Making Sense of Certification Internalization: A Process Model for Implementing Information Security and Data Protection Certifications

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ABSTRACT

Information systems certifications are becoming increasingly important for information security and data protection by providing organizations with best practices and independent feedback. However, superficial certification internalization is a significant problem: organizations often implement certifications in a lightweight way without truly integrating them into their organizational practices. To mitigate this problem, it is crucial to uncover how different stakeholders involved in the certification make sense of its purpose and criteria. We strive to explore and theorize how organizations internalize information security and data protection certifications through the lens of sensemaking. We draw on a literature review and qualitative interviews to develop a process model of certification internalization spanning three sensemaking cycles: pre-audit assessment, audit, and post-audit maintenance. Taking a more nuanced view of time and process unfolding, we revealed that the ongoing maintenance of certifications plays a critical role in ensuring certification internalization.

Keywords: certification, internalization, information security, sensemaking, ISO/IEC 27001

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INTRODUCTION

Information systems (IS) certifications are becoming increasingly important for information security and data protection because they support organizations in mitigating threats by providing best practices for, among others, management systems (e.g., ISO/IEC 27701 for privacy information management) or technical safeguards (e.g., ENISA's cybersecurity certification for cloud services). ISO/IEC 27001, as a flagship example, has risen to one of the most widely adopted security (management system) certifications (ISO 2021). The EU Cybersecurity Act and the EU GDPR further solidify the role of IS certifications as a key tool for information security and data protection and led to the development of novel certifications (e.g., the data protection certifications GDPR CC for cloud services or EuroPriSe).

While noting the benefits of certifications, such as accessing independent auditing feedback (Lansing et al. 2018) and a token for gaining consumer trust and market legitimacy (Löbbers et al. 2020; Power 2003), studies also point to the problems of symbolic certification (Aravind and Christmann 2011; Naveh and Marcus 2004). Symbolic certification refers to the situation where organizations only implement certifications superficially, barely passing the certification audit, and without genuinely integrating them into their actual organizational practices (Boiral 2003; Culot et al. 2019). This undercuts certifications to address crucial security and data protection challenges and as a signal of trustworthiness for external stakeholders, and gives rise to the need for research on certification internalization (Culot et al. 2021).

In essence, certification internalization refers to integrating a certification's criteria into actual organizational practices (Tarí et al. 2020; Testa et al. 2018). Despite its importance, we found that there is no systematic approach to understanding the nature, actions, and organizational practices involved in certification internalization. Most literature took an

institutional lens (e.g., Boiral et al. 2017) or resource-based view (e.g., Ataseven et al. 2014) to partly examine the motivation, internalization, or outcome of certifications. While valuable, these studies are limited in offering more detailed insights into a certification internalization process. In particular, meeting the certification criteria entails major organizational changes in management approaches (Wiander 2008). To successfully navigate these changes and achieve certification internalization, it is crucial to unpack how different stakeholders involved in certification make sense of a certification's purpose and criteria (Hsu 2009). Thus, our research objective in this study is to explore and theorize how organizations implement certifications through a sensemaking theoretical lens. We seek to answer the research question: *How do organizational stakeholders internalize (security and data protection) certifications?*

We reviewed 60 articles and conducted 16 qualitative interviews with experts and professionals involved in security and data protection certification processes. Besides using visual mapping and temporal bracketing (Langley 1999), we also draw on sensemaking (Weick 1995; Weick et al. 2005) as a theoretical lens to structure and deepen our findings. Our study clarifies internalization mechanisms by connecting activities, actors, and temporality in one process model of certification internalization spanning three sensemaking cycles of pre-audit assessment, audit, and post-audit maintenance.

