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How a Perceived Utilisation of IT-enabled Information shapes Customer Satisfaction in B2B Markets

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Abstract

Background: Despite the recognised benefits of IT, we still know very little about how the perceived utilisation of IT-enabled information by suppliers is linked to customer satisfaction in B2B markets. **Objectives:** To address this gap, this study develops a research model, which is then tested through a web-based survey of transport firms' customers. **Methods/Approach:** A web-based survey was conducted in Slovenia. The target population for this study was all export firms that utilise transport services. **Results:** The study makes two key contributions to B2B marketing literature. First, results show that the more a supplier is perceived to utilise IT-enabled information in the service process, the less emphasis its customers place on prices when it comes to determining their satisfaction. Second, the results suggest that customers view the utilisation of IT-enabled information by suppliers of B2B services as a value-adding capability that boosts service quality perceptions. **Conclusions:** Interestingly, although we expected that perceived utilisation of IT-enabled information would also increase the importance of service quality in forming customer satisfaction, the results suggested that this was not the case. Drawing on service quality literature, the study offers possible explanations.

Introduction

In business-to-business (B2B) markets, customer satisfaction plays a key role in creating, developing, and maintaining long-term relationships with customers (Homburg & Rudolph, 2001). Low levels of satisfaction may encourage customers to explore alternative suppliers and even possibly withdraw from a partnership with a supplier (Homburg et al., 2014). On the contrary, high levels of satisfaction have been found to activate repeat purchases, fuel loyalty, and trigger positive word of mouth (Austen et al., 2012; Kuksov & Xie, 2010). Customer satisfaction has, thus, been repeatedly highlighted as an important driver of firm performance in B2B markets (Salam et al., 2022).

To improve customer satisfaction, B2B suppliers are increasingly making investments in information technology (IT) (Ata & Toker, 2012). IT investments seek to mobilise the utilisation of quality information in interactions between supply chain members (Jonsson & Myrelid, 2016) and, ultimately, to foster long-term supplier-customer relationships (Zhao et al., 2001). As such, IT investments do not only create efficiencies and cost savings in the form of lower inventory, distribution, and transportation costs (Horvath, 2001) but also hold the promise of improving suppliers' customer management capability. Utilising IT-enabled information can enable suppliers of B2B goods and services. This better manages customer knowledge, offers greater responsiveness to customers' demands, and, overall, promotes a better customer experience (e.g. Sanchez-Rodrigues et al., 2010; Sanchez-Rodrigues et al., 2008).

While previous IT research has provided some valuable insights on the business value of IT investments (e.g., Enholm et al., 2022), and B2B marketing research has highlighted the value created for customers by IT investments (e.g. Kim et al., 2010), very few studies have accounted for the B2B customer's perspective on how their perception of suppliers' IT-enabled information utilisation is linked to customer satisfaction. This study seeks to address this void.

Building on literature that identifies price and service quality as key drivers of B2B customer satisfaction (e.g. del Bosque Rodríguez, Agudo, & San Martín Gutiérrez, 2006), along with insights from equity theory (e.g. Carter & Curry, 2010) and studies on the benefits of information utilisation in supply chains (e.g. Davis & Golicic, 2010), this paper develops a research model on how customers' perception of suppliers' IT-enabled information utilisation influences customer satisfaction in B2B markets.

This study makes two key contributions to B2B marketing literature. First, the results illustrate that the more a supplier is perceived to utilise IT-enabled information in the service process, the less emphasis customers are likely to place on prices when it comes to determining their satisfaction. Second, the results suggest that customers view the utilisation of IT-enabled information by suppliers of B2B services as a value-adding capability. This boosts service quality perceptions. Interestingly, although it was expected that the perceived utilisation of IT-enabled information would also increase the importance of service quality in forming customer satisfaction, the results suggested that this was not the case. Drawing on service quality literature, the study offers possible explanations.

The paper is organised as follows. The next section provides a background for the constructs of interest by weaving in previous B2B literature on key determinants of customer satisfaction, with insights from IT and supply chain studies on the benefits of IT-enabled information utilisation from the customer's perspective. A presentation of the research model and the development of hypotheses follows this. Next, the research design is outlined, followed by the study's results. Theoretical and managerial contributions are then discussed. Limitations and future research avenues conclude the paper.

Theoretical background

Customer satisfaction in B2B markets and its key determinants: Price and service quality

Contrary to business-to-consumer (B2C) studies that usually relate satisfaction to a single transaction, customer satisfaction in B2B contexts is a relationship-specific construct (Sureshchandar, 2023). In B2B markets, relationships between sellers and buyers are often close and long-term and involve complex interactions between and within each firm (Pfajfar et al., 2022). Customer satisfaction in B2B markets reflects customers' perceptions of a supplier's ability to meet customers' expectations about the product or service (including key features, product/service-related information, and services) and accompanying activities (e.g. order handling, complaint handling, interaction with salespeople and interaction with internal staff) (Homburg & Rudolph, 2001).

