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Digital Platforms and Organisational Resilience

Full research paper

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Abstract

Exogenous shocks are sudden changes faced by organisations, such as pandemics, natural disasters, terrorist attacks, and new regulations, which might negatively impact their activities. When shocks occur, organisations with a high level of resilience can continue their activities with little disruption. One way of becoming more resilient is by using digital platforms, as they provide an opportunity to continue operations by making them more adaptable and making them more reliable. Using organisational information processing theory and by employing the case study method, this research explored how digital platforms affect organisational resilience during exogenous shocks. Results of the study reveal that information technology adoption is one major factor in fostering resilience during exogenous shocks. Moreover, the results highlighted that managerial perception to obtain and use platform is another factor that influences positive resilience outcomes. It also aligned with reliability and adaptability, which ultimately achieve resilience. This study contributes to the literature showing how digital platforms influence the resilience of the organization especially in a crisis such as covid 19.

Keywords Exogenous Shocks, Organisational Resilience, Digital Platforms, Managerial Perception

1 Introduction

External shocks are sudden events that can sometimes be severe and long-lasting, enough to ruin entire businesses (Miklian & Hoelscher, 2022). Maintaining the operations of organisations in the face of external shocks is difficult (Floetgen et al., 2021; Sakurai & Chughtai, 2020) because shocks disrupt demand and supply activities and restrict movement, often leading to economic losses (Rai, 2020; Seetharaman, 2020). The increasing frequency of external shocks, such as pandemics, natural disasters, and terrorist attacks, in the recent past has focused the attention of practitioners and academics on organisational resilience, which refers to an organisation's ability to manage adverse events and prepare itself to return to its usual activities when a shock occurs (Horne, 1997; Ma et al., 2018; Vogus & Sutcliffe, 2007). Organisations can avoid significant interruptions during shocks by being more aware of their operational environment (McManus et al. 2008) and possessing excess spare resources (Hillmann 2020; Linnenluecke 2017), ideally located close-by so they can be quickly accessed when needed.

Greater awareness of the marketplace and speedier access to resources are common goals cited by organisations when adopting digital platforms (Pal et al. 2014; Rahi 2019), which are internet-based intermediaries that connect individuals with other individuals, organisations with individuals, and/or organisations with other organisations (Saberian et al. 2020). Business-to-consumer (B2C) digital platforms, such as Uber Eats, Menulog and DoorDash, are valuable for organisations because they reduce the search, contracting, and monitoring costs incurred while carrying out economic transactions. Such platforms enhance organisations' resilience because they provide access to spare resources, offer a channel for shedding excess inventory, improve organisations' situational awareness (McCarthy et al. 2017), and allow organisations a chance to pivot to alternative business models (Ågerfalk et al. 2020) to take advantage of trends such as remote work/telecommuting, online learning, and contactless retail (Rai 2020).

However, the use of digital platforms may also reduce organisations' resilience when faced with exogenous shocks for at least three reasons. We argue that this is possible because, first, their processes will be tightly coupled to the platforms and influenced by the platform owners, weakening organisations' ability to achieve their own goals. Second, organisations will have to update their knowledge bases to keep them relevant when they adopt platform-based business models, making it difficult to accumulate the extra knowledge needed to be resilient. Third, organisations may have to expend additional effort to process the huge volume of data that they receive when they join digital platforms, limiting the attention they can pay to sensing and responding to changes in the external environment.

Thus, there is uncertainty over the impact of digital platforms on organisational resilience. This study's research question is thus: "How do digital platforms influence organisational resilience?" The recent experience for many organisations of operating in the COVID-19 pandemic provided a natural setting for this study. While some flourished after adopting digital platforms, others had contrasting experiences (Colback, 2023). Framed around organisational information processing theory (OIPT) (Galbraith, 1973), a series of case studies were conducted to answer the research question. The results showed that managerial perceptions of platforms and the ability of organisations to mix self-managed and vendor-managed information systems affected the outcomes they obtained by adopting digital platforms.

This research is significant because it examines an issue that is becoming more important as more organisations digitize their operations, especially in disruptive situations (Annarelli and Nonino 2016; Duchek 2020; Linnenluecke 2017; Rai 2020). Second, decision-makers in organisations, who are facing increasing uncertainty, will find the results useful, especially those that are managing medium size businesses. Third, this study provides a framework for understanding digital platforms and organisational resilience using OIPT. Fourth, medium-size businesses provide a significant contribution to employment and GDP in many countries, and the study will help enhance the growth of such firms. We next present the paper's

theoretical background, followed by the research methodology. The results are then presented, along with a discussion of the findings.

2 Research conceptualisation

The key concepts in the study are reviewed below.

2.1 Organisational resilience

Organisational resilience is the ability to bounce back from adversity (Luthans et al. 2008), re-establish the capacity to carry out activities after a disaster, and the ability to manage crises and disasters (Manab and Aziz 2019). When organisations face crises, they should be able to respond and recover quickly by developing ways to conduct business under stressful situations (Vogus and Sutcliffe 2007). Organisations need to be well-prepared for disruptions and develop the ability to react to them (Rahi 2019), so that they can survive in a turbulent environment (Ma et al. 2018). In the business continuity management literature, the term “organizational resilience” is used but ambiguously (Corrales-Estrada et al. 2021; Groenendaal and Helsloot 2020; Peiris and De Silva 2020; Sahebjamnia et al. 2015). In this paper, resilience is defined as the ability of an organisation to manage adverse events and prepare itself to return to its usual activities when a shock occurs. Organisations need both internal resilience, or 'reliability,' and external resilience, which is 'adaptability' (Linnenluecke 2017; Meyer 1982; Staw et al. 1981).