THEORETICAL BACKGROUND

Certification Adoption, Internalization, and Outcomes

IS certifications attest that an IS operated by an organization fulfills a specific regulation, industry best practice, or standard concerning its development, management, or operation (Lansing et al. 2018). Our article focuses on IS certifications that validate adherence to information security and data protection criteria in particular. Three key streams of certification

research have formed: research on adoption, organizational outcomes, and internalization. While our primary focus is internalization, all three streams are firmly connected and overlap. Research on certification adoption examines what drives organizations to pursue a certification. The drivers include functionalist, institutionalist, and signaling motivations (Lins et al. 2022). Functionalists adopt certifications to foster internal improvements (e.g., Beck and Walgenbach 2005; Martínez-Costa et al. 2008), while institutionalists respond to institutional pressure, for example, by the government (Marimon and Casadesús 2017) or customers (Djofack and Camacho 2017). Signalers use certifications to communicate hidden information and actions (e.g., Gopal and Gao 2009; Sampaio et al. 2010).

Another literature stream explores the outcomes of adopting a certification. Outcomes may pertain directly to a certification's scope, such as security performance (e.g., Bakar et al. 2015; van Wessel et al. 2011), but also other outcomes, such as financial performance (e.g., Hsu et al. 2016; Podrecca et al. 2022). Overall, the literature on certification outcomes reports mixed results (Heras-Saizarbitoria and Boiral 2013; Podrecca et al. 2022; Yin and Schmeidler 2009).

Internalization – the linking stream to which this study contributes – emerged as an important approach to uncovering why certifications produce heterogeneous outcomes (Yin and Schmeidler 2009). As mentioned earlier, certification internalization is a process of absorbing both tacit and explicit information underlying the certification (e.g., best practices, attestation results, and third-party feedback) into the organization and translating it into knowledge, organizational procedures, and technical capabilities (adapted from Knight and Liesch 2002). How an organization makes sense of certification criteria and embarks on the necessary changes to meet such criteria shapes the degree of internalization and, thus, the subsequent organizational outcomes (Nair and Prajogo 2009). Two archetypical forms of certification implementation are

identified: superficial (also named symbolic or ceremonial) and substantive internalization (Christmann and Taylor 2006). Superficial implementation refers to a low degree of integrating the certification into daily practices and is generally connected with low employee involvement (Boiral 2003; Sandholtz 2012) and institutionalist adoption motivations (Castka and Prajogo 2013; Marimon et al. 2021). In contrast, substantive internalization refers to a high degree of integrating the certification into daily practices and is connected to high stakeholder engagement (Guzman and Trivelato 2008) and functionalist motivations (Nair and Prajogo 2009; Valmohammadi and Kalantari 2017). While prior literature highlights the importance of substantive internalization, research on how such internalization occurs is limited. Conceptualizing certification internalization as a process of strategic change in organizations, we argue that sensemaking would be the most appropriate lens to study how different stakeholders interpret or make sense of various activities involved in the certification process.

Sensemaking in Organizations

Maitlis and Christianson (2014, p. 67) provide an integrated definition of sensemaking as "a process, prompted by violated expectations, that involves attending to and bracketing cues in the environment, creating intersubjective meaning through cycles of interpretation and action, and thereby enacting a more ordered environment from which further cues can be drawn."

Sensemaking is a fitting theoretical lens for certification internalization for several reasons. First, sensemaking is used in IS to study the social dimension of implementation processes, for example, ERP system implementation (Tan et al. 2020). Second, achieving certification compliance violates the existing expectations of organizational stakeholders and is often characterized by ambiguity and uncertainty, as organizations must translate abstract certification criteria into local practices (Niemimaa and Niemimaa 2017). Third, introducing

certifications is an organizational change aligning with the sensemaking literature on strategic change (Balogun and Johnson 2005; Gioia and Chittipeddi 1991; Thomas et al. 1993). Finally, the sensemaking perspective provides theoretical constructs that help us understand the internalization process, including its actors and their relationships and sensemaking interactions. Beyond the core construct of sensemaking, these include *sensegiving* (trying to shape the sensemaking of others, Gioia and Chittipeddi 1991), *sensebreaking* (breaking down or destroying meaning, Pratt 2000), and *sensedemanding* (attempting to acquire and process information to reduce uncertainty and equivocality, Vlaar et al. 2008). By building on these theoretical mechanisms, we aim to develop an internalization process model to uncover how organizations translate the certification into internal practices, as described in the following.

