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Research paper

Adoption of digital sales force automation tools in supply chain: Customers' acceptance of sales configurators

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ABSTRACT

Digitalization changes both buying processes and sales processes and, consequently, the dynamics and division of work between buyers and suppliers in the supply chain. This has major implications for industrial marketing and supply chain management. In this study, we analyze the impact of sales configurators, which are used to create valid configurations of market offerings that fulfill customer requirements. The usefulness of sales configurators can be investigated from both the sellers' and buyers' perspectives. In this research, we focus on the latter, and we specifically investigate the antecedents of customers' acceptance of sales configurators in a supply chain. In our analysis, we concentrate on system-level antecedents, which have been neglected by the existing literature. Our research yields better knowledge of how digital sales technologies can be used by customers for improved effectiveness and perceived value. The results demonstrate that ease of use and system adaptability contribute strongly to the perceived effectiveness, and eventually to the perceived usefulness, of sales configurators. Yet, surprisingly, perceived enjoyment is identified as having the most significant effect on perceived usefulness.

1. Introduction

Literature on industrial marketing and supply chain management highlights the need for more research on how digitalization can change both buying processes and selling processes within the supply chain (Buttle, Ang, & Iriana, 2006; Cuevas, 2018; Jüttner, Christopher, & Baker, 2007; Kache & Seuring, 2017; Lilien, 2016; Schillewaert, Ahearne, Frambach, & Moenaert, 2005; Srai & Lorentz, 2019; Wiersema, 2013), and particularly how firms can harness technology and digitalization to improve efficiency and effectiveness (Cortez & Johnston, 2017; Pagani & Pardo, 2017; Syam & Sharma, 2018).

Sales force automation (SFA) and related digital sales tools are increasingly relevant for business-to-business companies aiming for customer value creation and organizational efficiencies. The research on SFA has focused mainly on four broad categories: the benefits of SFA systems (Holloway, Deitz, & Hansen, 2013), the effects of SFA on the sales force (Avlonitis & Panagopoulos, 2005; Rangarajan, Jones, & Chin, 2005), the reasons why SFA systems fail (Barker, Gohmann, Guan, & Faulds, 2009; Bush, Moore, & Rocco, 2005; Speier & Venkatesh), and the antecedents of SFA use by the sales force (Cascio, Mariadoss, & Mouri, 2010; Homburg, Wieseke, & Kuehnl, 2010; Hunter, Panagopoulos, & G., 2015; Jelinek, 2013; Schillewaert et al., 2005). All these research categories focus on SFA from the perspective of the selling organization.

Digital sales tools can, however, profoundly change the dynamics and work division, and power relations, between the selling and buying organizations (Hunter et al., 2015; Lilien, 2016; Mariadoss, Milewicz, Lee, & Sahaym, 2014; Sheth & Sharma, 2008; Sheth, Sharma, & Iyer, 2009; Storbacka, Ryals, Davies, & Nenonen, 2009). For instance, most of the simple sales tasks, such as “explaining” and “order taking”, become obsolete, as e-commerce takes over order taking, and marketing automation takes over explaining (Storbacka & Cornell, 2016; Wiersema, 2013). For such development to take place, buyers must start using digital tools developed or adopted by the selling organization. It is, from this point of view, surprising that the literature is largely silent about the customer perspective on SFA. One of the few exceptions is the research on the perceived benefits to the customer of SFA by Boujena, Johnston, and Merunka (2009). More research is, for instance,

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needed on the effects of SFA on customer organizations' processes and the antecedents of SFA use from the customer perspective (Buttle et al., 2006; Wiersema, 2013).

Notably, much of the literature cited above focuses on the links between marketing and sales, dismissing the link to the information on the customer demand. Digitalization, however, introduces the possibility of linking both marketing and customer demand information to various operational viewpoints. A key digital tool category that highlights this possibility is product and sales configurators (Trentin, Perin, & Forza, 2013). A sales configurator – essentially a digital tool that is responsible for guiding the user through a service or product configuration process (Rogoll & Piller, 2004) – can be defined as "knowledge-based software applications that support a potential customer […] in completely and correctly specifying a product solution within a company's product offer" (Trentin, Perin, & Forza, 2014, p. 694). This support for the sales process is constructed by the product and operations functions and aims at reducing the negative cost and quality implications of customer induced variability. The configuration process aims to produce a consistent product variant – a configuration – that specifies the composition of an instance of the product or the service, adapted to the requirements of the customer within the limitations set by the product architecture (Tiihonen, Soininen, Männistö, & Sulonen, 1996). Hence, sales configurators create configurations of market offerings that fulfill customer requirements, while keeping in mind the interests of the selling company.

The original motive for using sales configurators was to assist in the transfer of product configuration, pricing, and delivery time information from the company repositories to the sales representative, resulting in a more effective and efficient sales dialogue with the customer (Jelinek, 2013; Salonen, Rajala, & Virtanen, 2018; Salvador & Forza, 2007; Tiihonen, Heiskala, Anderson, & Soininen, 2013). Once able to build and visualize high-quality product configurations on the fly, the sales representative creates solutions that better fulfill the needs of the customer (Jelinek, 2013; Rogoll & Piller, 2004).

Configurators of this type are, however, increasingly made available for buyers to use themselves, without the sales representative being present. Both salesperson-assisted and customer-used configurators decrease configuration errors, resulting in a more efficient order-delivery process (Keil, Beranek, & Konsynski, 1995; Tiihonen et al., 1996).

The usefulness of sales configurators can be investigated both from the sellers' and buyers' perspective (Buttle et al., 2006). However, there are only a handful of studies that focus on user or buyer perceptions of sales configurators (Agarwal & Prasad, 1998; Keil et al., 1995; Trentin et al., 2014). Moreover, none of the studies have focused specifically on the antecedents driving customer acceptance of configurators: how ready they are to start using these tools.

Against this backdrop, this research focuses on the use of SFA from the customers' perspective, and specifically *investigates the antecedents of customers' acceptance of sales configurators designed for customer use*.

For the purposes of our investigation, we build on the technology acceptance model of Davis, Bagozzi, and Warshaw (1989) and integrate recent research on technology acceptance, sales force automation and digitalization. We focus on identifying the antecedents of perceived usefulness of sales configurators and hypothesize how various antecedents are related. We develop and test a structural equation model using partial least squares structural equation modeling (PLS-SEM).

Our research contributes to industrial marketing literature in three ways. First, our research is the first to examine SFA comprehensively from a customer perspective. The results illustrate how SFA usefulness can be realized from the customer's point of view and how suppliers can use configurators to help customers achieve efficiency in their buying process, without negative cost and quality implications driven by customer-induced variability. Second, our research focuses on often-neglected system-level features and their relationships with the adoption of SFA technology. Ease of navigation, the visualization of information, system adaptability, and information quality are all relevant but frequently dismissed aspects in SFA acceptance literature. Third, the results highlight the central role of perceived enjoyment in customers' adoption of SFA tools. Customers seem to expect that using configurator systems would be perceived as enjoyable and interesting. This provides support to Hadjikhani and LaPlaca's (2013) argument, that industrial marketing needs to incorporate consumer marketing theories to be able to fully describe current developments.

The rest of the paper is structured as follows: First, we explain the research methods and the process. Next, we develop the model and hypothesis based on the existing literature, explain our methods and sample. We go on to present our findings and finally, explicate our contributions to research on industrial marketing, identify avenues for further research and discuss implications for marketing and supply chain management practices.

2. Research process

Although we contribute to the industrial marketing and sales literature, we are informed by the literature on technology acceptance. This approach was driven by our research focus, and the fact that there is limited literature on SFA and almost no research on sales configurators in the industrial marketing context.

The discussion on models related to the adoption of new technology has been divergent (Venkatesh, Morris, Davis, & Davis, 2003), and no commonly accepted view exists. On the contrary, there are numerous models available, some of which complement each other and some that are contradictory. As a first step we identified twelve models and evaluated them with regards to their suitability in terms of relevance and scope when addressing the research aim. The comparison (see Appendix A) illustrates that the models that are most suitable in our context are the technology acceptance model (TAM) and the unified theory of acceptance of use of technology (UTAUT). We also concluded that the task-technology fit model (TTF), the model of acceptance with peer support (MAPS), and the hedonic-motivation system adoption model (HMSAM) can provide support and insight relevant to our research.

Based on our evaluation of the different acceptancy models (Appendix A), we selected the technology acceptance model (TAM) (Davis, 1989; Davis et al., 1989) to be the starting point to build our research on. TAM has been utilized successfully in numerous studies predicting intention or behavior (e.g., Bhattacherjee, 2001; Calisir, Altin Gumussoy, Bayraktaroglu, & Karaali, 2014; Cheung & Vogel, 2013; Dishaw & Strong, 1999; Grandon & Pearson, 2004; Karahanna, Agarwal, & Angst, 2006), and has fared very well in comparison with the theory of reasoned action (TRA) model (Mathieson, 1991; Taylor & Todd, 1995). TRA and TAM differ in that TRA is meant for predicting specific behaviors at a specific time and in a specific context (Ajzen, 2002), whereas TAM is intended to adapt to a variety of conditions and situations.

