

## Cognitive Challenges on Digital Exchange Platforms: Exploring Misspecifications of Trust

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### Abstract

*Digital platforms are complex, layered, modular systems comprising many different entities, including intermediary organizations, technological infrastructure, peer entrepreneurs, peer consumers, and advertisers. Relationships on these complex platforms are multi-faceted and at mixed levels. This complexity creates cognitive challenges for peer consumers, which may lead to trust misspecifications. Such misspecifications are important, as they may cause social dilemmas and political challenges. Four different misspecifications of trust are discussed and illustrated in the context of Airbnb. We identify boundary conditions that may either exacerbate or attenuate misspecifications of trust. We conclude by discussing the implications for trust research and directions for future research.*

### 1. Introduction

Digital exchange platforms facilitate digitally-enabled transactions, which may involve peer exchanges such as auction marketplaces, and sharing-economy platforms such as Airbnb, eBay, BlaBlaCar, and TaskRabbit [1,2,3,4]. They are characterized by a heterogeneous mix of organizational, interpersonal, and technological trust relationships [5,6,7].

Trust is a principle building block for any kind of exchange transaction, whether in a family, societal, or economic context. It is particularly crucial in facilitating interactions on digital exchange platforms, such as those in the sharing economy. These platforms tend to match strangers who have never met before, a situation that creates high levels of vulnerability and risk for peers consuming or offering services on these platforms [4,5]. Furthermore, many digital exchange platforms involve considerably “high stake” transactions [14], such as human transportation (ride sharing), or staying in someone’s apartment (accommodation sharing). In placing exchanges at their

core, digital platforms seek to mitigate stranger-danger bias by designing for trust and implementing appropriate trust-building features [7].

Trust is defined differently depending on its target and its organizational level. In this paper, we draw on Luhmann’s definition of trust, referring to trust as a belief that another party will not engage in opportunistic behavior. Thus, trust is critical in situations where the trusting party cannot control or fully predict the trustee’s behavior [13].

Peers acting on these platforms are exposed to a multitude of actors [5, 11], and multi-layered infrastructures [8,9,10], all of which represent trust targets. Underlying technological infrastructures (comprising technologies such as cloud computing and data analytics) form one trust entity [6]. The platform provider acts as an intermediary organization, and comprises another trust entity [11]. Peer entrepreneurs and peer consumers, whether private individuals, political parties, or advertisers, represent other entities [5]. Entities may also aggregate into groups as they interact, and hence begin to form higher collectives.

Trust in different entities – organizations, individuals, collectives, and technology – has different characteristics that may be caused by a multitude of antecedents, and even result in different outcomes [12]. Some of these differences are acknowledged in various forms of trust, such as interpersonal trust, swift trust, organizational trust, and interorganizational trust.

However, the multi-level nature of the platforms, the various entities, and forms of trust relationships at different levels raises cognitive challenges for individual peer consumers and entrepreneurs. These may result in misspecifications of trust, which we define as unjustified beliefs about the trust target. Misspecifications are caused by the trusting party’s lack of knowledge. We adopt a cognitive perspective, as experienced by individuals consuming or offering services on digital exchange platforms (e.g., Airbnb guests or hosts).

Misspecifications may result in too high or too low trust, as a result of under- or overestimating justified

trust levels. Both too high and too low trust are dysfunctional in terms of actionable knowledge [15,16, 17]. On the one hand, individuals may develop high levels of trust in platforms, or sub-entities of platforms; however, too much trust has potentially severe consequences, since expectations may not be met. On the other hand, individuals may experience unnecessarily low trust, discouraging them from engaging in potentially beneficial transactions.

Misspecifications occur when individuals fail to understand how these relationships operate differently at different levels, do not accurately or justifiably consider cross-level effects, do not account for contextual factors and effects in the broader setting, or mistakenly judge prior experience as relating to trust.

This paper explores cognitive challenges in order to shed light on the problem of trust misspecification in the context of the multi-level phenomenon of digital exchange platforms. We approach our research objective from a theoretical perspective, although we illustrate our thoughts by providing empirical illustrations based on members' conversations on the official Airbnb community forum.