Understanding the antecedents of customer satisfaction is important for B2B marketers, as it has significant implications for the economic performance of firms (Kuksov & Xie, 2010). Customer satisfaction negatively impacts customer complaints and positively impacts customer loyalty (Slack et al., 2020). High levels of customer satisfaction can, therefore, lead to increased revenues and higher market share (Homburg et al., 2013). Although customer satisfaction in B2B markets has not been examined in as much depth as in B2C settings, B2B scholars have begun to unpack its antecedents. Amongst the various financial and non-financial factors highlighted in recent studies, customers' perceptions of a supplier's price (Cahill et al., 2010; Witlox & Vandaele, 2005) and service quality (Chenet et al., 2010; Davis-Sramek et al., 2009; Gil-Saura et al., 2010; Giovanis et al., 2013; Molinari et al., 2008; Vaidyanathan & Devaraj, 2008) have emerged as key drivers of customer satisfaction in B2B markets.

A key antecedent of B2B customer satisfaction is customers' perceptions of the price that they have to pay to receive the product/service (Bag et al., 2020). In the transport sector, for instance, Cahill et al. (2010) have found that prices are an influential factor when it comes to customers' satisfaction with transport firms. Scholars have drawn on equity theory (Huppertz et al., 1978) to conceptualise this influence. According to equity theory, customers look for a fair product for a fair price' (Huppertz et al., 1978). B2B studies have, hence, highlighted that customer satisfaction in B2B markets is very much contingent on how fair or competitive customers perceive the price they pay (Homburg et al., 2013). When customers perceive the supplier's price to be high, this can have a negative effect on their satisfaction (Balasubramanian et al., 2003). On the contrary, when suppliers lower their prices while keeping product/service quality constant, this tends to increase customers' satisfaction (Hidayat et al., 2019). Interestingly, studies have also shown that customers may be willing to accept a relatively high price as long as they perceive pricing formation to be transparent (Carter & Curry, 2010) and fair (Homburg et al., 2013).

Service quality is the other key antecedent of customer satisfaction in B2B markets. Logistics studies, for instance, have emphasised that service quality shapes customer satisfaction and long-term relationship commitment in supply chains (e.g., Chenet et al., 2010; Gil-Saura et al., 2010; Giovanis et al., 2013). Service quality has been conceptualised as an attitude that reflects customers' perceptions about a supplier's performance of specific dimensions important for that service (Cronin & Taylor, 1994). For example, for logistics customers, accommodating unique and/or unplanned requirements and adapting to unexpected operational situations is often very important (Gil-Saura et al., 2010; Amaral et al., 2022). Similarly, Witlox and Vandaele (2005) noted that when it comes to transport services, the frequency, reliability,

flexibility and duration of the service are critical. Cronin and Taylor (1994) have argued that this performance-based conceptualisation of service quality is superior to traditional 'gap theory' conceptualisations (Parasuraman et al., 1985), which viewed the difference between customers' expectations about a general class of suppliers and their assessment of a specific supplier's actual performance as the key driver of service quality.

The value of IT-enabled information utilisation: The customer's perspective

B2B suppliers are increasingly investing in information technology (IT) to enhance their customer satisfaction (Ata & Toker, 2012; Bienstock et al., 2008). Studies in the IT field have traditionally focused on the 'business value of IT', examining the contribution of IT to firm performance (Kohli & Devaraj, 2003; Melville et al., 2004; Mithas et al., 2011). Early research proposed that IT investments were directly linked to firm performance and sustainable competitive advantage (e.g., McFarlane, 1984). However, later studies found no direct IT-performance connection (e.g., Clemons & Row, 1991). Scholars, thus, increasingly proposed that IT capability enables the utilisation of quality information (Popovič et al., 2012), which may enhance key supply chain processes (e.g. managing customer orders, product/service maintenance, human resource acquisition, material acquisition, cash acquisition and product/service development) that, in turn, impact firm performance (Popovič et al., 2012).

In parallel, studies in the B2B marketing field have examined the impact of IT-enabled information utilisation in supply chains from the customer's perspective (e.g. Lee et al., 2024; Kim et al., 2010; Mithas et al., 2005). Although there is still a dearth of studies examining how customers' perception of suppliers' IT-enabled information utilisation shapes customer satisfaction in B2B markets (Mithas et al., 2005), Lim and Kim (2015) have provided some valuable insights on how IT-enabled information utilisation can create value for customers. They noted that IT investments can facilitate the collection of different types of data. It also helps suppliers to identify what information to deliver to their customers, how to produce it, how to deliver it and how to organise who produces and delivers it. Utilising IT-enabled information can help customers enjoy better planning coordination. Additionally, it enables control of activities in the supply chain (Irfan et al., 2019; Sanders, 2005) and fosters long-term supply chain relationships (Zhao et al., 2001). The utilisation of Electronic Data Interchange (EDI) information in logistics, for example, has been found not only to bring about improved efficiency and lower costs but also to enhance perceptions of process and outcome quality (Dalaqmeh & Irsa, 2022; Zhu et al., 2022; Bienstock et al., 2008; Zhao et al., 2001). Moreover, when suppliers utilise IT-enabled information, they tend to be better at managing customer knowledge and responding to customer demands and, thus, more equipped to provide a better experience for their customers (Zhang et al., 2020; Sambamurthy et al., 2003; Sanchez-Rodrigues et al., 2010; Sanchez-Rodrigues et al., 2008). IT-enabled demand data can also enable dynamic pricing of B2B services (Li et al., 2009).

