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Research Article

Building Trust in E-Commerce: A Practical Trust Guide for Evaluation

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ABSTRACT

Market power in electronic marketplaces is increasingly developing into a monopoly. Digital pioneers like Amazon and eBay do not want to give up their market share easily. Especially, Small and Medium Enterprises, which try to offer their services online, have great difficulties in gaining market share. To understand the causes, we start a systematic literature review. The results show that building trust is a necessary precondition for success in e-commerce. For many small and medium-sized companies, entering the e-commerce market is a completely new business field. Therefore, they lack the knowledge and experience to build online trust successfully. We use the Design Science Research approach to solve this problem and develop a Trust Guide for online trust building. The Trust Guide is a set of design principles derived from trust theories. The main aim is to offer a practical trust guide for Small and Medium Enterprises, which helps them to build online trust in e-commerce.

Keywords: E-Commerce, Online Trust, Design Science Research, Trust Theories, Trust Guide

1. Introduction

The internet has an increasingly significant effect on our daily lives (Peterson et al., 2007; Luo & Zhang, 2016), and companies have been forced to change their business models (Shiau & Luo, 2012). Most companies have shifted from physical sellers to online vendors to catch the opportunities the virtual world offers. Although "born digital" pioneers such as Amazon and eBay have already got the lion's share of the digital markets, involvement in e-commerce is also crucial for Small and Medium Enterprises (SMEs) to improve their business activities (Yrle, Harman, & Walsh, 2004; Tan et al., 2009), and increasing the efficiency of transactions (Dholakia & Kshetri, 2004; Hassen & Svensson, 2014). Online buyers often hesitate to trust pure Internet sellers who were not previously present in the physical world. At this point, Peterson et al. (2007) emphasize that competing in the digital markets can be a struggle for any company but more intimidating for SMEs and newly emerging ones due to many factors such as unrecognized brand name, limited budget, and lack of advertisement activities.

Although the participation of SMEs in digital markets can enhance the choices of customers and stimulate competition in e-commerce, SMEs are generally unable to adapt digital platforms on an equal term with large companies (Fernandez-Bonilla, Gijon & De la Vega, 2022). Correspondingly, most SMEs -especially those performed in developing countries- are unwilling to take advantage of e-commerce platforms. Migiro (2006) claimed that SMEs are hesitate to enter digital markets since they do not feel that it contributes to their business and believe that they have no remedy against large companies. OECD statistics also reveal the fact that, even though the value of e-commerce market is growing, large firms participate are more than twice as likely as SMEs to participate in e-commerce, and the gap is widening in a majority of countries (OECD, 2019). In fact, the "born digital" pioneers and other big players catch the first mover advantage (Lieberman & Montgomery, 1988), which is decided by 'how many others visit that site' (Rajgopal et al., 2003). Being a first mover also provides them with a broad network that assures their loyal customers. The question to be asked here is, " How can SMEs manage to have such a network capability and diversity?" According to McKnight et al. (2004), building trust is the only way to deal with uncertainty perceptions. Parallel to this idea, Grenier and Wang (2010) also claimed that: *"Trust and trust-building mechanisms are important in e-commerce because they can reduce the perceived uncertainty and risk associated with anonymous online exchanges and help consumers to engage in trusting behaviors."* Cultivating trust is especially critical for SMEs because they usually face information asymmetries with respect to larger partners (Cenamor, Parida & Wincent, 2019).

There are many studies in the literature that support this stance and prove that successfully positioning in the digital market requires the formation of online trust. For example, there is an obvious and significant relationship between trust and the adoption of e-marketplaces (Söllner et al., 2016; Belanche et al., 2014). Furthermore, trust affected users' willingness to pay (Ba & Pavlou, 2002) and customer loyalty (Cyr, 2008). Trust also positively affects a buyer's purchase intention (Wiedenfels, 2009; Lee & Lin, 2005). In a longitudinal study, Kim et al. (2009) also received similar results and showed that trust is strongly related to loyalty. Trust has a direct impact on consumers' willingness to transact with the e-SMEs (Kim & Benbasat, 2003). Indeed,

trust is a crucial foundation of success in virtual transaction environments either for big partners or SMEs; however, little research focuses on how SMEs manage to gain consumers' trust against digital pioneers. This concern is the main inspiration of the current study, which aims to give a proper answer to the following research question:

RQ: *How can SMEs successfully build online trust in the field of e-commerce?*

To answer the research question, we conducted a systematic literature analysis and applied a design-oriented research approach. By integrating existing trust theories with our suggested design principles, we have created a trust guide with the aim of helping SMEs to build trust successfully.

