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EXAMINING THE IMPACT OF DISRUPTIVE ATTRIBUTES OF THE INTERNET ECONOMY ON THE SUCCESS OF SMALL AND MEDIUM-SIZED ENTERPRISES IN THE REPUBLIC OF SERBIA

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Abstract

The work examines the impact of the most significant disruptive attributes of the Internet economy on the success of small and medium-sized enterprises. The aim of the study is to identify and quantify the influences of key disruptive attributes of the Internet economy on the success of small and medium-sized enterprises operating in the Republic of Serbia. The research was conducted on a sample of 116 small and medium-sized enterprises from various sectors, noting that service sector enterprises dominate. Data was collected using a structured questionnaire developed specifically for this research through exploratory factor analysis. Structural Equation Modeling (SEM) was utilized in the study.

Key words*: Small and medium-sized enterprises, disruptive attributes, Internet, Republic of Serbia.*

1. Introduction

Internet has changed the lifestyle. It has entrenched itself in every walk of life, be it sharing thoughts, social networking, playing online games, marketing and even buying and selling (Peprah et al., 2024). In today's digital era, the Internet has emerged as a pivotal force shaping the business landscape, bringing with it numerous disruptive innovations that significantly influence how businesses operate (Sugiharto, 2024). Small and medium-sized enterprises (SMEs), which form the backbone of the global economy, are increasingly confronted with constant changes driven by technological advancements and evolving business models (Macca et al., 2024). These changes are fundamental and strategic and go beyond the traditional boundaries of the organization (Radivojevic et al., 2022a).

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Successful involvement in e-business flows, above all, requires an understanding of the nature and ways of capitalizing on the "disruptive" attributes of the Internet. The Internet helps companies to create and maintain conditions for making profits in new ways, adding value to products/services or providing the basis for a new product/service. Therefore, if a company fails to take advantage of the nature of Internet attributes, its earning capacity and survival will be questioned. The company's ability to successfully compete with its competitors in the future will depend on its ability to exploit the following "disruptive" attributes of the Internet economy. Studying the disruptive attributes of the Internet enables a deeper understanding of how new digital tools, platforms, and technologies can transform business processes, optimize operations, and unlock new market opportunities.

Therefore, the goal of this paper is to examine the impact of disruptive attributes of the Internet on the success of small and medium-sized enterprises in the Republic of Serbia. These disruptive innovations often introduce radical changes in how businesses interact with customers, manage resources, and create value. Understanding these attributes can help SMEs identify growth opportunities, mitigate risks, and effectively adapt to a dynamic market. Additionally, analyzing the impact of the Internet on the success of SMEs provides valuable insights into strategies that can enhance competitiveness and ensure long-term sustainability (Radivojevic et al., 2022a). As digital transformation accelerates, it is crucial for SMEs to stay abreast of the latest trends and technologies. This research underscores the importance of examining the disruptive attributes of the Internet, highlighting the need for continuous monitoring and adaptation of business strategies to achieve success in an increasingly complex and competitive business environment.

2. Disruptive attributes of internet economy

As already pointed out, the disruptive attributes of the Internet represent those characteristics of digital business that affect the way of organizing and running a business, which are different from organizing and running a business in the physical economy, and which at the same time enable companies to take advantage of certain advantages of doing business via the Internet (Zhang et al., 2024). Therefore, the success of the company's business depends on the ability of the company to use these attributes for its business. It is possible to identify 9 such attributes that shape business over the Internet in relation to business in the physical world (Radivojevic et al., 2009; Melnyk et al., 2019): the network effect, open platform, connectivity and digitalization, exchange of information; digital assets as an input in the process of business transformation, transparency of costs speed and frequency of changes, virtual store, industry boundary.

1. The network effect is also present in the industrial economy (eg regular telephone services), but it is much more significant in the IT economy. A phenomenon by which the value of a thing or phenomenon increases the more people use it. By combining the effects of economy of scale and

economy of breadth on the demand side, the network effect is strengthened. Building a sustainable critical mass of installed customer base (scale effect) is valuable, because with each increase in volume, the number of potential customers for cross-buying (breadth effect) increases, thus creating the conditions for an even greater increase in the customer base. Therefore, securing a critical mass of consumers is crucial.
2. Open platform - the Internet provides a platform for communication, cooperation and free exchange of information;
3. Connectivity and digitalization - thanks to connectivity and digitalization, bits do not remain isolated in products or product systems, but exchange takes place in real time;
4. Exchange of information - transmission and exchange of information without waste, the so-called. without "deaf phone effects;
5. Digital assets as an input in the process of business transformation - in the digital economy, information is a source of income;
6. Transparency of costs - the Internet enables customers to easily compare all offers from the price-quality aspect;
7. Speed and frequency of changes - in the digital economy, changes are frequent and fast. In all industries, companies must learn how to quickly adapt to changes in business and the economy;
8. Virtual store - enables the display of a large number of different products, without investing in physical facilities (warehouses, warehouses, windows) and without physical presence;
9. Industry boundary - The company, business ecosystem or "Business web" must provide a unique offer that is completely individualized. It is about the so-called costumization (customized - make up an offer that fully meets individual needs and requirements.