While previous research has provided some valuable insights on the business and customer value of IT-enabled information utilisation, very few studies have looked at the B2B customer's perspective, and in particular, how their perception of suppliers' IT-enabled information utilisation shapes customer satisfaction. The next section builds a research model and develops hypotheses to address this gap.

Research model and hypotheses

Figure 1 summarises the proposed research model. Hypotheses are discussed in detail in the sections that follow.

Figure 1
The influence of customers' perceptions of suppliers' IT-enabled information utilisation on B2B Customer satisfaction
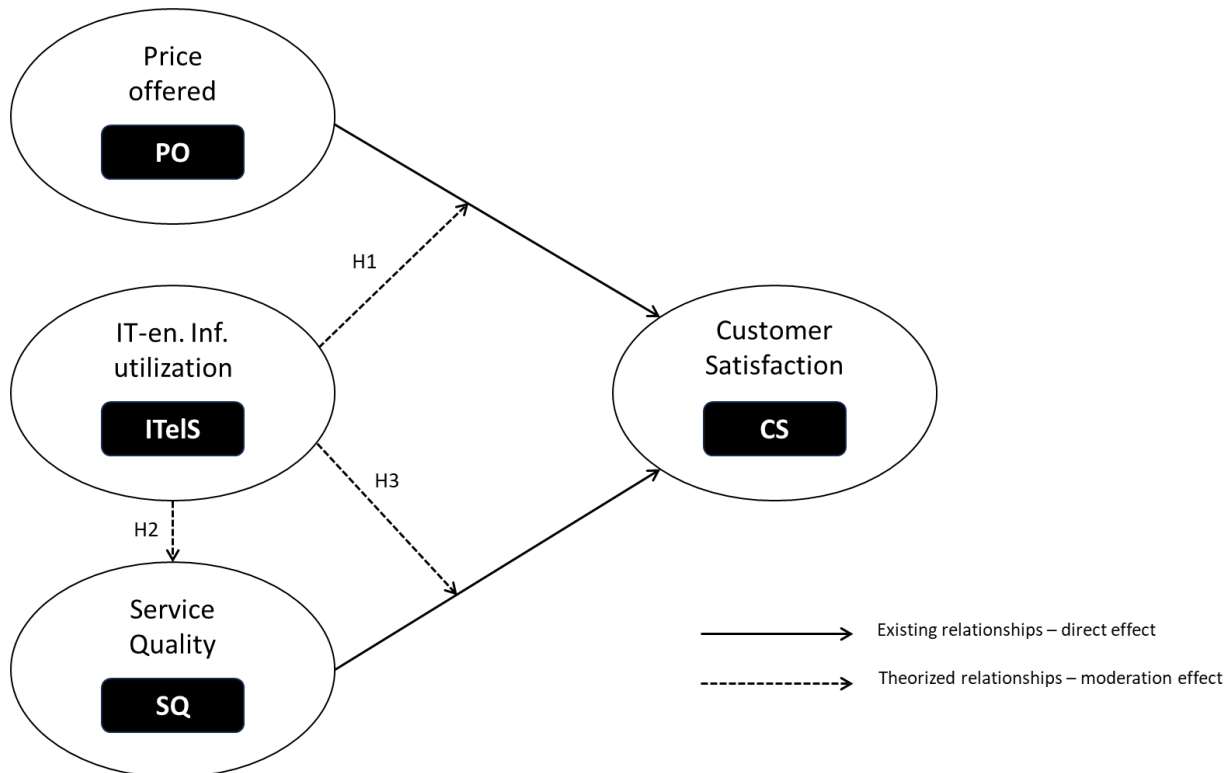
Source: Author's illustration

Impact of perceived IT-enabled information utilisation on the price–customer satisfaction relationship in B2B markets

Previous research has repeatedly identified price perceptions as a key determinant of customer satisfaction in B2B markets (e.g., Williams et al., 2011). Scholars have suggested that a supplier's ability to offer competitive prices and guarantee prices can lead to greater customer satisfaction (Zhang et al., 2019). B2B customers also tend to track prices over time when making supplier decisions, so remaining competitively priced over time is also important (Elmaghraby & Keskinocak, 2003). This is a challenging task, considering that B2B services are often difficult to price.

However, equity theory suggests that transparent pricing can enhance perceptions of fairness when it comes to prices (Carter & Curry, 2010). Interestingly, Homburg et al. (2014) have found that although an increase in price generally leads to a decrease in customer satisfaction, when pricing is transparent, this is not always the case. Studies have also highlighted that customers tend to be more price-sensitive when there is a lack of information about prices (Gal-Or et al., 2008) and costs (Formentini et al., 2011).

