Coercive, Normative, and Mimetic Influences on the Assimilation of BCM in Outsourcing Relationships

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Abstract

Today many business processes are based on IT systems. These systems are exposed to different threats, which may lead to failures of critical business processes. Thus, enterprises prepare themselves against threats and failures of critical IT systems by means of Business Continuity Management (BCM). The phenomenon of outsourcing introduces a new dimension to BCM. In an outsourcing relationship the client organization is still responsible for the continuity of its processes but does not have full control over the implemented business continuity measures. In this paper we build a research model based on institutional and assimilation theories to describe and explain how and why BCM is assimilated in outsourcing relationships. In our case studies we found evidence that primarily coercive and normative pressures influence the assimilation of BCM in outsourcing relationships and support the explanation of variation across enterprises. Mimetic pressures seem to influence the assimilation but do not explain variations.

1. Introduction

Enterprises and their resources are exposed to many potential threats. The occurrence of a threat may lead to failure of critical business processes and cause major losses or even insolvency. Therefore enterprises try to prepare for potential threats and to protect themselves from the consequences of severe failures of critical resources by means of Business Continuity Management (BCM). The main goal of BCM is to continue critical business processes or recover them after the occurrence of a critical event in time to prevent irrevocable damage [11][14][15].

In medium and large enterprises many business processes are based on IT systems. Therefore these systems are critical resources and have to be considered in BCM activities. The predominant perspective of BCM is that IT services are provided internally. But today many IT services are supplied externally and BCM also has to cope with outsourced IT tasks.

Outsourcing of IT services is often motivated by cost reduction and/or concentration on core competences [21]. However, outsourcing also imposes specific risks [3][5]. Some severe outsourcing-specific risks have to be considered in BCM.

Business continuity risks in outsourcing relationships are not under full control of the client. Therefore guidelines for BCM stipulate that the client mandates the provider to implement adequate measures and to control them [25]. Alternatively or additionally, the client can also establish measures. The development and execution of these measures result in additional costs, which make an outsourcing arrangement less attractive. In general, the optimal level of business continuity measures is hard to determine.

In addition to broad standards and guidelines, there are industry-specific laws and regulations that stipulate special BCM procedures [40]. Furthermore, new technologies and solutions are available for BCM [1][34] and are promoted by consultancy firms.

Based on these institutional influences we are developing a research model to study the assimilation of BCM in outsourcing relationships. With this model we will try to answer the following research question:

“How and why are business continuity measures for critical outsourced IT systems assimilated?”

The assimilation of security-related functions is discussed in some empirical studies [4][16][17]. Nevertheless, there is a lack of research on BCM for outsourced IT tasks. We try to reduce this gap by a qualitative research approach. Five case studies were compiled under the perspective of literal and theoretical replication logic [44]. They differ mostly in the external pressure the enterprises have to comply with and in the time criticality of the IT system considered. With this sample we want to get an insight into how laws, regulations, and guidelines affect assimilation.

The remainder of this paper is organized as follows. In the next section we give an overview of previous research on assimilation of security-related frameworks and procedures. Section 3 refers to theories that de-
scribe different stages of assimilation and potential explanations for assimilation. Hypotheses are formulated with the help of these theories and a research framework is developed. In Section 4 we present our case study approach. Section 5 contains findings from the case studies. The paper ends with a conclusion and an outlook for further research opportunities.

2. Literature review

An innovation can comprise an internally generated or purchased device, system, policy, program, process, product, or service that is new to the adopting organization [8]. Assimilation is an organizational process set in motion when members of the organization become aware of an innovation; the process can lead to its acquisition and may result in the innovation’s full acceptance, utilization, and institutionalization [27]. Assimilation research focuses mainly on factors influencing the assimilation process. The findings hopefully contribute to accelerate the diffusion of innovations in organizations [12][24][32]. Prior innovation assimilation research focused on the assimilation of administrative innovations [16][17], on individual strategic responses to institutional influences [2], and on the assimilation of IT systems [4][7][13][23]. Information security management has been considered as a type of (administrative) innovation [16][17]. BCM in outsourcing relationships, which is closely related to information security management, can also be seen as an innovation that is the object of an organizational assimilation process.