Reliability relates to managing the variance of complex intra-organisational processes to avoid deviations which could snowball into events of high impact (Linnenluecke 2017, p. 6; Weick and Sutcliffe 2001). This will enable organisations to perform well when external shocks occur. Reliability has become a more important consideration for managers, as organisations have become more dependent on technology, leading to a situation where the systems being used in organisations are coupled together tightly and in a complex manner, making them difficult to operate (Perrow 1984).

Adaptability refers to an organisation’s ability to recover when it faces disruptive situations by changing its processes, culture, and structures (McManus et al., 2008; Meyer, 1982; Rahi, 2019.) Adaptability can be enhanced by broader information processing, the loosening of control, and the utilization of slack resources (Sutcliffe and Vogus 2003). Organisations facing disruption should identify new routines instead of using current routines (Jiang et al. 2019) because the current routines were established in different environments (Suarez and Montes 2020). Sutcliffe and Vogus (2003) argued that the choice between adaptability and reliability depends on the size of the threat from the environment: if the threat is minor, organisations positively adjust to adverse events, i.e. broadening information processing, loosening control, and utilizing slack resources, but if the threat is novel and large, they use a ‘threat rigidity’ response, i.e. restricting information processing, controlling organisational processes, and conserving resources.

While many antecedents of organisational resilience have been found in prior research, such as possessing a wide knowledge base, available resources, social resources, power, responsibility, awareness, and an adaptive capacity (Duchek 2020; Hillmann 2020; Mousa et al. 2020; Rahi 2019), the most important are considered to be awareness and resource availability (Linnenluecke 2017; Mithani 2020; Rahi 2019).

2.2 Digital platforms and organisational resilience

Digital platforms are internet-based services that provide services to at least two user groups (Koskinen et al. 2019), forming networks or markets to support transactions among various parties, such as business-to-business, business-to-consumer, and consumer-to-consumer (Saberian et al. 2020). They have grown significantly and transformed the landscape of many industries (de Reuver et al. 2018; Taylor 2020). Organisations can obtain favourable outcomes by using digital platforms, such as easier access to valuable resources, such as information or labour, lower transaction costs, and higher levels of innovation (Asadullah et al. 2018; de

Reuver et al. 2018; Du et al. 2019; Ng and Yee 2020). However, platforms can also allow unscrupulous actors to engage in unfavourable or even harmful actions, such as sending false requests that disrupt a business' operations (Asadullah et al. 2018). Adopting digital platforms may also require organisations to retrain staff, modify their internal processes, and/or obtain new skills or knowledge.

There have been recent calls for research on how digital platforms support organisation resilience or prevent organisations from maintaining their resilience (Boh et al., 2020; Karanasios, 2022; Linnenluecke, 2017; Rai, 2020), especially because research on organisational resilience is scarce even in the broader information systems (IS) field. Ignatiadis & Nandhakumar (2007) examine how enterprise resource planning systems (ERP) could have divergent impacts on resilience: an ERP system's rigidity constrains the adaptability of the organisation, but workarounds, bolt-ons, and customisability may still enable flexibility. A similar logic can be applied to digital platforms. Organisations that use digital platforms have to tightly couple their organisational routines to the processes developed by the platform owners, who are usually third-party organisations. The inflexibility of these connections to platform processes may create organisational rigidity because the organisation will be constrained from changing its processes that are linked to the platform without the agreement of the platform. This rigidity may reduce the organisation's resilience. However, as with ERP systems, the use of digital platforms may enhance an organisation's resilience if its platform-linked processes match the organisation's needs, in terms of supplementing or complementing its existing processes so that it can meet its goals. On the other hand, the modifiability or customisability of a digital platform may facilitate an organisation's ability to adapt to changes from the external environment, enhancing its resilience. Riolli & Savicki (2003) proposed organisational and individual attributes to mitigate various stressors so that IS organisations could be resilient. Chatterjee et al. (2021) argued that three IT affordances- collaboration, process management, and organisational memory-affect organisational resilience. Floetgen et al. (2021) built on the idea of community resilience to propose the concept of platform ecosystem resilience.

However, these studies left the question as to how digital platforms affect organisational resilience unanswered. While there has been some work on the performance impacts of digital platform adoption for organisations, less attention has been paid to examining the longer-term impacts. This is an important question, since we are experiencing an era of multiple shocks (such as pandemics, wars, supply chain congestion, inflation, climate disasters, civil disturbances, and so on) occurring more frequently and in more locations than in previous periods. We propose to use Organisational Information Processing Theory (OIPT) (Galbraith, 1974) to examine this phenomenon.

2.3 Organisational Information Processing Theory (OIPT)

OIPT focuses on task uncertainty, which refers to "the difference between the amount of information required to perform the task and the amount of information already possessed by the organisation" (Galbraith, 1973, p. 5). The higher the uncertainty, the greater the level of information processing required. Organisations are more effective in a crisis if they can match their information processing requirements and information processing capabilities, and they can adapt their structures by either (Galbraith, 1974):

- 1) reducing their information processing needs by creating slack resources: for example, an organisation could extend completion dates etc and/or expand self-contained tasks; or
- 2) increasing their information processing capacity by creating lateral relationships and/or investing in vertical information systems to help with adjusting plans or creating new plans.

External shocks increase task uncertainty, and organisations can aim to achieve both (1) and (2) above by adopting digital platforms for their sales and other operations. Platforms allow organisations to focus on their core skills, and hand off the processes that are not their strengths, which is an example of increasing their information processing capacity. At the same time, by not focusing on non-core processes, their information processing needs also

decrease. Thus, digital platform adoption enhances an organisation’s reliability by helping it control its processes and conserve its resources (Staw, 1981). We build on these insights to better understand the phenomenon.