B2B suppliers can leverage their information management capability (Docters, et al., 2004; Mithas et al., 2011) to improve transparency around pricing and, thus, enhance customers' perception of 'fair' suppliers' prices when making purchasing

decisions. IT can help suppliers establish prices and also enable them to utilise and share relevant information with customers about how prices are set (Docters et al., 2004; Habjan et al., 2014). Supply chain studies have long argued that the utilisation and sharing of quality information can enhance the supplier-customer relationship (Dawson et al., 2017). When customers obtain quality IT-enabled information, which can aid their understanding of how prices are formed, perceptions of transparency and fairness are enhanced and thus, customers are likely to be more willing – ceteris paribus – to accept the price charged (Carter & Curry, 2010; Gal-Or et al., 2008; Homburg et al., 2014). The above theorising collectively leads to the development of the following hypothesis:

- o *H1: The more B2B customers perceive their supplier to utilise IT-enabled information in the service process, the more the importance of price offered in the formation of customer satisfaction decreases.*

Impact of perceived IT-enabled information utilisation on service quality and B2B customer satisfaction

Extant B2B literature has repeatedly confirmed that service quality is a key antecedent to customer satisfaction in B2B markets (e.g. Chenet et al., 2010; Molinari et al., 2008; Rauyruen & Miller, 2007; Vaidyanathan & Devaraj, 2008). Nevertheless, authors have noted that in supply chain relationships, both service quality and customer satisfaction rest on information, its use and its distribution (Widiyanto et al., 2021). Spreng, MacKenzie, and Olshavsky (1996) argued that when B2B customers evaluate their satisfaction with a supplier, they usually take into consideration information regarding the performance of the product/service offered. In a B2B context, all supply chain partners are, thus, believed to be better off when integrating quality information regarding products/services and making it available to other supply chain partners (Schau et al., 2005). Furthermore, authors reported that information utilisation and sharing within supply chains is linked to increased customer and supplier commitment to their relationship (Lee & Ha, 2018). B2B customers expect their suppliers to develop and utilise market information to meet (or even exceed) agreed service levels (Davis & Golicic, 2010). For example, a retailer will require its key suppliers to utilise transaction data and information on stock levels in order to adapt production to support unexpected demand or declines in sales. McIvor, O'Reilly, and Ponsonby (2003) also suggested that acquired, analysed, shared, and utilised IT-enabled information can improve the post-purchase customer experience. Drawing on the studies above, it is proposed that the more customers perceive a supplier to utilise IT-enabled information, the more their perceptions about service quality will be enhanced, and this will amplify the influence of service quality on customer satisfaction. From the B2B customer's perspective, the following hypotheses are, thus, proposed:

- o *H2: Perceived utilisation of IT-enabled information by suppliers has a positive effect on service quality.*
- o *H3: As suppliers perceive the utilisation of IT-enabled information as increasing, service quality becomes more important in determining customer satisfaction.*

Methodology

Data collection

A web-based survey was conducted in Slovenia. The target population for this study was all export firms that utilise transport services. This is a particularly fruitful setting for studying how customers' (in this case, export firms') perception of their suppliers' (in this case, transport service providers) IT-enabled information utilisation influences the

formation of customer satisfaction for two reasons. First, Slovenia has a long tradition in the road transport sector. Its transport industry adds about a tenth to the country's Gross Domestic Product (GDP) and is one of the few industries with considerable growth over recent years. Second, in terms of IT investments, Slovenian transport service providers widely utilise IT, predominantly in the form of Global Positioning Systems (GPS), to enhance the efficiency and effectiveness of their transport services. GPS allows transport firms to collect and share real-time transport information on collection location and time, delivery point and time, vehicle number, the position of the vehicle, mileage covered, travel speed, new requests by customers, periodic estimates of road travel times and the status of goods, loading units and vehicles (Ghiani et al., 2003; Giannopoulos, 2004; Repoussis et al., 2009; Wang et al., 2011). GPS helps customers to perform online transactions, share and exchange up-to-date information, receive real-time customer service, manage their logistics, and make inventory replenishment decisions (Eng, 2006).

To obtain a comprehensive list of survey respondents, namely export firms that showed contracted transport services costs in their profit and loss accounts, records from the official Slovenian Exporters register were merged with records of business entities from the database of the Agency of the Republic of Slovenia for Public Legal Records and Related Services. The final list provided 1,377 export firms eligible for inclusion in this study.

A survey website was created, and e-mail invitations were sent to staff responsible for organising transport services within these export firms. These targeted respondents usually worked in the purchasing department or customer service department of the export firms. They were able to evaluate the performance of transport service providers. They were responsible for selecting the transport firm, often making the first contact to place the order and specifying the date of loading/unloading, place of loading/unloading, and type of goods to be transported. From the initial call, 163 firms responded to the survey. To increase the response rate, follow-up reminders were sent out. These resulted in an additional 31 responses. The total number of valid observations was 194, with a final response rate of 14.1%.

To test for non-response bias, the Kolmogorov-Smirnov test was used to compare the distributions of early and late respondents in the sample (Ryans, 1974). The sample distributions of early and late respondents did not differ statistically (the p-value for all variables was above 0.10). The absence of non-response bias was thus confirmed (Ryans, 1974). Moreover, common method bias was tested using Harman's single-factor test (Podsakoff et al., 2003). The test showed that the most variance explained by a single factor was 23.5% and that none of the factors' variance exceeded 50% of the suggested threshold value. Accordingly, the absence of any significant common method bias in the data set was confirmed.