2. Research Methodology

As already mentioned in the introduction, the aim of this research is the creation of design principles for online trust building. The Design Science Research (DSR) method provides a useful approach to achieving this goal since it involves the construction of design artifacts (Gregor & Jones, 2007). Therefore, we structure our research according to Hevner's (2007) three-cycle view (Figure 1). The three-cycle view starts with the relevance cycle. During the relevance cycle, we analyse the market entry barriers for SMEs in e-commerce, identify existing problems and define the key problem: The lack of knowledge and experience about online trust building (activity # 1 I section 1). Based on the problem definition, we initiate the rigor cycle and start literature research and focus on trust-building mechanisms in e-commerce and categorize them (activity # 2 I section 3). This is followed by the design cycle. Here we explore the underlying theories of trust, explain them and develop Meta Design requirements (activity # 3 I section 4). Based on this, we derive design principles for online trust building that represent a generalizable solution (activity # 4 I section 5).

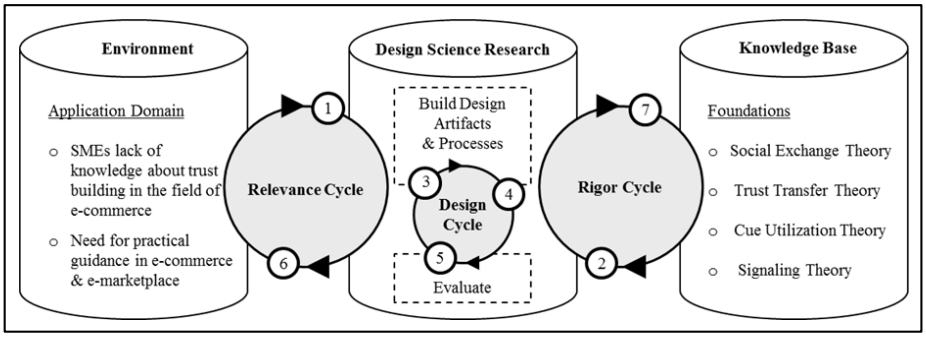

Figure 1. DSR Three Cycle View [19]

As this is a research paper in progress, the creation and evaluation of the prototype will be carried out in future research (activity # 4, 5, 6). In any case, the rigor cycle follows again, in which we add new knowledge to the existing literature on trust (activity # 7 I section 6, 7).

3. Theoretical Background

3.1. Definition and Importance of Trust

Trust is a concept that has been researched in various scientific disciplines for several years (Belanche et al. 2014). In order to create a common understanding of trust, a definition is needed first. Accordingly, there are numerous definitions of trust in the

literature, depending on the respective field of research. For purposes of this study, we use the most common definition by Mayer et al. (1995): *"trust [...] is the willingness of a party [trustor] to be vulnerable to the actions of another party [trustee] based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party."* Moreover Mayer et al. (1995) describes trust decisions as the *"willingness to take risks".* With regard to the problem that the perceived risk of a consumer towards an unknown seller is high, the mentioned definition provides a suitable approach for a better understanding of trust in the context of e-commerce.

3.2. Literature Review and Driver of Trust Categorization

We have started a systematic literature review to identify the driver of online trust building. For this purpose, we have selected three databases: Science Direct, Scholar, EBSCO. Although the characteristics of these three databases are different and other potential sources such as Web of Science and Scopus, we specifically focused on these three databases due to their high-ranking scores in the marketing literature[1]. Table 1 summarizes all the research processes. To filter the articles, we defined suitable keywords: digital platform*; marketplace*; e-marketplace*; trust*; privacy*; collaboration*; interaction* and combined them with the operators AND*; OR* and ()*. Our research resulted in the selection of 12 relevant papers in which different trust drivers are pointed out. Since the number was relatively small, we started forward and backward research and found 13 more papers. Finally, we have identified 25 relevant articles.

