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TRUST MANAGEMENT – AN INFORMATION SYSTEMS PERSPECTIVE

Friedrich Chasin
University of Münster - ERCIS, friedrich.chasin@ercis.uni-muenster.de

Dennis M. Riehle
University of Münster - ERCIS, dennis.riehle@ercis.uni-muenster.de

Michael Rosemann
Queensland University of Technology, m.rosemann@qut.edu.au

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AN INFORMATION SYSTEMS PERSPECTIVE

Research in Progress

Chasin, Friedrich, University of Münster - ERCIS, Münster, Germany,
   friedrich.chasin@ercis.uni-muenster.de

Riehle, Dennis M., University of Münster - ERCIS, Münster, Germany,
   dennis.riehle@ercis.uni-muenster.de

Rosemann, Michael, Queensland University of Technology, Brisbane, Australia,
   m.rosemann@qut.edu.au

Abstract

The focus of the Information Systems (IS) research on trust has been on the perception of trust and explaining the concept in terms of its antecedents. The merits of this descriptive and explanatory knowledge notwithstanding, the usefulness and applicability of this knowledge for organizations that aim at actively influencing their trust position is limited. In light of recent public scandals in areas such as social media, car manufacturing or financial services, organizations require an understanding of how customer trust can be managed using contemporary information systems solutions. In this paper we propose trust management as an IS theme of increasing relevance and draw upon extant research in IS, psychology, and marketing to bridge the gap between topics such as risk management, compliance management and governance on the one hand and trust management on the other. We utilize Botsman's concept of uncertainty as a proxy for customer trust to bring together organizational approaches that can objectively reduce uncertainty linked to an organization, its processes, products, and services with the customer's perception of this uncertainty. We contribute to the further maturity of trust management by providing new foundations and providing explicit advice on how to improve trust in organizations.

Keywords: Trust, Uncertainty, Artifact, Management, Information Systems.

1　　The Growing Importance of Trust Management

The importance of a customer trusting an organization and its products, services and processes has been articulated by bold claims that trust is on the verge of becoming the currency of the digital age (Botsman and Rogers, 2010; Manish, 2018). The recent scandal around the car manufacturer Volkswagen that used illegal software to manipulate emissions tests vividly demonstrates how breaching customer trust can have a wide range of direct and indirect monetary consequences (Ewing, 2018). Similar observations can be made when it comes to Facebook's Cambridge Analytica data scandal or the loss of trust in Australia's banks triggering the Royal Commission. This is well articulated in the regular Edelman Trust Barometer (Edelman, 2016).

In contrast, we witness that citizens continue to trust fast emerging technologies such as social media or mobile solutions despite understanding the privacy or other security implications. This indicates that citizens are probably not aware of possible data breaches and the risks they expose themselves to.

Borrowing Herzberg and Snyderman terminology (1959) from the motivation theory, customer trust in how it is managed today can be regarded as an 'hygiene factor' – an organization needs to maintain it at a certain level just to prevent dissatisfaction. However, far less is known about how to create 'trust as a delight', i.e., how to create value grounded in outstanding trust propositions.

Against this background, it is surprising that the practice has not yet established trust management as a core business activity. For instance, trust manager positions outside the financial sector where trust describes a financial or legal entity are uncommon. The same applies to process management methods and tools that are still not able to capture customer trust. Traditional trust management activities of an organization fall into the space of marketing (Swan et al., 1985; Andaleeb, 1995; Geyskens et al., 1998; Milne and Boza, 1999) and have limited insights on how an organization can align its internal processes with the aim of achieving customer trust. Rather, it treats trust building mechanism as independent from the main offering of an organization (Luo, 2002).

The Information Systems discipline has a potential to support enterprises in managing customer trust yet was unable so far to realize this potential. Two largely independent streams of knowledge on trust exist in IS. On the one hand, IS provides descriptive and explanatory knowledge on customer trust in technologies and its antecedents (Li et al., 2008; Vance et al., 2008). It provides a rich understanding of how customer trust in an organizational environment is formed, for example, as trust of a customer in an e-commerce system (McKnight et al., 2002). In such context, trust is seen as a *subjective* view of a customer towards a business entity or even a technology and is largely detached from the *objective* trustworthiness of the enterprise that is given by organizational efforts in managing trust-related aspects of its business. For example, while the subjective customer trust may have drastically changed during the Volkswagen emission scandal, the objective trustworthiness probably has not. For the latter, on the other hand, IS and especially its design-oriented branch provides prescriptive knowledge on how to support customer trust. Such prescriptive knowledge includes approaches for compliance and risk management (e.g., Humphreys, 2008), which implicitly influence customer trust yet are not framed directly as trust building mechanisms.

