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# Digital Transformation during Pandemic and It's Impact on Workplace

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**ABSTRACT:** In just a few months' time, the COVID-19 crisis has brought about years of change in the way companies in all sectors and regions do business. According to a new McKinsey Global Survey of executives, their companies have accelerated the digitization of their customer and supply-chain interactions and of their internal operations by three to four years. And the share of digital or digitally enabled products in their portfolios has accelerated by a shocking seven years. Nearly all respondents say that their companies have stood up at least temporary solutions to meet many of the new demands on them, and much more quickly than they had thought possible before the crisis. What's more, respondents expect most of these changes to be long lasting and are already making the kinds of investments that all but ensure they will stick. In fact, when we asked executives about the impact of the crisis on a range of measures, they say that funding for digital initiatives has increased more than anything else—more than increases in costs, the number of people in technology roles, and the number of customers.

To stay competitive in this new business and economic environment requires new strategies and practices. Our findings suggest that executives are taking note: most respondents recognize technology's strategic importance as a critical component of the business, not just a source of cost efficiencies. Respondents from the companies that have executed successful responses to the crisis report a range of technology capabilities that others don't—most notably, filling gaps for technology talent during the crisis, the use of more advanced technologies, and speed in experimenting and innovating

**KEYWORDS:** COVID-19, digital, transformation, pandemic, impact, customer, companies

## I. INTRODUCTION

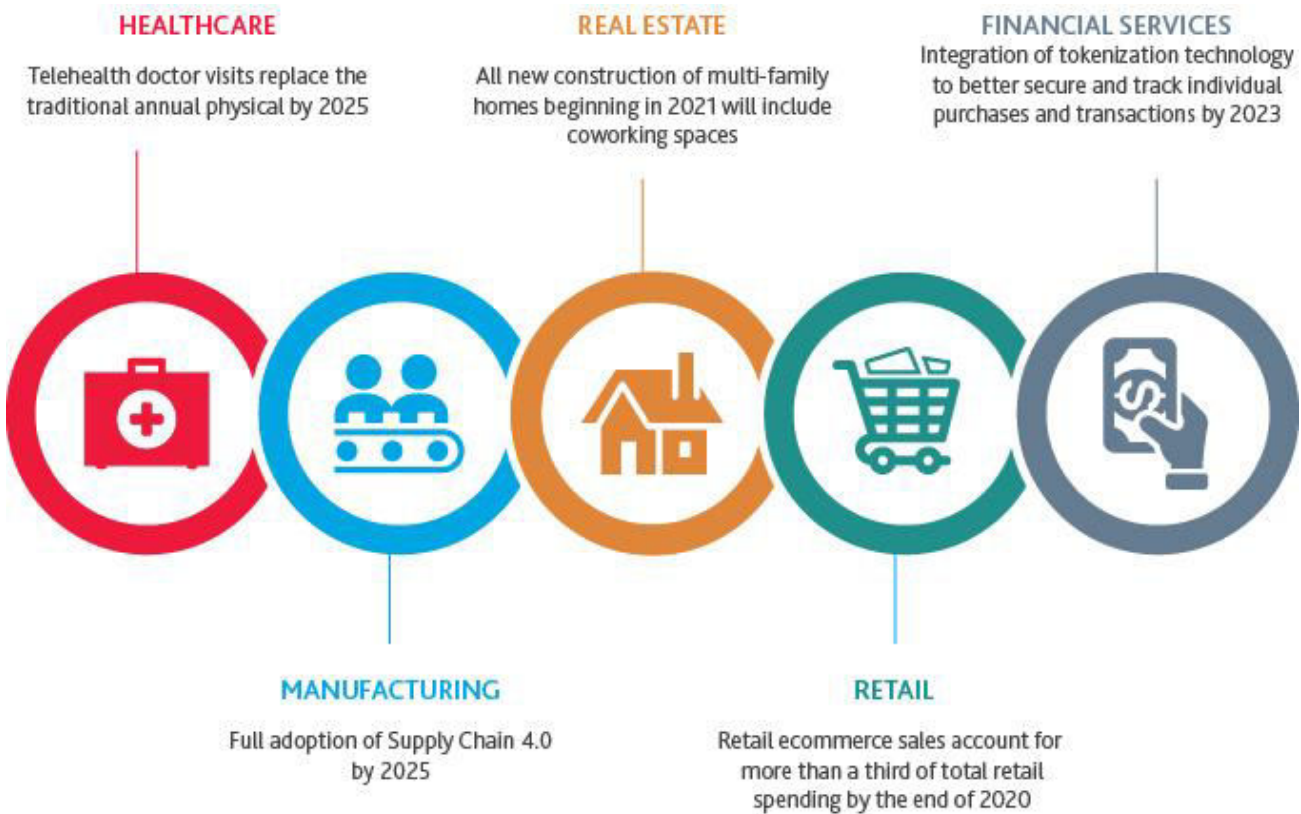
Here, we examine 10 significant impacts -- positive and negative -- the pandemic has had on the state of digital transformation.