Of course, it is difficult for one company to fully utilize all these attributes. Not all of these attributes are equally important for every type of business via Internet, but without using these attributes better and more efficiently than competitors, companies will not be able to survive on the market. Bearing in mind the above, it is important to understand which of these attributes has the greatest impact on the success of small and medium-sized enterprises in the Republic of Serbia, taking into account the specifics of digital marketing in the Republic of Serbia, as and consumer habits.

Data and research methodology

The study was conducted on a sample of 116 small and medium-sized enterprises and various sectors, noting that companies from the service sector dominate, operating in the Republic of Serbia. The research period spans during 2024. The sample size was determined considering the population size, desired level of confidence, and allowable sampling error. All questionnaires were validly completed. The data were collected based on a structured questionnaire, which was composed based on relevant statements proposed in the scientific literature (Evans

& Wurster, 1997; Kaplan, 2000; Radivojevic et al., 2009). More precisely, the questionnaire contains ten sub-scales for measuring the nine disruptive attributes of Internet, as well as a sub-scale for measuring business performance. Therefore, the questionnaire contains a total of 30 items: 3 items for each disruptive attribute of the Internet and three items for business performance. The items are presented in Table 1 in Appendix.

The validity of the questionnaire was tested using Exploratory Factor Analysis. Participants evaluated the questionnaire statements on a five-point Likert scale ranging from (1) 'strongly disagree' to (5) 'strongly agree'. Sample adequacy was tested using the Kaiser-Meyer-Olkin test of sample adequacy (test value = 0.883). Additionally, a Bartlett's test of sphericity was conducted ($\chi 2(435) = 1692.8$). The results of the questionnaire validity test are presented in Table 1, indicating the use of Promax rotation. The results suggest that the questions are grouped as expected. Factor loadings are all greater than 0.3. Furthermore, the collected data were processed using the statistical software JASP for Structural Equation Modeling (SEM). A various goodness-of-fit indices have been used. Results for the overall model are presented in Table 2.

Table 2. Results for the overall model fit

Goodness Fit Index name	**p-value**
Parsimony Normed Fit Index (PNFI)	0.557
Bollen's Incremental Fit Index (IFI)	0.911
Relative Noncentrality Index (RNI)	0.901
Standardized Root Mean Square Residual (SRMS)	0.033

Source: Authors

All indices show satisfactory values of a good model, like as suggested by literature (Rather, 2020). The quality of survey instruments was examined through reliability and validity analyzes (Hollebeek and Rather, 2019). Convergent and discriminant validity of the constructs were calculated. Reliability was assessed by using composite reliability. The average extracted variance (AVE) for each sub-scale is greater than 0.5, indicating convergent validity of the questionnaire (Alavi et al., 2020). Also, the reliability coefficients are greater than 0.7, indicating questionnaire reliability (Hollebeek and Rather, 2019, Cavic et al., 2024). Results are shown in Table 3. All items have factor loadings above than 0.5.

Table 3. Results of Confirmatory factor analysis

						CR	AVE
Factor	**Item**	**Estimate**	**Std. Error**	**z-value**	**P-value**		
ND	X1	0.205	0.012	17.083	0.000	0.876	0.702
	X2	0.333	0.016	20.813	0.000		
	X3	0.334	0.021	15.905	0.000		
OP	X4	0.293	0.042	6.976	0.000	0.894	0.739
	X5	0.34	0.015	22.667	0.000		
	X6	0.814	0.043	18.930	0.000		
CD	X7	0.079	0.021	3.762	0.000	0.876	0.703
	X8	0.034	0.009	3.778	0.000		
	X9	0.902	0.023	39.217	0.000		
EI	X10	0.293	0.069	4.246	0.000	0.843	0.642
	X11	0.391	0.034	11.500	0.000		
	X12	0.112	0.022	5.091	0.000		
DA	X13	0.38	0.034	11.176	0.000	0.887	0.725
	X14	0.291	0.056	5.196	0.000		
	X15	0.321	0.086	3.733	0.000		
TC	X16	0.402	0.069	5.826	0.000	0.858	0.669
	X17	0.077	0.011	7.000	0.000		
	X18	0.112	0.041	2.732	0.003		
SFC	X19	0.299	0.034	8.794	0.000	0.800	0.572
	X20	0.121	0.033	3.667	0.000		
	X21	0.112	0.041	2.732	0.003		
VS	X22	0.128	0.029	4.414	0.000	0.878	0.706
	X23	0.329	0.065	5.062	0.000		
	X24	0.222	0.031	7.161	0.000		
IB	X25	0.289	0.069	4.188	0.000	0.821	0.604
	X26	0.098	0.017	5.765	0.000		
	X27	0.312	0.082	3.805	0.000		
BP	X28	0.348	0.066	5.273	0.000	0.874	0.699
	X29	0.083	0.032	2.594	0.005		
	X30	0.101	0.033	3.061	0.001		