In particular, we focus on digital exchange platforms such as sharing-economy platforms, where heterogeneous entities and relationships prevail and intermediaries exert loose control in orchestrating the efforts of peer consumers and peer entrepreneurs. On these platforms, there is considerable independence between the different entities in terms of the actions they take; yet there is also interdependence between entities, including rivalry among peer entrepreneurs [2]. The presence of independence and interdependence, along with a multitude of trust relationships, creates considerable complexity, which peers must face in forming trust.

This research is important because there is much uncertainty about whether individuals are aware of the complexities of platforms, or take them into consideration and act on them as they form trust in their exchanges. Cognitive challenges have implications for social dilemmas, such as how much to invest in learning about one digital exchange platform rather than doing something else. Cognitive challenges also lead to political challenges. For example, during summer 2017, the European Union fined Google an unexpected 2.4 billion Euros for exploiting its market dominance. Apparently, it was unclear to consumers that Google's search engine results were not neutral but favored suppliers from which the company would receive commission on purchases made through its online store. Peer consumers could not differentiate between independent entities active on the Google platform, nor correctly interpret conflicting interests between the self-interested platform provider and its

role in displaying search results neutrally. Hence, cognitive challenges lead to both social and political challenges, and platforms must be responsive to regulators in order to maintain legitimacy and legality.

We structure this paper as follows. First, we discuss how the IS literature has addressed trust in multi-level phenomena such as online auctions and digital platforms. We then review selected literature on misspecification, building on work by Rousseau and House [18] and Carlile [19]. We discuss four trust misspecifications in the context of a digital exchange platform, Airbnb. Our discussion addresses how some characteristics of digital exchange platforms may alleviate misspecifications. We conclude with suggestions for future research.

We argue that the presence of loose control and high rivalry on digital exchange platforms engenders heterogeneity in trust targets, and also in relationships at different levels. We also discuss how the interplay between offline and online interactions on platforms may foster trust misspecifications

## **2. Previous research on trust in the multi-level phenomenon of digital exchange platforms**

Unlike in other disciplines such as organization sciences and management, multi-level research is still somewhat scarce in IS [8]. A recent IS study [20] found only a limited number of published studies on multi-level phenomena and their cross-level effects [20]. We respond to a call for multi-level understandings [20].

Digital exchange platforms are a multi-level phenomenon. It thus follows that trust in such platforms must be theorized, measured, and analyzed as a multi-level construct in order to avoid misspecification. Trust may be particularly susceptible to misspecification in complex settings, as it is often either categorized [21] or conceptualized as a form of heuristic [22]. Categorizations and heuristics promote simplifications of complex phenomena that may result in over- and under-estimations. Aggregations (and disaggregations) change variances and covariances, and thus have an impact on relationships [23].

### **2.1 Trust and multiple relationships**

Although rarely multi-level, trust research in IS has examined a rich array of trust targets, including individuals, teams, organizations, and technology (e.g., [8,6]). Various trust logics have been identified in terms of interpersonal, organizational, and

interorganizational relationships, as well as trust in technological artifacts, acknowledging the interplay between technology and human actors at various levels [3,6,9]. Seminal work by Pavlou and Gefen (e.g., [11]) explicitly differentiates trust entities on peer-economy platforms, such as trust in the community of peers and trust in a platform intermediary. Multiple trust relationships have been incorporated in research on digital platforms (e.g., [5,7]).

However, much IS research on trust ignores multiple targets and focuses primarily on analysis of a single trust target. IS research on online auctions and marketplaces addresses interpersonal settings in which the single trust target is an individual or a community of peers [24,25,26]. Yet online auctions and marketplaces comprise many other potential trust targets and complex dynamics across levels.

Although some research has focused on multiple trust targets and relationships, no previous study appears to have focused on the misspecifications that may occur when multiple trust relationships are present.

## 2.2 Trust and cross-level effects

When a construct at one level affects constructs at another, a cross-level effect occurs. The IS literature has shown little sensitivity to cross-level effects, and trust transfer [27] is largely underestimated. Existing research often underestimates the effect of higher units, such as groups and organizations, on individuals. Conversely, it also underestimates the effects of individuals and other lower-level entities on higher-level entities, including the broader environment in which they act [8].