3 Research Method

The interpretive case study method was chosen as the phenomena was fairly novel, and the qualitative data could be inductively analysed to capture the nuances of the process. The research sites were small and medium-sized organisations from the food and beverage sector in Auckland that had existed prior to, during, and after the COVID pandemic period (2020 to 2021). The food industry was chosen as it was the most affected industry in New Zealand during the COVID-19 pandemic (Stannard et al., 2020). After obtaining ethical approval, interviews were conducted with owners, managers, and employees working with digital platforms. Data was collected through semi-structured interviews, which lasted around 30 minutes on average, and the same set of questions were asked of all the participants to get more information from different perspectives.

Table 1 summarises the businesses and their characteristics that were used for the analysis. The data analysis was conducted in several rounds, supported by the NVivo software package. The data analysis began by identifying open codes without having pre-concepts in mind. No preconceived framework was incorporated during open coding. Going one step further, initial codes were grouped into higher-level codes that contained similar meanings. The same process was continued for all other open codes, and we were able to identify several higher-level codes during the analysis. Next, we formed higher-level themes, which are called categories. Identified categories and higher-level codes have been used for the discussion in section 4.

Business	Delight (Bakery)	Abhi (Vegetarian Restaurant)	Taco (Takeaway)
No. of branches	6 branches	4 branches	4 branches
Information about self-management system	Did not have its own online system, had just a web page, and implemented an online system during the pandemic.	Did have a website but not function well. Introduce click and collect features during the pandemic.	Had online system and did some modifications, such as adding an online payment facility.
Information about third-party platforms	Before COVID, businesses used Facebook, Instagram, and TradeMe. During COVID, the organisation enhanced the use of the platforms mentioned above and Shopify to work with the organisation's self-managed system.	Businesses used Uber Eats, Menulog, Facebook, Instagram, and TradeMe and enhanced the use of these platforms during COVID.	Uber Eats, Menulog, Facebook, Instagram, and TradeMe enhanced the use of these platforms during COVID.
How the organisation conducted its operations during COVID	During the first lockdown, team members worked together to plan and implement what to do next. Use the technology and encouraged all the workers to go forward.	Business owners implemented and used the available technology to go forward.	Business owners implemented and used the available technologies and go forward.
No. of participants and abbreviations	Owner 1 (DO1), Owner 2(DO2), Manager1 (DM1), manager2(DM2), Staff (DS1) - Total participants 5	Owner 1 (AO1), Owner 2(AO2), Manager1 (AM1), manager2 (AM2), Staff (AS1) - Total participants 5	Owner 1 (TO1), Manager1 (TM1), manager2(TM2), Staff (TS1) - Total participants 4

Table 1: Background information of participating businesses

4 Individual case analysis, findings, and discussion

In this section, we present the individual case analysis, findings, and discussion. We start by giving a brief introduction about the alert levels faced by all businesses and proceed with the analysis by discussing the technology adoption, managerial perception, and its influence on the resilience of the business, followed by findings and discussions is presenting.

Information about the three businesses studied is presented in Table 1 above. During COVID, businesses had to adhere to four different levels introduced by the New Zealand government (1, 2, 3, and 4), based on the severity of the virus. Human movement was allowed to different extents at each level. In Level 1, businesses could operate normally but should be aware of the upcoming disaster and be prepared for that. Some limitations in place to access the sites such as healthcare and other sensitive places. In Level 2, the restrictions were further enhanced and asked people to maintain a 2-meter distance and 1 meter in certain places. The aim of this level was to reduce the virus transmission to the community and planned to cluster human activities into each region. In Level 3, cooked food businesses could operate, but only by offering food to be picked up or by delivery; essential services could operate as usual. Customers were allowed to pick up food with precautions. Level 4 was community lockdown, when the virus was being transmitted all over the country. Only a few organisations in industries such as healthcare were permitted to open so they could serve customers directly, and only with a very high level of care.

4.1 Technology adoption and use during the pandemic.

The case organisations used both: 1) self-managed systems, which are platforms belonging to them that are customised to their requirements; and 2) third-party platforms, which are built, managed, and owned by external vendors and offered to clients for a fee. Examples of the latter are Uber Eats and Menulog. While some organisations adopted some features of existing self-managed systems to make them efficient, some other organisations adopted the whole online system. For example, Abhi and Taco added new features to the existing system, such as click and collect and an online payment system, Delight implemented the entire self-managed system. Abhi had a website, but it was not ready to operate during the pandemic. They realised the need to add click and collect feature and spent thousands of dollars for that - *“I had to spend 1000s of dollars developing a click-and-collect feature on my website”* - AO1. Taco also added an online payment facility to support contactless payments during COVID - *“We could open it on level three because we did contactless payment; a person would have to pay online because we couldn't let him go in the shop. So, the only way that a person who wanted to order food from us had to do contactless order and payment. So, we created an online system that was easy for them to pay online, and then we dropped off food as well”* - TM1. Delight, on the other hand, did not have its own online system and implemented one during the pandemic. The existing web page was dumb and had to adopt all the features - *“Because of the lockdown, and because people couldn't come to our store, they couldn't buy things, we had to create the whole online website, our website was our main focus during the first lockdown. We needed a way to show everyone all of our products, and we needed a really good efficient way to get them to people's houses because, of course, poor people cannot leave their houses to go buy things or pick up things. So, we completely turned our business into a digital pretty much”* - DM1.

