

Conceptualization of Relational Assurance Mechanisms – A Literature Review on Relational Assurance Mechanisms, Their Antecedents and Effects

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Abstract. Assurance mechanisms are an important element of relational governance and frequently used in information systems (IS) research; still missing in this field, however, is a coherent and interrelated structure to organize available knowledge. In this study, we provide a first step towards development of a conceptualization framework of relational assurance mechanisms to enable their further investigation. From our analysis of existing literature, we discover two gaps in assurance research: (1) a fragmentation of assurance research and (2) a lack of conceptual consensus on relational assurance mechanisms. We provide a theoretical framework consisting of a conceptualization of identified relational assurance mechanisms, their antecedents and effects as a means of advancing theory in this area. Several possibilities for future research are discussed.

Keywords: relational governance, relational assurance mechanism, conceptualization, psychological control perspective, literature review

1 Introduction

In recent years, relational governance of inter-organizational relationships has emerged as a dominant perspective in exchange relationships [1]. Within information systems (IS) research, attention has been focused on how relational governance complements formal contracts in order to increase predictability in interactions or expectations within exchange relationships [2].

Within the higher-order construct of relational governance, relational assurance mechanisms (RAMs), such as monitoring or reputation, are particularly known to increase predictability in interactions or expectations within (potential) exchange relationships [3-5]. According to Yamagishi and Yamagishi [6], assurance is defined as an expectation of benign behavior for reasons other than goodwill of the partner [7]. Hence, RAMs may be conceptualized as an important element of relational governance [3-5] although evidence evolving from research is lacking.

We discovered two key gaps in assurance research. Firstly, investigations related to assurance are fragmented and largely independent of RAMs and assurance as a concept. These investigations do, however, offer insights on the relationship between the antecedents and effects of RAMs. Secondly, our data shows that RAMs lack a

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conceptual consensus. Research is at odds when it comes to a consistent interpretation of the effects of RAMs. It is difficult to advance the theoretical and empirical investigation of RAMs, as existing literature does not provide a coherent and cumulative body of work. The gaps we discovered need to be considered when investigating RAMs as an important element of relational governance. In order to address these gaps, this article attempts to answer the following research questions (RQ). *RQ1: What mechanisms of assurance are exemplary discussed in information systems literature? RQ2: Which concepts are relevant when investigating assurance mechanisms and how are these concepts related?* To reach answers to these two questions, we conducted a systematic literature review and analyzed the results of this review in a structured manner.

Using our analysis results, we provide an overview of and conceptualize RAMs as published in IS literature. Furthermore, we point out identified concerns as the antecedents of RAMs, and the effects of RAMs on individuals within a theoretical framework.

The remainder of this article is structured as follows: In the next section, we describe the design of our literature review, including our methods for selecting journals and articles, and the subsequent analysis of the selected articles. Next, we discuss the theoretical background of our work including a psychological perspective of control as a source of assurance, and subsequently present the findings of our literature review. In the final section of the paper, we discuss our findings, address their theoretical implications and identify the limitations of this study.

2 Methodology

To identify relevant literature regarding our RQ1 and RQ2, we conducted a systematic literature review following the guidelines of Vom Brocke, Simons, Niehaves, Riemer, Plattfaut and Cleven [8] for the literature search, Webster and Watson [9] for literature analysis and synthesis, and Müller-Bloch and Kranz [10] to identify the research gap. According to our RQ1, the primary focus of this review is IS literature, identifying the key-concepts regarding our RQs within this research domain. Hence, the initial set of possible journals was limited to IS journals. As a result, all journals of the AIS senior scholars' "basket of 8 journals" were selected. To consider upcoming research topics as well, we also included high-quality, relevant articles from IS conferences.

We scanned journals using the online literature database EBSCOhost, searching for the term "*assurance*" used in the title, abstract, or keywords. For IS conference proceedings, we used the databases AISELNET and IEEE Xplore and searched abstracts for the word "*assurance*". Articles published before June 2016 were considered. In order to get a broad overview of the concept "assurance" within exchange relationships, the search string was not limited further. As described below, further restrictions were carried out manually as part of the check for topic relevance. Overall, we initially identified 185 articles.

