Proceedings of the 35th European Safety and Reliability & the 33rd Society for Risk Analysis Europe Conference
Edited by Eirik Bjorheim Abrahamsen, Terje Aven, Frederic Bouder, Roger Flage, Marja Ylönen
 Published by Research Publishing, Singapore.
doi: 10.3850/978-981-94-3281-3_ESREL-SRA-E2025-P2833-cd

Business Continuity Management in public sector organizations – from component, to system, to society

Alexander Cedergren

Div. of Risk Management and Societal Safety, Lund University, Sweden. E-mail: alexander.cedergren@risk.lth.se

Henrik Hassel

Div. of Risk Management and Societal Safety, Lund University, Sweden. E-mail: henrik.hassel@risk.lth.se

Henrik Tehler

Div. of Risk Management and Societal Safety, Lund University, Sweden. E-mail: henrik.tehler@risk.lth.se

Mathilde de Goër de Herve

Ramboll RMC Brussels, Belgium, E-mail: mathilde.degoerdeherve@gmail.com

Johanna Gustavsson

Centre for Societal Risk Research (CSR), Karlstad University, Sweden. E-mail: johanna.gustavsson@kau.se

Lars Nyberg

Centre for Societal Risk Research (CSR), Karlstad University, Sweden. E-mail: lars.nyberg@kau.se

Misse Wester

Div. of Risk Management and Societal Safety, Lund University, Sweden. E-mail: misse.wester@risk.lth.se

Abstract
While Business Continuity Management (BCM) shares some of its overall purpose with risk management, it has generally received less attention in scholarly research. BCM originates from the private sector as an approach used to strengthen an organization's capability to maintain critical functions in the face of disruptions and facilitate recovery but has gained more attention also among public sector organizations. This paper presents findings from an interview study aiming to explore the approaches used to adopt BCM in different types of Swedish public sector organizations and the challenges entailed. Specifically, the study sheds light on factors affecting how BCM-related information is shared between sub-units of public sector organizations and how the units' individual BCM practices are aggregated from sub-unit level to the level of the organization as a whole to provide an overall risk picture, influencing the possibilities of maintaining critical societal functions. In this way, the paper explores how BCM operates at multiple levels—from the individual components within an organization, to the overall system, and ultimately its impact on society: from component, to system, to society. The results confirm that BCM is an approach that only recently has gained increased attention and use among Swedish public sector organizations, complementing the use of Risk and Vulnerability Assessments. Several respondents highlight the need to institutionalize BCM within their organizations to obtain increased effectiveness. The approaches to adopt BCM appears to be influenced more by the size of the organization than by the type of public sector organization. Challenges related to aggregating BCM-related information are primarily framed as a governance issue rather than a technical concern about data consistency. Finally, the findings show that respondents describe their current approaches to aggregation as unstructured, which suggests a need for further research aiming at exploring and testing ways to enhance BCM practices.

Keywords: Business Continuity Management, BCM, BCP, Public sector, Crisis preparedness, Aggregation, Integration.

1. Introduction

Business Continuity Management (BCM) is an approach aimed at ensuring continued operations of an organization's most critical activities during disruptions and enabling quick recovery following such events (Gibb and Buchanan 2006). While BCM shares some of its overall purpose with risk management, it has generally received less attention in scholarly research (Folkers 2017; Riglietti, Piraina and Trucco 2022). Moreover, it has been criticized for not having as solid conceptual foundation as the area of risk science (Hassel and Cedergren 2019).

BCM originates from the private sector where it has gained significant attention in the scientific community, covering enterprises of varying size (Kato and Charoenrat 2018). While a substantial body of work on the adoption of BCM in the private sector exists, scholarly interest in public sector BCM has been limited (Järveläinen, 2020). As a result, limited attention in existing research has been placed on the unique characteristics of public sector organizations and how their specific conditions influence the implementation and practice of BCM (Cedergren and Hassel forthcoming). As noted by Wright (2011), the specific nature of public sector organizations creates some particular challenges for BCM implementation in this context. For example, a single public sector organization, such as a municipality, typically has a range of different objectives and areas of responsibility, resembling a conglomeration of small businesses under the same organizational roof.