The other option was to use third-party platforms. Uber Eats, Menulog, Facebook, Instagram, Seek, and TradeMe are the platforms used by businesses during this period. All three businesses used Facebook and Instagram for a long time (before the pandemic), and they increased the use of these during COVID. These platforms are the main ways the organisation could promote its product. Since people sit in front of the computer all the time and work from home during this period, also wanting to adhere to government regulations, they tend to access the social media platforms such as Facebook and Instagram to search for food items, check prices, and access other information. Through these platforms, businesses could make customers aware of the company's products and services. As a result, platforms like Instagram were used by businesses to promote their food items. One participant explained: *“Using*

Instagram, we posted lots of photos. We let people know that Delight was still operating, and we could do online delivery”- DM1. Abhi and Taco used platforms such as Uber Eats and Menulog, but Delight didn’t because the platform setup did not match the business operations.

4.2 Managerial perception

Managerial perception is identified as what managers perceive about platform adoption and use in the time of shock. Managerial perception could be positive or negative. Positive managerial perception refers to the way managers see the adoption and use of the platform, which is useful and worthwhile. They consider platform adoption in a positive manner. Managers believe that accepting and using technology is beneficial to the business in times of crisis. Conversely, negative managerial perception implies the opposite of positive perception, in which managers perceive those platforms causes many issues and negatively influence the business. The analysis below shows the managerial perception of three cases.

Delight positively accepted the situation. After analysing data, there were two main sub-themes identified; the perception that thinks obtaining platforms helps organisations become viable, and they perceived that digital platforms are game changers. DO1 said, "It was different for us. Because we already had our homepage running. We already had these wholesale customers so we could deliver bread. So right from the first day, we could just sell online and could celebrate in good form. And yeah, so it was not bad, and it was a game changer for us". Managers were happy to use the platforms, and they believe that platforms help organisations to be viable. Therefore, they willingly invested in the platforms. Abhi identified that digital platforms are useful and have many capabilities; for example - *“I think people who don't have Uber Eats are rushing and trying to get Uber installed because that was the only way to make money. There was no other way to make money”- AO1*. Participants mentioned digital platforms are easy to work with and straightforward - *“I think Uber was relatively straightforward. To use the system is pretty user friendly” - AO1*. However, they think that platforms involve a cost and have certain operational issues. One participant highlighted to get the service, the organisation needs to pay money as a commission - *“Uber Eats is a very popular one, but the problem with using platform services is very expensive to the business”- AO2*. Operational issues such as integration difficulties with the point of sales machine in the business, difficulties in contacting the customers in need of change food requests, and inability to track the order to check whether the order is delivered to the customer are some of the difficulties. As a result, the organisation had to spend unnecessary cost - *“I think Menulog has a 10-digit reference, so it takes much longer to complete the order when you're inserting it into the system” - “a lot of my staff waste a lot of time just transcribing the order from the tablet and putting it onto the POS system” - AO1*. Taco, on the other hand, perceived that digital platforms help organisations to be viable - *“we do Uber Eats as the second option for the customer because we can't avoid Uber because people using a lot. Uber is quite easy for them; everyone can use it” - TM1*. But they identified platforms are costly, and they are a necessary evil for the organisation - *“We actually don't encourage customers to use them (Uber Eats) because the commission is too high” - TO1*. Some contradictory ideas are arising, such as even though they are costly, the business uses it as they know the platforms help - *“Uber, we have to use it because everyone has to use it. We don't want to use it, but we have to, we have to use it without out on the side” - TM2*.

4.3 Resilience outcomes

Resilience outcomes are the outcomes businesses receive once they implement and use digital platforms. According to the definition of resilience, organisations could be internal resilience which is called reliability, and external resilience which is called adaptability. If organisations are reliable, they are meant to be resilient, and if organisations are adaptable, that intended the organisation is resilient. Table 2 in Annexure 1 depicts resilience outcomes for different cases. Delight talked about reliability, which includes 1) learnings from experience: learning made them implement proper digital platforms and enhance the use of existing digital platforms - *“Previously, before COVID, there was no website ordering at all. And when COVID hit, we thought about it, then we started a new website, so that people can see, and can order*

from the website” -DO1, 2) absorbing changes that can manage the situation to prevent snowballing the current occurring into the disastrous situation - “When the pandemic hit, we had to find some way to get it out to people that we were open, and that we were still operating 24/7 doing online orders and they could still get daily bread, we definitely updated the Instagram, and we put more focus on getting good photos, making sure that we put up posts at certain times when it needed -DM1. 3) share communication among employees: the discussions with members during the pandemic to share ideas from and to them - “I always had interview meetings with my business partners, how we can create an environment where we can celebrate” - DO1. Participants at Delight expressed adaptability, which includes 1) better decisions timely manner: organisation could be taken decisions for obtaining and using the technology - “And then we changed. We were like; we couldn't do this anymore. We changed it. We updated our whole website. We put all of our products on it. And made it a much more efficient service - DM1. 2) Broder information processing: to work with the parties interested, the business should be able to share information. To share information with the customers - “using Instagram, we posted lots of photos. We let people know that daily bread was still here” - DM1. 3) Changing business processes are the changes done to the existing process by platforms. Usual business operations were changed face to face to online. Delight participants further talked about resilience. Firstly, the business was able to manage adverse events, which means the organisation’s ability to manage the pandemic pressure - “It was not bad for us. And we did; our business was maybe 10% down compared to normal levels in the second lockdown” - DO1. Secondly, they prepared for the change by implementing self-managed platforms and increasing the use of third-party platforms. Thirdly, they recovered from the crisis due to digital platforms - “Absolutely, without an online platform like our own homepage including Shopify, the customers wouldn't have any chance to want a bread” - DO1. Fourthly, the business was able to continue its operation with the help of platforms. Participants said that they continued operations with third-party platforms and self-managed systems.