Database	**ScienceDirect**	**Google Scholar**	**EBSCO**	
Keywords	("Digital platform" OR marketplace OR e-marketplace) AND (Collaboration OR Interaction) AND (Trust OR Privacy)		("Digital platform" OR marketplace OR e-marketplace) AND (Collaboration OR Interaction OR Trust)	
Limitation	2003 - 2022 Peer Reviewed Viewing First 200 Hits		2003 - 2022 Without Patents & Quotes Viewing First 200 Hits	
First Selection: Relevant Paper	13	12	8	Σ 33
Second Selection: Relevant Paper: Identified Driver of Online Trust	5	1	6	Σ 12
Extension: Forward & Backward research	+4	+7	+2	Σ 13
Total Number of Identified Drivers	9	8	8	Σ 25

Table 1. Summary of Queried Databases and Respective Hits

After filtering the articles, there was a need to identify the trust-related variables within the selected articles. At this stage, we avoided making any pre-assumptions about the categorization of trust drivers. Instead, we followed an explorative approach and carefully examined the selected articles. During this process, we noticed that Website Infrastructure & Design, Image & Reputation, and Guarantee of

[1] Among 83 journals published in the field of marketing, top ten journals which have the A+ or A ranking scores are indexed in EBSCO or ScienceDirect (Mann, 2018).

Security & Privacy were the most commonly repeated trust drivers. Thus, we decided to categorize our articles according to this categorization.

Characteristic		Categorization of Identified Driver of Trust		
Source	**Type**	**Website Infrastructure & Design (C1)**	**Image & Reputation (C2)**	**Guarantee of Security & Privacy (C3)**
Piscicelli et al., 2018	Crowd	x		
Belanche et al., 2014	e-Service		x	
Syuhada et al, 2013	e-Commerce		x	x
Du et al., 2005	e-Commerce			x
Chien et al., 2012	e-Service	x	x	
Kim et al., 2010	e-Service		x	
Kot et al., 2011	e-Commerce			x
Grenier et al, 2010	e-Commerce	x		x
Lancastre et al, 2006	e-Service		x	
Moriuchi et al., 2022	e-Marketplace			x
Odusanya et al., 2022	e-Commerce	x		x
He et al., 2021	e-Service		x	x
He et al., 2003	e-Commerce		x	x
He et al., 2003	e-Marketplace		x	x
Gummerus et al., 2004	e-Commerce	x		
Cyr, 2008	e-Commerce	x		
Flavián et al, 2006	e-Commerce			x
Park et al, 2003	e-Commerce			x
Chang et al., 2013	e-Commerce		x	x
Czakon et al, 2016	Crowd		x	
Pavlou et al, 2004	e-Marketplace	x		x
Stouthuysen et al., 2018	e-Commerce		x	x
Chang et al., 2020	e-Marketplace			x
Zamani et al., 2019	Crowd	x	x	x
Fernandez-Bonilla et al., 2022	e-Commerce	x		x

Table 2. Summary of the Identified Driver of Trust

***Website Infrastructure & Design (C1)*:** Contains the respective design and the range of functions of the website. Serious and trustworthy appearance, high-quality construction of website (e.g. visual design), ease of site navigation and customer feedback systems (Piscicelli et al., 2018; Chien et al., 2012). ***Image & Reputation (C2)*:** Includes efforts contributing to a better image and reputation. Use of advertising, PR activities, aggressive marketing programs, relationship building via social media, and the use of seals of independent third parties to benefit from their image and reputation (Belanche et al., 2014; Syhuada & Gambett, 2013; Czakon & Czernek, 2016). ***Guarantee of Security & Privacy (C3)*:** These concerns security and privacy measures and are intended to give online consumers a feeling of security and privacy. These include a return policy, membership in an association, and third-party certification, which confirm the protection of the security and privacy of personal data (Chang et al., 2013).

4. Meta-Design Requirements for Online Trust Building

In this section, we tried to integrate our factors within trust-related theories such as Social Exchange Theory (SET), Trust Transfer Theory (TTT), Cue Utilization Theory (CUT), and Signaling Theory (ST) and developed Meta Design Requirements (MDRs) which later gave a basis for Design Principles (DPs). From this aspect, this study is a critical effort since previous researchers (Liu et al., 2018; Stouthuysen et al., 2018) generally benefit from one trust-related theory to explain their theoretical

background. However, we strongly believe trust-related theories are somehow intertwined, which raises the need for a joint evaluation.