In 2008 Stucke et al. argued that there is a lack of scientific effort in the domain of BCM [36]. In the meantime some scientific work on BCM has been published, often based on institutional theories.

Herbane published a historical review of BCM practices and drivers of its adoption. He identified three phases of management practices (disaster recovery planning, business continuity planning, and BCM) and four phases in development of drivers (emerging legislation, emerging standards, accelerating and focus, and competing standards and breakout). He also linked the evolution of BCM to institutional theory [15].

Järveläinen explored how organizations attempt to ensure IT continuity and thus to minimize the possible business impact of incidents. He found evidence that external requirements influence the management support and the embeddedness of continuity practices [18].

Results on the assimilation of information security practices vary. Hu et al. attempted a better understanding of how external and internal influences shape organizational actions for improving information security. They built a theoretical framework based on institutional theories, considering external pressures to analyze one case study. They conclude that external institutional pressures are relevant [17].

Hsu et al. posit that the institutional conformity pressure on information security adoption is moderated by economics-based considerations and the pressure on assimilation is influenced by organizational capabilities. The study yielded results that significantly supported their hypotheses [16].

Asprion and Knolmayer used a theory-based case study approach to investigate the assimilation of access control systems, a special type of compliance software. They found evidence that the institutional pressures as well as the organization’s compatibility and its position significantly influence the assimilation. The qualities of the system and of information have only a moderate influence [4].

Zsidisin et al. investigated in case studies how and why organizations structure Business Continuity Planning processes as a technique for managing supply risks. They ended up with four propositions based on institutional theory [45].

3. Theoretical background

To the best of our knowledge the topic of BCM in outsourcing relationships is covered primarily by practitioners’ guidelines, and its assimilation has not been considered in empirical research projects. Thus, we formulated a research model that had the three influence dimensions environment, technology, and organization (cf. [42]), and we also consider different facets of the assimilation.

For studying the environment dimension we refer to the institutional isomorphism theory which has been applied successfully in related work (cf. Section 2). Based on this theory we formulate three hypotheses as basis for answering the research question.

The two other dimensions, technology and organization, comprise hypotheses derived from resource dependence theory [31], high-reliability organization theories [33][42][43], and normal accident theory [30]. These dimensions will not be discussed in this paper due to space limitations.

3.1. Assimilation

Based on adoption and diffusion theories and models, a specific IT assimilation research field has evolved which considers the characteristics of IT systems [12][13][24]. Different models have been developed to describe stages in the assimilation of innovations [3][7][27][32]. The models differ in their focus, the number of the stages, and the naming.
In our model we follow the structure introduced in the seminal paper by Cooper and Zmud [7] (cf. Figure 1). In Table 1 we define specific characteristics of these six assimilation stages for BCM in outsourcing relationships.

### Table 1. BCM assimilation stages.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Typical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation</td>
<td>The organization knows about the existence of BCM.</td>
</tr>
<tr>
<td>Adoption</td>
<td>The organization decided to adopt business continuity measures for critical outsourced IT systems.</td>
</tr>
<tr>
<td>Adaptation</td>
<td>Business continuity measures for critical outsourced IT systems are implemented and available for use.</td>
</tr>
<tr>
<td>Acceptance</td>
<td>Business continuity measures for critical outsourced IT systems are accepted and integrated into a Business Continuity Management System (BCMS).</td>
</tr>
<tr>
<td>Routinization</td>
<td>The measures are regularly reviewed, tested, and adapted to changes. They are not perceived as disconcerting tasks.</td>
</tr>
<tr>
<td>Infusion</td>
<td>Business continuity measures for critical outsourced IT systems are fully implemented and used in accordance with external good practice. Improvements are based on findings of tests and reviews.</td>
</tr>
</tbody>
</table>

3.2. Institutional isomorphism

In the development of new business fields, organizations typically apply different approaches and forms. Institutional theorists argue that structures and processes of organizations start to become more homogenous as soon as a field is well established [9]. The associated behavioral changes are driven by the need for organizational legitimacy and less by competition and efficiency [9][23]. DiMaggio and Powell distinguish three forms of institutional isomorphism: coercive, normative, and mimetic pressures [9].

