

ESSENTIAL FACTORS FOR BUILDING CUSTOMER RELATIONSHIPS ON FACEBOOK: EVIDENCE FROM THE CZECH REPUBLIC

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Abstract: *E-commerce has become an integral part of the modern age. The behaviour of e-commerce customers has some specifics, which is useful for firms to understand. As customers' trust and willingness to accept risk influence the decision to buy a product in e-commerce, it is evident that some unique factors must be in e-commerce which is needed to pay attention to be a successful seller. One of the trends affecting how to manage relations with customers is the use of firm profiles on social networks. This paper identifies factors related to the company's Facebook profile that influence customer Satisfaction and Loyalty in e-commerce. Furthermore, non-traditional factors such as Self-efficacy or Data security are used. The study provides a primary basis for further research in this area. Data collection was done among e-commerce customers using a questionnaire survey (n = 602). For data analysis, structural equation modelling (SEM) was used. The determined construct contained a total of 9 variables. The findings confirmed that the following factors affect customer satisfaction and loyalty: the perceived usefulness and the amount of information on the Facebook company profile, the perceived Credibility of information given on this profile, the Data security offered by the social network, customer Self-efficacy and Ease of use of the given social network. The results supported the idea that it is possible to build relationships with customers in e-commerce via social networks. To offer credible information in an adequate frequency on the company profile is essential. Furthermore, it is helpful to consider customers' perceived safety and Self-efficacy, which have also proven to be important in the online environment. These results can serve business practice.*

Keywords: Social networks, e-commerce, customers, behaviour, factors.

JEL Classification: M30, M31.

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Introduction

E-commerce is one of the modern trends that is emerging in connection with the development of information technology. Turban et al. (2015) state that e-commerce is a form of business that uses an online environment, and the Internet is just a factor that connects the seller and the buyer.

The fast growth of e-commerce in the last few years in most European countries (Eurostat, 2020) brings pressure on companies and the necessity for rapid responses to increasing customer requirements. The reason is simple. Many companies face challenges, such as high competition in some segments of e-commerce, gradual market saturation

due to economic growth and development. The shopping behaviour of customers in the e-commerce environment is different from customer behaviour in the traditional setting due to remote access. For e-commerce customers, personalization of services and interactivity are vital (Bucko, 2018).

Customer satisfaction and loyalty play an important role in e-commerce. Based on the research of Lin et al. (2019), satisfaction can be identified as a significant variable in the field of e-commerce and as one of the means to increase business sales. Their research indicated that the relationship between customer loyalty and e-commerce is not only determined by quality and meeting customer expectations. There are other variables, such as social factors and brand identification (Willman, 2019).

The rapid development of technology has an impact on customer relationship management and thus on building customer relationships in e-commerce as well. It is useful for practice and the development of science to take these new technologies into account and to examine their connection with existing management tools from the perspective of customer care. Especially social networks offer a wide range of possibilities in the field of e-commerce. Similar to e-commerce, social networks are accessible via the Internet. Among others, social networks can be used to build relationships with customers.

Like many of us, e-commerce shoppers have also started to use social networks. Currently, social networks are an integral part of our daily life, and they are increasingly permeating everyday activities. The Internet and social media are essential, especially for people born after millennium (Lissitsa & Kol, 2016). However, there might be a problem with the security of user data and with customer *Self-efficacy* as well.

Marketing in e-commerce segment should react to the growing popularity of social networks. The simultaneous use of social networks and e-commerce may have a significant positive effect on the customer (Li & Ku, 2018), their satisfaction and loyalty. The reason is, among others, easy communication via chat with potential or existing customers (Appel et al., 2019). However, there is still a lack of studies dealing with the effect of company profiles on social networks on customer loyalty and satisfaction.

It is still unclear on which aspects to concentrate to be successful in supporting e-commerce via social media. The research gap is seen in the limited number of foreign studies on the topic of linking company profiles on social networks with customer loyalty and satisfaction. The research gap is defined as follows: what influences customer satisfaction and loyalty in e-commerce.

The area of research is the specifics of building relationships with customers through social networks in e-commerce in the electrical sector in the Czech Republic. The object of the research are external customers (B2C) with access to the social network Facebook following the profile of companies from the electrical segment operating in e-commerce in the Czech Republic.

Thus, the paper aims to identify factors influencing behaviour on social networks and show their impact on customer satisfaction and loyalty in the field of e-commerce. The electrical segment of e-commerce was chosen because it is the most growing segment in Europe between 2017–2020 (Statista, 2020). Karpińska-Krakowiak (2016) states that, unlike in the USA, where Twitter is the most used social network by corporate entities, in Europe, it is Facebook. That is why the study aimed at this social network.

The structure of the paper is as follows: First, the Theoretical background is stated, and hypotheses are developed. Then Methods and results follow. Next, the findings are Discussed. The last part of the paper is the Conclusion.

1. Theoretical Background

1.1 E-commerce

According to the authors Downing and Liu (2014), e-commerce is now a standard way of doing business. Customers have easily and relatively fast adapted to this way of buying (Chen & Holsapple, 2013; Sabaitytė et al., 2019).

In the online environment, customers are significantly affected by not seeing the physical appearance of the product and their decisions depend on the trust and level of risk they can accept (Bianchi & Andrews, 2012). For example, customers in the Czech Republic, according to Pilík et al. (2017), prefer to shop in classic stone shops, because they find it more convenient and welcome the possibility of returning goods.

