The pandemic and the digitalization of Norwegian enterprises

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Abstract. The COVID-19 pandemic brought significant global public health and economic challenges. Government-imposed lockdowns and travel restrictions disrupted everyday life. Economically, the pandemic had widespread effects. Job losses and business closures were immediate, especially in sectors like tourism and retail. Several studies have indicated that the pandemic accelerated the adoption of digital technologies, with remote work and e-commerce becoming essential. In this article, we examine how the pandemic impacted digitalization in Norwegian businesses. Our findings reveal that the pandemic notably sped up digitalization processes, and led to the successful adoption of distributed work practices. The rapid shift to such practices underscored the necessity of strong digital infrastructure and revealed security weaknesses, which in turn led to increased demand for IT security services.
Key words: COVID-19, Pandemic, Digitalization.

1 Introduction

The COVID-19 pandemic, caused by the novel coronavirus SARS-CoV-2, was declared a global crisis by the World Health Organization (WHO) on March 11, 2020. This declaration led to significant public health and economic challenges (World Health Organization, 2020). In response, governments worldwide implemented strict measures, including lockdowns and travel restrictions, which fundamentally changed daily life. These shutdown measures had severe societal effects. Educational institutions closed, forcing a rapid transition to remote learning, which worsened existing inequalities in access to technology. Social isolation increased mental health issues, particularly for vulnerable populations (Pfefferbaum & North, 2020). The crisis highlighted systemic inequities in public health and the need for stronger community resilience (Marcassoli et al., 2023). Additionally, there was a significant increase in the use of digital technologies, with telehealth and e-commerce becoming more common.

The pandemic had widespread effects on businesses. Job losses and business closures were immediate, especially in sectors like tourism and retail (Agba et al., 2020). To mitigate the economic impact, governments introduced fiscal stimulus measures, but recovery has varied across different sectors (Baldwin & di Mauro, 2020). The

global COVID-19 pandemic and the lock-down of society forced companies to accelerate their digitalization efforts to maintain business continuity (Amankwah-Amoah et al., 2021; Reuschl et al, 2022), prompting many organizations to adopt remote work and adapt their business models to new market conditions (McKinsey & Company, 2020).

Norway is known for its widespread adoption of digital services and is currently experiencing a broad digital transformation across most sectors. This transformation affects everyday life, as well as public and private enterprises, with increased reliance on digital technologies for communication, service delivery, and business operations. The digital shift is evident in areas such as e-government, digital banking, and the growing use of automation and AI in industries, showcasing Norway's commitment to integrating digital solutions across all facets of society.

Norwegian enterprises are widely regarded as early adopters of digital technologies, driven by a combination of strong public-private collaboration and a culture of innovation. The development of digital payment platforms like BankID and Vipps exemplifies Norway's proactive approach to integrating digital infrastructure across various sectors. This adoption is often motivated by the need to remain competitive and is supported by a collaborative mindset within key industries such as finance and petroleum, where shared digital solutions are essential for operational efficiency (Parmiggiani & Mikalef, 2022).

In the manufacturing sector, Norwegian industries have been at the forefront of adopting Industry 4.0 technologies, including automation and digital lean manufacturing. Institutions like SINTEF have played a pivotal role in fostering digital innovation, which is crucial for maintaining global competitiveness (Lied et al., 2020). These examples highlight Norway’s leadership in digital transformation across multiple sectors, supported by strong collaboration between industry and government, promoting open data and digital integration.

Considering these advancements, it is pertinent to explore how the COVID-19 pandemic influenced Norway’s digitalization efforts. Thus, we pose the following research question:

How has the pandemic affected digitalization in Norwegian businesses?

We review the relevant background literature in the next chapter. We present the research method in chapter three, and the results of our interviews in chapter four. We then discuss the findings in chapter five and provide the conclusions in chapter six.

