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DIGITAL OPERATIONAL RESILIENCE: THE ROLE OF NON-ROUTINE RESPONSES IN CRISIS SITUATIONS

Research in Progress

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Abstract

This study focuses on digital operational resilience (DOR) to ensure the stability of increasingly integrated digital services, which is currently receiving heightened attention due to ongoing environmental crisis situations. Researchers often relate DOR to planning and preparation activities, such as business continuity or disaster recovery planning. However, some types of organisations – such as scale-ups – tend to lack elaborate plans for crisis situations, mainly driven by their rapid growth and resource constraints. Such firms seem to regularly engage in non-routine responses to overcome sudden disruptions, namely heuristics (i.e., swift decisions) and improvisation (i.e., swift actions). We present preliminary results of an in-depth case study demonstrating how a FinTech scale-up applied heuristics and improvisation for its crisis response. We show how the consequences of such non-routine responses go beyond immediate crisis resolution, incurring either negative effects that need to be managed (coping debt) or opportunities to be leveraged (new/revised business processes).

Keywords: Digital operational resilience, Non-routine response, Coping debt, Gioia method.

1 Introduction

In today's digitalized business environment, any disruption of information and communication technologies (ICT) challenges firms' uninterrupted operations. This can be especially problematic for high-growth tech enterprises whose viability almost entirely depends on ongoing ICT-based operations (Henderson, 1999). The recently emerged focus on digital resilience, driven by the Covid-19 pandemic, only scarcely addresses the interconnectedness of ICT in daily operations (Boh et al., 2020; Schemmer et al., 2021). To account for this need, European policy makers have introduced digital operational resilience (DOR) for the financial sector, described as the ability to build, assure and review operational integrity by ensuring the full range of ICT-related capabilities needed to address the security of the network and information systems (IS) (adapted from European Commission, 2020, p. 29). It essentially rests on prescribed routine steps (e.g., business continuity plans or ICT risk management steps) which shall be executed to retain operations in crisis situations.

In this study we are interested in the crisis response of “scale-ups” in the financial services sector, which represent critical components of any nation's critical infrastructure (Murinde et al., 2022). Scale-ups are organizations effectuating persistent and rapid growth targets (Tippmann et al., 2023). According to OECD, such high-growth firms need to attain an average annualised growth greater than 20% per annum over a three-year period measured either by the number of employees or by turnover (OECD, 2007, p.

61). A related study on scale-ups using the same definition highlights that while ICTs may support or even enable growth, leveraging ICTs whilst transitioning to international markets is also likely to introduce liabilities especially at an operational level (Tippmann et al., 2023). More generally, this study notes that more research is warranted to adapt or extend accepted theories of the firm to account for the specific challenges and pressures of ambitious growth targets. Further, as scale-ups can usually rely less on established structures than other firms (Demir et al., 2017), there seems to be mismatch between the conceptual focus of DOR on prescribed routines and the often ad-hoc and non-routine activities seen in scale-ups, in particular in coping with a crisis (Manfield and Newey, 2018). Coping is understood as the strategy to quickly maintain or restore firms operations (Duchek, 2020). Non-routine responses connected to coping strategies can be *heuristics*, i.e., fast and frugal decisions (Bingham et al., 2007) and *improvisation*, i.e., actions taken spontaneously (Crossan, 1998; Suarez and Montes, 2019).

The Covid-19 pandemic is a prime example of an unforeseen disruption requiring the changes of firms' processes and their possession of resilience, and thus offers an ideal study setting. From one day to another scale-ups were forced to adapt their business models, integrate new tools, or increase fraud/security measures to ensure the adequateness of their ICT and in lieu portray a viable business model (Klein and Todesco, 2021). While the fast reshaping of business processes and integration or adjustment of ICT to cope with crisis related challenges is a worthwhile research objective, we are particularly interested in *how* such coping activities were performed in the short term, and whether these swift responses led to unforeseen consequences in the mid- to long term. To account for this duality, we formulated the following two research questions to guide our efforts:

RQ1 – How do scale-ups respond to unforeseen crisis situations in the short-term during the crisis?

RQ2 – What are the mid- to long-term consequences of these swift responses after the crisis?