Regarding advertising, the customer is influenced in the e-commerce environment by

interactive advertising, which allows companies to communicate with the customer and to personalize advertising considering customer activity (Voorveld et al., 2018). The possibility of reviews that customers can give to stores or products also plays an important role, either directly on the sales website or on other communication platforms (Feng & Zhang, 2010).

Based on research conducted by Paniagua and Sapena (2014), social media have a strong influence on business activities. Their results show that the intensity of the use of social media in business is positively and significantly related to higher financial and non-financial results.

According to Obar and Wildman (2015), the terminology in the field of social media is still unclear and some define social media and social networks in the same way. For example, Boyd and Ellison (2008) introduce the concept of social networks and define them as means of enabling online communication. They also mention that this area has experienced a fast development in recent years thanks to mobile phones. Obar and Wildman (2015) add that social networks are also part of many online games (e.g., Second Life). Research by Mehmet (2018) shows that social networks are mainly used due to better interaction with customers and high utilization of these networks among people. Schaar et al. (2014) point to almost zero initial investment and rapid integration for corporate purposes.

Butler and Matook (2014) found that social networks are used to build relationships primarily for e-commerce. This is due to the fact that both means use the Internet. These relationships are built through easy communication and good targeting based on simple customer affiliation. Maecker et al. (2016) add that not only communication but also a compelling presentation of company products or services leads companies to use and care for customers through social networks. Social networks also offer the possibility of interactivity with customers in the form of various competitions or knowledge quizzes.

1.2 Factors Affecting Customers' Behaviour

Many studies are dealing with factors that influence e-commerce customer shopping behaviour. For example, Li and Suh (2015) stated that the Credibility of information on social networks affects the customer's attitude. Further research indicates that the credibility

and quality of information that companies communicate and share on social networks are, to some extent, correlated with customer satisfaction (Freedman & Jin, 2017). These are signs of credibility, auspiciousness, and respect (Lange et al., 2011). Thus:

H1: The perceived Credibility of information on the social network has a positive effect on the Usefulness of the information.

Not only the usefulness, timeliness and reliability of the information but also the amount or frequency of information affects the customer's behaviour on social networks. The frequency of information, together with the relevance of information has a positive effect on the relationship of the social network user to the company that disseminates these contributions (Li & Suh, 2015). The amount and relevance of information are related to the credibility of the information communicated in this way, but also to its usefulness to readers (McEwan, 2017). Hence:

H2: The perceived adequacy of the Amount of information published on social networks company profiles has a positive effect on the Usefulness of the information.

Users require quality information sources (Molineret al., 2007) and look for information that is useful (Cheung et al., 2008). According to Kressmann et al. (2006), the perceived value of information is reflected in the credibility of the information. Similarly, Zhang and Bloemer (2008) state that useful information must be credible. Therefore:

H3: The perceived Usefulness of information published on social network company profiles has a positive effect on customer Satisfaction.

The organizational image is important in the internet field. According to Keller (1993), the image of a company is how the consumer perceives the organization in his memory. There is a relationship between satisfaction, loyalty and company image (Brown et al., 2007). Only a company that is trustworthy and has a good image can gain loyal, satisfied and loyal customers (Park et al., 2009; Tokunaga, 2011). Thus:

H4: The perceived level of the company's Image has a positive effect on customer Satisfaction.

If the users develop a perception of *Data security* in Facebook, they would get more

certain in their actions and it might decrease their computer anxiety and increase their intrinsic motivation to use Facebook. Both computer anxiety and intrinsic motivation serve as anchors that users employ in forming perceived *Ease of use* about a new system (Venkatesh, 2000). Thus, it is supposed that:

H5: The perceived level of trust in the Data security on the social network Facebook has a positive effect on Ease of use.

User-friendliness influences the positive thinking of the user (Zillmann, 2000). It is essential that applications and other services are *User-friendly* and easy to use, but also secure. The extent to which an application or service is easy to 'use' and secure is reflected in customer *Satisfaction*. It must not be forgotten that everyone perceives this factor differently, depending on their skills (Rahman et al., 2016). *Ease of use* is affected by interactivity, i.e., the extent to which the environment is intuitive and interactive for users. Interactivity means creating different content with the need to involve customers (Dong & Wang, 2018). McWilliam's (2000) research shows that interactivity is essential for communicating with consumers in online communities. Interactivity also reflects customer satisfaction, as it allows consumers to better identify with the company,

and thus to build loyalty to the brand or company (Kuo & Feng, 2013). Hence:

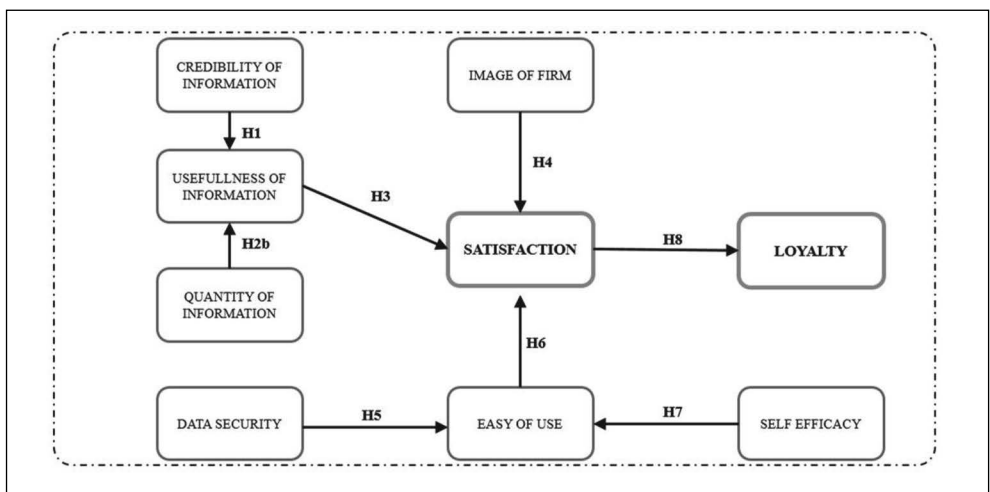
H6: The perceived simplicity and friendliness of the Facebook social network has a positive effect on customer Satisfaction.