Thus, we observe a lack of prescriptive knowledge on building trust against the background of deep understanding of trust from the customer perspective and well-studied trust enhancing mechanisms. Driven by this observation, our paper is dedicated to the research question of *'How can customer trust be conceptualized as an IS artifact?'*

In this paper we aim at bridging the two bodies of knowledge by introducing customer trust as an IS artifact that allows exploration beyond trust's antecedents and allows to utilize existing and new methods of managing aspects of the enterprise that lead to higher customer trust. We do so by using the notion of uncertainty (Botsman, 2017) as a proxy for customer trust and differentiate objective and subjective uncertainty into a framework. The framework combines both the internal enterprise perspective and the external customer perspective in order to highlight the connection between the corporate efforts towards increased customer trust and the trust as perceived by a customer. Our contribu-

tions are twofold. First, we connect explanatory and prescriptive knowledge regarding formation and management of trust. Second, we provide a framework that can be used to formulate both theoretical and empirical enquiries into the relationship between objective and subjective trust components.

The structure of the remainder is as follows. In Section 2, we provide research background on trust, narrowing our perspective from trust as a general concept towards customer trust that describes a relationship between an organization and its customers. Section 3 presents our framework that integrates mechanisms for ensuring objective trust improvements and the antecedents of the subjective customer perception of trust. The framework is discussed in detail in Section 4 focusing on how the framework can be used to spur research on customer trust as an IS artifact that can allow organization to combine measures for managing trust with the customers' perception of the outcome.

2 From Trust to Customer Trust

Early research on trust highlighted difficulties with providing a precise definition of trust describing it as "a somewhat mystical and intangible factor" (Giffin, 1967). The elusive nature of trust has been a continuing subject of the scientific discourse where trust was described as "a bewildering array of meanings," (Taylor, 2001) "a confusing potpourri," (Shapiro, 1987), "a conceptual confusion," (Lewis and Weigert, 1985) and "a conceptual morass" (Carnevale and Wechsler, 1992). More recent research continues to report on the lack of consensus and diversity of competing trust definitions (Castaldo et al., 2010; Ping Li, 2012; Welter, 2012). This highlights the need to provide a clear focus on the type of trust at hand. Using a very abstract working definition of trust defines it as a "belief that an entity will act as expected" (Möllering, 2018, p. 404). Schoorman et. al. (2007) define trust as being "an aspect of a relationship" where different relationships between various actors assuming trustor and trustee roles are possible. Figure 1 illustrates these relationships.
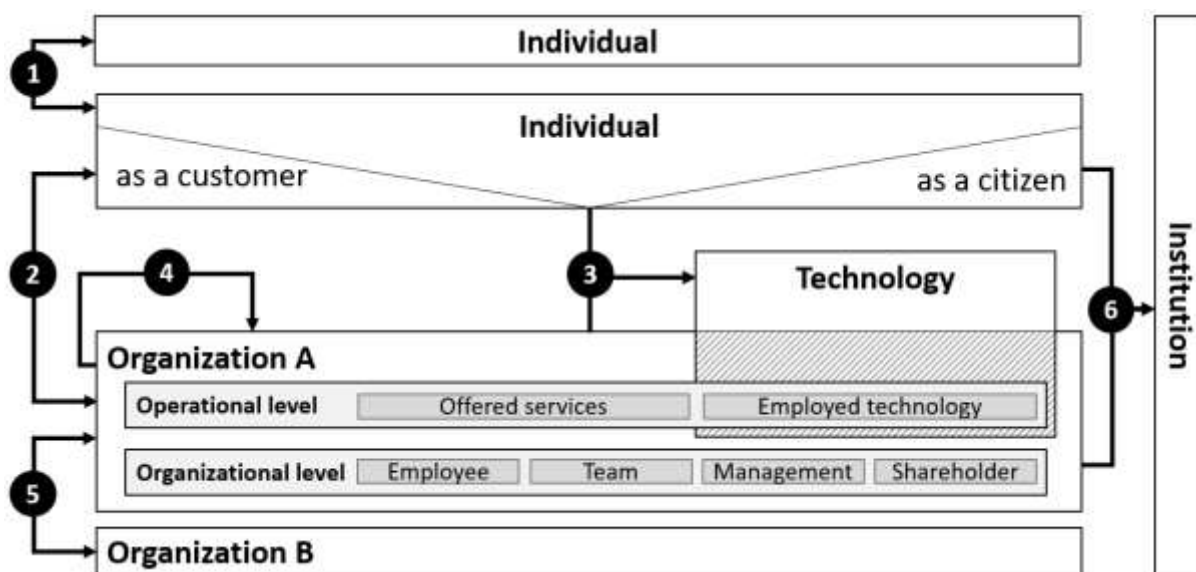