Perhaps the most common cross-level effect studied in trust research on digital exchange platforms is the relationship between trust-in-platform and trust-in-seller (e.g., [11]). While this relationship is generally found to be positive, institutional mechanisms in the broader e-commerce environment may weaken it [27]. This suggests that buyers potentially underestimate the effect of broader institutional mechanisms on the platform and the sellers. Underestimating cross-level effects may result in underestimation of trust.

Misspecifications may also occur if cross-level effects are not accounted for. Such effects may be overlooked owing to the methodologies deployed by researchers. Reductionist research methods, such as experiments, often limit analysis to one level of effect, ignoring higher- or lower-level effects. In fact, much of the trust literature in IS draws on experimental studies (e.g., [24]), which tend to be limited to examining behavior at lower levels, neglecting understanding of

how behaviors are nested in the larger setting. Even the same behaviors at different levels may be qualitatively different.

## 2.3 Trust and reification

Reification refers to the fact that trust in a platform may relate not to entities or layers such as the underlying technology, intermediary, or peer entrepreneurs, but to other intangible structures such as motivations and routines [18].

Little IS research has addressed reification effects, for example in the form of trust propensity and cultural differences. Pavlou and Gefen [11] empirically confirm that peers' trust propensity has a positive effect on trust in the community of sellers in an online marketplace. Trust propensity is said to be highly influenced by the cultural environment in which an individual is socialized. Lenders on prosocial peer-to-peer lending platforms have been found to prefer geographically proximate and culturally similar peers when engaging in transactions [29]. However, overall, such intangibles appear rarely in the IS trust literature.

## 2.4 Trust and prior experience

A common assumption in extant IS trust research is that past experience influences trust positively. Familiarity [11,25] is used to refer to a peer consumer's understanding of an entity and the relevant context. This understanding is based on the effect of experience and previous interactions on trust [11,25].

However, past experience may not be a true indicator of present trust relationships, and may thus trigger trust misspecifications. For instance, individuals may compare current situations to irrelevant experiences, or to a single very negative or very positive (extreme) past experience. Interactions on platforms are very dynamic and ever-changing, so the past may not always be an appropriate indicator of trust.

Labels, institutions, and symbols that transfer trust in the offline world may not have the same potency in digital environments [14]. For example, a peer consumer on Ebay may have had a negative experience with a fraudulent peer entrepreneur. This one experience may cause low levels of trust in other peer entrepreneurs, and may hinder future engagement in transactions on Ebay, even with peer entrepreneurs unaffiliated and unassociated with the fraud, since they are independent entities offering their goods and services via the Ebay intermediary.

### 3. Theorization of misspecification of trust on digital exchange platforms, enriched by illustrations from Airbnb

Recent calls have been made in the IS literature for multi-level research in order to avoid certain “pitfalls” [8,20]. These pitfalls draw heavily on early work on three types of misspecification in multi-level organizational research [16,18]: (1) overgeneralization, (2) underestimation of cross-level effects, and (3) reification of overlooked structures. Based on Carlile’s [19] work, we add a fourth misspecification, that of prior experience, and discuss these four types of misspecification in the context of digital exchange platforms.

#### 3.1 Empirical illustrations

In order to clarify and enrich our theorization, we provide illustrations of how trust misspecifications may unfold on the accommodation-sharing platform, Airbnb. Airbnb is a platform that matches hosts who are willing to rent out space temporarily, with other private individuals who are seeking short-term lodging. It is a prototypical example of a digital exchange platform, characterized by loose control and high rivalry among peer entrepreneurs [2]. While hosts must conform with some regulations stipulated by the platform intermediary, Airbnb, they have considerable freedom to personalize and distinguish the service they offer from that of other peer entrepreneurs. For instance, they can create their own house rules, set the price, decide whether to provide WIFI or parking space, equip and design the interior space of the accommodation, etc.

Having theorized the four misspecifications, we accessed illustrations in the form of direct quotations from publicly available conversations retrieved in May 2018 by scrolling through the official Airbnb community forum (<https://community.withairbnb.com>) in an unstructured way. We do not argue that these illustrations constitute empirical evidence; however, they provide useful illustrations of how the theorized misspecifications may unfold. On this forum, Airbnb guests and hosts share their experiences and feelings, and exchange views. Thus, the forum posts are a valuable source to capture the points of view of peers consuming or offering services on Airbnb.

