

Pollák, František; Markovič, Peter

## Article

# Size of business unit as a factor influencing adoption of digital marketing: Empirical analysis of SMEs operating in the Central European market

Administrative Sciences

## Provided in Cooperation with:

MDPI – Multidisciplinary Digital Publishing Institute, Basel

*Suggested Citation:* Pollák, František; Markovič, Peter (2021) : Size of business unit as a factor influencing adoption of digital marketing: Empirical analysis of SMEs operating in the Central European market, Administrative Sciences, ISSN 2076-3387, MDPI, Basel, Vol. 11, Iss. 3, pp. 1-16,  
<https://doi.org/10.3390/admsci11030071>

This Version is available at:

<https://hdl.handle.net/10419/240162>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/4.0/>

## Article

# Size of Business Unit as a Factor Influencing Adoption of Digital Marketing: Empirical Analysis of SMEs Operating in the Central European Market

František Pollák <sup>1,\*</sup>  and Peter Markovič <sup>2</sup> 

<sup>1</sup> Institute of Technology and Business in České Budějovice, Faculty of Corporate Strategy, Nemanická 436/7, 370 10 České Budějovice, Czech Republic

<sup>2</sup> Faculty of Business Management, University of Economics in Bratislava, Dolnozemska cesta 1/b, 852 35 Bratislava, Slovakia; peter.markovic@euba.sk

\* Correspondence: frantisek.pollak@mail.vstecb.cz

**Abstract:** The issue of using marketing communication tools in the internet environment is quite extensive. Innovation of the usual procedures is usually influenced by market development. The presented study examines selected factors that may affect the acceptance of digital marketing tools in business practice in small and medium-sized enterprises (SMEs). The aim of the study is to answer the basic question of whether company size influences the willingness to adopt online marketing tools within the usual communication mix. Based on a thorough empirical analysis performed on a sample of companies operating in the Central European market, it can be stated that company size does not play a role in adopting online marketing tools. Most organizations, regardless of their size, still have reservations about investing in digital marketing. On the other hand, previous experience is a key determinant to perceive the benefits of using the internet for business purposes. Organizations actively using online marketing tools evaluate their contribution to their business very positively. It is a well-known fact that product testing significantly increases the degree of its acceptance. This knowledge is one of the key starting points in traditional marketing. Obviously, this assumption needs to be taken into account in both physical and digital environments. At the same time, it should be noted that the application of the basic online marketing tools in business practice is a prerequisite for all subsequent online activities.

**Keywords:** innovations; competitiveness; small and mid-size enterprises; family businesses; internet; online marketing; electronic marketing; e-marketing



**Citation:** Pollák, František, and Peter Markovič. 2021. Size of Business Unit as a Factor Influencing Adoption of Digital Marketing: Empirical Analysis of SMEs Operating in the Central European Market. *Administrative Sciences* 11: 71. <https://doi.org/10.3390/admsci11030071>

Received: 1 June 2021

Accepted: 8 July 2021

Published: 12 July 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Since the transition from production to product marketing, companies have been striving for effective spending of funds for marketing communication (Gawer and Cusumano 2014; Felix et al. 2017; Yim et al. 2017). The advent of a new approach or the discovery of a new tool starts the process of adapting to change. At the beginning, it has a form of a trend that only the boldest market actors are willing to adopt. In the literature, these are referred to as early adopters (Chesbrough and Crowther 2006; Van den Bulte and Joshi 2007). As a rule, the effectiveness of the instrument cannot be measured at the initial stage, so the first entities to decide on adopting a given approach take on the role of imaginary pioneers. If the given trend works, it is gradually adopted by the mainstream entities as well. At this stage, the potential of a particular trend is usually fully exploited and leaves little room for market surprises. The application of traditional online internet tools in business, or specifically in marketing strategies of business entities, dates back to the early 1990s (Hanna et al. 2011; Sashi 2012; King et al. 2014). The apparent saturation of the market in developed economies subsequently occurred in the noughties; however, due to the constant development of the issue, the potential of the tool has not been fully used, especially for mainstream business entities.

Internet marketing is still perceived by many business entities as complementary to traditional marketing through physical media (Cant and Wiid 2016). It specifically applies to small and medium-sized enterprises, which usually have only limited funds to be spent on marketing communications. From a certain point of view, the behavior of these entities is wholly rational. Significant numbers of their customers are members of generations preceding generation X. Generation X was the first to have a real chance to fully exploit the potential of the internet (Dunphy 1999; Dou et al. 2006). The subsequent generations took the internet and its tools for granted, and no adaptation was needed (Dabija et al. 2017; Dabija et al. 2018; Sabaityte et al. 2019). As for generations of customers, it is necessary to take into account the factor of real purchasing power (Swan and Waite 2015; Lissitsa and Kol 2016). The base is the marketing paradigm, which sees the main purpose of marketing in satisfying individual needs. In this context, the culmination of the need-wish-demand sequence is precisely the moment of market exchange. At this point, the needs meet real purchasing power, which allows market exchange. If purchasing power is allocated in the market segment that perceives traditional marketing tools as primary, the actions of “digitally hesitant” business entities will be wholly rational.

As expected, two key elements were identified in the issue, producers and consumers. The issue of adaptation to marketing in the internet environment by consumers was a key point for our research in its initial phase. This was followed by research on the supply side of the market, the results of which are presented in this study.

As for the different stages of adopting innovation in different economic and geographical units, we focused on the Central European market. In terms of the extent and pace of innovation, the selected market appears to be catching up, especially when considering the developed online markets of North America and Northwest Europe (Stam and Ven 2021; Varga et al. 2020). We consider this specificity to be one of the key benefits of our research. The nature of the catching-up market in the inhomogeneous environments of countries of different languages and preferences creates a precondition for a specific knowledge base with benefits for similar economic and geographical units.

Based on our research (Štefko et al. 2011; Paetsch et al. 2017), it can be concluded that the market (regardless of its degree of development and applied innovation) generates opportunities asymmetrically.

In the demand side of the market, the element of real purchasing power was taken into account; the research question was based on the assumption that the different economic status of consumers determines the degree of acceptance of digital marketing. The hypothesis was confirmed by the empirical analysis (Pollák and Markovič 2021); at the same time, it confirmed the need for a holistic approach to the issue.

The attention was then shifted to the supply side of the market. Taking into account all the relevant specificities, the basic research question was formulated as follows: *Does the size of the organization affect its willingness to adopt online marketing tools within its communication mix?*

The following chapters of the study deal with the specifying contexts necessary for answering the research question. The analysis of the theoretical basis in the theoretical framework is followed by the chapter dealing with the methods and material of the work. The results of the analysis are presented and discussed in the fourth chapter. The conclusion presents a summary of findings obtained complemented by the limitations of the research and perspectives for further research in the topic.