In this paper, we report preliminary results based on qualitative data collected from one scale-up in the financial industry (FinTech). Our theoretical and empirical contributions lie in our conceptualization and empirical discovery of non-routine responses comprising heuristics and improvisation as interconnected steps to ensure an adequate crisis response. Additionally, we will illustrate preliminary evidence in support of benefits and costs of such non-routine responses. The literature has so far focused on issues of planning for business continuity and on the role of ICT in pro-active risk management to prepare for a crisis. We extend this literature in a new direction by theorizing and illustrating how DOR is achieved in scale-ups characterized by persistent and rapid growth.

2 Conceptual Background

Digital resilience (DR) has become a prominent research focus due to enhanced speed of digital transformations against the background of recent crises, such as the Covid-19 pandemic (Boh et al., 2023). DR research can be divided into two streams – either seeking to understand the resilience of individuals (Al-Abdulghani et al., 2021; Kohn, 2020) or the resilience of organizations built around digital operations (Schemmer et al., 2021). Within the latter stream, which is the focus of this study, research on DR is addressed as “*the quick regaining of essential capabilities to perform critical missions during crisis and smoothly return to fully stable operations*” (Magutshwa and Radianti, 2022, p. 2449) or as “*the phenomena of designing, deploying, and using IS to quickly recover from or adjust to major disruptions from external shocks*” (Boh et al., 2020, p. 1). Both DR and DOR stand on the principles of coping strategies connected to firms' ICT infrastructure supporting their business processes to overcome crisis situations. However, as noted by Sarkar et al. (2017), extant IS research does not account for the specificities of scale-ups, who face particular resource and operational needs.

2.1 Crisis Responses

Crisis situations are handled by responses that are either routine based or non-routine based (Suarez and Montes, 2019). The concept of routines is addressed as “*stability that comes from repeating the currently best-known practices*” (Lillrank, 2003, p. 216). A routine can be considered as a dynamic capability if it produces a significant outcome (Winter, 2003). In the context of crisis situations, routines serve as a source of knowledge which lessens uncertainties and helps guide actions (Suarez and Montes, 2019).

The IS literature connects routine based responses to business continuity plans (BCP) or disaster recovery plans (DRP) (e.g., Baham et al., 2017; Sakurai and Chughtai, 2020). Albeit, BCP and DRP should support disaster responses and are connected to DOR (European Commission, 2020), their rigidity has recently been underlined as potentially harmful to resilience (Baham et al., 2017). Furthermore, scale-ups, due to usually limited resources and persistent rapid growth, are not known to possess these resource-demanding plans (Prakash et al., 2012), indicating the non-routine responses are their go-to choice.

In crisis situations, non-routine responses are attributed to heuristics and improvisation which are better equipped to ensure swift decision making vital to comply with crisis-driven time constraints (Eisenhardt and Martin, 2000; Suarez and Montes, 2019). Young scale-ups are known to resort to both to account for resource constraints during their early stages (Bryant, 2007) and to purport their design growth (Garud and Karnøe, 2003). Utilizing prior known techniques decreases challenges connected to viability and ensures adequate resource distribution, which portrays scale-ups are prone to focus either on heuristics or improvisation to cope with the crisis event (Burgers et al., 2014). We purport a deeper insight into these concepts would add an interesting scope to the resilience research focus within the IS literature.

2.2 Heuristics

The idea behind heuristics, in the IS literature, is mainly drawn from Tversky and Kahneman (1974, p. 1) who view heuristics as an “*assessment of representativeness or similarity*” or Lindblom (1989) who understands it as the science of “*muddling through*”. This is opposed to management literature which is more aligned with suggestions from Gigerenzer and Gaissmaier (2011). They understand heuristics as “*a strategy that ignores part of the information, with the goal of making decisions more quickly, frugally, and/or accurately than more complex methods*” (Gigerenzer and Gaissmaier, 2011, p. 454). In the IS literature and in connection to resilience, prior research has proposed heuristics ensure intuitive risk perception (Park et al., 2015; Park et al., 2008), lessen risk exposure (Carlo et al., 2004) or aid resource planning in a crisis situation (Schryen et al., 2015). In this context, heuristics allow for drawing information from a past crisis event and lead to swift decisions (Park et al., 2015; Schryen et al., 2015). Consequently, we conceptualize heuristics as a frugal decision undertaken swiftly to account for time and resource constraints.