A commonly used approach to adopting BCM, particularly in large public sector organizations, involves implementing and executing BCM across individual organizational units in parallel and isolated from one another. Yet, due to dependencies between these units, as well as dependencies to other organizations, the units may inadvertently rely on the same continuity plans or strategies. As a result, the capabilities and vulnerabilities of one unit can impact others, ultimately affecting the entire organization's capability of maintaining its critical functions once disruptions occur. This, in turn, can have broader societal consequences, potentially affecting the safety and well-being of citizens, highlighting the importance of sharing BCM-related information and coordinating efforts across units. Despite the importance of addressing these challenges, the limited scientific attention devoted to BCM in the public sector means that little is known about how such issues are managed in practice.

This paper firstly aims to explore factors affecting how BCM-related information is shared between sub-units of public sector organizations and how the units' individual BCM practices are aggregated from sub-unit level to the level of the organization as a whole to provide an overall risk picture, with implications for maintaining critical societal functions. In this way, the paper investigates how BCM operates at multiple levels—from the individual components within an organization, to the overall system, and ultimately to its impact on society: from component, to system, to society.

Secondly, this paper aims to explore if and how BCM, being a relatively newly adopted approach in many public sector organizations, is integrated with other organizational processes, i.e. whether BCM is implemented as a stand-alone process or if commonalities and synergies with other processes are exploited to minimize inefficient overlaps and duplication of work.

In this way, the paper contributes to the current understanding of the specific challenges associated with adopting BCM in public sector organizations, particularly regarding its effectiveness as a tool for addressing organizational risks and its integration with other organizational processes.

2. BCM

According to the ISO 22301:2019 standard, which is one of the most widely applied standards for BCM implementation, the following main steps form the basis of an organization's BCM efforts: 1) Establishing operational planning and control, 2) Performance of a Business Impact Analysis (BIA) and risk assessment, 3) Identification and selection of business continuity strategies and solutions, 4) Implementation of business continuity plans and procedures, 5) Implementation of a programme of exercising and testing, and 6) Evaluation of

business continuity documentation and capabilities.

The core of BCM is about creating organizational understanding, which is mainly achieved through the BIA and the risk assessment, and using this understanding to inform the selection of continuity strategies and solutions. Key elements in the BIA are 1) Definition of impact types and unacceptable levels of impacts, 2) Identification of critical products or services 3) Estimation of Maximum Tolerable Period of Disruption (MTPD) for each product or service, 4) Identification of activities that support the delivery of critical products or services, 5) Estimation of MTPD and Recovery Time Objective (RTO) for each activity, 6) Identification of resources that each activity depends on, 7) Specification of RTO for resources, and 8) Identification of existing alternative continuity solutions and capability assessment (Hassel and Cedergren, 2024). A risk assessment then often complements the BIA by identifying threats that may render each of the critical resources unavailable, including the likelihood of such threats.

3. Method and materials

Data used for this study was collected using semi-structured interviews in order to provide rich descriptions of the themes under investigation and to enable follow-up questions and clarifications where necessary to explore the topic in further depth compared to what is possible by using other methods for data collection. The study included nine respondents representing seven Swedish public sector organizations: four municipalities, two county administrative boards and one county council. Interviews were conducted between September and November 2024. The respondents were identified by using a purposive sampling approach, aiming at obtaining a variation in type and size of public sector organizations currently working with BCM in the southern part of Sweden. Moreover, we aimed to identify respondents who hold coordinating roles and who can provide an overview of the organization's BCM practices. Two interviews were conducted with two respondents at the same time. Three interviews were conducted face to face while the other four were conducted through video calls. An interview guide was developed on beforehand and the respondents were informed about the main themes of the study prior to the interviews. In addition, an informed consent form was distributed and agreed upon by all respondents.

All interviews were recorded and transcribed. Thematic analysis influenced by the approach suggested by Braun and Clarke (2006) was adopted. In this phase, the Nvivo software (version 14) was used to facilitate data analysis by coding sentences describing, for example, internal or external information-sharing, approaches used for aggregation, and integration of BCM with other processes. After reading through and coding all the interview transcripts, broader level themes were created, which are presented in the results section.

4. Results

4.1. Increasing interest in BCM

Among the organizations involved in this study, most have only recently begun implementing Business Continuity Management (BCM). For instance, one of the municipalities initiated its BCM efforts approximately two years ago, while another municipality about three years ago. As a result, many of these organizations still consider themselves in the start-up phase, with BCM not yet fully launched or established across all departments. In organizations that have worked somewhat longer with BCM, the respondents highlight that interest in BCM within their organizations has increased in recent years.

