

Managing Digital Transformation Strategies for Business Survival amid Pandemics

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ABSTRACT: The business environments worldwide were disrupted beyond an ordinary measure by the outbreak of Coronavirus (COVID-19) towards the end of the year 2019. Following the declaration of the virus as a pandemic by the World Health Organization (WHO) in the first quarter of 2020, many nations when on total/partial lockdowns that lasted for several months. The immediate impacts of this development included shutting down of companies across virtually all industries leading to significant economic flops. However, deployment of a combination of modern technologies became the only way by which many organizations sustained their survival during the pandemic. A lot of firms had to shiftily review and adjust their digitalization strategies to impact real transformations that the emergency demanded.

In this article, three important segments of business models were considered with the aim to enhance understanding of the requirements for their transformation digitally and how an organization can improve its digital resilience for business survival during and post-pandemic.

The research was based on analysis of secondary data by conducting an extensive literature review to extrapolate on theories for drawing on the conclusion.

The article concluded that to survive during a pandemic an organization would require prioritization of, rather than an enterprise-wide digital transformation (DT) strategy, to deal with the immediate needs of its customers as appropriate to the exigency of the pandemic. While a full-blown digital transformation is generally promoted, prioritizing the DT agenda would help a company first deal with the most relevant aspects for its survival within the limited resources.

Keywords: Digital Transformation, Digital transformation strategies, Business models, Business survival in a pandemic, COVID-19, Coronavirus, pandemic, Digitization, Digitalization, Digital strategies, Business resilience, Digital business strategy.

I. INTRODUCTION

The emergence of pandemics is generally unannounced and their impacts are life-threatening albeit their socio-economic impacts, which can be immediate and widely spread like a wildfire. The Coronavirus or COVID-19 (C19) erupted in 2019 and it was declared a pandemic on 11 March 2020 by the World Health Organization (WHO). Ever since the normal life of mankind has been disrupted globally as the infection kept spreading rapidly across borders starting from China to the rest of the world. Many nations are still struggling under the grip of the pandemic with a series of measures to control the spread, including partial and total lockdown on people's movement and physical contacts among people.

One of the immediate impacts of the lockdown that occasioned the COVID-19 outbreak was the closure of businesses of different categories – from manufacturing to transportation and hospitality services. Only organizations providing goods and services considered to be essential were exempted from the lockdown. The effect of the lockdown amounted to economic shutdown for many nations and revenue loss to several businesses. As governments of many nations enacted lockdown across the world, the volatility, uncertainty, complexity and ambiguity (VUCA) became accelerated across the socio-economic, political and technological environment (Fletcher & Griffiths, 2020).

Many organizations suddenly realized their unpreparedness as the existing business continuity plans failed to cater for the new emergency. However, some more resilient organizations were able to quickly draw on their digital infrastructures to activate remote working among their teams to sustain the business. But not many firms were able to achieve this as the pandemic took them unaware and their business strategies never considered essentiality of a remote workspace. Consequently, many businesses had to

consider a review of their digital transformation programs with the aid of adjusting them for relevance to the new emergency (Overby, 2020).

For an organization to attain digital resilience three segments of the business model must be digitally transformed to deliver the capability for survival in any pandemic emergency. As organizations are required to ascertain the safety of their employees and the customers amid Covid-19, digital solutions being introduced to offer resilience must also provide adequate safety across the value chain. However, a full, enterprise-wide digital transformation programme could be a lifelong project, which might not fit into the exigency of a pandemic (Fletcher & Griffiths, 2020; Soto-Acosta, 2020).

In effect, this work is based on the common understanding that every business model is conceived to operate with internal processes to deliver its value propositions to the consumers via well-articulated delivery channels. Therefore, a business would essentially have a back-end where production or operations are taking place and suppliers are interacting with the business on supply chain; a front-end where customer interactions are taking place for product sales, and a medium connecting the products/services at the front-end with the customers through product/service delivery mechanisms as well as connecting the suppliers to the back-end via the business channels.