The presented study aims to extend the knowledge base concerning innovations in business practice by relevant empirical data. Examining the specifics that determine the acceptance of innovations, i.e., digital marketing in this case, creates room for a better understanding of the market. From a scientific point of view, generalization should be avoided. Insufficient examination of the context, especially in emerging markets, creates ideal conditions for these generalizations. Practices based on inaccurate knowledge are subsequently exposed to an increased risk of inefficiency. By seeking an answer to the initial question formulated by us, the study thus aims to contribute to the partial elimi-

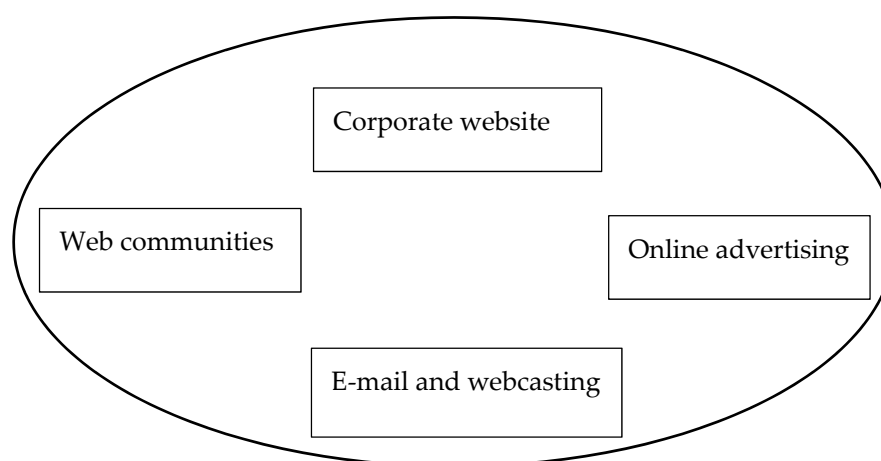
nation of the risk of inefficiency, especially when it comes to defining starting points for marketing managers, who have the ambition to transform dominant offline companies into an increasingly required online form. To clearly define the scientific validity of the research (in terms of the research efforts), it shall be noted that this study is a part of comprehensive research on the advancement of economic and social innovation by means of creating an environment enabling business succession. In the triennial research, seven research institutions in five Central European countries investigate the issue of family business and business succession.

## 2. Theoretical Framework

Within the overview of the theoretical knowledge in the field, we will focus on the basic topics, including online marketing and its tools. Subsequently, the application will be discussed from the perspective of relevant reference studies. A theoretical overview in the form of a continuous train of thought presents the topic so as to address all the key concepts considered in the empirical part of the presented study.

### 2.1. Digital Marketing in Its Basic Form

The concept of digital marketing is based on a combination of traditional marketing tools and online technologies enabled by the internet in the 1990s (Kalyanam and McIntyre 2002; Constantinides 2006). Although the use of the first tools of online marketing could be disputed, especially in the case of e-mail and catalogs (Road et al. 2010), at the time of their implementation, these pioneering activities took the form of textbook examples rather than a real market tool. As for the application of digital marketing in business practice, the literature provides a myriad of definitions and procedures (Gilmore et al. 2007; Seth and Sharma 2005; Yan 2010). For the purposes of this study, we will define the term as a marketing communication that predominantly uses the Internet tools. Despite the extensive ambiguity of the conceptual apparatus, the terms digital marketing, electronic marketing, e-marketing, and online marketing will be used as synonyms in the text. In terms of procedures, we selected a basic diagram used by Kotler and Armstrong (2004) which we subsequently edited in Pollák (2015) to define four basic procedures for applying e-marketing in business practice (see Figure 1 below).



**Figure 1.** Basic forms of e-marketing. Source: Author based on Kotler and Armstrong (2004).

In our research on the application of selected tools in business practice, we perceive them as key elements. With regard to the development of the individual tools, we classify and update the elements over time as follows:

- Corporate website,
- Online advertising in two formats as:
  - context advertising,

- banner advertising.
- Social media marketing (including influencer marketing),
- Advertising e-mail.

In our opinion, the updated form of these tools is a core of digital marketing. They are also a prerequisite for applying more sophisticated online approaches in general. In the presented study, these basic forms of e-marketing are taken into account when formulating the second research sub-question.

## 2.2. Application of Digital Marketing in Business Practice

As for the application of digital marketing in business practice, it can be stated that this is a natural evolutionary step within marketing management. As already mentioned in the introduction, companies gradually (let us say with a certain degree of abstraction) introduce innovations based on the real needs of the market or based on the findings from theory and practice (van de Vrande et al. 2009; Falahat et al. 2020; Lestari et al. 2020). However, the optimization of business processes as a whole underwent a revolutionary change with the advent of information technology as well as the internet. E-business-based supporting tools have brought significant resource savings to businesses, including time savings, as technologies enabled shortening of communication channels (Peterson et al. 1997; Adjei et al. 2010).

At this point, it is thus natural to label adaptation to e-marketing as “evolutionary”. Developed markets have created preconditions for the application of these innovative tools, especially better infrastructure. The technologies were available globally, but the infrastructure was largely limited by its local nature across the market. There should be also mentioned the aspect of available resources (Srivastava and Gnyawali 2011; Klingebiel and Rammer 2014). From the point of view of resources, large companies in particular have a significant competitive advantage, generating available resources through either economy of scale or market dominance. Some of these resources can be reinvested in innovations. In the case of small and medium-sized enterprises, the availability of innovations is logically more complicated (Rosenbusch et al. 2011; Klewitz and Hansen 2014; GherghinaŞtefan et al. 2020). This disadvantage is generally offset by higher efficiency and lower bureaucracy. However, the market must be seen as a complex structure, not only from the perspective of winners. We agree that not all large companies necessarily benefit from economic strength; neither are all small and medium-sized enterprises fully efficient and flexible. This assumption was a base for formulating the first sub-question.

At the same time, digital marketing tools as such do not have a dominant cost nature (Alrousan et al. 2020). From the perspective of the digital environment, marketing managers are offered a largely accessible and unregulated market (Park et al. 2020). It is up to them to decide which promotion formats to include in their e-marketing portfolios. Compared to traditional media, the interactivity of the participating parties in online communication is significantly increasing (Sokolova and Hajer 2020). This interactive link provides a significant advantage to both parties, especially in the form of information (Peltier et al. 2020). Information enable both sides of the market to maximize their benefits. This benefit can be represented on the part of providers by increasing their turnover, and on the part of consumers by maximizing consumption with respect to available resources (Li et al. 2020). However, the optimization process is preceded by several steps; both the supply and demand side of the market must adopt certain digital habits. The adoption of such habits is conditioned by the degree of acceptance, which is addressed in both the presented and reference (Pollák and Markovič 2021) studies.

Despite more than three decades of constant knowledge generation, we perceive the issue of applying information and communication tools (including internet tools) in business practice as a lively and evolving topic (Chang et al. 2009; Gao et al. 2021). The market still does not show any objective signs of saturation. It regularly generates new opportunities in the form of tools that have not been discovered yet. As an example, there can be mentioned evolution in the form of development from the weblog (as an

internet diary), through a blog, to microblogging platforms (Goldstein 2008). At the same time, a relatively interesting phenomenon is encountered within the issue, specifically a combination of basic and applied research. The generated empirical material aims to contribute both to the knowledge in the issue and the advance in application of the tools.

### 3. Materials and Methods

This chapter presents the main goal of this study, which is followed by the initial research question. It is divided into two parts so that the holistic nature of the researched issue is taken into account. The research question is followed by a detailed description of the material we work with in the presented study. At the end of this chapter, the scientific methods and procedures used for solving the research problem are described.