4.1. Signaling Theory

Spence (1973) introduced the signal theory and used the labor market to model the signal function of education in the application process. According to Signal Theory, signals are informational cues sent out by one party to another in order to influence desired outcomes (Taj, 2016). One characteristic that counteracts this is signal. Spence (1973) describes investment in education as an expensive signal and argues that it is necessary to differentiate between applicants: *"It is not difficult to see that a signal will not effectively distinguish one applicant from another unless the costs of signaling are negatively correlated with productive capability*." As a result, the trustworthiness depends on the relative costs and pay-offs of its production and helps to distinguish between honest and dishonest signalers.

The core of signal theory consists of the signaler, signal, and receiver. Signalers are insiders who receive information about a person (Spence, 1973), an organization (Ross, 1977), or a product (Kirmani & Rao, 2000), of which outsiders are unaware. Signals are information cues (certificates) sent from one party to another to achieve desired results. Recipients are outsiders with limited information about the person, organization, or product. The essential requirement is that the receivers look for the signal; otherwise, the process will not work (Taj, 2016). Related to our research, signal theory can also be applied to e-commerce. Signals can help to reduce the information asymmetry between sellers and buyers in the pre-purchase phase of a transaction (Kirmani & Rao, 2000). Buyers often lack information about the quality of unknown vendors. Especially in the pre-sales phase, signals can give buyers information about the true quality of vendors (Klein et al., 2018). Signaling effectively communicates information and reduces information asymmetry between e-commerce sellers and their new customers (Li, Fang, Wang, Lim, & Liang, 2015). Users can also use signals to distinguish between honest and dishonest sellers (Hampshire et al., 2017). Possible signals include website quality, website design investments, ease of use, completeness of information, navigability, information relevance, reliability, and adequacy (Li et al., 2015; Chen & Teng, 2013; Wells et al. 2011; Kim et al. 2004; Palmer, 2002). The results of Chen & Teng (2013) showed the positive effect of the signal "Ease of use of website" on buyer confidence. Kim et al (2004) found a positive effect on trust in the examined signals "ease of navigation, information relevance, reliability and adequacy". Further research showed positive effects of signals on purchase intension (Mavlanova, 2015), trust (Schlosser et al. 2006), and willingness to transact (Gregg & Walezak, 2008).

Based on the literature, we assume that the perceived trustworthiness of signals in e-commerce depends on the relative costs and payouts of the production. To build online trust, SMEs should use high-cost signals that are difficult to manipulate. Finally, SMEs should also consider the requirement that signals will not work if receivers do not recognize them (Taj, 2016). These findings result in the following Meta Design Requirement: **MDR1:** *To be perceived as a trustworthy e-commerce provider and to differ from dishonest ones, signals should have high discriminatory power and be easily recognizable.*

4.2. Cue Utilization Theory

Cue Utilization Theory (CUT) describes that consumers rely on product characteristics to reduce their perceived risk before making a purchase decision (Cox et al., 2006). According to CUT, products emit intrinsic and extrinsic "cues" that signal its quality to the consumer (Olson & Jacoby, 1972). Thus literature distinguishes between “intrinsic cues” that refer to the product itself and “extrinsic cues” that belong to the product without being physically part of it. Intrinsic cues (e.g. ingredients) cannot be manipulated without altering the physical properties of the product, and extrinsic cues are product-related attributes, such as price, brand name and packaging (Richardson et al., 1994). When assessing the quality of a product, consumers tend to use a combination of extrinsic and intrinsic cues (Longstreet, 2010). Furthermore, CUT suggests that customers also tend to use information cues that are predictive and easy to evaluate. The predictive value of a cue (PV) describes the degree to which consumers associate a particular cue with product quality, and the confidence value of a cue (CV) describes the degree to which consumers have confidence in their ability to use and accurately evaluate that cue (Cox, 1967; Olson, 1972). In the case of e-commerce literature, there is no consensus about which type of cues are more reliable and should be prioritized. Some researchers stated that lack of physical proximity on the Internet prevents consumers from using their senses to check the actual qualities of products, so they need to focus more on extrinsic cues when evaluating the trustworthiness of the online provider (Hu et al., 2010). On the other hand, other researchers believe that intrinsic cues are more reliable indicators of product quality than extrinsic cues (Pezoldt et al., 2014). Furthermore, studies have shown that intrinsic cues are more reliable indicators of product quality than extrinsic cues and that high CV and PV features have the most significant predictive impact on consumers' perception of website quality (Olson & Jacoby, 1972). In the light of these discussions, we believe that both cues are important; however, the visual appearance should represent an intrinsic cue because if the visual appeal of the website were changed, this would change the inherent character of the website (Longstreet, 2010). Thus, the following MDR can be deduced: **MDR2**: *To create a strong trust effect, intrinsic and extrinsic cues should have a high predictive and confidence value. Further, intrinsic cues should be prioritized.*