It has been argued that some changes being forced by the pandemic would likely remain permanent, and become the new normal (Haff, 2020). For example, the shifts around food like home cooking and online grocery shopping, as well as cashless transactions, have attained greater momentum that cannot be reversed in the future.

II. LITERATURE REVIEW

2.1 Digitalization

Modern businesses cannot ignore the fact that the operating environment is already digitalized and the only surviving way is to undergo the digital transformation needed for competitive advantage. Technology advancement has continued to create more innovative platforms and tools for businesses that need to adapt to the new market through the digitalization of business processes and the entire business value chain. Simply put, digitalization has been defined as “turning interactions, communications, business activities, and business models into (more) digital ones.” (Soto-Acosta, 2020). This has called for an organization’s digital resilience, emanating from employing appropriate strategic response to the

ever-present external change confronting the business (Fletcher & Griffiths, 2020).

The business environment consistently gets altered by the prevailing impacts of the VUCA world known for volatility, uncertainty, complexity and ambiguity. Business leaders must respond to the VUCA world by providing for their stakeholders, clear vision and value that guarantee stability, certainty through understanding, clarity and simplicity to deal with complexity and precision (Fletcher & Griffiths, 2020). A well-articulated digital transformation is required to offer a better way of running business activities, create new value propositions and generate cross-industry products and services for customers through digital technologies (Soto-Acosta, 2020).

Modern businesses can no longer place digital as an afterthought agenda, rather digitalization should form an integral part of their business strategy (Fletcher & Griffiths, 2020), and organizations must think digital-first and be ready to serve their customers through online more than offline platforms (Breslin, 2020). Enterprises should adopt a digital-first strategy and seek to attain digital maturity consistently by incorporating the entire organization - people, processes, and systems (information and communications technology) in their digital business strategies (Breslin, 2020; Fletcher & Griffiths, 2020). Moreover, it has been argued that stronger potential for synergies could be achieved through the fusion of a business strategy and the information system (IS) strategy to birth a digital business strategy (DBS) for an organization to create differential value by leveraging digital resources (Vial, 2019).

As a result of COVID-19 pandemic, digital maturity entails using digital technologies in the provision of basic protection by an organization for its employees and customers undergoing mobility restrictions and physical distancing challenges (Baig et al., 2020). Digitalization has not only enabled organizations to expand its value propositions easily, but it has also engendered changes in the rules of the economy by enhancing borderless business activities where digitalization and globalization run in parallel (Soto-Acosta, 2020).

2.2 Pandemic-induced disruption of Digital Transformation strategies

The emergence of COVID-19 has further established the need for a regular evaluation and review of digital transformation (DT) programmes of businesses. The C19 outbreak and the associated lockdown enforced by many nations formed a disruption to the existing DT strategies of many

organizations while causing some companies to initiate digital transformation agenda. To many businesses, DT could simply require a reinventing of their IT function to deliver digital values to their stakeholders (Andersson & Tuddenham, 2014). However, a more sustainable DT strategy would adopt a holistic approach that ensures a significant change in the organization's business model to offer the flexibility needed to respond to the VUCA with the availability of data, skills and competencies to drive creativity and innovation for competitive advantage (Fletcher & Griffiths, 2020; Soto-Acosta, 2020). The lockdown exposed the level of unpreparedness of some organizations as they suddenly discovered that their current IT infrastructure could not support working remotely due to lack of video conferencing solutions; systems can only be accessed on-premise; lack of VPN, etc. Also, the workforce was not prepared for remote work as many of the employees lacked the requisite skills and mindset to do so. Some realized that they have organizational structures that do not support the change while most of their processes were designed to operate within the physical proximity of their offices (Fletcher & Griffiths, 2020).