According to one respondent, there is especially a trend of increasing BCM implementation among municipalities. Key events driving this heightened attention to BCM include the COVID-19 pandemic and the deteriorating security situation following Russia's large-scale invasion of Ukraine. These events have underscored the importance of BCM as an approach to ensure continued operations in the face of disruptions and motivated organizations to prioritize it.

Several respondents also note a growing interest in BCM from high-level management in their organizations. This increased attention has often led to tangible results. For example, one respondent describes how a decision by senior leadership to focus on BCM related to IT security has led to significant organizational activity. Similarly, another respondent mentions that leadership engagement significantly influences the

organization, resulting in increased funding to strengthen BCM initiatives. Moreover, one respondent remarks that the recent surge in interest has almost been overwhelming, making it challenging to keep pace, while yet another respondent points out staff shortage as a bottleneck preventing further progress. Taken together, this suggests a rapidly growing interest and increasing engagement related to BCM in Swedish public sector organizations.

4.2. Approaches to BCM implementation and practice

As described in Section 3, the organizations involved in this study vary in type, including four municipalities, two county administrative boards, and one county council. Despite this diversity in the type of public sector organizations, their approaches to BCM primarily seem to be influenced by organizational size. To give an idea of their variation in size, the total number of employees can serve as a rough indicator. The two county administrative boards employ approximately 400 and 600 people, respectively. Three of the municipalities employ between 5 000 and 10 000 people, while the fourth municipality and the county council employ approximately 30 000 and 35 000 people, respectively.

This variation in size, rather than type of organization, seems to determine their approach to BCM implementation and practice. For example, three municipalities follow a similar approach to the county administrative boards, while the fourth and largest municipality aligns more closely with the county council.

In smaller organizations, a single individual or a small team of coordinators are typically involved in all parts of the BCM implementation. This includes the performance of practical tasks across all departments, such as conducting workshops, providing training and support, and developing templates. While some of these coordinators describe how they have attempted to delegate BCM tasks to the individual departments, the lack of dedicated resources or prioritization within departments limits the effectiveness of these efforts. Since BCM is often treated as a secondary priority within departments, these respondents believe the most effective approach is to engage directly with staff and managers in the departments, although this is highly time-consuming for the coordinators. The ambitions to transfer ownership and execution of the BCM process to the departments nonetheless remains a longstanding goal. However, several coordinators explain that their current focus is on creating engagement and raising awareness among departments about the importance of BCM, since the organizations are still in an early phase of BCM implementation.

While relying on one or a few individuals to coordinate the work has drawbacks, such as a heavy workload and person-dependency, which can make the organization vulnerable, this approach also offers some clear advantages. For example, the coordinator gains valuable insights into the departments' activities and ensures a consistent, streamlined approach across all departments, facilitating other parts of the BCM work.

4.3. Towards institutionalization of BCM

In many of the studied organizations, BCM is conducted in close alignment with Risk and Vulnerability Assessments (RVAs), which, unlike BCM, are more directly mandated by law. In some cases, efforts have been made to integrate BCM with other related organizational processes. Moreover, several respondents emphasize the importance of using BCM as a strategic basis for procuring critical supplies. By integrating insights gained through the BCM process into the procurement process, the organizations can improve their preparedness and increase the likelihood that critical resources are secured.

Despite these positive examples, BCM and related processes are generally perceived as subordinate to core organizational operations. Consequently, many respondents express a desire to integrate BCM with more central processes, such as internal control processes and budget management. This integration is believed to provide BCM with greater organizational impact. For example, one respondent highlights the critical need for BCM coordinators to have a good understanding of budget processes, as these are central to managers' priorities and critical to securing funding and implementation for continuity plans. In this respondent's view, the budget process could serve as a "common language" to connect central organizational processes and priorities with BCM practices and outcomes.

Another respondent draws a parallel between BCM and established practices such as fire safety drills or environmental management systems, which are widely accepted as integrated parts of organizational routines. The respondent argues that BCM should be treated with similar importance, aiming to embed preparedness into daily operations and become a natural part of the organizational culture, just like fire safety measures.