Questionnaire and measures

Relevant constructs were adapted from existing studies in marketing and information management. The construct items were translated from English to Slovenian through a collaborative and iterative translation procedure to ensure semantic equivalency (Douglas & Craig, 2007). A detailed list of the indicators used in the questionnaire is presented in Table 1.

Table 1
Indicators used in the questionnaire

Construct	ID	Indicator
Service Quality (SQ)	SQ1	When the company promises to do something by a certain time, it does so.
	SQ2	When you have problems, the company is sympathetic and reassuring.
	SQ3	The company is dependable.
	SQ4	The company provides its services at the time it promises to do so.
	SQ5	The company keeps its records accurately. *(*** removed in the final model)*
	SQ6	You can trust the employees of the company.
	SQ7	You feel safe in your transactions with the company's employees.
	SQ8	Employees of the company are polite.
	SQ9	Employees get adequate support from the company to do their jobs well.
Customer Satisfaction (CS)	CS1	Satisfaction with transport service
	CS2	Satisfaction with salespeople
	CS3	Satisfaction with transport services-related information
	CS4	Satisfaction with order handling
	CS5	Satisfaction with interaction with internal staff
	CS6	Satisfaction with complaint handling
Price Offered (PO)	PO1	The firm offers competitive prices for its service.
	PO2	The firm is able to offer prices as low as their competitors.
	PO3	The firm guarantees its prices.
IT-enabled Information Utilisation (ITeIS)	ITeIS1	The transport firm utilises GPS-enabled information to encourage employee involvement and improve work processes.
	ITeIS2	The transport firm utilises GPS-enabled information to improve communications between the transport company and you.
	ITeIS3	The transport firm utilises GPS-enabled information to improve ordering.
	ITeIS4	The transport firm utilises GPS-enabled information to enable staff to share task-related information.
	ITeIS5	The transport firm utilises GPS-enabled information to collect data about work/production processes.
	ITeIS6	The transport firm utilises GPS-enabled information to provide DSS, statistical tools, and diagrams.
	ITeIS7	The transport firm utilises GPS-enabled information to provide you with timely information for decision-making.
	ITeIS8	The transport firm utilises GPS-enabled information to provide you with relevant information that meets your needs.

Source: Author's illustration

The cover letter that accompanied the questionnaire asked respondents to focus their answers on the transport service provider with whom their firm had the strongest relationship. In particular, respondents were asked to think about the transport service provider that their firm used the most for transport (i.e., the transport service provider that they used for more than 50% of their transport business). Informal discussions with experts in the transport industry revealed that export firms may use more than one transport service provider due to the unavailability of trucks or for specific routes but that most export firms tend to have a stronger relationship with one supplier of transport services. It was then left to the respondents to assess who that transport service provider was for their firm and to keep that in mind when answering questions.

The questionnaire consisted of three parts. The first part included a set of questions regarding respondents' evaluations of their transport service providers' service quality (SQ), price offered (PO), and customer satisfaction (CS). In the second part of the questionnaire, respondents were then asked to answer questions regarding their perceptions of their transport providers' GPS-enabled information utilisation (ITeIS). As discussed previously, respondents were asked to focus specifically on GPS-enabled information utilisation, as GPS is the main form of IT that transport providers use to share information with their customers. In the third part, respondents were invited to answer demographic questions about their firm (e.g., industry, number of employees, sales volume) and themselves.

Following Cronin & Taylor's (1994) conceptualisation of service quality, the service performance (SERVPERF) instrument was adopted for measuring SQ, which has been extensively validated and is argued to produce better results than SERVQUAL (Asubonteng et al., 1996). Indicators of PO were adopted from the work of Tracey, Vonderembse, and Lim (1999) since they were specific to service industries and have been previously verified. The indicators of CS have been developed by Homburg and Rudolph (2001) for B2B markets and have been validated across several industries. The measurement scale of ITeIS was compiled drawing on similar prior studies by Sánchez-Rodríguez, Dewhurst, and Martínez-Lorente (2006). Following Cronin & Taylor's (1994) recommendation, all measures were adapted to the industry under study. All indicators were measured with a seven-point Likert scale, with 1 representing 'Strongly disagree' and 7 'Strongly agree'.

Sample characteristics

Tables 2, 3 and 4 showcase the profiles of the export firms in the sample by industry type, number of employees and sales volume, respectively. Most respondents worked in the export firms' purchasing or customer service departments.

Table 2
Profile of participating export firms by industry type

Export firms: by industry	% in the sample
Wholesaling/retailing	31.63%
Miscellaneous Manufacturing	25.00%
Transportation/equipment services	13.78%
Chemicals/rubber/mining	6.63%
Food and drug processing	3.06%
Electronics/telecommunications	2.04%
Marketing services	1.02%
Financial services	0.51%
Other	16.33%

Source: Author's illustration

Table 3
Profile of participating export firms by number of employees

Export firms: by number of employees	% in the sample
1 – 9	24.87%
10 – 49	26.42%
50 – 99	14.51%
100 – 199	11.92%
200 – 249	4.66%
250 – 499	9.84%
500 – 999	3.11%
1000 or more	4.67%

