

Understanding social commerce use intention: A mixed-method approach based on structural equation modeling and fuzzy-set qualitative comparative analysis

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Abstract

The adoption of social commerce by businesses is still in its early stages, and only companies that swiftly adapt can achieve success. In order to accomplish this, it is necessary to expand our understanding and comprehend the factors that decide the exploitation of social commerce by users - only in this way can companies formulate appropriate strategies leading to greater competitiveness. This study enhances the knowledge of social commerce by formulating a conceptual model of social commerce use and empirically validating it. The study enhances the current understanding of the social commerce environment by examining the impact of trust, social interactions and experience. It contributes to a deeper understanding of the factors that can influence users' intention to use social commerce in the context of the selected country. This study is one of the first to explore the predicting effect of experience on trust and intention to use social commerce. A mixed-method approach combining structural equation modeling (SEM) and fuzzy-set qualitative comparative analysis (fsQCA) is utilized to get more robust results. SEM is used to verify the proposed social commerce model using a quasi-representative sample of 750 complete questionnaires. fsQCA is employed to enhance the research findings. The results indicate that the most critical factors that directly influence the use of social commerce in the Czech Republic are trust in the social commerce environment and experience with the online environment. Trust also has a significant indirect effect on the use of social commerce.

Keywords: *Social Commerce; Trust; Social Interactions, Experience; SEM; fsQCA*

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1 INTRODUCTION

Social commerce represents a combination of elements of online shopping and user content transmitted using social media and enabled by the technical infrastructure of Web 2.0 (Cutshall et al., 2020). In recent years, social media has played an essential role in sharing information and knowledge, which, thanks to its reach, can address consumers worldwide (Choi & Lee, 2017; Yadav & Rahman, 2018; Yang, 2019). The rapid development and adoption of social media have led to a transformation from a product-oriented e-commerce environment to a customer-oriented s-commerce environment (Huang & Benyoucef, 2013; Phan et al., 2020). In this new environment, consumers have access to the knowledge and experience of other consumers, thanks to which they can better formulate and specify the goals of their purchasing process and identify and obtain information that will enable them to make better decisions within this process (Huang & Benyoucef, 2013). Businesses operating in this environment can monitor and analyze consumer behavior to gain information about their expectations and needs as well as valuable feedback on their shopping experience. All this data can subsequently help companies create a successful and competitive business strategy (Constantinides & Fountain, 2008). Just as the Web 2.0 environment transferred the center of gravity from companies to

consumers within social media, it performs the same function within social commerce, and the center of social commerce becomes the consumer (Hajli & Sims, 2015; Huang & Benyoucef, 2013; Kim, 2012).

Since its inception, social commerce has been defined in different ways and from different perspectives. This is caused by factors that influence the s-commerce environment, which is characterized by its multi-disciplinarity. From a marketing point of view, it is essential to influence the consumer's purchasing decision; from an information and telecommunications point of view, technological infrastructure and communication possibilities are essential. From a sociological perspective, consumers' social bonds and interactions are important, and from a psychological perspective, the reasons that support interactions within s-commerce are essential.

Due to the growing popularity of social commerce and its increasing share of total e-commerce sales, much research has been published, mainly in the last few years, in which the authors have tried to model the process of using social commerce to purchase goods and services using various factors. Most of these studies have focused on examining the use of social commerce in countries where it was already developed and contributed significantly to the total sales resulting from electronic commerce (e.g., Al-Tit et al., 2020; Sharma et al., 2019). This study responds to the aforementioned research gap by focusing on a country at the beginning of the social commerce adoption process. In addition, it is the first study to address the issue of social commerce usage in a country in Central Europe.

Most published quantitative studies have tested the proposed models on a small, accessible sample (e.g., Dabbous et al., 2020; Gibreel et al., 2018; Rahman et al., 2020; Yahia et al., 2018). This study used a more extensive, quasi-representative sample, where data was collected using a quota sampling of respondents via an online panel.

This study investigates the influence of factors on the intention to use social commerce. Thus, based on a literature review, we develop and propose a research model of social commerce in this paper. The goal is to verify this model through statistical methods and analyze the influence of trust, social interactions and experience on the intention to use social commerce to purchase goods and services. The stated objective is transformed into a research question:

RQ: What role do experience, trust and social interactions play in users' intention to use social commerce to purchase goods and services in the context of the Czech Republic?

A mixed-method approach combining structural equation modeling (SEM) and fuzzy-set qualitative comparative analysis (fsQCA) is utilized to answer the formulated research question. SEM is used in this research to verify the formulated hypotheses to answer the research question. To gain a deeper understanding of the results provided by SEM and to improve its results, fsQCA is employed.

This study contributes to the development of the theory by conceptualizing the model of social commerce use and its empirical validation. By considering the effect of trust, social interactions and experience, it enriches existing knowledge regarding the social commerce environment and contributes to a deeper understanding of the factors that can influence users' intention to use social commerce in the context of the selected country. Moreover, experience has been hypothesized in previous research to have an effect on trust and the intention to use social commerce, yet this effect has not yet been tested. Thus, this study is one of the first to explore the predicting effect of experience on trust and intention to use social commerce. In addition, to get more robust results, this study employs the SEM and fsQCA methods.

The paper proceeds as follows. At the beginning, hypotheses are formulated based on theory development. Next, the research methodology is presented. A section with the research analysis

and results follows this. Then comes a section that contains a discussion. Finally, implications and limitations are presented, accompanied by directions for future research and conclusion.

2 THEORY DEVELOPMENT AND HYPOTHESES FORMULATION

An online environment where the behavior of others cannot always be estimated or predicted presents an environment of increased uncertainty and risk for consumers (Bai et al., 2015; Chen & Wang, 2016; Soleimani et al., 2017). In addition, this risk increases when the consumer uses the online environment for commerce, where financial transactions and the transfer of personal information occur (Dabbous et al., 2020; Benlian & Hess, 2011; Sharma et al., 2019). A key factor affecting business relationships is trust (Pavlou, 2003). In the online environment, its relevance is further enhanced by the absence of face-to-face communication and a large amount of user content (Dabbous et al., 2020; Featherman & Hajli, 2016; Nadeem et al., 2019; Sharma et al., 2019).

Research has revealed the essential role of trust in the social commerce environment on the intention to use social commerce for purchasing goods and services (e.g., Hajli et al., 2017; Farivar et al., 2017; Cheng et al., 2019; Liu et al., 2019; Sharma et al., 2019; Ventre et al., 2020; Yang, 2019; Zhao et al., 2019) as trust significantly reduces uncertainty and risk (Li, 2019; Weisberg et al., 2011). In addition, trust in a social commerce environment facilitates the making of a purchasing decision and thus positively influences the intention to use social commerce to purchase goods and services. Based on this, the hypothesis is formulated:

H1: Trust in the social commerce environment positively affects the intention to use social commerce to purchase goods and services.