### 1. Increased pace of deployment of digital transformation systems

Recognizing that a significant majority of employees would be working remotely, IT managers and technical staff increased the speed of deployment of digital transformation resources, such as advanced e-commerce platforms and supply chain systems, to improve the firm's ability to deploy customer-friendly applications and also tighten up the security and reliability of their supply chains, respectively.

### 2. Temporary deferral of digital transformation initiatives

Owing to the increased number of remote workers requiring access to company information resources, some IT managers adjusted the deployment schedules for their planned technology rollouts. They did this to ensure the availability of remote work resources, such as VPN access and network bandwidth. Once remote work resources had been deployed, IT managers were able to resume their digital transformation initiatives.[1,2]



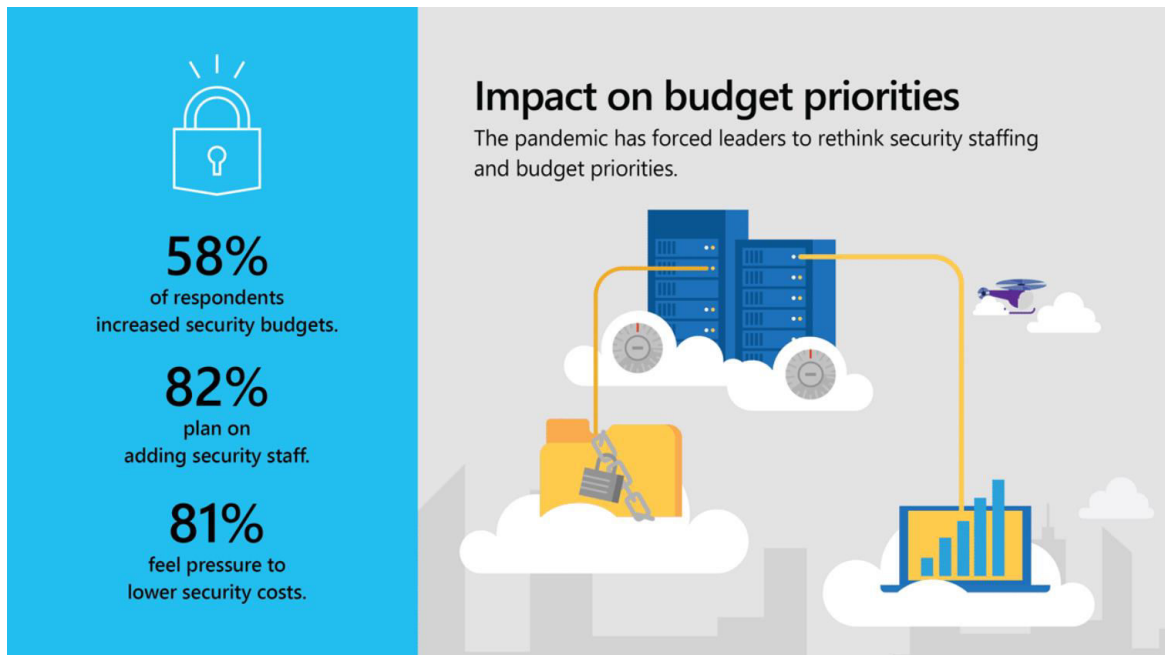
### 3. Increased use of customer-friendly apps to meet customer expectations

With more of their customers confined to their homes due to pandemic quarantine requirements, business leaders had to ensure their customers had the best possible experience dealing with the firm. That made it even more important to deploy the customer-friendly systems and applications that are the hallmark of successful digital business models.

