sized enterprises have had to quickly pivot business models. Large organizations are having to reinvent themselves for growth and

competitiveness — before their competitors do. Now more than ever, organizations are looking for new ideas and emerging best practices to improve the effective use of resources and accelerate the ability to deliver digital services to customers, patients, and constituents. According to IDC's Worldwide Digital Transformation Spending Guide, global spending on digital transformation technologies and services is forecast to grow 10.4% in 2020 to $1.3 trillion despite the challenges presented by the COVID-19 pandemic.

The Next Normal — Resilient Business and Operating Models

Description

In the post-COVID-19 economy, expected changes in behavior, consumption, and supply will force companies to adopt digital-led business and operating models that can survive lockdowns, movement restrictions, social distancing, supply disruptions, and more. New realities and customer expectations will redefine product and service expectations. Economies of scale will be challenged by the need for mass customization and social distancing. Products, services, and relationships shift from face-to-face to digital. Work from home, scalability, security, throughput, and redefining internal processes for remote access and communications require immediate attention but will have lasting effects. Resiliency in supply will be balanced against efficiencies as automations are applied to operations. Adaptability will take greater importance in business and operating strategies. Leading organizations will not only adapt to shifting customer needs and market conditions but also proactively shape the needs and the market to match their strengths, innovations, and business models.

Context

COVID-19 has acted as an accelerant to shifting consumer preferences and business models. Global retail 2020 growth estimates will be halved from pre-COVID-19 forecasts. Retailers are responding with alternative delivery methods and more digital touch points across the shopping experience. Work from home is the new normal for knowledge workers, while worker safety takes on new importance. In education, there is a shift in "when" and "where" learning happens, bringing into question some of the fundamental assumptions that underpin the traditional four-year college degree model.

Intelligence Everywhere — Data Drives Action

Description

The real-time continuum of applications and data that stretches from edge to network and core from IoT, mobile devices, and more — combined with historical data, enterprise systems, and global information — continually "sense" an environment and put it into new contexts. AI and machine learning "compute" and spread intelligence to turn data into "action" and action into value. Automation literally extends beyond autonomous operations, resilient decision making, and optimization into life-and-death dependencies. Generating actionable insight is increasingly dynamic and complex. But as automation and augmentation increase, so do the ethical issues and opportunities for misuse, surveillance, invasions of privacy, and more. Competitiveness is determined by the ethical governance of data and AI; how data is transformed into insight to create high-value differentiators for products, customers, and markets; and how effectively organizations deliver meaningful, value-added learning, predictions, and actions that improve engagement, processes, enterprise decision making, resilience, and much more.

Context

In this world where data drives action, ensuring the veracity of the data and transforming data into insights become a strategic imperative. But it is not just having more data that matters. Based on IDC's

Global DataSphere study, less than 3% of the data currently created is analyzed to affect enterprise intelligence. What becomes essential is: first, to put data into context to provide meaning; next, to understand it in relationship to other data and events to gain knowledge; and finally, to add judgement and action to achieve insight and the full potential of value realization.

Geopolitical Risk — Societal and Economic Tensions Escalate

Description

Social, economic, and political discourse have risen to a new level of tension, causing instability in social foundations and an accelerating expansion of geopolitical risk. Fueling much of this is the unprecedented impact of information and the unprecedented spread of misinformation, from social media to state-sponsored social engineering, feeding a cycle of polarization. Science is under attack, threatening evidence-based knowledge and decisions. Politicians use misinformation at scale for political gain, further dividing societies, while social injustices spur major demonstrations and the effects of the pandemic deepen the divide between the haves and the have-nots. Massive unemployment and global food supply disruptions could lead to migrations and humanitarian crises. The escalating trade and technology cold war, heightened by national strategic manufacturing initiatives and superpower tensions, threatens further supply chain disruption, national and international balkanization, and more, while uneasy countries increasingly have to "pick sides" between East- and West-based technology stacks. Conversely, some aligned countries are using these forces to proactively increase their global cooperation.

Context

Societal tensions exploded in what is known as the Global Protest Wave of 2019 (and into 2020). While reasons for each span the spectrum, misinformation, social media, and polarization played major roles in all. Then add the pandemic and massive unemployment to the picture. In June 2020, unemployment reached 40 million in the United States and 150 million in India, with other areas reporting levels of unemployment. Now, different countries and regions are having different levels of success in mitigating the risk of resurgence. Business needs to factor this volatility into operational and market strategies and decisions.