Friendliness is intertwined in *Self-efficacy*. *Self-efficacy* can be defined as the ability or confidence to use a tool or means to achieve one's own goal (Bandura, 1982). It can be understood as the user's belief that they can use certain technologies or tools effectively. When these technologies mean information technology, we can speak of the concept of computer *Self-efficacy*. Previous research by Dash and Saji (2008) suggests that computer *Self-efficacy* affects trust and risk appetite. The Thakur's study (2018) mentions the influence of computer *Self-efficacy* on *Ease of use*, and thus on the customer's willingness to use the service and his enjoyment (satisfaction) from the service. Therefore:

H7: The customer's Self-efficacy has a positive effect on the Ease of use.

Customer *Loyalty* may not be tied to the product itself and its benefits but may be associated with satisfaction with the services provided in the sale (Bowen & Chen 2015; Ong, 2013). Oliver (2010) mentions that not only

Fig. 1: Concept framework



Source: own

a favourable attitude is the result of customer *Loyalty*, but also repeated purchases. An analysis of previous studies suggests that there is a relationship between satisfaction. Thus:

H8: Customer Satisfaction has a positive effect on customer Loyalty.

2. Methods

Quantitative research based on opinion-based questionnaires was applied in the study. For data analysis, structural equation modelling was used. Structural equation model was used to find the individual relationships between the factors and their influence. Manifest variables are used to measure these relationships between the selected factors. Not only the linkages are used, but also the magnitude of the dependence and the direction of this dependence (Hair, 2014). The averages of the items for each variable were used for measurement, which is recommended for example by Hair (2014). It should be noted that SEM do not derive casual relations. (Morgan, 2013). The design of the study was confirmatory.

2.1 Research Sample

In total, 786 people participated in the questionnaire survey. However, only 602 questionnaires were further processed (see Fig. 1). Several questionnaires were discarded because they were incomplete. Participants had the opportunity to save the questionnaire as work in progress and some of them have not returned to it. A number of participants did

not use social networks or did not monitor the company profile in the electrical segment on Facebook or offered obviously false data (e.g., respondent gave values 1 in all questions).

2.2 Measures

Based on three scenarios, participants in the questionnaire survey could answer up to 35 questions. However, if they did not use e-commerce, they answered 9 questions. If they used e-commerce and bought electronics in the last year, but did not follow the company’s profile on the social network, they had 12 questions. The questions in the questionnaire survey had a random sequence, except for the first – the introductory part, which aimed to find out whether the participant uses social networks, and the last part, which examined participant’s demographic characteristics. The scale had 5 degrees, with 1 meaning strongly disagree and 5 meaning strongly agree.

The questionnaire had several sections, each aimed at a construct that is a part of the SEM model. Each construct contained 3 statements, only loyalty was measured by 4 statements. Several examples follow: *Credibility of information* was measured with the use of “Published text contributions provide true information”. The construct *Usefulness of information* was evaluated by “The contributions that the e-shop publishes are useful for me”. The *Loyalty* construct was measured by “I would recommend the e-shop to my friends and acquaintances”. The *Satisfaction* construct

Tab. 1: Participants details

Measure	Item	# of response	%	Cumulative # of response	Cumulative %
Gender	Male	284	47.18	284	47.18
	Female	318	52.82	602	100
Age	Less than 19	24	3.99	24	3.99
	19–26	249	41.36	273	45.35
	27–35	199	33.06	472	78.41
	36–45	11	1.83	483	80.24
	46–55	8	1.33	491	81.57
	56–65	96	15.95	587	97.52
	More than 65	15	2.49	602	100