**Table 1. Four trust misspecifications**

Trust misspecification	Definition
Overgeneralization [18]	Overgeneralization refers to the assumption of parallels or isomorphism in concepts across different levels [23,18]. Isomorphism unfolds when the underlying structure of a construct is (perceived to be) the same across levels [28], and leads to trust levels being aggregated, summed or averaged [18].
Underestimation of cross-level effects [18]	Cross-level models involve trust relationships between dependent and independent variables at different levels [8,18]). Antecedents at one level are not unique to that level of analysis, but are applicable across levels, triggering trust at those other levels [12].
Underestimation of reification [18]	Reification refers to the assumption that trust is influenced not solely by tangible structures such as individuals, groups, organizations, or technical artifacts, but also by intangible structures such as expectations, habits, and routines [18].
Unjustified role of past experience [19]	Novelty may trigger an unjustified role for past experience, and individuals may misrecognize what is novel about something that is already known to them [19].
Outcomes	Misspecifications of trust in the form of under- or overestimation of justified trust levels.

#### 3.2 First misspecification: Overgeneralization

Overgeneralization means the assumption of parallels or isomorphism in concepts across different levels [23,18]. Isomorphism refers to similarity in the components of a phenomenon, and in relationships between components across several levels of analysis [30,23]. In other words, isomorphism unfolds when the underlying structure of a construct is (perceived to be) the same across levels [28]. For example, Rousseau and House [18] note that “J.G. Miller’s (1978) *Living*

*Systems ... [finds] parallels at every level from the cell to the supranational state.”*

Processes at different levels of trust may be more divergent than the extant literature suggests. Individuals, organizations, and sub-entities may have some common characteristics. However, it remains unclear whether they change, learn, or decide in incomparable and non-conforming ways [18]. Overgeneralization is a failure to be aware of these discontinuities. When isomorphism leads to trust levels being aggregated, summed or averaged, overgeneralization may take place [18].

As an illustration, Airbnb comprises multiple entities, and several complex organizational, interpersonal, and technological relationships, each potentially entailing different levels of trust. Peer consumers and entrepreneurs engage in categorization and stereotyping of prototypical cases in order to reduce this complexity to a manageable level [15,21], and thus infer trust beliefs.

Isomorphism unfolds because peer consumers and peer entrepreneurs assume similar trust processes across multiple levels and entities on Airbnb. For instance, the antecedents and moderators of trust in the platform intermediary may be perceived to be the same as trust in the various peer consumers or entrepreneurs with which they interact. Peers cannot differentiate between these entities or layers, as they have neither the knowledge nor the necessary time or capacity for meaning making to understand their differing roles and interests.

Isomorphism may lead to unjustifiably high trust levels [30,23,28]. For instance, trust in an intermediary may be high because of the high-quality technical implementation of the platform. Trust in a peer entrepreneur on the Airbnb platform may be high as a result of assuming similar high-quality operations to those of the platform intermediary. The same antecedents are assumed to be relevant, and perhaps even to take similar values at different levels.

Overgeneralization may also trigger underestimation of trust. Perusal of Airbnb forums reveals that Airbnb consumers and entrepreneurs often tout their good experiences, but occasionally encounter bad experiences. Airbnb peer consumers and peer entrepreneurs experience some ambiguity when interacting with individual peers and the intermediary, but also aggregate, or zoom out, to make up their minds about their overall experiences with Airbnb.

*“These off-piste reviews seem to happen about every 30 guests. The best one I remember was a guest last year giving 5 star reviews for all individual scores, said they were delighted but then gave a 4 stars overall review. Huh???” [Prague, Czech Republic, 2018]*

*“I am a new Airbnb host and started hosting last month (March 2018). For April, I had bookings for about 24 nights and have hosted 5 guests up to date. So far it has been a positive experience, reviews have been good – except for my last guest who checked out 2 days ago.” [Selangor, Malaysia, 2018]*

Different trust entities may be unjustifiably aggregated. For example, technical problems at the platform level may be attributed to the peer entrepreneur. Peer consumers may be unaware that peer entrepreneurs have no control over technical problems or platform inadequacies. In the example below, the “superhost” certification was not awarded to a peer entrepreneur, even though she accommodated a peer consumer’s wishes, because the technical means to capture this behavior were not implemented by the intermediary. Hence, trust in the peer entrepreneur should perhaps have been higher than it was perceived to be.