Achieving this level of institutionalization requires the establishment of clear roles and mandates. Respondents from one organization notes that the BCM coordinators have increasingly moved from operational tasks to more strategic roles and activities, with the aim of creating the necessary preconditions for such institutionalization. The creation of steering documents is identified as a critical step, as many organizations currently lack formal guidance or mandates to support BCM initiatives. In one municipality, for example, BCM is a voluntary activity that depends on inspiring and motivating departments to participate. As a result, the organization's progress in BCM largely depends on the commitment of individual staff members.

In order to avoid BCM from being limited only to those who recognize its benefits and are willing to allocate resources for its implementation, several respondents emphasize the need to make BCM an institutionalized practice, carried out regularly across all parts of the organization.

4.4. Information-sharing across organizational units

A necessary step to gain an overview of critical dependencies to internal and external resources involves information-sharing across organizational units. One respondent notes that one department may deliver a service that another department strongly depends on, without the delivering department's awareness of this strong dependency. Awareness of this type of dependency is crucial since it may provide stronger incentives for the delivering department to secure the service and calls for a dialogue between the two departments.

Yet, several respondents describe that information-sharing across organizational department borders is currently very limited and some respondents describe the departments as highly autonomous with their work being mostly internally focused. One respondent claims that, up to now, information-sharing across department borders has not been encouraged as a necessary part of the BCM process. When information-sharing takes place, it typically happens through the coordinator, who gains insights about dependencies between departments through this person's contact with the individual departments and then notifies the departments of the need for them to initiate a dialogue and coordinate their dependencies on each other. In this way, one of the respondents has the impression that the individual departments wait for someone else to come up with solutions to their vulnerabilities. The coordinator's role, therefore, becomes essential in initiating cooperation between departments, reminding them of interdependencies, ensuring that relevant individuals communicate with one another, and making sure their expectations on each other align.

Reluctance to share information sometimes depends on the fact that departments have made limited progress on their own BCM. Therefore, they may not feel comfortable with sharing their own weaknesses, or they want to feel more confident in their own assessment and continuity strategies before sharing it with others.

Secrecy is mentioned as a potential barrier to information-sharing, since sensitive information obviously must not fall in the hands of unauthorized actors. In particular, the issue of secrecy becomes more critical as the quality of the assessments and the collected data increases. However, while issues related to secrecy and the need to protect sensitive information from being spread outside the organization are mentioned, several respondents also downplay these problems. According to these respondents, it is possible to communicate without running into problems related to secrecy as long as the information shared remains on a more general level. One respondent gives the example that it is unproblematic to reveal that a certain department relies on electricity, water supply, heating and roads, as long as it is not specified, for example, which particular roads the department is most dependent on.

The county administrative boards differ slightly from the other two types of organizations in the sense that the respondents from these organizations claim that there are relatively few interdependencies between departments. This is because the departments of a county administrative board primarily generate various kind of sector-

specific knowledge, which other departments generally are not dependent on. This is different compared to a municipality, where closer dependencies between departments can be found.

To facilitate information-sharing, several organizations have established various forms of networks, clusters, and similar forums where professionals involved in BCM efforts can meet and share insights related to their ongoing work. Trust is described as an important ingredient to make these networks fruitful. Several respondents emphasize that these networks play a crucial role in the BCM practice and that they compensate for other shortcomings in the BCM process.

4.5. Aggregation - a governance issue rather than a technical issue

All respondents acknowledge the value of aggregating the various departments' BCM work since such aggregation provides an organization-wide picture needed to identify if several departments depend on the same actor or service, such as their level of dependence on water supply or power supply, and how strong these dependencies are.

According to one respondent, the aggregated picture provides a holistic view on priorities and where resources should be allocated. It allows organization-wide assessments and decisions that would not be possible unless all departments' BCM efforts were put together. The same respondent illustrates the value of compiling the aggregated picture by describing how it turned out that several departments had referred to the same facility as their command center in their continuity plans. However, this particular facility proved to be unavailable and therefore called for an alternative continuity solution. This required efforts from the centralized BCM function to find solutions that work for all departments and to make sure that not all departments rely on the same continuity solution. Along similar lines, another respondent points at the fact that the aggregated assessment reveals which continuity strategies and solutions to invest in that prove most efficient, as it allows identification of common needs.

In the same way, one respondent points out that the value of aggregation is to provide an overall picture of the organization's capabilities that can be conveyed to the political leadership to indicate how prepared the organization is. In other words, the aggregation forms a basis of providing upward information to the management level, to support their possibilities to make decisions and allocate resources or provide direction. Another respondent also mentions the role of aggregation as a basis for decision-making, that allows the identification of effective solutions to address identified challenges.