Based on the knowledge obtained from the relevant literature, the main goals of the presented study are formulated as follows: the objective of the study is to examine the effect of the company size on the acceptance of online marketing tools in terms of their integration into the communication mix. Given the main goal of the study, the following research question needs to be answered: *Does the size of the organization affect its willingness to adopt online marketing tools within its communication mix?*

The issue of mastering online marketing, or in other words the integration of online marketing tools into business practice, is quite extensive. The multidimensionality of the issue was taken into account when decomposing the research question into two sub-questions. The first sub-question has a form of the need for the elementary examination of the relationship between the company size and its willingness to invest in digital marketing. The second sub-question concerns the determination of the relationship between the perceived benefits of digital marketing and the organization's own activity in the online environment. At this point, we assume that the very experience of organizations will be a decisive factor in terms of a positive perception of the digital marketing benefits for the organization.

The first step in the statistical analysis is the correct formulation of research hypotheses  $H_{10}$  and the alternative  $H_{11}$ . Considering the research problem, two research hypotheses were formulated as follows:

**Hypotheses 1<sub>0</sub> (H1<sub>0</sub>).** *The size of the organization does not affect the organization's willingness to invest in digital marketing.*

**Hypotheses 1<sub>1</sub> (H1<sub>1</sub>).** *The size of the organization affects the willingness of the organization to invest in digital marketing.*

**Hypotheses 2<sub>0</sub> (H2<sub>0</sub>).** *The organization's online activity does not affect the perceived benefits of digital marketing to the business.*

**Hypotheses 2<sub>1</sub> (H2<sub>1</sub>).** *The organization's online activity affects the perceived benefits of digital marketing to the business.*

The research concerned both the supply and demand side of the market. The presented study analyzes the partial results of this comprehensive research, specifically, the analysis of the supply side of the market. The subject of the research is mainly the SMEs (small and medium-sized enterprises) that carry out their business activities within the Central European market.

The set of analyzed enterprises is referred to as a research sample. It consists of more than 2000 companies registered in the catalog of a selected internet portal. The reason for choosing this research sample was the fact that these companies represented, until the implementation of the research task, a set of all available business entities that corresponded to the selected characteristics.

Five size categories were predefined as follows:

- Self-employed (one-person enterprise);
- Micro-enterprise;
- Small enterprise;



- Medium-sized enterprise;
- Large enterprise.

The material used to answer the research question included both primary and secondary information sources. Primary information was provided through a questionnaire survey carried out by addressing the entire research sample using a structured electronic questionnaire with nineteen questions. The first six questions were used to categorize the analyzed sample for subsequent statistical analysis. Another thirteen mostly semi-open questions concerned the preferences as well as the real experience of the respondents from the addressed business entities with regard to the analyzed issues. To ensure the best possible data processability, Likert's five-point scale was used in selected questions. As for the response rate of the electronic questionnaires, the standard expected level of about 5% was achieved. Only duly completed questionnaires were used for processing. The analysis is based on the responses of 102 participating entities. Secondary information sources were dominant in the nature of reference studies.

As a part of the solution to the research problem, analysis and synthesis were used as the primary scientific methods. Other scientific methods included induction and deduction, comparison, abstraction and, finally, selected mathematical statistics methods, namely:

- *Contingency table*: This is a method combining two or more frequency tables so that each inner cell represents a unique combination of specific values of the cross-tabulated variables. The table allows us to find out the frequencies of specific categories of variables. At the same time, examining these frequencies makes it possible to determine the relationship between the cross-tabulated variables.
- *Pearson's chi-square test*: This is a method of determining the degree of reliability of the relationship between two categorical variables. The test is based on measuring the differences in the actual frequencies,  $n_{ij}$ , in the cells of the contingency table, compared to the expected  $m_{ij}$ . The expected cell frequency is calculated according to Equation (1):

$$m_{ij} = \frac{n_i \cdot n_j}{n} \quad (1)$$

where  $\chi^2 = \sum_{i=1}^r \sum_{j=1}^s (n_{ij} - m_{ij})^2 / m_{ij}$ . The value of  $\chi^2$  is compared with the critical value of  $\chi^2$ -distribution of  $(r - 1)(s - 1)$  degrees of freedom at the selected significance level. If the calculated value is greater than the table value, the hypothesis is rejected.

- *Contingency coefficient C*: This is a method of determining the degree of relation of two variables based on the Pearson's chi-square test, which is calculated using Equation (2) below:

$$C = \sqrt{\frac{\chi^2}{\chi^2 + n}} \quad (2)$$

- *Cramer's coefficient V*: This is a method of determining the degree of dependence between two qualitative features. If the results of the sample survey are arranged in a contingency table of type  $r \times s$ , Cramer's coefficient is defined by the relation expressed by Equation (3):

$$V = \frac{\chi^2}{\min\{(r - 1), (s - 1)\}n} \quad (3)$$

- *Cluster analysis*: This is a method used, e.g., in market segmentation, where the classification of market segments is based on a combination of several variables.

The data collected in the questionnaire survey were sorted and coded using MS Office, then used as inputs for a detailed statistical analysis using the Statistica program. Overview tables and graphs were used to summarize and interpret the selected results.

#### 4. Results and Discussion

Given the defined objectives of the study, the following research question is formulated: Does the size of the organization affect its willingness to adopt online marketing tools within its communication mix?

The research question was decomposed into two sub-questions, the first one concerning the existence of the relationship between the willingness to invest in digital marketing and the size of the organization itself.

The second sub-question is focused on the relationship between the perceived benefits of digital marketing and the organization's own activity in the online environment. Both sub-questions will be answered and discussed.

##### 4.1. The Size of the Organization and the Willingness to Invest in Digital Marketing

By decomposing the research question, we formulated the first of the research sub-questions, namely: *Does the size of the organization affect its willingness to invest in online marketing tools?*

The following statistical hypotheses were formulated:

**Hypotheses 1<sub>0</sub> (H1<sub>0</sub>).** *The size of the organization does not affect the organization's willingness to invest in digital marketing.*

**Hypotheses 1<sub>1</sub> (H1<sub>1</sub>).** *The size of the organization affects the willingness of the organization to invest in digital marketing.*

In the independence hypothesis, both variables are considered random variables and are thus randomly selected from the population. We assume their complete independence, i.e., the value of *Var1* does not affect the conditional distribution of *Var2*. The following variables have been chosen:

- *Var1* = The size of the organization;
- *Var2* = Willingness to invest.

If the null hypothesis is rejected, *Var2* is a dependent variable of *Var1*. The data were obtained on the basis of 102 duly completed questionnaires. The significance level  $\alpha$  equals 0.05.

Since we work with two numerical cross-tabulated variables, we used a contingency table to determine their relationship. The Statistica program was used to create a corresponding contingency table based on the data obtained from the questionnaires. The strength of the relationship in the contingency table was measured using several coefficients similar to the correlation coefficient; specifically, the values of the Pearson's chi-square test, the contingency coefficient, and Cramer's coefficient, whose calculation is based on the chi-square test. This test is valid asymptotically; therefore, it can only be used with a sufficient number of observations. Thus, it is not necessary to verify normality due to the use of non-parametric testing. However, the variables must be randomly selected and in a sufficient number. This condition was met in our case.