2.3 Improvisation

Improvisation, in contrast to heuristics, is addressed as an “*action taken in a spontaneous and intuitive fashion*” where there is no script, no sets and minimal props (Crossan, 1998, p. 593). In the context of a crisis, improvisation is argued to add novelty to the devised crisis response (Suarez and Montes, 2019). When addressing the specificity of scale-ups, their improvisation is mainly addressed through the application of bricolage. Bricolage is a type of improvisation which is conceptualized as the combination of knowledge and/or technologies at hand in novel ways to create intangible resource and overcome resource constraints (Baker and Nelson, 2005). Bricolage, in a crisis situation, ensures improvisation and immediate resource sourcing to overcome challenging times (Tsilika et al., 2020), which heightens venture adaptiveness (Yu et al., 2020). While improvisation and bricolage are rarely addressed by IS research (Molnar and Nandhakumar, 2008), a notable exception is offered by Ciborra (1992) and his idea of tinkering or fiddling to survive in an unpredictable environment.

2.4 Results of Non-Routine Responses

Albeit both heuristics and improvisation aid firms to overcome crisis situations, these frugal decisions or actions can lead to biases as they are not performed deliberately (Bingham et al., 2007; Suarez and Montes, 2019) and could, therefore, pose certain implications firms might encounter at a later stage. Extant literature connects biases to diverse theoretical lenses as well as the settings employed to study the complexity of both improvisation/bricolage and heuristics. In the resilience context, the implications of decision making biases are found in coping strategies (Duchek, 2020). Duchek (2020) proposes

swiftly developed decisions are not always based on experience and do not have to lead to process restructuring in the mid- to long-term. Nevertheless, as Williams et al. (2017) propose, when dealing with crisis situations, firms engage in single or double loop learning and focus on feedback to improve their responses. Prior work on the individual IT user level has shown that learning connected to coping strategies after IT incidents is considered through internal appraisals (Salo et al., 2020).

3 Methodology

Case studies are widely applied to answer “why” and “how” type of research question (Eisenhardt, 1991). Furthermore, they allow to delve deeper into various aspects and notions not yet covered by current literature (Eisenhardt, 1989). We, therefore, deem case studies as integrative part of appropriately answering our research questions. To properly uncover all aspects and notions, we will apply an interpretive paradigm (Barrett and Walsham, 2004).

3.1 Case Selection

FinTech scale-ups are a prime example of adequate cases as these companies have been able to retain uninterrupted operations during the challenging times exuberated by Covid-19 pandemic. Even though the FinTech industry has gain unprecedented speed and acknowledgement since the offset of the pandemic, the firms within this industry have been further pressured by the constant changes to retain their operations. We looked for and selected a case that is a) located in a Fin-Tech industry, and b) has portrayed persistent growth (in turnover or employees) of at least 20% over a three year period (OECD, 2007). Company Orion (a fictional name to ensure anonymity) is a prime example. Orion is a scale-up located in the dynamic cryptocurrency industry. The company has been founded in 2014, has undergone 3 funding rounds (A to C), and has scaled both its revenue and employee count sevenfold since the offset of Covid-19 pandemic, which portrays its persistent growth.

3.2 Data Collection and Analysis

To gather all relevant information and data, we have conducted series of semi-structured interviews with people directly or partly indirectly involved in the decision power in the IT service or IT development departments. The interviews were based on a questionnaire developed though the research background overview and focused on gathering and guiding the researchers to gain profound information on crisis responses and their implications. The questionnaire comprised of pre-planned questions related to non-routine response prior and post Covid-19 pandemic (as per the background section), however, to account for specificity of the case situation, have been used as a guiding principle and if needed, follow-up questions have been asked during the interviews. The interviews were performed via online communication platforms and have been recorded upon the agreement of interviewees. Altogether we have conducted 5 pilot interviews: 1) *Lead Agile Coach (70 min)*, 2) *Lead Program Manager (60 min)*, 3) *Head of IT (60 min)*, 4) *Head of Engineering (45 min)* and 5) *Lead Systems Administrator (75 min)*.