Literature has argued that digital transformation does not always require a displacement of an existing business model but re-imagining a re-invention for creation of new value propositions (Baig et al., 2020; Fletcher & Griffiths, 2020; Soto-Acosta, 2020). For instance, in book publishing digitalization has helped to create a new business model, which rather than replacing the existing model, it is complementary. While publishers continue to publish physical books, the platform for the new digital versions opens the products to an expanded market in form of e-books, audiobooks, online contents, apps, etc. Replacing the old model would be tantamount to throwing the baby out with the bathwater. "That is, through digital transformation, organizations need to excel at deploying existing business models to add new value propositions for existing markets opportunities and, at the same time, exploring new business models to provide new value propositions for emerging markets to either be a disruptor or to avoid being disrupted." (Fletcher & Griffiths, 2020).

Due to the outbreak of COVID-19 and the consequential digitalization of business models that followed the lockdown and other physical restrictions, the global economy has witnessed a rise in the penetration of technology of various kinds resulting to a more digital economy. As described by Soto-Acosta (2020), a digital

economy is the one that is being impacted by digital technologies including the internet, mobile connectivity, Internet-of-Things (IoT), cloud computing, big data, artificial intelligence (AI), machine learning, robotics, data analytics tools and other emerging technologies. However, to strive in a pandemic, the business model must be supported with digital transformation strategies that allow survival of the organization through digital platforms that offer unhindered value delivery from the business to its stakeholders. The right approach must provide a harmonized digitalization of the back-end, front-end and delivery channels of the business model.

Digital transformation goes beyond employing digital technologies to make some changes to the business processes either to improve efficiency and reduce cost; it must be transformational to the business model. Hence, Breslin (2020) recommends that organizations would need the input of visionary and consistent leadership in defining a clear goal that identifies the 'why' aspect of the strategy and communicate it appropriately to the mind of all stakeholders. Measuring the performance of the digital channels would be a crucial requirement for learning and adapting as the transformation progressed (Baig et al., 2020).

During the lockdown, providers of certain essential products or services were allowed to operate. According to Seetharaman (2020), the essentiality of a product could be a factor to consider in assessing the impacts of Covid-19 on organizations. While the exemption varied across different countries, examples of essential products included foods, health products, logistics services, and banking. Most of these providers already have high information intensity products and processes thereby raising the possibility of their full digitization (Seetharaman, 2020). According to this author, an organization with high-intensity products and processes is characterized by products that have accompanying rich information and processes that are richly defined with information for their clear integration in the business model. Such organizations are better prepared for business digitalization.

2.3 Impacts of COVID-19 on Businesses

An immediate impact of the COVID-19 pandemic on the generality of businesses was the threat to life by infection of the killer virus, which compelled employees, customers and other stakeholders of organizations to stay away from the company's physical location to minimize the spread of the virus. This led to the official

declaration of partial to total lockdown by governments across the world. In effect, normal business activities were seriously hindered while some companies had to shut down completely as an initial response.

However, from the perspective of digital transformation, the pandemic has activated some positive changes through the new realization of the importance of digital technology adoption to drive a business in a rare emergency like the COVID-19. Digital technologies have taken the frontline during the pandemic as many businesses were able to open up activities remotely with several users raising their preference to digital making life easier for them (Soto-Acosta, 2020). As reported by Soto-Acosta (2020), a 60% increase in Internet traffic was recorded between December 2019 and May 2020 with videoconference raising traffic by 120% compared to the pre-COVID-19 status.

The general observation was the accelerated digital transformation that many organizations witnessed during the pandemic. COVID-19 did force many companies to quickly review and redesign their digital transformation plans to realign them to the new normal. Because of the restrictions on human physical interaction technologies providing remote interaction among people experienced a boom during the pandemic. For instance, based on McKinsey & Company's report, during Covid-19, traditional/in-person Go-to-market sales model dropped by 52% while digital interaction via videoconference rose by 41% and online chat by 23%. This led to a 69% increase in the amount of revenue generated from video-related interactions since April 2020 while e-commerce and videoconferencing accounted for 43% of all B2B revenue higher than any other channel (Bages-amat et al., 2020). The same report further claimed that the use of videoconference and online chat tools was preferred than the use of the telephones by over 76% for conducting meetings with various stakeholders - employees, existing customers, prospects, vendor/suppliers.