The following table (Table 1) presents the expected frequencies as follows:

**Table 1.** Table of expected frequencies.

<i>Var1</i> (1–5)	<i>Var2</i> (1–5)					Column Overall
	Strictly Positive	Rather Positive	Neutral	Rather Negative	Strictly Negative	
Self employed	0.862745	2.04902	3.66667	3.12745	1.29412	11.0000
Micro-enterprise	3.686275	8.75490	15.66667	13.36275	5.52941	47.0000
Small enterprise	1.725490	4.09804	7.33333	6.5490	2.58824	22.0000
Medium enterprise	1.490196	3.53922	6.33333	5.40196	2.23529	19.0000
Large enterprise	0.235294	0.55882	1.00000	0.85294	0.35294	3.0000
<b>Line overall</b>	8.000000	19.00000	34.00000	29.00000	12.00000	102.0000



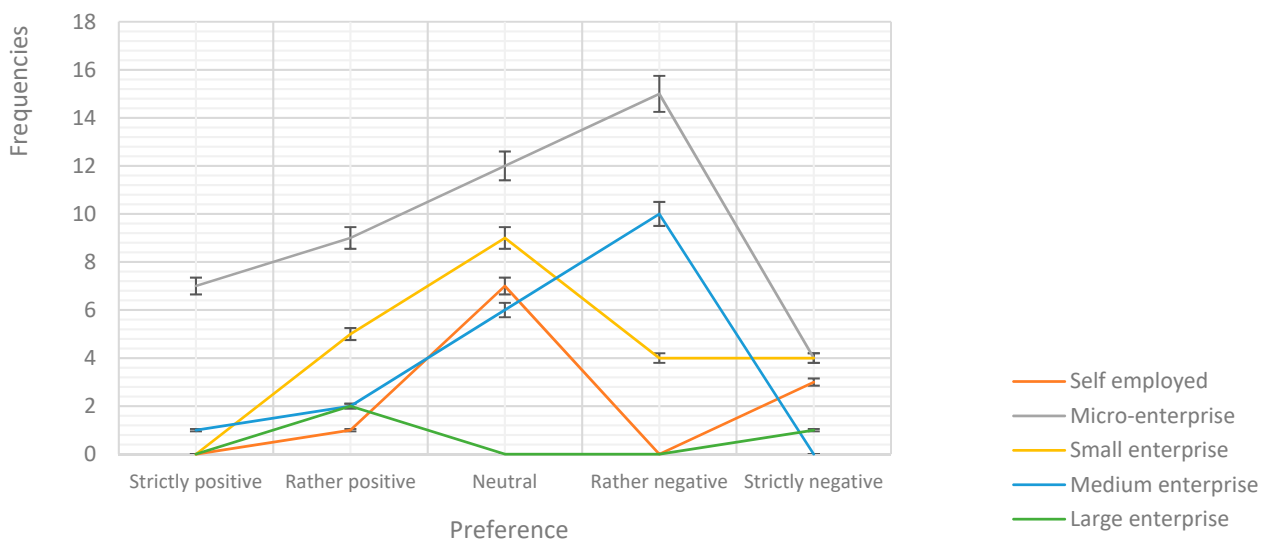
As the expected frequencies were lower than 1 in some fields, the condition of using the chi-square test was not met. Therefore, the sparsely represented categories were combined as follows: In  $Var_1$ , the underrepresented category “Large enterprise” was combined with the “Medium-sized enterprise” category under the name of “Medium-sized and Large enterprises”. In  $Var_2$ , the categories “Strictly Positive” and “Rather Positive” were combined, and so were the categories “Rather Negative” and “Strictly Negative”. The newly created categories were “Positive”, “Neutral”, and “Negative”. The condition for using Pearson’s chi-square test was thus met and the calculated statistics were applicable. We could therefore proceed to the evaluation of the hypothesis, as seen in Table 2.

**Table 2.** Hypothesis verification (after combining the categories).

Stat.	Stat.: $Var_1$ (4) $\times$ $Var_2$ (3)		
	Chi-Square	sv	p
Pearson’s chi-square	8.079909	df = 6	0.23231
Contingency coefficient	0.2709251		
Cramer V	0.1990161		

As seen in Table 2,  $\chi^2 = 8.0709909 \not\geq 12.592 = \chi^2(6)$  and the  $p$ -value =  $0.23231 \not\leq 0.05$ . Thus, at the selected significance level, it was *not possible to reject*  $H_{10}$  and accept the hypothesis  $H_{11}$ . This means that the hypothesis stating that the size of organizations statistically significantly affects the willingness of organizations to invest in online marketing tools was *not confirmed*.

When analyzing Figure 2 in more detail, it can be seen that most organizations, regardless of their size, are not willing to invest or are not able to clearly answer whether they would invest in marketing communication based on digital marketing.



**Figure 2.** Graph of interactions.

Based on the findings, it is possible to answer the first sub-question of whether the size of the organization does not affect its willingness to invest in digital marketing. At the same time, it should also be noted that at this point in the research it was not possible to unambiguously answer the primary research question in its holistically formulated form. To answer the question, it was necessary to take into account another possible determinant of digital marketing acceptance, i.e., the aspect of previous experience, which has been taken into account in formulating the second research sub-question of, “How do active organizations evaluate the benefits of digital marketing for their business?”

#### 4.2. Organization's Online Activities and Perceived Benefits of Digital Marketing

By decomposing the research question, we formulated the second research sub-question, namely: *Does the organization's online activity affect its perception of the benefits of digital marketing for business?*

The following statistical hypotheses were formulated:

**Hypotheses 2<sub>0</sub> (H<sub>20</sub>).** *The organization's online activity does not affect the perceived benefits of digital marketing to the business.*

**Hypotheses 2<sub>1</sub> (H<sub>21</sub>).** *The organization's online activity affects the perceived benefits of digital marketing to the business.*

In the independence hypothesis, again, both variables were considered random variables, and were thus randomly selected from the population. We assumed their complete independence, i.e., the value of  $Var_1$  did not affect the conditional distribution of  $Var_2$ . The following variables were selected:

- $Var_1$  = Online activity of the organization;
- $Var_2$  = Perceived benefit.

If the null hypothesis is rejected,  $Var_2$  is dependent on  $Var_1$ . The data were obtained from 102 duly completed questionnaires. The significance level  $\alpha$  was 0.05.

Since we were again working with two numerical cross-tabulated variables, a contingency table was used to determine their relationship. The strength of the relationship in the contingency table was measured using the values of Pearson's chi-square test, the contingency coefficient, and Cramer's coefficient. As the same sample was used, the variables were also randomly selected and are sufficiently represented in the research sample.