Figure 1   Actors and direction of trust

(1) Interpersonal Trust. Trust research has its roots in interpersonal trust (Rotter, 1967, 1980). In this context, "trust is a psychological state" of a trustor in a relationship between the trustor and the trustee (Rousseau et al., 1998). Interpersonal trust is a basis for translating trust to relationships other than between two individuals in an arbitrary context. For instance, trust between individuals in an organizational setting acquires specific attributes (Mayer et al., 1995; Schoorman et al., 2007) and is a starting point for considering the role of organization in trust relationships.

(2) Trust between Individuals and Organizations. In a relationship between an organization and an individual, the individual assumes the role of a customer. Accordingly, there is companies' trust into

their customers and customers' trust in an organization (Eisingerich and Bell, 2008). In the latter case, an organization can be represented by different entities in the eye of the customer such as by employees (Andaleeb and Anwar, 1996), services offered by the organization (Gefen and Straub, 2003), and the employed technologies (Mukherjee and Nath, 2003). The participation of the technology in a trust relationship is a curious case and should be considered separately.

(3) Trust of Individuals and Organizations in Technology. IS has traditionally depicted technology as a trustee within the technology acceptance/adoption research. The technology can be either trusted by an organization or an individual depending on whether the acceptance or adoption is affecting an individual in its role as an employee of an organization, or as a customer (c.f., Chandra et al., 2010). Interestingly, when it comes to a customer trusting a technology, it is often blurry of the customer trusts the technology itself (McKnight et al., 2009; Montague et al., 2009) or the organization that employs the technology (Kim and Prabhakar, 2000; Wu et al., 2011; Chu et al., 2012).

(4) Intra-organizational Trust. Different entities exist within an organization that form trust relationships. These entities are either part of the organizational level as different individuals or groups of individuals (employees, teams, management, shareholders) or non-human entities such as services offered by the organization and the employed technologies. Within an organization, trust can manifest itself between employees (Massey and Kyriazis, 2007), as employees trust in the employer (Erkmen and Hancer, 2015) within or between teams (Erdem et al., 2003; Bornstein et al., 2007), between management and subordinates (Brower et al., 2009), and between shareholders and the management (Miller and Whitford, 2002).

(5) Inter-organizational Trust is an important ingredient in inter-firm relationships (Bachmann and Inkpen, 2011; Vanneste, 2016). Examples are trust in strategic alliances (Nielsen, 2011), initial trust in organizational relationships (McKnight et al., 1998). Inter-organizational relationships are often represented by the employees that belong to different organizations (de Ruyter et al., 2001; Perrone et al., 2003).

(6) Trust in Institutions. Individuals can put their trust into institutions individually or collectively (Elhardt, 2015). Individuals can trust different institutions such as governments (Wilkes, 2014) journalism, religion, and social welfare system (Warren et al., 2014). However, instead of being the subject of the analysis, institutional trust often seen as a mediator in the relationship between other actors such as in the case of inter-organizational trust (Bachmann and Inkpen, 2011).

We acknowledge the range and diversity of trust research, the focus of this work is explicitly on the customer trust in organizations as one part of the bidirectional relationship between individuals and organizations (no. 3). We define customer trust as an aspect of a relationship, in which the organization is expected by the customer to act as expected. Acting in an expected manner implies certainty. Hence, using the lens of Botsman, trust has a direct connection with uncertainty. Botsmann describes trust as the "remarkable force that pulls you over the gap between certainty and uncertainty" (Botsman, 2017). The more uncertainty the trustor holds in regard to the trustee acting as expected, the more trust is needed for a successful relationship.