Digital business with real-time access to customer-focused applications, especially as customers increasingly used mobile devices, rapidly became the new normal. To minimize the likelihood that existing and prospective customers would switch to another website, creating a one-stop shopping experience became a major goal for most organizations deploying e-commerce platforms.[3,4]

### 4. Access security for remote workers enhanced

With the dramatic number of remote workers, an organization's potential vulnerability to cyber attacks increased literally overnight. Not only did remote workers need the right access security, but the threat landscape increased for employees using noncompany devices, such as personal laptops and smartphones. Unless the IT department could quickly send new VM images and/or approved security software to remote employees, the vulnerability level increased until those fixes were installed, tested and placed into service. Ideally, remote workers should have company-provided and IT-configured devices, but the added costs and time required to obtain, configure and ship company-approved equipment -- especially for thousands of employees working remotely -- can be prohibitive.[5,6]



### 5. Patch management rises to top priority

The pandemic quickly increased the importance of an efficient patch management program, especially where system performance and security might be impacted by the increased number of remote users. Patching ensures that the most current system and application programming is in place, particularly to optimize security. Without strong network security, digital transformation initiatives can be placed at risk via external threat operators. With the pandemic's impact on IT operations, effective patching became even more important, especially when installing patches that improve network perimeter security and update remote access software.[7,8]

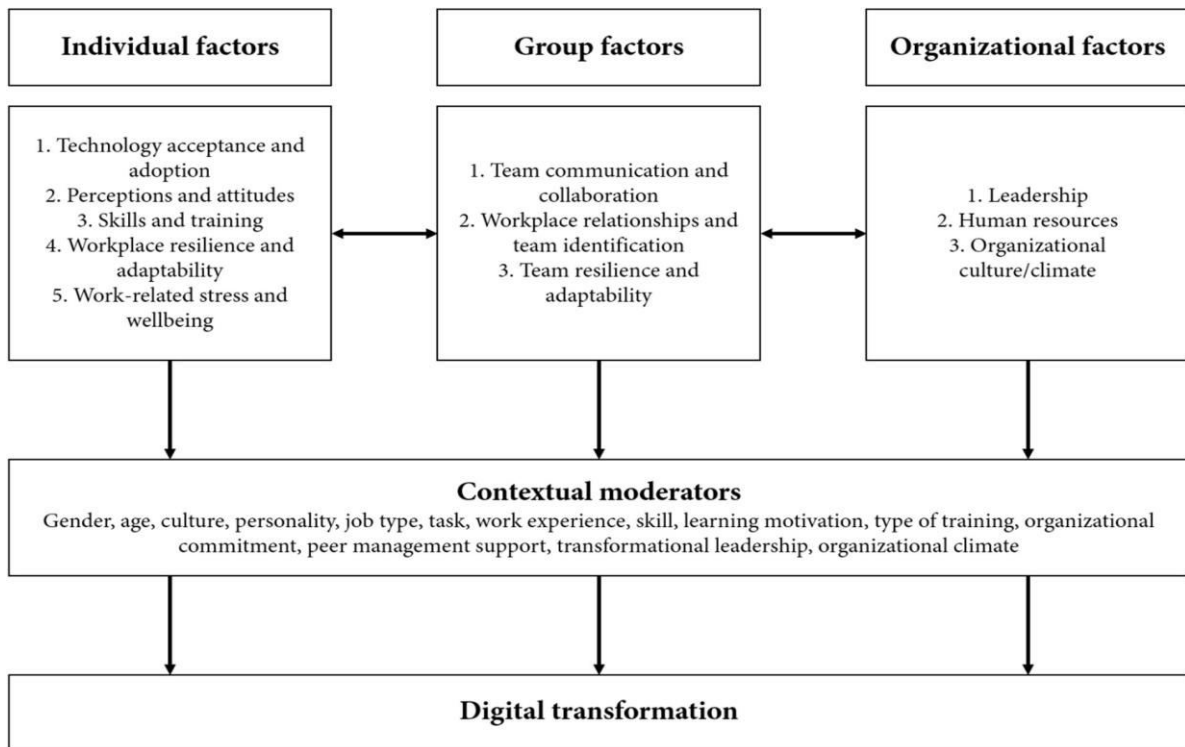
### 6. Increased use of self-service apps speeds customer data collection

One of the important benefits of digital transformation is the deployment of applications that improve access to self-service resources. This is especially important for providing top-notch customer experience. With self-service, customers can perform more activities on a firm's website, such as shopping, comparing products and prices, and completing transactions. Of greater importance is the access companies gain to the valuable data from customer self-service activities. That data can later be analyzed to identify buying preferences and other metrics. The results can be further transformed into advertising and promotional messages that generate additional customer activity.