4.3. Trust Transfer Theory

Trust Transfer Theory (TTT) offers that “trust can be transferred from a trusted source to an unknown target, if there is a specific association between them” (Stewart, 2003). Later, Stewart (2006) also emphasizes the three actors of the trust transfer process; trustor (decides trust or not to trust others), trustee (evaluated by trustor if it is reliable or not), and third party (intermediator between a trustor and trustee). To put a finer point on it, TTT theory posits that if a close relationship exists between the trustee and the third party and the trustor has already trusts the third party, the trustor’s trust will automatically transfer to the trustee (Wang et al., 2013). Literature suggests TTT can affect consumers in two different ways: *the cognitive process,* which causes by the similarity and the internal relationships between the actors of TTT, and *the communication process* based on the external relationships between the actors of TTT (Wang et al., 2013; Liu et al., 2018). Actually, this theory is a kind of process that leads to the creation and ensures the sustainability of e-trust (McKnight et al., 2004). In the context of e-commerce, renting reputation and third-

party assurance (TPA) -as an example of an institutional trust-building mechanism- are related to the cognitive process of TTT, whereas chat forums and e-WOM activities are well fit with the communication process of TTT. In any case, the MDR can be derived from the TTT: **MDR3:** *To benefit from the power of the TT process, cooperation with the most recognized stakeholders is necessary*.

4.4. Social Exchange Theory

Social Exchange Theory (SET) was developed to identify human behavior (Homans, 1958). The main logic of theory relies on the idea that people interact with each other to gain mutual benefits, called reciprocal belief. This kind of belief can affect our lives from many different perspectives, such as employees-employer relationship (Birtch, et al., 2016), employees' work attitudes (Ko & Hur, 2014), knowledge-sharing activities (Yan et al., 2016), social network communications (Dwyer et al., 2007), adoption of social commerce (Liang et al., 2011), transactions in e-commerce (Chang et al., 2013), and so on. Researchers agree that there exists reciprocity in the context of e-commerce. Customers tend to shop online if they are really convinced that the shopping experience can create a benefit for them. Such benefits may occur from money related or social attention issues known as social exchanges (Chang et al., 2013). According to SET, people evaluate their possible choices and tend to select which one brings the most benefit and requires the least cost. During their evaluation process, three main explanatory elements exist; group members' comparison level, alternative groups' comparison level, and outcomes. If this approach is considered in the context of e-commerce, group member's comparison level indicates the positive beliefs about choosing any website. If the consumers feel that the web-site offers to benefit more than cost, they may trust the website easily. Alternative groups' comparison level refers the competitive advantage of the selected web-site. Suppose any consumer feel more reciprocity towards another website. In that case, he/she will give up the current choice and turn his/her face into another one no matter the previous website cost/benefit rate is also positive. Reciprocity occurs when both parties fulfill their expectations and correspond to their needs (Birtch et al., 2016). Therefore, it is critical to convince customers and make sure that your website offers them profit much more than cost. The main MDR which is derived from this theory is as follows: **MDR4:** *In order to convince customers to shop from your website, first, they should be convinced that the potential exchange will be reflected positively in at least one part of their lives.*

Based on the MDRs, the Design Principles (DPs) are represented in the next section. DPs are generalizable instructions known as "Practical Guides" which aim to offer practical recommendations for action.

5. Design Principles for Online Trust Building in e-Commerce

As already mentioned, the perceived risk of a consumer toward an unknown seller is high. SMEs need to send the right signals to build initial trust. To realize this, we use MDR1. From this, we conclude that signals with a high level of discrimination power should be used. These are fully discriminating signals, which are associated with higher costs and are very difficult to manipulate (Pee et al., 2018). This approach leads to the following two design principles: **DP1**: *Produce signals that are associated with high costs.* **DP2:** *Produce signals that are difficult to manipulate and acquire.* Signals

associated with high costs are high-quality web design and architecture in particular with additional features, such as the attachment of Chatbot. Money-back guarantees and warranties are also part of this principle (Pee et al., 2018). These can certainly be manipulated, but since this is associated with high costs, it is less attractive for dubious providers. Signals that are *difficult to manipulate and acquire* are third-party certificates, seals, and the development of a positive reputation. Certificates and seals require an assessment by an independent third party, and building a reputation takes a long time but is quickly broken if vendors are dubious (Mavlanova et al., 2012). Furthermore, MDR1 states that signals should be easily recognizable, which represents the third design principle: **DP3**: *Place the signals so that they are easy to find.* On this basis, third-party seals and certificates should be clearly visible on the home page, as well as on other pages of the site. The use of pop-ups would be another option.