Trust is built in a social commerce environment through social interactions with other users (Dabbous et al., 2020; Li, 2019; Lu et al., 2016). Social interactions are vital components that help create a positive attitude toward purchasing behavior and the intention to purchase goods and services.

The relationship between social interactions and trust in a social commerce environment can be modeled based on trust transfer theory (see, e.g., Shi et al., 2013; Shi & Chow, 2015), which assumes that trust is transferable, from individual to individual or from context to context. In this paper, we work with the claim that an individual or a group can transfer trust to another individual in a social commerce environment (Shi & Chow, 2013), or one user or group of users can transfer trust to another user through social interactions (Bai et al., 2015).

Trust is built and transmitted through user content that users share through social commerce constructs and social support. With relevant information, they can make an informed decision in the purchase decision-making process (Alalwan et al., 2017; Hajli & Sims, 2015; Huang & Benyoucef, 2013; Janze & Siering, 2015; Kapoor et al., 2018). Thus, social interactions strengthen users' trust in the social commerce environment, which impacts their intention to use social commerce to purchase goods and services (Gibreel et al., 2018; Ventre et al., 2020). Social interactions are enabled by social commerce constructs and social support, which are thus a source of trust formation among social commerce users (Shanmugan et al., 2016).

Although in several studies, authors describe social interactions as a complex and multidimensional construct, they often test individual dimensions separately within their models (e.g., Al-Tit et al., 2020; Monfared et al., 2021; Ventre et al., 2020). However, based on the literature review, their interrelatedness is evident, as one would not be helpful without the other. In the framework of this work, social constructs and social support thus form a common variable called social interactions. Based on this, these hypotheses are formulated:

H2a: Social interactions positively influence trust in a social commerce environment.

H2b: Social interactions positively influence the intention to use social commerce to purchase goods and services.

Previous experience with an online environment has been identified in the literature as a potential factor influencing trust building in a social commerce environment (Ling et al., 2010). According to Ling et al. (2010) and Shi and Chow (2015), previous experience is a significant factor that shapes the user's attitude toward the online environment. In addition, according to Shi and Chow (2015), previous experience affects the formation of trust in the online environment. Several researchers (e.g., Baethge et al., 2016; Chen et al., 2014; Chen et al., 2022) then concluded that previous experience also plays a role in the social commerce environment, although they did not explicitly test this relationship in their models. Sharma et al. (2019) explicitly call for future studies to empirically test the possible predicting effect of previous experience with the online environment on trust and the intention to use social commerce.

Previous experience reduces perceived risk and uncertainty in the purchasing decision-making process (Al-Adwan, 2019; Gvili & Levy, 2019) and thus positively affects trust in commerce; ultimately, previous experience may lead to the use of social commerce for purchasing goods and services (Hajli et al., 2014; Shi & Chow, 2015). Based on this, these hypotheses are formulated:

H3a: Previous experience with the online environment positively influences trust in a social commerce environment.

H3b: Previous experience with the online environment positively influences the intention to use social commerce for purchasing goods and services.

In addition to the central role of trust in the social commerce concept, its mediating effect has also been proven in several studies (e.g., Al-Tit et al., 2020; Dabbous et al., 2020; Sheikh et al., 2019). According to Rahman et al. (2020) and Hossain et al. (2021), in addition, trust in models that have the intention to use social commerce for the purchase of goods and services as the outcome variable is a significant mediator. Based on this, these hypotheses are formulated:

H4a: Trust mediates the relationship between social interactions and the intention to use social commerce to purchase goods and services.

H4b: Trust mediates the relationship between experience and the intention to use social commerce to purchase goods and services.

The resulting empirical model aims to enrich the knowledge regarding the use of social commerce for purchasing goods and services with consumer experience. According to the conducted literature search, this variable was not used in any research when constructing the model. This is the first attempt to test the influence of consumer experience on trust in social commerce and, by extension, on the intention to use social commerce to purchase goods and services. Based on the literature review, the resulting model is shown in Fig. 1.

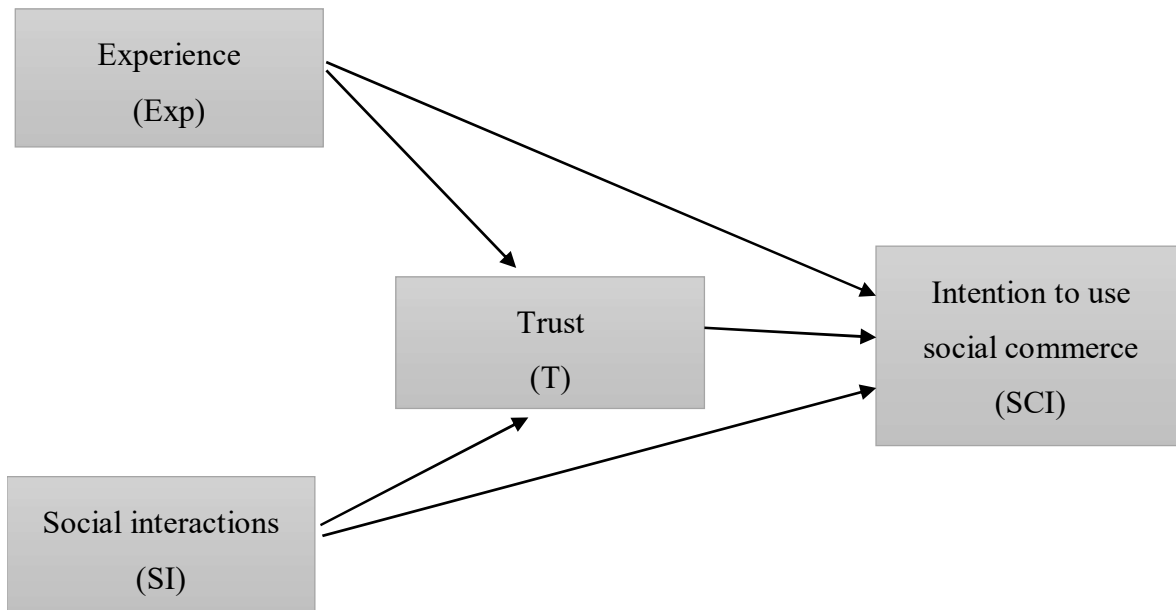


Fig 1 - Proposed model. Source: own research

3 METHODOLOGY

This study investigates the influence of factors on the intention to use social commerce. Thus, based on a literature review, we develop and propose a research model of social commerce in this paper. The goal is to verify this model through statistical methods and analyze the influence of trust, social interactions and experience on the intention to use social commerce to purchase goods and services.