The education and learning sector also recorded accelerated digital transformation during the pandemic as some institutions of learning quickly embraced technologies for remote learning as the only way they could continue learning activities and remain functional during the pandemic and in the new normal (Soto-Acosta, 2020).

COVID-19 has forced some organization to go agile by reworking their organizational structures to implement flatter structures. Reduced hierarchical structures have enabled such organizations to operate with more flexibility,

scalability, and proved effective during the pandemic (Chong et al., 2020).

Nevertheless, some negative impacts were evident as the lockdown and social distancing fatally forced some businesses into complete shutdown. Businesses in mobility or transportation, hospitality and tourism could not receive much support from technology during the lockdown for obvious reasons (Seetharaman, 2020; Soto-Acosta, 2020). Although, the entertainment industry was equally hit by the pandemic their survival was aided by digital technologies which they leveraged to create new models that offered live streaming and digital contents for online users. Online media and entertainment received a tremendous boost during the lockdown as those that were creative and agile were able to survive by creating digital contents. However, physical entertainment centres suffered the lockdown - e.g. cinema houses, theatre, museum, etc. which were considered non-essential and characterized by low information intensity of product and process (Seetharaman, 2020). Also observed by Seetharaman (2020) was that, although restaurants were shut down as consumers were not allowed to converge there to dine, many of them devised innovative methods of boxed foods with home delivery or drive-through pick up to serve their customers. This is a positive change for the proprietors as the new model would likely be accepted in the new normal.

Moreover, the pandemic accelerated the VUCA impacts across the global economy as the levels of volatility, uncertainty, complexity and ambiguity were heightened during the COVID-19 outbreak (Fletcher & Griffiths, 2020). The high rate of VUCA is generally believed to be a threat to the business world. However, as technology continues to present its innovative alternatives, businesses have learned the art of transforming the COVID-19 outbreak threats into opportunities for competitive advantage (Soto-Acosta, 2020). For instance, the growth of digital healthcare has been accelerated since the emergence of the pandemic (Peek et al., 2020).

III. RESEARCH METHOD AND MATERIALS

An explorative literature review was conducted with a quantitative analysis of secondary data. This research methodology was suitable for the subject matter as quite a good number of relevant materials were collected through online academic search engines and databases like the Google Scholar, Elsevier and Emerald sites.

The qualitative analysis was driven by certain themes constructed by the author around the

main topic to guide the exploration of theories and direct deduction into the author’s conceptual framework upon which the purpose of the research

was based. Table 1 gives the distribution of quotations (or data segments) found in each source across all the themes.

Table 1: Distribution of Data segments in sources across themes

SOURCE	THEME							Totals
	Business models	COVID-19 impacts	Digital Transformation (DT)	Digitalization	DT Decisions in Pandemics	Organizational resilience	Pandemic-induced DT changes	
Chong et al. (2020)	0	3	0	0	1	10	1	15
Seetharaman (2020)	0	4	2	0	2	0	2	10
Soto-Acosta (2020)	2	11	7	3	1	0	1	25
Mhlanga & Moloi (2020)	0	0	0	0	0	3	3	6
Peek et al. (2020)	0	0	0	0	0	0	4	4
Haff (2020)	0	0	0	0	0	0	8	8
Fletcher & Griffiths (2020)	0	1	3	4	1	0	0	9
Breslin (2020)	0	0	3	1	5	0	0	9
Overby (2020)	0	0	0	0	7	0	0	7
Anthony Jnr et al. (2020)	0	0	0	0	0	3	0	3
Bages-amat et al. (2020)	0	1	0	0	2	0	1	4
Baig et al. (2020)	3	3	4	1	5	0	1	17
Baden-Fuller (2013)	8	0	0	0	0	0	0	8
Andersson & Tuddenham (2014)	0	0	2	0	0	0	0	2
Vial (2019)	0	0	1	0	0	0	0	1
Totals	13	23	22	9	24	16	21	128

IV. STRATEGIC REQUIREMENTS FOR BUSINESS DIGITAL RESILIENCE

Many organizations did not prepare for the Coronavirus that erupted towards the end of the year 2019 and by March 2020 thousands of casualties have been recorded across the globe, forcing many nations to go on lockdown for several weeks even as the cases of the infection continued to grow in many places. The existing risk management and business continuity strategies of many corporate organizations failed in the face of COVID-19 pandemic. Business leaders suddenly realized that leveraging digital technologies was the only way to business survival as this would not only provide life to the internal processes but also, enhanced safety measures for the employees and customers during the pandemic.