*Coercive pressures* comprise external formal and informal influences on organizations. These influences can be exerted by other organizations on which an organization depends or by cultural expectations in society. A behavioral change can also be triggered by new laws and regulations [9].

*Normative pressures* typically arise from the professionalization of occupational groups in associations and the growth of their networks. The associations struggle to define the methods to be applied in their professions, to standardize the work of their members, and to establish a cognitive base and legitimization for their occupational autonomy [9]. When enterprises hire new managers and employees they often look for candidates who have solved similar tasks in other organizations. Such new employees have common ideas, override variations, and shape structures and processes based on occupational norms.

*Mimetic pressure* is stimulated by uncertainty. When organizations are faced with new problems or challenges they consider imitating other organizations, in particular market leaders [35]. By imitation they can achieve a viable solution with little expense and a low risk level [17]. Another reason for imitations is the limited number of consulting firms contracted by large organizations [9]. The parallel implementation of popular management methods and techniques is known as the “bandwagon effect” [20].

The three types of pressure can impact organizations individually or in combination. They can even influence each other mutually [9].

3.3. Research model

Different approaches are proposed to measure the assimilation of IT innovations [4][13][23][26]. For our research project the use of the three facets volume, diversity, and depth (cf. [4][23][26]) seems appropriate; their specification is shown in Table 2.

### Table 2. Facets of assimilation.

<table>
<thead>
<tr>
<th>Facet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>The extent of business continuity risks of critical outsourced IT systems that are mitigated by measures.</td>
</tr>
<tr>
<td>Diversity</td>
<td>The number of different types of business continuity measures that are implemented for critical outsourced IT systems.</td>
</tr>
<tr>
<td>Depth</td>
<td>The degree of realization of the intended business continuity measures for critical outsourced IT systems.</td>
</tr>
</tbody>
</table>

Business continuity requirements are formulated in different laws and regulations [40]. These requirements stem from laws with international relevance, such as SOX [29], down to local and industry-specific regulations (e.g., [37]). Dominant actors such as important clients have the power to demand business continuity measures in contracts, which the vendor has to implement and run [41]. Thus we propose:
Hypothesis 1: Higher levels of coercive pressures lead to a higher assimilation stage of business continuity measures for critical outsourced IT systems.

Different associations influence BCM by publishing norms and guidelines and by offering trainings and certifications. Relevant are specific documents such as ISO 22301, ISO 27031, and the Good Practice Guidelines published by the Business Continuity Institute [39], plus general publications such as COBIT or ITIL, in which BCM is only one of many issues covered. Therefore we formulate:

Hypothesis 2: Higher levels of normative pressures lead to a higher assimilation stage of business continuity measures for critical outsourced IT systems.

There are several firms offering consulting services for BCM and IT firms promote “Disaster Recovery as a Service” (DRaaS) [1][34]. Conferences are organized where organizations present their experiences with BCM and participants have the opportunity for exchanging ideas and concepts. Hence we assume:

Hypothesis 3: Higher levels of mimetic pressures lead to a higher assimilation stage of business continuity measures for critical outsourced IT systems.

The research model, which is based on assimilation and institutional theories, is visualized in Figure 2. The hypotheses are shown as arrows.

![Figure 2. Research model.](image)

4. Methods

4.1. Design and unit of analysis

Because BCM in outsourcing relationships is a complex field with multiple stakeholders and an issue on which little scientific knowledge is available, we have chosen a case study approach to test our research model (cf. [10][28][44]). A sample of five enterprises was selected following literal and theoretical replication logic [44]. An important aspect for choosing the sample was the question of whether enterprises with more mandatory obligations assimilate BCM differently than less highly regulated ones.

For each enterprise (Ei; i=1,…,5) we selected as unit of analysis one critical, at least partially outsourced IT system (Si; i=1,…,5) together with all business and IT continuity measures implemented by the user organization and/or the provider.