3.1 Research sample and data collection

For this study, a quasi-representative sample was obtained via an online panel. Talk Online Panel is part of the professional worldwide organization ESOMAR and follows its code (Talk Online Panel, 2023).

Selecting respondents in accordance with the necessary characteristics of the sample selection is made possible by a thorough overview of the panelists' demographic attributes. With roughly 60,000 panelists available in the Czech Republic, the panel provides a quota selection of research respondents (Burns et al., 2017).

Quota sampling can guarantee a sufficient distribution of respondents in the sample based on the fundamental demographic attributes of the population, such as gender, age and region. From this point of view, the research sample can be regarded as quasi-representative.

The research participants were individuals older than sixteen with their permanent address in the Czech Republic. At the start of the interview, each respondent was given information about the research project's purpose. The fourth quarter of 2022 saw the collection of the data.

The age ranges of the respondents were based on the online shopping methodology employed by Eurostat (16–24, 25–34, 35–44, 45–54, 55–64, >65). The study only included respondents between the ages of 16 and 54 because there was insufficient data on respondents older than

54. For the analysis, 750 valid questionnaires in total were used. During the research, all ethical guidelines for carrying out investigations were followed (Creswell, 2014).

3.2 Research instrument

A questionnaire was used in this research as a tool for answering the formulated hypotheses. The questionnaire contained 38 questions divided into two main sections: a section containing items related to using social commerce for purchasing goods and services (total of 26 questions) and a section with demographic questions (total of 12 questions).

In order to increase the reliability and validity of the research, the items from the section related to the use of social commerce measuring trust (Al-Tit et al., 2020; Hajli, 2015), social interactions (Al-Tit et al., 2020; Hajli, 2015; Sharma et al., 2019; Ventre et al., 2020) and intention to use social commerce (Dabbous et al., 2020; Hajli & Sims, 2015) were adapted from research studies focused on social commerce, where these items were validated in previous researches for modeling the use of social commerce.

Items measuring previous online experience were taken from research conducted by Accenture (2022). Respondents answered all items using a 5-point Likert scale; in the case of trust, social interactions and the intention to use social commerce, it was a scale of agreement from 1 - disagree to 5 - agree; in the case of previous experiences, it was a frequency scale from 1 - never to 5 - very often. The second section of the questionnaire consisted of demographic questions. A filter question on the use of social networks was also added at the beginning of the questionnaire. Its purpose was to get only relevant respondents who use the social networks Facebook and Instagram to complete the questionnaire. The entire questionnaire, including the sources of all the items that comprise the individual variables, is included in Appendix A for clarity.

Before implementing the questionnaire survey, a pilot test was carried out on a sample of 15 respondents to test the comprehensibility of the individual items and identify any problems when filling out the questionnaire. Based on the feedback, only partial adjustments were made regarding the sentence structure of some items.

3.3 Data analysis - measures

We used the SEM and fsQCA methods for data analysis to verify our research model. SEM is used to test the hypothesized relationships between factors, and fsQCA is a post-hoc analysis to complement SEM to produce more comprehensive and theoretical results (Kaya et al., 2020).

This study draws upon the strengths of variable analysis (SEM) and case analysis (fsQCA) to investigate the net effect of antecedent variables on outcomes and to uncover the configurations that lead to the intention to use social commerce (Pappas & Woodside, 2021). Combining the analyses helps us better comprehend the effects of trust, social interactions and experience on the intention to use social commerce and provides us with better information to formulate managerial implications.

The first step before the data analysis was verifying the reliability of the research instrument, i.e., the questionnaire. This study used structural equation modeling (SEM) to test the relationships between variables within the proposed model (Hair, 2010). SEM is considered a suitable method for testing proposed models on empirical data. It can be used to develop theory, as it allows for a deeper analysis of relationships that may not be apparent at first glance (Astrachan et al., 2014). SEM allows for the simultaneous evaluation of various variables and their interrelationships. In addition, it allows for the strength of relationships to be assessed while reducing possible errors in the model (Hair et al., 2016). A characteristic feature of SEM

is the ability to display relationships between variables graphically in addition to a system of equations (Byrne, 2010).

The SEM procedure generally consists of two main phases: the phase of building the measurement model and the phase of testing the structural model (Hendl, 2015). The proposed research model was thus investigated in two main steps. In the first step, an exploratory factor analysis was performed, followed by a confirmatory analysis to test the individual constructs' validity and reliability. In the second step, structured modeling was used to assess the relationships between the variables and to evaluate the formulated hypotheses within the model. All calculations were performed using the statistical software R (Rosseel, 2012).

The results of the quantitative SEM method should be supplemented with a qualitative-based method to enhance the research findings (e.g., Kang & Shao, 2023; Kaya et al., 2020). One such method is fsQCA, which overcomes the major shortcoming of SEM: the causal symmetry and net effect (Pappas & Woodside, 2021). Using symmetric methods is insufficient for researchers to fully understand the asymmetric relationships between constructs, especially in real-world consumer research (Diwanji, 2022). fsQCA presents an approach that can examine the asymmetric relationships between constructs and identify all necessary and/or sufficient conditions that lead to a specific outcome (Gligor & Bozkurt, 2020; Hossain et al., 2022). Besides that, the fsQCA can handle non-linear relationships (Pappas & Woodside, 2021).

One of the main principles of fsQCA is the identification of different combinations of causes leading to the same effect and interpreting these combinations in the light of relevant theories. In other words, its purpose is to evaluate the configurations (combinations) of causal conditions that explain the presence or absence of the investigated result. fsQCA is one of the so-called configurational methods (Pappas & Woodside, 2021).

The statistical method SEM requires proof of a statistical association (correlation) between variables as the primary criterion for empirical acceptance of a hypothesis. Configurational methods, on the other hand, require that the relationship between variables be proven based on a set criterion. The methods are utilized to find out whether the cases in which the effect is present are a subset of the set of cases in which the cause (or combination of causes) is present - a necessary assumption (necessity), or to find out whether the cases in which the cause is present are a subset of the set of cases in which the consequence is present - a sufficient assumption (sufficiency). Unlike correlational analysis, cases in QCA that do not have the assumptions under investigation are irrelevant, and the researcher focuses on cases where these assumptions are and examines their sufficiency.

It should be emphasized that configurative methods are not a tool for causal inference but rather a means for causal interpretation. In standard statistical methods, the main goal is to judge which independent variable exerts (*ceteris paribus*) a causal effect (and how much) on the dependent variable and which competing variables can be ruled out as potential causes. Instead, QCA aims to determine different combinations (configurations) of attributes in qualitatively different cases (Ragin, 2008).