2 Background

The Norwegian government shut down the country on March 12, 2020, as a strategic response to the COVID-19 pandemic (NOU 2021: 6, Box 14.1). Following the shutdown, authorities gradually implemented a series of preventive measures aimed at limiting the virus's spread. These restrictive measures forced businesses to make significant adjustments in their human resource management (Jensen & Timmermans, 2022)

While the pandemic initially appeared as a health crisis, it quickly escalated into an economic crisis due to the restrictions. Goncharenko and Shynkarenko (2022) argue

that the resulting economic crises spurred innovative thinking among businesses, particularly towards digitalization as a means of maintaining competitiveness. In the aftermath of the COVID-19 pandemic, these events should serve as a wake-up call for nations to adopt digitalization strategies (Goncharenko and Shynkarenko, 2022).

The Norwegian government has articulated several objectives to advance the country's digital progress (Meld. St. 30 (2019–2020), section 6.1.3). One of these goals is the development of smaller, more agile digital services that prioritize user needs. To achieve these goals, stakeholders are encouraged to think outside the box and innovate in how services are designed and implemented. The government has also identified challenges related to establishing robust models for operating and maintaining existing digital initiatives. Moreover, the potential benefits of digitalization could drive the creation of new business models and rapidly transform value chains (Meld. St. 30 (2019–2020), section 6.1).

The literature emphasizes several impacts on the digitalization of enterprises. First, the COVID-19 pandemic has significantly accelerated the digitalization of enterprises, acting as a catalyst for adopting emerging technologies and transforming business strategies (Amankwah-Amoah et al., 2021; Reuschl et al, 2022; Ziozias et al, 2024). During the pandemic, many organizations underwent a rapid digital transformation, leading to an increased utilization of digital tools for commerce and communication. It also introduced new work models, such as remote work, and new digital services powered by emerging technologies, like AI-based predictions (Ziozias et al, 2024). The pandemic also highlighted the critical role of digitalization in strategic management and digital entrepreneurship (Omri & Chikhaoui, 2023).

Butollo et al (2023) found that the pandemic impacted companies' digitalization investments in a notably uneven way. In cases where there was a clear link between the pandemic and the need for digitalization, and where resources, technical capabilities, and stakeholder willingness were present, the pandemic triggered a significant increase in digitalization investments. The objectives and nature of the actions taken varied significantly based on each company's specific operations—such as the type of products and services, workforce composition, and customer relationships—as well as how essential virtual work was for keeping the business running (Butollo et al, 2023).

Rauschl et al. (2022) found that the pandemic temporarily removed major barriers to digitalization, such as rigid hierarchies, resistance to change, and organizational inertia, making it easier to implement digitalization efforts. However, they also discovered that the pandemic disrupted key prerequisites for successful digitalization, leaving companies in a "state of imbalance," caught between the old normal and a temporary new normal that lacked solid organizational processes. Also, the level of digitalization before the pandemic was an important indicator, and Cong et al (2021) found that enterprises that had digitalized were more resilient to the pandemic shock.

Second, there was a rapid transition to remote work (Cong et al, 2024; Amankwah-Amoah et al., 2021; Reuschl et al, 2022). With lockdowns and social distancing measures in place, companies had to quickly transition to distributed work. This shift pushed organizations to adopt digital tools such as video conferencing, project management software, and cloud-based collaboration platforms. Companies invested heavily in IT infrastructure to support a distributed workforce, including secure networks,

virtual desktops, and cloud services (Butollo et al, 2023; Amankwah-Amoah et al., 2021). There have been several studies focusing on issues such as benefits, challenges and factors for success (Tursunbayeva et al, 2021; Arunprasad et al, 2022), and on remote work productivity, engagement and stress (Galanti et al, 2021; Madero Gomez et al, 2020; Como et al, 2021)

Third, the lockdown during the pandemic accelerated the adoption of online sales and e-commerce technology (Cong et al., 2024; Butollo et al., 2023). Digital technologies such as digital payments, online sales, mobility tracing apps and touchless services played a significant role (Kahveci et al, 2024). Cong et al. (2024) also found that businesses with online sales experienced stronger market demand compared to those without.