Table 3 gives some information about the five case studies explored. All five enterprises examined are based in Switzerland and belong to critical infrastructure sectors. S1, S2, and S3 support dispatching processes. S4 and S5 are core systems in insurance companies, running on mainframes.

In E1 and E2 we explored systems with time-critical processes but few regulations. S4 and S5 are characterized by less time criticality, but the enterprises that rely on them are highly regulated. S3 is time critical, and E3 has to follow some regulations.

4.2. Data collection

Semi-structured interviews with a guideline based on the research model were the main data collection method. In our sample of five enterprises we interviewed 27 actors face-to-face. The interviews were conducted between January 2014 and March 2015. Most interviewees agreed to tape-recording. The other four interviews were immediately protocolled.

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Industry</th>
<th>Type of system</th>
<th>Interview partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Utilities</td>
<td>Position building, balancing and nomination system</td>
<td>Project Manager Business Continuity Plans, Sourcing Manager, System Manager, IT Disaster Recovery Manager</td>
</tr>
<tr>
<td>E2</td>
<td>Airlines</td>
<td>Scheduling and dispatching system</td>
<td>Head of IT Governance / Chief Information Security Officer (CISO), Head of IT Service Delivery, Manager Operation Control Center, Application Operation Manger, Business Analyst</td>
</tr>
<tr>
<td>E3</td>
<td>Railway</td>
<td>Scheduling and dispatching system</td>
<td>CISO, Head of IT Service Transition, Head Operation Control Center, Head of IT Operations Management, Head of Solution Center, Application Operation Manager</td>
</tr>
<tr>
<td>E4</td>
<td>Insurance</td>
<td>Core system</td>
<td>Business Continuity Manager, IT Continuity Manager, Head of IT Sourcing, Head of IT Operations, Service Manager</td>
</tr>
<tr>
<td>E5</td>
<td>Insurance</td>
<td>Core system</td>
<td>Business Continuity Manager Switzerland, Head of Corporate IT Operations, Service Manager, Head of Operations Team, Head of Nonlife Insurance IT, Business Engineer, IT Auditor</td>
</tr>
</tbody>
</table>
4.3. Data analysis

We primarily applied a pattern-matching technique to analyze our data [44]. For that purpose we used NVivo 10 from QSR International as qualitative data analysis software package [6]. We created two tree nodes in NVivo: one reflecting the case-structure (e.g., interview partners, documents, and providers) and the other containing the codes derived from the research model (e.g., laws, auditors, and consultants).

As a first step we coded our data in both trees to structure it for the analysis. During the coding process we added codes to the trees or adapted them slightly where it seemed necessary or useful.

The codes were summarized within case and cross-case in so-called framework matrices. Based on these summaries we rated the three facets volume, diversity, and depth. Table 4 describes typical characteristics for the rating ‘high’ of these facets. ‘Medium’ means partial existence of these characteristics, and ‘low’ that they are only marginally present. The ratings of these facets determine the assimilation stages (cf. Table 1).

### Table 4. Rating of facets.

<table>
<thead>
<tr>
<th>Facet</th>
<th>Typical characteristics for value ‘high’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>The following risks are covered by BCM:</td>
</tr>
<tr>
<td></td>
<td>- Failure of the productive IT system</td>
</tr>
<tr>
<td></td>
<td>- Data loss</td>
</tr>
<tr>
<td></td>
<td>- Failure of the service provider</td>
</tr>
<tr>
<td></td>
<td>- Insufficient service delivery by the provider</td>
</tr>
<tr>
<td>Diversity</td>
<td>The following measures are implemented:</td>
</tr>
<tr>
<td></td>
<td>- Incident, emergency, and crisis management</td>
</tr>
<tr>
<td></td>
<td>- Business continuity and disaster recovery plans</td>
</tr>
<tr>
<td></td>
<td>- BCM clauses in outsourcing arrangements</td>
</tr>
<tr>
<td></td>
<td>- Established processes and structures with the provider</td>
</tr>
<tr>
<td></td>
<td>- Standby system, redundancies, backup</td>
</tr>
<tr>
<td>Depth</td>
<td>Business and IT Continuity Management System is established as follows:</td>
</tr>
<tr>
<td></td>
<td>- Strategy has been formulated</td>
</tr>
<tr>
<td></td>
<td>- Accountability and roles are defined</td>
</tr>
<tr>
<td></td>
<td>- Business impact analysis has been executed</td>
</tr>
<tr>
<td></td>
<td>- Measures are documented, tested, trained, reviewed, and improved</td>
</tr>
<tr>
<td></td>
<td>- BCM requirements are considered during the whole outsourcing lifecycle</td>
</tr>
</tbody>
</table>