The articles were screened for relevance by reading title, abstract and, if necessary, the full text. In terms of our research, article relevance was defined as: the article uses

the construct “assurance” in an exchange relationship context. Therefore, our selection comprises full research articles focusing on inter-organizational relationships, relationships between organizations and people, and inter-personal relationships. We excluded articles focusing on software development or product quality assurance as those do not cover assurance within an exchange relationship context. As a result, a set of 36 articles were included in our analysis. Next, we applied backward and forward search techniques to identify additional articles relevant for our research [8]. In the backward search, we reviewed the reference lists in our set of articles for appropriate articles. Similarly, we reviewed the citations of the articles in our set in Google Scholar. This final search technique yielded a final set of 52 articles.

After having identified the set of relevant articles, two researchers independently reviewed each article and developed an appropriate coding scheme. The researchers then compared their results and discussed any differences in their findings [9]. After three iterations, the researchers agreed on a final coding scheme, which was used for our analysis. This scheme included the used RAM, concerns as RAM antecedents (privacy concerns, security concerns, business integrity concerns), and the effects of the RAM on individuals (beliefs, intentions, behaviors) [10]. According RQ1 and RQ2, this research addresses a “knowledge void” research gap [10]. The final coding is summarized in a table (see Table 3 in the Appendix).

3 Theoretical Background

3.1 Assurance about Partners’ Intentions

Assurance is defined “as an expectation of benign behavior for reasons other than goodwill of the partner” [6]. Therefore, assurance is based on the knowledge of the incentive structure surrounding the relationship of two parties [6]. Such knowledge is particularly important in situations with high environmental uncertainty in which an actor does not have the capability of correctly detecting the partner’s intentions [11].

To gain knowledge of the incentive structure surrounding a (potential) relationship, individuals seek sources which provide additional information about (potential) partners [12]. These sources either accumulate information sufficient for allowing to be certain about (potential) partner’s intentions, provide deterrence against unilateral defection, or induce the partner to take a certain course of action with the use of strategies such as “tit-for-tat” [6, 13, 14]. Each source increase predictability in interactions or expectations within (potential) exchange relationships for reasons other than only the goodwill of the partner.

3.2 A Psychological Perspective of Control as a Source of Assurance

Research on assurance which considers the knowledge about the incentive structure surrounding (potential) relationships is based on a control agency perspective. In particular, this perspective allows not only an examination of the effects of personal control in which the individual acts as an assurance agent to protect information, but

also includes proxy control and collective control [15, 16]. In proxy control, powerful others (such as the government and industry regulators) act as the assurance agents [15, 16]. In collective control, a collective acts as the assurance agent [16].

The personal control approach aims to directly assure outcomes from a client's perspective. People experience greater autonomy when they exercise direct personal control as the assurance agent [15-17]. Such control empowers individuals with mutual control over how their data and information, for example, may be used by service providers via technological and non-technological self-protection approaches [6, 15]. By using personal control, actors induce the partner to take a certain course of action with the use of strategies such as "tit-for-tat" [13, 18, 19]. Using these strategies, actors match their own behaviors to those displayed by personal control mechanisms (e.g. cooperating or trustful versus competing or opportunistic) [13].

The proxy control approach aims to indirectly assure outcomes via powerful others [20-22]. Institutional mechanisms are used from partners with few resources or low power to gain assurance through skillful and powerful third parties (e.g. industry self-control or legislation) [16, 23]. These mechanisms enable partners to access resources from third parties, such as knowledge and power, to assure outcomes. In case of opportunistic behavior, these assurance structure provide mechanisms of voice and recourse for the betrayed, which could create strong incentives for firms to refrain from opportunistic behavior and behave appropriately [14, 19, 24].