The following table (Table 3) presents the expected frequencies as follows:

**Table 3.** Table of expected frequencies.

$Var_1$ (1–5)	$Var_2$ (1–5)					Column Overall
	Strictly Positive	Rather Positive	Neutral	Rather Negative	Strictly Negative	
Zero e-marketing tools	2.74510	1.81373	0.392157	0.049020	0.0000	5.0000
One e-marketing tool	9.88235	6.52941	1.411765	0.176471	0.0000	18.0000
Two e-marketing tools	17.01961	11.24510	2.431373	0.303922	0.0000	31.0000
Three e-marketing tools	18.11765	11.97059	2.588235	0.323529	0.0000	33.0000
Four e-marketing tools	7.13725	4.71569	1.019608	0.127451	0.0000	13.0000
All mentioned tools	1.09804	0.72549	0.156863	0.019608	0.0000	2.0000
<b>Line overall</b>	56.00000	37.00000	8.000000	1.000000	0.0000	102.0000

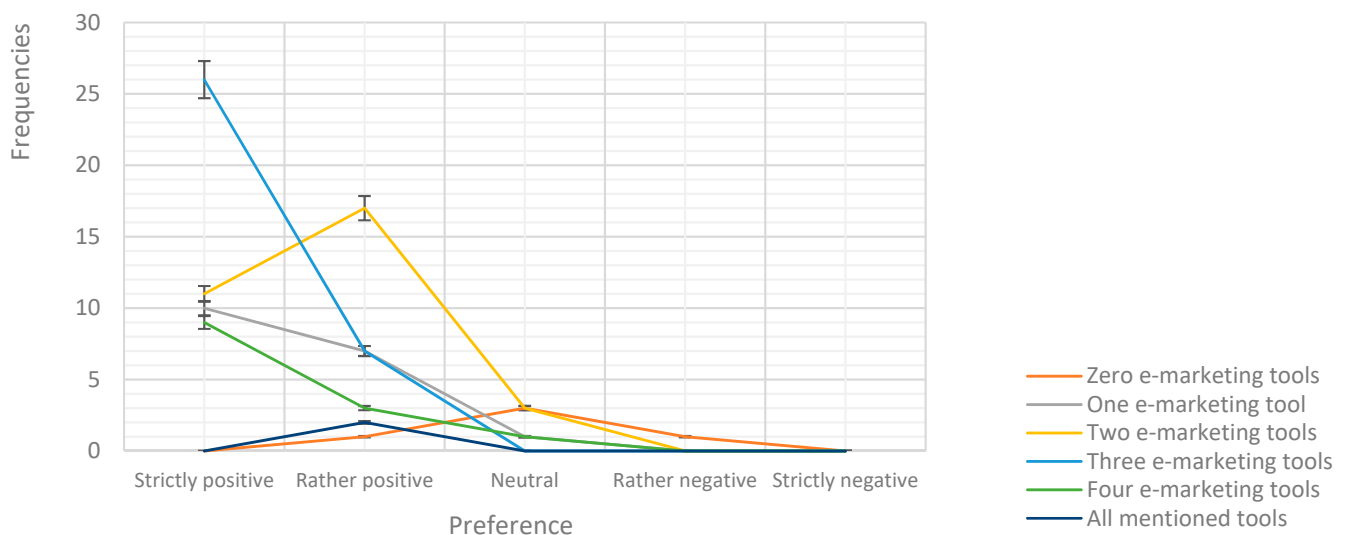
Even in this case, the expected frequencies lower than 1 occurred in some fields, i.e., the condition of using the chi-square test was not met. As in the previous case, underrepresented table columns were combined into logically related blocks as follows: in  $Var_1$ , the underrepresented category "No e-marketing tool to support business is used" was combined with the category "One tool to support business is used". The newly created category was named "One or no tool to support business is used". In the second category, the category "All the mentioned tools to support business are used" was combined with the category "4 of the mentioned tools to support business are used" into a newly created category "4 or more of the mentioned tools to support business are used". In  $Var_2$ , the underrepresented categories "Negative", "Rather Negative", and "Neutral" were combined into the category "The contribution of the internet is neutral to negative". The condition for using the Pearson's chi-square test was now met and the calculated statistics were thus applicable. We could therefore proceed to the evaluation of the hypothesis, as seen in Table 4 below.

**Table 4.** Hypothesis verification (after merger).

Stat.	Stat.: $Var_1(4) \times Var_2(3)$		
	Chi-Square	sv	p
Pearson’s chi-square	18.59985	df = 6	0.00490
Contingency coefficient	0.3927184		
Cramer V	0.3019532		

As seen from Table 4,  $\chi^2 = 18.59985 \geq 12.592 = \chi^2(6)$  and the  $p$ -value =  $0.0049 \leq 0.05$  indicate that at the selected significance level, it was possible to reject  $H_{20}$  and accept the hypothesis of dependence  $H_{21}$ . The hypothesis that the perceived benefits of digital marketing for business are directly related to the online activity of organizations was confirmed.

When taking a closer look at Figure 3, it can be seen that the perceived benefits of digital marketing for business are directly related to the online activity of organizations (expressed through the number of online marketing tools that the organization uses to support its business) as follows:



**Figure 3.** Graph of interactions.

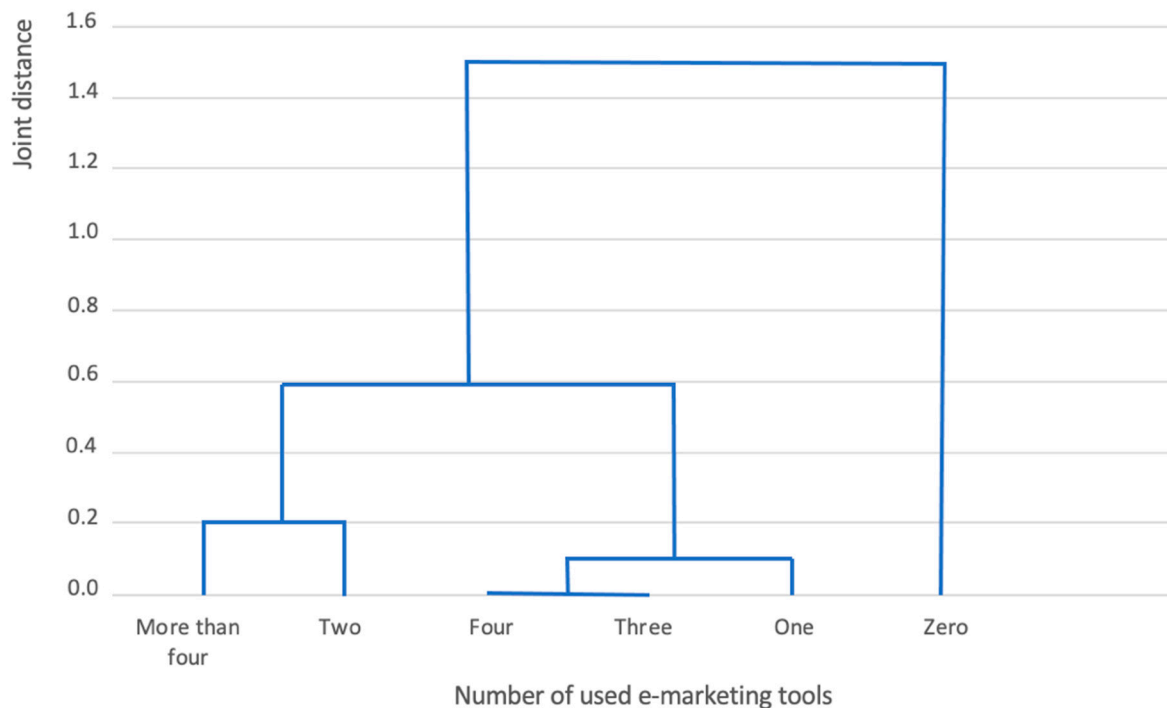
The interaction graph above shows that the evaluation of the digital marketing benefits was difficult for companies that did not use any business supporting tool; therefore, they evaluated their attitude towards this phenomenon as neutral. The organizations that used one support tool perceived its benefits as strictly positive. In the case of two tools, the perception of the benefit was rather positive. The organizations that used three and four tools perceived them strictly positively. In the last case, i.e., in case of using all the mentioned online marketing tools (from the selected portfolio of options), the perception of the benefits of these tools was rather positive. In terms of the research question, the relationship between the online activity of the organization and the perceived benefits of digital marketing for business was confirmed.