Rethinking Globalization — Disruptions Challenge Resilience

Description

Globalization, already suffering from trade wars and the aftereffects of the financial crisis, has been dealt another blow from COVID-19. The world economy is at a critical inflection point in which fears about dependence on others are creating a move toward self-reliance. Countries argue, threaten punitive actions, and talk about strategic autonomy. The flow of people, trade, and capital has slowed from interruptions in both supply and demand. Supply chains are disrupted and misused. Policymakers and business leaders are now questioning whether globalization of trade and labor has been stretched too far. With both the costs and risks of global operations shifting, companies need to decide where to compete along the value chain, consider new service offerings, evaluate hybrid supply chains, and reassess their geographic footprint. Reactions to globalization – both pro and con– will continue to present businesses with uncertainty, challenge, and opportunity.

Context

For the past four decades, globalization of both supply and demand has been one of the world's most powerful drivers. Global trade increased from less than 40% of the world's GDP in 1980 to over 60% in

2019. The impact of COVID-19 on global supply chains has been profound. In the past, disruptions have tended to be regional, and while the initial reaction to those disruptions has been replete with urgency to change existing practices, all too often that urgency passes with time and the resumption of normalcy. Based on IDC's 2020 *Supply Chain Survey,* 85% of the companies surveyed said that COVID-19 was either already having or expected to have a major impact on their supply chain in 2020. Agility and speed to market are becoming critical elements of competitive performance, and many companies are exploring a better balance between globalization and localization for improved supply chain resilience and coordination.

Digital Platform — Ecosystems at Scale

Description

Understanding and provisioning the platforms that will sustain, advance, and scale business and operations and exert strategic control are essential for every business. A digital platform is the assembly of technologies, capabilities, and data upon which digitally enabled businesses run. The data exchanges, intelligence, and network effect within digital ecosystems generate new value beyond the platform itself. Leading organizations today are harnessing the pervasive internet connectivity in the hands of billions of users, combined with massive data and unlimited processing, to power their digital platforms. For users and competitors, the value of digital platforms introduces high switching costs and barriers to entry that cannot be easily replicated through the introduction of new products and services alone.

Context

The digital economy has spread rapidly throughout the world. Leading organizations are shifting to digital platform thinking to evolve their business models and manage their technology architecture. Platform thinking is a fundamental shift in business strategy — moving beyond product differentiation and pricing toward ecosystem-based value creation. It is also a long-term, sustainable response to new realities in the digital economy, one in which organizations transform themselves into digital-native enterprises.

Crisis of Trust — Meeting Rising Expectations

Description

The COVID-19 disruption has exposed, accelerated, and introduced new threats to organizations and their assets, increasing noise and dissonance and eroding trust among partners and customers. Enhanced reliance on digital channels, cashless transactions, esignatures, and other virtual interactions exposes new threat surfaces and new vulnerabilities to be exploited by organized actors leveraging AI. Ransomware, cybercrime, scams, and nation-state attacks are common events that cause significant business disruptions, high costs, and reputational damage. Stakeholders now expect trust and reputation to go beyond securing data and assets to protecting employees, partners, and customers. Meeting expectations of trust and social responsibility become new competitive advantages where "trust = value." Yet associated threats to human rights and privacy require public participation and discourse at a time when some consumers, citizens, and partners have lost faith in government, business, and technology, creating a crisis of trust. While anticipating and protecting the security and privacy of digital assets, organizations need to rebuild trust as a foundation for resilience.

Context

Cybercrime has increased manyfold since COVID-19. For example, Palo Alto Networks reports email phishing and scamming schemes have increased 650%. Yet growth in security investment is expected to decrease in 2020, even while 70% of cybersecurity teams are understaffed (source: ISACA) and the mean time to identify and contain a breach is months, not days. Adding more pressure on business, the most favored companies right now are those that are not only secure but also give back to their communities. Business Roundtable, an association of CIOs, changed the Statement on the Purpose of a Corporation to "take into account all stakeholders, including employees, customers, and the community," rather than only profit. Trust is not just about security anymore; it is also about responsibility.

Customer Engagement Redefined — Safe, Secure, and Sustainable Digital Experience

Description

The COVID-19 pandemic has focused what customers care about and shifted how consumers and brands engage and interact. Companies with the best price, coolest product, or most memorable marketing campaign will not necessarily have an advantage compared with companies that provide a safe, secured, and seamless experience. Customers also care about the safety and security of employees, how customer data is collected and used, and a company's environmental and social justice efforts. As a result, companies need to understand the different contextual expectations of their customers – whether they are students, patients, consumers, or businesses – and shift how they engage and support their customers in this emerging reality to create experiences that are empathetic, personal, compelling, and relevant today.

Context

Customers have made the contextual experiences they receive from a brand a crucial aspect of any engagement across the customer journey. Complicating that are the shifting nature of customer expectations, the proliferation of interaction channels, and the adoption of more capable and ever more robust consumer technologies. New business, operational, and organizational models built on a foundation of technology are required to meet the evolving and dynamic nature of customer expectations. It's critical for organizations to create a contextual and empathetic relationship with their customers, focusing on understanding the customers, what they want, and how they want to be treated.

