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Executive Summary

COVID-19 has fundamentally changed employment, schooling, healthcare, and economies globally; broadband, 5G, cloud platforms, and skilling are providing the core functionality for recovery.

Broadband connectivity provides the foundation for inclusive technological and service innovations.

5G and cloud infrastructure deliver the capacity to accelerate both recovery and digital transformation.

Skilling, reskilling, and upskilling of employees enables companies to shift to work-from-home and digital-first strategies to recover from the global pandemic.
Three Pillars Accelerate Recovery and Reinvention

**Broadband connectivity**
Connects citizens, applications, jobs, and community

**5G and cloud infrastructure**
Creates the next wave of connectivity innovation

**Skilling**
Provides people with technology skills for the “next normal”
Pandemic Recovery Is Accelerating the Pace of Digital Transformation

Government respondents globally are focused on a return to growth and the next normal. The path to recovery will focus on remote, broadband-intensive technologies.

For government, which of these areas will likely be permanently changed as a result of the COVID-19 pandemic?

- Work-from-home will be added or expanded to our HR policy: 74%
- Our customer engagement model will need to be expanded online/digital or self-service: 56%
- Our business continuity plan and disaster recovery framework will need to be revamped for future pandemics/crises: 47%
- Our supply chain will need to be more diversified: 46%
- Our operating models will need more automation, transparency, video-based sharing, self-service, etc.: 44%
- Our business models will need to be extended to include new ecosystems: 33%
- Our use of data/analytics will be central to better adjustments to drastic changes: 25%

All government respondents | Source: IDC Worldwide COVID-19 Impact Survey, Wave 2, April 2020
Broadband Is a Gateway to Reopening

Broadband refers to high-speed internet. It provides the foundation for technological and service innovations, including cloud and platform services. It connects businesses and communities. It functions as the gateway to reopening.

**Broadband catalyzes innovation...**

- Providing capacity for essential services like remote work, online learning, and telehealth
- Enabling innovative consumer applications that revolutionize the user experience
- Accelerating consumer, citizen, and corporate demands for pervasive connectivity post-COVID-19 as people and businesses continue to work remotely

According to numerous worldwide studies, the surge in virtual hospital visits ranged as high as a 1,000% increase in use.
An Inclusive Recovery Requires Broadband for All

A significant proportion of the global population lacks access (or has poor access) to broadband, meaning they can’t connect to telework, telehealth, and remote learning — essential pathways to work, healthcare, and education during the pandemic.

According to the World Economic Forum, during COVID-19:

- Almost half of the world’s population has had no access to the internet.
- Fewer than 1 in 5 people in the least-developed countries are connected.

Closing the Digital Divide

Public sector agencies need a granular understanding of local community broadband access to close this “digital divide” and drive recovery. However, there is sparse data on broadband access and speed.

Filling the Broadband Gap: Rural and Remote Areas Are the Most Underserved

For traditional telecom operators, deploying broadband in rural areas has been neither easy nor profitable, and therefore it is unrealistic in recovery. This may be remedied by new, niche players and emerging technologies that will drive down the costs of publicly funded connectivity. They should be considered priority areas for government stimulus investment.

Areas for government investment include:

- **Broadband subsidy programs**
  Expand rural subsidy programs to address the digital divide.

- **Reallocating unused spectrum**
  Television White Space (TVWS) initiatives reallocate unused spectrum for rural broadband use.

- **Smaller providers**
  These players can help bridge the rural digital divide.

- **Broadband deployables**
  Advance innovative solutions that allow for rapid deployment of broadband in remote and rural areas.
Why 5G Will Be Critical Moving Forward

5G refers to the fifth generation of mobile networks. Each generation builds capabilities onto its predecessor. 5G means a faster, more reliable network, and immediate connectivity to handle complex rich media like streamed video.

The Promise of 5G...

**Ulrafast speeds/data rates**
5G can handle bigger data volumes generated by the explosion of devices sharing spectrum and connected to the cloud.

**Low latency**
Latency is how fast data is transferred, updated, or refreshed. Low latency is critical for use cases that require real-time data exchange (e.g., telehealth, autonomous driving, or video-based classrooms).

**High density**
This refers to the number of mobile devices that draw on network capacity. With billions of IoT-enabled devices being connected, the ability to integrate devices and improve productivity is crucial for recovery.
Major Use Cases Supported by 5G

- Augmented/virtual reality
- Edge computing
- Autonomous vehicles
- Smart cities
- Video analytics
- Internet of Things
- Machine learning

55.7 billion: the projected total worldwide installed base of IoT-connected devices by 2025

Source: IDC Worldwide 5G Connectivity and Device Forecast, 2020–2024
Smart Spectrum Policy Fosters Innovation

Strategic spectrum policy making provides an additional lever to help bolster innovation and promote rural broadband access. Further, it reduces the government’s overall stimulus investment burden. Spectral “refarming,” spectrum sharing, and targeted auctions are all opportunities to provide access to idle spectrum — part of the long-term economic recovery.

Spectrum is often referred to as the “lifeblood” of 5G, which was designed to operate over multiple spectrum bands. Each band provides a different use-case sweet spot.