Source: Authors

The discriminant validity of the scales was tested based on the Fornell-Larcker criterion. The square root of AVE per construct was compared with correlation between the constructs. The results supported the discriminant validity since the correlations between the construct with other constructs are lower compared to square root of its AVE (table 4).

Table 4. Results of the discriminant valid

	NE	OP	CD	EI	DA	TC	SFC	VS	IB	BP
NE	0.838									
OP	0.342	0.859								
CD	0.332	0.321	0.839							
EI	0.412	0.337	0.372	0.801						
DA	0.121	0.462	0.229	0.335	0.851					
TC	0.098	0.276	0.341	0.385	0.338	0.818				
SFC	0.043	0.289	0.552	0.471	0.391	0.410	0.756			
VS	0.521	0.381	0.281	0.228	0.391	0.371	0.387	0.840		
IB	0.321	0.413	0.173	0.478	0.479	0.112	0.381	0.238	0.777	
BP	0.223	0.223	0.195	0.421	0.440	0.241	0.199	0.361	0.393	0.836

Source: Authors

Structural equation modelling (SEM) was used to test structural relationships between variables. The results are presented in Table 5. The various Goodness-of-fit indices reveal an acceptable fit of the model.

Table 5. Results of Structural equation modelling

Factor	Factor	Estimate	Std. Error	z-value	p
NE	BP	0.141	0.013	10.846	0.000
OP	BP	0.344	0.008	43.000	0.000
CD	BP	0.066	0.035	1.886	0.030
EI	BP	0.077	0.038	2.026	0.021
DA	BP	0.019	0.002	9.500	0.000
TC	BP	0.083	0.004	20.750	0.000
SFC	BP	0.072	0.027	2.667	0.004
VS	BP	0.376	0.027	13.926	0.000
IB	BP	0.207	0.013	15.923	0.000
Goodness-of-fit indices: PNFI = 0.567, IFI = 0.902, RNI =0.902, SRMS = 0.032					

Source: Authors

4. Discussion

As based on the results shown in Table 5, all disruptive attributes of the Internet are statistically significant, which means that they all have a direct and positive impact on the performance of businesses undertaken in e-business. This finding is expected. The results show that the virtual store has the greatest influence, followed by open platforms and industry boundaries. Namely, the virtual store allows customers to make purchases from anywhere and at any time, which indicates that the flexibility and accessibility provided by online sales significantly contribute to the competitiveness and success of the company. In addition to being available 24 hours a day, seven days a week, the virtual store does not require significant costs of maintaining and equipping a physical store, as well as labor costs. Hence, it is understandable that this attribute has the greatest impact on the performance of the company in e-business. The second most important attribute is

the open platform. Open platforms allow different users and companies to connect, share resources and innovate. Identifying an open platform as a significant factor in business success implies that the ability for a company operating over the Internet to integrate with others is a very important factor in business. this is also understandable, first of all, from the aspect of exploitation of intellectual capital, i.e. organizational capital related to the establishment of relations with external stakeholders. This conclusion is in accordance with the research findings of Radivojević et al., (2022b, 2023) and Invanović et al. (2021).

The third most important attribute is industry boundaries. This refers to the ability of a business to expand its business beyond traditional industry boundaries using online tools and strategies. SEM results show that industry boundaries have a significant impact, as businesses that use the Internet to explore new markets and expand their offerings have a greater chance of success. In other words, they easily reach other markets, not only to offer their products, but also to procurement markets, thus overcoming traditional patterns of business. This not only affects the reduction of acquisition costs and acquisition of new customers, but also adds to the effect of economies of scale. Therefore, this factor should not be considered without the influence of the economy of scale, which has a known influence in the physical, traditional economy.

Digital assets have the most external impact. Of course, there are several reasons for that. Namely, although digital assets can improve business, their inherent value can be limited if they are not fully integrated into business processes, and therefore do not contribute to the company's competitiveness. In addition, Digital Assets often require additional implementation and integration into existing business processes. If a business fails to adequately integrate these assets into its strategy or operations, their impact on success will be less. In contrast, attributes such as a virtual store or open platforms can provide more direct and tangible benefits to the business. Furthermore, consumers and users may more quickly accept and value attributes such as virtual stores due to their immediate utility and accessibility. Digital assets may not offer such obvious or immediate benefits, which can reduce their immediate impact on business success. Disruptive attributes such as open platforms often enable faster innovation and adaptation to market changes, which can have a more significant impact on business success. Digital assets, while useful, may not offer the same levels of innovation and adaptability, which may reduce its relative impact.