After the assimilation facets we evaluated the extent of institutional pressures. In Table 5 we list typical characteristics for the extent ‘high’. If these characteristics apply partially the extent will be ‘medium’; if they apply only marginally it is ‘low’.

### Table 5. Extent of pressures.

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Typical characteristics for value ‘high’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coercive</td>
<td>Numerous and detailed laws and regulations concerning BCM are relevant for the enterprise. Contracts with customers contain BCM requirements.</td>
</tr>
<tr>
<td>Normative</td>
<td>Employees are involved in occupational groups focusing on BCM and have access to their publications. Auditors regularly review the implementation of BCM.</td>
</tr>
<tr>
<td>Mimetic</td>
<td>The enterprise engages consulting firms for BCM and outsourcing. The enterprise considers reference models for BCM and the BCM assimilation stages of competitors.</td>
</tr>
</tbody>
</table>

To rate the relevance and the impact the interviewees attach to the three types of pressure on the assimilation we applied the matrix coding queries provided by NVivo. The rating scheme is described in Table 6.

### Table 6. Rating the impact of pressures.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Typical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Influence factor has high impact in the enterprise; interviewees highlight the impact; most interviewees mention it.</td>
</tr>
<tr>
<td>Medium</td>
<td>Influence factor has medium impact in the enterprise; some interviewees mentioned it.</td>
</tr>
<tr>
<td>Low</td>
<td>Influence factor has low impact in the enterprise; it was typically mentioned only on request.</td>
</tr>
</tbody>
</table>

In addition to pattern-matching techniques we also applied the logic model technique to get an insight into the chain of events over time [44]. Based on the results of the pattern-matching and logic model techniques we wrote detailed within-case descriptions and had them reviewed by the interview partners.

After the within-case analysis we compared the five cases in a cross-case analysis. With ‘extent’ and ‘impact’ we have two different views for determining whether the pressure values explain the assimilation stages, as suggested in our hypotheses.
5. Results

5.1. Assimilation stages

To determine the assimilation stages, we describe and rate the facets volume, diversity, and depth for each of the five enterprises.

Volume. All enterprises had implemented technical redundancies to reduce the impact of technical failures. For each system a standby system in a separate fire compartment or even in a second data center is available to cope with a failure of the main system. Backups are created regularly with different technologies. These backups allow restoring even the last transaction done in the database.

In the event that the IT system is not available, all five enterprises at least have access to plans and tools with which they can bypass the system for a short time, but in none of the enterprises the critical IT system can be fully substituted. Thus, the critical business processes would be impaired in quality and capacity.

The largest difference between the enterprises can be found in preparations for scenarios concerning the outsourcing provider. Possible scenarios are that the provider (a) cannot provide the service defined in the contract, (b) behaves opportunistically, or (c) is exempted from liability, e.g. due to force majeure. All contracts contain penalties to reduce opportunistic behavior. Only E3 operates a test system in its own facilities. In case of an emergency this test system can be used as a productive instance. The existence of this system is the reason why the rating for volume in E3 is high, while in all other enterprises it is medium.

Diversity. All enterprises distinguish three levels of events: incidents, emergency or major incident, and crisis. They established an appropriate organization for all types of events. E2 has these processes fully outsourced to a contractor which coordinates all other outsourcing providers.

All providers are obliged to prepare and maintain a disaster recovery plan for the outsourced parts of the systems. At the time of assessment E1 was working on business continuity plans. E3, E4, and E5 had already formulated such plans; E2 had developed some checklists and tools for continuing business processes at a reduced level.