While the MDR1 deals with costs, degree of manipulation, and the visibility of signals, MDR2 deals with the assessment and effect of different cues on the basis of the Cue Utilization Theory. *To create a strong trust effect* and be perceived as such, cues with *high PV and CV values* should be used. This results in two further design principles: **DP4**: *Use intrinsic cues with high PV and CV.* **DP5**: *Use extrinsic cues with high PV and CV.* Moreover, intrinsic cues have a stronger effect than extrinsic cues, which is why *intrinsic cues should be prioritized.* It is also known that consumers tend to use a combination of extrinsic and intrinsic cues (Longstreet, 2010), which leads to the sixth design principle: **DP6:** *First, concentrate on intrinsic cues and then expand and combine them with extrinsic cues.* Related to e-commerce, the visual appearance of the website can be seen as an intrinsic cue with high CV and PV because it is an inherent feature of the website that consumers can confidently use to assess website quality (Longstreet, 2010). The visual appearance includes the architecture and functionality of the website, as already categorized in (C1) as Website Infrastructure & Design. This cue should be a top priority for SMEs. Extrinsic cues are product-related characteristics such as brand image, vendor reputation, warranties, customer reviews or third-party recommendations (Brengman & Karimov, 2012; Purohit & Srivastava, 2001). While the assessment of a provider's reputation and the image is difficult and requires a great deal of effort, the assessment of customer reviews and third-party recommendations is easy to assess and provides consumers with authentic feedback. Therefore, SMEs should seek positive feedback from customers and third parties and demonstrate it to their customers.

Similar results can be expected from the MDR3, which states that *cooperation should be needed with the recognized stakeholders*. As already explained in the Trust Transfer Theory, literature shows mixed results about using the power of third parties during the trust transfer process from trustor to trustee. While some researchers (Kimery et al., 2006) indicate the existence of a TPA seal on the website has no direct effect on consumers' trust, some of them (Liu et al., 2005; Miyazaki & Krishnamurthy, 2002) find a strong relationship between the appearance of TPA seal and the initial trust. This conflict may occur between the unknown TPAs and irrelevant customers. To solve this problem, we propose that SMEs work with well-known TPAs instead of ordinary ones and make sure that target customers know the existence of TPA seal and what it means. This recommendation for action is based on the following design principle: **DP7:** *Choose a well-known third-party institution and partner.* Instead of

using a well-known seal on the website (Chu & Chu, 1994) provides an alternative solution for SMEs called as "renting reputation," which means using the reputation of another company for your own. From these results, the eighth design principle: **DP8:** *To effectively build reputation, use the renting reputation mechanism.* This can be achieved by collaborating with popular digital pioneers. For example, a small company can sell its products through Amazon, which is broadly accepted in the digital market area. As TTT cognitive phase indicate (He et al., 2003), any customer that has already trusted Amazon will automatically feel safe about SME's website even if there is no prior experiment. Since the goal is to break the market power of pioneers, this is to be seen as a temporary solution until there are enough resources of one's own to build a positive reputation.

Apart from the reputation of an e-commerce provider, the motives and needs of buyers must also be taken into account. In the conception of SET, consumers want to feel vulnerable and believe that their chosen website brings more advantages than any other website. This resulted in our last MDR4, which states that *customers should be convinced that the potential exchange will be reflected positively in at least one part of their lives*. This basically results in two further design principles: **DP9:** *Offers your customer an attractive added value***. DP10:** *Convince your customers about the added value of your service*. Based on this, SMEs should focus more on creative ideas and flexible solutions that they can offer their customers. Classical methods of convincing, like advertisement strategies, may exceed their limited budget; they should find more creative and cheaper advertisement activities to survive and compete with the bigger ones, such as focusing on deaf-mute people's requirements and preparing a special advertisement for them. Another possibility is to build a family culture. To create, consumers are convinced to share their beliefs and experiences. For example, discussion forums are the most preferred social platforms to trigger knowledge-sharing activities. Creating online profiles to feel belong on the website and social support activities to increase the sense of self-worth may also become the components of knowledge sharing. Indeed, a social relationship may also be a powerful tool to ensure the satisfaction, commitment, and trust of the consumers. Social network sites can bring social benefits to their users and can be used to enhance the website reputation. Table 3 shows a summary and overview of sections 4 and 5.