Upon the transcription of interviews, we have started analysing them based on guidelines determined by Gioia et al. (2013). Gioia methodology is rooted in grounded theory steps, however, allows for the 1st order coding the usage of interviewees own words (Gehman et al., 2018). Gioia (2021) proposes interviewees are knowledgeable agents and we (as researchers) should not "*presumptively impose our understanding on their understanding*" (Gioia, 2021, p. 22). The 1st order concepts, therefore, portray and hint towards how interviewees interpretations are connected to researcher themes (Mees-Buss et al., 2022). The 2nd order themes are connected to sorting and aggregating 1st-order concepts into abstract dimensions based on theoretical background as well as empirical evidence through iterative comparison process (Lehmann and Recker, 2022). Lastly, the aggregate dimensions should clearly present the theoretical relationships between 1st order concepts and 2nd order themes (Gioia, 2021). Upon transcription of the interviews, we focused on transferring raw data into 1st order concepts. Next, we aimed to structure the interviewees interpretations into 2nd order themes connected to extant literature on non-routine responses while preserving our empirical findings through constant comparison (6 emerged). As a last step we aimed to congregate these findings into aggregate dimensions in an iterative

process of real-data and theory comparison (3 emerged) (Gambal et al., 2020; Jiwasiddi et al., 2022). Figure 1 represents the extant version of our preliminary findings.

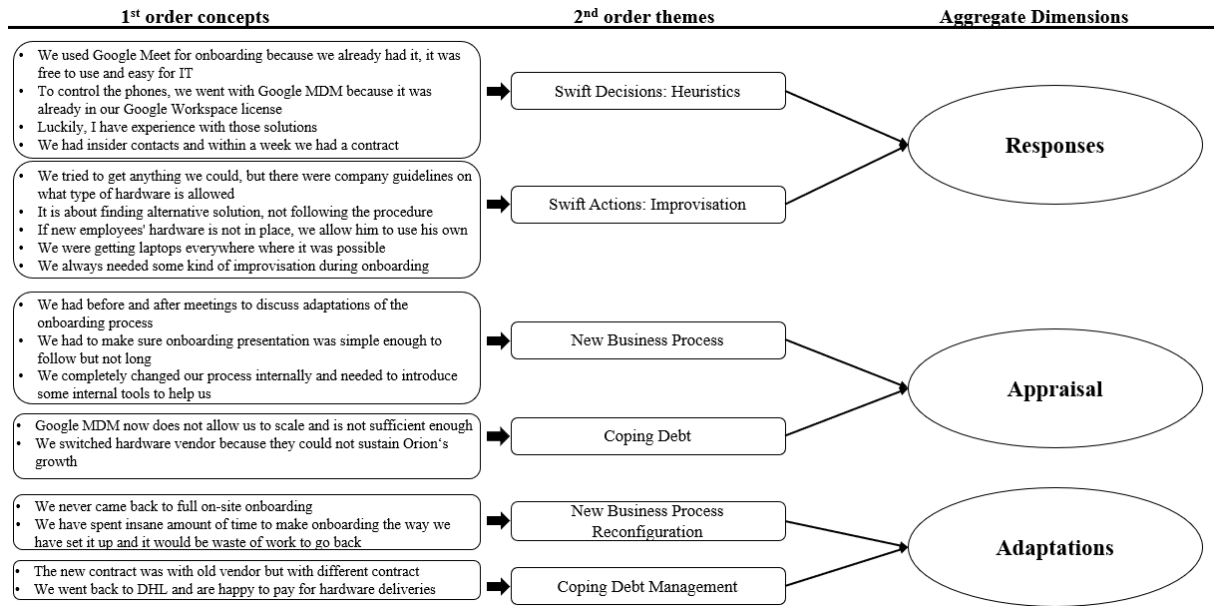


Figure 1. Data Structure.

4 Preliminary Findings

Due to the Covid-19 pandemic, Orion had to restructure/adapt three areas. Firstly, an important need was the restructuring of the **new employee on-boarding** processes. Secondly, Orion had to swiftly adapt the **sourcing of hardware** to support these processes as well as needs in existing business processes. Lastly, Orion had to **increase security measures** to mitigate risks in relation to mobile devices.

To fulfil these three needs quickly and without delays, our preliminary findings indicate Orion engaged in *heuristics and improvisation* to respond to the complex crisis driven by the Covid-19 pandemic. Nevertheless, the focus on swift and frugal decision making not based on full information resulted in certain implications. Figure 2 depicts the preliminary double-loop response Orion engaged in to reach digital operational resilience. Firstly, to cope with the Covid-19 pandemic Orion engaged in two types of crisis responses – swift decisions (heuristics) followed by swift actions (improvisation). Secondly, Orion engaged in an appraisal to assess the solutions used towards these ends. Lastly, to resolve potential short-cuts in the decision-making process, Orion had to make further ex-post adaptations once the swift decisions have been implemented.