Source: own

Tab. 2: Construction of questionnaire – Part 1

Item name	Question	Key authors
CRI 1	The information provided about the company on this profile is correct.	Li & Suh, 2015; Freedman & Jin, 2017; Lange et al., 2011
CRI 2	In my opinion, the photos and videos published reflect the reality.	Li & Suh, 2015; Freedman & Jin, 2017
CRI 3	The published text posts give true information.	Li & Suh, 2015; Freedman & Jin, 2017; Maamar et al., 2015
USI 1	The posts published by the e-shop are useful.	Cheung et al., 2008; Arnaboldi et al., 2017; Malhotra et al., 2012; Kressmann et al., 2006
USI 2	The posts that the e-shop publishes are always up-to-date.	Cheung et al., 2008; Malhotra et al., 2012; Kressmann et al., 2006
USI 3	I learn new information from the posts that the e-shop publishes.	Cheung et al., 2008; Malhotra et al., 2012
QUI 1	I consider the frequency and frequency of the posts that the company publishes to be reasonable.	Zhang & Bloemer, 2008; Li & Suh, 2015; McEwan, 2017; Bucko et al., 2011
QUI 2	I consider the range of posts that the company publishes to be reasonable.	Zhang & Bloemer, 2008; Li & Suh, 2015; McEwan, 2017; Bucko et al., 2011
QUI 3	I consider the total amount of information that the company publishes to be reasonable.	Zhang & Bloemer, 2008; Li & Suh, 2015; McEwan, 2017; Bucko et al., 2011
IMG 1	The e-shop has a good reputation.	Brown et al., 2007; Park et al., 2009; Tokunaga, 2011; Keller, 1993; Bianchi & Andrews, 2012
IMG 2	The e-shop acts fairly.	Brown et al., 2007; Park et al., 2009; Tokunaga, 2011; Keller, 1993
IMG 3	Customer reviews and feedback on the chosen e-shop are positive.	Brown et al., 2007; Park et al., 2009; Tokunaga, 2011; Keller, 1993
SAT 1	The e-shop offers a quality service.	Zamazalová, 2008; Chitty et al., 2007; Oliver, 2010; Kotler & Keller, 2009
SAT 2	The e-shop communicates very well with the customer.	Zamazalová, 2008; Chitty et al., 2007; Oliver, 2010
SAT 3	The e-shop caters to the requirements and wishes of the customers.	Zamazalová, 2008; Chitty et al., 2007; Oliver, 2010
SAT 4	The e-shop meets my expectations.	Zamazalová, 2008; Chitty et al., 2007; Oliver, 2010
LOA 1	I would recommend the e-shop to my friends and acquaintances.	Bianchi & Andrews, 2012; Nenadál, 2017; Nisar & Whitehead, 2016
LOA 2	I like to shop at this e-shop.	Nenadál, 2017; Nisar & Whitehead, 2016; Lee, 2013
LOA 3	I like to come back to this e-shop.	Nenadál, 2017; Nisar & Whitehead, 2016; Bowen & Chen, 2015
DAS 1	I always read the information about the handling of my personal data	Bertino, 2016; Rathore et al., 2017; Aboobucker & Bao, 2018

Tab. 2: Construction of questionnaire – Part 2

Item name	Question	Key authors
DAS 2	I consider myself to be a person who cares about the security of my personal data.	Bertino, 2016; Rathore et al., 2017; Aboobucker & Bao, 2018; Rajyalakshmi, 2015
DAS 3	I consider the social network Facebook to be safe as far as data processing is concerned.	Bertino, 2016; Rathore et al., 2017; Aboobucker & Bao, 2018
EAU 1	The Facebook social network environment is interactive.	Zillmann, 2000; Rahman et al., 2016; Dong & Wang, 2018
EAU 2	The Facebook social network environment is intuitive.	Zillmann, 2000; Rahman et al., 2016; Dong & Wang, 2018
EAU 3	Using Facebook is easy.	Rahman et al., 2016; Dong & Wang, 2018; McWilliam, 2000; Kuo & Feng, 2013
SLF 1	I consider myself to be a knowledgeable computer user for e-commerce purchases (e.g., PC, mobile, etc).	Zillmann, 2000; Rahman et al., 2016; Dong & Wang, 2018
SLF 2	Using the internet is not a problem for me.	Zillmann, 2000; Rahman et al., 2016; Dong & Wang, 2018
SLF 3	I can handle online shopping on my own, I do not need anyone to help me.	Kuo & Feng, 2013; Dash & Saji, 2008; Thakur, 2018

Source: own

was expressed in “The e-shop meets my expectations”. The *Data security* construct has been monitored by “I will always read the information about the handling of my data”. The *Quantity of information* was measured by the statement “I consider the total amount of information that the company publishes to be adequate”. The *Image* construct included the statement “Reviews and customer responses to the selected e-shop are positive”. *Self-efficacy* was expressed in “Using the internet is not a problem for me”. *Easy to use* was measured by “Using the social network Facebook is easy”. The key authors and design of the questionnaire survey is outlined in Tab. 2.

2.3 Procedure

Data were collected by an individual questionnaire method, where each participant responded individually and without any guidance. A database of e-mail contacts was used to reach respondents. The information about the ongoing research was published also on the social network Facebook. Data collection spanned 3 months and was carried out in 2020. All data was collected based on anonymous responses from participants. Participation in the

questionnaire survey was entirely voluntary and participants were informed about the purpose of the questionnaire survey so the research code of ethics was met.

2.4 Data Analysis

First, G*Power® was used to determine to verify the sufficiency of the sample. Then data were exported to an MS Excel® file for processing in IBM® SPSS Statistic. IBM® SPSS Statistic software and JASP® software were then used for data analysis. The SEM model evaluation was performed in the IBM® AMOS statistical software. All hypotheses were tested at a significance level of $p < 0.05$.