*“I had a guest book for April 18-24. The following day she messaged me that she couldn’t get the time off from work and asked me to cancel her reservation. I cancelled it, no problem. I now see that I am not supposed to cancel their reservation because I will not be able to get superhost for a year from that cancellation.” [Berthoud, CO, 2018]*

### **3.3 Second misspecification: Underestimation of cross-level effects**

Because cross-level models involve trust relationships between dependent and independent variables at different levels [8,18], antecedents at one level are not unique to that level of analysis, but are applicable across levels, triggering trust at these other levels [12]. Cross-level effects may occur in the processes of emergence, self-organizing, and embeddedness [31]. Feedback loops at one level may impact on entities at other levels.

Underestimation of cross-level effects may result in under- or overestimation of justified trust levels. Cross-level effects may trigger misspecifications if they result in unjustified trust transfer mechanisms between the different trust entities [27]. Such trust transfer mechanisms may occur, for instance, if the entities are expected to be linked across levels. For example, a peer consumer may underestimate that a strong interpersonal trust relationship developed with a particular peer entrepreneur is subconsciously and unjustifiably influencing trust in the whole collective of peer entrepreneurs, and or even in the platform itself. Losing trust in one entity may trigger overall reduction of trust in other entities. For instance, a bad experience with one peer consumer or peer entrepreneur may negatively influence trust in the intermediary.

Owing to cross-level effects, antecedents that build trust in one trust entity may not be unique to that level of analysis, but may unjustifiably be perceived to be applicable across levels [8,12]. For example, in the context of Airbnb, the assurance of having a security deposit repaid may be a valid dependent variable that builds trust in the independent variables of the Airbnb intermediary, as well as in peer entrepreneurs. Such cross-level effects may trigger trust misspecifications, such as under- or overestimations of justified trust levels, as peer consumers are autonomous actors and under only loose control by the intermediary.

*"I make it a point in my listing that there is no smoking on the property and then again when I confirm check-in details, let them know that ANY smoking inside will be a reason to lose their security deposit. You can claim the costs of cleaning the smell out pretty easily. You would need to repaint the walls, launder the drapes, professionally clean the carpet, professionally clean the mattress and couches, etc..."* [New York, NY, 2018]

*"Although a pain in the ass, Airbnb has been pretty good with paying out for my house rules that were broken. I definitely take a lot of pictures and I'm very persistent about the situation with Airbnb."* [Los Angeles, CA, 2018]

### **3.4 Third misspecification: Underestimation of reification**

What may matter more in the multi-level phenomenon in terms of vulnerabilities may not be tangible individuals, groups, organizations, or technical artifacts, but intangible structures such as expectations, habits, and routines [18]. The latter refer to social constructions and activities employed to manage relationships and achieve an organization's tasks [18]. This might refer, for instance, to an organization's women's leadership group or a university's alumni network.

Thus, beyond focusing solely on traditional analysis at the individual or organizational level, additional units of study and important contextual aspects may be key drivers of trust relationships [18]. In the context of Airbnb, reification may arise from the fact that trust is driven not by the intermediary, nor by peer consumers and entrepreneurial entities, but by other underlying social constructions and motivations that offer alternative organizational structures [18]. Higher-level aggregations and relationships result in combinations of groups of people nested within larger systems or networks. There may also be sub-systems nested within these groups [8].

For example, levels of trust may be negatively influenced by tensions arising from peer consumers' and peer entrepreneurs' conflicting motivations for usage. Some peer consumers may expect that staying

in an Airbnb property will be similar to staying in a hotel. They may book Airbnb accommodation for financial reasons or cost benefits. Some peer entrepreneurs act as "professional" hosts, offering accommodation professionally rather than on an occasional basis [32]. Peer consumers may choose to use Airbnb because they are searching for a different experience from staying in a hotel. The latter may be seeking a unique, local experience, and may potentially be more genuinely motivated by the idea of "sharing" and meeting locals [32]. Not receiving the expected service may be perceived as non-trust behavior by a peer entrepreneur. At the same time, confirmation that other peer entrepreneurs are associated with the same sub-group may positively influence trust.