Abhi believed that they are reliable in terms of learning from experience - “Previously, before COVID, there was no website ordering at all. And when COVID hit, we thought about it, then we started a new website, so that people, you know, can see an order from the website, and they can just grab it”- AO1 and they did utilise slack resources which identified as using existing resources more effectively – “Uber Eats, we've been doing UberEats since day one that they've been here. We've been on over it's a really long time - AO1. Abhi showed adaptability in terms of making better decisions timely manner - “I think we hired a person paying 1000s of dollars to develop this feature for the e-commerce website” - AO1. The owner further added that the business process has been changed with click and collect implementation – “Business used click and collect system instead of an old face-to-face way to sell the product. That have been changed the business processes”. Further, they talked about resilience, saying that they recovered from the crisis because the usual sales increased during the pandemic by platforms - “Uber, we were looking at, at least, I think, about 60 to 70 orders a day. During this pandemic. Yeah, on a regular basis, it's about 20 orders a day” - AO1. Also added that they did continue operations - “I can still pay all my bills, pay the wages, keep the lights on. Right? So, for me, that's what organisational resilience is. When I looked at it as it's surviving the downs so that you can keep the business running” - AO1.

Taco expressed that they are reliable because they learned from experience. Since they realised a big reduction in customers, they focused on developing online payment features for the system. Further, they utilised slack resources such as a self-managed website and other digital platforms installed before the pandemic. They were ready to use the available systems till they found alternative ways of running the business. In terms of adaptability, Taco made adjustments to the system to speed up the operations while broadening information processing - “We did a lot of social media, a lot of marketing. We realized that a lot of people were staying at home working from home now. We're sitting, and you're sitting in front of the computers. So, we did a lot more social media posting in advertising, digital advertising, and also Google ads. Using Google Ad, we switched our marketing to the online digital arena we

increased” - TO1. The business processes have been changed because the online payment feature made the process change - “The only way that we did is, people who want to order food from us, they have to do contactless payment and order as well. We created an online system that makes it easy for them to pay online. And then when we dropped off the food as well, we did like the contactless, drop off and pick up” - TM1. Taco further talked about resilience, confirming that they did continue operations during the pandemic – “We have to do something as well, not 100%, you know, we have to do it because we can survive in the market because Uber is like, the main platform that covers everywhere” - TM1.

4.4 Discussion

As explained above, we found three main themes through inductive coding: technology adoption, managerial perception, and resilience outcomes as higher-level themes. Then, we tried to identify the relationship between these themes at an abstract level.

4.5 Platform adoption, managerial perception, and organisational resilience

In highly volatile business environments, some organisations perish, while others thrive despite adversity. Delight, Abhi, and Taco adopted and used digital platforms during the pandemic, and the technology adoption decision was influenced by managerial perception. Aligning with the argument of technology frames and frame shifting, platform adoption and managerial perception influence one another (Davidson 2002) as well as platform adoption and managerial perception influence resilience outcomes and vice versa which aligns with the concept of organisation vision by Swanson and Ramiller (1997). A detailed description of this relationship for three cases is given below.

Digital platform adoption is one of the building blocks of organisational resilience, which is largely impacted by managerial perception. Platform adoption changes some of the routines and business processes at large while changing the business model to a new one. As a result, businesses could easily connect with customers, suppliers, and other business partners in a crisis. In a disastrous situation such as COVID, close contacts are prohibited as it helps stop the virus. Platform adoption will help businesses to continue business operations as usual. This is in line with the research done by Dalenogare, who discussed the use of cloud systems and its benefit to customers in the event of disruption (Dalenogare et al., 2018). On the one hand, building a company-owned information system (self-managed platform) made organisations autonomous, which would be an easy way to manage and control the system in a crisis. The reason is that the system belongs to the business and has the ability to customize its features according to the requirements. On the other hand, if the business does not have its own digital platform or they are not in a position to implement a new system in a short period of time in a crisis, it would be a good solution for them to adopt the platforms that belong to outside companies. Businesses can use both these strategies together, i.e., implement self-managed platforms and use third-party platforms. While digital platform adoption creates avenues to expand the current market opportunities and optimize resources in the business (Pu et al., 2021), the inflexible nature and rigid behaviour of third-party platforms take businesses away from technology adoption, affecting resilience negatively. All three cases obtained and used digital platforms during the pandemic, and it helped organisations stay resilient during the pandemic.

Managerial perception is another aspect businesses should consider building up resilience in times of adversity. We saw that the positive perception towards obtaining and using platforms made firms stand still and survive. Negative managerial perception made them suffer and affected the survival of the business. Three cases show different levels of perception over a period of time. Delight showed a positive level of perception (based on the interview results) towards obtaining platforms, and that helped them to survive the crisis. They always considered that platforms are game changers for them. Platforms enabled them to be listening and connect to the other parties and get advice from the business partners: how to find the way to get rid of the crisis and how to find the avenues to connect with other businesses to go forward. In a crisis, managers can perceive it in a positive manner even though they are

struggling to survive. Case Delight always discussed the way they could urge businesses forward using technology. Abhi, conversely, agreed that platforms have capabilities and are beneficial for them in the crisis. Equally, they stressed the negative aspect of it. Operational problems of the platforms and the cost of obtaining them are the key areas they stressed. Confirming this, the chief executive officer Restaurant Association in New Zealand stated that platforms cut the profits of restaurants (Wynn, 2023). Taco again added its position of obtaining technology showing that platforms are costly. They think that platform investment is necessary evil even though it brings benefits to the organisation. Also, they think platforms are risky, especially obtaining third-party platforms having a black swan. Overall, the perception of obtaining the platform of Taco looks negative. Managerial perception influences platform adoption decisions, and platform adoption influences managerial perception. Managers, together with other people such as business partners, push organisations to adopt digital platforms during the pandemic. Platforms, on the other hand, need to shape the perception by changing management plans. This ultimately benefits the business to achieve resilience outcomes.