Fourth, while digitalization offers opportunities for business continuity and growth, it also presents challenges such as cybersecurity concerns, privacy issues, and potential negative effects on employee well-being (Amankwah-Amoah et al., 2021; Almeida et al., 2020). Digitalization introduces a variety of high-probability risks that are difficult to fully mitigate or prepare for, ranging from common security breaches to internet outages.

3 Research method

This study employed a qualitative research approach to provide deeper insights into the research question, following Oates et al.'s emphasis on thorough IT research to support informed decision-making in digitalization (Oates et al., 2022, p. 18). The data was collected through 15 semi-structured, in-depth interviews, using a hermeneutic and heuristic approach to interpret participants' experiences. The study adopted an interpretive exploratory method, which is suited for investigating under-researched topics (George, 2023). Tjora's interview guide (Tjora, 2018) was used to ensure consistency across all interviews while allowing for flexibility. This semi-structured format facilitated open dialogue, enabling the interviewer to adapt questions based on participants' unique experiences (Tjora, 2018, p. 158).

The interview questions focused on participants' perspectives on digitalization during the pandemic. We decided it would be a good approach to interview digitalization consultants and digitalization service providers who worked closely with Norwegian enterprises to gain insight into the state of digitalization in these companies. Each interview lasted approximately 30 minutes, resulting in 15 audio recordings and 165 pages of transcribed data. All participants provided informed consent, and their identities were anonymized with codes, including relevant work details. Interviews were conducted either face-to-face or via video conference, following recommendations for maintaining participant comfort and flexibility (Bhaskaran, n.d.). The sample included 15 professionals from various IT companies and a bank, ensuring a mix of newer and more experienced employees to capture a range of perspectives on the pandemic's business impact (Oates et al., 2022, p. 205).

Company type	Informant Position	Informant
Digitalization consulting	CEO	1
Digital security consulting	Consultant	2
Digitalization consulting	Consultant	3
Digitalization consulting	Director	4
Digitalization provider	Head of security	5
IT education provider	Campus coordinator	6
Digitalization provider	Head of IT operations	7
Digitalization provider	Head of Sales	8
Digitalization consulting	HR manager	9
Government enterprise	CIO	10
Provider of electronic transaction solutions	Head of sales	11
Digitalization service provider	CEO	12
Provider of electronic transaction solutions	Manager, technical infrastructure	13
Financial infrastructure company	Product director	14
Provider of electronic transaction solutions	CEO	15

Table 1: Overview of respondents

4 Results

It was evident that the COVID-19 pandemic had some very clear implications for the digitalization in Norwegian enterprises. We present the key findings below.

4.1 The acceleration of digitalization

The informants emphasized that the pandemic accelerated the digitalization of Norwegian businesses, and the interviews show that it has also changed how businesses operate. We found that digitalization in the businesses gained significant momentum because of the pandemic. In particular, many businesses accelerated their digital infrastructure development to adapt to the sudden shift toward distributed work. The rapid deployment of digital tools such as videoconferencing applications and cloud-based services underscored the necessity of agile, scalable infrastructures for business

continuity. This development is illustrated graphically in Figure 1. The IT providers working with Norwegian banks also confirmed this trend.

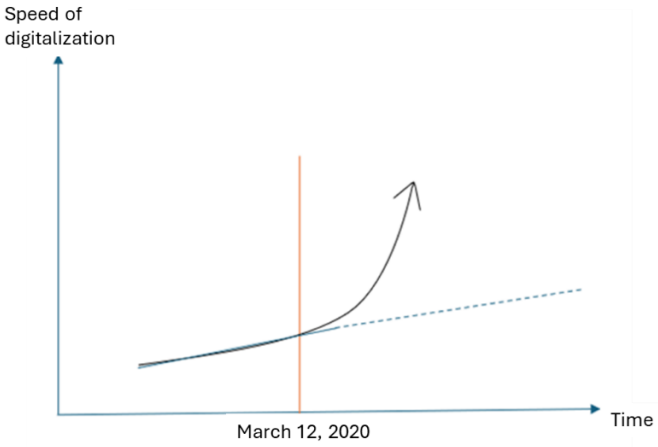

Figure 1. The digitalization accelerated during the pandemic.