Crisis Response (Swift Decisions). Firstly, to account for the limited time to make decisions, Orion had focused on heuristics to make the needed decisions swiftly and frugally. Firstly, the onboarding process had to be adapted from an offline version to an online option. Orion had to react quickly and “*the first version of this [digital] onboarding was done within a week*” as purported by an interviewee. Orion has decided to proceed with Google Meet as “*we [Orion] already had it, it was free to use and easy for IT*”, so it was considered “*a good video conferencing system so you can onboard employees in a good way*”. The swift decision to switch from in-person onboarding to online has been based on assimilation and knowledge of the used software for virtual meetings, as opposed to lengthy assessments. This portrays the use of heuristics based on software experience and easiness of use.

Secondly, to support increased remote working practices, the sourcing of hardware became quite strenuous for organizations. Orion strived to make remote work possible both for current as well as new employees. The complexity of this task was exacerbated by rigid requirements, so that procurement “*strictly had to follow the model and specific system for laptops*”. As the contracted supplier could not provide all needed requirements, Orion had to find a new vendor. Orion used its personal connections

and knowledge of the supplier landscape (“*[Orion’s] Head of IT had connections with Dell*”), which indicates decision heuristics based on network connections.

Lastly, after the first wave of pandemic, Orion realized that their IT security could be at risk due to the increase in remote work. To quickly resolve this oversight, the top management team has decided to distribute mobile phones to allow secure internet access in case the office with protected internet connectivity is closed. Orion operates in an industry where data security is of high importance, and a breach into customer data through unsecured internet connection could be detrimental to Orion’s reputation. In line, an interviewee further stated that “*phone distribution was done for secure internet connection and to reach people*” and “*in couple of weeks we need to distribute hundreds of phones and also make sure they are very secure*”. Accordingly, the decision to supply such large quantity of hardware additionally required the need to “control” it. The responsible decision maker argued that “*[Orion] had the security solution in place, it was included in the license ... and luckily I have experience with those solutions*”, further strengthened by the explanation that “*to control the phones, we [Orion] went with Google MDM because it was already in our Google Workspace license*”. This indicates that Orion based their decision on solution proximity and experience. All such points towards the usage of heuristics based on software experience and easiness of use.

Crisis Response (Swift Actions). As a next step, to ensure the cohesion of the restructured on-boarding flow, Orion had to further focus on swift action making – improvisation – to on-board the employees in the early days of Covid-19 pandemic. As one interviewee stated, “*we [Orion] always needed some kind of improvisation during onboarding*”, and “*we [Orion] improvise, we allow employees to join from their private laptop... it is about finding some alternative solution*”. In case of the emerged onboarding process, improvisation played a role of ensuring the adjustments are easier to follow or devising quick actions steps not considered during the swift decisions.

Secondly, to support the choice of new hardware vendor, Orion had to engage in quick action making in case the new vendor could not fulfil Orion’s demand. During the onset of pandemic, periphery hardware was limited, and Orion was further shackled by the internal laptop security requirements. Albeit Orion has selected a new vendor, due to resource scarcity Orion had to look for additional vendor to supply their entire demand. The interviewee responsible further mentioned Orion aimed to “*get laptops everywhere where it was possible*” and they “*tried to get anything we could, but there were company guidelines on what type of hardware is allowed*”. Improvisation in this case has been used as a supporting swift action tool in case Orion’s resource demands could not be fully met by the newly appointed vendor.

Lastly, Orion appears to be nascently focusing on improvisation to source mobile controlling solution. In this instance an interviewee purported “*it was improvisation also in the combination with time pressure*”, as Orion had to source not only the controlling solution, but also specific mobile phones and look for a sim-card provider. The steps undertaken after the controlling software solution has been in place were more of an action taking perspective, to account for the time pressure from the management team as well as the ongoing pandemic. Improvisation in this case helped with overcoming time pressure and ensured adequate distribution of mobile phones among employees.