It is evident that platform adoption positively influences organisational resilience and generates outcomes of reliability such as learnings from experience, sharing communication, utilising slack resources. Organisations were able to make better decisions, enhance information sharing, and change business processes with the help of digital platforms; this achieves organisations' adaptability. Also, they recover from crises, prepare for change, and continue operations with the help of digital platforms that help organisations to achieve resilience. Previous literature suggested information systems foster resilience during times of natural disasters. Also, this research filled the gap in research literature highlighting the relationship between information technology/systems and organisational resilience (Chatterjee, 2021; Linnenluecke, 2017; Sakurai & Chughtai, 2020; Vakilzadeh & Haase, 2021).

While three cases achieved resilience, the level of resilience achieved is different, which is interesting. Even though Delight implemented a digital platform in the crisis, they managed to achieve a higher level of resilience compared to two other cases. The reason might be positive managerial perception and the technology that they used. Taco, conversely, had many platforms set up when facing the pandemic, yet, unable to achieve the resilience level achieved by Delight because of its perception towards digital platforms, especially third-party platform use. There might be other reasons for this outcome, such as labour shortage, etc. Abhi sits between these two cases; their perception of obtaining technology was balanced between the other two cases. The cases in the study are medium sized organisations. These results may change for large businesses having a number of branches. The managerial perception might be different in large companies because it is evident that large businesses already have digital platforms. Most of the large businesses have self-managed systems, and they already work with third-party platforms.

The balance between IT and human effort is very important for businesses to survive in a shock. Platforms cannot alone help develop resilience for businesses. Human effort cannot alone find a way to get rid of disastrous situations like pandemics. Therefore, proper balance is a good way to survive in a highly dynamic environment.

The section above shows that the self-managed system and third-party platforms help organisations be resilient during the pandemic, which aligns with the research on resilience (Khalil et al., 2022). However, one system alone cannot achieve resilience outcomes, but the harmonizing behaviour leads the positive outcomes and is aligned with the two resilience categories: reliability and adaptability. Digital platforms help organisations to be reliable as businesses could use platforms for learning, communicating with people, utilising the available resources to prepare for the change the business is going to face. Digital platforms help organisations adaptable by changing the processes, expanding information processing,

and allowing them better decision-making. Lastly, organisations can continue its operation by managing adverse events and preparing for them to achieve organisational resilience.

4.6 Theoretical and practical implications

This study contributes to the literature in a few ways. First, the study fills a gap in organisational resilience research by studying the impact of a novel technology, digital platforms. OIPT shows how organisations face uncertainty by increasing information capabilities and reducing information processing needs which affect the performance of the organisation (Galbraith 1974). By adopting digital platforms, organisations reduced the gap between information availability and the information requirements of people connected to the business: owners, managers, workers, customers, other business partners, and suppliers. This reduction in the information processing gap allowed them to continue operating and ultimately become more resilient.

Second, recent research on digital technologies and resilience focuses on normal situations or the moderating effect of digital technologies on resilience in a crisis (Xie et al., 2022). This study is unique and explores the influence of digital platforms on organisational resilience in a crisis situation. The pandemic was unique as an external shock, in terms of its global impact, the speed at which is spread, and having an unknown source, in comparison to better-understood shocks such as financial crises, natural disasters, armed conflicts, political violence, and social insecurity (Miklian and Hoelscher 2022). This study thus examines resilience in a novel context.

Third, the study should encourage further extending OIPT. OIPT focused on building vertical information systems, while today, information systems perform a wider range of tasks, such as e-commerce, e-payments, and data analysis. These new systems also increase an organisation's information processing capacity, and sometimes, this happens by enmeshing an organisation in another organisation's system, in this case a digital platform. Thus, while these new systems may enhance an organisation's information processing capacity, they may also make it more vulnerable because it becomes reliant on other organisations. Also, OIPT has been used more often in quantitative research (Dubey et al., 2021; Wong et al., 2020; Yu et al., 2021). The current study is qualitative and is set in a digital context, which will improve our understanding of the theory's applicability in a novel setting.

Fourth, managerial perception regarding a technology's efficacy and value provides additional nuance when examining OIPT's relevance in the IS field. Though a technology may have been adopted, the perception of managers post- and pre-adoption is an important concern in building resilience. In OIPT, technology has a more passive role, managers take it up for their needs, and their views about it are not considered. This study shows that managers' thoughts around the value of technology adoption influence the outcomes their organisation obtains. Future researchers could study this by drawing on concepts such as technology frames (Davidson 2002) and organisation vision (Swanson and Ramiller (1997).

Practically, the study can guide managers on their decisions about technology adoption, its usefulness in crisis situations, and whether they should change the organisational routines to face adversity. When preparing strategic-level plans, managers can include resource requirements and strategies to face future adversity.

5 Conclusion, Future Work, and Limitations

This research explored how digital platforms influence organisational resilience during COVID. The results reveal that digital platforms positively influence the organisational resilience, and managerial perception also influences digital platform adoption and organisational resilience. We believe this research adds new knowledge to the existing body of knowledge on organisational resilience in light of OIPT, which has not been studied previously. One limitation of this study was that the number of participants recruited was limited since many workers in the business were not comfortable with speaking English. This study focused on medium size businesses in the prepared food industry, and future researchers can extend

this study into different sectors because platform adoption considerations and outcomes may be different in the large business context.