We observed that many digitalization providers had to handle a surge in new customers, and that they developed digital solutions and new methods of collaboration to manage the workload. Informant 11 noted that they created automated onboarding systems for new customers to handle the demand. Informant 13 noted that they had to deliver a new solution in three weeks, that ordinary would have taken 3 years. He commented that "This was such an incredible boost of energy and the steepest learning curve we've ever experienced. The project involved many partners, and we had to deliver so that companies in Norway could access the solution. It felt like a crash course over the three weeks."

Not all businesses viewed digitalization as a necessity before the pandemic, and many were content using established, standardized systems. Informant 10 asserted that a significant part of this attitude can be attributed to the fact that transitioning the entire organization to implement a new IT system is often time-consuming and expensive. As a result, the pandemic was seen as a forced catalyst for change in work methods among employees and management. The HR manager of an IT consulting company (Informant 9) noted that "for instance, during the pandemic, we introduced weekly morning meetings on Teams for the whole company. All 100 employees gathered every Tuesday morning for a short talk. This was a new initiative during the pandemic, and we've continued it afterward because we saw that it was a great meeting point. We would meet for about half an hour. Now, it's every third week, but it's still a regular meeting we've kept since the pandemic".

Informant 10 reported that they realized they didn't have the digital capacity to support all employees working from home. To ensure everyone could perform their tasks as usual from home, it was necessary to scale up the infrastructure. This led to a "significant investments in the implementation of Teams and the entire cloud-based

Microsoft product portfolio" (CIO, Informant 10). A HR manager also noted that "There were also social changes resulting from the digital transformation. For example, the motivation for team-building activities led to new initiatives during the pandemic. Informants report that they would 'invite people for simple virtual coffee breaks'" (HR manager, Informant 9).

4.2 Strong shift to distributed work practices

The shift to distributed work practices was one of the most noticeable changes. This shift catalyzed significant improvements in digital collaboration practices. The organizations demonstrated remarkable agility in adapting their operational models to accommodate remote collaboration, driven by the urgent need to maintain productivity during the pandemic. This transition was underpinned by strategic investments in digital infrastructure, particularly cloud-based collaboration tools such as video conferencing platforms and digital collaboration platforms. These technologies proved instrumental in preserving team cohesion and productivity despite the absence of physical proximity. Notably, organizations recognized that technology alone was insufficient; they also prioritized cultivating a strong team culture in this new paradigm. By implementing targeted strategies to ensure the effective functioning of distributed work arrangements, companies not only maintained but often enhanced their operational efficiency.

This holistic approach to digital transformation yielded unexpected benefits, improving cross-departmental interaction and breaking down geographical barriers. The impact of these changes was extensive. As Informant 5 observed, "It opens many opportunities, giving clients access to more skilled people, and skilled people access to more customers." This sentiment was echoed by Informant 4, who emphasized that digital collaboration has significantly facilitated both national and international cooperation. The dissolution of geographical constraints has expanded the talent pool for businesses while simultaneously increasing market access for skilled professionals. Perhaps most significantly, the widespread adoption of remote work was perceived as predominantly positive for businesses. Respondents reported increased productivity, attributing this to reduced workplace interruptions and the flexibility of extended workdays. Moreover, the agility afforded by digital collaboration accelerated the development and market entry of new solutions.