4 RESULTS

Measurement model

Reliability of the research instrument

Cronbach's α and composite reliability (CR) indicators were used to test the internal consistency of the questionnaire items. For both Cronbach's α and composite reliability, a value greater than 0.7 is considered acceptable (Hair, 2016). The results of both reliability tests are shown in Tab. 1. All values are greater than the recommended value of 0.7. Thus, the internal

consistency of the questionnaire can be described as acceptable. The table also shows the average values of individual variables and their standard deviations.

Tab. 1 - Results of the questionnaire reliability test. Source: own research

Variable	M	SD	Number of items	Cronbach α	CR
Experience (Exp)	1.83	0.67	8	0.86	0.86
Social interactions (SI)	3.35	0.58	6	0.83	0.84
Trust (T)	2.96	0.61	5	0.74	0.75
Intention to use social commerce (SCI)	2.85	0.89	4	0.92	0.92

The internal consistency was further verified by calculating the correlations between the individual factors. The correlation matrix is shown in Tab. 2. The resulting values show that the factors correlate minimally.

Tab. 2 - Correlation matrix of individual factors. Source: Own research.

	Exp	SI	T	SCI
Exp	1	0.22	0.32	0.46
SI	0.22	1	0.45	0.39
T	0.32	0.45	1	0.39
SCI	0.46	0.39	0.39	1

Exploratory Factor Analysis (EFA)

In order to examine the structure of the collected data and find the most suitable model for their description, exploratory factor analysis was first used (Mayers et al., 2010). In the first step, an intercorrelation matrix for each factor was constructed. The value for each item was greater than 0.3, so no item was dropped from the analysis. Subsequently, the goodness-of-fit of the items for factor analysis was calculated using the Kaiser-Meyer-Olkin (KMO) test (Kaiser, 1974), and Bartlett’s test was performed to verify the correlation between the items. The resulting value of the KMO test of 0.9145 indicates the appropriateness of using factor analysis; the resulting value of the Bartlett test of 0.0000 also confirms that the correlations between the items are sufficient to use factor analysis (Mičík et al., 2022).

Verification that the chosen method does not distort the data and does not threaten the validity of conclusions formulated based on statistical results was carried out using Harman’s single-factor test. Harman’s single-factor test measures the degree of bias using the amount of variability explained by one factor in a factor analysis (Podsakoff et al., 2012). 0.5 is stated as the maximum value for non-distortion of data (e.g., Cutshall et al., 2020). The resulting test value of 0.28 in this study thus testifies to the fact that the use of the chosen method did not distort the analyzed data, and from this point of view, the conclusions made based on the data analysis are valid. Tab. 3 shows the results of the factor analysis performed, i.e., the classification of items into individual factors.

Tab. 3 - Factor loadings of the measurement model. Source: own research

Item	Exp	SI	T	SCUI
Q2_2	0.668			
Q2_3	0.680			
Q2_4	0.763			
Q2_5	0.768			
Q2_6	0.481			
Q2_7	0.619			
Q2_8	0.605			
Q2_11	0.483			
Q3_1		0.736		
Q3_2		0.631		
Q3_3		0.707		
Q3_4		0.662		
Q3_5		0.408		
Q3_6		0.828		
Q1_1				0.412
Q1_2				0.475
Q1_3				0.660
Q1_4				0.667
Q1_5				0.567
Q4_1			0.796	
Q4_2			0.787	
Q4_3			0.826	
Q4_4			0.711	

The convergence validity of individual factors was verified by checking factor loadings. Convergent validity is achieved if an item obtains a greater factor loading on its respective variable than on any other variable (Hair et al., 2016). All items were correctly assigned to their respective factors based on the assigned factor loadings. The factor loading value of each item should be at least 0.5; values above 0.4 are considered acceptable for exploratory research (Hulland, 1999; Stevens, 1992). Three items from the total number of 26 items whose factor loading values were lower than 0.4 were eliminated for higher convergent validity.

The quality of the resulting model is good; the values of individual quality indicators are shown in Tab. 4, including their recommended values.

Tab. 4 - Quality indices of the EFA measurement model. Source: own research

Quality index	Recommended value	Model value
RMSEA	≤ 0.06	0.041
TLI	≥ 0.90	0.958
CFI	≥ 0.93	0.973

Confirmatory factor analysis (CFA)

In order to validate the proposed model, confirmatory factor analysis was subsequently performed (Harrington, 2009). Path analysis was used to create and validate the model. The resulting values of the quality indices are shown in Tab. 5.

Tab. 5 - Quality indices of the CFA measurement model. Source: own research

Quality index	Recommended value	Model value
RMSEA	≤ 0.06	0.054
TLI	≥ 0.90	0.929
CFI	≥ 0.93	0.937

The resulting model quality indices are good. However, their values are lower than in the case of EFA. This is partly because a different software library calculates the CFA than the EFA.

Structural model

The second step after constructing the measurement model is constructing the structural model and testing the associated hypotheses using SEM. Calculations were performed using R software and the lavaan package (Rosseel, 2012). The resulting structural model with calculated links between individual variables is shown in Fig. 2; the results of individual significance tests with the respective p-values are shown in Tables 6 and 7. The links between individual variables were calculated using path analysis coefficients, which are considered indicators of the tightness of the relationship between the selected variables and the index of determination (R^2), which shows the explanatory power of the constructs used in the models (Dabbous et al., 2020).

