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Surviving the Covid-19 Pandemic: The Role of Digital Innovation and Transformation

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Abstract. The Covid-19 pandemic, by effecting businesses, is inciting inter- and intra-organizational challenges requiring firms to adopt and/or adapt approaches that facilitate in managing business operations. Confronting such epidemic and its related challenges is importantly based on efficient internal and external collaboration. Inter-organizational trust is also becoming fragile particularly in uncertain situations such as current pandemic. Therefore, firms are struggling to even survive as their whole supply chain has erupted and lacking trust on external partners. In such circumstances, digital transformation is preparing organizations to address these issues and can support them to provide the opportunities to cope up and bounce back. This means that digital innovation and transformation seem to be playing a crucial role in recovering from the effect of Covid-19. Therefore, this paper taps on the topical issue of the varying impact of Covid-19 on internal and external operations of firms and how digital innovation and transformation play a critical role keep-up with ‘new normal’ routines.

Keywords: digital innovation and transformation, Covid-19, internal and external collaboration, digital servitization

1 Introduction

Although digital innovation and transformation are growing rapidly and preparing organizations to tackle several challenges by adopting disruptive technologies, the embedded uncertainties e.g., internal and external, are inevitable and cannot be calculated and managed effectively well before. Covid-19 – an infectious disease, at its nature, is the very first significant epidemic in recent age of digitalization which is, along with several challenges of global reach, economic impact and political influence [1], a great opportunity of learning for the whole world in general and for the industrial organizations in particular [2]. This exceptional crises has not just impacted the global reach, but also disrupted the economic impact, political influence and organizational routines and networks [1]. Industrial organizations are profoundly networked provide opportunities for firms emerge within and outside of the organizational boundaries, thus usually rely on smooth operations and supply chain for their operational excellence by avoiding any potential conflicts [3], [4]. However, Covid-19 pandemic reveals the vulnerability and lack of resilience in supply chains globally that is ultimately effecting the inter-organizational interactions.

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Importantly, organizations' external collaboration demands trusting on relational partners which is usually built over time. However, such inter-firm trust is becoming fragile particularly when uncertain circumstances such as current pandemic Covid-19 hits. Not just the inter-firm trust is shaken-up but such sudden situations can even make organizations to struggle for their survival because of the uncalculated disruption in whole supply chain. Such circumstances necessitate organizations to plan and prepare even more throughout their supply chain in terms of rapidly developing capabilities and introducing new internal and external digital business processes in order to survive [5]. This also implies that organizations might want to consider a transition path where they use to make a business model shift. Therefore, Covid-19 pandemic, by effecting businesses, is inciting inter- and intra-organizational challenges requiring firms to adopt and/or adapt such approaches that facilitate in managing business operations. It requires firms to take exceptional measures in exceptional circumstances because stakeholder collaboration for disaster planning and management has become insufficient. Since distance working and telecommuting seem to last for sometimes even after the Covid-19 pandemic, the question of how such organizational 'new normal' will effect on their internal and external collaborations in the long-term remain unanswered [6] [7]. The question of effective internal joint communication will remain valid during the pandemic as such communication across different units would have implications to deal with crises [8].

It will also be interesting to see if 'new normal' will have any implications on inter-organizational collaboration and trust, given that pandemic enhances the uncertainty and blurring boundaries. Since successful external collaboration requires organizational commitment [9], how organizational routines and conduct change during crises time and their impact on internal operations becomes significantly imperative [6]. Furthermore, the 'new normal' also necessitates firms to focus on risk management, scenario planning and implementing design thinking that focuses on disruption, abductive thinking and reframing in order to bounce back [10]. During the Covid-19, it is even difficult to imagine if business operations; whether internal or external, could run without the recent internet-based technologies [11]. Because organizations can relate their current situations and realize that they would have been hit harder if coronavirus epidemic would appear 10-15 years ago when digital infrastructure contained more basic elements with less efficiency [6]. Therefore, the Covid-19 epidemic is currently accelerating digital shift that include the implementation of several technological innovations within the organizational routines and across e.g. B2B [12], [13].

However, it will still be interested to observe how organizations, while taking alternative strategic paths, have been using their existing digitalization-based capabilities internally and externally in order to seize the opportunity to emerge with more innovative routines and new business models encompassing value propositions [1], [5]. Several scholars have emphasized the facilitating and enabling roles of recent disruptive digital technologies and digital transformation of organizations in business model innovation to enhance their competitiveness, productivity and operational performance [4], [14], [15]. However, the current literature provides very little or almost no evidence on how digital transformation, as a source of agility and dynamic capability, has been enabling

organizations to capitalize the potential for change and keep-up with their internal and external operations since Covid-19 effected [16]. Mostly, the prior literature has been confined to the system security and safety of IT-based operations and overall information technology's strategy [17]. Nevertheless, firms that responded quickly to the Covid-19 crises, not just by taking *ad hoc* measures, have been stabilizing themselves rapidly.