Many respondents reported experiencing greater freedom due to reduced pressure to be physically present in the office. Informant 1 highlighted that the adoption of digital tools not only transformed work practices but also fostered a more accepting attitude toward remote work. This reflects a broader change in organizational culture, where flexibility and digital collaboration tools are now more integral to daily operations. On the other hand, several respondents expressed concerns that digitalization could complicate social interactions. Many have become more aware of the social changes that accompanied the shift to remote work. This includes the formation of social groups and the recognition that informal conversations, such as coffee breaks, play a much larger role in knowledge sharing in the workplace than previously thought. The Head of sales if an IT provider (Informant 11) asserted that "there are many issues that can be resolved by taking five minutes to talk, as opposed to during the pandemic when everything had

to be scheduled as a meeting, requiring at least half an hour. I think I never sat in so many meetings as I did during the pandemic. Even though the workload was only slightly higher, there were still extremely many meetings from a personnel perspective." Informant 9 added that the collaboration platform established for information flow and social interaction has partially replaced informal coffee chats. He noted that "we saw that these groups somewhat replaced the coffee talks at the office, which were quite active before the pandemic and are not as active now after it. However, these groups are still active" (HR manager, Informant 9).

4.3 Fast adoption of touchless payment services and online sales

The pandemic accelerated the transition to touchless payment services. Several respondents described how IT providers had plans for banks to implement a contactless digital system, where bank cards could be used without physically pressing buttons on the keypad. This had been part of the development plans from the start, but there was some hesitation regarding how consumers would react. When the pandemic hit, it became necessary to rethink strategies, particularly to prevent the spread of the virus through physical contact with payment terminals. The product director of a bank (Informant 14) noted that "The use of this technology escalated and became well-known quickly. There was a lot of media focus on the fact that you didn't need to touch the terminal, and you didn't have to enter your PIN for small amounts. We would have eventually reached this point in Norway anyway, as Norwegians are quick to adopt new technology, but it wouldn't have happened as fast without the pandemic."

It was not only Norwegian banks and their suppliers who experienced this level of digitalization in Norway following the pandemic. Some of the informants described this IT development as a kind of "time machine," particularly within e-commerce. Informant 11 noted that Norway ranks among the top in digital commerce, particularly for mature markets, and leads in Scandinavia. He also remarked that Norway also has one of the highest numbers of users of e-commerce, and that 81% of the population over the age of 18 shopped online.

"(…) but of course, there was a big shift during the pandemic, where in many ways, we jumped into a time machine. Things have stabilized since then, but we expect that e-commerce revenue will continue to grow year after year. […] Nevertheless, we saw growth in Norway overall. What wealthy consumers in Norway did was transfer their spending from travel to physical goods and services." (Head of sales, Informant 11)

This indicates that even during the pandemic, there was no hesitation in consumer spending among Norwegians, which led to a race among Norwegian companies to be digital and accessible to the public. This pressure was felt by service providers. Informant 10 reported that they had to adapt and work in a completely new way—more efficiently, more flexibly, and more directly. As a result of this adaptation, they managed to complete an extremely large and complex delivery in just three weeks. The CIO of an IT provider (Informant 10) asserted that "Without the pressure from the pandemic, this process could have taken up to a year and a half."

4.4 More focus on IT security issues

The interviews indicated that businesses that already had comprehensive digitalization strategies became more aware of IT security during the pandemic. This heightened awareness encompassed various aspects, including protecting employee privacy, security preparedness, digital security, and social security, which involves community inclusion through digitalization. Questions also arose regarding how sustainability and IT services should evolve. Implementing these measures required significant resources from the companies. The CEO of an IT consulting company (Informant 1) noted that "... even though there was technology that supported both audio and video, we couldn't implement it overnight because we needed to be 100% sure that we met the security requirements, which are very strict."

As many employees had to work from home, they were no longer connected to corporate systems through local networks but via the internet. This shift opened the eyes of many businesses to the importance of IT security. An IT equipment and service provider observed changes in how companies utilized resources. The Head of security of an IT provider (Informant 5) asserted that "there is, of course, less resource usage regarding physical assets. Companies are buying fewer servers and networking equipment and are increasingly purchasing security services instead. This includes conducting security audits and implementing security mechanisms, whether on the network or concerning identity. There has been quite a significant uptick in demand for security consultants in my part of the market; it's been challenging to find them, and they have a lot of work to do. The nature of security has changed."