Table 5 below shows an overview of the identified relationships as follows:

**Table 5.** Perceived benefit based on used number of e-marketing tools.

The Number of Online Marketing Tools That the Organization Uses	Perceived Benefit
Zero	Neutral
One	Strictly positive
Two	Rather positive
Three	Strictly positive
Four	Strictly positive
More than four	Rather positive

Prior to the discussion of the findings, the identified dependencies shall be analyzed using cluster analysis, as a detailed analysis of the dependencies enables the identification of specific patterns of behavior that will contribute to a better understanding of the issue. The results of the cluster analysis are shown in Figure 4 below.



**Figure 4.** Cluster analysis of perceived benefit of digital marketing based on number of used e-marketing tools.

The online activity of organizations was categorized by how organizations perceived the benefits of online marketing tools for their business. The x-axis shows the online activity of the organization according to the number of e-marketing tools used. The y-axis measures their dependence. The shorter the distance, the more similar the companies were to each other in perceiving the benefits of e-marketing for their business. As seen from the Figure, the companies that used three and four tools were most similar to each other in terms of perceiving the digital marketing benefits for their business; their perception of benefits was almost identical. In the next step, the companies using three and four tools were grouped into one category with the companies using one tool, with their perception of the benefits being still relatively similar. The companies using two and five (all of the mentioned) tools showed a different perception, which is a relatively interesting finding. The aforementioned companies remained connected with the previous ones, but in a relatively more distant connection. A special category is the organizations that did not use any online marketing tools to support business. Their perception of online marketing tools was relatively different. This may be due to the fact that the organizations did not have any

experience with either positive or negative benefits of the internet; therefore, they were not able to evaluate them. At this point, it should be noted that for the further interpretation of the context, this is a key finding leading to answering the primary research question. As for the second sub-question, it can be stated that their own experience had a demonstrable influence on the perception of benefits. The perception of the benefits was different for organizations using a different number of tools to support business; rejecting the  $H_0$  was thus correct. At this point, we come to the initial research question, which will be the subject of a thorough discussion.

#### 4.3. Discussion of Findings

This chapter deals with the discussion of the results of the empirical analysis. Within the discussion, the key findings will be identified and used as the input data for further quantitative research.

Based on the basic contexts identified on the basis of the literature review (van de Vrande et al. 2009; Falahat et al. 2020; Lestari et al. 2020), it should be pointed out that in terms of integrating online marketing tools into the corporate communication portfolio, these are still additional tools to the traditional communication mix. Considering that a comprehensive communication policy must take into account as many target customer segments as possible, with these segments having different degrees of innovation adopted (Štefko et al. 2011; Paetsch et al. 2017; Pollák and Markovič 2021), this finding was largely expected. In the case of small and medium-sized enterprises, the situation is even more complicated, as the degree of their adaptation to innovation varies depending on the industry, target segments, or tradition. The factors—and it should be emphasized that they are not always rational factors—influencing this behavior are also diverse. Due to this inconsistency, the process of formulating and subsequently answering the research question was divided into several dimensions.

The first dimension is the pragmatic consideration that company size determines the degree of adopting digital marketing tools. In the selected Central European market, we thus performed an empirical analysis in order to confirm or reject this assumption. Based on the results of the detailed statistical analysis of the data, the assumed existence of the relationship between company size and the degree of adoption expressed by the willingness to invest in digital marketing was not confirmed. Most organizations participating in our research, regardless of their size, were not willing to invest or were not able to answer clearly whether they would invest in marketing communication based on digital marketing. The reasons are largely unclear; however, it is therefore possible to deduce that digital marketing is still perceived by many business entities as complementary to traditional marketing through physical media, as indicated in the reference studies (Cant and Wiid 2016; Gensler et al. 2017). It specifically applies to small and medium-sized enterprises, which usually have only limited funds that can be spent on marketing communications. In order to answer the primary research question, it was thus necessary to consider another possible determinant of digital marketing acceptance, i.e., the factor of previous experience. This factor was considered in formulating the second research sub-question on how online-active organizations evaluate the benefits of digital marketing for their business.

Within this dimension concerning the acceptance of online marketing tools into the communication portfolio of companies, the first step was to select specific online marketing tools which can be described as basic on the basis of theoretical knowledge. These tools were used within the selected research set to determine the cumulative frequencies of their active use by the companies. We also analyzed the level of evaluation of their perceived benefits for the companies, where previous experience turned out to be a determining factor in the perception of benefit or acceptance, as in the case of our parallel examination of the demand side of the market (Pollák and Markovič 2021), which completes the presented study within one comprehensive research unit. As for customers, their economic activity proved to be the determining factor for the adoption of innovations; in the case of companies, it was their previous experience rather than the size category. The group of companies that did not use

any business supporting tool turned out to have difficulties with assessing the benefits of digital marketing; they thus evaluated their attitude towards this phenomenon as neutral. The organizations using one supporting tool perceived its benefits strictly positively. When using two tools, the perception of the benefit was rather positive, while in the case of three or four tools the perception of benefit was strictly positive. These findings were confirmed by the results of cluster analysis. The graph of the cluster analysis showed the existence of a special category of organizations that did not use any online marketing tool to support business. The perception of companies that did not actively use online marketing tools was relatively different from the perception of other organizations, which may be due to the fact that the organizations in question had no experience with either positive or negative benefits of the internet; they were thus not able to evaluate these benefits. This finding is considered key to answering the research question and achieving the main goal of the research.

The answer to the question of whether the size of the organization affects its willingness to adopt online marketing tools within its communication mix is thus clear. The willingness to adopt innovative online marketing tools does not depend on the company size, while previous experience was proven to play a role.

## 5. Conclusions

The challenges of the issue of innovative approaches in marketing lie in its interdisciplinary nature on the one hand; on the other hand, on its considerable ambiguity. This only underlines the complexity of the issue. A significant number of relatively ambiguous (and in some respects inconsistent) variables must be taken into account when compiling effective marketing communication mixes. Knowledge is predominantly generated directly in practice as a by-product of marketers learning from their own success as well as mistakes. Basic research here overlaps with the applied research. We believe that efficiency in deciding on the application of specific e-procedures can only be achieved through continuous research. The production of empirical material of the qualitative and subsequently quantitative nature can reduce the degree of uncertainty characteristic of digital marketing. This will ultimately help active market players to become more efficient.

Demonstrating the specificities in order to achieve higher business efficiency and better competitiveness was the primary goal at the beginning of our research efforts. Following the research of the demand side of the market (Pollák and Markovič 2021), the study provides answers to one of the basic questions related to this issue, namely what influences the motivation of businesses to apply digital tools in mostly physical processes. The research focused on small and medium-sized enterprises as a backbone of the national economies of developed countries. The companies are situated in Central Europe, which provides added value to the research. As it is not a highly developed, but rather a catching-up economic and geographic region, the data may provide a competitive advantage for operators in markets of a similar nature. These markets are not fully saturated, and the knowledge can be directly transformed into a real competitive advantage.