All data were explored using a basic descriptive analysis of all 27 items in a questionnaire survey on constructs. The reliability of the constructs was then verified using Cronbach's alpha and McDonald's omega. Furthermore, a correlation analysis was performed between the individual constructs. A confirmatory factor analysis was done, which led to composite reliability. Based on the results of the mentioned analyses, the SEM model was evaluated. Data for the SEM model were averaged for each item based on

Tab. 3: Statistical data analysis

Item name	Construct	Mean	Standard deviation	McDonald's omega	Cronbach's alfa	Factor loads
CRI 1	<i>Credibility of information</i>	3.88	0.717	0.844	0.830	0.888
CRI 2	<i>Credibility of information</i>	3.87	0.860			0.836
CRI 3	<i>Credibility of information</i>	3.98	0.800			0.835
USI 1	<i>Usefulness of information</i>	3.83	0.629	0.859	0.853	0.826
USI 2	<i>Usefulness of information</i>	3.88	0.675			0.629
USI 3	<i>Usefulness of information</i>	3.95	0.700			0.327
QUI 1	<i>Quantity of information</i>	3.84	0.847	0.778	0.770	0.794
QUI 2	<i>Quantity of information</i>	3.95	0.848			0.779
QUI 3	<i>Quantity of information</i>	3.67	0.882			0.612
IMG 1	<i>Image</i>	4.37	0.650	0.760	0.734	0.733
IMG 2	<i>Image</i>	4.26	0.651			0.753
IMG 3	<i>Image</i>	4.5	0.598			0.475
SAT 1	<i>Satisfaction</i>	4.29	0.789	0.869	0.861	0.622
SAT 2	<i>Satisfaction</i>	4.23	0.639			0.786
SAT 3	<i>Satisfaction</i>	4.33	0.686			0.709
SAT 4	<i>Satisfaction</i>	4.16	0.740			0.737
LOA 1	<i>Loyalty</i>	4.14	0.699	0.818	0.814	0.658
LOA 2	<i>Loyalty</i>	4.20	0.684			0.811
LOA 3	<i>Loyalty</i>	4.23	0.761			0.673
DAS 1	<i>Data security</i>	3.71	0.793	0.811	0.800	0.689
DAS 2	<i>Data security</i>	3.53	0.750			0.848
DAS 3	<i>Data security</i>	3.46	0.736			0.836
EAU 1	<i>Ease of use</i>	3.87	0.780	0.726	0.715	0.774
EAU 2	<i>Ease of use</i>	4.00	0.802			0.709
EAU 3	<i>Ease of use</i>	3.75	0.853			0.788
SLF 1	<i>Self-efficacy</i>	4.20	0.647	0.829	0.820	0.863
SLF 2	<i>Self-efficacy</i>	4.28	0.657			0.823
SLF 3	<i>Self-efficacy</i>	4.35	0.710			0.689

Source: own

constructs. The informative value of the model is preserved, this step had to be taken due to the size and complexity of the basic model (Hair et al., 2014). The observed endogenous (latent) variables included *Satisfaction*, *Loyalty*, *Usefulness of information* and *Easy to use*. These were variables that are caused by one or more variables in the model. They could

also enter into another endogenous variable. Furthermore, the observed exogenous (manifest) variables included *Self-efficacy*, *Credibility of information*, *Data security*, *Image* and *Quantity of information*. These variables were not caused by another variable in the examined model and affected one or more variables in the model. The model also

contained unobserved exogenous variables e_1 to e_6 . These were errors that endogenous variables contained.

To select representative data, it is essential to exclude outliers and ensure that multicollinearity does not occur (Kline, 2010). Based on the basic statistical analysis, there was no item of extreme values (close to 5) and no items have to be excluded. Subsequently, the values for Cronbach's alpha and McDonald's omega for individual constructs were calculated. The reliability of all constructs exceeded the recommended value of 0.70 for each test, as shown in the Tab. 3.

Correlation analysis showed a slight correlation from 0.31 to 0.45. One *Image* item correlated with one *Satisfaction* item and one *Loyalty* item. Furthermore, two *Satisfaction* items were slightly correlated with one *Loyalty*

item. Also, two *User-friendly* items correlated with two *Self-efficacy* items. The correlations were modest and it was not necessary to exclude the items. Subsequently, the confirmatory factor analysis was done, which includes rotated factor loads, depicted in Tab. 3. Factor loads were calculated for the whole set of items. One *Image* item and one *User-friendly* item had a factor load lower than 0.4 and so they were excluded. Another requirement is the KMO values for each related item (Field, 2013), which was met.

All values were greater than 0.51. Composite reliability was calculated based on rotated factor loads as can be seen in the Tab. 4. The recommended limit of composite reliability is higher than 0.60 (Bagozzi & Yi, 1988). All the analyzed items were higher than 0.61. Then average variance extraction was

Tab. 4: Data analysis

Construct	Composite reliability	Average variance extraction
<i>Credibility of information</i>	0.841	0.644
<i>Usefulness of information</i>	0.679	0.529
<i>Quantity of information</i>	0.774	0.537
<i>Satisfaction</i>	0.806	0.512
<i>Loyalty</i>	0.759	0.514
<i>Image</i>	0.711	0.552
<i>Data security</i>	0.801	0.574
<i>Ease of use</i>	0.776	0.537
<i>Self-efficacy</i>	0.836	0.632

Source: own

Tab. 5: Model validity

# of modification	Chi-sq.	RMSEA	GFI	AGFI	CFI	TLI	NFI	Chi-sq./df
1	***	0.124	0.903	0.839	0.799	0.732	0.784	10.301
2	***	0.105	0.934	0.881	0.867	0.808	0.851	7.678
3	***	0.908	0.946	0.900	0.890	0.835	0.875	6.720
4	***	0.090	0.955	0.911	0.911	0.860	0.895	5.859
5	***	0.790	0.964	0.927	0.933	0.901	0.918	4.790

Source: own

calculated. The acceptable amount is greater than 0.50 (Fornell & Larcker, 1981). All items analyzed were greater than 0.51, which was great. It means each construct contained the items assigned to it, so the constructs belonged to the items.