3 The Relationship between Uncertainty and Trust

As mentioned, the focus of this work is the trust relation between an individual as a customer and an organization, regarding its products, services, processes and resources. In accordance to Botsman (2017), we define customer trust as "the remarkable force that helps to overcome uncertainty". With other words, the higher the uncertainty, the more trust the customer needs to have to engage in the relationship. Therefore, we can regard uncertainty as the raison d'être for trust. Consequently, uncertainty management is a precursor to trust management.

We distinguish between objective and subjective uncertainty, which leads to two different perspectives on uncertainty management: First, uncertainty may arise from internal conditions of the organizations. We refer to these conditions as actual uncertainty, as these are measurable and directly manageable by the organization, hence, the actual uncertainty is objective. Second, the customer may perceive uncer-

tainty, where the perceived uncertainty may differ from the actual uncertainty. The perceived uncertainty is not directly manageable by the organization, as it depends on the individual customer. Consequently, the perceived uncertainty is subjective. Both perspectives together contribute to an understanding for trust (see Figure 2). As the first perspective can be managed, we refer to this perspective as Uncertainty Management, while we refer to the second perspective as Perception Management.
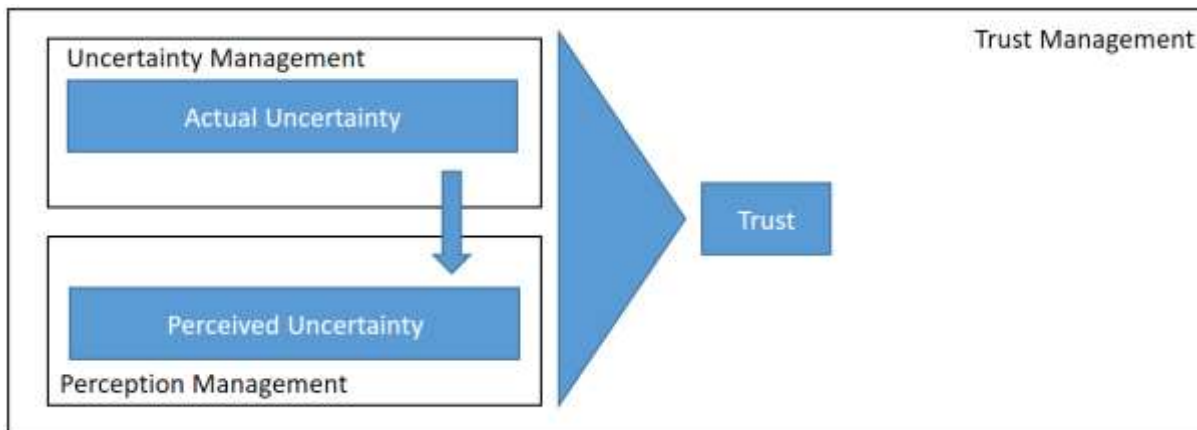

Figure 2   Relation of Uncertainty and Perception Management to Trust

3.1   Uncertainty Management

Relevant for uncertainty management are a variety of management theories, which ensure smooth operations, stable business processes and reduce the number of variations, disruptions or other unexpected and unwanted behaviour. We focus on the most commonly known management concerns in this area, among which are governance, risk and compliance management (GRC), quality management, and data as well as IT security (see Figure 3).
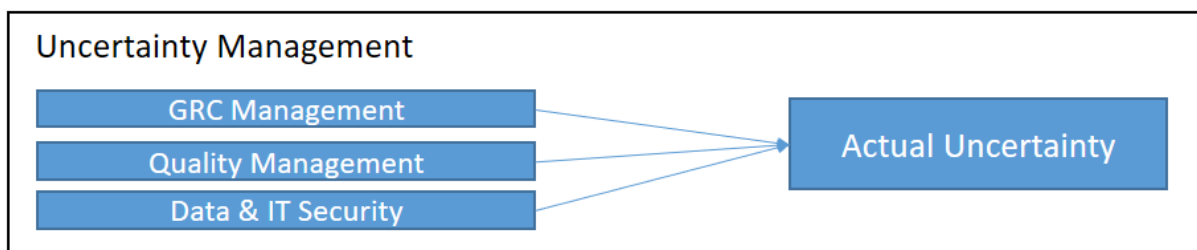

Figure 3   Uncertainty Management

The first driver for actual uncertainty, GRC, is seen as a set of tools and methods, which helps organizations to manage unforeseen events. Indeed, risk is "the management of uncertainty that matters" (Botsman, 2017). After the financial crisis in 2008, GRC has been on a rise (Gericke et al., 2009), as GRC can prepare organizations for managing rare events and minimize the impact of such events on operative business processes. Nowadays, GRC are regarded as management standards (Humphreys, 2008), for which frameworks and process models exists (e.g., Racz et al., 2011; Racz and Seufert, 2014).