From the point of view of the discussed findings, we want to point out to the key factor in the adaptation of business entities to online marketing. It is a factor determining all subsequent, or rather, more sophisticated online activities. Specifically, although (as academics or experts from practice) we often believe that thorough awareness raising is needed to increase the degree of adopting innovations in marketing, the application of one of the basic procedures in marketing communication has a much greater impact on their acceptance. This is a process taken from product marketing, where marketers begin the product adoption process with offering samples or product tasting (in the case of promoting the sale of food products). Testing a product significantly increases the degree of its adoption, which represents one of the key facts in traditional marketing. However, these fundamentals obviously need to be taken into account in both physical and digital spaces, as they are based on the relatively unchanging characteristics of human beings. People, whether in the position of customers or representatives of business companies, often (also)



unconsciously follow predefined patterns of behavior. According to our research, previous experience is a key determinant of the perception of the internet's benefits for businesses, regardless of their size.

The issue of applying innovations in business practice is highly topical today. Innovations are of a diverse nature; in the presented study, we focused on the innovations in processes related to marketing communication. The empirical material gained aims to contribute to the elimination of ambiguities, especially in terms of the factors determining the acceptance of digital marketing tools within the marketing communication mix in small and medium-sized enterprises. It creates room for marketing managers who, based on relevant data, can make more informed decisions when choosing the optimal processes for the transition from offline to online. Finally, the study also creates a knowledge base for further research in the field, clarifying one of the basic topics of digital marketing at the regional level.

## 6. Research Limitations and Direction for Future Research

As for the research limitations, its mostly regional nature should be mentioned. The research focused on small and medium-sized enterprises operating in the Central European market. However, given the specifics of the market, this limitation can also be perceived as an added value of the research. The inhomogeneity of the market, combined with its evolving nature, provides space for the application of knowledge and practices in markets of a similar nature. Another limitation of the research is the qualitative nature of the data, since for the formulation of universal recommendations it would be necessary to carry out deep quantitative research of several similar economic and geographical units.

Further research could be focused mainly on extending the existing research from the point of view of the quantitative nature of the data. At the same time, we would evaluate the possibilities of examining various economic units across the global market. The synthesis of knowledge would enable us to create a basic model for its application in science and business practice.

**Author Contributions:** The authors participated in the research topic and share joint responsibility for this work. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by the Slovak Republic scientific grant agency VEGA, grant number 1/0240/20 and grant number 1/0140/21.

**Data Availability Statement:** The data presented in this study are an integral part of various project outputs which are openly available on the official project website [ENTER-transfer Available online: <https://www.interreg-central.eu/Content.Node/ENTER-transfer.html> (accessed on 9 July 2021)].

**Acknowledgments:** We wish to thank all participating project partners for their work in the project and for the materials provided. This contribution is prepared within the project CE1158 ENTER-transfer "Advancement of the economic and social innovation through the creation of the environment enabling business succession".



**Conflicts of Interest:** The authors declare no conflict of interest.

## References

- Adjei, Mavis T., Stephanie M. Noble, and Charles H. Noble. 2010. The influence of C2C communications in online brand communities on customer purchase behavior. *Journal of the Academy of Marketing Science* 38: 634–53. [\[CrossRef\]](#)
- Alroushan, Mohammad Kasem, Ahmad Samed Al-Adwan, Amro Al-Madadha, and Mohammad Hamd Al Khasawneh. 2020. Factors Affecting the Adoption of E-Marketing by Decision Makers in SMEs: Evidence from Jordan. *International Journal of E-Business Research*. *International Journal of E-Business Research* 16: 1–27. [\[CrossRef\]](#)
- Cant, Michael C., and Johannes A. Wiid. 2016. The use of traditional marketing tools by SMEs in an emerging economy: A South African perspective. *Problems and Perspectives in Management* 14: 64–70. [\[CrossRef\]](#)
- Chang, Hsin Hsin, Yoa-Hua Wang, and Wen-Ying Yang. 2009. The impact of e-service quality, customer satisfaction and loyalty on e-marketing: Moderating effect of perceived value. *Total Quality Management & Business Excellence* 20: 423–43.
- Chesbrough, Henry, and Adrienne Kardon Crowther. 2006. Beyond high tech: Early adopters of open innovation in other industries. *R&D Management* 36: 229–36.
- Constantinides, Efthymios. 2006. The Marketing Mix Revisited: Towards the 21st Century Marketing. *Journal of Marketing Management* 22: 407–38. [\[CrossRef\]](#)
- Dabija, Dan-Cristian, Raluca Babut, Vasile Divu, and Medalina Lugojan. 2017. Cross-Generational Analysis of Information Searching based on social media in Romania. *Transformations in Business and Economics* 16: 248–70.
- Dabija, Dan-Cristian, Brîndușa Mariana Bejam, and Nicoleta Tipi. 2018. Generation X versus Millennials communication behaviour on social media when purchasing food versus tourist services. *E+M Ekonomie a Management* 21: 191–215. [\[CrossRef\]](#)
- Dou, Wenyu, Guangping Wang, and Nan Zhou. 2006. Generational and regional differences in media consumption patterns of Chinese Generation X consumers. *Journal of Advertising* 35: 101–10. [\[CrossRef\]](#)
- Dunphy, Steven. 1999. Generation X: The “infopreneurs” of tomorrow? *Technological Forecasting and Social Change* 60: 199–203.
- Falahat, Mohammad, T. Ramayah Ramayah, Pedro Soto-Acosta, and Yan-Yin Lee. 2020. SMEs internationalization: The role of product innovation, market intelligence, pricing and marketing communication capabilities as drivers of SMEs’ international performance. *Technological Forecasting and Social Change* 152: 119908. [\[CrossRef\]](#)
- Felix, Reto, Philipp A. Rauschnabel, and Chris Hinsch. 2017. Elements of strategic social media marketing: A holistic framework. *Journal of Business Research* 70: 118–26. [\[CrossRef\]](#)
- Gao, Peng, Fanchen Meng, Mário N. Mata, José M. Martins, Shahid Iqbal, Anabela B. Correia, Rui M. Dantas, Abdul Waheed, João Xavier Rita, and Muhammad Farrukh. 2021. Trends and Future Research in Electronic Marketing: A Bibliometric Analysis of Twenty Years. *Journal of Theoretical and Applied Electronic Commerce Research* 16: 1667–79. [\[CrossRef\]](#)
- Gawer, Annabelle, and Michael A. Cusumano. 2014. Industry Platforms and Ecosystem Innovation. *Journal of Product Innovation Management* 31: 417–33. [\[CrossRef\]](#)
- Gensler, Sonja, Scott A. Neslin, and Pieter Verhoef. 2017. The Showrooming Phenomenon: It’s More than Just about Price. *Journal of Interactive Marketing* 38: 29–43. [\[CrossRef\]](#)
- Gherghina Ștefan, C., Mihai A. Botezatu, Alexandra Hosszu, and Liliana N. Simionescu. 2020. Small and Medium-Sized Enterprises (SMEs): The Engine of Economic Growth through Investments and Innovation. *Sustainability* 12: 347. [\[CrossRef\]](#)
- Gilmore, Audrey, Damian Gallagher, and Scott Henry. 2007. E-marketing and SMEs: Operational lessons for the future. *European Business Review* 19: 234–47. [\[CrossRef\]](#)
- Goldstein, Adam M. 2008. Blogging Evolution. *Evolution: Education and Outreach* 2: 548–59. [\[CrossRef\]](#)
- Hanna, Richard, Andrew Rohm, and Victoria L. Crittenden. 2011. We’re all connected: The power of the social media ecosystem. *Business Horizons* 54: 265–73. [\[CrossRef\]](#)
- Kalyanam, Kirthi, and Shelby McIntyre. 2002. The e-marketing mix: A contribution of the e-tailing wars. *Journal of the Academy of Marketing Science* 30: 487–99. [\[CrossRef\]](#)
- King, Robert allen, P radeep Racherla, and Victoria D. Bush. 2014. What We Know and Don’t Know About Online Word-of-Mouth: A Review and Synthesis of the Literature. *Journal of Interactive Marketing* 28: 167–83. [\[CrossRef\]](#)
- Klewitz, Johanna, and Erik G. Hansen. 2014. Sustainability-oriented innovation of SMEs: A systematic review. *Journal of Cleaner Production* 65: 57–75. [\[CrossRef\]](#)
- Klingebiel, Ronald, and Christian Rammer. 2014. Resource Allocation Strategy for Innovation Portfolio Management. *Strategic Management Journal* 35: 246–68. [\[CrossRef\]](#)
- Kotler, Philip, and Gary Armstrong. 2004. *Marketing*. Prague: Grada, p. 856.
- Lestari, Setyani Dwi, Farah Margaretha Leon, Sri. Widyastuti, Nora Andira Brabo, and Aditya Halim Perdana Kusuma Pu-tra. 2020. Antecedents and Consequences of Innovation and Business Strategy on Performance and Competitive Advantage of SMEs. *The Journal of Asian Finance, Economics and Business* 7: 365–78. [\[CrossRef\]](#)
- Li, Ai Qiang, Maneesh Kumar, Björn Claes, and Pauline Found. 2020. The state-of-the-art of the theory on Product-Service Systems. *International Journal of Production Economics* 222: 107491. [\[CrossRef\]](#)
- Lissitsa, Sabina, and Ofrit Kol. 2016. Generation X vs. Generation Y—A decade of online shopping. *Journal of Retailing and Consumer Services* 31: 304–12. [\[CrossRef\]](#)
- Park, Yongjin, Youngsok Bang, and Jae-Hyeon Ahn. 2020. How Does the Mobile Channel Reshape the Sales Distribution in E-Commerce? *Information Systems Research* 31: 1164–82. [\[CrossRef\]](#)