METHODS

Literature Review Method

We started with a descriptive literature review to account for existing research on certification internalization (Paré et al. 2015). We reviewed 60 articles identified through a keyword search on relevant databases combined with forward and backward search (refer to Danylak et al. 2022 for more information). Using thematic analyses (Braun and Clarke 2006), we extracted activities contributing to certification internalization, which helped us better understand how organizations perform internalization. While there is a large body of research on certification internalization in general, analysis results show that internalization activities are mainly studied in isolation and with a focus on management system certifications, requiring the synthesis of activities and their adaptation to information security and data protection contexts. Therefore, we applied visual mapping (Miles et al. 2014) to organize the results. In our case, we synthesized internalization activities and clustered them into phases based on their temporal

relations. This mapping resulted in an initial framework including five phases (initiation, preparation, assessment, implementation, and evaluation) and thirteen internalization activities, serving as a springboard for our next step of empirical investigation and aligning with extant literature on organizational change processes, such as Demings' Plan-Do-Check-Act Cycle (1998). As the articles overwhelmingly focused on general management systems certifications, such as ISO 9001 and ISO 14001, we decided to collect and analyze additional data to account for the specifics of information security and data protection certifications in IS.

Qualitative Research Method

Building on the output of our systematic literature review, we iteratively collected additional data using semi-structured interviews (Myers and Newman 2007). Considering our research interest in certification stakeholders' sensemaking process, our interview questions focused on understanding interviewees' assumptions and interpretations of different certification activities. For interviewee recruitment, we employed a combination of convenience and purposeful sampling. Through one of our certification research projects, we had unique access to IS security and data protection professionals. Further, we purposefully recruited IS professionals working with security and data protection certifications. To reduce self-selection bias of successful organizations and supplement an external perspective, we also interviewed participants from certification bodies. The final sample included eleven individual participants from five IS providers and eight individual participants from eight certification bodies or related organizations. Participants were mainly management, security specialists, and auditors. Table 1 provides additional details on the characteristics of the interviewees' organizations.

Table 1. Characteristics of Interviewee's Organizations

	IS Providers	**Certification Bodies**
Industry	IT and Cloud Service Provision	Auditing and Consulting
Organization Size	100-1,000 (3); 1,000-10,000 (1);	<50 (6); 100-1,000 (1);

(Employees)	>100,000 (1)	1,000-10,000 (1)
Certification	GDPR CC (4); ISO/IEC 27001 (2); SOC (1); TISAX (1); Other (5)	

To generate rich insights into the internalization process from the multiple experiences in our interviews (Langley 1999), we applied open, axial, and selective coding as well as constant comparisons (Corbin and Strauss 2008; Wiesche et al. 2017). In the first step, *open coding***,** we reviewed the interview transcripts to identify internalization activities. For example, we found the activity 'clarifying certification criteria with certification body' in several interviews. In the second step, *axial coding*, we grouped activities and identified relationships through coding causes (e.g., 'feeling unsure about certification criteria') and consequences (e.g., 'understanding the certification'). Furthermore, we deepened our knowledge of each activity by purposefully coding them along additional dimensions. For instance, we coded for 'actors' involved in an activity and identified three key actor groups: organizations' certification teams consisting of internal specialists and management, and often external consultants; organizations' employees consisting of department members; and the external certification body including its auditors. In the third step, *selective coding*, we structured themes around a core category in alignment with the theoretical lens. More specifically, we mapped the theoretical constructs of sensemaking to internalization activities to better understand interactions among actors and activities during the internalization process. For example, we coded 'clarifying certification criteria with certification body' as an instance of sensedemanding between the certification team and certification body. We discussed the emerging codes among the author team and in subsequent interviews and used constant comparisons between units of data to support our analysis. This included comparing the interview findings to the literature review results, comparing interviewees, and comparing theory and data. Finally, we applied a temporal bracketing strategy (Langley 1999), helping us decompose the temporal process into distinct periods and systematically comparing different