With GRC management, tools and methods are provided to reduce uncertainty. For example, when companies like Uber promise to offer a ride within at most three minutes, they do so, because the risk of offering a ride in more than three minutes has been calculated to be below a certain threshold. Not meeting this criterion is then a classical challenge of risk management. By monitoring and controlling processes (Karnouskos et al., 2010) a performance management process and a feedback culture can be established (London and Smither, 2002). By sharing process performance information with the customer (Zeithaml et al., 1988), the actual uncertainty becomes transparent and, hence, recognizable for the customer.

The second driver for the actual uncertainty within an organization is the quality of the distributed products and services. These are controlled by means of quality management, where critical quality factors are measured (Saraph et al., 1989). The higher the quality of a product is, the less likely unexpected behaviour or product failures will occur. Therefore, higher product quality leads to less uncertainty. For example, aircraft manufacturers have to ensure several quality criteria, to ensure the security and safety of their products. However, outside of safety-critical situations manufacturers may accept a certain level of product failures, where the costs for customer communication and replacement are cheaper than the implementation of higher quality standards. The classical approach of product quality management can be transferred to digital products as well, where a product perspective on data quality management takes place (Wang, 1998; Otto et al., 2011). Customers recognize high product or service quality and high quality leads to high customer loyalty (Caruana and Ewing, 2010; Chu et al., 2012), as well as a good corporate reputation (Nguyen and LeBlanc, 2018).

The third driver of actual uncertainty is data and IT security. With cloud technologies being on the rise, data security has become drastically more challenging (Dhillon and Backhouse, 2000; Kaufmann, 2009; Ren et al., 2012). Security breaches, where attackers gain access to information systems of organizations to leak data, have large financial impact on the organization (Garg et al., 2003) and have a significant negative impact on the organization's market value (Acquisti et al., 2006). When security breaches occur, private data of customers may be leaked, leading to invasions of customers' privacy (Suh and Han, 2003). Consequently, data breaches have a negative impact on customer trust (Suh and Han, 2003; Berezina et al., 2012). Reducing the uncertainty related to data and IT security involves tools and methods from information security management (Tipton and Krause, 2007). By using IT security metrics, the level of security can be quantified (Hayden, 2010), contributing again to actual uncertainty.

3.2   Perception Management

The uncertainty perceived by the customer is – first of all – driven by the actual uncertainty, i.e., the objective and measureable uncertainty is a driver for the uncertainty the customer perceives. However, the perception is obviously subjective, as a different perception may occur with every customer. According to Botsmann, "people […] can change other people's perceived uncertainty" (Botsmann, 2017). We understand this in a wider sense and argue that this capability can be transferred to organizations, as "actions carried out in the name of the organization are driven by individuals" (Pozzebon, 2004). In consequence, additional factors influence or modify the main driver of perceived uncertainty (see Figure 4). While a variety of such factors exist, we focus again on the most commonly known factors, which are the reputation of the organization or the brand (referred to as brand management) and the marketing strategies used to communicate with the customer (referred to as communication strategies).
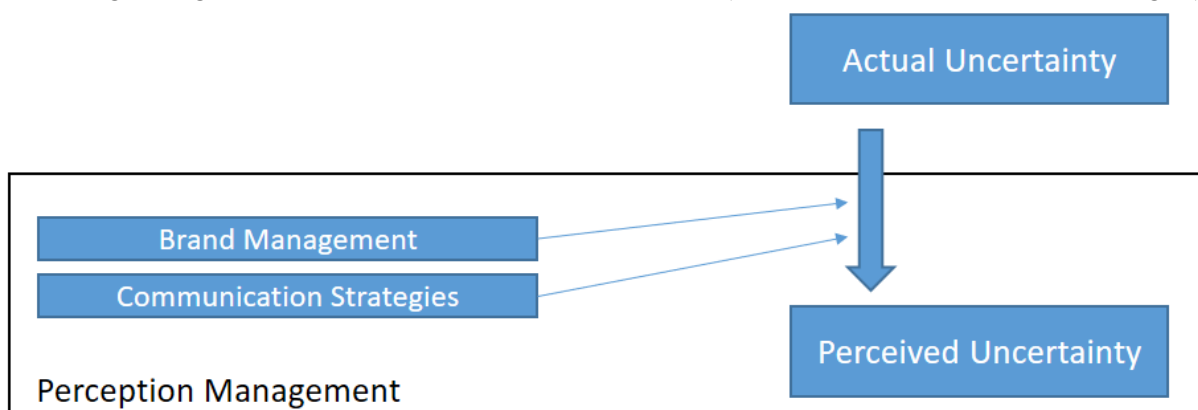