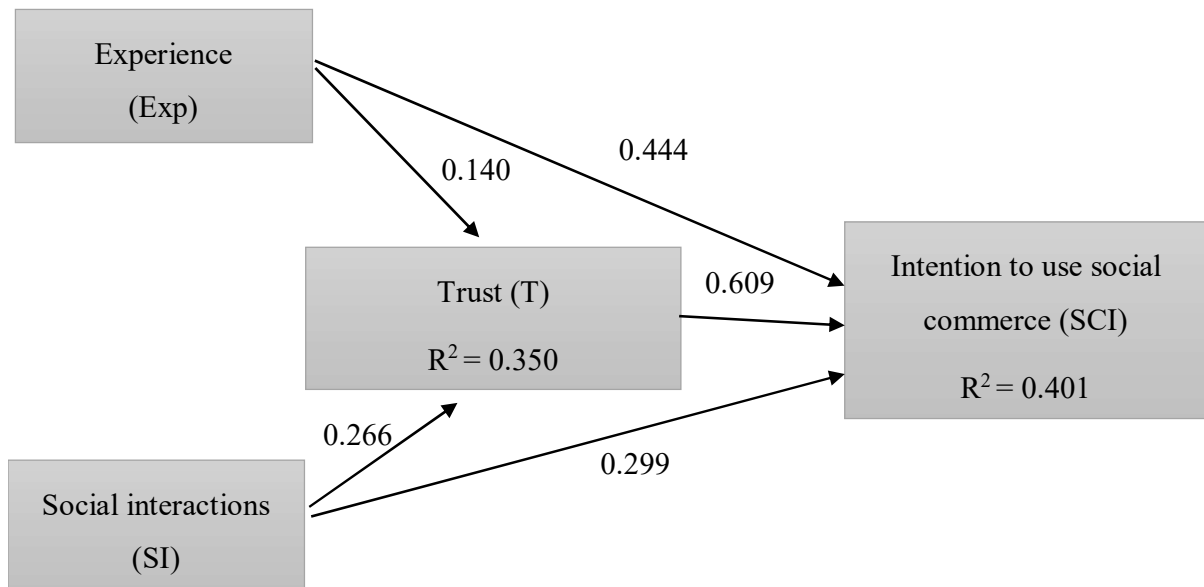


Fig. 2 - Structural model. Source: Own research

The quality of the structural model is good (RMSEA = 0.054, TLI = 0.929, CFI = 0.937). As shown in Fig. 2, the determination index values for trust $R^2 = 0.350$ and for the intention to use social commerce $R^2 = 0.401$ can be interpreted so that the model explains 35 % of the variance for trust and 40.1 % of the variance for the intention to use social commerce. Falk and Miller (1992) state that a value of $R^2 > 0.1$ is satisfactory, and Cohen (1988) states a value of $R^2 > 0.26$. In similarly focused research, the authors achieve R^2 values for trust and intention to use social commerce in the range between 0.13 – 0.72 (e.g., Sharma et al., 2019; Ventre et al., 2020; Hajli, 2015; Al-Adwan & Kokash, 2019). As the values of both indices of determination exceeded both reported levels, the results can be considered as telling and having sufficient explanatory power in the context of other research.

Tab. 6 shows the SEM results for evaluating the formulated hypotheses H1, H2, and H3 using the analysis of direct relations. Tab. 7 shows the SEM results for evaluating the formulated hypotheses H4 and H5 using the analysis of indirect relationships. The data support the validity of all formulated hypotheses at the significance level of $p < 0.01$.

Tab. 6 - SEM results for the structural model – direct relationship analysis. Source: own research

Relationship	Total			Hypothesis	Result
	Effect	SE	p		
T → SCI	0.609	0.132	<0.001	H1	Accepted
SI → T	0.266	0.035	<0.001	H2a	Accepted
SI → SCI	0.299	0.063	<0.001	H2b	Accepted
Exp → T	0.140	0.023	<0.001	H3a	Accepted

Relationship	Total			Hypothesis	Result
	Effect	SE	p		
EXP → SCI	0.444	0.048	<0.001	H3b	Accepted

According to the SEM results, trust significantly affects the intention to use social commerce to purchase goods and services (H1; $\beta = 0.609$, $p < 0.001$). Social interactions significantly positively influence both trust (H2a; $\beta = 0.266$, $p < 0.001$) and the intention to use social commerce for purchasing goods and services (H2b; $\beta = 0.299$, $p < 0.001$). Previous experience with the online environment has a significant positive influence on trust (H3a; $\beta = 0.140$, $p < 0.001$) and on the intention to use social commerce (H3b; $\beta = 0.444$, $p < 0.001$).

Tab. 7 - SEM results for the structural model – indirect relationship analysis. Source: own research

Relationship	Total			Hypothesis	Result
	Effect	SE	p		
SI → T → SCUI	0.162	0.035	<0.001	H4a	Accepted
Exp → T → SCUI	0.085	0.020	<0.001	H4b	Accepted

SEM also confirmed the significant role of trust as a mediator of the relationship between social interactions and intention to use social commerce to purchase goods and services (H4a; $\beta = 0.162$, $p < 0.001$) and previous experience and intention to use social commerce to purchase goods and services (H4b; $\beta = 0.085$, $p < 0.001$).

Several authors assumed in their research studies that the pattern of using social commerce to purchase goods and services varies significantly depending on some of the users' demographic characteristics. These demographic characteristics most often include age and gender (Aydin, 2019; Bamansoor et al., 2020; Changchit et al., 2020; Molinillo et al., 2021; Wang et al., 2019). On this basis, a more detailed analysis of the collected data is performed by testing the differences depending on the age and gender of the respondents. The analysis of differences was performed with respect to the nature of the data using the Mann-Whitney test, the ANOVA test, and the Kruskal-Wallis test (Mayers et al., 2010). Tables 8 and 9 show the basic descriptive statistics of the sample of respondents about their age and gender, as well as the results of the statistical tests.

Tab. 8 - Results of the analysis of respondents according to age categories. Source: own research

Age	Total		Exp		SI		T		SCI	
	Number	%	Mean	SD	Mean	SD	Mean	SD	Mean	SD
16-24	122	16.27	1.83	0.72	3.43	0.54	3.05	0.54	2.79	0.88
25-34	183	24.40	1.77	0.70	3.35	0.62	2.96	0.70	2.95	0.94
35-44	223	29.73	1.74	0.65	3.33	0.56	2.96	0.58	2.81	0.89

Age	Total		Exp		SI		T		SCI	
	Number	%	Mean	SD	Mean	SD	Mean	SD	Mean	SD
45-54	222	29.60	1.72	0.66	3.33	0.57	2.92	0.61	2.92	0.93
Test			Anova		Anova		K-W		Anova	
p-value			0.522		0.422		0.159		0.282	

Note: In one case, the Kruskal-Wallis test (K-W) was used as a non-parametric Anova due to the non-fulfillment of the assumption of using a parametric Anova.

As shown in Tab. 8, multivariate tests did not show any significant differences in the individual factors of the model in age based on the results of p-values.