*"I have just had a guest who left unwashed crockery, one of the toilets was disgusting, wet towels everywhere, duvets on floor, gas hob thick with grease and dirty greasy kitchen surfaces. I wrote a neutral review saying they were friendly and communicated well before the hosting. I chose to let him know privately that I was surprised at how the apartment was left but made it friendly and offering understanding if there had been a problem but I got this back: 'Did you really expect us to clean the house before leaving? I think you don't even know what kind of service you are offering. Airbnb is about renting your house as a Hotel, It is not like couchsurfing, where people do it for free. I paid more than 400 € for only 3 nights in your old apartment and after that be able to clean it after all. We didn't break anything, but as you should understand like when I go to a hotel I don't care about tidying or cleaning, amount of money, that is almost a robbery for the quality of the flat, you are cheeky enough to tell me about the cleaning? You are charging almost a half monthly salary for only 3 nights, you must because I don't have to do it.'" [Hove, UK, 2016]*

Peer entrepreneurs also discuss negative experiences triggered by weather conditions or cultural differences, rather than other peers' opportunistic behavior [13].

*"I had a guest who gave me a good review but then some rather silly comments about there not being enough light in the bathroom and they had left the reverse cycle heater on all night at 30C (still on when they left) and put a portable heater on full and complained there wasn't another one available! People who come from hot countries and it never occurs to them to put on a jumper or extra blanket or buy a pair of winter pyjamas. Anyway they've said they'll come back and I don't want them. It probably cost me \$20 extra in heating alone. So I want to block them."* [Jam Jerrup, Australia, 2016]

### **3.5 Fourth misspecification: Unjustified role of past experience**

Novelty may trigger an unjustified role for past experience, as "actors are susceptible to misrecognizing what is novel as something that is already known" [19, p.8]. When novelty arises, the current syntax is insufficient to draw valuable

inferences about trust. Thus, when individuals experience novelty, they seek to access knowledge and previous trust experience, even though this past experience may be irrelevant to the novel context. They tend to misrecognize novel experience as something they already know. However, such links may be inadequate, resulting in misspecification [19], which in turn implies that transferring knowledge may prove problematic and result in over- or underestimations of trust.

Peer consumers and peer entrepreneurs may experience novelty when they have little familiarity with a specific platform. Loose-control and high-rivalry platforms such as Airbnb must be differentiated from traditional organizational structures. Rather than owning the accommodation advertised on its website, Airbnb acts as a platform intermediary, matching peer consumers and peer entrepreneurs with each other [5,7]. For many peers, this is a novel situation, since they may never have exchanged services on platforms such as Airbnb. In seeking to access knowledge and previous trust experiences when experiencing novelty [19], individuals tend to compare their experiences with stays in hotels, or to long-term lettings, potentially resulting in misspecification of trust levels.

In the case below, a peer consumer argues that a peer entrepreneur refused to return a lost item. In the conversation on the Airbnb community forum, another peer entrepreneur shares his expectation that the Airbnb host is required to send lost items back, by linking the novel situation on Airbnb with his knowledge of landlords' responsibilities concerning long-term tenants' property in Ireland. However, this information is misplaced, since Airbnb peers are not long-term tenants, as pointed out by another peer entrepreneur.

*"I left valuable sunglasses at my host's Airbnb almost a year ago. I have been trying to get them back ever since. He keeps saying he will send them and then says he's busy. wtf? What can I do. Airbnb keeps saying they will email and encourage him to send the sunglasses but I need them to be more aggressive about this. I feel like I should be compensated in some way for my time of dealing with this and loss of item."* [Washington, DC, 2018]

*"In Ireland, if a tenant leaves items behind you have no right to dispose of them, and indeed you are encouraged to do everything possible to reunite the owner with his/her possessions. In fact, there was a court case involving a bicycle where a landlord disposed of it after a year, and the tenant came looking for it, the outcome was the landlord had to buy a new bicycle and pay his tenant compensation.(please note this was a long term lease)"* [Krakow, Poland, 2018]