Almost all contracts contain a recovery time objective (RTO) and a recovery point objective (RPO). The only exception is one of E1’s providers, which is responsible for the data center infrastructure. However, another of E1’s providers, which is running the system in the data center, guarantees RTO and RPO. In all cases the clauses are limited either to a failure in one premise or to events not considered as force majeure.

With the exception of E1’s, all contracts stipulate yearly disaster recovery tests. All enterprises have the right to audit the provider. E2 and E5 regularly receive an ISAE 3402 report from a third party auditor (cf. [19]).

Escalation and change management processes have been established in all cases. As already mentioned under ‘volume,’ all systems comprise technical redundancies, standby systems, and backups.

The minor differences in the proceedings mentioned do not justify different ratings for diversity. Thus, all enterprises are rated ‘high.’

Depth. E3, E4, and E5 established a Business Continuity Management System (BCMS) and an IT continuity or IT disaster recovery management system. E1 implemented only a disaster recovery management system. In these systems goals, roles, and accountabilities are specified. E2 did not establish a formal management system.

All enterprises completed risk analyses for their IT systems. E1 and E3 performed business impact analyses with focus on IT systems and defined continuity requirements based on these analyses. E4 and E5 have done these analyses on the level of business processes, which led to similar requirements. E2 did not perform a business impact analysis; however, its IT systems are assigned to a recovery time and point objective in the outsourcing contract.

Based on the results of the business impact analysis, E3, E4, and E5 developed a broad business and IT continuity strategy, and E1 an IT disaster recovery strategy. In E1 and E2 the business units have prepared some checklists and tools for the case of emergency or crisis, but they are not consolidated in an overarching plan. E3, E4, and E5 test yearly, together with their providers, whether the standby systems work. E1 and E2 also have the intention of testing the system on a yearly basis. However, due to other priorities this is sometimes postponed. The business and IT continuity managers of E3, E4, and E5 keep records of the results obtained in reviews, tests, and exercises.

E2 is assigned a low depth rating as it has mainly implemented single measures; that for E1 is ‘medium,’ as it has established a disaster recovery management system, and those for the other enterprises ‘high’ as they also test and improve their measures regularly.

Assimilation stages. Table 7 summarizes the ratings for the three assimilation facets volume, diversity, and depth. Based on these, we appraised the assimilation stage reached by each enterprise. The crucial factor for the appraisal is the depth that varies most widely in the cases and represents how well anchored BCM is in the outsourcing relationship. In Table 7 the enterprises are sorted with respect to their assimilation stages. In addition, Figure 3 shows the go-live date of the
systems examined, their first (potentially partial) outsourcing, and an estimate for the evolution of assimilation stages over time.

Table 7. Determination of assimilation stages.

<table>
<thead>
<tr>
<th>Case</th>
<th>Volume</th>
<th>Diversity</th>
<th>Depth</th>
<th>Assimilation stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>3 – Adaptation</td>
</tr>
<tr>
<td>E1</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>4 – Acceptance</td>
</tr>
<tr>
<td>E4</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>5 – Routinization</td>
</tr>
<tr>
<td>E5</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>5 – Routinization</td>
</tr>
<tr>
<td>E3</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>6 – Infusion</td>
</tr>
</tbody>
</table>

5.2. Institutional pressures

In this section we analyze the extent and impact of the three forms of pressure for each enterprise.

Coercive pressures. By law, all enterprises examined have to establish an internal control system. Interview partners in E1, E2, and E4 explicitly emphasized that their internal control systems were designed in awareness of business continuity risks and therefore include a corresponding general IT control. The internal control group of E4 requests a yearly disaster recovery test, for example.

The Swiss Civil Code defines liabilities for the board of directors and all persons engaged in business management. E4 argues that BCM is part of good corporate governance and the management’s duty of care.

Solvency II is a regulation relevant for insurances in the European Union (EU); it is primarily concerned with the amount of equity insurances have to hold to guarantee their solvency but also demands the establishment of a BCMS. At the time of the interviews it was expected that Solvency II (resp. its Swiss equivalent) will be enacted soon. As E5 is also operating in the EU, it wanted to know how well it is prepared and mandated the internal auditors to evaluate the BCM activities. As the Swiss Financial Market Supervisory Authority has already published BCM regulations for banks [38], E4 and E5 assume that similar regulations will follow for insurances. Thus, they already respect these regulations without immediate enforcement. E4 guarantees that its call center is available to its clients 24/7. Hence it has prepared different measures for the event that the critical system is not available.