TAM focuses on the impact of external variables on internal beliefs, attitudes, and intentions. The model posits that these external variables influence perceived usefulness, which is viewed as a general determinant of user acceptance (Davis et al., 1989). Perceived usefulness is defined as "the prospective user's subjective probability that using a specific application or system will increase his or her job performance within an organizational context" (Davis et al., 1989, p. 985). It follows from the definition of the word useful: "capable of being used advantageously".

The basic premises of the TAM model will also be examined through the lenses provided by UTAUT, TTF, MAPS, and HMSAM. We were particularly interested in whether we could support TAM, which is based on utilitarian motivation, by examining the potential role of intrinsic hedonistic motivations, such as perceived enjoyment (Lowry, Gaskin, Twyman, Hammer, & Roberts, 2012; Van der Heijden, 2004), and in examining how the trend towards work gamification (Cardador, Northcraft, & Whicker, 2017) might influence potential users.

Consequently, we developed two research questions based on our overall research aim: *(1) what are the antecedents of perceived usefulness of sales configurators, and (2) what is the relative significance of the various antecedents identified?*

To answer these research questions, we developed a research design where we first used the technology acceptance literature to identify and define the main constructs related to antecedents of the use of sales configurators. Secondly, we developed a structural model connecting the antecedents, and articulated nine testable hypotheses about the relations between the constructs in the model. Thirdly, we focused on developing measures for the constructs identified. Fourthly, we administered an online survey focused on a sample of B2B distributors, and finally we focused on statistical testing of the structural model and hypotheses and interpreting the research findings.

The measures were developed based on existing literature. The sample consisted of 115 B2B distributors in Finland. The model was estimated using a partial least squares (PLS) approach.

3. Antecedents of perceived usefulness

In this section, we use literature to define the key constructs for our research, develop our hypotheses, and build our research model. We begin with the overview of our proposed model and continue with a detailed description of the development of our hypotheses.

3.1. Overview of the research model

To offer the reader a "big picture", we first provide an overview of our conceptual research model in Fig. 1. The key driver of perceived usefulness is suggested to be perceived effectiveness, which influences perceived usefulness directly and through perceived enjoyment. There are three antecedents of perceived effectiveness: perceived ease of use, system adaptability, and information quality. Finally, perceived ease of use is driven by format quality and ease of navigation.

In the next five sections we provide a more detailed description of the constructs, their relations and our hypothesis.

3.2. The relationship between ease of use and perceived usefulness

For the purposes of this research, we define perceived usefulness as "the degree to which an individual believes that using the system for her work tasks will help her to attain gains in work performance." This definition is based on the works of Bailey and Pearson (1983), Davis (1989), Goodhue and Thompson (1995), and Venkatesh et al. (2003).

Perceived ease of use is defined as "the degree to which the individual expects learning and using the system to be free of effort." This definition is based on the definition of ease, which is "freedom from difficulty or great effort" (Davis et al., 1989, p. 985).

According to the TAM model (Davis, 1989; Davis et al., 1989), perceived ease of use influences peoples' behavioral intentions indirectly through perceived usefulness and through attitude towards using. The relationship between ease of use and perceived usefulness has been further documented by Davis, Bagozzi, & Warshaw (1992), Mathieson, Peacock, and Chin (2001), Venkatesh and Davis (2000), Venkatesh and Bala (2008) and Wixom and Todd (2005). However, some researchers have reported insignificant relationships between ease of use and perceived usefulness (Adams, Nelson, & Todd, 1992; Hu, Chau, Sheng, & Tam, 1999; Jackson, Chow, & Leitch, 1997).

Regarding sales configurators, there is also some related evidence of the relationship between ease of use and perceived usefulness. Gefen and Straub (2000) investigated online purchasing and found a significant positive relationship between ease of use and perceived usefulness. To further test this relationship, we posit:

H_1. A positive relationship exists between Perceived Ease of Use and Perceived Usefulness.

3.3. The role of perceived effectiveness

Perceived ease of use relates to the interaction between the technology and the user (Mathieson, 1991) and not to the performance in the user's task. By this definition, having a system that is easy to use does not necessarily mean that finishing one's task is easy to accomplish. Moreover, Goodhue and Thompson (1995) claim that in order to utilize the technology, two types of interactions should be present: one between the technology and the user and another between the technology and the user's task. Therefore, for the purpose of this research, we define the perceived effectiveness as the individual's perception of how well she can perform her tasks with the system.

In the context of this study, the task the user is trying to accomplish

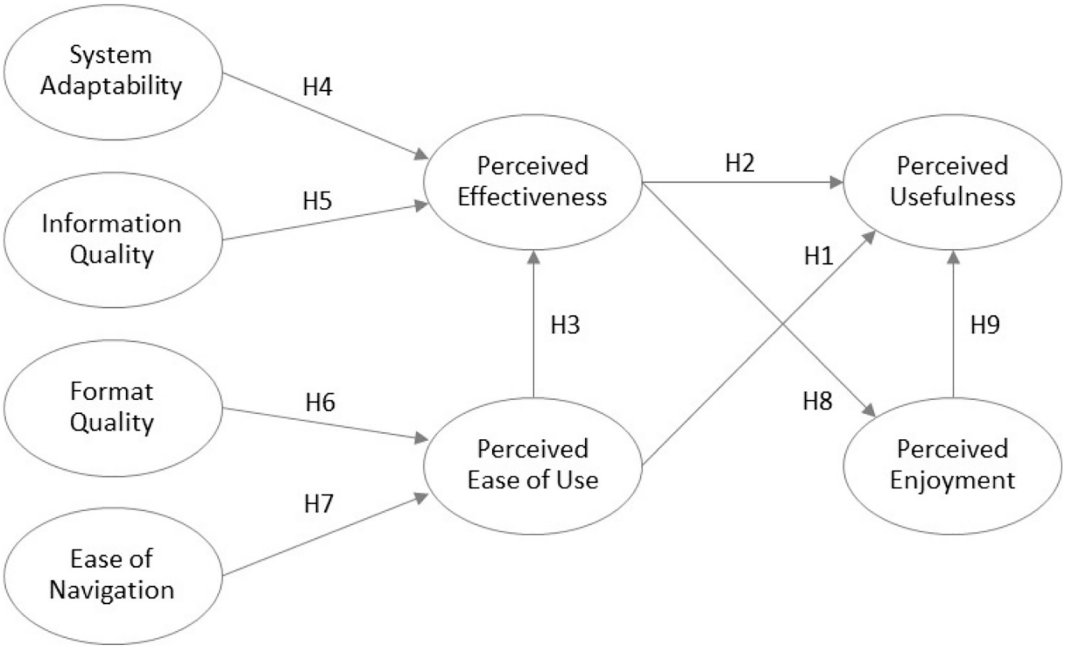

Fig. 1. Research model.

with the sales configurator is configuring products or services. Whether the configuring context is selling products to a customer or buying products from a supplier, the underlying task is the same. It is the performance of this task that will result in work performance outcomes: should the respondent feel that the tool supports the configuring task better than the current methods do, there should be an improvement in work performance. Therefore, the perceived usefulness is dependent on the perceived effectiveness. This argument follows from the relationship postulated by social cognitive theory between the outcome and efficacy expectations (Bandura, 1982). Based on this we posit:

H_2. A positive relationship exists between Perceived Effectiveness and Perceived Usefulness.

As discussed earlier, perceived ease of use differs from perceived effectiveness: while the former concerns the efficacy regarding the interaction with the system, the latter concerns the efficacy related to the user's task. In the sales configurator context, this means that ease of use reflects the ease by which the configurator can be used, and the perceived effectiveness reflects how beneficial the sales configurator is in making desired configurations. While a system that is easy to use does not automatically mean that the system is effective, the ease of use can contribute to the effectiveness. Hence, we posit:

H_3. A positive relationship exists between Perceived Ease of Use and Perceived Effectiveness.

3.4. The antecedents of perceived effectiveness

In our research, we define information quality and system adaptability in a similar fashion to the conceptualization made by Goodhue and Thompson (1995). These two constructs are system features that are relevant in the fit between the system and the requirements of tasks. This fit is often called the task-technology fit (Goodhue & Thompson, 1995).

System adaptability refers to a situation where a single system can serve individuals with different needs and positions. In a sales configurator context, adaptable system implies a system that can be used by different user groups, such as the customers or the company sales force. Similarly, an adaptable sales configurator can create configurations of products of different complexity, from very simple products to highly technical and intricate products. The need for sales configurator adaptability is noted by Salvador and Forza (2007), who call for configurators that provide information at abstraction levels that suit individual users' requirements. Thus, we posit:

H_4. A positive relationship exists between System Adaptability and Perceived Effectiveness.

In a sales configurator context, accurate, updated information is crucial in the configuration task, thus contributing to a high task-technology fit. The critical role of information quality can manifest in trust issues; Tiihonen et al. (1996) note that users may find it difficult to accept all the information given by the sales configurator.

In technology acceptance literature, the evidence of the relationship between information quality and perceived effectiveness is well documented. Calisir et al. (2014), Cheong and Park (2005), Davis, Bagozzi, and Warshaw (1992), Seddon and Kiew (1996), Venkatesh and Bala (2008), and Venkatesh and Davis (2000) have found a statistically significant relationship between information quality and perceived usefulness. Consequently, we posit:

H_5. A positive relationship exists between Information Quality and Perceived Effectiveness.