Not all organizations were able to implement remote work for their employees. The Head of IT operations of an IT provider (Informant 7) noted that maintaining its operating license would have posed a significant challenge due to the legal obligations it faced. He further explained that to avoid violating regulations, the company chose to deviate from government recommendations. Employees without access to personal data were allowed to work from home, while those with access to sensitive information were required to continue working in the office. This decision was primarily due to the challenges associated with ensuring that work was performed in a closed and secure environment, free from the risk of surveillance.

5 Discussion

The study highlights how the COVID-19 pandemic acted as a catalyst for digitalization in Norwegian businesses, consistent with the findings in other countries (e.g. Amankwah-Amoah et al., 2021; Reuschl et al, 2022). Many businesses accelerated their digital infrastructure development to adapt to the sudden shift toward distributed work. The rapid deployment of digital tools such as videoconferencing applications and cloud-based services underscored the necessity of agile, scalable infrastructures for business continuity. The broader implications of this rapid adoption demonstrate how pre-existing technological infrastructure, and digital preparedness can enhance resilience in the face of crises. This readiness was crucial during the pandemic in maintaining economic operations while simultaneously supporting public health efforts.

The pandemic underscored the crucial role that digitally advanced enterprises play in managing external shocks like a global health crisis. These businesses, equipped with strong digital infrastructures, were able to adapt to sudden disruptions by quickly shifting to distributed work, maintaining supply chains, and continuing operations through digital platforms. This resilience emphasizes the importance of ongoing digital transformation to ensure business continuity in unpredictable circumstances. It also highlights the increasing importance of aligning business strategy, digitalization strategy, and economic complexity in driving value creation for most enterprises. This emphasizes how digital transformation is becoming increasingly integral to long-term business success.

One significant change was the adoption of distributed work practices, aligning with findings in the literature (e.g. Cong et al, 2024; Amankwah-Amoah et al., 2021; Reuschl et al, 2022). This had mostly positive effects for the enterprises, leading to more digital collaboration, better service to customers and higher productivity. The companies therefore largely continued with distributed work several days a week even after the pandemic restrictions eased. In this sense, the lockdown during the pandemic resulted in the institutionalization of distributed work practices.

We see this results in light of Norway's consistently high ranking at the top of digitalization indices in Europe (Ministry of Local Government and Modernisation). Norwegians are early adopters of digital technologies and possess advanced digital skills. Additionally, the country's robust internet and mobile infrastructure ensures excellent coverage and connectivity. This is reflected in everyday life, where there is nearly full broadband coverage, nearly all citizens use online banking, pay bills digitally, interact with public services through online platforms and chatbots, file taxes electronically, and exchange money using mobile payment apps (Parmiggiani and Mikalef, 2022). The private sector mirrors this trend, with companies heavily investing in digital platforms for collaboration, data sharing, and virtualization. We argue that digital maturity in the Norwegian population made the conversion to remote work relatively frictionless, that helped keep most enterprises carry on operations unabated by the lock-down.

We see that there are mixed reactions from employees to remote work. On the one hand, there is the appreciation of increased freedom and flexibility, but there are also concerns about the negative effects on the work environment and productivity. The transition to more remote work removed the informal meeting arenas, where minor issues could be quickly resolved. This is consistent with empirical findings in other settings (Yusriani et al., 2023; Arunprasad et al., 2022). Yusriani et al (2023) reports effects such as more time for oneself and family life, but also more hassle to interact with colleagues. They also report the blurring of the line between work and non-work life. Lyngstadaas and Berg (2022) also finds digitalization affects the well-being of employees in the operational workforce.

The rapid adoption of touchless payment services can be attributed to the readiness of both technology providers and the digital maturity of businesses and consumers. Providers already had the necessary technology in place, which facilitated the swift transition to contactless payment methods. This was made possible by a high level of digital literacy among consumers and the existing technological infrastructure of businesses, which allowed them to adapt quickly. Touchless payments, including mobile

payments and contactless card transactions, enabled businesses to continue operations with fewer disruptions during the pandemic. By minimizing physical contact, these technologies played a key role in reducing the potential spread of the virus. This, in turn, helped slow the transmission rate of COVID-19, contributing to less stringent government restrictions. The reduction in physical interactions also alleviated public health concerns, allowing businesses to maintain a semblance of normality while adhering to health guidelines.