E3 put an emergency and a crisis management team in place early on because of its legal obligation as a critical infrastructure provider.

We summarize the extent of coercive pressures in Table 8. For E1 and E2 there is only a low extent of coercive pressure; for E3, E4, and E5 we see a medium extent. We also found that coercive pressures had a medium impact in E1 and E2 and a high impact in the other enterprises.

Normative pressures. The BCMSs of E1, E3, E4, and E5 are regularly audited by internal and/or external auditors. The auditors have recommended various improvements to BCM, which have been implemented. The head of the BCM group audited E2 immediately before the interviews; however, E2’s BCM had never been examined by internal or external auditors.

Interviewees of E3 and E4 are engaged in occupational associations and participate regularly in conferences focused on BCM. Therefore they have a deep knowledge of occupational norms. During the implementation of business and IT continuity processes all enterprises regarded standards and guidelines as an important source of information. The interviewees named COSO, COBIT, and ITIL as general references and ISO 22301, ISO 27001, ISO 31000, BSI 100-4, NIST 800-34, and GTAC 10 as references with a clear focus on security, risk, or continuity frameworks.

Because E2 has been audited only once and only considered ISO 27001, we assign E2 a low extent of normative pressure in Table 8. All other enterprises were audited frequently and considered several guidelines; thus, they each have a high extent of normative pressures.

In E1, E3, E4, and E5 the interviewees highlighted the importance of normative pressures. This is why we rate their impact in these enterprises as ‘high.’ That in E2 is ‘medium,’ as only some interviewees mentioned normative pressures.
Mimetic pressures. E1, E2, and E5 engaged external consultants for at least some BCM-related tasks. E1 employed consultants to introduce IT disaster recovery management and to develop business continuity plans. E2 engaged a sourcing consultant, who formulated new outsourcing contracts with IT disaster recovery clauses. E5 authorized a consultant to introduce a BCMS and to execute the tasks recurring annually.

Members of E2, E3, E4, and E5 exchange viewpoints on BCM with other enterprises. E2 knows that other airlines have accomplished similar preparations for their dispatching processes; thus, they do not see a need for additional measures. The CISO of E3 participates in crisis exercises of other organizations. He has improved emergency and crisis management at E3 with knowledge of common problems he has gained by this means. E4 and E5 collaborated with other companies to prepare for pandemic scenarios.

All enterprises consider advice from their providers. The architectures of S1 and S3 were developed together with experts from the providers. The provider of S5 offered the use of a standby system and a yearly test in a packaged solution; E5 accepted this offer.

As E5 engages consultants to the highest extent, as it collaborates with other enterprises to develop measures, and as it agreed to packaged solutions from the provider, we assign it a high extent of mimetic pressures. In the other enterprises these influences are only partially present; thus, they receive medium extent values.

In E1, E2, and E5 the interviewees particularly emphasized the influence of consultants for their BCM in outsourcing relationships. This is why we rate the impact of mimetic pressures in these enterprises as ‘high’. In E3 and E4 some interviewees mentioned the influence of mimetic pressures. For these cases we assign a medium impact.

5.3. Tests of hypotheses

Based on the extent of pressures and the impact the interviewees attached to them on the one hand and the independently estimated assimilation stages on the other, we considered whether our three hypotheses are supported by the cases.

For E3, E4, and E5 we obtain higher extents of coercive pressures, higher impacts, and higher assimilation stages than for E1 and E2. The positive correlation between coercive pressures and the assimilation stages supports Hypothesis 1.

E2 is the only enterprise for which we rated extent and impact of normative pressures lower than for the other four enterprises. Compared with the other enterprises, E2 was assigned the lowest assimilation stage. Thus, we found support for Hypothesis 2 in the case studies.