3.5. The antecedents of perceived ease of use

We define format quality as the perceived degree to which the information that the system provides is easy to interpret (Iivari & Koskela, 1987; Wixom & Todd, 2005). Format quality is high when the information is presented in a way that it is understandable and visually pleasing. Format quality is closely related to user-interface design.

From the user-interface viewpoint, the format quality is improved with information that is visually structured in a hierarchical fashion and presented in a consistent way (Johnson, 2010). Another critical aspect of format quality is a system that does not require the user to memorize things but one that provides recognizable elements (Johnson, 2010). In a sales configurator context, the format quality, especially the way the information is presented, is vital, as the individual users are unlikely to be IT specialists or software engineers (Tiihonen et al., 1996; Trentin et al., 2013).

Information system literature provides evidence of the positive relationship between format quality and perceived ease of use (Bailey & Pearson, 1983; Iivari & Koskela, 1987; Saarinen, 1996; Wixom & Todd, 2005). Based on this discussion, we posit:

H6. A positive relationship exists between Format Quality and Perceived Ease of Use.

Ease of navigation is defined as the ease of movement between different pages (or phases) of the system. As with format quality, the ease of system navigation should positively affect the ease of system use (Aladwani & Palvia, 2002; Palmer, 2002). Evidence of this relationship was found in an e-procurement context by Brandon-Jones and Kauppi (2018).

Regarding sales configurators, Trentin et al. (2013) emphasize that flexible and focused navigation is a critical component of ease of use. By flexible navigation, the authors refer to the system's ability to make modifications to the previous or current configurations. “Focused navigation” refers to the system's ability to help the user to easily refine and narrow the number of the product subset. Both of these components can be expected to contribute to perceived ease of use. Hence, we posit:

H_7. A positive relationship exists between Ease of Navigation and Perceived Ease of Use.

3.6. The role of perceived enjoyment

In this research, we use the definition provided by Davis et al. (1992) of perceived enjoyment, where it is defined as the extent to which the use of the technology is enjoyable in its own right, aside from performance results.

As discussed by Van der Heijden (2004), two forms of motivation determine user acceptance: extrinsic and intrinsic. Extrinsic motivation refers to the expectation of some benefit external to the user's interaction with the system (such as improved work performance), whereas intrinsic motivation refers to benefits derived directly from the interaction. Traditionally, literature has made a distinction between utilitarian systems, in which extrinsic motivations dominate, and hedonistic systems, in which intrinsic motivations prevail (Lowry et al., 2012; Van der Heijden, 2004). With the rapid development of the use of information systems in all contexts of life, this distinction makes less and less sense, as exemplified by the gamification of workplaces (Cardador et al., 2017; Suh, Cheung, Ahuja, & Wagner, 2017).

Davis et al. (1992) found a significant relationship between information quality and perceived enjoyment in one study, although they failed to find a similar relationship in another. We argue that the effects of information quality on outcome expectations should not, however, be viewed as a direct relationship. Instead, the more accurate, complete, and configuring-relevant information the sales configurator offers, the more effective the configuring of products and services is with it. Consequently, perceived effectiveness would mediate the effect of perceived information quality on perceived usefulness and perceived enjoyment. Therefore, we posit:

H_8. A positive relationship exists between Perceived Effectiveness and Perceived Enjoyment.

Perceived enjoyment is usually considered as an outcome of perceived ease of use (Van der Heijden, 2004), but these findings relate to pure hedonistic systems, which a sales configurator is not.

Interestingly, there is only very limited support for a causal relationship between perceived enjoyment and perceived usefulness; e.g., Sun and Zhang (2006) and Teo and Noyes (2011) hypothesized, and found evidence of, the relationship. This would suggest that perceived enjoyment would have a positive impact on how useful the respondent perceived the sales configurators to be. To further investigate this possible causal relationship, we posit:

H_9. A positive relationship exists between Perceived Enjoyment and Perceived Usefulness.

4. Empirical study

In this section we describe our research process in terms of defining measures and sampling, and discuss our findings.

4.1. Measures

Perceived usefulness items were adapted from Davis (1989). The scale was shortened to four instead of six items, which corresponds with TAM3 (Venkatesh & Bala, 2008). The sixth item of TAM, "I would find [information system] useful in my job", was removed from the scale as it is not explicitly an outcome expectation. Moreover, the term "useful" can be assessed along many different dimensions and thus this may also be too general a question (Chin & Gopal, 1995). That item was replaced by the item "using a sales configurator for configuring products would increase the quality of my work", adapted from Keil et al.'s (1995) perceived usefulness measurement scale, which was utilized in a configurator context in their study.

Perceived enjoyment items were adapted from Chang and Cheung (2001). A four-item scale was used for measuring the expected feelings of enjoyment, pleasantness, interest, and excitement to be derived from sales configurator use. It is worth noting that the perceived usefulness items represent a comparison between the current and expected future states. For example, the item "using [information system] in my job would improve my work performance" implies that there will be an increase in work performance in the future. However, typical measures of perceived enjoyment simply imply that certain behavior is either enjoyable or unenjoyable (e.g., Chang & Cheung, 2001; Compeau, Higgins, & Huff, 1999; Davis et al., 1992). Yet, as perceived enjoyment is an outcome expectation, it might be more appropriate to use measures that imply an improvement to the current state of affairs. Specifically, the information system is usually a substitute for some other means of accomplishing certain tasks. Therefore, the degree to which the sales configurator would make the task of product or service configuring more enjoyable than with the current methods, is measured. All else being equal, the user should prefer to use the method that is more enjoyable than the other, even though the method in question would not be characterized as enjoyable in its own right by the respondent.

Perceived effectiveness was measured by a five-item scale that was based on the scale developed by Mathieson and Keil (1998). The scale was adapted to a sales configurator context. The perceived effectiveness scale items refer to the perceived efficacy in configuring products quickly and efficiently, creating accurate and high-quality product configurations, and showcasing products to the customer with the sales configurator. Perceived ease of use items were adapted from Davis (1989) and Venkatesh and Bala (2008), and the construct was measured with a four-item scale.

The measurement scale for information quality was adapted from Seddon and Kiew (1996) and Kankanhalli, Tan, and Wei (2005). Seddon and Kiew's (1996) scale included items referring to information accuracy, completeness, comprehensiveness, currency, timeliness, and preciseness (among others); while Kankanhalli et al.'s (2005) scale consisted of items referring to trustworthiness, accuracy, relevancy, currency, and timeliness of output information. An eight-item scale was formed out of the two scales, consisting of items referring to information comprehensiveness, completeness, preciseness, relevancy, accuracy, trustworthiness, correctness, and currency.

A four-item measurement scale was developed for measuring system adaptability. The scale was based on Bailey and Pearson's (1983) and Wixom and Todd's (2005) flexibility scales, as well as on Iivari and Koskela's (1987) concept of system adaptability. The flexibility and adaptability concepts both refer to the information system's capacity to adapt to new conditions, demands, or circumstances. Thus, the adaptability items refer to the degree to which the sales configurator's functionality adapts to varying configuring needs and situations.

Bailey and Pearson's (1983) and Wixom and Todd's (2005) format quality scales were used as a basis for developing our format quality scale, as was Iivari and Koskela's (1987) conceptualization of information interpretability. While information quality refers to the information content, format quality refers to the way information is presented by the system. Format quality is measured by a four-item scale that refers to the expected clearness and understandability of information presented by the system, as well as the ease of interpreting the information.

The ease of navigation scale was developed based on navigability scales proposed by Aladwani and Palvia (2002), Palmer (2002), and Yang, Cai, Zhou, and Zhou (2005). However, whereas Yang et al. (2005) utilized items measuring perceptions on specific design characteristics of the user interface (such as the organization of hyperlinks), a scale with such a low level of abstraction is not feasible here, since the measurement items cannot refer to any specific system, but only to sales configurators in a more general sense. Thus, a three-item scale was developed measuring the expected ease, fluentness, and effortlessness associated with navigating a sales configurator.

All measurement items utilized a seven-point Likert scale ranging from "strongly disagree" to "strongly agree". The model variables and their respective measurement items are summarized in Appendix B.

4.2. Sample

A key consideration in designing the research was the need to find customers with experience of using sales configurators. Such customers can be viewed as both "demanding" and "sophisticated", since the "self-service" use of configurators is still limited. Based on some initial interviews and the prior knowledge of research team members, we decided to focus our research on distributors as part of the supply chain. This decision was driven by two arguments: (1) a multitude of firms in a B2B context are increasingly expanding their use of SFA towards their distributors, in order to provide increased value-creating opportunities for buying process improvements, and (2) distributors are portrayed by the literature as demanding and sophisticated customers. For example, they have specific needs for the supplier, such as branded products, specific discounts, and various services, such as sales training or assistance in technical matters (Aminoff & Hakanen, 2018; Anderson & Narus, 1984; Eggert, Henseler, & Hollmann, 2012). They often act like independent business entities. They have their own policies, procedures, and goals that do not coincide entirely with those of their manufacturing partners (Goodman & Dion, 2001). They are sometimes reluctant to share information (Frazier, Maltz, Antia, & Rindfleisch, 2009; Wathne & Heide, 2000). They have relationship-related requirements, including loyalty, strengthening of partnerships to deter competitors, assessment, and rewarding of good partnerships (Eggert et al., 2012; Joseph, Gardner, Thach, & Vernon, 1995). They rely on fast and up-to-date information-sharing from supplier (Jia, Cai, & Xu, 2014;

Mudambi & Aggarwal, 2003). Because of the previously listed reasons, our assumption – which was confirmed during the research process – was that a focus on distributors as customers would in turn give us deeper insights.