### 7. Shifts in supply chains spur more use of advanced e-commerce platforms

With more people accessing commercial websites due to the pandemic, increased demand for products dramatically impacted supply chains. Organizations realized that, by using advanced e-commerce platforms, they could use data from the apps to analyze and modify supply chains as needed to accommodate shifts in demand.[9,10]





### 8. More collaboration between HR and IT to improve employee experience

With many employees now working remotely, HR faced new challenges, including how people will interact without physical, in-person contact; potential increases in stress and discomfort working remotely; and the need for increased e-learning to ensure employees are still connected to the company and its culture. HR coordination with IT became essential for ensuring that employees had the most positive work experience possible.

### 9. Increased use of AI in data analysis confers competitive advantage

AI and machine learning play an increasingly important role in digital transformation success. Use of AI technology, for example, can greatly enhance the ability to analyze data from advanced e-commerce platforms and provide a better customer experience. This, in turn, can translate into an improved competitive advantage for the company.[11]

### 10. Evolution of CIO role

Digital transformation and the impact of the pandemic have accelerated and underscored the decade-long shift in the CIO role from IT operator to business strategist. CIOs have evolved into true partners in the achievement of the company's business goals through their knowledge of advanced technology platforms and their technical teams' experience with new technologies. In the wake of the pandemic, CIOs are also key players in "new normal" work dynamics, such as remote working and the deployment of digital transformation technologies.

## II. DISCUSSION

Organizational complexity remains the biggest hurdle to progress. More than twice as many executives mention it as a barrier today as in the past. Another related obstacle: employee burnout. Data indicates that employees feel tired and overloaded, potentially as a reflection of that complexity.[12,13]

## 7 digital transformation trends



1. Accelerated digital transformation



2. Elevated CIO roles



3. Increased focus on UX and CX



4. Agile workflows



5. Visual collaboration



6. Rise in small business entrepreneurship



7. Ongoing evaluation of tech stacks

All of this affords a new opportunity to build better businesses and a better world. It starts with enabling a diverse workforce to perform optimally—and building trust and confidence among employees will be critical. How they are treated now will have an outside impact on perceptions and value in the future.

In the race for competitive advantage, it is imperative that organizations react in real time—that is, now—to navigate this new environment. Businesses need to take action in three critical areas in order to survive and flourish.

Lead, engage, and enable the workforce in new ways with inspirational leadership. Provide support for more flexible work options (like hybrid models of remote and in-office work). Emphasize employees' mental health and well-being, and skills development. All this can help in driving trust, binding the right talent to the organization long-term post-pandemic.

Apply AI, automation, and other exponential technologies to make workflows more intelligent. Focus on supply chain resiliency, cybersecurity, and adoption of automation and AI.

Improve operational scalability and flexibility, including the prioritized use of the hybrid cloud and moving more business functions to the cloud.

This new world permits no time for complacency or nostalgia. There is no going back to what used to pass as normal. The risks and opportunities are too great; the stakes too high. Executives need to prepare their businesses for ongoing uncertainty, inevitable disruption, and never-ending change.[14]

### III. RESULTS

This opinion piece is part of a series of articles commissioned by UNIDO's Department of Policy Research and Statistics. The views expressed in this article are those of the author based on her experience and on prior research and do not necessarily reflect the views of UNIDO .

Digital technologies are widely perceived as a promising means to promote gender equality in education, the labour market, access to financing and healthcare, among others. The COVID-19 crisis has accelerated digitalization processes in both services and manufacturing in most countries, albeit at varying speeds, triggered by the requirements for social distancing and other COVID-19-related regulations imposed by governments around the world, and by changing consumer demand throughout the pandemic. The COVID-19 pandemic has adversely affected women by exposing them to higher health risks and higher risk of becoming unemployed in addition to the burden of household and caregiving responsibilities during the lockdown. We explore some of the lessons learned about the impacts of the pandemic on gender equality and, more generally, in how far digital transformation can potentially benefit women.