- Paetsch, Michael, Peter Dorčák, František Pollak, L'ubomír Štrba, and Branislav Kršák. 2017. Developing a Framework for Future Mobile Data Pricing. *Quality Innovation Prosperity* 21: 84–108. [\[CrossRef\]](#)
- Peltier, James W, Andrew J. Dahl, and Eric L. Swan. 2020. Digital information flows across a B2C/C2C continuum and technological innovations in service ecosystems: A service-dominant logic perspective. *Journal of Business Research* 121: 724–34. [\[CrossRef\]](#)
- Peterson, Robert A., Sridhar Balasubramanian, and Bart J. Bronnenberg. 1997. Exploring the implications of the Internet for consumer marketing. *Journal of the Academy of Marketing Science* 25: 329–46. [\[CrossRef\]](#)
- Pollák, František, and Peter Markovič. 2021. Economic Activity as a Determinant for Customer Adoption of Social Media Marketing. *Sustainability* 13: 3999. [\[CrossRef\]](#)
- Pollák, František. 2015. *On-line reputačný manažment v podmienkach stredoeurópskeho virtuálneho trhu*. Prešov: Bookman.
- Road, Mostafa, Norizan binti Mohd Yeassen, Gazi Mahabubul Alam, Bilal Bahaa Zaidan, and Aws Alaa Zaidan. 2010. Impact of spam advertisement through e-mail: A study to assess the influence of the anti-spam on the e-mail marketing. *African Journal of Business Management* 4: 2362–67.
- Rosenbusch, Nina, Jan Brinckmann, and Andreas Bausch. 2011. Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing* 26: 441–57. [\[CrossRef\]](#)
- Sabaityte, Jolanta, Vida Davidaviciene, Jarmila Strakova, and Jurgita Raudeliuniene. 2019. Decision Tree Modelling of e-Consumers' Preferences for Internet Marketing Communication Tools during Browsing. *E+M Ekonomie a Management* 22: 206–21. [\[CrossRef\]](#)
- Sashi, C. M. 2012. Customer engagement, buyer-seller relationships, and social media. *Management Decision* 50: 253–72. [\[CrossRef\]](#)
- Seth, Jakkish N., and Arun Sharma. 2005. International e-marketing: Opportunities and issues. *International Marketing Review* 22: 611–22. [\[CrossRef\]](#)
- Sokolova, Karina, and Kefi Hajer. 2020. Instagram and YouTube bloggers promote it, why should I buy? How credibility and parasocial interaction influence purchase intentions. *Journal of Retailing and Consumer Services* 53: 101742. [\[CrossRef\]](#)
- Srivastava, Manish K., and Devi R. Gnyawali. 2011. When Do Relational Resources Matter? Leveraging Portfolio Technological Resources for Breakthrough Innovation. *The Academy of Management Journal* 54: 797–810. [\[CrossRef\]](#)
- Stam, Erik, and Andrew van de Ven. 2021. Entrepreneurial ecosystem elements. *Small Business Economics: An Entrepreneurship Journal* 56: 809–32. [\[CrossRef\]](#)
- Štefko, Róbert, Peter Dorčák, and František Pollák. 2011. Shopping on the internet from the point of view of customers. *Polish Journal of Management Studies* 4: 214–22.
- Swan, Kitty, and Kathryn Waite. 2015. Exploring the pension 'X factor' for generation Y men. *Journal of Financial Services Marketing* 20: 122–32.
- van de Vrande, Vareska, Jeroen P. J. De Jong, Wim Vanhaverbeke, and Maurice de Rochemont. 2009. Open innovation in SMEs: Trends, motives and management challenges. *Technovation* 29: 423–37. [\[CrossRef\]](#)
- Van den Bulte, Christophe, and Yogesh V. Joshi. 2007. New product diffusion with Influentials and imitators. *Marketing Science* 26: 400–21. [\[CrossRef\]](#)
- Varga, Attila, Temás Sebestyen, Norbert Szabo, and László Szerb. 2020. Estimating the economic impacts of knowledge network and entrepreneurship development in smart specialization policy. *Regional Studies* 54: 48–59. [\[CrossRef\]](#)
- Yan, Ruiliang. 2010. Cooperative advertising, pricing strategy and firm performance in the e-marketing age. *Journal of the Academy of Marketing Science* 38: 510–19. [\[CrossRef\]](#)
- Yim, Mark Yi-Cheon, Shu-Chuan Chu, and Paul L. Sauer. 2017. Is Augmented Reality Technology an Effective Tool for E-commerce? An Interactivity and Vividness Perspective. *Journal of Interactive Marketing* 39: 89–103. [\[CrossRef\]](#)