Tab. 9 - Results of the analysis of respondents according to gender

Gender	Total		Exp		SI		T		SCI	
	Number	%	Mean	SD	Mean	SD	Mean	SD	Mean	SD
F	364	48.53	1.75	0.63	3.41	0.57	3.03	0.57	3.00	0.87
M	386	51.47	1.77	0.72	3.29	0.57	2.90	0.64	2.75	0.93
Test			M-W		M-W		M-W		M-W	
p-value			0.778		0.004		0.002		0.001	

Looking at Tab. 9, based on the resulting p-value of the Mann-Whitney test (M-W), there was no significant difference between men and women in previous experience. On the other hand, a significant difference was identified based on the results of M-W tests for the variables social interactions, trust and intention to use social commerce for purchasing goods and services. In all cases, the mean value of the responses is higher for females than for males. For the social interactions and trust variables, this result can be formulated so that females consider trust in the social commerce environment and social interactions in social commerce to be more important than males. For the variable intention to use social commerce, this result can be interpreted as females will use social commerce more than males.

fsQCA analysis

fsQCA was used to determine which combination of factors can result in the intention to use social commerce to buy goods and services. The fsQCA analysis consists of four steps: data calibration process, necessity analysis, sufficiency analysis, and generating results (Elshaer et al., 2024). The data calibration was performed in the first step of the analysis (see Ragin, 2008). In this process, the variables experience, trust, social interactions, and intention to use social commerce were transferred from the 5-point Likert scale into fuzzy sets ranging from 0 to 1, where 0 indicates full non-membership and 1 suggests full membership. At the same time, 0.5 is the crossover point (Fiss, 2011). This was done using a sigmoidal curve; researchers use various thresholds ranging from 0.05 to 0.95 percentiles (e.g., Greckhamer & Gur, 2021; Ying et al., 2023; Wang et al., 2021). In our study, we chose direct calibration (Pappas & Woodside, 2021; Rihoux & Ragin, 2009). Based on the knowledge of the data, we set a value of 1.5 for full non-membership, a value of 3 for a cross-over point, and a value of 4.5 for full membership.

In the next step, a constant of 0.001 is added (Fiss, 2011; Papas & Woodside, 2021) to all cases below 1. This ensured that cases with a fuzzy score of 0.5 were retained for further analysis.

After calibration, the next step was the necessity analysis. The necessity analysis aims to determine whether any of the variables is necessary for the outcome variable. In other words, consistency describes the extent to which all cases conform to the objective result (in our case, high intention to use social commerce and low intention to use social commerce) in a configuration consisting of the presence or absence of each condition (Ying et al., 2023). For a condition to be assessed as necessary for the outcome, the consistency value must exceed 0.9, the coverage value must exceed 0.5, and the relevance of necessity (RoN) must exceed 0.6 (Hossain et al., 2022; Mattke et al., 2022). The analysis revealed that none of the antecedent variables exceeded all three values; in the case of social interactions, however, the result was borderline. Overall, the result indicates that no single variable was necessary for the outcome variable. The values are shown in Tab. 10.

Tab. 10 - Necessity analysis. Source: own research

Conditions	High ITU			Low ITU		
	Consistency	Coverage	RoN	Consistency	Coverage	RoN
Tru	0.768	0.743	0.804	0.610	0.663	0.758
~Tru	0.652	0.598	0.702	0.764	0.787	0.816
Exp	0.273	0.927	0.988	0.184	0.705	0.955
~Exp	0.913	0.499	0.243	0.981	0.603	0.288
SI	0.899	0.663	0.627	0.763	0.633	0.607
~SI	0.502	0.653	0.836	0.593	0.869	0.931

Note: “~” means logical operator NOT. ITU: intention to use social commerce; Tru: trust; Exp: experience; SI: social interactions.

As a result, the factors can be combined for sufficiency analysis to explore configurations of antecedent variables leading to intention to use social commerce. First, a truth table containing 2^3 rows was generated. Four criteria were used to consider a configuration as sufficient: raw consistency value must exceed 0.75, PRI consistency value must exceed 0.5, raw coverage value must exceed 0.2, and frequency of cases in each row must be higher than 3 (Elshaer et al., 2024; Hew et al., 2023; Hossain et al., 2022). Finally, three types of solutions were obtained: complex, parsimonious and intermediate. Next, Boolean minimization was performed to find the simplest possible expression associated with the output’s explained value (Thiem & Duşa, 2013). In our study, we opted to use the intermediate solution for its better interpretability (e.g., Elshaer et al., 2024; Wang et al., 2021; Ying et al., 2023). Overall, two configurations meet the set criteria. These configurations leading to high intention to use social commerce with their consistency and coverage are shown in Tab. 11. With a graphical illustration of the configurations, interpretation of the results is easier and clearer (Wang et al., 2021).

Tab. 11: Configurations leading to high intention to use social commerce. Source: own research

Configuration	Solution 1	Solution 2
Trust	●	
Experience		●
Social interactions		●
Consistency	0.753	0.937
Raw coverage	0.769	0.266
Unique coverage	0.514	0.011
<i>Overall solution consistency</i>	0.753	
<i>Overall solution coverage</i>	0.780	

Note: “●” indicates the existence of a core condition. “●” indicates the existence of a peripheral condition. Blank space indicates a “don’t care” condition.

As can be seen in Tab. 11, both solutions have consistency values higher than 0.75 and their raw coverage values are higher than 0.20. Thus, these configurations can be described as sufficient and consistent enough in predicting the outcome variable (Hossain et al., 2022). Solution 1 suggests that users have a higher intention to use social commerce when they have high trust in the social commerce environment. Solution 2 suggests that a combination of experience and social interactions leads to a higher intention to use social commerce. When contrasting the two solutions to each other, solution 1 has the largest raw coverage (0.769), implying that the explanatory strength of this solution to the outcome variable is much higher than the explanatory strength of solution 2 (0.266). On the other hand, solution 2 is more consistent (0.937) than solution 1 (0.753), the value of which is close to the minimal recommended level of consistency. Finally, the overall solution value indicates that the two configurations cover a substantial proportion of the outcome variable (0.780). On the other hand, the overall level of consistency is at the minimum acceptable value (0.752).

5 DISCUSSION

The proposed model showed good quality (RMSEA = 0.054, TLI = 0.929, CFI = 0.937), thus describes the collected data relatively well. The empirical results of this research confirm the results of previous research studies in which the authors demonstrated the relationship between social interactions, trust and the intention to use social commerce (Al-Tit et al., 2020; Dabbous et al., 2020; Hajli, 2015; Hossain et al., 2021; Li, 2019; Rahman et al., 2020; Sharma et al., 2019; Ventre et al., 2020). This study also confirmed the influence of previous experience with the online environment on trust in the social commerce environment and on the intention to use social commerce for the purchase of goods and services. Thus, all hypothesized direct (H1, H2a, H2b, H3a, H3b) and indirect relationships (H4a, H4b) were confirmed by the research.

The influence of individual factors on the intention to use social commerce was analyzed through formulated hypotheses. Hypothesis 1 (H1) hypothesized that trust in social commerce positively influences the intention to use social commerce for purchasing goods and services. This hypothesis was accepted ($\beta = 0.609$, $p < 0.001$). The effect value indicates that the positive

influence of trust on the intention to use social commerce is relatively significant. This confirms the results of other research (e.g., Hajli et al., 2017; Sharma et al., 2019). The result could also be interpreted as the higher the trust users have in the social commerce environment, the more likely they will buy goods and services in this environment. Based on the data in this study, trust in a social commerce environment will increase if users:

- consider social networks used for social commerce to be trustworthy,
- consider pages on social networks used for shopping as reliable,
- have confidence in the protection of personal data that they provide while purchasing goods and services.