Figure 4   Perception Management

Brand management includes all tools and techniques targeted at increasing the quality associated with a brand by the customers or increasing the customer loyalty towards a brand or an organization. For

example, brand awareness, brand reputation, the brand image, the level of innovation, the customer satisfaction and the perceived quality are factors contributing to brand loyalty (Tepeci, 1999). While the actual product or service quality is the output of managerial actions within the organization, as discussed in the previous section, the perceived product or service quality can be further influenced by the brand image (Rao and Monroe, 1989). Similarly, the product's price and physical appearance influence the quality perceived by the customer (Dawar and Parker, 1994). In the digital age, additional methods for brand management arise. For example, email marketing can be used to further increase the brand loyalty (Merisavo and Raulas, 2004) or social media channels provide a chance to foster brand awareness, promote a brand image and increase the corporate reputation (Dijkmans et al., 2015). The brand image and brand reputation as well as the customer loyalty towards the brand constitutes the brand equity (Aaker, 1992).

The second influential factor, the communication strategies, are a core concern in the field of marketing. Integrated marketing communications are a critical component towards building brand equity and promoting a brand image (Madhavaram et al., 2005; Dijkmans et al., 2015). Communication tactics help building a relationship to the customer and include elements such as interactive websites or face-to-face communication in stores (Andersen, 2001). A concrete set of communication tactics constitutes a communication strategy, which aligns the overall communication of the organization towards its customers (Holm, 2006). With the rise of the internet and social media in particular, an even greater variety of communication strategies is available (Lagrosen, 2005). This bears both risks and advantages: Negative comments on the organization or brand can quickly distribute over social networks, resulting in online firestorms (Pfeffer et al., 2014), but the same word-of-mouth propaganda can also positively spread over social networks and, hence, can be part of a successful marketing communication mix (Chen and Xie, 2008).

3.3   Trust Management

We can now integrate the perspective of uncertainty management and the perspective of perception management into an integrated perspective on Trust Management (see Figure 5). We do so, by regarding uncertainty a proxy to customer trust (c.f., Section 1), where uncertainty is composed of objective and subjective uncertainty. The perspective of uncertainty management describes the actual uncertainty, which is objective, while the perspective of perception management describes the perceived uncertainty, which is subjective to the customer.
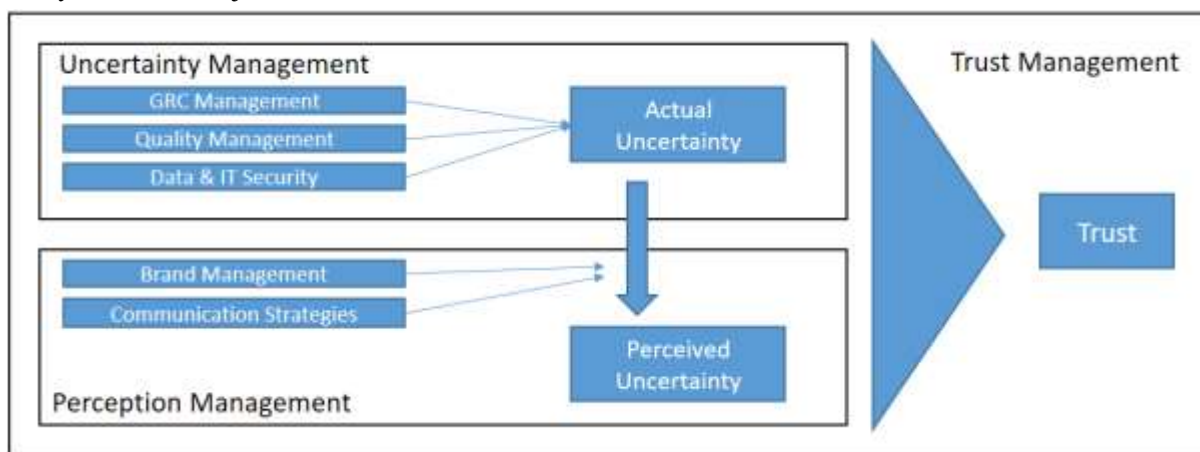