The influence of other factors ranges between digital assets and the above-mentioned attributes. Although at the end of the analysis, it should be pointed out that the observation and interpretation of individual influences has a number of limitations, the biggest of which is that the synergistic effects of the mutual influence of these attributes are neglected. Therefore, it is more important to determine whether some fail to contribute to business success than to analyze their individual impacts.

5. Conclusion

The research was conducted for a sample of 116 small and medium-sized enterprises and various sectors, noting that companies from the service sector dominate, operating in the Republic of Serbia. The aim of the research was to examine the influence of various factors of the disruptive attributes of the Internet on the performance of business operations. The findings indicate that the virtual store is the most important factor. Then comes open platforms and industry boundaries. On the other hand, digital assets have the least impact. The influence and importance of other factors ranges between these first three and digital assets, and their influence is approximately equal. The importance of this research is reflected in the fact that there are no similar studies, and that the findings of this research indicate which factors companies operating through the Internet in the Republic of Serbia should focus on.

Of course, like any research, this has a number of limitations that must be taken into account when accepting its findings. In addition to the aforementioned limitation of the research, a limitation worth mentioning is the fact that the sample consisted of companies from different sectors, with the fact that the cause was dominated by companies from the service sector. So the obtained data are definitely influenced by this fact. This is especially important when it is taken into account that different sectors have their own specificities that affect the way and the need to exploit certain disruptive attributes of the Internet. Therefore, it is recommended that future researchers, in addition to applying achievements in the field of ICT in order to validate these findings, perform sector segregation and examine the impact of each attribute on a specific industry sector.

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Appendix

Table 1. Results of Exploratory Factor Analysis

			Factor loads									
		Items	NE	OP	CD	EI	DA	TC	SFC	VS	IB	BP
Disruptive attribut	The network effect (NE)	The network effect enhances user experience in social media platforms.	0.468									
		Companies can leverage the network effect to increase their market share.	0.403									
		There are potential downsides of the network effect for new entrants in a saturated market.	0.322									
	Open platform (OP)	An open platform provides advantages for developers and third-party applications.		0.452								
		Open platforms promote innovation and collaboration in technology.		0.435								

			Factor loads									
		Items	NE	OP	CD	EI	DA	TC	SFC	VS	IB	BP
es		Companies face challenges when transitioning from a closed to an open platform model.		0.393								
	Connectivity and digitalization (CD)	Increased connectivity significantly impacts the way businesses operate in a digital marketplace.			0.378							
		Digitalization plays a crucial role in improving customer engagement and satisfaction.			0.462							
		Improved connectivity drives economic growth in underserved regions.			0.355							
	Exchange of information (EI)	Rapid information exchange has implications for decision-making processes in organizations.				0.380						
		The exchange of information contributes to transparency and accountability in businesses.				0.471						
		Security challenges arise from the increasing exchange of information online.				0.350						
	Digital assets (DA)	Digital assets like cryptocurrencies challenge traditional financial systems.					0.491					
		Key legal considerations surround the ownership of digital assets.					0.391					
		Businesses can effectively monetize their digital assets.					0.389					
	Transparency of costs (TC)	Transparency in costs affects consumer trust and purchasing decisions.						0.563				
		Technologies can enhance cost transparency across supply chains.						0.609				
		Companies must balance the need for cost transparency with protecting proprietary information.						0.471				
	Speed and frequency of changes (SFC)	Rapid changes in technology influence business strategy and operations.							0.591			
		Organizations can effectively adapt to the speed and frequency of changes in their industries.							0.498			
		Some industries have been significantly transformed by rapid technological changes.							0.453			

			Factor loads									
		Items	**NE**	**OP**	**CD**	**EI**	**DA**	**TC**	**SFC**	**VS**	**IB**	**BP**
	Virtual store (vs)	Virtual stores enhance the shopping experience for customers compared to traditional retail.								0.448		
		Key technologies enable the operation of successful virtual stores.								0.351		
		Businesses can drive traffic to their virtual stores in a competitive market.								0.487		
	Industry boundary (IB)	Traditional industry boundaries are becoming blurred by digital transformation.									0.537	
		The dissolution of industry boundaries has implications for regulatory frameworks.									0.551	
		Companies can innovate by crossing traditional industry boundaries.									0.503	
Business Performance (BP)		Business performance metrics directly impact decision-making processes within organizations.										0.507
		Effective use of data analytics significantly enhances the assessment of business performance.										0.565
		Employee engagement and motivation are crucial factors influencing overall business performance.										0.529

Source: Authors