The sample was geographically focused on Finland. We obtained the names and contact information of all Finnish industrial distributor companies employing between 5 and 100 employees. The contact information was obtained from Statistics Finland, a governmental statistical agency. From the resulting sampling frame of 1059 companies, we randomly selected 630 companies. These companies were contacted by phone to identify the most relevant informant, defined as the employee who would be in contact with the suppliers in a purchasing role and would have knowledge regarding digital tools. We then contacted the informants identified and inquired if she/he would be a relevant person to answer our questionnaire about digital tools related to purchasing, and if she/he would be willing to participate in the research.

Of the 342 distributor representatives who indicated their willingness to respond, 152 eventually did so. Of the 152 responses, 37 were removed from the final data set, because the respondents gave incomplete answers, used repetitive patterns, or answered too quickly. Thus, 115 responses were analyzed.

During the initial contact to companies, in 5% of the calls, we received two informant names. This resulted in a situation where the vast majority of the informants were from different companies (only in two instances we received responses from informants from the same company). The informants' (26% female and 74% male) average age was 47 years, and their average work experience was 18 years. Of the informants, 83% had previously heard of sales or product configurators and 61% had used them at some point. To ensure that the respondents understood the concept of sales configurator, it was introduced both verbally and visually in the beginning of the questionnaire. Table 1 provides an overview of the informants by their job titles. The B2B distributor companies represented different industries, ranging from IT services, the machine industry, and healthcare, to the electronics industry.

To assess the possibility of non-response bias, we tested for differences in the responses of the early and late waves of informants (Armstrong & Overton, 1977). The test procedure assumed that the late wave informants would respond in the way that the non-respondents would respond. In the analysis, the item averages of waves one and two were compared to waves three and four. *t*-tests of the averages did not show any statistically significant differences. This leads to the conclusion that non-response bias was not a problem for our data set.

4.3. Findings

We chose to use the PLS-based structural equation method (SEM) over the more conventional covariance-based SEM, as PLS-SEM is more adept at handling smaller samples even with relatively complex models (Hair, Sarstedt, Ringle, & Mena, 2012). This ability of PLS-SEM proved necessary for our research, where our model was rather complex and our sample size was 115. Moreover, PLS-SEM offers additional advantages, as it is more tolerant regarding the requirement of normally distributed data (Hulland, 1999; Kock, 2016). Overall, PLS is a widely accepted and increasingly applied approach to SEM (Hair, Ringle, & Sarstedt, 2011; Henseler, Ringle, & Sinkovics, 2009).

Table 1
Job titles of informants.

Job title	Share (%)
CEO	26%
Sales director	11%
Product manager	11%
Sales manager	8%
Sales assistant	7%
Purchasing manager	7%
Purchasing assistant	4%
Operations manager	3%
Key account manager	3%
Area manager	3%
Team manager	3%
Sales engineer	2%
Others	12%
Total	100%

Table 2
AVE, composite reliability, Cronbach's alpha, number of indicators.

Constructs	AVE	Composite reliability	Cronbach's alpha	Number of Indicators
Perceived usefulness	0.87	0.96	0.95	4
Perceived enjoyment	0.82	0.95	0.93	4
Perceived effectiveness	0.80	0.95	0.94	5
Perceived ease of use	0.71	0.95	0.93	4
Ease of navigation	0.94	0.98	0.97	3
Format quality	0.85	0.96	0.94	4
Information quality	0.71	0.95	0.94	7
System adaptability	0.77	0.93	0.90	4

According to Hulland (1999), a PLS model is usually analyzed and interpreted in two stages. First, the measurement model is assessed for reliability and validity. In the second stage the structural model itself is assessed. In this research, we follow these two stages.

4.3.1. Assessment of the measurement model

The measurement model was assessed by testing reliability, convergent validity, and discriminant validity. First, reliability was assessed by means of estimating internal consistency with a reliability coefficient and by calculating composite reliability. Cronbach's alpha was used as the reliability coefficient. All measures had alpha values at or over the 0.90 level, which is also shown in Table 2. This indicates good internal consistency. More evidence of good internal consistency is given by the composite reliability statistics, which are also all above 0.90 whereas the recommended level is 0.70 (Hulland, 1999; Nunnally, 1978). Regarding the individual item loadings, only one item (one of the eight information quality items) fell short of the expected 0.70 level and was omitted during the analysis as suggested by Hair, Hult, Ringle, and Sarstedt (2014). Common method bias was analyzed with Harman's single factor test with a result of 0.40, which remained under the suggested limit of 0.50. The correlation analysis of the constructs is presented in Appendix C.

Convergent validity was assessed using Average Variance Extracted (AVE). Sufficient convergent validity was demonstrated, by having AVEs over the 0.50 limit for all measures (Henseler et al., 2009).

Discriminant validity was assessed by two means: first with the Fornell-Larcker criterion (Fornell & Larcker, 1981) and then by analyzing cross-loadings. Regarding the Fornell-Larcker criterion, the measures show a good discriminant validity, as the square root of AVE values is higher than the correlations between the latent variables. Regarding the cross-loadings, only minor loadings were present. These two results provide evidence of discriminant validity being present. In addition, we assessed the level of multi-collinearity using variance inflation factor (VIF). In our model the maximum level of VIF was 2.16, falling well below the suggested level of five (Hair Jr., Risher, Sarstedt, & Ringle, 2018). Overall, the quality of the constructs, in respect of their reliability and validity, can be considered adequate.

4.3.2. Assessment of the structural model

Because of the fundamental differences between covariance structure analysis modeling approaches and PLS modeling, no proper overall goodness-of-fit measures exist for PLS (Hulland, 1999). Consequently, the quality of the path-model was evaluated through criteria used for

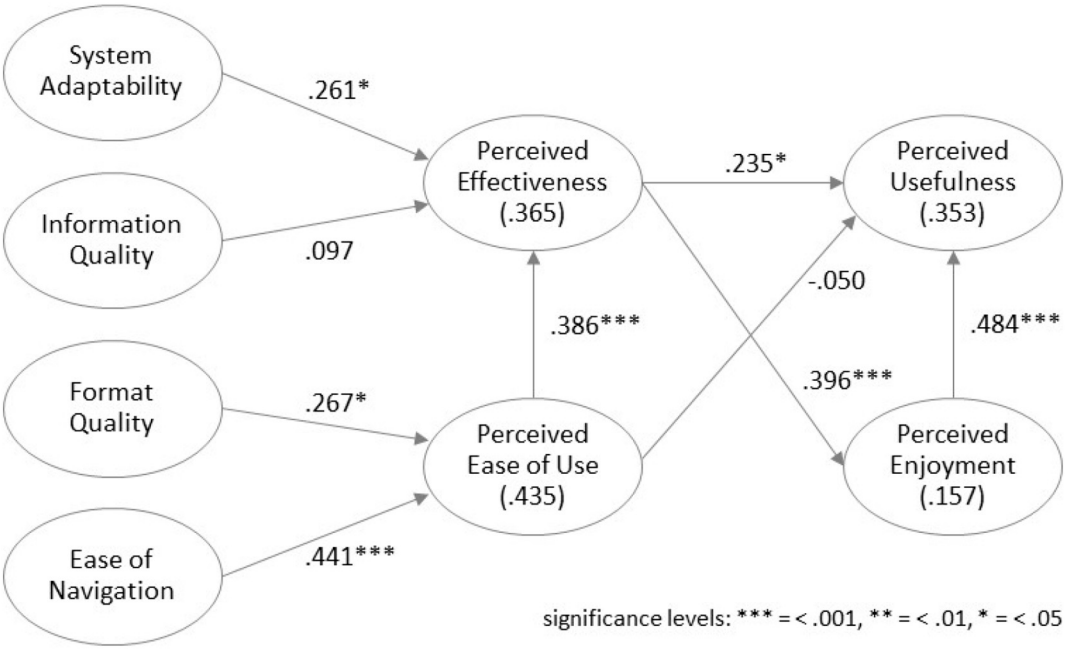

Fig. 2. Structural model.

PLS models: R-square statistics, path coefficients, *p*-values, effect sizes, and SRMR. The path coefficients, significance levels, and variances explained are presented in Fig. 2.

All paths in the model were statistically significant, except for the two paths from perceived ease of use to perceived usefulness and from information quality to perceived effectiveness. It is worth noting that the p-value for the latter path was 0.052, which is close to the 0.05 significance limit. R-square statistics ranged from 0.157 to 0.436. The explained variances averaged 0.328, which can be considered adequate. Analysis of the effect size (f square) shows that all constructs had a medium effect on their endogenous constructs except the "information quality" construct, which fell under the small limit of 0.02.