Figure 5   Integrated Perspective on Trust Management

Our integrated perspective on trust management provides a framework, where commonly known management approaches are related to uncertainty. Adopting these management approaches can possibly support managing uncertainty: Approaches that are part of uncertainty management contribute to objectively reducing uncertainty, while approaches that are part of perception management contribute to reducing the uncertainty perceived by the customer.

4 Discussion and the Next Steps

A new perspective on managing trust in organizations emerges against the background of the increasing need for introducing trust management mechanisms that can prevent costly scandals around trust breaches and capitalize on providing strong trust propositions. The developed framework utilizes the concept of uncertainty to capture the objective mechanisms that can reduce the level of uncertainty associated with organizational processes, products, and services. By including the understanding of the customer trust and its antecedents, it then establishes a link between the actual and the perceived uncertainty of organizational outcomes that are, in turn, linked to the customer trust as something that can mitigate the barriers raised by the uncertainty. The framework is hence integrative in its nature bridging the so far disconnected bodies of explanatory and descriptive knowledge on trust.

Organizations that aim at managing their customer trust beyond treating it as a 'hygiene factor' can use the framework in two ways. First, they can access the referenced body of knowledge on mechanisms that can reduce objective uncertainty (uncertainty management) as well as on mechanisms that can influence the customer perception of the actual uncertainty (perception management). Second, organizations can use the framework as a structuring mechanism for the formulation of trust management strategies. Both implications can be seen as launch pad for organization creating customer values grounded in outstanding trust propositions.

The framework opens up new research opportunities for IS research. By combining explanatory knowledge on the trust and its components with management approaches that can have a positive effect on customer trust, the paper provides a new perspective on trust as an IS construct. Consequently, IS researchers can explore the use of IS methods and tools for facilitating customer trust in organizations. Especially the design-oriented branch of the IS research can capitalize on this potential and contribute with both prescriptive and design knowledge on trust. The framework also provides opportunities for new kinds of empirical research within the uncertainty management area. In this context, new studies can aim for establishing a quantitative relationship between approaches for uncertainty reduction and actual uncertainty using measurements of process variance, reliability, and compliance.

Our next steps will focus on addressing the limitations of the presented research-in-progress. Although we are convinced of the utility of the uncertainty concept for bringing the aspects of uncertainty management and management of customer's perception of the resulting uncertainty, these aspects deserve a more refined consideration. As for now, we restricted ourselves to presenting what in our opinion constitutes the major elements in managing uncertainty of organizational outcomes and a synthesis of major factors that affect customer's perception of uncertainty. Hence, we will widen our enquiries into adjacent disciplines to generate more profound and exhaustive understanding of the underlying management mechanisms. Second, the presented work is conceptual in nature. Despite our arguments being grounded in extant research and facilitated by the observations around the role of trust in the organizational landscape, empirical research is required. Consequently, we will aim at first empirical studies that can demonstrate the presence of outlined relationships between uncertainty-reducing mechanisms and actual uncertainty of an organization on the one side, and uncertainty as perceived by a customer on the other hand including the factors that influence the perception.

5 Conclusion

With the presented IS perspective on managing trust we hope to initiate a fruitful dialog in the community and to bring together behavioural and design-oriented research together in an attempt to do justice regarding the raising requirements on managing trust. Given the continuous rise of cloud technologies and digital services, as well as recent trust breaks like Cambridge Analytica or the Volkswagen emission case, we argue that trust management will be of increasing importance in the future. We hope that entertaining the possibilities of including prescriptive knowledge on trust management can enrich the current understanding of customer trust and its role in the future of organizations in the digital age where trust can be treated as a 'delight' providing strong trust propositions to the customer.

Acknowledgements

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