The variation in the size of the organizations and the different ways of structuring the BCM work influence the approach and progress of aggregating from organizational units to the organization as a whole. In the smaller organizations, where one or a few persons have been actively engaged in both coordinating and directly performing the different steps of the BCM process in all organizational units, aggregation is facilitated by this person's knowledge and understanding gained through the BCM process.

In larger organizations, on the other hand, aggregation does not seem to have made as much progress as in the smaller ones. Most likely, this depends on the increased complexity and size of these organizations. The respondents describe their intended steps towards aggregation, but they remark that these are still only intentions.

In several organizations, BCM and RVA are integrated and are conducted by using the same methodology. In these organizations, aggregation occurs by looking at the data from this integrated BCM/RVA-process. Regardless approach taken to conduct the aggregation from sub-units to the organization as a whole, all respondents describe the process as lacking structure. Moreover, one respondent remarks that the BCM process occurs in an erratic way and reflects that it would be reasonable that the process of continuity management itself should have a certain degree of continuity. In practice, however, this is not always the case.

One respondent remarks that the aggregated picture quickly becomes outdated as operational conditions constantly change. The respondent therefore argues that it is better that the managers or the staff responsible for BCM within individual departments hold an updated view of the department's level of preparedness. In addition, the respondent highlights the importance of an active and ongoing dialogue between the central coordinators and the departments, which is as important as the aggregated picture derived from the BCM process. This respondent argues that the

plans themselves may not be the most important part. Rather, it is the existence of a continuous process for BCM and other preparedness-related efforts that matters.

A challenge related to the practice of BCM aggregation is about ensuring quality in the input data from the various departments, as well as problems related to different level of detail in the data. Another challenge relates to lack of standardization of how the name of critical activities are formulated. One respondent describes that some manual work therefore is needed to create an aggregated analysis. Yet, while a few respondents touch on these more technical aspects of data treatment, consistency and quality assurance, more emphasis among respondents is placed on the need for mandate and structure as the most important challenge. This means that challenges to BCM aggregation is primarily regarded as a governance issue rather than a technical issues.

5. Discussion

The findings from this study corroborates some of the insights gained from a recent scoping study of peer-reviewed journal articles on public sector BCM (Cedergren and Hassel, forthcoming). For example, this paper supports a more general trend indicating that BCM has gained increased attention among public sector organizations following the COVID-19 pandemic. The results from this paper show that the geopolitical security situation has further contributed to this growing attention and added an increased sense of urgency among Swedish public sector organizations to take measures to ensure continued operations of critical activities after disruptions.

Despite these increased incentives to adopt BCM, it is likely to believe that a number of more chronic obstacles still exist. For example, previous studies investigating the challenges related to implementing Risk and Vulnerability Assessments (RVAs) in Swedish municipalities have shown that leadership commitment for this type of work is difficult to sustain over time (Cedergren, Hassel and Tehler 2022). Moreover, short political time horizons and the challenge of demonstrating the benefits of risk reduction or mitigation efforts often lead to prioritizing more immediate needs where the outcomes are more clearly visible (Berg, Knudsen and Norrman 2008; Coppola 2011).

At the same time, it is interesting to note the ambitions expressed by several respondents to move towards an increasing institutionalization of BCM, comparable to the way fire safety drills have become a natural part of organizational routines. In particular, the recognition of the need to "speak the language" of the management level and to organize the BCM process in a way that operates in sync with the budget process within the organization are promising steps in this direction. Part of this vision includes efforts to establish stronger strategic capabilities, increasing the decentralization of the practical execution of BCM to lower levels, and decreasing the dependency on individual champions.

While the data is limited to a total of nine respondents representing seven public sector organizations, some patterns can be seen which suggest possibilities to make some generalizations. For example, the findings indicate that the identified differences in approaches to BCM adoption connects more closely to their variation in size than type of organizations. In smaller organizations it is possible, albeit time-consuming, for a single employee to perform all steps of the BCM process with all departments and summarize the outcomes on the level of the organization as a whole. In larger organizations, this becomes practically impossible, and further disaggregation of work tasks is required. This creates an additional layer of complexity in terms of identifying joint dependencies and continuity solutions.