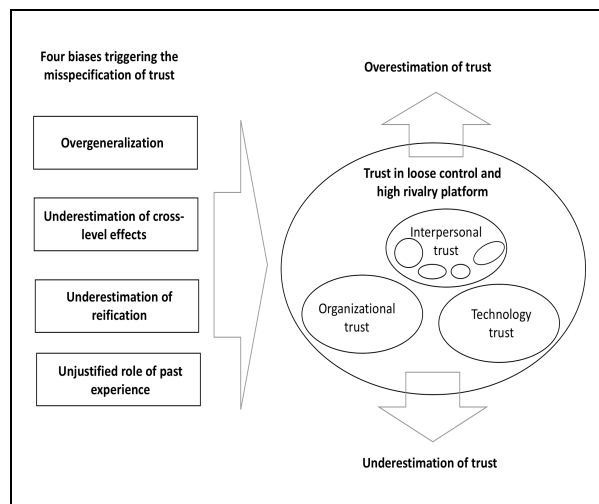
*"Actually, the host has no obligation whatsoever to send items left behind back to the guest."* [South Korea, 2018]

In the illustration below, one peer consumer claims that his payment to Airbnb is being denied. Other community members classify this statement as a scam, stating that this peer consumer cannot be trusted. Presumably, credit card denial is a novel situation to them, and they unjustifiably link the peer consumer's claim with experiences of fraud in other contexts. Only those community members with previous experience of Airbnb denying their own cards confirm that this is likely to happen on Airbnb.

*"I have a potential guest who has been trying to make payment to Airbnb in order to confirm the reservation. Apparently this has not been successful and her booking keeps getting canceled. She has offered to pay offline but I have declined. Has anyone experienced this before?"* [Kuala Lumpur, Malaysia, 2016]

*"I honestly think someone is trying to scam you."* [Troms, Norway, 2016]

*"Not everyone is trying to scam you. I have been trying to make a payment for the past 3 hours, and the payment is not going through."* [Prishtina, Kosovo, 2017]



**Figure 1. Four misspecifications of trust in loose-control and high-rivalry platforms**

In contrast, when past experience is justifiably linked to the current experience, that experience may attenuate misspecification. With more actual experience in a relevant context, individuals can learn and make sense of situations [23]. Over time, individuals have further opportunities to accumulate knowledge [21] about multiple entities, and about the complex organizational, interpersonal, and technological relationships faced when engaging in exchanges on a platform. The more time individuals have to increase understanding of the entity, the different layers, and the relevant context, the higher their clarity about the trust target and its characteristics.

Knowledge accumulation triggers the process of functional differentiation. Individuals are able to differentiate between actual characteristics of complex realities based on sufficient observations, through a process of filtering relevant information from cognitive acts or communicative events [33]. Such accumulated knowledge and differentiation helps them to assess adequate levels of trust more accurately [21]. For example, over time, as they gain higher levels of familiarity with a specific digital exchange platform, peers may become more aware of cross-effects. Once they can differentiate between different trust targets, they can begin to differentiate between unique and common sources or indicators of trust for a particular trust target. For example, users may be better able to distinguish between the mere existence of a reputation system, and the specific information communicated by that system through a peer rating [26]. Previous research [26] shows that the former is crucial in allowing market participants to determine whether to engage in transactions on a platform (intermediary or infrastructure), while the latter may result in transactions with specific market participants (peers). At higher levels of familiarity, peer consumers and entrepreneurs may be able to capitalize on these differences, and may consequently develop distinct trust in different sub-entities, such as the Airbnb platform intermediary and peer entrepreneurs, resulting in a lessening of cross-effects.

## 4. Discussion

In this paper, we assess four misspecifications of trust independently, yet it is likely that they accumulate and co-exist, and that their effects intertwine and overlap. For instance, overgeneralization is likely to result in ignorance of the existence of several trust entities and levels, thus also hindering estimation of cross-level effects.

Different misspecifications, such as under- or overestimations of trust, are unlikely to find an equilibrium or “balance out.” For instance, although underestimating cross-level effects may result in underestimating trust, and overgeneralization may materialize as overestimation of trust, these misspecifications are unlikely to correct each other. It is more likely that accumulation and co-existence of several trust misspecifications will decrease peer consumers’ or peer entrepreneurs’ ability to clearly identify valid trust target entities and different trust relationships, making it challenging to attribute appropriate levels of trust, and increasingly triggering misspecifications.