The COVID-19 crisis has accelerated the digital transformation trends around the globe, as evidenced in the development and expansion of digital infrastructure; the shift to digital delivery of services by firms and within



organizations, for instance, in education, healthcare and retail; and increased implementation of digital technologies in manufacturing. Although the pandemic has had a negative impact on many businesses, it has also uncovered new opportunities for entrepreneurship. It has boosted digital entrepreneurship, for instance, reflecting changing consumer behaviour during and in the aftermath of the pandemic.[15]

The recession associated with the COVID-19 pandemic is often referred to as a “shecession”, as it has taken a disproportionate toll on women in most countries. Although the pandemic has affected women around the world differently, it has exposed previously overlooked gender biases, such as the gender-racial-gap. Looking at health risk, for instance, we find that Black women in the United States are more vulnerable and at higher risk of dying from COVID-19 than Black men or White women . The authors attribute this to higher exposure of Black women to the risk of contagion in low-wage jobs in essential services, such as the healthcare, transportation and warehousing sectors, where they are overrepresented and which preclude remote working. Historically, Black women have been engaged in precarious work. Moreover, mothers suffered significantly more job losses than fathers and women without children . The working hours of self-employed women—and consequently their income—decreased to a greater extent than self-employed men’s. That is, self-employed women lost working hours and income at a higher rate in addition to fulfilling family obligations, including home schooling, facing industrial gender segregation, and being more inclined to run non-employing businesses and to working part time .

What is of particular concern is that gendered attitudes seem to have changed during the pandemic, certainly not in favour of women. For instance, West German fathers’ egalitarian attitudes towards maternal employment had been steadily increasing in the pre-pandemic period but dropped considerably during the pandemic. This development is troubling, as it suggests that the COVID-19 crisis has not only influenced the short-term allocation of household chores, it has also reversed the positive trend towards more egalitarian gender roles. The reversal of this trend could leave women with less time to engage in productive remunerated work and inhibit female empowerment in the post-pandemic period .

Adoption of Industry 4.0 technologies will likely accelerate in the post-pandemic era, potentially putting women at risk of losing their jobs

A trend that was already evident before the outbreak of the pandemic and which is expected to intensify in the post-pandemic period is the adoption of Industry 4.0 technologies. These technologies can broadly be classified into four types:

- 1) connectivity, data and computational power;
- 2) analytics and intelligence;
- 3) human-machine interface; and
- 4) advanced engineering.

According to a recent McKinsey study , the role of Industry 4.0 technologies for achieving resilience has become even more critical in the aftermath of the pandemic, with 90 per cent of surveyed manufacturing and supply chain professionals reporting that they plan to invest in talent for digitization. Adoption of certain Industry 4.0 technologies, for instance, the use of industrial Internet of Things or operator assistance through augmented reality in digital performance management, can be realized without massive technology investments, irrespective of a firm’s existing technology infrastructure.

Surveillance is a distinctive product of the modern world” and today we are living in a surveillance society where any internet-based activity using a mobile phone or other electronic gadgets can be monitored and accessed in unfathomable ways . This has resulted in a surge in IS research on implications of such web or app-based surveillance in applications including mobile health apps , environment monitoring and pollution control apps, self-tracking apps , and parental surveillance . Covid-19 has introduced a new application of surveillance for tracking citizens with the symptoms of the virus. This includes the Covid-19 tracker in China , the Aarogya Setu app for tracking infectious citizens in India , and contact tracking apps in the United States . While these technologies are innovations for fighting the global pandemic today, the issue of government surveillance on citizens has evolved repeatedly. Research can focus on the multiple benefits of these apps, but also should not ignore the potential social complications that are possible to arise, including the historic problem of bureaucratic control by the government, using IT .[16]



Closely related to surveillance is the issue of privacy that mobile apps, including Covid-19 trackers, often tend to threaten users' personal information. For example, online classes during the pandemic lockdowns have suffered issues of 'intrusion of privacy' as students and teachers are on camera in the private spaces of their homes. Privacy in the digital age has remained a research topic of high priority for IS researchers. Privacy has also been considered by IS adoption and usage researchers, with privacy risk as a dominant and recurring factor in studies on mobile payments, location-based mobile services, and social networking sites. It would be interesting to examine the different privacy concerns of users while adapting both Covid-19 tracking apps, and online classroom applications. The risks involved in the breach of privacy by these two technologies are unlike and must be investigated with adequate contextual references.

#### IV. CONCLUSION

We understand that a pandemic can have severe consequences, including changing the political contour of the world, destroying empires, and creating nations. For the Covid-19 pandemic, we envisage a dramatic shift in digital usage with impacts on all aspects of work and life. How this change plays out remains largely dependent on our responses to and shaping of the emerging trends.

In this paper, we have outlined what we see as some key trends and research issues that need to be examined urgently. They will have substantial consequences in the future. [16]

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