Digital Divide — The Imperative of Connectivity

Description

Amid social distancing and working from home, access to technology and digital connectivity have become critical. People are learning to socialize, shop, educate, work, and collaborate differently and expecting a rich, seamless, and interoperable experience, regardless of where people and data are located. But the digital divide – the gap between those who do or do not have access to technology and the skills to use it – becomes more consequential in people's ability to complete everyday tasks. The new importance of connectivity and technology requires governments to consider whether affordable and effective internet access is a fundamental need or a mere luxury. However, there are also important concerns with expanded connectivity, such as ethics, safety, life balance, social distraction, and the privacy of sensitive and revealing insights about people's identity, location, behavior, associations, and activities and how governments and private business could use or abuse it.

Context

COVID-19 has reshaped how people think about internet connectivity and the urgency to bridge the digital divide. At the end of 2019, the International Telecommunication Union estimated that around 3.6 billion people remain offline. While the digital divide is greater in developing nations, developed countries see the divide run through rural and low socioeconomic status communities. For organizations, connectivity is critical for information to be created, shared, and consumed in real time. Enterprises that deploy strategic, integrated connectivity throughout the organization will realize higher return on investment through gains in revenue, customer retention, infrastructure longevity, and process and cost efficiencies.

Work Transformation — Redefining Teams, Skills, and Leadership

Description

Technologies are rapidly changing who or what – and where or how – work is being done. The 21st century economy requires workers to operate as agile, dynamic, and reconfigurable teams that can quickly adapt to business demands and new market requirements. The fallout of the pandemic will accelerate digital transformation and automation across a range of industries and sectors. Besides the shift to work from home, new models will emerge in fabrication/assembly, patient/citizen care, and warehousing/transport, changing the work experience, environments, and definition of digital work. Organizations need to rethink their relationship with workers and the creation and retention of skills to meet this demand. The key to turning talent limitations into talent as a competitive advantage lies in recognizing the fundamental shifts toward employee experience, new collaborative leadership styles, and employees as lifelong learners.

Context

In IDC's recent *Future of Work Survey,* over 50% of respondents indicated that they found it very or extremely hard to recruit top talent with needed technical and critical skills. These "digital skills" include both short half-life technical skills and more difficult-to-master human skills including critical thinking, collaboration, creative thinking, and communication. According to the World Economic Forum, the challenge to find top talent is only going to become more pressing. The COVID-19 pandemic will undoubtedly have a dampening effect; however, it will also serve as a forcing function to accelerate the adoption of digital skills and the need for new leadership capabilities.

The Learning Organization — Asymmetrical Advantage

Description

Enterprise economies and the nature of competition have changed. While still important, economies of scale have been augmented with economies of scope and mass customization and now by economies of intelligence. Leading companies are becoming learning organizations, leveraging data and AI to improve understanding and innovation for the continuous improvement of operations, processes, products, and the changing needs for scale, scope, and engagement. This is heightening the competitive divide between data haves and have-nots and changing the nature of intellectual property, whose value has shifted to where it's created rather than where it's realized, contributing to an asymmetrical accumulation of capital and innovation and, in response, an increase in antitrust pressures. An organization's capacity for learning – not just about customers but all aspects of business and operations – will drive its future competitiveness, resilience, adaptability, trust, value, and success.

Context

The exponential growth of value in the economy of intelligence comes from four main components: maturity in the technical, human and process capabilities and use of cognitive technologies; incremental development and reuse of analytical and predictive models with continuous feedback and enhancements to create and grow beyond the critical mass; scope in a wide variety of targets for analysis and associated data across the entire ecosystem and all aspects of the enterprise; and management commitment to being a learning organization.

LEARN MORE

Related Research

- *Critical External Drivers Shaping Global IT and Business Planning, 2021* (IDC #US46859220, October 2020)
- *IDC FutureScape: Worldwide Cloud 2021 Predictions* (IDC #US46420120, October 2020)
- *IDC FutureScape: Worldwide Future of Work 2021 Predictions* (IDC #US46248920, October 202)
- *IDC FutureScape: Worldwide CIO Agenda 2021 Predictions* (IDC #US46010920, October 2020)
- *IDC FutureScape: Worldwide Future of Intelligence 2021 Predictions* (IDC #US46923720, October 2020)
- *IDC FutureScape: Worldwide Future of Digital Infrastructure 2021 Predictions* (IDC #US46470820, October 2020)
- *IDC FutureScape: Worldwide Future of Connectedness 2021 Predictions* (IDC #US46921520, October 2020)
- *IDC FutureScape: Worldwide IT Industry 2020 Predictions* (IDC #US45599219, October 2019)

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