activities. Considering that sensemaking is iterative (Weick et al. 2005) and that a certification spans different stages, we ultimately grouped our data into three cycles of sensemaking (Figure 1): assessment (pre-audit), audit, and maintenance (post-audit).

RESULTS | MAKING SENSE OF CERTIFICATIONS

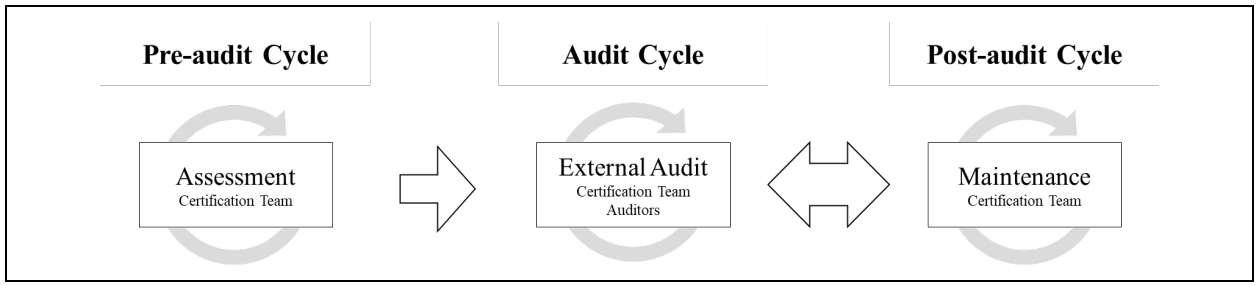

Figure 1. Sensemaking Cycles During Certification Internalization

Assessment | Pre-audit Cycle

The first pre-audit cycle – *assessment* – is defined by the certification team making sense of the certification criteria and their organization's as-is practices. The cycle is bracketed by the certification adoption decision and the certification audit. The certification team, as the primary internal actor during assessment, has two goals during this cycle: (1) creating a shared account of *why* to implement the certification and (2) reconciling the organizational as-is state with the certification criteria into a shared account of *how* to implement the certification. To achieve those goals, the certification team engages in sensemaking and interacts with other internal and external actors, particularly employees and the certification body.

To enable congruent action with employees, the certification team needs a shared account of *why* the certification is pursued. Most certification teams apply sensegiving to shape employees' accounts of the certification favorably. They typically explain the certification's purpose to employees as a mix of market-driven motivation and opportunity for improvement.

To develop an account of *how* to implement the certification, the certification team must make sense of the certification criteria and the as-is state practices and reconcile both. This

process includes several iterative activities. First, the certification team works through the certification criteria to extract cues, for instance, password policy requirements. Although the certification criteria already provide some structuring, criteria catalogs are highly abstract and ambiguous regarding their application to the unique organizational context. Several interviewed certification teams reduced this ambiguity by demanding sense from certification bodies. While certification bodies are not allowed to provide organization-specific advice, they usually provide generalized hints regarding the interpretation of criteria (e.g., reference to industry best practices).

With an initial sense of the criteria, the certification team compares the criteria to the as-is organizational practices to identify gaps. In the example of one IS provider, the certification required a record of processing activities, but the provider did not have a specific tool for this. Organizational as-is practices are often not explicitly documented and might initially not allow the extraction of text-like cues. Therefore, existing practices need to be textualized first. Certification teams often actively demand sense from employees about how they conduct practices and why. Many participants also described the comparison of criteria and as-is practices as one of the most valuable aspects of certification as it revealed hitherto neglected or missed aspects and helped to formalize undocumented processes. For example, an IS provider recounted how the organization adopted a more automated and proactive approach to checking the plausibility of employees' access rights after comparing the criteria to their as-is practices.