As shown in the results section of this paper, several respondents describe their current approach to create an aggregated picture of multiple departments' BCM outcomes as unstructured. This calls for additional steps to address the challenge of finding effective ways to aggregate BCM-related information into a comprehensive overview while also taking concerns about sensitive information and confidentiality into account. While the concept of aggregation has gained some attention in the risk science (see e.g. Månsson 2018; Bjørnsen and Aven 2019), this issue has received more limited focus in the area of BCM. Initial efforts to foster multi-actor collaboration in the field of BCM are outlined in the framework proposed by Hassel and Cedergren (2024). This framework suggests a stepwise approach to BCM that can be applied by

multiple interdependent actors and outlines examples of the benefits and insights gained from such aggregation process. So far, however, this framework has not been tested in practice. Due to the expressed lack of structure to create an aggregated analysis of BCM efforts conducted in individual departments, this appears to be an area for future research.

6. Conclusions

The results from this paper indicate that BCM is a relatively novel approach in many Swedish public sector organizations, though it is currently gaining increasing interest and attention. Several respondents highlight a clear distinction between their current BCM practices and an ideal future state, suggesting that these organizations are not yet in a mature position regarding organization, governance, and performance. Many respondents also express a desire to institutionalize BCM within their organizations to strengthen its role and impact.

The approach to adopting BCM appears to be influenced more by the size of the organization than by its specific type or function within the public sector. Challenges related to aggregating BCM-related information are primarily framed as a governance issue rather than a technical concern about data consistency. Finally, the findings show that respondents describe their current approaches to aggregation as unstructured, which suggests a need for further research aiming at exploring and testing ways to enhance their BCM practices.

Acknowledgement

We would like to express our gratitude to the Swedish Civil Contingencies Agency (MSB) for the financial support of this study through the INTEFF project (*Integrerad och effektfull riskhantering i ett sammankopplat samhälle*).

References

Berg, E., Knudsen, D. and Norrman, A. (2008) 'Assessing performance of supply chain risk management programmes: A tentative approach', *International Journal of Risk Assessment and Management.*

Bjørnsen, K. and Aven, T. (2019) 'Risk aggregation: What does it really mean?', *Reliability Engineering and System Safety, 191.*

Cedergren, A. and Hassel, H. (no date) 'Business continuity management in public sector organizations: development, challenges, and ways forward'.

Cedergren, A., Hassel, H. and Tehler, H. (2022) 'Tracking the implementation of a risk management process in a public sector organisation – A longitudinal study', *International Journal of Disaster Risk Reduction, 81(103257)*. d

Coppola, D. P. (2011) *Introduction to International Disaster Management*

Folkers, A. (2017) 'Continuity and catastrophe: business continuity management and the security of financial operations', *Economy and Society, 46(1)*, pp. 103–127.

Gibb, F. and Buchanan, S. (2006) 'A framework for business continuity management', *International Journal of Information Management, 26*, pp. 128–141.

Hassel, H. and Cedergren, A. (2019) 'Exploring the conceptual foundation of continuity management in the context of societal safety', *Risk Analysis*, 39(7), pp. 1503–1519.

Hassel, H. and Cedergren, A. (2024) 'A framework for business continuity management in a multiactor context', *Journal of Contingencies and Crisis Management, 32(2)*, pp. 1–13.

ISO (2019) ISO 22301:2019 - *Security and resilience – Business continuity management systems – Requirements*.

Järveläinen, J. (2020) 'Understanding the stakeholder roles in business continuity management practices - A study in public sector', in *Proceedings of the Annual Hawaii International Conference on System Sciences,* pp. 1966–1975.

Kato, M. and Charoenrat, T. (2018) 'Business continuity management of small and medium sized enterprises: Evidence from Thailand', *International Journal of Disaster Risk Reduction, 27*, pp. 577–587.

Månsson, P. (2018) *Indivisible Wholes & Fragmented Realities : On the Aggregation of Disaster Risk Information*. Lund University, Sweden.

Riglietti, G., Piraina, M. and Trucco, P. (2022) 'The contribution of business continuity management (BCM) to supply chain resilience: a qualitative study on the response to COVID-19 outbreak', *Continuity & Resilience Review, 15(2)*, pp. 182–195.

Wright, T. (2011) 'Can business impact analysis play a meaningful role in planning a cost-saving programme?', *Journal of business continuity & emergency planning, 5(1)*, pp. 400–408.