3. Results

Based on the performed tests, the evaluation of the SEM model was done. The basic model did not show the validity and the modification indicators were approached (Hair et al., 2014). However, it was necessary to add connections between constructs to the model and release some constructs by covariance. Thus, a total of five model modifications were made (see Tab. 2). The phased improvements are depicted in Tab. 4. Values in the acceptable range are highlighted. The following indicators were taken into account, root-mean-square error of approximation (RMSEA), good fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI), Tucker-Lewis index (TLI), normed fit index (NFI) and chi-squared test of independence (Chi sq./df) (Hair et al., 2014).

The interconnections of individual error components and factors were made based on their affiliation, as can be seen in Tab. 6.

The relationship between *Image ~ Self-efficacy* can indicate that a customer who has computer knowledge can find more information about the company or oriented better on its Facebook profile, which could have an impact on the perceived image on the company. However, the relation is only weak, $r = 0.264$. This relationship was examined by Hendra (2017) with the same result between these factors and he suggested this dependence.

Another relationship is between $e3 \sim$ *Amount of information*, where $e3$ is the error component of the *Ease of use* construct. Thus, the constructs have a relationship with each other, which they do not share in a common factor. This can be described as a moderate mutual dependence, based on $r = 0.338$. The relationship can explain the impact of the customer's information available on *Ease of use*, i.e. how friendly the environment is for him, and therefore how able he is to use it. Also, the research of Debatin et al. (2009) showed a link between the amount of information and *Ease of use*.

Tab. 6: Covariance and correlation in the modified SEM model

Items		Covariance			Correlation coefficient
		Coefficient	Coefficient error	P	
<i>Image</i>	<i>Self-efficacy</i>	0.090	0.014	<0.001	0.264
$e3$	<i>Amount of information</i>	0.139	0.017	<0.001	0.338
$e3$	<i>Image</i>	0.072	0.013	<0.001	0.209
$e6$	<i>Image</i>	0.069	0.014	<0.001	0.199
$e2$	<i>Credibility of information</i>	0.071	0.014	<0.001	0.208

Source: own

The next is the relationship between $e3 \sim$ *Image*, where $e3$ is the error component of the *Ease of use* construct. This is a link between the company's image and *Ease of use*, where they do not share a common factor, but have a weak dependence, because $r = 0.209$. *Ease of use* can affect a company's image because if a customer does not understand how to use a network, they will not get all the information, and the company may not have the image they

might have in a friendlier environment. In this connection, Sageder (2016) states that the *User-friendly* information positively influences the company's image.

Relationship between $e6 \sim$ *Image*, where $e6$ is the error component of the *Usefulness of information* construct. This relationship means that the *Usefulness of information* affects the company's image. This relationship is confirmed by others such as Park et al. (2009), Tokunaga

Tab. 7: Regression scales of the model

Latent variables	Manifest variables	Unstandardized coefficient B	Standardized coefficient β	Standardized error SE B	P
<i>Ease of use</i>	<i>Self-efficacy</i>	0.411	0.374	0.039	<0.001
<i>Usefulness of information</i>	<i>Credibility of information</i>	0.158	0.178	0.034	<0.001
<i>Ease of use</i>	<i>Data security</i>	0.133	0.140	0.033	<0.001
<i>Usefulness of information</i>	<i>Quantity of information</i>	0.149	0.174	0.033	<0.001
<i>Satisfaction</i>	<i>Image</i>	0.706	0.705	0.029	<0.001
<i>Satisfaction</i>	<i>Ease of use</i>	0.063	0.068	0.026	0.013
<i>Satisfaction</i>	<i>Usefulness of information</i>	0.065	0.066	0.026	0.013
<i>Loyalty</i>	<i>Satisfaction</i>	0.772	0.751	0.045	<0.001

Source: own

(2011) or Fink et al. (2020). According to them, the relevance of information significantly affects the company's image. That is, whether the information shared by companies is perceived as useful affects the perception of the company's image. This bond is weak $r = 0.199$.

The last relationship was identified between $e2 \sim$ *Credibility of information*, where $e2$ is the error component of the *Loyalty* construct. This bond is weak $r = 0.208$. Similarly, de Valck (2009) or Chari et al. (2016) concluded that customer trust (into information given) affects their loyalty.

The resulting model with regression coefficients is in Tab. 7. All hypotheses were examined with the results as follows.

H1: The perceived Credibility of information on the social network has a positive effect on the Usefulness of information.

According to the results, the *Credibility of information* positively affects the *Usefulness of information*, i.e. how the customer perceives the relevance and timeliness of information from the perspective of published posts on the Facebook profile of the company. In other words, whether a company adds credible contributions from a customer's perspective affects how the customer perceives the usefulness of that information. The non-standardized coefficient has a value $B = 0.158$, which means a positive relation. *H1* was **supported**.

H2: The perceived suitability level of the Amount of information published on social networks company profiles has a positive effect on the Usefulness of information.

The model shows that the amount and *Amount of information* positively affect the perceived *Usefulness of information*. The unstandardized coefficient has a value $B = 0.149$. Thus, it can be stated that the amount of information and the frequency of information published on the social network Facebook by the company ultimately affect how people perceive the usefulness of this information. *H2* was **supported**.

H3: The perceived Usefulness of information published on social network company profiles has a positive effect on customer Satisfaction.

The *Usefulness of information* for the customer, which is published on the company's profile on the social network Facebook, has a positive, but low, impact on customer *Satisfaction*, $B = 0.065$. *H3* was **supported**.

H4: The perceived level of the company's Image has a positive effect on customer Satisfaction.