In the collective control approach, an individual, as a member of a group or collective that serve as an assurance agent, attempts to control the environment or outsiders. In collective control, responsibility, as well as agency, will be diffused among actors [25]. In the collective control approach, individuals attempt to share responsibilities among actors, internalize reference groups, and use their collective knowledge for decision making [16, 26]. Therefore, the collective is responsible for possible positive and negative outcomes to the same extent [16].

4 Findings

We adopted a psychological perspective of control and developed a theoretical framework for RAMs, its antecedents, and effects to provide a comprehensive overview and conceptual consensus for RAMs.

Therefore, the theoretical framework (Figure 1) posits that three sets of RAMs – personal control, proxy control, and collective control – influence individuals' beliefs, intentions, and behaviors when concerns are in place.

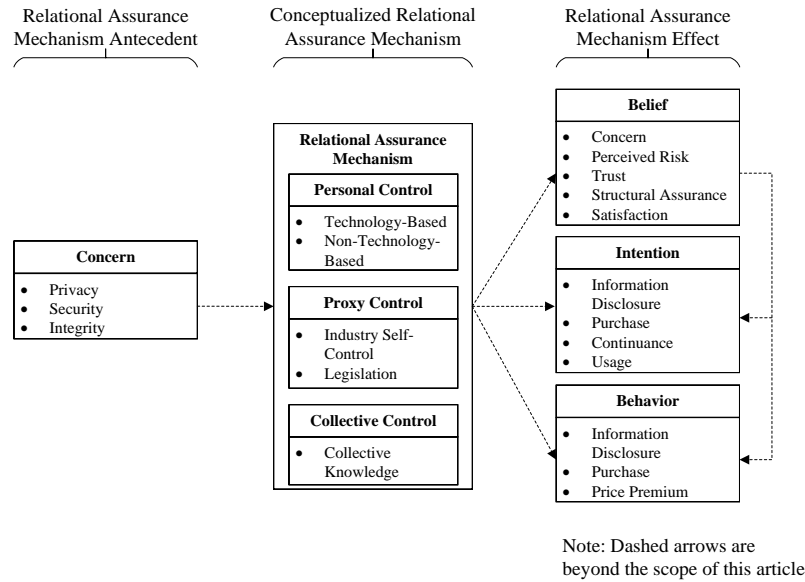


Figure 1. Theoretical Framework for Relational Assurance Mechanisms

Within the following sections, we outline the conceptualization of RAM, its antecedents, and effects in detail.

4.1 Conceptualization of Relational Assurance Mechanism

RAMs provide information about the incentive structure of (potential) partners and therefore, increase predictability in interactions or expectations within (potential) exchange relationships. According this notion, Table 1 summarizes the identified examples of RAMs using the key term “assurance” from our literature review. To distinguish the different examples of RAMs we provide a clear definition for each.

Table 1. Identified Relational Assurance Mechanism Examples and their Definitions

Example	Definition	Source
Certification	Defines an endorsement from a third-party organization attesting that a (potential) partner adheres to the organization’s policy and a set of standards.	[27]
Corporative norm	Cooperative norms are defined as the values, standards, and principles to which a population of organizations adheres.	[28]
Feedback mechanism	Feedback mechanisms accumulate and disseminate information about the past trading behavior of organizations.	[28]
Law	Mandatory legal rules to ensure adequate protection of information.	[15]
Monitoring	A set of activities undertaken to assure that all transactions are performed as specified by a predetermined set of widely accepted agreements and rules.	[28]

Table 1. Identified Relational Assurance Mechanism Examples and their Definitions
(Continued)