Finally, the SRMR statistic for the model was 0.075. Based on the assessment, the quality of the structural model can be assessed as good.

4.3.3. Hypothesis testing

Hypothesis 1, which was both supported and unsupported by previous literature, was not supported by the current research, because no direct effect ($\beta = -0.050$, $p = .54$) was found between Perceived Ease of Use and Perceived Usefulness. This result is in line with the findings of Adams et al. (1992), Hu et al. (1999), and Jackson et al. (1997).

Hypothesis 5 postulated that Information Quality has a positive effect on Perceived Effectiveness. In our research we did not found evidence supporting the hypothesis ($\beta = 0.097$, $p = .49$). The result is in contradiction of previous research (e.g., Venkatesh & Bala, 2008; Venkatesh & Davis, 2000).

Hypotheses 2, 3, 4, 6, 7, and 8 were supported, as indicated by our consultations of the literature. The analysis shows that Perceived Usefulness is affected by Perceived Effectiveness ($\beta = 0.235$, $p < .001$). Perceived Effectiveness has a very significant link to Perceived Enjoyment ($\beta = 0.396$, $p < .001$).

Ease of navigation has a strong link to perceived ease of use ($\beta = 0.441$, $p < .001$). Format quality has also a significant link to perceived Ease of Use ($\beta = 0.267$, $p < .05$). These two elements account for 0.44 of the variance in Perceived Ease of Use.

System Adaptability ($\beta = 0.261$, $p < .05$) and Perceived Ease of Use ($\beta = 0.386$, $p < .001$) have a significant positive relationship to Perceived Effectiveness. As predicted by previous research Perceived Ease of Use has no direct link to Perceived Usefulness but affects it indirectly through Perceived Effectiveness.

Hypothesis 9, which postulated that Perceived Usefulness is affected by Perceived Enjoyment, was supported ($\beta = 0.484$, $p < .001$), confirming our initial idea that when developing systems to be used by customers, firms also need to consider hedonistic, intrinsic motivations.

5. Conclusions

In this section we will explicate our contribution to the literatures on industrial marketing, supply chain management, and technology acceptance. We explore avenues for further research and make suggestions for managerial practice.

5.1. Theoretical contributions

The purpose of this research was to explore the use of sales force automation (SFA) from the customers' perspective, and specifically to investigate the antecedents of customers' acceptance of sales configurators. Building on the technology acceptance model (TAM), and supported by other technology acceptance models, we attempted to answer two research questions: (1) what are the antecedents of perceived usefulness, and (2) what is the relative significance of the various antecedents identified?

The literature on industrial sales and marketing is surprisingly silent when it comes to customers taking on new roles and "servicing themselves" instead of relying on sales representatives. Even recent research (Ahearne, Srinivasan, & Weinstein, 2004; Buttle et al., 2006; Cuevas, 2018; Jelinek, Ahearne, Mathieu, & Schillewaert, 2006; Lilien, 2016; Schillewaert et al., 2005; Syam & Sharma, 2018; Wiersema, 2013) is primarily focused on the supplier-side developments. Reflections are offered about changed buying behaviors, but no research is currently focusing on how supplier firms can support these developments, except for using social media platforms. The only exception in the literature is Boujena et al., (2009), but their focus is on how SFA influences sales work carried out by vendors and what benefits this creates to customer organizations. Furthermore, in their discussion about the future of B2B marketing theory, Cortez and Johnston (2017) elaborate on the need to

further understand changes in organizational buying behavior, to better relate to big data and to improve the role of social media and other digital platforms. They do not, however, specifically point to the role of customer-used SFA in this process.

Our research brings increased knowledge about how SFA can be used by customers for improved effectiveness and perceived value. This resonates with Syam and Sharma (2018), who argue that the greatest impact of digitalization in sales is the increased understanding of customer behavior, and the use of technology as an active decision-facilitator. Combined, this enables the effective design and delivery of customized offerings.

We particularly contribute to the SFA adoption literature by identifying system-level features that affect the adoption. While existing literature on SFA adoption focuses on organizational aspects, social influence, and individual efficacy perceptions as antecedents of adoption (Cascio et al., 2010; Homburg et al., 2010; Jelinek et al., 2006; Schillewaert et al., 2005; Jones, Sundaram, & Chin, 2002; Speier & Venkatesh, 2002), we focus on the aspects of the sales force tool itself. We identify system adaptability and information quality as drivers of perceived effectiveness and format quality and ease of navigation as drivers of ease of use. Thus, we identify a link to perceived enjoyment and eventually to perceived usefulness. The identified theoretical model forms a solid basis for a better understanding of opportunities to engage customers in the use of SFA.

To our knowledge, this is the first study of B2B sales management that examines SFA comprehensively from a customer perspective. Thus, our research complements previous studies that focused on the sales force perspective (Schillewaert et al., 2005; Boujena et al., 2009; Cascio et al., 2010; Jelinek, 2013; Hunter et al., 2015).

Our findings are especially relevant in what Grewal et al. (2015) call organic buying relationships, which "require ongoing human involvement, interpersonal interactions, and adjustments between buyer and seller firms" (p. 196). As noted by Salonen et al. (2018), firms employing a servitization or solution business strategy, are increasingly developing modularized offerings, and this development provides a platform for allowing customers to use configurators. The idea of a customer-used configurator is to streamline the interactions and adjustments needed, with the aim to reduce the negative cost and quality implications of customer-induced variability. As such, a configurator is a major opportunity for a supplier to support customers in achieving efficiency in the buying process, without possible negative consequences.

A key finding, when compared to results from previous studies focusing on sales force adoption of SFA, was the very central importance of perceived enjoyment. The SFA research shows that the salesforce is ready to accept some difficulty in using a SFA system, if the system completes central selling functions and improves sales performance (Schillewaert et al., 2005). No amount of ease of use can compensate for a system perceived as useless. For customers, our findings are similar in that the effectiveness of the system is more important than ease of use. But, surprisingly, customers seemed to expect the SFA system to function in such a way that using it would be perceived as enjoyable and interesting. It is difficult to "force" customers to use an SFA system, and their intention to use is likely to be fueled by ensuring that the system has elements similar to the consumer applications that they use in their consumer roles.

This finding could inform future theoretical developments in industrial sales and marketing. As illustrated by Hadjikhani and LaPlaca (2013), B2B marketing theory has moved from an economic foundation to one built on behavioral sciences. Both have a "rational" underpinning leading to outputs of an extrinsic character. The findings in this research suggest a need to consider intrinsic, hedonistic aspects in the development of industrial customer relationships, which supports Hadjikhani and LaPlaca's (2013) argument, that industrial marketing needs to incorporate new (consumer) marketing theories to be able to fully describe the current developments. In addition to exploring gamification (Cardador et al., 2017; Shi et al., 2017), researchers could, for instance, explore psychological ownership theory (Kirk, Swain, & Gaskin, 2015; Pierce & Jussila, 2010), and resource mobilization theory (McCarthy & Zald, 1977) in developing more interactive and digitally enabled customer relationships.

As a final reflection, we noted during our research process that the use of the concept "sales configurator" made less and less sense. The customers whom we examined are buyers, and for them the tool is not a sales tool. The underlying task is the same, whether the context is selling products to a customer, or buying products from a supplier. The key is the configuration of the product or service, translating customer need into a specification that fits within the limitations set by a product/service architecture and that can in turn be translated into data enabling the production of the variant requested (Rogoll & Piller, 2004; Trentin et al., 2013). This relates to the overall discussion in marketing about a change of perspective, not only from a provider perspective to an interaction perspective, but even further along to a customer perspective of value formation (Heinonen & Strandvik, 2017). This would suggest that as the investigated configurators are likely to be used increasingly by customers, they should be called "offering configurators", or even "needing configurators" (Strandvik, Holmlund, & Edvardsson, 2012).

5.2. Managerial implications

Our findings offer significant managerial insights for development of sales processes and related tools, and for re-defining the task of a salesperson. First, digitalization changes buying processes dramatically, as buying behavior is shifting towards more independent gathering of service and product information (Cuevas, 2018; Lilien, 2016; Mero, Tarkiainen, & Tobon, 2020; Syam & Sharma, 2018). To support this development, it is vital for suppliers to re-focus their development of sales processes and sales force automation tools towards making tools available that aid customers to take on new roles and serve themselves instead of relying on sales representatives.

Second, a key digital tool category that highlights these needs is configurators, which create configurations of market offerings that fulfill customer requirements, while keeping in mind the interests of the selling company (Trentin et al., 2013, 2014). Hence, configurators used by customers can at the same time improve a supplier's customer-centricity and reduce the operational cost of customer induced variability. However, for such tools to work well, sales and marketing management need to create new and better cross-functional links to functions involved in product management and operations management. The aim of these interactions is to ensure that the tools are developed in such a way that they support the new buying behaviors and, simultaneously, fit with extant and new sales processes.