Image positively and strongly affects *Satisfaction*, $B = 0.706$. Thus, the modified SEM model confirmed the link between the company's image and satisfaction in the e-commerce environment. *H4* was **supported**.

H5: The perceived level of trust in the Data security on the social network Facebook has a positive effect on Ease of use.

The results further show that even perceived *Data security* has a positive effect on the *Ease of use*. It means that how the user feels in the social network environment is affected by perceived security, and ultimately this

component affects perceived user-friendliness. The unstandardized coefficient has a value $B = 0.133$. $H5$ was **supported**.

$H6$: The perceived simplicity and friendliness of the Facebook social network has a positive effect on customer Satisfaction.

Furthermore, the *Ease of use* link has been shown to have a positive effect on *Satisfaction*. This effect is confirmed by an unstandardized coefficient $B = 0.063$ and is therefore relatively weak. $H6$ was **supported**.

$H7$: The customer's *Self-efficacy* has a positive effect on the *Ease of use*.

It can be stated that *Self-efficacy* has a positive effect on *Ease of use*, the value of the unstandardized coefficient $B = 0.411$. Thus, how the customer understands computer technology in terms of the use of social networks, affects the customer's perception of the simplicity and friendliness of the social network Facebook. $H7$ was **supported**.

$H8$: Customer Satisfaction has a positive effect on customer Loyalty.

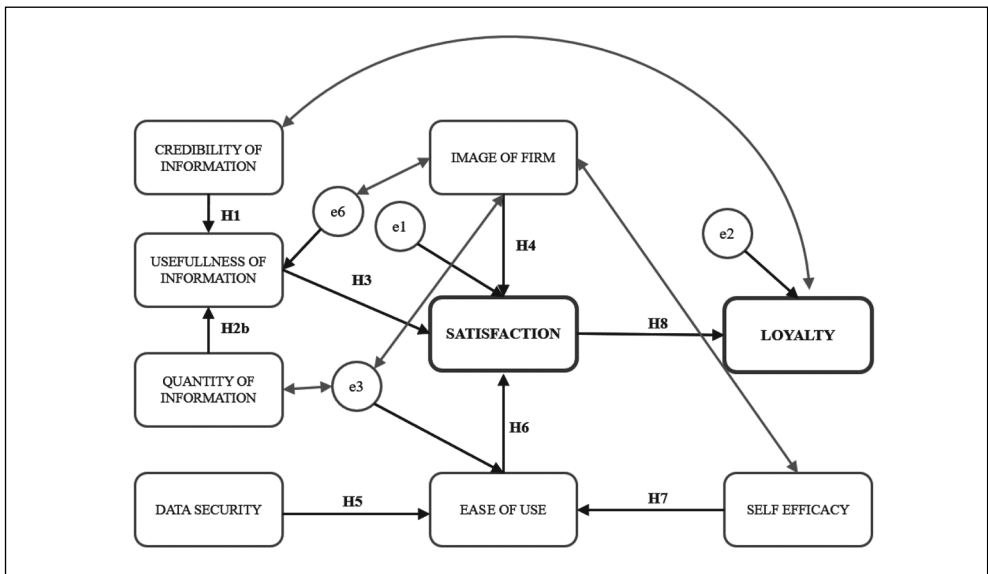
Customer Satisfaction with a company in the field of e-commerce in the electrical segment affects their *Loyalty* and this effect is strong, $B = 0.772$. $H8$ was **supported**.

4. Discussion

The evaluated modified SEM model brought several interesting results. First, *Self-efficacy* affected *Ease of use*. Similar conclusions were reached by Dong and Wang (2018), who suggested that *Ease of use* is given by the customer's *Self-efficacy*. Dash and Saji (2008) show that a computer-conscious person perceives *Ease of use* ('*User-friendly*') differently from people without this knowledge. Thakur (2018) further states that *Self-efficacy* plays an important role in today's online world in terms of user-friendliness, which component is just *Ease of use*.

Second, the *Credibility of information* affected the *Usefulness of information*. This finding is enhanced by other authors. Freedman and Jin (2017) state that the *Credibility of information* communicated affects its perceived usefulness. Li and Suh (2015) state that trust affects many components, including how customers perceive information. Helm and Tolsdorf (2013) and Husasin et al. (2019) state that reputation and trust influence among others the perceived value of information came to a similar conclusion. The *Credibility of information* is therefore essential when communicating with customers on Facebook.

Fig. 2: Final framework



Source: own

Third, the findings indicate that the safer users feel on Facebook, the more *User-friendly* this social network is for them and they consider the use of this network easier. This logic is also mentioned by Debatin et al. (2009), Kainda et al. (2010) or Golbeck and Mauriello (2016). They claim that how a user feels safe on the Internet or the web ultimately affects how they perceive the web from the point of view of user-friendliness.

Fourth, the *Amount of information* and the frequency of information published on the social network Facebook by the company seem to affect how people perceive the *Usefulness of information*. Correspondingly, McEwan (2017) mentions that the amount of information is also related to trust in this information. Similarly, Lamps et al. (2012) state that the *Amount of information*, but also the frequency of information available to customers, ultimately affects whether customers perceive the information as useful.

Fifth, the SEM model confirmed a link between the company's *Image* and *Satisfaction* in the e-commerce environment. Similarly, the studies by Park et al. (2009) and Tokunaga (2011) mention that this link exists in a traditional setting where the company's image affects perceived customer satisfaction. And at that, the study of Tzavlopoulos et al. (2019) states that company image affects satisfaction and is very important in the e-commerce environment.