Building business resilience is essential to the survival of an organization in a normal and abnormal environment like the pandemics. The existing business continuity plans might not have considered the threats related to the pandemics in their original design, thereby justifying their review and redesign for purpose. The pandemic has enacted a new normal where organizations and the society must interact differently from the old norms

and ensure safety in every way. More sophisticated technologies would be required to build resilience for an organization to guarantee security, safety and business survival in a pandemic. According to Mhlanga & Moloi (2020), a combination of the Fourth Industrial Revolution (4IR) technologies would be required to provide effective digital resilience for an organization amid the pandemic. These 4IR technologies include artificial intelligence and robotics; ubiquitous linked sensors; virtual and augmented realities; additive manufacturing; blockchain and distributed ledger technology; energy capture, storage, and transmission; and new computing technologies, biotechnologies, advanced materials and nanomaterials; geoenvironmental technologies, neurotechnology, and space technologies, among others (Mhlanga & Moloi, 2020).

It has further been argued that the 4IR technologies are required to establish the fusion of technologies capable of blurring the dividing lines between the physical, digital and biological worlds (Mhlanga & Moloi, 2020). Hence, the principle of harmonizing the people, processes and systems in an organization’s business model for digital resilience is proposed here.

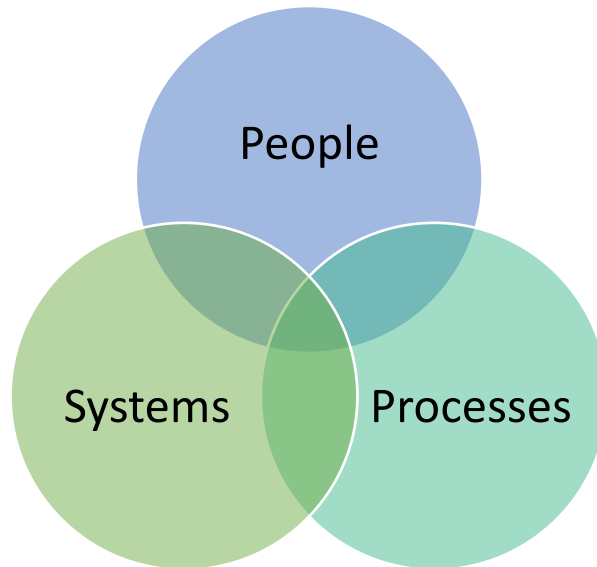
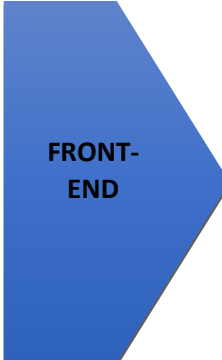



Figure 1: Harmonization of People, Processes and Systems in Business models

Table 2: Business model segmentation for Digital Transformation

Business Segment	Model	Processes	People	Systems
BACK-END		<ul style="list-style-type: none"> • Operations/Production • Human resources • Finance & Accounts • Corporate affairs • Performance & Reward management • Payroll & Compensation • Product development (or R&D) 	<ul style="list-style-type: none"> ▪ Employee welfare and safety ▪ Social distancing ▪ Team collaboration ▪ Team training ▪ Culture ▪ Suppliers ▪ Consultants ▪ Partners 	<ul style="list-style-type: none"> ○ Virtual meeting tools ○ Online collaboration tools ○ Video conferencing ○ Virtual teams ○ Cloud-based ERP ○ Virtual learning – online and mobile ○ Data-driven performance measurement ○ Product digitization tools (e.g. to produce digital music, videos, newspapers, casino, games, e-books, etc.)