Source: Author's illustration

Table 4
Profile of participating export firms by sales

Export firms: by sales	% in the sample
< 500,000 €	7.26%
500,000 – 999,999 €	10.61%
One million to 1,999,999 million €	12.85%
Two million to 4,999,999 million €	21.23%
Five million to 9,999,999 million €	20.67%
Ten million to 19,999,999 million €	14.53%
Over 20 million €	12.85%

Source: Author's illustration

The study controlled for two variables, namely the size of the export firm (customer) and the industry to which it belonged. Existing studies in industrial marketing management suggest that firm size may have a significant impact on B2B relationships (Hallikainen et al., 2020). For example, larger transport service customers may have different requirements and hold different expectations regarding the transport service provider compared to smaller customers. Thus, it was deemed important to control for the impact of firm size on customer satisfaction. Furthermore, customers' expectations of transport firms' services may also differ across industries, and this may influence their satisfaction with the transport service provider (Giannopoulos, 2004). Hence, the impact of industry on customers' satisfaction with the transport service provider was also controlled.

Method
Descriptive statistics and structural equation modelling were used as means of statistical analysis. Partial Least Squares (PLS) path modelling was applied, as implemented in SmartPLS 2.0 (Ringle et al., 2005), to assess measurement reliability and validity, estimate the model, and test the hypotheses. PLS is a broadly accepted variance-based, descriptive, and prediction-oriented approach to structural equation modelling, which is distribution-free and can be utilised for exploratory and confirmatory research (Henseler et al., 2016). PLS has been the common estimation method for customer satisfaction assessment (Coelho & Henseler, 2012) and within studies assessing the IT value for organisations (e.g. Ghapanchi, 2013; Kamhawi, 2010). Moreover, PLS works well with small to medium sample sizes and complex models (Hair et al., 2012).

Results
Descriptive analysis
Descriptive analysis showed that most of the indicators' means were around one scale point to the right of the centre of the scale, thus suggesting a slightly negative skewed distribution. Standard deviations varied between .890 for CS4 and 2.149 for ITeIS6. ITeIS indicators showed the highest standard deviations, while CS indicators had the lowest variability. The means and standard deviations of indicators can be found in Table 5.

Before testing the structural model, the reflective part of the measurement model was first examined in order to assess the construct and indicator reliability, internal consistency, convergent validity, and discriminant validity. The quality of the formative construct in the measurement model was then determined through content validity (Straub et al., 2004), multicollinearity (Diamantopoulos & Siguaw, 2006), and weights (Chin, 1998). These are described in the following sections.

Table 5
Means, standard deviations and standardised loadings of indicators

Construct	Indicator	Mean	Std. deviation	Loading
Service Quality (SQ) (r)	SQ1	5.80	1.336	0.790*
	SQ2	5.52	1.264	0.764*
	SQ3	5.91	1.085	0.831*
	SQ4	5.90	1.082	0.806*
	SQ6	5.67	1.180	0.775*
	SQ7	5.66	1.183	0.801*
	SQ8	5.73	1.153	0.765*
	SQ9	5.63	1.144	0.732*
Price Offered (PO) (r)	PO1	5.66	1.231	0.836*
	PO2	5.46	1.581	0.794*
	PO3	5.97	1.220	0.786*
Customer Satisfaction (CS) (r)	CS1	5.85	0.952	0.873*
	CS2	5.87	1.092	0.877*
	CS3	5.59	1.098	0.856*
	CS4	5.84	0.890	0.868*
	CS5	5.89	1.049	0.854*
	CS6	5.47	1.390	0.791*
IT-enabled Information Utilisation (ITeIS) (f)	ITeIS1	4.90	1.923	0.861*
	ITeIS2	4.34	2.066	0.852*
	ITeIS3	4.64	1.981	0.905*
	ITeIS4	5.02	1.940	0.898*
	ITeIS5	5.04	2.032	0.924*
	ITeIS6	4.89	2.149	0.895*
	ITeIS7	4.76	2.092	0.906*
	ITeIS8	4.79	2.076	0.911*

*Note: (r) reflective measures; (f) formative measures; *Significant at 0.001 level (two-tailed test)*
Source: Author's illustration

Measurement model assessment

The reflective measures were assessed for reliability and validity by confirming that they described their corresponding constructs adequately (see Table 6). All Cronbach's Alphas reached and exceeded the 0.7 threshold (Nunnally, 1975). Without exception, latent variable composite reliabilities (Fornell & Larcker, 1981) were higher than 0.80 and, in general, above 0.90, showing a high internal consistency of indicators measuring each construct. The average variance extracted (AVE) (Fornell & Larcker, 1981) values were also consistently higher than 0.60, thus demonstrating one-dimensionality and a high convergent validity. Reliability and convergent validity of the measurement model were further confirmed by computing standardised loadings for reflective measures (see Table 5) and Bootstrap t-statistics for their significance. All standardised loadings exceeded the minimum suggested threshold of 0.7, thus confirming a high convergent validity of the measurement model.

To determine discriminant validity, the analysis also focused on whether each latent variable shared more variance with its measurement variables or with other constructs (Chin, 1998; Fornell & Larcker, 1981). Comparing each construct's square root of the AVE with its largest squared inter-construct correlations (Table 7) revealed that discriminant validity in the form of the Fornell–Larcker criterion was met. It was concluded that all the constructs showed evidence of adequate validity.