Sixth, the authors Kail et al. (2017) point to the possibility of combining a friendly environment and friendliness (*Ease of use*) of the website and the influence on *Satisfaction*. Other authors Dong and Wang (2017) also point out the impact of *Ease of use* on customer satisfaction based on the research. This premise was confirmed in this study, in the case of social network Facebook. It showed that the perceived ease to use this network positively marks the satisfaction of customers. However, the impact is only weak.

Seventh, the *Usefulness of information* for the customer, which is published on the company's profile on Facebook, had a weak positive impact on *Customer satisfaction*. Other research, such as Alhabash and Ma (2017) also confirms that the perceived *Usefulness of information* affects customer attitudes. In the same way, Sharma and Lijuan (2015) mention that the informational value is essential to the customer and may lead to customer satisfaction.

Finally, some studies have suggested that the relationship between *Satisfaction* and *Loyalty* may not always be apparent, although it may exist (Nisar & Whitehead, 2016). However, this study indicates that such a relationship exists and is strong. Likewise et al. (2013) and Leninkumar (2017) came to a similar conclusion.

Conclusion

The study aims to identify factors related to the company's profile on Facebook that influence customer satisfaction and loyalty in e-commerce. One of the major contributions of this paper from the theoretical point of view is the creation of a theoretically based model, which incorporates the various constructs of *Self-efficacy*, *Data security*, *Credibility of information*, *Ease of use*, *Usefulness of information*, *Quantity of information*, *Satisfaction* and *Loyalty*.

The research paper connects the field of social networking and customer relationship building with the field of e-commerce, thus enriching the existing view of customer relationship building with a technological and industry aspect. The summary of the findings in the literature review can be used for future research in this area. The main contribution is the verification of the suitability of social networking (Facebook) application for increasing customer satisfaction and maintaining customer loyalty. This suitability was verified through the SEM model that was constructed based on the literature search. Given that most of the studies to date on social networking in e-commerce have been conducted in Asian countries or a smaller part in North America, this dissertation presents a perspective from a European country. The influence of social networking on customer satisfaction and loyalty has been confirmed. Factors influencing this link were identified, namely: *Ease of use* of the social network, customer *Self-efficacy*, *Data security* on the social network, perceived *Usefulness of information* on the company profile, and the amount and trustworthiness of information on the company profile. The research brings a new perspective to current scientific knowledge, bringing coherence to the issue from the perspective of building customer relationships from a social networking and e-commerce perspective.

Based on the research, it was found that customer satisfaction and loyalty are closely related. The company profile on the social

network and the characteristics of the social network itself affect customer satisfaction and loyalty in e-commerce in the electrical segment. Among the factors influencing the customer can be included from the point of view of the profile on the social network Facebook: the amount of information, the credibility of the information and the usefulness of the information. The following factors can also be considered: *Data security*, *Self-efficacy* and *Ease of use*. Last but not least, the company's image belongs here. When managing a company profile on social networks, it is necessary to take into account the information values and knowledge of customers from the point of view of their *Self-efficacy* and not to forget to communicate the right information

The study points out that for companies operating in the field of e-commerce in the electrical segment, setting up a company profile on the social network Facebook is beneficial. Even smaller corporate entities can use social networks to create relationships in the form of short information messages, but also for marketing communication, especially if they also operate in the field of e-commerce. If company profiles on social networks are properly managed, they can help companies to build satisfied and loyal customers. The work points out the importance of credibility from the point of view of customers, where the information communicated or images displayed on social networks should not be distorted. They should carry trust information. It is not advisable to publish the contributions that companies publish in a too high frequency so that customers still perceive them as useful from their point of view. However, it is essential to remain visible on social networks through posts. Companies should also choose such social networks, where the customer feels safe and is also able to use it as customer *Self-efficacy* matters. If the customer perceives the social network as easy, they will be better able to work with information published on the company profile. Perceived security is an essential factor from the customer's point of view, and it is, therefore, appropriate to choose information technologies that have a high standard of security.

Limitation of the Study

There are some limitations that should be emphasized. A questionnaire survey was

done and it is possible that a higher number of respondents from other participant categories may have yielded different results. Above all, more participants in the age category 36+ would be welcomed. These respondents are most active, and the questionnaire had higher time requirements, which may have caused less interest in this group. Also, according to Perrin and Anderson (2020), this group is not the most active in social networks. Nevertheless, a total of more than 600 responses were collected, which was sufficient for the chosen statistical evaluation. Due to time constraints, some answers may have been misrepresented, but the questionnaire was designed to minimize such distortion. Above all, attention was paid to the simple conception of the questions. The pretext of the questionnaire was also conducted first. Completing the questionnaire was voluntary and did not use a completely random selection of respondents, this fact could also contribute to the bias of the results. Self-completion, without the presence of a facilitator, could also lead to a misunderstanding of some issues. It was necessary to rely on the honest completion of the questionnaire by the respondents. The questionnaire also used the Likert scale, which in itself can also lead to some distortions. The study focused on the electrical segment. As a result, the generalizability of the findings might be limited. Additional research across different segments will be required in order to generalize the findings. Future research could be covered with the other factors like a *Mobile phone using* as said the research done by Hajihyeydari et al. (2017). Among other factors, it is possible to focus and explore in depth perceived *Enjoyment*, as mentioned by Che Nawi et al. (2019). It is necessary to include other social networking factors in future research, as information technology is evolving considerably.

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