Example	Definition	Source
Personalization	Former mechanism which comprises tools and approaches that enable individuals to directly control outcomes.	[15]
Product description	The extent to which a consumer believes that a website is helpful in terms of fully evaluating a product.	[29]
Redundancy	The inclusion of extra components, which are not strictly necessary to functioning, in case of failure of other components.	[30]
Recommendation	A suggestion or proposal as to the best course of action.	[31]
Reputation	Reputation is imperfect and indirect information about a potential partner's traits.	[6]
Site quality	Reflects consumers' overall perceptions of how well they think a site works and looks, particularly in comparison to other sites.	[32]
Social Influence	Individual perceives support in decision making from his or her colleagues and others whose opinions matter.	[26]
Standardization	The extent to which rules, procedures, and standards exist to guide the conduct of an activity and to evaluate performance.	[33]
Statement	A statement supplied by a (potential) partner that provides argumentation and claims to address certain concerns (e.g. privacy concerns).	[34]
Warranty	A warranty signals service quality and provides consumers some assurance in case of service failure.	[35]

Drawing on the work of Yamaguchi [16] on the differentiation of assurance agent perspectives, we conceptualize RAMs using the assurance agent perspectives personal control, proxy control, and collective control and highlight prominent paper examples.

Within personal control, individuals strive for primary control over their environment. For this assurance agent, literature suggest two major types of RAMs: technology-based and non-technology-based approaches [20]. Technology-based approaches include features such as monitoring, personalization, or technology redundancy (e.g. [17, 36]). Non-technological-based approaches are reading corporative norms, product descriptions or statements, providing direct feedback, considering existing warranties, site-quality, or standardization practices (e.g. [36]).

Proxy control describes institutional-based assurance of control whereby powerful forces act as the assurance agents. According to literature, individuals particularly rely on industry self-regulation and legislation to exercise proxy control [15]. Our research identified the use of specific certifications and laws as examples of industry self-regulation and legislation RAMs (e.g. [15]).

In collective control, one attempts to control the environment or outsiders as a member of a group or collective, which serves as an assurance agent. According to Yamaguchi [16], individuals "believe they are more efficacious as a collective than as an individual person". Therefore, individuals use their collective knowledge as a RAM

to indirectly control the environment or outsiders. While reputation provides assurance for committed individuals to deal with uncertainty when involved with outsiders, social influence refers to an “individual’s internalization of the reference group’s subjective culture, and specific interpersonal agreements that the individual has made with others, in specific social situations” [6, 26] (e.g. [27]). Furthermore, by using the collective knowledge provided from internal or external sources, such as recommendations or reviews via feedback mechanisms, individuals overcome their concerns and adopt or continue a relationship [36, 37] (e.g. [38]).

Based on the assurance agent perspective, Table 2 summarizes our conceptualization of RAMs and identifies examples of these mechanisms from our literature review.

Table 2. Conceptualization of Relational Assurance Mechanisms

Assurance Agent	Relational Assurance Mechanism	Identified Examples
Personal Control	Technology-Based	Monitoring, Personalization, Redundancy
	Non-Technology Based	Corporative Norm, Product Description, Site-Quality, Feedback Mechanism, Standardization, Statement, Warranty
Proxy Control	Industry Self-Regulation	Certification
	Legislation	Law
Collective Control	Collective Knowledge	Reputation, Social Influence, Recommendation, Feedback Mechanism

In order to gain insights about how RAM concepts are interrelated, we next discuss the antecedents of RAMs as identified in literature.

4.2 Concerns as Antecedents of Relational Assurance Mechanisms

Based on the selected literature, we were able to identify three types of concerns that rise an individual’s need for RAMs: privacy concerns, security concerns, and business integrity concerns. In the following section, we briefly explain each concern.

Privacy concerns are a primary concern dimension within IS literature, particularly in online transactions [15, 21, 36, 38, 39]. Privacy concerns within an online context are defined as individuals’ concerns about the threat to their information privacy when submitting their personal information on the internet [36, 38]. Studies have identified that as privacy concerns increase, individuals seek RAMs [38, 40]; contrastingly, RAMs will lead to lower privacy concerns [15, 39]. Hence, privacy concerns and the presence of RAMs are highly negatively correlated.