Foundation		***Derived Measures***		
Theoretical Foundation	Meta Design Requirements	Design Principles	Related Category	Trust Guide
Signaling Theory	**MDR1:** To be perceived as a trustworthy e-commerce provider and to differentiate from dishonest ones, signals should be highly discriminatory and easily recognizable.	**DP1:** Produce signals that are associated with high costs	C1,C2,C3	**1.** Create a high-quality website with additional features, such as Chatbot's. Offer money-back guarantees and product warranties. **2**. Use seals and certificates.
		DP2: Produce signals that are difficult to manipulate and acquire	C2, C3	
		DP3: Place the signals so that they are easy to find	C1,C2,C3	**3.** Place them clearly visible.
Cue Utilization Theory	**MDR2:** In order to create a strong trust effect, intrinsic and extrinsic cues should have a high predictive and confidence value.	**DP4:** Use intrinsic cues with high PV and CV	C1	**4.** Prioritize the visual appearance of the website.
		DP5: Use extrinsic cues with high PV and CV	C2, C3	
		DP6: First, concentrate on intrinsic cues and then expand and combine them with extrinsic cues	C1,C2,C3	**5. & 6.** Install customer review mechanisms and share positive feedback with your customers (e.g. customer reviews and third-party recommendations).
Trust Transfer Theory	**MDR3:** To benefit from the power of the trust transfer process, cooperation with the most recognized stakeholders is necessary.	**DP7:** Choose a well-known third-party institution and partner	C2,C3	**7.** Prioritize well-known TPA seals and certificates related to your target group.
		DP8: To effectively build reputation, use the renting reputation mechanism	C2,C3	**8.** Collaborate with popular digital pioneers to benefit from their reputation
Social Exchange Theory	**MDR4:** To convince customers to shop from your website, first, they should be convinced that the potential exchange will be reflected positively in at least one part of their lives.	**DP9:** Offer your customer an attractive added value	C1	**9.** Create online forums, online profiles and integrate them into social networks (e.g. Facebook, Instagram)
		DP10: Convince your customers about the added value of your service	C1,C2,C3	**10.** Offer creative adverting and promotional gifts to convince your customers.

Table 3. Design Principles to Build Online Trust in e-Commerce

6. Conclusion and Discussion

Consumers on e-marketplaces run a higher risk when shopping online than shopping in a real store. They face the challenge of assessing the quality and trustworthiness of an e-commerce retailer without being able to see it in real life. Their perceived risk is correspondingly high, and building trust is the only way to overcome this risk and uncertainty perceptions (McKnight et al., 2004). Furthermore, trust positively affects the adoption of e-marketplaces, users' willingness to pay, buyer's purchase intention, and customer loyalty (Söllner et al., 2016; Belanche et al., 2014). Therefore, the ability of companies to build trust in digital markets is an important prerequisite for their success.

Cultivating trust is especially critical for SMEs because they usually face information asymmetries with respect to larger partners (Cenamor, Parida & Wincent, 2019). In order to give SMEs practical guidance, we derived a total of 10 design principles based on several trust theories and previous researches. DPs in the first group (DP1, DP2, DP3) were based on signaling theory and posit that signals within the website should be highly discriminatory and easily recognizable. To do this, we first suggested creating a high-quality website with additional features such as Chatbots **(DP1)**. A recent study discussed the benefits of Chatbots for SMEs and admitted that SMEs

should recognize their customers and their characteristics first before building a Chatbot (Selamat & Windasari, 2021). The same study also suggested that building a Chatbot for SMEs was more complex because customers had high expectations of being humanized as they were served by service providers. Secondly, adding seals and certificates were recommended **(D2).** In their study, Kabanda and Brown (2017) found results that support this idea and added that without affiliation, SMEs might consciously and unconsciously be neglected, which leads to labeling them as unreliable. Thirdly, it was suggested that related certificates should place in the right place within the website **(D3)**. Previous research also found that the usefulness of the website positively affected the repurchasing intentions of customers (Zhang et al., 2011). Similarly, Fang et al. (2016) showed that clear and valuable product information reduces uncertainty and that enhancing text readability increases the perceived value of information and purchase decisions.