Third, to secure the acceptance of new SFA tools for customer use, suppliers need to understand that customers' technology acceptance processes are different from those of a supplier's own personnel (Boujena et al., 2009). Although our research illustrates that the effectiveness of the system is also important for customers, an eye-opening observation is that, in terms of perceived usefulness, the positive emotion of enjoyment counts far higher than the perceived effectiveness of a tool (cf. Hadjikhani & LaPlaca, 2013; Van der Heijden, 2004). When developing systems to be used by customers, firms also need to consider hedonistic, intrinsic motivations. As it is difficult to "force" customers to use an SFA system, the effectiveness of the tool is just the beginning – it must have qualities that will make customer staff like using it.

Finally, utilization of sales configurators has major implications for the traditional ways of performing the tasks of a salesperson (Pagani & Pardo, 2017; Sheth et al., 2009; Wiersema, 2013). Sales configurators can make some sales tasks obsolete, other tasks can be redesigned, and new tasks may be required. It is also possible that traditional sales tasks can be complemented with the use of sales configurators. The

salespersons can, for example, conduct sales meetings with the help of sales configurators, or provide the needed support for a customer's independent configurator use. Ultimately the role of a salesperson can change from a focus on selling to a role focused on aiding the customer's comprehension of product and service information. These requirements and new tasks necessitate new competencies and skills. Consequently, companies should proactively select and educate their sales force to tackle these new challenges.

5.3. Limitations and further research

As with all research, this study has its limitations, which also form interesting avenues for further research. Our research focused on sales configurators (Jelinek, 2013), as we saw that these are likely to have a major impact on customers' buying practices, and would, hence, constitute an interesting research context. An extension in the direction of other SAF categories would be a natural and relevant research direction. As sales is "automated", customers are actively engaged in retrieving relevant information about products and services and ordering them online. This has two implications. First, to enable faster application, automation in customer relationships will require further explorations of approaches that support increased intentions to use. Second, the categorization of sales force automation, and the border lines between it and other systems such as marketing automation and supply chain management, require re-definition (cf. Sheth et al., 2009).

Our sample focused on distributors, because they were perceived to be "sophisticated" customers who would be knowledgeable about, or have experience of using, configurators. A natural extension of our research would be to expand the sample to other customer categories in a B2B context. Such customers could be, for instance, the buying organizations of the end-users. An extension of the geographical focus is also necessary, as technology readiness is likely to vary based both on industry and geography.

While our sample, consisting of users and non-users, prevented us from investigating behavioral aspects, we acknowledge that many TAM models investigate constructs like intention to use or actual system use (cf. Davis et al., 1989; Venkatesh et al., 2003). This offers a logical direction for future research. What, for example, are the determinants of actual sales configurator use? How strong would the connection be between intention to use sales configurators and actual use?

In our research, we have found evidence supporting the hypotheses of perceived enjoyment affecting perceived usefulness. This result raises the question of other emotions and their possible effects on perceived usefulness and ultimately the adoption of new tools or systems. How important are, for example, the negative emotions in inhibiting such adoption? How do these negative emotions arise and how could they be avoided?

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Appendix A. Technology adoption models

Model	Authors	Description of the model	Adoption constructs	Suitability
Theory of Reasoned Action (TRA)	Fishbein and Ajzen (1975)	Adoption is related to positive outcomes of use.	Attitude and Subjective norm	Limited
Theory of Planned Behavior (TPB)	Ajzen (1985)	Based on TRA. Includes perceived behavioral control as determinant.	Behavioral intention, Attitude, Subjective norm, and Perceived behavioral control	Limited
Social Cognitive Theory (SCT)	Bandura (1982)	Behavior is determined by observational learning, environmental, and personal characteristics.	Self-efficacy	Limited
Technology Acceptance Model (TAM)	Davis (1989)	Perceived usefulness and perceived ease of use affect attitude towards using, which affects intention and actual use.	Behavioral intention, Attitude, Perceived usefulness, Perceived ease of use, and external variables	Good
DeLone, McLean Information System Success Model (DMISSM)	DeLone and McLean (1992)	Use is based on system quality and information quality and affected by user satisfaction.	Information quality, System quality, and User satisfaction	Limited
Task-technology Fit Model (TTF)	Goodhue and Thompson (1995)	Focuses on the fit between the user's task and the technology provided.	Task characteristics and Technology characteristics	Moderate
Matching Person and Technology Model (MPT)	Scherer and Craddock (2002)	Focuses on matching individuals with the most appropriate technologies for their use.	Strengths, Goals, Preferences, Psychosocial characteristics, and Expected technology benefit	Limited
Updated Information Systems Success Model	DeLone and McLean (2002, 2003)	Based on DMISSM. Includes service quality and intention to use.	Intention to use, Information quality, System quality, Service quality, and User satisfaction	Limited
Unified Theory of Acceptance of Use of Technology (UTAUT)	Venkatesh et al. (2003)	Theory focuses on performance expectancy, effort expectancy, social influence, and facilitation conditions as explaining factors for intention and use.	Intention, Performance expectancy, Effort expectancy, Social influence, and Facilitation conditions	Good
Technology Performance Usage Model (TPUM)	Ahearne et al. (2004)	Analyzes usage levels of technology to identify optimum effect on performance.	Usage level	Limited
Model of Acceptance with Peer Support (MAPS)	Sykes, Venkatesh, and Gosain (2009)	Based on UTAUT. Includes social networks.	Behavioral intention, System use, Facilitating conditions, Network density, Network centrality, Valued network centrality, and Valued network density	Moderate
Hedonic-Motivation System Adoption Model (HMSAM)	Lowry et al. (2012)	Analyzes the adoption of hedonic-motivation systems (such as online gaming and social networking).	Perceived ease of use, Perceived usefulness, Curiosity, Joy, Control	Moderate

Appendix B. Measurement items

Measures	Items
Perceived usefulness (Davis, 1989; Keil et al., 1995; Venkatesh & Bala, 2008)	I believe that…
	Using a sales configurator for configuring products would improve my work performance.
	Using a sales configurator for configuring products would increase my productivity.
	Using a sales configurator for configuring products would improve my effectiveness in my work.
	Using a sales configurator for configuring products would increase the quality of my work.
Perceived enjoyment (Chang & Cheung, 2001)	I believe, that when compared to other configuration methods available to me, using a sales configurator would be…
	More enjoyable.
	More pleasant.
	More interesting.
	More exciting.
Perceived effectiveness (Mathieson & Keil, 1998)	I believe, that with a sales configurator I could…
	Configure products efficiently.
	Configure products quickly.
	Create accurate product configurations efficiently.
	Efficiently create product configurations that are of good quality in every respect.
	Easily showcase product solutions to my customers.
Perceived ease of use (Davis, 1989; Venkatesh & Bala, 2008)	I believe that…
	Using a sales configurator would not require a lot of effort from me.
	Using a sales configurator would be easy for me.
	Configuring products with a sales configurator would be easy for me.
	My interaction with a sales configurator would be clear and understandable.
Information quality (Kankanhalli et al., 2005; Seddon & Kiew, 1996)	I believe, that…
	A sales configurator would provide sufficiently comprehensive information for configuring products.
	A sales configurator would provide sufficiently precise information for configuring products.
	A sales configurator would provide relevant information for configuring products.
	A sales configurator would provide accurate information.
	A sales configurator would provide reliable information.
	A sales configurator would provide information that is always correct.
	A sales configurator would provide information that is up-to-date.
System adaptability (Bailey & Pearson, 1983; Wixom & Todd, 2005; Iivari & Koskela,1987)	I believe, that…
	A sales configurator would provide sufficiently versatile functions keeping different configuring needs in mind.
	A sales configurator would provide versatile functions for different configuring situations.
	A sales configurator would flexibly adapt to different configuring needs.
	A sales configurator would flexibly adapt to different configuring situations.
Ease of navigation (Aladwani & Palvia, 2002; Palmer, 2002; Yang et al., 2005)	I believe, that…
	Navigating a sales configurator would be easy.
	A sales configurator could be navigated fluently.
	Navigating a sales configurator would be effortless.
Format quality (Bailey & Pearson, 1983; Wixom & Todd, 2005; Iivari & Koskela,1987)	I believe, that…
	A sales configurator would present information in an understandable format.
	A sales configurator would present information in a clear format.
	A sales configurator would present information in an illustrative format.
	A sales configurator would present information in a format that is easy to perceive.

Appendix C. Correlation analysis of the constructs

Constructs	PU	PE	PF	PEU	EN	FQ	IQ	SA
Perceived Usefulness (PU)	1.00							
Perceived Enjoyment (PE)	0.56	1.00						
Perceived Effectiveness (PF)	0.40	0.40	1.00					
Perceived Ease of Use (PEU)	0.22	0.31	0.52	1.00				
Ease of Navigation (EN)	0.17	0.34	0.57	0.63	1.00			
Format Quality (FQ)	0.17	0.30	0.57	0.59	0.73	1.00		
Information Quality (IQ)	0.37	0.28	0.42	0.39	0.42	0.43	1.00	
System Adaptability (SA)	0.32	0.31	0.47	0.38	0.48	0.46	0.67	1.00

References

Adams, D. A., Nelson, R. R., & Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS Quarterly,* 227–247.

Agarwal, R., & Prasad, J. (1998). The antecedents and consequents of user perceptions in information technology adoption. *Decision Support Systems, 22*(1), 15–29.