Having made sense of the criteria and the as-is state, the certification team tries to resolve gaps and conflicts. Comparing the interview findings, we found three distinct approaches that different certification teams used for resolving conflicts: top-down, bottom-up, and discursive. Top-down approaches are strongly driven by the certification criteria and the certification team's

account. The certification team communicates rather detailed guidance for implementing criteria. The certification team is the primary sensegiver regarding *how* to resolve gaps and conflicts. Conversely, bottom-up approaches are mainly driven by the as-is state and employees' accounts, resulting in fewer overall changes. Revisiting the example of the IS provider above, the certification team went with a bottom-up approach and decided "it [is] enough to know where to find the information" to satisfy the criterion instead of building a new tool. In bottom-up approaches, the certification team is primarily a sensedemander and only communicates rough requirements to employees. In discursive approaches, certification teams and employees engage in joint sensemaking, acting as sensegiver and sensedemander.

Audit Cycle

The second cycle - *audit* - covers the external audit by the certification body and is comparatively short. During the audit, the certification body takes the role of the primary actor, performing the IS attestation. The certification team acts as a supporter to guide the certification body and answer their queries. Both actors have different – and occasionally conflicting – goals. The certification body must review conformance to the certification criteria and decide whether and how the reviewed organization passes the audit. Since the certification criteria are abstract, the certification body must make sense of the IS implementation and connect it back to the criteria. Conversely, the certification team's goal is to pass the audit.

The certification body extracts cues from the organization to determine conformance or nonconformance. These cues can have different forms but draw mainly from the mandated certification documentation. However, cues are also extracted by interviewing the certification team and employees or through technical tests. The interpretation of cues is shaped by the certification criteria and the certification body's background, experience, and knowledge.

Additionally, previous interactions with the audited organization also shape the interpretation. One auditor stated that they "already had audits where a recommendation almost became a major non-compliance over two years because it was simply not done".

Certification bodies have different ways to address perceived non-compliance. First, the certification body can demand sense, that is, let the organization explain why they implemented criteria in a certain way. Second, the certification body can break down the organizations' criteria interpretation and trigger new sensemaking. Often, audits have formal mechanisms for sensebreaking (e.g., reporting major and minor nonconformities for ISO/IEC management system certifications). The certification body might also provide limited sensegiving to steer the organization towards an interpretation more aligned with the certification after sensebreaking.

The certification team often responds to non-compliances with sensegiving and even sensebreaking attempts on their own. The certification team tries to change the certification body's interpretation, for example, by arguing why specific criteria could not be implemented in their IS or explaining how certain implementations fulfill criteria. Beyond that, some certification teams even managed to convince auditors that the criteria per se need to be interpreted differently, thus breaking the certification body's understanding of the certification criteria and how to achieve them. Paradoxically, we also found instances where the certification team willfully pointed auditors to non-compliances to leverage change within their organization.

Maintenance | Post-audit Cycle

The post-audit cycle - *maintenance* - covers the time after the audit to either the subsequent surveillance or recertification audit or the abandonment of the certification. The predominant actor during maintenance is the certification team, with two goals: (1) fixing non-compliances if necessary and (2) maintaining ongoing organizational commitment and

compliance. The maintenance phase mirrors the assessment phase to a certain degree but involves more continuous sensemaking. It takes place in an organizational environment that has already changed through prior sensemaking activities and in which actors have a more refined understanding compared to the pre-audit cycle. A common example was the *why* of certification implementation shifting from institutionalist reasoning in the initial pre-audit phase (i.e., driven by external pressure) to a more functionalist perspective (i.e., driven by internal improvements) throughout repeated maintenance cycles "after the penny dropped" (Certification Body).