Interviewees of all enterprises mentioned that mimetic pressures influenced the assimilation of BCM (medium or high impact). Without these pressures the enterprises would probably have reached a lower assimilation stage. However, when we look at the extent of mimetic pressures in Table 8 we find no positive correlation with the assimilation stages. Thus, we cannot explain the variation in assimilation stages as suggested by Hypothesis 3.

Our downsized research model explains certain aspects of BCM assimilation, but provides only a partial explanation for the assimilation stages. For instance, E5 obtained the highest ratings for the different types of pressures but was assigned to a lower assimilation stage than E3. Enterprises E4 and E5 belong to the same assimilation stage, but for E4 all pressure values are equal to or lower than those of E5.

6. Conclusion and outlook

This research contributes to the BCM, outsourcing, and IS innovation literature. We focused on the assimilation of BCM in outsourcing relationships, as there is a lack of research for this topic. The goal was to answer the research question by describing how enterprises prepare themselves for this issue and by exploring why they behave in a certain manner.

We sketched a comprehensive research model for the assimilation of BCM in outsourcing relationships. For the discussion in this paper the research model was downscaled to a model focusing on environmental factors. These factors were studied under the lens of institutional isomorphism.

Table 8. Comparison of the effects of the three types of pressures.

<table>
<thead>
<tr>
<th>Case</th>
<th>Assimilation stage</th>
<th>Coercive pressures</th>
<th>Normative pressures</th>
<th>Mimetic pressures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Extent</td>
<td>Impact</td>
<td>Extent</td>
</tr>
<tr>
<td>E2</td>
<td>3 – Adaptation</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>E1</td>
<td>4 – Acceptance</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>E4</td>
<td>5 – Routinization</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>E5</td>
<td>5 – Routinization</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>E3</td>
<td>6 – Infusion</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>
We found evidence that laws and regulations (coercive pressures), as well as auditors, occupational associations and their guidelines (normative pressures), exert positive influences on the assimilation stage of BCM and explain differences between the case studies.

Consultants, providers, and exchanges between members of different enterprises (mimetic pressures) seem to have some influence on assimilation. However, we cannot explain the variation in assimilation stages with differences between mimetic pressures.

The assimilation of BCM in outsourcing relationships cannot be fully explained by institutional isomorphism theories. Thus, we have to go back to our full research model, consider the influence of the dimensions technology and organization, and further analyze our case study data with respect to the other theories mentioned in the introduction to Section 3.

As shown in Section 2, prior assimilation research focused on the assimilation of administrative innovations, on individual strategic responses to institutional influences, or on the assimilation of IT systems. This study concentrated on the assimilation of an approach that contains elements of administrative innovations and technical solutions.

One finding of our study is that enterprises exposed to a low degree of coercive and normative pressures reach only a low assimilation stage of BCM in outsourcing relationships. If stakeholders feel that the BCM maturity level of an enterprise is too low, they could aim at increasing normative or even coercive pressures. Occupational associations should focus on development and improvement of their guidelines, as these documents are an important source of information in the assimilation process.

This study is subject to limitations. First, we looked at the different forms of institutional pressure individually. However, the case studies indicate that second-order effects may exist. For instance, in E1 an internal control system with a general IT control system and recommended the introduction of a disaster recovery management system (normative pressure). As a consequence, E1 hired consultants to support this implementation (mimetic pressure). Second, we focused on client companies only. Additional insight could be gained by studying viewpoints and procedures of outsourcing providers. Third, the sample includes five enterprises based in Switzerland and critical IT systems supporting dispatching or insurance processes. Further research could include other industries, such as banking, where even more coercive pressures exist. However, some banks approached were not willing to provide insight into their BCM, referring to confidentiality and recent discussions with the regulating authority. Extensive enlargements of the sample would allow the use of quantitative methods; however, we doubt that an appropriate collection of large data sets can be achieved on such a sensitive topic. Fourth, we applied a variance theory approach. Further insight could probably be gained using a qualitative process theory method [22] focusing on the development over time and common sequences. Fifth, we could not study whether the preparations are appropriate and would be effective in the case of a disaster. Fortunately, disasters do not occur too often, which means that opportunities for BCM effectiveness studies are rather limited.

7. References