Therefore, this article focuses on the topical issue of the varying impact of Covid-19 on internal and external operations of firms and how it has triggered the key role of digital innovation and transformation for firms to bounce back.

2 Conceptualizing digital innovation and transformation

2.1 Sociotechnical lens of digital Transformation in Covid-19

By capitalizing on digital transformation, organizations are reinventing the ways businesses are conducted in industrial value chains, leading them towards a new era of industrialization, known as industry 4.0 or fourth industrial revolution [14]. Such transformation towards digital world does not only support them to implement recent technologies but also requires a human-technology interaction to introduce new business processes and social systems [18] during the crises. This paradigm shift is coined as a sociotechnical process which necessitates the traditional organizations to change their value creation path by enabling innovation and collaboration at unprecedented speed, scale, and impact [2]. Since sociotechnical lens promotes changes in both technical and social factors, it also requires organizations to jointly optimize the organizational structure, culture and leadership competencies and skills.

In such a short time, the Covid-19 has unprecedented effects and lockdowns forced closure of many “non-essential” businesses across the world [2]. It has not only left many organizations struggling for survival, but will also force some to look for alternative strategic paths [5]. Therefore organizations will need to find creative solutions to the new operational norm for future [2], by using alternative business models and innovative technologies as well as by triggering the pace of digital transformation of organizations [20], [8]. Most of the organizational operations have been shifted online, e.g. employees have adjusted to ‘new normal’ with meetings going completely online, office work shifting to the home and with new emerging patterns of work [21]. It would have been impossible to run businesses like this without the support of digital technologies e.g. without smart phones, the internet, e-Commerce, and Zoom meetings [11].

Recent research [8] identified eight crises-comparative dimensions related to digital transformation practices that include employing digital showrooms for products and services, training customers on e-commerce, development of data analytics, enhancing vibrant inter-organizational communication, online monitoring of customers operations, using social media to distribute general technical information using webinars and modifying website content. Similarly, Conforto, Vargas and Oumarou, (2020) highlighted that to bounce back from this crises, organizations must enhance their technological capability and put their people first to leverage the opportunities offered by digital transformation [22].

Such transformation pace requires changes and/or adjustments in organizational structure, culture and leadership skills, which is beyond the *ad hoc* measures. Therefore, it necessitates firms to transform the entire system including people, processes and communications considering both social and technical systems not just to cope with current pandemic but also to prepare for any future contingencies [23]. Firms' agility and rapidly developed capabilities, by capitalizing on the prospects for digitalization, will help them to survive the crises. However, the scenario might be different for different organizations; less digitally mature and higher level of digitally mature organizations.

3 Digitally Mature vs Less Digitally Mature Organizations

The Covid-19 crisis seemingly provides a sudden glimpse into a future world, in which digitalization has become central to every interaction, forcing organizations to advance the adoption curve and to balance fragility and resilience [23], [24]. Organizations who adopted digital way of working before this pandemic were in much more better position to cope with this disruption as compare to the ones who maintained a fragile form of resilience [2]. However, there were no explicit IT preparations for this pandemic, but on-going digital transformation initiatives of some organizations accidentally prepared them for this new situation. On the other hand, this pandemic has created an opportunity for the less digital organizations for self-evaluation for digital transformation [12]. Moreover, businesses that once mapped digital strategy in one- to three-year phases must now scale their initiatives in a matter of days or weeks [24]. Blackburn et al. (2020) highlighted three bold moves e.g. finding a new cadence (by quicken the data reviews, focus on modern technologies, and by experimentation); learning by scaling (learn quickly from experimentation and scaling it up); and don't do it alone (Involve all the stakeholders) that organizations need to make in order to rapidly transform for Covid-19 crisis.

This pandemic is requiring firms to look for digital replacements. These choices have presented opportunities for firms to be innovative in redesigning their product and service delivery channels and mechanisms; and to look for strategic new ecosystem partners, who can support them to achieve these [5]. Recent studies [1] have highlighted that the capabilities (e.g., online and remote-access, global distribution, service and leadership) and technologies that were considered advanced, costly, complex, and unproductive before the crisis by less digital organizations have now become essential after the crisis hit.

4 Internal and External Network Collaboration Covid-19

Covid-19 is also forcing several organizations to rethink their internal network collaboration and inter-firm relationships since uncertain environmental changes are becoming a source of network failures. The success of such relationships are usually defined by certain transactional and relational factors, such as, interdependence, trust, commitment, communication etc. [9], [26], [27], while the quality of these relationships determine how firms can survive in crises and can bounce back after the pandemic.

Internal and external collaboration is one of the most critical part of digital transformation in order to cope with crisis situation like Covid-19. Organizations that can learn and adjust more quickly in today's crisis by keeping closer ties with their stakeholders e.g. customers, employees and suppliers will likely be more successful during recovery [24]. Digital technologies plays a vital role, by providing a long range of digital collaboration tools and artefacts powered by hyper-connectivity (e.g., cloud services, video conferencing tools etc.), in enhancing the collaboration among the stakeholders [12]. Moreover, synergic effects between the market and technology (e.g., 5G and others) have reduced the costs of collaboration systems due to which all the businesses can access and use these systems easily. These collaborative systems enhance internal and external agility and efficiency in terms of increasing the frequency of internal meetings such as temporary meetings or meetings outside of specific projects as well as the formation of new business networks and the promotion of knowledge creation activities [12].