 <p>FRONT-END</p>	<ul style="list-style-type: none"> • Products/services cataloguing • Product warehousing • Sales & Support • Relationship management • Marketing 	<ul style="list-style-type: none"> ▪ Customers ▪ Prospects ▪ Other stakeholders 	<ul style="list-style-type: none"> ○ Cloud-based ordering system ○ Online product store/catalogue ○ E-commerce shopping cart ○ E-payment system ○ Cloud-based CRM ○ Big data, AI and analytics for product recommendation ○ Social media – for live events & videos ○ Online ads & promotions
 <p>CHANNELS</p>	<ul style="list-style-type: none"> • Supply chain • Delivery • Outsourcing 	<ul style="list-style-type: none"> ▪ Suppliers ▪ Customers 	<ul style="list-style-type: none"> ○ Tracking systems ○ Google Map ○ AI and Robotics

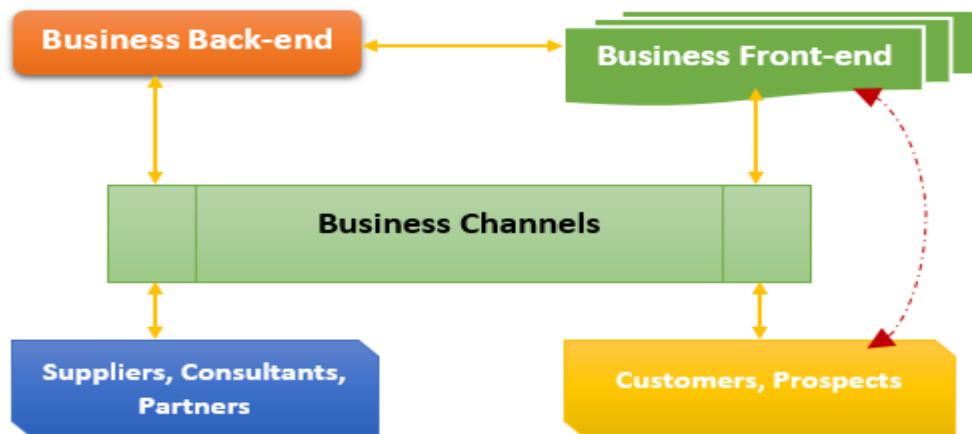


Figure 2: An Integrated Business model

2.1 Business Model Integration

Figure 2 depicts an integrated business model where the various segments of the business model are clearly identified and properly connected to facilitate modularized digitalization. When this is done, it would become easier and more sensible to justify prioritization in digital transformation programmes of the organization.

The **business back-end** is the engine room of the business, where production, operations and the core business processes are taking place

(Table 2). Because of the people aspects, the core business processes are supported by cost centres like the human resources and corporate affairs processes to provide employees welfare and safety, team collaboration, team training, organizational culture, suppliers and partners relationships, all under the condition that guarantees compliance to the COVID-19 safety policies. Achieving these people aspects in the face of the pandemic readily necessitates the adoption of appropriate technologies as highlighted in Table 2. For instance,

implementing a cloud-based enterprise resource planning (ERP) could provide smooth running of certain operations including finance and account, and HR processes.

However, the back-end must integrate with the **front-end** of the business model where the products (or services) are either stored, catalogued or warehoused for customers' inspection and interaction for potential sales. Customer relationship management, marketing, sales and after-sales support are other common processes at the business front-end. People aspects in this segment include interaction with customers, prospects as well as competitors. Digitalization objective at the front-end must not only guarantee employee safety but also that of the customers and prospects alike. These external people must be able to access and buy the company's products/services with absolute compliance to the COVID-19 safety policies. One of the measures an organization could adopt is to digitize its products/services as much as possible for online purchase.