For the formative construct ITeIS, which was modelled using eight formative indicators, the test for multicollinearity denoted that analysis of the significance of

outer weights could be conducted as the next step since the variance inflation factor (VIF) values for all indicators were below 5. Thus, collinearity did not cause an issue (Hair et al., 2012). Outer weights of the ITeIS construct were significant for three indicators; for the other five indicators, the outer loading was greater than 0.5, and thus, no indicator was eliminated (Hair et al., 2012). Since the evaluations of construct reliability, indicator reliability, convergent validity, discriminant validity (reflective measures), content validity, multicollinearity, and weights (formative measures) were adequate, the constructs were confirmed as suitable for testing the conceptual model.

Table 6
Reliability and validity measures

Construct	Cronbach's Alpha	Composite reliability	Average variance extracted
Service Quality (SQ)	0.910	0.927	0.614
Price Offered (PO)	0.732	0.847	0.649
Customer Satisfaction (CS)	0.925	0.942	0.729
IT-enabled Information Utilisation (ITeIS)	N/A	N/A	N/A

Note: Composite reliability, Cronbach's alpha and average variance extracted are not applicable to the formative construct
Source: Author's illustration

Table 7
Correlations between latent variables and square roots of average variance extracted

	SQ	PO	CS	ITeIS
SQ	**0.784**	0.564	0.712	0.190
PO		**0.806**	0.556	0.173
CS			**0.854**	0.319
ITeIS				**N/A**

Note: Bold elements in the main diagonal of the latent variable correlations denote the square root of the average variance extracted
Source: Author's illustration

Structural model results

The structural model consisted of six latent variables, namely ITeIS, PO, SQ and CS, along with two latent variables that represented interactions between original latent variables (ITeIS x PO and ITeIS x SQ). Following Chin, Marcolin, and Newsted (2003), interaction terms were modelled through the creation of new constructs, using the products of the standardised indicators relative to the underlying constructs involved in the interaction as indicators.

Table 8 presents the explanatory power (through determination coefficient, R^2) of the equations explaining the endogenous construct. The proposed model showed a high explanatory power for CS (0.6). Furthermore, Table 8 provides the estimates of path coefficients of the proposed model and corresponding significance levels, as well as the effect sizes for evaluating the predictive importance of each determinant (original constructs and interaction terms). Mirroring extant literature, PO and SQ showed significant positive impacts on CS, with the impact of SQ being considerably larger than the impact of PO (0.538 vs. 0.186). The ITeIS x PO-CS path was significant at 5 percent. It appeared that the more customers perceived that transport firms utilised GPS-enabled information, the less important the prices offered were in forming

their satisfaction with the transport firm (H1 was, therefore, supported). Moreover, the effect of ITeIS on SQ was positive, thus suggesting that the more customers perceived the transport firms to utilise GPS-enabled information, the more this enhanced the perceived service quality (H2 was, hence, supported). The path ITeIS-SQ was significant at 5%. Interestingly, the GPS x SQ-CS path was non-significant (H3 was not supported). Utilising IT-enabled information, thus, did not appear to increase the perceived importance of SQ in forming CS with transport service providers. Lastly, the results indicated that the control variables, i.e. firm size and industry type, did not have any significant effect on CS.

Table 8
Structural model results and effects sizes (f2)

Criterion	Predictors	R^2	Path coefficient	f^2
Customer Satisfaction (CS)	Price Offered (PO)	0.601	0.181**	
	Service Quality (SQ)		0.582***	
	IT-enabled Information Utilisation (ITeIS) x Price Offered (PO)		-0.184*	0.091
	IT-enabled Information Utilisation (ITeIS) x Service Quality (SQ)		0.018 (ns)	
	Firm size		0.063 (ns)	
	Industry		0.092 (ns)	
Service Quality (SQ)	IT-enabled Information Utilisations (ITeIS)	0.036	0.188*	

*significant at 0.05 level (two-tailed test); ** significant at 0.01 level (two-tailed test); *** significant at 0.001 level (two-tailed test), (ns) non-significant;
Source: Author's illustration

Discussion and conclusion

Theoretical implications

Despite the recognised benefits of IT in extant B2B marketing literature, our understanding of how customers' perception of suppliers' IT-enabled information utilisation influences customer satisfaction remains scarce. While echoing the influence of price and service quality on B2B customer satisfaction, this study provides new insights into how perceived IT-enabled information utilisation affects customer satisfaction in B2B markets.

This study reveals two important contributions to B2B marketing theory in terms of the role that perceived IT-enabled information utilisation plays in customer satisfaction formation. First, the results suggest that the more B2B customers perceive suppliers to utilise IT-enabled information, the more this suppresses the relative impact of price on overall customer satisfaction formation. Equity theory explains that information utilisation in the transport process mobilises perceptions of fairness and transparency when it comes to suppliers' prices (Carter & Curry, 2010; Homburg et al., 2013). Increased IT-enabled information utilisation thus not only enables B2B suppliers to set up more precise prices, segment customers more accurately and adjust prices promptly (Li et al., 2009) but also encourages their customers to place less emphasis on prices when it comes to satisfaction formation (Guzovski et al., 2022).