Ahearne, M., Srinivasan, N., & Weinstein, L. (2004). Effect of technology on sales performance: Progressing from technology acceptance to technology usage and consequence. *Journal of Personal Selling & Sales Management, 24*(4), 297–310.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl, & J. Beckmann (Eds.). *Action control: From cognition to behavior* (pp. 11–39). Berlin, Heidelber, New York: Springer-Verlag.

Ajzen, I.. Constructing a TPB questionnaire: Conceptual and methodological considerations. (2002). 14 pages. Available at http://chuang.epage.au.edu.tw/ezfiles/168/1168/attach/20/pta_41176_7688352_5 (7138.pdf).

Aladwani, A. M., & Palvia, P. C. (2002). Developing and validating an instrument for measuring user-perceived web quality. *Information & Management, 39*(6), 467–476.

Aminoff, A., & Hakanen, T. (2018). Implications of product centric servitization for global distribution channels of manufacturing companies. *International Journal of Physical Distribution and Logistics Management, 48*(10), 1020–1038.

Anderson, J. C., & Narus, J. A. (1984). A model of the Distributor's perspective of distributor-manufacturer working relationships. *Journal of Marketing, 48*(4), 62–74.

Armstrong, J. S., & Overton, T. S. (1977). Estimating non-response bias in mail surveys.

Journal of Marketing Research, 14(3), 396–402.
Avlonitis, G. J., & Panagopoulos, N. G. (2005). Antecedents and consequences of CRM technology acceptance in the sales force. *Industrial Marketing Management, 34*(4), 355–368.
Bailey, J. E., & Pearson, S. W. (1983). Development of a tool for measuring and analyzing computer user satisfaction. *Management Science, 29*(5), 530–545.
Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122.
Barker, R. M., Gohmann, S. F., Guan, J., & Faulds, D. J. (2009). Why is my sales force automation system failing? *Business Horizons, 52*(3), 233–241.
Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly,* 351–370.
Boujena, O., Johnston, W. J., & Merunka, D. R. (2009). The benefits of sales force automation: A customer's perspective. *Journal of Personal Selling & Sales Management, 29*(2), 137–150.
Brandon-Jones, A., & Kauppi, K. (2018). Examining the antecedents of the technology acceptance model within e-procurement. *International Journal of Operations & Production Management, 38*(1), 22–42.
Bush, A. J., Moore, J. B., & Rocco, R. (2005). Understanding sales force automation outcomes: A managerial perspective. *Industrial Marketing Management, 34*(4), 369–377.
Buttle, F., Ang, L., & Iriana, R. (2006). Sales force automation: Review, critique, research agenda. *International Journal of Management Reviews, 8*(4), 213–231.
Calisir, F., Altin Gumussoy, C., Bayraktaroglu, A. E., & Karaali, D. (2014). Predicting the intention to use a web-based learning system: Perceived content quality, anxiety, perceived system quality, image, and the technology acceptance model. *Human Factors and Ergonomics in Manufacturing & Service Industries, 24*(5), 515–531.
Cardador, T. M., Northcraft, G. B., & Whicker, J. (2017). A theory of work gamification: Something old, something new, something borrowed, something cool? *Human Resource Management Review, 27*(2), 353–365.
Cascio, R., Mariadoss, B. J., & Mouri, N. (2010). The impact of management commitment alignment on salespersons' adoption of sales force automation technologies: An empirical investigation. *Industrial Marketing Management, 39*(7), 1088–1096.
Chang, M. K., & Cheung, W. (2001). Determinants of the intention to use internet/WWW at work: A confirmatory study. *Information & Management, 39*(1), 1–14.
Cheong, J. H., & Park, M. C. (2005). Mobile internet acceptance in Korea. *Internet Research, 15*(2), 125–140.
Cheung, R., & Vogel, D. (2013). Predicting user acceptance of collaborative technologies: An extension of the technology acceptance model for e-learning. *Computers & Education, 63*, 160–175.
Chin, W. W., & Gopal, A. (1995). Adoption intention in GSS: Relative importance of beliefs. *ACM SigMIS Database, 26*(2–3), 42–64.
Compeau, D., Higgins, C. A., & Huff, S. (1999). Social cognitive theory and individual reactions to computing technology: A longitudinal study. *MIS Quarterly,* 145–158.
Cortez, M., & Johnston (2017). The future of B2B marketing theory: A historical and prospective analysis. *Industrial Marketing Management, 66*, 90–102.
Cuevas, J. M. (2018). The transformation of professional selling: Implications for leading the modern sales organization. *Industrial Marketing Management, 69*, 198–208.
Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly,* 319–340.
Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*(8), 982–1003.
Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology, 22*(14), 1111–1132.
DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research, 3*(1), 60–95.
DeLone, W. H., & McLean, E. R. (2002). Information systems success revisited. *Proceedings of the 35th Hawaii international conference on system sciences (HICSS 02). Big Island, Hawaii* (pp. 238–249). .
DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9–30.
Dishaw, M. T., & Strong, D. M. (1999). Extending the technology acceptance model with task–technology fit constructs. *Information & Management, 36*(1), 9–21.
Eggert, A., Henseler, J., & Hollmann, S. (2012). Who owns the customer? Disentangling customer loyalty in indirect distribution channels. *Journal of Supply Chain Management, 48*(2), 75–92.
Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research.* Reading, MA: Addison-Wesley.
Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research,* 382–388.
Frazier, G. L., Maltz, E., Antia, K. D., & Rindfleisch, A. (2009). Distributor sharing of strategic information with suppliers. *Journal of Marketing, 73*(4), 31–43.
Gefen, D., & Straub, D. (2000). The relative importance of perceived ease of use in IS adoption: A study of e-commerce adoption. *Journal of the Association for Information Systems, 1*(1).
Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS Quarterly,* 213–236.
Goodman, L. E., & Dion, P. A. (2001). The determinants of commitment in the distributor–manufacturer relationship. *Industrial Marketing Management, 30*(3), 287–300.
Grandon, E. E., & Pearson, J. M. (2004). Electronic commerce adoption: An empirical study of small and medium US businesses. *Information & Management, 42*(1), 197–216.
Grewal, R., Lilien, G. L., Bharadwaj, S., Jindal, P., Kayande, U., Lusch, R. F., ... Spekman, R. (2015). Business-to-business buying: Challenges and opportunities. *Customer Needs and Solutions, 2*(3), 193–208.
Hadjikhani, A., & LaPlaca, P. (2013). Development of B2B marketing theory. *Industrial Marketing Management, 43*(3), 294–305.
Hair, J. F., Jr., Risher, J., Sarstedt, M., & Ringle, C. (2018). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24.
Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(2), 139–152.
Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science, 40*(3), 414–433.
Hair, J., Hult, T., Ringle, C., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM).* Sage Publications Inc.
Heinonen, K., & Strandvik, T. (2017). Reflections on customers' primary role in markets. *European Management Journal, 36*(1), 1–11.
Henseler, J., Ringle, C., & Sinkovics, R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing, 20*, 277–319.
Holloway, B. B., Deitz, G. D., & Hansen, J. D. (2013). The benefits of sales force automation (SFA): An empirical examination of SFA usage on relationship quality and performance. *Journal of Relationship Marketing, 12*(4), 223–242.
Homburg, C., Wieseke, J., & Kuehnl, C. (2010). Social influence on salespeople's adoption of sales technology: A multilevel analysis. *Journal of the Academy of Marketing Science, 38*, 159–168.
Hu, P. J., Chau, P. Y., Sheng, O. R. L., & Tam, K. Y. (1999). Examining the technology acceptance model using physician acceptance of telemedicine technology. *Journal of Management Information Systems, 16*(2), 91–112.
Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal, 20*(2), 195–204.
Hunter, G. K., Panagopoulos, N., & G. (2015). Commitment to technological change, sales force intelligence norms, and salesperson key outcomes. *Industrial Marketing Management, 50*, 162–179.
Iivari, J., & Koskela, E. (1987). The PIOCO model for information systems design. *MIS Quarterly,* 401–419.
Jackson, C. M., Chow, S., & Leitch, R. A. (1997). Toward an understanding of the behavioral intention to use an information system. *Decision Sciences, 28*(2), 357–389.
Jelinek, R. (2013). All pain, no gain? Why adopting sales force automation tools is insufficient for performance improvement. *Business Horizons, 56*(5), 635–642.
Jelinek, R., Ahearne, M., Mathieu, J., & Schillewaert, N. (2006). A longitudinal examination of individual, organizational, and contextual factors on sales technology adoption and job performance. *Journal of Marketing Theory and Practice, 14*(1), 7–23.
Jia, F., Cai, S., & Xu, S. (2014). Interacting effects of uncertainties and institutional forces on information sharing in marketing channels. *Industrial Marketing Management, 43*(5), 737–746.
Johnson, J. (2010). *Designing with the mind in mind: Simple guide to understanding user Interface design rules.* Morgan Kaufmann Publishers.
Jones, E., Sundaram, S., & Chin, W. (2002). Factors leading to sales force automation use: A longitudinal analysis. *Journal of Personal Selling & Sales Management, 22*(3), 145–156.
Joseph, W. B., Gardner, J. T., Thach, S., & Vernon, F. (1995). How industrial distributors view distributor-supplier partnership arrangements. *Industrial Marketing Management, 24*(1), 27–36.
Jüttner, U., Christopher, M., & Baker, S. (2007). Demand chain management-integrating marketing and supply chain management. *Industrial Marketing Management, 36*(3), 377–392.
Kache, F., & Seuring, S. (2017). Challenges and opportunities of digital information at the intersection of big data analytics and supply chain management. *International Journal of Operations & Production Management, 37*(1), 10–36.
Kankanhalli, A., Tan, B. C., & Wei, K. K. (2005). Understanding seeking from electronic knowledge repositories: An empirical study. *Journal of the American Society for Information Science and Technology, 56*(11), 1156–1166.
Karahanna, E., Agarwal, R., & Angst, C. M. (2006). Reconceptualizing compatibility beliefs in technology acceptance research. *MIS Quarterly,* 781–804.
Keil, M., Beranek, P. M., & Konsynski, B. R. (1995). Usefulness and ease of use: Field study evidence regarding task considerations. *Decision Support Systems, 13*(1), 75–91.
Kirk, C. P., Swain, S. D., & Gaskin, J. E. (2015). I'm proud of it: Consumer technology appropriation and psychological ownership. *Journal of Marketing Theory and Practice, 23*(2), 166–184.
Kock, N. (2016). Non-normality propagation among latent variables and indicators in PLS-SEM simulations. *Journal of Modern Applied Statistical Methods, 15*(1), 299–315.
Lilien, G. L. (2016). The B2B knowledge gap. *International Journal of Research in Marketing, 33*(3), 543–556.
Lowry, P. B., Gaskin, J., Twyman, N., Hammer, B., & Roberts, T. (2012). Taking 'fun and games' seriously: Proposing the hedonic-motivation system adoption model (HMSAM). *Journal of the Association for Information Systems, 14*(11), 617–671.
Mariadoss, B. J., Milewicz, C., Lee, S., & Sahaym, A. (2014). Salesperson competitive intelligence and performance: The role of product knowledge and sales force automation usage. *Industrial Marketing Management, 43*(1), 136–145.
Mathieson, K. (1991). Predicting user intentions: Comparing the technology acceptance model with the theory of planned behavior. *Information Systems Research, 2*(3), 173–191.
Mathieson, K., & Keil, M. (1998). Beyond the interface: Ease of use and task/technology fit. *Information & Management, 34*(4), 221–230.
Mathieson, K., Peacock, E., & Chin, W. W. (2001). Extending the technology acceptance