The social commerce constructs and social support, forming the “social interactions” variable in this research, are the basic building blocks of social commerce that directly impact building trust in the social commerce environment. This is how the result of testing hypothesis H2a, which was confirmed ($\beta = 0.266$, $p < 0.001$), can be interpreted: social interactions significantly positively affect trust. H2b, which assumed that social interactions positively influence the intention to use social commerce to purchase goods and services, was also confirmed ($\beta = 0.299$, $p < 0.001$). Thus, social interactions directly influence the intention to use social commerce for purchasing goods and services. According to the resulting path analysis coefficients, the direct influence of social interactions on the intention to use social commerce is higher than that of social interactions on trust in the social commerce environment. Trust in the social commerce environment and the intention to use social commerce can be built through information in comments, ratings, reviews, recommendations and references, and through advice and moral support from other users. Therefore, if a user finds relevant information in the social commerce environment during their decision-making process and other social commerce users help them with the purchase, their trust in the social commerce environment will increase, and they will more likely purchase goods and services through social commerce platforms. Again, these conclusions are consistent with the conducted research studies (e.g., Hajli, 2015; Hajli & Sims, 2015; Kapoor et al., 2018; Rahman et al., 2020; Shanmugan et al., 2016).

The research study tested the effect of previous experience with the online environment on trust in the social commerce environment (H3a) and on the intention to use social commerce for the purchase of goods and services (H3b). Although several authors in their research have concluded that experience affects the building of trust and the intention to use social commerce (e.g., Baethge et al., 2016; Chen et al., 2014; Chen et al., 2022), they did not explicitly test this relationship in their models, whereas, in this research, previous experience was a predictor variable. Based on the literature review, this is potentially the first research study that empirically tests the influence of previous experience with the online environment on trust in the social commerce environment and the intention to use social commerce. Both formulated hypotheses, i.e., that previous experience positively influences trust in the social commerce environment ($\beta = 0.140$, $p < 0.001$) and previous experience positively influences the intention to use social commerce for the purchase of goods and services ($\beta = 0.444$, $p < 0.001$), were confirmed in the empirical model. As in the case of social interactions, based on the resulting path analysis coefficients, their direct influence of previous experience on the intention to use social commerce is higher than their direct influence on trust in the social commerce environment. The results can be interpreted so that although previous experience with the online environment influences trust in the social commerce environment, its influence is more significant for the intention to use social commerce than for creating trust in the social commerce environment.

When comparing all coefficients of the path analysis, it can be concluded that the most significant influence on the intention to use social commerce for the purchase of goods and services is trust in the social commerce environment ($\beta = 0.609$), followed by previous experience with the online environment ($\beta = 0.444$) and social interactions ($\beta = 0.299$). To complement these results in order to better understand the effects of trust, social interactions and experience on the intention to use social commerce, fsQCA was performed. According to the analysis results, two configurations leading to high intention to use social commerce were identified. It is essential to mention that all three factors researched in this study are crucial for predicting the outcome variable. Solution 1 highlights trust as a core condition for the intention to use social commerce. In this solution, trust plays a key role. Solution 2 shows that experience, as a core condition, in combination with social interactions, leads to the intention to use social commerce. The two configurations cover a substantial proportion of the outcome variable (0.780). The yielded results reinforce the findings provided by SEM as they indicate that trust and experience are the two most important factors with the highest effect on the intention to use social commerce.

Although some research results indicated differences in variables in the social commerce model depending on the age (e.g., Aydin, 2019; Changchit et al., 2020) and gender of users (e.g., Molinillo et al., 2021; Wang et al., 2019), in a more detailed analysis of the data, significant differences were found only for gender, specifically within the variables of social interactions, trust and intention to use social commerce. The results indicate that women place more importance on social interactions and trust than men and are more likely than men to use social commerce.

Several studies have provided evidence for the mediating effect of trust in social commerce models, where the outcome variable is the intention to use social commerce for the purchase of goods and services (e.g., Al-Adwan & Kokash, 2019; Al-Tit et al., 2020; Dabbous et al., 2020; Hossain et al., 2021; Rahman et al., 2020; Sheikh et al., 2019). The mediation effect of trust was also confirmed in the empirical model within this research through the tested hypotheses H4a and H4b. These hypotheses hypothesized that trust is a mediator of the relationship between social interactions and intention to use social commerce to purchase goods and services ($\beta = 0.162$, $p < 0.001$) and that trust is a mediator of the relationship between experience and intention to use social commerce to purchase goods and services ($\beta = 0.085$, $p < 0.001$). This result highlights the importance of trust as a factor that affects the use of social commerce not only directly but also indirectly as a mediator of the relationship between social interactions and the intention to use social commerce and previous experience with the online environment and the intention to use social commerce.

5.1 Theoretical implications

This study contributes to the development of the theory by conceptualizing the model of the use of social commerce and its empirical validation. In the research model, the relationships between the individual factors of the social commerce model were investigated in the context of a country that, from the point of view of using social commerce, is in the initial phase of its adoption. This model emphasizes the central role of trust in the intention to use social commerce. Trust was a variable with a significant predicting and mediating effect in the research. The model tested the influence of social interactions and previous experience with the online environment on trust in the social commerce environment and the intention to use social commerce to purchase goods and services, which previous studies called for (e.g., Sharma et al., 2019). According to available information, this is the first study to use previous experience with the online environment as a predictor variable, in which the predicting effect

was also confirmed. The conducted research thus enriches the existing knowledge regarding the social commerce environment. This study was built on a mixed-method approach, using SEM and fsQCA. Combining the methods helps us better comprehend the effects of trust, social interactions and experience on the intention to use social commerce. Thus, it contributes to a deeper understanding of the factors influencing users' intention to use social commerce. As social commerce is still a relatively new topic, this study's proposed model could stimulate further investigation in follow-up studies. The research results also expand the current state of knowledge of social commerce with the results of the importance of factors for the use of social commerce in the context of the selected country. The work can thus represent a springboard for investigating the environment of social commerce and the intention to use social commerce in the Czech Republic.

5.2 Managerial implications

From a practical perspective, the research demonstrates the factors users consider important for using social commerce. From the empirical research results, several facts emerge for businesses and specialists involved in commerce on the Internet that can lead to their greater competitiveness. Trust is a critical factor in social commerce that plays a significant role in users' intention to use social commerce for purchasing goods and services. The more trust a user has in the social commerce environment, the more likely they will use it. In a social commerce environment, the user must trust other users or groups of users and the social commerce platform itself –for example, the security of financial transactions, privacy protection, or personal data protection (Benlian & Hess, 2011). Therefore, the user must feel that the social commerce platform creates a reliable environment for social interactions (Chen & Shen, 2015).