Another antecedent of assurance identified in our review are *security concerns* [17, 36, 39, 41]. Based on the dimensions provided by Kim, Sivasailam and Rao [42], we distinguish between three types of security concerns: general security issues, transaction integrity, and authenticity of parties to transact. General security issues consist of insider abuse, unauthorized access, distributed denial of service attacks, and malware [17, 28, 36]. Transaction integrity is based on deletion, duplication, or

alteration of documents [39, 43]. Alteration of documents refers to identity theft or authentication issues [44]. Security concerns depend not only on the security level of a firm, but also on the knowledge of individuals: e.g., how effective does the individual perceive the security protection mechanisms to be [39, 45].

Business integrity concerns are almost neglected within IS research even if such concerns have been identified as highly significant inhibitors for adoption decisions [39]. Such concerns are related to how (potential) partners (re-)use collected information from their customers and the possibility that a person or company may not fulfil a promise or complete a task. Especially within high environmental uncertainty, such concerns occur as a result of information asymmetry between (potential) exchange partners [36]. Such concerns may be amplified by the exponential proliferation of online scams and fake websites [42].

In the following section we outline the effects of RAMs on individuals as presented in our literature set.

4.3 Effects of Relational Assurance Mechanisms

This section outlines the effects of RAMs on an individual's beliefs (concern, perceived risk, trust, structural assurance, and satisfaction), intentions (information disclosure, purchase, continuance, and usage), and behaviors (information disclosure, purchase, price premiums).

First, RAMs affect an individual's *beliefs*. As discussed above, RAMs are in place to address certain concerns and therefore, researchers have also examined the effects of RAMs on concerns itself. RAMs, such as laws, certifications, and statements, have negative effects on an individual's concerns [15, 19, 21]. According to Xu, Dinev, Smith and Hart [19], concerns are partly mediated by the individual's perceived sense of control or perceived risk. Furthermore, related to concerns, studies identified the negative effect of product description, site quality, and certification on an individual's perceived uncertainty and perceived privacy risk [19, 29, 46]. Contrary to these negative effects, positive effects from RAMs, like certification or statements on trust, have been investigated [34, 36, 47]. Studies point out the positive effects of RAMs on structural assurance beliefs. Structural assurance is defined as the belief that success is likely because contextual conditions, such as statements, certifications and warranties, are in place [48]. Hence, structural assurance represents the perceived effectiveness of RAMs which are in place [49]. Lastly, researchers identified positive effects of perceived monitoring, perceived feedback, and cooperative norms on individual satisfaction with services or products [28].

Second, RAMs affect an individual's *intentions*. All of our identified studies on individuals' intentions considered trusting beliefs as mediators. Such studies point out the positive effects of RAMs, such as statements and site quality, on an individual's intention to disclose information [38, 50]. Furthermore, researchers identified positive effects of RAMs on purchase intentions [36, 39], intention to continue the relationship [28] or intention to use a web site [50]. Since, individuals tend to avoid losses, future research may consider control or risk perceptions as mediators to better explain an individual's intentions [51, 52].

Third, RAMs affect an individual's *behavior*. Studies identified the positive effects of privacy statements, certification, and customization on actual information disclosure [21, 36] and Oezpolat, Gao, Jank and Viswanathan [40] identified the positive effects of certifications on purchasing behavior. Dimoka, Hong and Pavlou [29] identified that product description and certification positively influence the behavior to pay price premiums. Since the actual behavior can differ from an individual's beliefs and intentions, further research is needed on how RAMs affect an individual's behavior [53].

5 Conclusion

This research was motivated by a fragmented body of knowledge, in which recent investigations largely examined assurance independently from the mechanisms and the concept itself. Based on this fragmented research, a conceptual consensus for RAMs is missing, even if RAMs are an important element of relational governance. To address these gaps, we conducted a systematic literature review, and identified examples of RAMs, as reported in IS literature. Based on this comprehensive overview, our subsequent analysis provides a conceptualization of RAMs. Last, our theoretical framework of RAMs further provides insights about antecedents and effects resulting from RAMs.