When a customer purchases a digital product/service, the business model must ensure the safe delivery of the product/service purchased to the customer through a digitalized channel. The **business channels** constitute the logistic mechanisms put in place by a company through which goods/services purchased by a customer are delivered in compliance with the COVID-19 safety policies. Also, suppliers use a section of the business channels to run supply chain activities with the company. People's aspects are contained in the interactions with customers and suppliers as related to delivery and supply chain management. Technologies like tracking tools and digital map can be used to aid despatch and logistics in the delivery process; providing support to the customer in monitoring the transition of the physical goods from seller's location to the buyer's location. The more digitalized the business channels the more convenient and safe for the customers to complete a deal. For instance, where artificial intelligence (AI) and/or analytics tools are used to auto-discover a buyer's location, human errors can be avoided in entering the shipping address into the system.

2.2 Prioritization of Digital Transformation for Business Resilience

Business resilience is characterized by enhanced agility resulting from a substantial amount of digitally-driven processes. In achieving that some enterprises are forming digital collaboration in what is known as virtual enterprises (VE) business model (Baden-Fuller & Haefliger, 2013). This article intended to show how

digital resilience could be built around the business model of an organization in consideration of digitalization of the business back-end, front-end and the channels. It has been sufficiently argued that digital transformation is a lifelong, holistic process that enables an organization drive significant changes, continuously replacing fragility with flexibility in its business model and deliver key deliverables overtimes (Fletcher & Griffiths, 2020; Soto-Acosta, 2020). As observed by Fletcher & Griffiths (2020), no organization can begin and complete a digital transformation programme during a lockdown period. It then follows that organizations that would succeed during a pandemic must approach the digital transformation agenda with the right resources and appropriate prioritization that the emergency requires.

Chong et al. (2020) highlighted five characteristics that an organization has to build into its operations to be able to handle future and potential shocks successfully and attain resilience. These are the establishment of a common purpose and clear communications; set up structures to allow rapid decision making; create networks of local teams with clear, accountable roles; develop a culture that empowers people; and provide people with the technology they need. Furthermore, a resilient organization must be agile and adopt flatter organizational models; as using technology cannot be adopted as a supporting capability but as being integrated with all core aspects of the organization. (Baig et al., 2020; Chong et al., 2020).

From the foregoing, this article has not deviated from arguments promoting the principle of an enterprise-wide digital transformation for an organization for digital resilience. However, for an organization to succeed within the pandemic prioritizing the digital transformation projects to fit the available resources and the immediate requirements of customers is being reinforced here. The question that should top the digitalization agenda of an organization seeking to survive amid pandemics is, 'how do we safely get our products/services across to the customers in this special period?'. Answer to that question would inform on the aspect of the business model that would first receive digital transformation. This is usually found at the customer-facing segments of the business model – the front-end and channels (Table 2). For example, during COVID-19 lockdown, many training providing organizations, whose traditional models was to run classroom-based training programmes quickly digitalized their training contents and employed videoconferencing tools to deliver instructor-led training courses to

their customers. That way, they could survive even though their back-end processes that were full of legacy applications were yet to be transformed digitally.

V. CONCLUSION

The emergence of COVID-19 pandemic impacted an unprecedented disruption to many organizations because the highly contagious virus was life-threatening with a fast rate of spread globally. With the total or partial lockdowns that ensued the pandemic, some organizations that had the resources to survive had to devise means of deploying technologies to reactivate activities across their value chains amid social distancing and stay-at-home policies. Not many organizations succeeded in doing that as they suddenly realized that their existing business continuity plans and risk management systems did not envisage the pandemic, hence the need for digital transformation for business survival.

In this article, the research conducted was based on secondary data analysis. An extensive literature review was carried out to discuss established theories and extrapolate a conceptual framework to demonstrate the possibility of business survival through digital transformation amid a pandemic. From a business model perspective, integration of the business back-end, front-end and channels with the harmonization of the people, process, and systems was promoted to create an avenue for prioritization in digital transformation programmes.

Finally, it has been recommended that prioritization of the digitalization projects in favour of the customer-facing components of the business model would lead an organization to a timely result in digital transformations and keep the business' survival amid the pandemic. This does not override the need for an organization to forge the part of full enterprise-wide digitalization in a phased manner.

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