Cortez and Johnston (2020), based on social exchange theory (SET) identified four categories to manage such crises; digital transformation, decision making processes, leadership and emotions and stress. They argued that these categories are interlinked and managing crises in network collaboration are highly dependent on these factors. This also implies that a significant shift in mindset will also be required to manage the risk and uncertainty while dealing with external network collaboration. For instance, depending completely on global supply chains might negatively affect firms' capacity to bounce back from the crises. However, integrating and combining the resources among inter-firm partners can facilitate in achieving the common goals and making value co-creation [8].

4.1 Impact on Inter-Organizational Trust

When organizations seek and involve in external collaboration, inter-organizational trust, as a company's perceptions of reliability and integrity of relationship partners, plays a critical role not only in minimizing transaction cost and inter-firm conflicts but also maximizes the relationship commitment and overall performance [3], [4], [28]. Inter-organizational trust implies that relationship partners do not act as opportunistically even when there are short-term goals and objectives. However, during uncertain circumstances, such network collaboration hangs in the balance due to a broken communication where organizations start thinking about their survival, thereby effecting on trustworthiness and commitment of whole supply chain [29] [30]. Similarly, firms are required to respond quickly that might escalate the need of inter-firm trust but the likelihood of incremental growth of trust rather decreases, thereby leading to develop reputation-based swift trust [27]. For instance, certain partner in supply chain may avoid committing to their promises and present Covid-19 as an excuse or perhaps they might have been unable to deliver the committed solution to their supply chain partner. Similarly, due to the rapidly evolving situations during turbulent times, certain relationship partner might have lost the collaborative orientation that was set before the crises [30]. This also necessitates organizations to automate external transactions as much as possible during crises that would

help them to minimize the maximum friction in the supply chain and logistics, for example the way Uber, Lyft and others are operating [11].

4.2 Digital Servitization and Covid-19

Current digital era and the disruptive digital technologies support radical innovation in industrial offerings including products, services, processes and business models in innovation ecosystem, which is termed as digital servitization [31]. Digital servitization advocates the strategy to develop digital offerings and advanced services by transforming the processes and capabilities within industrial firms as well as to their related ecosystems in order to gradually create, deliver and capture service value which emerges from enabling disruptive digital technologies [32]. Thus, digital innovations connecting to servitization provides firms with less dependence on their collaboration partners, thus enabling to cope with the crises effectively. Although such transformation of digital servitization requires more efforts and long-term processes than the urgent measures to be taken during the crises such as Covid-19 pandemic [31] in their recent empirical study found that potential of exploring the solution through new service technology and digital services is highly accelerated by organizations. However, less digitally transformed firms might face certain challenges because of their immature ongoing digitalization initiatives, which can be true in case of small and medium organizations. Therefore, the industrial organizations that are involved in digital offerings and services have enough resilient to proactively cope with the crises due their developed internal and external digital transformation [31]. Such intelligent digital innovation, by avoiding the inevitable implications of crises, facilitate the collaboration process with other partners (e.g., customers and suppliers) and help industrial firms to continue providing smart solutions to their customers even during pandemic time.

5 Conclusion and Implications

As of today, countries, companies and societies are tackling this infectious disease and its future implications still continue to unfold. However, as we have seen, digital innovation and transformation has been helping this wider audience so far from individuals to governments in order to run daily businesses. This implies that ‘digital economy’, powered by digital technologies, is actually becoming the source of economies for several key actors in societies. In particular, such digital innovations and transformation has facilitated organizations to not just to cope up with the swear impact of current pandemic by developing swift trust but also to keep running the smooth internal and external operations and collaborations. This implicate both research and practice. Since the research on Covid-19 is novice, and is currently based on auxiliary and opinions, it requires robust analyses based on empirical evidences that would help research to further theorize and develop the frameworks to deal with such crises. It also implicate that a systematic inter-disciplinary research will inform better to measure the quality of respond by firms by collecting the evidences based on adjusted or new business models [23].

Similarly, Covid-19 has provided great opportunities, regardless of the challenges, for firms to be agile and learn from their responses in this crises. This will help in shaping-

up innovative techniques and approaches in future [23]. Managers are required to build resilience and use existing capabilities provided by digital innovation and transformation and discover the alternative approaches in terms of developing a strategic stakeholder collaboration – toward digital servitization and business model innovation. Regardless of the effectiveness, digital technologies bring some resistance at different levels, managers are required to keep this resistance in mind and identify how trust has fluctuated. Although *ad hoc* steps e.g., quick response in crises or temporary lay-offs might help firms in short-term but it will be effecting the whole value chain. Leaders are, therefore, required to build their people and a future vision for the whole organization and blend these both as a permanent solution.

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