DPs in the second group (DP4, DP5, DP6) refer to the cue utilization theory and posited that intrinsic and extrinsic cues should have a high predictive and confidence value. Thus, we first recommended prioritizing the website's visual appearance **(DP4)**. Indeed, the literature also emphasized the positive effect of user-friendly interfaces, making it easier for consumers to access the website (Odusanya, Aluko & Banita, 2020). The same study also emphasized encouraging consumers to post their product evaluations on the website, which increased trust in the quality of commodity information. Thus, we advised building customer review mechanisms and sharing positive feedbacks on the website **(DP5, DP6)**. While doing this, firms should be careful about sharing customer views and solidly grasp the "consumer safety first" policy (He et al., 2021).

DPs in the third group (DP7, DP8) come from trust transfer theory which posits that cooperation with the most recognized stakeholders is necessary. Thus, we proposed that prioritizing well-known TPA seals **(DP7)** and collaborating with popular big players **(DP8)** were helpful to benefit from the power of the trust transfer process. Moriuchi & Takahashi (2022) supported these claims and admitted that trustworthiness toward the platform and seller is critical for the re-purchase intention. Barnes and Hinton (2007) also believed in the importance of intermediaries within the e-commerce context, especially for the brand establishment and buyer's protection. Pavlou and Gefen (2004) also noted that buyers' trust in intermediaries might enhance their sense of security. Parallel to these studies, another recent article found that regulatory mechanisms contribute significantly to trust formation (He et al., 2021). Industry self-regulation, which provides trustworthiness to consumers through membership of specific associations like TPAs, has the strongest impact among different regulatory mechanisms.

DPs in the last group (DP9, DP10) were based on social exchange theory which emphasizes the belief in reciprocity. We argued that customers should be convinced that potential exchange will be reflected positively on at least one part of their lives if they shop from your website. Thus, creating interactive forums, integrating with social media, and offering promotional gifts **(DP9, DP10)** can help customers feel valued. Effects of promotional gifts on purchase intention were highlighted in a recent study which found a greater boost in actual spending and purchase intention when the customers were offered promotional gifts (Kovechava, Nikolova & Lamberton, 2021). Importantly, they admitted that women obtained greater value

from promotional purchase them men do. This finding is consistent with the output of another recent study which suggested market practitioners consider their customer context deeply and serve them what they are striving to do (Moriuchi & Takahashi, 2022).

Consequently, the DPs were formulated in practical instructions to put the theoretical knowledge into practice. DPs were derived from MDRs that lead to more transparency and a better understanding of the mechanisms of trust building. This article shows the transfer of theoretical basics into practical instructions for action. In any case, the contribution provides practical guidance and orientation. SMEs can decide for themselves whether they want to implement them and how they want to implement them. The challenge here lies in the implementation of the design principles since no exact details are given here, such as a high-quality design to look like or which seal and certificate are well known. It is up to the SMEs themselves to decide which of these are appropriate in the context of their own service. This is certainly a major weakness of the suggested Trust Guide, as it does not provide an answer to this question. Finally, the present research contribution should be viewed critically, as an evaluation of the results is still open. This does not mean that the results should be discarded entirely but that they should be supported by empirical evidence.

7. Limitation and Future Research

This study is not without limitations. Initially, the first limitation was the selection of databases. Indeed, searching other databases would have led to a broader selection of relevant papers. A further limitation concerned the selection of suitable theories. Within our research work, we have chosen only four theories, but these could have been supplemented by further theories of trust. Furthermore, a similarity between the Signal Theory and the Cue Utilization Theory was found. A deeper insight and synthesis of both theories would undoubtedly be very interesting, which creates a need for further research. Except for the evaluation of mentioned design principles, which should be carried out in any case, the question of an extension of the design principles with further trust theories continues to arise. It means considering the Trust Guide as a first orientation for SMEs. In any case, the research helps to understand the mechanisms of trust building better. Another weakness of the study is the nature of the proposed Trust Guide. Of course, each SME has its characteristics, and industry-specific modifications can be enhanced in the proposed guideline.

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