Fixing deviations takes place temporally closer to the audit. The audit report is already a refined account, but the certification team still must make sense of it by going through the audit report issue by issue and interpreting them. Interpretation includes filtering, organizing, and prioritizing the issues. Depending on their severity, the certification team might decide to correct issues directly after the audit or during maintenance. Maintenance continually occurs as a "push and pull" (IS Provider) between the certification team and employees. On the one hand, the certification team can "push" certification-driven requirements stemming directly from the audit or internal evaluations. The certification team can address those issues in a top-down, bottom-up, or discursive fashion, acting more as a sensegiver, sensedemander, or both. Conversely, organizational IS's technical and processual aspects change over time, for example, because employees implement new product features or streamline processes. If those changes pertain to the certification scope, they "pull" the certification team to make sense of the changes, reconcile them with the certification and update the corresponding documentation.

DISCUSSION

Principal Findings

With this study, we developed an internalization process model comprising three iterative cycles of sensemaking. Our findings emphasize that one of the core benefits and impacts of certification internalization is the organizational change it fosters. That is not the change of just using the certification as a blueprint, but the change through more conscious sensemaking of the organization: using the criteria to reflect, formalize and augment existing (good) practices. Moreover, organization commitments to external actors (i.e., certification bodies) during certification internalization can help to mobilize resources for change that would otherwise have been unavailable as this "external factor has the leverage of creating a completely different urgency and importance" (IS Provider). In regard to mitigating superficial internalization, our interview findings highlight that a degree of shared understanding and background between the certification team, employees, and certification body is necessary.

Our key finding concerns the role of time in internalization. Related internalization literature strongly focuses on preparing (i.e., pre-audit phase) and undergoing the first audit. However, our results indicate that an organization's stance toward the certification – and the level of internalization – often develops over time. This change is caused by the recursive nature of sensemaking, as enacting the certification generates ongoing feedback that helps the organization understand the certification and its practices better and more consciously. Additionally, repeated surveillance audits and recertifications reinforce the certification over time. Taking a more nuanced view of time and process unfolding, we uncovered that the ongoing maintenance of certifications plays a more important role than previously assumed.

Implications for Research and Practice

This study contributes to research and practice. By developing an internalization process model, we strengthen the rich body of literature on certifications in IS, which historically has a more motivation- and outcome-focused perspective. In addition, we contribute to unraveling the puzzle of heterogeneous IS certification outcomes (e.g., Podrecca et al. 2022) by applying internalization in an IS context. Our results provide a cognitive explanation for internalization that complements the existing, more institutional-oriented or economic-driven explanations (e.g., Cai and Jun 2018; Prajogo 2011). We clarify the internalization mechanisms by connecting activities, actors, and temporality in one process model, serving as a conceptual means to guide future research comparing internalization processes between organizations.

We also contribute to sensemaking literature by exapting (Gregor and Hevner 2013) the sensemaking perspective to the context of IS certifications, proving that internalizing IS certifications triggers organizational change and sensemaking. By highlighting the importance of certification maintenance, we answer recent calls to examine more continuous sensemaking (Sandberg and Tsoukas 2015).

Beyond our theoretical contributions, this work also has implications for practitioners: most importantly, our results highlight the continuous nature of internalization. Implementing organizations should not view the certification as an on-time effort culminating in the audit but as an ongoing opportunity for finding possible improvements and consolidating internal best practices. Additionally, the certification team, employees, and certification body engaging in mutual sensedemanding and sensegiving across all phases is crucial for successful internalization.

Limitations and Future Research

The limitations of this study mainly relate to the interview sample. First, we suspect some degree of self-selection among the organizations interviewed, as they mainly provided positive reports of internalization compared to the more mixed reports of the auditors. Second, the interviews are limited in number and location (i.e., European organizations). Third, interview participants were primarily security experts and managers, while other employees' perspectives were comparatively underrepresented. In our future research, we will amend these limitations by collecting more in-depth data focusing particularly on employees until theoretical saturation.

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