- **Low-bands** (sub–1 GHz) support widespread coverage and help support IoT services.
- **Mid-bands** typically offer a good mixture of coverage and capacity benefits.
- **High-bands** are needed to meet the ultrahigh broadband speeds envisioned for 5G.
The New Economy Requires New Skills

Skilling, upskilling, and reskilling will be critical moving forward as automation will displace 75 million jobs but generate 133 million new ones worldwide by 2022.*

**Skilling**
- Identifies workforce skills and provides the necessary employee training to address them

**Upskilling**
- Teaching employees to perform current jobs in new ways using technology

**Reskilling**
- Teaching new skills to employees to help them transition into different jobs and career paths

**Why are new skills important now?**

Upon completion of these programs (including certification programs), individuals have the essential skills for expanded job responsibilities and new opportunities.

54.6% of U.S. respondents found it very or extremely hard to recruit top talent with needed technical and critical skills.

Develop Talent to Stimulate the New Economy

Traditional education systems have not been able to keep up with new technologies and ways of working. Global demographic, health, social, and geopolitical changes further exacerbate talent limitations. Consequently, reskilling has become an imperative to retain top talent with the right skills to create a competitive advantage for the organization.

75% of U.S. and European respondents to IDC’s 2018 Future of Work Survey indicated that their organization was finding it difficult to recruit digital skills, at least in some areas.

46% of U.S. respondents to IDC’s 2020 Future of Work Survey reported that they plan to reskill their existing workforce, to not only retain employees but also improve employee engagement.
Restore Digital Skills for the New Economy

New IT skills, including building, operating, and securing IT infrastructure (e.g., 5G, IoT, and cloud), will be critical for improving worker employability and creating a thriving economy.

Q. What will be the most important IT skills your organization needs to build/rebuild/hire in the first wave of economic recovery?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cybersecurity</td>
<td>36%</td>
</tr>
<tr>
<td>IT operations</td>
<td>31%</td>
</tr>
<tr>
<td>Digital innovation</td>
<td>30%</td>
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<tr>
<td>Data analytics</td>
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<tr>
<td>Artificial intelligence</td>
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<tr>
<td>Technical support</td>
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<tr>
<td>Software development</td>
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<tr>
<td>Process automation</td>
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<tr>
<td>User experience (UX)</td>
<td>19%</td>
</tr>
<tr>
<td>Enterprise architecture</td>
<td>16%</td>
</tr>
<tr>
<td>Enterprise applications</td>
<td>15%</td>
</tr>
</tbody>
</table>

n = 880 total worldwide respondents | Source: COVID-19 Impact on IT Spending Survey (Wave 6 Survey conducted during June 4-15), IDC, June 2020
Top Policy Vectors for Recovery and Growth

**Broadband Connectivity**
- Commit to granular data on rural broadband gaps.
- Fill connectivity gaps by investing in emerging low-cost connectivity providers.
- Leverage unused spectrum while maximizing spectrum policy and targeted broadband subsidies.

**5G and Cloud Infrastructure**
- Understand critical recovery use cases for 5G. Future innovations will be constrained without taking advantage of 5G’s connectivity.
- Accelerate cloud platform adoption to help recovery and to mitigate the impact of future crises.
- Invest to lower the cost of accessing applications in the cloud.

**Skilling**
- Invest in current employees by providing ongoing, iterative reskilling programs.
- Develop transition programs to target existing jobs and net new work. Recruit people from underrepresented backgrounds or those lacking conventional educational credentials.
- Invest in lifelong learning initiatives to complement or replace traditional career education.
About the Analysts

**Lynne A. Dunbrack**  
Group Vice President  
Public Sector, IDC

Lynne manages a group of analysts who provide research-based advisory and consulting services for payers, providers, accountable care organizations, IT service providers, and the IT suppliers that serve those markets. Lynne also leads the IDC Health Insights’ Connected Health IT Strategies program. Specific areas of Lynne’s in-depth coverage include mobile, constituency engagement, interoperability, digital transformation, privacy, and security. Technology coverage areas include clinical mobility (physician-facing) and mobile health (consumer-facing); end-to-end remote patient health monitoring for health, wellness, and chronic conditions; Internet of Things (IoT); telemedicine and virtual care; and digital therapeutics.

[More about Lynne A. Dunbrack](#)

**Alison Brooks, Ph.D., PMP**  
Research Vice President  
Smart Cities & Communities – Public Safety, IDC

Dr. Alison Brooks specializes in public safety-related research for the global Smart Cities Strategies program at IDC. Alison has held a number of positions with IDC over the past 10 years, previously working as IDC Canada’s director of public sector research. Her research focuses on the digital transformation of public safety within Smart Cities, and explores digital evidence management, intelligence-led policing, real-time crime centers, advanced analytics and visualization, and mobile crime-fighting solutions.

[More about Alison Brooks](#)
Message from the Sponsor

At Microsoft, we see that digital infrastructure is going to play a profound role in economic recovery. Cloud-based products and services are keeping businesses, governments, and non-profits functioning, and helping small businesses serve their customers and compete. Broadband is needed everywhere to support vulnerable populations. Education and skills development must be a centerpiece of our efforts to recover. Finally, trust and security are more important than ever.

As the world emerges from the crisis it is clear that we cannot return to previous ways of doing business. The rapid and widespread embrace of digital ways of working has helped us through the immediate crisis, but we now need smart public policies to make the benefits of these innovations permanent. Having been unexpectedly catapulted into the digital future, we must now capitalize on this opportunity by doubling down on digital transformation.

As Microsoft CEO Satya Nadella recently put it,

“Neither the public nor the private sector alone can provide the answers. The challenges we face demand an unprecedented alliance between business and government.”
About IDC
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