An important outcome of this digital shift was the heightened awareness of IT security vulnerabilities. As businesses moved operations online, the need for robust cybersecurity frameworks became more evident. This was a wake-up call for many businesses, pushing them to re-evaluate their security frameworks. As a result, these enterprises began conducting thorough security audits and implementing more robust cybersecurity measures, such as multi-factor authentication, encryption, and secure VPNs.

The increasing reliance on cloud services and distributed work environments led to a surge in demand for cybersecurity consultants, as companies sought expert guidance to secure their systems and prevent potential breaches. We argue that advanced cybersecurity became essential not only to safeguard data but also to ensure compliance with regulatory standards such as the General Data Protection Regulation (GDPR) in Europe. This shift highlights how digital transformation, while accelerating during the pandemic, also exposed critical gaps in IT security that businesses had to address to protect their operations. This rise in demand for cybersecurity services points to the growing recognition that digitalization must go together with security measures. According to a McKinsey report, many organizations that adopted remote work were forced to improve their security posture to support the surge in online activities (McKinsey & Company, 2020). Moreover, Gartner's research indicates that spending on security services, including cloud security and endpoint protection, surged during the pandemic as enterprises adapted to new risks (Hurst, 2021).

6 Conclusion

The COVID-19 pandemic served as a pivotal force in accelerating digital transformation within Norwegian businesses, in line with global trends. In response to the crisis, companies were compelled to rapidly implement distributed work practices. These new modes of operation were largely perceived as effective and, consequently, became institutionalized within the surveyed organizations. This reflects a broader organizational shift, where emergency measures, once adopted, have evolved into permanent, structured practices, reshaping the future of work.

This rapid shift underscored two critical aspects of modern business operations. First, the importance of robust digital infrastructure: The ability to quickly transition to distributed work relied heavily on existing digital systems and networks. Companies with strong digital foundations were better positioned to adapt to the new work environment. Second, the need for enhanced cybersecurity: As businesses moved operations online, vulnerabilities in IT security frameworks became more apparent. This led to an increased demand for cybersecurity services to protect distributed work environments.

These developments align with broader research findings that identify the pandemic as a key driver of digital transformation. Notably, sectors that were already digitally advanced prior to the pandemic experienced the most significant acceleration in their digital initiatives. The crisis not only necessitated immediate technological adaptations but also highlighted the long-term importance of digital resilience and security.

Digitally mature businesses were better positioned to adapt to remote work and maintain operational continuity. The digital skills of the population, supported by comprehensive mobile and internet infrastructure, played a crucial role in this transition. However, the shift also underscored the need for aligning business strategy with digitalization efforts to create long-term resilience.

The rise of touchless payment technologies and distributed work tools reflects Norway's readiness for adopting digital solutions. Enterprises with pre-existing digital strategies saw an increased focus on cybersecurity, further pushing the digital transformation agenda in the context of regulatory compliance and operational security. This illustrates how the pandemic served as both a catalyst for digital growth and a wake-up call for addressing the critical gaps in security as part of digital transformation efforts.

This study has some limitations. The data largely comes from digitalization consultants and service providers. While these respondents offer valuable insights into transformation projects, they represent a narrow industry segment. Therefore, the conclusions might mainly reflect the experiences of companies directly engaged in digital initiatives, rather than capturing a broad overview of how all Norwegian businesses have approached digitalization during the pandemic. Future research could therefore focus on gathering data from a range of Norwegian businesses to offer deeper insights into how digitalization has been implemented across various sectors. Such a future study could examine how digital transformation varies between different types of businesses and across industries. Additionally, the perspective of internal employees, not just external consultants, could help to reveal how digital strategies impact day-to-day operations, employee experiences, and long-term organizational changes. By incorporating a wider range of viewpoints, future research could better capture the nuances and complexities of digitalization in Norwegian enterprises, especially post-pandemic.

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