6 References

- Annarelli, A., and Nonino, F. 2016. "Strategic and Operational Management of Organizational Resilience: Current State of Research and Future Directions," *Omega* (62), pp. 1-18.
- Boh, W. F., Constantinides, P., Padmanabhan, B., & Viswanathan, S. (2020). *Call for Papers MISQ Special Issue on Digital Resilience*. Retrieved 5/10/2020 from <https://www.misq.org/skin/frontend/default/misq/pdf/CurrentCalls/DigitalResilience.pdf>
- Bonina, C., Koskinen, K., Eaton, B., & Gawer, A. (2021). Digital platforms for development: Foundations and research agenda. *Information Systems Journal*.
- Bryce, C., Ring, P., Ashby, S., & Wardman, J. K. (2020). Resilience in the face of uncertainty: early lessons from the COVID-19 pandemic. *Journal of Risk Research*, 23(7-8), 880-887.
- Bucci, S., Schwannauer, M., & Berry, N. (2019). The digital revolution and its impact on mental health care. *Psychology and Psychotherapy: Theory, Research and Practice*, 92(2), 277-297.
- Chatterjee, D. C., Shuktika; and Chatterjee, S. (2021). An Empirical Investigation of the Role of Information Technology in Fostering Organizational Resilience and E ganizational Resilience and Effectiveness ACIS, Sydney.
- Colback, L. (2023). The rise of the platform economy. *Financial Times* (March 14 2023). <https://www.ft.com/content/e5f5e5b9-3aec-439a-b917-7267a08d320f> (Accessed on August 20 2023).
- Corrales-Estrada, A. M., Gómez-Santos, L. L., Bernal-Torres, C. A., and Rodriguez-López, J. E. 2021. "Sustainability and Resilience Organizational Capabilities to Enhance Business Continuity Management: A Literature Review," *Sustainability* (13:15), p. 8196.
- Dalenogare, L. S., Benitez, G. B., Ayala, N. F., & Frank, A. G. (2018, 2018/10/01/). The expected contribution of Industry 4.0 technologies for industrial performance. *International Journal of Production Economics*, 204, 383-394. <https://doi.org/https://doi.org/10.1016/j.ijpe.2018.08.019>.
- Davidson, E. J. 2002. "Technology Frames and Framing: A Socio-Cognitive Investigation of Requirements Determination," *MIS quarterly*, pp. 329-358.
- Dubey, R., Gunasekaran, A., Childe, S. J., Fosso Wamba, S., Roubaud, D., & Foropon, C. (2021). Empirical investigation of data analytics capability and organizational flexibility as complements to supply chain resilience. *International Journal of Production Research*, 59(1), 110-128.
- Duchek, S. 2020. "Organizational Resilience: A Capability-Based Conceptualization," *Business Research* (13:1), pp. 215-246.
- Floetgen, R. J., Strauss, J., Weking, J., Hein, A., Urmetzer, F., Böhm, M., & Krcmar, H. (2021). Introducing platform ecosystem resilience: leveraging mobility platforms and their ecosystems for the new normal during COVID-19. *European Journal of information systems*, 30(3), 304-321.
- Galbraith, J. R. (1973). *Designing complex organizations*. Reading, Mass.
- Galbraith, J. R. (1974). Organization design: An information processing view. *Interfaces*, 4(3), 28-36.
- Groenendaal, J., and Helsloot, I. 2020. "Organisational Resilience: Shifting from Planning-Driven Business Continuity Management to Anticipated Improvisation," *Journal of Business Continuity & Emergency Planning* (14:2), pp. 102-109.

- Horne, J. F., I,II., (1997). The coming age of organizational resilience. *Business forum*, pp. 20-28
- Ignatiadis, I., & Nandhakumar, J. (2007). The impact of enterprise systems on organizational resilience. *Journal of Information Technology*, 22(1), 36-43.
- Jieasiaone, C. S. (2021). *Restaurant owners lose money over 'unreasonable requests' via food delivery platforms*. Retrieved 17/12/2021 from <https://www.asiaone.com/singapore/restaurant-owners-lose-money-over-unreasonable-requests-food-delivery-platforms>.
- Karanasios, S. (2022). The pursuit of relevance and impact: A review of the immediate response of the information systems field to COVID-19. *Information Systems Journal*, 32(4), 856-887.
- Khalil, A., el Woujoud Bousselmi, H., Abdelli, M. E. A., Baccouche, I., & Nasr, H. E. (2022). The impact of digital technologies on SMEs' resilience during the COVID-19 pandemic. In *Management and Information Technology in the Digital Era* (Vol. 29, pp. 111-126). Emerald Publishing Limited.
- Koskinen, K., Bonina, C., & Eaton, B. (2019). Digital platforms in the global south: foundations and research agenda. International Conference on Social Implications of Computers in Developing Countries, *ICT4D 2019, Dar es Salaam, Tanzania, May 1–3, 2019, Proceedings, Part I 15*: Springer, pp. 319-330.
- Linnenluecke, M. K. (2017). Resilience in business and management research: A review of influential publications and a research agenda. *International Journal of Management Reviews*, 19(1), 4-30.
- Ma, Z., Xiao, L., & Yin, J. (2018, 08/06/). Toward a dynamic model of organizational resilience [JOURNAL]. *Nankai Business Review International*, 9(3), 246-263. <https://doi.org/10.1108/NBRI-07-2017-0041>
- McKinsey (2020). How COVID-19 has pushed companies over the technology tipping point—and transformed business forever. <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/how-COVID-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever/>
- McManus, S., Seville, E., Vargo, J., & Brunson, D. (2008). Facilitated process for improving organizational resilience. *Natural hazards review*, 9(2), 81-90.
- MFAT. (2020). *Supporting SMEs*. <https://www.mfat.govt.nz/en/trade/free-trade-agreements/free-trade-agreements-in-force/cptpp/supporting-smes/>
- Miklian, J., & Hoelscher, K. (2022). SMEs and exogenous shocks: A conceptual literature review and forward research agenda. *International Small Business Journal*, 40(2), 178-204.
- Pu, G., Qamruzzaman, M., Mehta, A. M., Naqvi, F. N., & Karim, S. (2021). Innovative finance, technological adaptation and SMEs sustainability: the mediating role of government support during COVID-19 pandemic. *Sustainability*, 13(16), 9218.
- Pal, R., Torstensson, H., and Mattila, H. 2014. "Antecedents of Organizational Resilience in Economic Crises—an Empirical Study of Swedish Textile and Clothing SMEs," *International Journal of Production Economics* (147), pp. 410-428.
- Peiris, S., and De Silva, N. 2020. "Business Continuity Planning for Condominium Managing Agents in Sri Lanka: Resilience During Pandemics," *International Journal of Real Estate Studies* (14:S1), pp. 17-30.
- Rahi, K. (2019). Indicators to assess organizational resilience—a review of empirical literature. *International Journal of Disaster Resilience in the Built Environment*.