Second, the results show that the perceived utilisation of IT-enabled information positively influences perceptions of service quality. IT-enabled information can enhance the quality of information available during the service process (Smith & Mentzer, 2010). In the e-service context, Xu, Benbasat, and Cenfetelli (2013) have

discussed the effect of information quality on service quality. Similarly, in the context of transportation and logistics, delivering timely and comprehensive information to customers has been found to be critical (Kahn et al., 2002). IT-enabled utilisation enhances on-time delivery as well as flexibility in the transport process, enabling the transport firm to reroute a vehicle while en route if customers' requirements change (Mintsis et al., 2004).

Although it was expected that as the perceived utilisation of GPS-enabled information in the service process increases, the importance of service quality in forming customer satisfaction would also increase, the results suggested that this was not the case. There are three possible explanations for this outcome. First, the literature suggests that positive enhancements in service quality may not be reflected immediately in an increase in customer satisfaction but rather in the long run (Hidayat et al., 2019). Second, increased perceived IT-enabled information utilisation by suppliers may increase customers' expectations and, in turn, increase expectations of service performance levels (Bebko, 2000; Chang & Chen, 2008). Third, an alternative possible explanation could be that the weakened relative importance of price in customer satisfaction formation shifts the emphasis on other customer satisfaction determinants (Homburg & Rudolph, 2001).

Managerial implications

This study also has several implications for B2B marketing practice. The utilisation of IT-enabled information makes price definition more transparent and, hence, possibly fairer in the eyes of customers by revealing, for instance, common market and transport costs (e.g. road tolls, taxes, fuel costs). While the definition of IT-supported pricing may lead to less variation in price between competitors, customers are likely to look for other factors that determine their satisfaction with the service provider and pay less attention to the price offered. B2B service providers sharing IT-enabled information on price setting should, therefore, sharpen their focus on developing other customer-oriented capabilities (e.g., order handling, complaint handling, flexibility, responsiveness, and reliable delivery) in order to differentiate themselves from the competition. In essence, B2B firms that share IT-enabled information with their customers should be shifting their emphasis from a price-oriented to a customer-oriented focus.

For B2B customers, perceived transparency on prices fostered by IT-enabled information utilisation can bring about two benefits. First, customers can save valuable resources, especially time, when searching for competitive offers from prospective suppliers. Second, customers can better focus on negotiating or tailoring other aspects of their customer-supplier agreement to meet their needs beyond direct economic interests. All of this collectively contributes to a more positive customer-service provider experience, which is key for repeat purchases (Kuksov & Xie, 2010).

Limitations and future research avenues

Despite its contributions to B2B marketing theory and practice, this study has limitations that open opportunities for future research. To begin with, the proposed model tested how Slovenian export firms' perception of their key transport service provider's GPS-enabled information utilisation shaped customer satisfaction. Future research can examine the generalizability of these findings to other B2B settings, countries and information technologies (e.g., enterprise-wide information systems). Future studies can also unpack the antecedents of perceived IT-enabled information utilisation. Last but not least, this study focused on the dyadic relationship between B2B customers and their main suppliers. Researchers can extend this study to broader supply chains

and consider their level of integration. Moreover, studies can delve deeper into the role that the nature and length of the customer-supplier relationship may play in shaping customer satisfaction in B2B markets.

Concluding remarks

Customer satisfaction plays a major role in endorsing long-term supply chain relationships and enhancing firm performance in B2B contexts. This study explored how customers' perception of suppliers' IT-enabled information utilisation affects the formation of customer satisfaction in B2B markets. Blending customer satisfaction and information utilisation literature facilitated the development of research hypotheses that explicate these relationships. The results revealed that perceived IT-enabled information utilisation suppresses the relative importance of price offered in forming customer satisfaction in B2B contexts. Moreover, perceived IT-enabled information utilisation positively affects perceptions of service quality. However, this does not impact the relative importance of service quality on customer satisfaction formation. This study aims to trigger future research that sheds further light on the role that IT plays in shaping B2B customer satisfaction.

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About the author

Andreja Habjan is a recognised expert in the fields of transport, logistics, and business administration, with a solid background in both academia and the professional world. Her educational journey began at GEA College, where she earned a Master's degree in Business Administration and Management from 2002 to 2006, laying the groundwork for her future career. Her pursuit of further education led her to Brunel University London, where she focused on business, management, and logistics as a research student from 2006 to 2010. Her academic journey reached a peak at Cardiff University, where she earned a Doctor of Philosophy (PhD) in Ground Transportation in 2015, further deepening her knowledge and research skills. Alongside her academic pursuits, Andreja has built a notable professional career. Since July 2007, she has been a pivotal figure at Habjan Transport, d.o.o., starting as the Head of Finance and Administration before taking on the role of CEO in September 2013. Her tenure as CEO has been marked by steady leadership and strategic development. In addition to her role at Habjan Transport, Andreja has contributed to academia as a Lecturer at GEA College from January 2003 to July 2017, sharing her insights and experience with students. In April 2021, she took on the position of Assistant Professor at NOA, Slovenia, further demonstrating her commitment to education in the field of transport and logistics. The author can be contacted at **andreja.habjan@mynoa.com**.