model: The influence of perceived user resources. *ACM SigMIS Database, 32*(3), 86–112.
McCarthy, J. D., & Zald, M. N. (1977). Resource mobilization and social movements: A partial theory. *American Journal of Sociology, 82*(6), 1212–1241.
Mero, J., Tarkiainen, A., & Tobon, J. (2020). Effectual and causal reasoning in the adoption of marketing automation. *Industrial Marketing Management, 86*, 212–222.
Mudambi, S., & Aggarwal, R. (2003). Industrial distributors: Can they survive in the new economy? *Industrial Marketing Management, 32*(4), 317–325.
Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
Pagani, M., & Pardo, C. (2017). The impact of digital technology on relationships in a business network. *Industrial Marketing Management, 67*, 185–192.
Palmer, J. W. (2002). Web site usability, design, and performance metrics. *Information Systems Research, 13*(2), 151–167.
Pierce, J. L., & Jussila, I. (2010). Collective psychological ownership within the work and organizational context: Construct introduction and elaboration. *Journal of Organizational Behavior, 31*(6), 810–834.
Rangarajan, D., Jones, E., & Chin, W. (2005). Impact of sales force automation on technology-related stress, effort, and technology usage among salespeople. *Industrial Marketing Management, 34*(4), 345–354.
Rogoll, T., & Piller, F. (2004). Product configuration from the customer's perspective: A comparison of configuration systems in the apparel industry. *International Conference on Economic, Technical and Organisational aspects of Product Configuration Systems, Denmark*.
Saarinen, T. (1996). An expanded instrument for evaluating information system success. *Information & Management, 31*(2), 103–118.
Salonen, A., Rajala, A., & Virtanen, A. (2018). Leveraging the benefits of modularity in the provision of integrated solutions: A strategic learning perspective. *Industrial Marketing Management, 68*, 13–24.
Salvador, F., & Forza, C. (2007). Principles for efficient and effective sales configuration design. *International Journal of Mass Customisation, 2*(1–2), 114–127.
Scherer, M. J., & Craddock, G. (2002). Matching Person & Technology (MPT) assessment process. *Technology and Disability, 14*(3), 125–131.
Schillewaert, N., Ahearne, M. J., Frambach, R. T., & Moenaert, R. K. (2005). The adoption of information technology in the sales force. *Industrial Marketing Management, 34*(4), 323–336.
Seddon, P., & Kiew, M. Y. (1996). A partial test and development of DeLone and McLean's model of IS success. *Australasian Journal of Information Systems, 4*(1).
Sheth, J. N., & Sharma, A. (2008). The impact of transitioning from products to services in business and industrial markets on the evolution of the sales organization. *Industrial Marketing Management, 37*(3), 260–269.
Sheth, J. N., Sharma, A., & Iyer, G. R. (2009). Why integrating purchasing with marketing is both inevitable and beneficial. *Industrial Marketing Management, 38*(8), 865–871.
Shi, V. G., Baines, T., Baldwin, J., Ridgway, K., Petridis, P., Bigdeli, A. Z., ... Andrews, D. (2017). Using gamification to transform the adoption of servitization. *Industrial Marketing Management, 63*, 82–91.
Speier, C., & Venkatesh, V. (2002). The hidden minefields in the adoption of sales force automation technologies. *Journal of Marketing, 66*(3), 98–111.
Srai, J. S., & Lorentz, H. (2019). Developing design principles for the digitalisation of purchasing and supply management. *Journal of Purchasing and Supply Management, 25*(1), 78–98.
Storbacka, K., & Cornell, E. (2016). *The digitalization drive: Elevating strategic account management.* Chicago, Ill: Strategic Account Management Association.
Storbacka, K., Ryals, L., Davies, I. A., & Nenonen, S. (2009). The changing role of sales: Viewing sales as a strategic, cross-functional process. *European Journal of Marketing, 43*(7/8), 890–906.
Strandvik, T., Holmlund, M., & Edvardsson, B. (2012). Customer needing: A challenge for the seller offering. *Journal of Business & Industrial Marketing, 27*(2), 132–141.
Suh, A., Cheung, C., Ahuja, M., & Wagner, C. (2017). Gamification in the workplace: The central role of the aesthetic experience. *Journal of Management Information System, 34*(1), 268–305.
Sun, H., & Zhang, P. (2006). Causal relationships between perceived enjoyment and perceived ease of use: An alternative approach. *Journal of the Association for Information Systems, 7*(9), 618–645.
Syam, N., & Sharma, A. (2018). Waiting for a sales renaissance in the fourth industrial revolution: Machine learning and artificial intelligence in sales research and practice. *Industrial Marketing Management, 69*, 135–146.
Sykes, T. A., Venkatesh, V., & Gosain, S. (2009). Model of acceptance with peer support: A social network perspective to understand Employees' system use. *MIS Quarterly, 3*(2), 371–393.
Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research, 6*(2), 144–176.
Teo, T., & Noyes, J. (2011). An assessment of the influence of perceived enjoyment and attitude on the intention to use technology among pre-service teachers: Structural equation modelling approach. *Computers & Education, 57*, 1645–1653.
Tiihonen, J., Soininen, T., Männistö, T., & Sulonen, R. (1996). State-of-the-practice in product configuration—A survey of 10 cases in the Finnish industry. In T. Tomiyama, M. Mäntylä & S Finger (Eds.). Knowledge intensive CAD, 1, 95–114.
Tiihonen, J., Heiskala, M., Anderson, A., & Soininen, T. (2013). WeCoTin–A practical logic-based sales configurator. *AI Communications, 26*(1), 99–131.
Trentin, A., Perin, E., & Forza, C. (2013). Sales configurator capabilities to avoid the product variety paradox: Construct development and validation. *Computers in Industry, 64*(4), 436–447.
Trentin, A., Perin, E., & Forza, C. (2014). Increasing the consumer-perceived benefits of a mass-customization experience through sales-configurator capabilities. *Computers in Industry, 65*(4), 693–705.
Van der Heijden, H. (2004). User acceptance of hedonic information systems. *MIS Quarterly, 28*(4), 695–704.
Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences, 39*(2), 273–315.
Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186–204.
Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly,* 425–478.
Wathne, K. H., & Heide, J. B. (2000). Opportunism in interfirm relationships: Forms, outcomes, and solutions. *Journal of Marketing, 64*(4), 36–51.
Wiersema, F. (2013). The B2B agenda: The current state of B2B marketing and a look ahead. *Industrial Marketing Management, 42*(4), 470–488.
Wixom, B. H., & Todd, P. A. (2005). A theoretical integration of user satisfaction and technology acceptance. *Information Systems Research, 16*(1), 85–102.
Yang, Z., Cai, S., Zhou, Z., & Zhou, N. (2005). Development and validation of an instrument to measure user perceived service quality of information presenting web portals. *Information & Management, 42*(4), 575–589.