- Rai, A. (2020). Editor's Comments: The COVID-19 Pandemic: Building Resilience with IS Research. *Management Information Systems Quarterly*, 44(2), iii-vii.
- Saberian, F., Amirshahi, M., Ebrahimi, M., & Nazemi, A. (2020). Linking digital platforms' service dimensions to customers' purchase. *The Bottom Line*.
- Sahebjamnia, N., Torabi, S. A., and Mansouri, S. A. 2015. "Integrated Business Continuity and Disaster Recovery Planning: Towards Organizational Resilience," *European journal of operational research* (242:1), pp. 261-273.
- Sakurai, M., & Chughtai, H. (2020). Resilience against crises: COVID-19 and lessons from natural disasters. *European journal of information systems*, 29(5), 585-594.
- Seetharaman, P. (2020). Business models shifts: Impact of COVID-19. *International Journal of Information Management*, 54, 102173.
- Stannard, T., Steven, G., & McDonald, C. (2020). *Economic impacts of COVID-19 containment measures*.
- Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat rigidity effects in organizational behavior: A multilevel analysis. *Administrative science quarterly*, 501-524.
- Swanson, E. B., and Ramiller, N. C. 1997. "The Organizing Vision in Information Systems Innovation," *Organization science* (8:5), pp. 458-474.
- Takagi, S. (2020). Literature survey on the economic impact of digital platforms. *International Journal of Economic Policy Studies*, 14(2), 449-464.
- Todd, K. (2022). Waiheke Island hospitality businesses co-ordinating through group chat. *RNZ*. <https://www.rnz.co.nz/news/business/465490/waiheke-island-hospitality-businesses-co-ordinating-through-group-chat>.
- Tushman, M. L., & Nadler, D. A. (1978). Information processing as an integrating concept in organizational design. *Academy of Management Review*, 3(3), 613-624.
- Vakilzadeh, K., & Haase, A. (2021). The building blocks of organizational resilience: A review of the empirical literature. *Continuity & Resilience Review*, 3(1), 1-21.
- Vogus, T. J., & Sutcliffe, K. M. (2007). Organizational resilience: towards a theory and research agenda. *2007 IEEE International Conference on Systems, Man and Cybernetics*, : IEEE, pp. 3418-3422.
- Wong, C. W., Lirn, T.-C., Yang, C.-C., & Shang, K.-C. (2020). Supply chain and external conditions under which supply chain resilience pays: An organizational information processing theorization. *International Journal of Production Economics*, 226, 107610.
- Wynn, K. (2023). DoorDash: New player enters the home delivery market in New Zealand's biggest city. *nzherald*. <https://www.nzherald.co.nz/nz/doordash-new-player-enters-the-home-delivery-market-in-new-zealands-biggest-city/VBFPGM2R25DC7ACIU7BST35XM4/>
- Xie, X., Wu, Y., Palacios-Marqués, D., & Ribeiro-Navarrete, S. (2022). Business networks and organizational resilience capacity in the digital age during COVID-19: A perspective utilizing organizational information processing theory. *Technological Forecasting and Social Change*, 177, 121548.
- Yu, W., Zhao, G., Liu, Q., & Song, Y. (2021). Role of big data analytics capability in developing integrated hospital supply chains and operational flexibility: An organizational information processing theory perspective. *Technological Forecasting and Social Change*, 163, 120417.

Annexure 1

	Delight	Abhi	Taco
Technology adoption and use	Adopted self-managed system. Increased the use of third-party platforms	Added click and collect facility. Increased the use of third-party platforms	Implemented online payment features to the self-managed system. Increased the use of third-party platforms
Managerial perception	Perception towards obtaining platforms to keep a firm viable. Perception that digital platforms are “game changers”	Perception that platforms have many capabilities. Desire to obtain platforms. Perception that platforms are costly. Perception that platforms have operational problems	Perception that platforms can help firms stay viable. Perception that platforms are costly. Perception that platforms are a “black swan”. Perceptions that platforms having operations problems Perception towards trust
Reliability	Learning from experience Absorb change. Share communication among employees	Learning from experience Managing and utilising slack resources	Learning from experience Managing and utilizing slack resources
Adaptability	Better decision timely manner Broder information processing Change business processes	Better decision timely manner Change business processes	Broder information processing Change business processes
Resilience	Manage adverse event. Prepare for the change. Recover from crisis. Continue operation	Recover from crisis. Continue operation	Continue operation

Table 2: main themes and sub themes for data analysis

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