Appraisal (New Business Process and Coping Debt). At the time of our interviews, Orion appeared to be engaging in an appraisal to assess the swift decisions and actions taken to respond to the crisis situation. Firstly, Orion implemented internal feedback sessions to assess the status of remote (digital) onboarding. As one interviewee purported “*[digital onboarding] had like before meetings, after meetings and to see like, okay, what, what went well, what can be improved and then it was basically an ongoing process*” and “*we [Orion] realize, it's too difficult to understand for some people...we [Orion] had to make it even more easier*”. This portrays that Orion’s appraisal focused on the appraisal of their new business process. The newly selected hardware vendor could not follow the growth and strategic needs of Orion, and the Google MDM solution could only be used for the span of the Covid-19 pandemic. Both swift decisions resulted in unintended consequences that Orion now has to resolve - coping debt. One of the interviewees purported “*we [Orion] switched hardware vendor because they could not sustain Orion’s growth*”, and “*Google MDM now does not allow us to scale and is not*

sufficient enough”. The quotes suggest Orion used internal feedback sessions to assess the new solutions and present needs to find a new course of action to deal with coping debt.

Adaptations (New Business Process Reconfiguration). The swift decision and action making in relation to the onboarding process resulted in a new business process reconfiguration as Orion, according to an interviewee, “never came back to full on-site onboarding”. This has been mainly attributed to the time and cost allocated to improving this newly established process. On interviewee supplied “we [Orion] have spent insane amount of time to make onboarding the way we have set it up and it would be waste of work to go back”. Moreover, Orion performed marginal changes to their onboarding process and adapted the process based on the internal feedback to make relevant improvements. Therefore, the appraisal has resulted in a business process reconfiguration to account for further changes or needed adaptations to fully integrate the new business process into Orion’s daily operations.

Adaptations (Coping Debt Management). Nevertheless, if coping debt has been identified in the appraisal, Orion aimed to lessen or mitigate it. For instance, it was decided to return to a previous hardware vendor to account for an oversight regarding a new vendor. An interviewee stated “we [Orion] went back to DHL and are happy to pay for hardware deliveries”. Furthermore, in relation to MDM solution, “Google MDM now does not allow us [Orion] to scale and is not sufficient enough”, especially since “we [Orion] now have much stricter security rules”. Presently, Orion has to look for a different MDM solution that will suffice all of its needs and resources, as well as security measures. Therefore, the appraisal appears to have indicated areas Orion has to adapt to lessen any critical resource exposures.

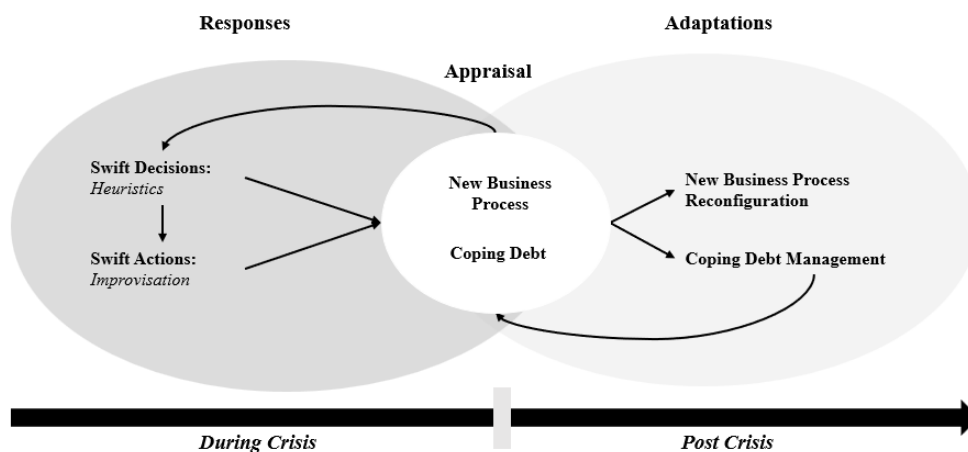


Figure 2. Swift and Deliberate Steps in Support of DOR in Crisis Situations.

5 Discussion

In the context of our scale-up, we have identified both heuristics and improvisation to respond to unexpected crisis situations. Heuristics are used for swift decisions, which path the way to improvisation (swift actions). Heuristics-based decisions have been based on the proximal placing of the chosen solutions (in terms of closeness to existing solutions) as well as personal experience and connections of the decision maker. Improvisation, however, is seen as the swift action undertaken to solve problems after heuristics based decision-making quickly and spontaneously (Crossan, 1998). Our observations appear to follow the distinction proposed by Bingham and Eisenhardt (2011, 2014), who also view heuristics as a decision-making process opening doors for improvisation. Albeit, Suarez and Montes (2019) propose crisis responses can originate either from heuristic or from improvisation, our preliminary findings portray that heuristics are applied to make the first decision quickly and frugally, and improvisation then follows often as a corrective course of action to account for non-predicted situations.