### 4.1 Levels of “looseness” and heterogeneity

In this paper, we focus particularly on loose-control and high-rivalry platforms, as classified by Constantiou et al. [2]. The interplay of dependence and interdependence creates complexities and complications in trust attribution processes. Peer entrepreneurs are encouraged to differentiate their services from each other, potentially resulting in highly heterogeneous offers from which peer consumers can choose.

The level of heterogeneity may differ between different sorts of loose-control and high-rivalry platforms, and platforms must make strategic decisions on how they seek to govern peer entrepreneurs, finding the right balance between sufficient control and “looseness.”

We speculate that the form of governance may have consequences for the degree of manifestation of trust misspecifications. Presumably, a higher level of heterogeneity will exacerbate trust misspecification in early trust relationships. Since heterogeneity leads to increasing levels of complexity, misspecifications such as overgeneralization are probably more likely to occur, and to be more severe, as a result of peers engaging in categorization and stereotyping of cases that are qualitatively different [15,21].

On the other hand, a higher level of heterogeneity may also attenuate misspecifications over time, with greater ability to differentiate targets and relationships of different kinds and forms on a platform. Individuals will be better able to filter relevant information and accumulate knowledge once they have had more time to observe a particular trust relationship setting. Higher levels of heterogeneity may trigger or speed up functional differentiation processes [33,21], which may result in a decrease in trust misspecifications over time.

### 4.2 The interplay of offline and online interactions

It seems likely that, from a peer consumer’s point of view, social face-to-face interaction may allow perceived heterogeneity to arise, as peer consumers and peer entrepreneurs may interact not only online, but also offline during the actual service provision [5]. This leaves even more room for case-by-case interpretation, thus triggering differentiation. For example, Airbnb peer consumers and peer entrepreneurs first interact in an online environment, and may then meet in person during the actual stay.

These complex and intertwined offline and online interactions are likely to influence trust relationships between peer consumers and peer entrepreneurs [24].



In contrast to previous research that has assessed how trust evolves in contexts in which individuals engage simultaneously in online and offline interactions, for example on social media networks such as Facebook, Airbnb is characterized by the fact that online and offline interactions take place largely sequentially. Peers interact online, before their interactions move offline during the actual service provision, such as staying in someone's accommodation. This "delayed" offline interaction may raise complexity and risk, increase cognitive challenges, and result in increasing levels of trust misspecification.

## 5. Conclusion

Digital exchange platforms are multi-faceted, multi-identity, and multi-layered infrastructures that comprise a multitude of actors [8,9,10]. We argue that the multi-level nature of these platforms raises cognitive challenges for peer consumers and entrepreneurs that may result in misspecifications of trust.

Based on detailed analysis, we conclude that the existing IS literature on trust has largely overlooked the trust misspecification problem which may arise in multi-level contexts such as on digital exchange platforms. Previous literature has not adequately addressed how trust relationships may operate differently at different levels when multiple targets co-exist, nor accurately and justifiably considered cross-level or trust transfer effects, nor sufficiently accounted for reification in the form of contextual factors, and has mistakenly judged prior experience to be related to trust building.

While much of the current IS literature focuses on how to build as much and as high trust levels as possible in a short amount of time, we contribute to existing research by taking a different perspective and calling for more research on trust misspecifications that may hinder accurate evaluations of adequate trust levels. This is crucial, because too low and too high trust levels are considered to be highly dysfunctional for peer consumers and entrepreneurs [17].

Rousseau and House [18] and Carlile [19] conducted some seminal work on misspecifications in multi-level phenomena in organizational theory research. We have integrated this literature and built on it to explore how it may relate to perceptions of trust. In particular, we have elaborated how our four theorized trust misspecifications are manifested in the context of digital exchange platforms, such as the sharing-economy platform, Airbnb, which is characterized by loose control and high rivalry.

We have argued that the presence of loose control and high rivalry on digital exchange platforms

engenders heterogeneity in trust targets, and also in relationships at different levels. We have also discussed how the interplay between offline and online interactions on platforms may foster trust misspecifications.

More research is needed to capture the underlying mechanisms of the four misspecifications, their evolution over time, potential cross-effects, and effective interventions that may help design platforms to alleviate trust misspecifications.

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