In contrast to electronic commerce, social commerce is characterized by an interactive environment that supports creating and maintaining social interactions. The research results confirm that social interactions are essential both for building trust in the social commerce environment and for the very intention to use social commerce. Social interactions provide value not only to users but also to businesses. Through user-generated content, users often convey relevant information to users regarding businesses, their products, and the purchasing process. In addition, this information reduces users' uncertainty, thereby facilitating their decision-making (Riaz et al., 2020). In addition, user content helps businesses with their marketing communications, which, in the case of positive information, makes it much easier for them to sell products. As a result, businesses can also grow more easily (Sheikh et al., 2019). Generated user content also provides businesses with valuable feedback that they can use, for example, to improve products, build branding, communicate with customers, or understand customer behavior (Sheikh et al., 2019). Social interactions bring users together and lead to the creation of mutual relationships within which social support can be delivered. This creates a positive climate of social commerce in which trust grows. It is, therefore, in the interest of businesses that users interact with each other as much as possible. Thanks to its interactivity, the social commerce environment is also ideal for businesses that can use it to create and improve customer relationships. Businesses should, therefore, encourage users to interact within social commerce platforms as much as possible. Businesses can achieve this, for example, by supporting communities (groups) or forums on social commerce platforms, where users can exchange their knowledge and experience; at the same time, forums and communities can be used by businesses themselves to interact with customers. Businesses can interact with users by asking questions about overall satisfaction with the business, its products, or the purchasing process. In this way, they can encourage users to share their opinions and

experiences through ratings, reviews or recommendations, which reach other users through social commerce platforms. Businesses can also incentivize users to share their experiences and opinions with appropriate incentives, such as getting a product for free or a coupon for their next purchase. Targeting users who have a large number of followers can also be an option. With these users, user content could reach more users faster. The research results indicate that women are more likely to use social commerce than men. How businesses handle this information is critical; targeting women, as more likely users of social commerce, is the obvious option, but a possible strategy is also targeting men to convince them to use social commerce. However, by properly using knowledge about the impact of social interactions, businesses can make their marketing communications more effective (Dabbous et al., 2020; Ventre et al., 2020).

Previous experience with the online environment is important both for building trust in the social commerce environment and for the intention to use social commerce to purchase goods and services. For businesses, this finding is positive news, as, based on statistics provided by the Czech statistical office, 86 % of the Czech population has experience with the online environment, i.e., in 2023, 86 % of the Czech population used the Internet to search for information, of which 91 % searched for information about goods and services they either wanted to buy or to inquire about what could be bought on the market. In addition, more than 77 % of the Czech population has experience with online shopping (Czech statistical office, 2023). In the context of the European Union, 92 % of the E.U. population has experience with the online environment. In addition, 70 % of the E.U. population has experience with online shopping (Eurostat, 2023). From the result regarding the influence of previous experience with the online environment on trust and the intention to use social commerce, one more critical implication emerges: the potential number of users who could use social commerce.

5.3 Limitations and future research

The research was conducted on the chosen conceptual model, which was compiled based on literature research. If more factors were selected for the model based on the research, the resulting model would change, and thus, the results of the subsequent research study would change. The context of the study was limited only to users of the social networks Facebook and Instagram. In the context of other social networks, results may vary. The age structure of the research respondents did not perfectly copy the age structure of the Czech population due to a lack of data. The data was collected using quota sampling. From this perspective, the sample used in this research can be considered quasi-representative. Burns et al. (2017) claim that quota sampling can compete with random sampling. However, several studies in the past have shown that quota sampling cannot obtain a representative sample of respondents, as in the case of random sampling, which prevents the generalization of the results of this study to all social commerce users in the Czech Republic.

Based on the fit indices, the quality of the built model was good, and the model explained 35 % of the variance for trust and 40 % of the variance for the intention to use social commerce. Overall, the resulting model explained 51 % of the variance. Although these values are considered satisfactory in the field of social commerce research and have sufficient explanatory power, from a global point of view, they are rather average values. This result indicates that there are other latent variables in the model, the identification of which can improve the quality of the model and the explanatory power of the dependent variables.

Another limitation stems from the essence of the SEM method, which was used to analyze structural model links. SEM is a method based on analysis of variance, which assumes that the

relationship between variables is linear – but in reality, relationships between variables are often non-linear. SEM results thus assume causal symmetry of the relationship between variables (Pappas & Woodside, 2021). In studies processed using SEM, it is therefore very appropriate to triangulate the research using some qualitative method.

For this reason, fsQCA was utilized. The results yielded two configurations with substantial explanatory power. However, the overall solution consistency is very close to the minimal acceptable value. This must be taken into account when interpreting the results.

Several possibilities for the further development of the topic of social commerce arise from the mentioned limitations. Future research could consider other factors influencing the intention to use social commerce in the Czech Republic. Researchers could also try to include an older population group in their studies so that the overall results are more telling; alternatively, they could focus the research on a selected population in the Czech Republic (for example, Millennials, Generation Z, etc.). The created conceptual model could also be tested in the context of another country at a similar stage of social commerce adoption.

6 CONCLUSION

This study verified a social commerce model and analyzed the influence of individual factors on the intention to use social commerce to purchase goods and services. In addition to the intention to use social commerce, the proposed model also included the constructs of trust in the social commerce environment, social interactions, and previous experience with the online environment. Prior research has postulated that experience may influence trust and the inclination to utilize social commerce. However, this effect has not been empirically examined to date. Thus, this study is one of the first to explore the predicting effect of experience on trust and intention to use social commerce. A mixed-method approach combining structural equation modeling (SEM) and fuzzy-set qualitative comparative analysis (fsQCA) was utilized to get more robust results. SEM was used to verify the proposed social commerce model using a quasi-representative sample of 750 complete questionnaires. fsQCA was employed to enhance the research findings. The study reveals that women place more importance on social interactions and trust than men and are likelier to use social commerce. The results also indicate that the most critical factors that directly influence the use of social commerce in the Czech Republic are trust in the social commerce environment and experience with the online environment. Trust is a variable with a significant predicting and mediating effect on the use of social commerce.

From a theoretical point of view, the research results enrich the existing knowledge regarding the social commerce environment and contribute to a deeper understanding of the factors that may influence users' intention to engage in social commerce.

From a practical point of view, the research results are helpful for businesses and specialists engaged in online commerce, as they demonstrate the factors that users find important to using social commerce.

Future research could consider other factors influencing social commerce intention, focus on older populations, or test the model in other countries at similar stages of social commerce adoption.

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