Although digital operational resilience (DOR) is said to be grounded in business continuity plans (BCP) or disaster recovery plans (DRP) and, therefore, carefully planned and structured responses, our pilot analysis portrays the relevance of non-routine responses in the context of scale-ups. The case firm used

both heuristics and improvisation to reconfigure the digital components of its supporting processes (i.e., onboarding or sourcing of hardware), which were vital for uninterrupted operations during the Covid-19 pandemic. This suggests, in the context of scale-ups, DOR to a large extent may depend on the capacity to allow for non-routine responses as opposed to dynamic capabilities for BCP or DRP. Both, heuristics and improvisation, ensure scale-ups retain operations and devise appropriate coping strategies, which could be understood as a micro-foundation of DOR in a crisis situation (Fallon-Byrne and Harney, 2017; Ivanov and Bernroider, 2022; Neumannova et al., 2021), at least for scale ups. An important theoretical consideration is, whether improvisation can be seen as or at least enabled by dynamic capabilities (Neumannova et al., 2021). Prior research has argued that ad-hoc changes and exploiting dynamic capabilities are different modes of change (Duchek, 2020; Winter, 2003).

In relation to our second research question, the non-routine responses appear to bear both a potential benefit and a risk scale-ups have to account for upon an appraisal. It has been reported that internal appraisals are important for individual IT users to devise the appropriate course of action in coping with IT incidents (Salo et al., 2020). The internal appraisal in our scale-up applies to the organization and has served two distinct purposes. Firstly, to fully understand the steps performed to reconfigure its processes to quickly cope and assess implications. Albeit firms can create and enact new routines to cope with the crisis situation, certain changes made without considering the IS context can result in increased vulnerabilities or ICT risks (Gorgeon, 2015; Hartl and Hess, 2019). The increased vulnerabilities connected to coping strategies can be seen as a type of debt that has to be paid at a later point – e.g., coping debt. The idea of coping debt is conceptually connected to the understanding of technology debt, which stands on the principles of quick fixes that bear a cost organizations or development teams have to pay at later point (Alves et al., 2016; Seaman and Guo, 2011). Moreover, extant IS literature implies heuristics can be seen as source of technical debt (Tom et al., 2012), and therefore, can be understood as the mechanism leading to coping debt if enacted in a crisis situation. Secondly, internal appraisal was applied as the main control mechanism to account for the outcomes of non-routine responses and allow for double loop learning. This may result in either further swift decisions and actions, or instating the new/revised business process operationally and steps to overcome the presence of potential coping debt based on the observed situation. In this sense, our findings are consistent with the crisis-response model developed by Williams et al. (2017), where includes a so-called “resilience feedback loop”. In our case, we extend this view with the focus on appraisals and potential long-term consequences, which are rarely discussed in resilience studies.

6 Future Steps and Conclusion

Our findings provide preliminary but clear evidence for the importance of non-routine responses for future studies of digital resilience, in particular from an operational perspective (DOR) in the context of fast-growing firms (called scale-ups). Whilst prior work has focused on routine-based planning activities (BCP, DRP) to ensure DOR, our first contribution is to show how non-routine responses, characterized by an interconnectedness of heuristics and improvisations, have been performed to overcome crisis situations by changing quickly while safeguarding operations dependent on ICTs. Our second contribution is to sketch how such swift changes can be safeguarded by internal appraisals leading to a path of change where long-term consequences such as coping debt are minimized and new business processes can emerge. As we move forward with our ongoing analysis, we seek to expand our fieldwork by conducting more interviews with the current case and adding further case firms (i.e., scale-ups), albeit embedded in different context, to strengthen and cross-validate our findings. We seek to look for possible mechanisms on how firms leverage non-routine responses and their appraisal to uncover the benefits and drawbacks more extensively, and more clearly explicate their theoretical underpinnings. This shall provide more nuanced insights for both researchers and practitioners who seek to understand which coping responses can be applied in crisis situations, but also what consequences they need to account for. We are presently focusing on creating a grounded model, which is yet to be stipulated for its conceptual or process basis given the data constraints (Langley, 1999; Makadok, 2022).

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