Before we conclude our major contributions, certain limitations should be considered when interpreting the results. Our literature review focused on RAMs as an important element of relational governance [3-5]. We recognize there are other forms of relational governance mechanisms such as joint actions or trust. While our theoretical arguments should extend to the instantiations of these other mechanisms of relational governance, more empirical work is needed to increase predictability in interactions or expectations within (potential) exchange relationships. Further investigations should particularly build on the work of Yamagishi and Yamagishi [6], who distinguish between trust and assurance by taking social uncertainty into account. They claim, assurance is particularly important in situations with low social uncertainty, while trust is needed when social uncertainty is high [6]. Another possible area of interest is to consider the influence of RAMs over time. Prior studies already found changes in the relevance of uncertainty for formal governance mechanisms [54, 55].

Our main contribution to the conceptualization framework of RAMs is threefold. First, we provide insights of the interrelation of existing assurance research and offer insights into how RAMs can be conceptualized. Second, we provide a theoretical framework to consider the concepts of RAMs and how these concepts are related to the antecedents and effects of RAMs. Third, we contribute to practice by providing an overview of existing RAMs and their effects [56]. Such findings might be used by practitioners, like security managers or auditing authorities, in order to adopt effective RAMs to increase predictability in interactions within exchange relationships.

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Appendix

Table 3. Overview of Assurance Research

Citation	Relational Assurance Mechanism Examples ¹	Antecedent	Effect								
		Concern	Belief				Intention			Behavior	
		Privacy Security Business Integrity	Trust Structural Assurance Satisfaction Concern Risks	Information Disclosure Purchase Continuance Usage	Information Disclosure Purchase Price Premium						
[57]	SI	x x	x x								
[33]	Stand										
[58]	FM; Rep		x							x	
[59]	Stat; SQ; Cert; CN; Rep	x	x			x					
[38]	Stat; SQ; Cert; CN; Rep; Rec	x	x			x					
[60]		x x	x					x			
[61]		x x	x x					x			
[62]	SI	x x x	x x								
[63]		x	x x								
[29]	PD; Cert; FM; W		x							x	
[5]	M										
[64]	Rep; SQ	x x	x x			x x					
[21]	Stat; Cert	x								x	
[17]	Rec; Pers; SI	x									
[37]	Cert; Rec; SQ; SI	x				x		x x			
[65]	Cert; SQ	x	x					x x			
[36]	Cert; Rec; SQ; Pers; FM; Stat; SI	x x	x x							x	
[44]	Cert	x x x									
[47]	Stat	x x	x								
[34]	Stat	x x	x								
[39]	Cert; W	x x x						x			
[66]	Cert	x x x									
[67]	Stat	x									
[68]	L	x								x	
[69]	FM; Rep		x x					x			
[70]	SQ; Rep	x x	x x								

[71]	Cert; FM; PD; W	x x		x	
[72]		x x	x		
[32]	SQ; Rep	x x	x		
[73]		x x	x x		
[27]	SQ; Rep	x x	x x	x	x x
[50]	SQ; Rep	x x	x x		x x
[49]	Stat; Pers	x	x	x x	
[40]	Cert	x x x			x
[28]	M; FM; CN	x	x	x	x x
[46]	PD; SQ; Rep; W; SI	x x x	x		x
[74]	Cert	x x x	x x	x	x
[20]		x			
[75]		x		x	
[76]	Cert	x x			
[43]	Cert	x x			
[41]	Cert	x			
[77]	Cert	x x x			
[18]	Red	x			
[19]	Stat; Cert	x		x x	
[78]	Stat; Cert; L; Pers; Rep	x		x	x
[15]	Stat; Cert; L; Pers; Rep	x		x	
[79]	SI	x	x x		

¹ Cert = Certification, CN = Corporative norm, FM = Feedback mechanism, L = Law, M = Monitoring, Pers = Personalization, PD = Product description, Red = Redundancy, Rec = Recommendation, Rep = Reputation, SQ = Site quality, SI = Social Influence, Stand = Standardization, Stat = Statement, W = Warranty

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