

# INTELLECTUAL CAPITAL AND BUSINESS PERFORMANCE IN ICT COMPANIES

Lekić Nemanja<sup>1</sup>

Vapa Tankosić Jelena<sup>2</sup>

Mandić Slavica<sup>3</sup>

Vapa Bojan<sup>4</sup>

Lekić Snežana<sup>5</sup>

**Abstract:** *The requirements of the modern business environment have initiated the emergence of a new paradigm, which finds its starting point in the fact that intellectual property is a crucial success variable of every company, which has stimulated numerous researches in this area. Rapid and extensive changes in all domains of business require companies to be flexible and ready to respond to given changes in accordance with the specificity of the concrete situation. In such*

---

<sup>1</sup> Belgrade Business and Arts Academy of Applied Studies, Kraljice Marije 73, 11050 Belgrade, Serbia, e-mail: nemanja.lekic@bpa.edu.rs

<sup>2</sup> Faculty of Economics and Engineering Management in Novi Sad, University Business Academy in Novi Sad, Cvećarska 2, 21107 Novi Sad, Serbia, e-mail: jvapa@fimek.edu.rs

<sup>3</sup> Belgrade Business and Arts Academy of Applied Studies, Kraljice Marije 73, 11050 Belgrade, Serbia, e-mail: slavica.mandic@bpa.edu.rs

<sup>4</sup> Faculty of Economy and Finances, University „Union - Nikola Tesla”, Cara Dušana 62-64, 11158 Belgrade, Serbia, e-mail: bvapa@unionnikolatesla.edu.rs

<sup>5</sup> Belgrade Business and Arts Academy of Applied Studies, Kraljice Marije 73, 11050 Belgrade, Serbia, e-mail: snezana.lekic@bpa.edu.rs

*conditions, companies must create their own knowledge base and have valuable and competent employees who should be properly managed. Human resources who possess adequate knowledge, who have mastered specific skills and competencies, who are dedicated to teamwork, innovation and permanent improvement form the base of intellectual capital. The aim of the paper is to enrich the previous research model in order to analyse the interconnection of intellectual capital components and business performance of Serbian companies in the ICT sector.*

**Key words:** *intellectual capital / business performance / ICT sector.*

## INTRODUCTION

The success of companies should be viewed not only through financial, but also through operational (intangible) aspects. Financial performance is measured by indicators such as sales growth, earnings per share and profitability reflected in return on initial investment, return on sales and return on invested capital (Čavlin, Vapa-Tankosić, Miletić & Ivaniš, 2021; Syriopoulos, Tsatsaronis & Gorila, 2022; Tudose, Rusu & Avasilcai, 2022; Čavlin, Vapa-Tankosić, & Mirković, 2022). Operational (non-financial) performance highlights factors such as product quality and productivity, market share and marketing effectiveness (Demirbag, Tatoglu, Tekinkus & Zaim, 2006; Farida & Setiawan, 2022). Power belongs to those companies whose knowledge contributes to the creation of additional value and which have a high contribution of intellectual capital (Stewart, 1994, 1997; Brooking, 1997; Bontis, 1998; Teece, 2000; Namasivayam & Basak Denizci, 2006; N. Lekić, Vukosavljević, Vapa-Tankosić, S. Lekić & Mandić, 2021; Petrović, Radosavac, & Karabašević, 2021; Abeysekera, 2021).

Due to its increasingly significant role in modern business, intellectual capital has been the subject of previous research studies (N. Lekić, Vapa-Tankosić, Rajaković-Mijailović, & S. Lekić, S., 2020; N. Lekić, Vapa-Tankosić, Mandić, S. Lekić, 2022). The largest number of conducted research examines the basic components of intellectual capital of the first level. Bontis calls the investigated model simplistic and concludes that it does not analyze interconnections. This leads to a new structural model, which Bontis (1998) calls Diamond. As the Diamond structural model in earlier research (Bontis, 1998) proved to be optimal in the continuation of

the research, the authors have performed the continuation of the research of their Simplistic model (Lekić et al., 2022a). Therefore, the aim of this paper is to examine interconnection of intellectual capital components and business performance factors in the ICT sector of the Republic of Serbia.

## LITERATURE REVIEW

A lot of researchers (Bontis, Chua Chong Keow & Richardson, 2000; Seleim, Ashour & Bontis, 2004, 2007; Ali, Hussin, Haddad, Al-Araj & Abed 2021; Muhammad & Salma, 2021; Do, Tam & Kim-Du, 2022) have conducted studies with an aim to provide guidelines for building a strong knowledge base for future intellectual capital development. Bontis (1998) had included in his research twenty Canadian companies (7 from financial services, 4 from the chemical industry, 4 from insurance, 3 from the ICT sector, 2 from courier services) to determine the parameters of intellectual capital. Wang & Chang (2005) revealed the cause-and-effect relationships between core components and sub-components for creating a model for managing intellectual capital in ICT industry companies. Structural capital represents infrastructural support for company employees (Mitić, 2014). Relational capital includes resources based on the company's relationships with various external stakeholders from the wider social community (Hormiga, Batista-Canino & Sánchez-Medina, 2011; Janošević, 2019; Torelli, 2022). In business organizations, value is created „by converting one form of capital into another“ (Kolaković, 2003, p. 925).

Moslehi, Mohaghar, Badie & Lucas (2006) recommend that managers evaluate intellectual capital in this industry by identifying, measuring, and analysing each component. In this way, it will ensure more efficient management of business processes and relations with external stakeholders. Intellectual capital is the primary determinant of business performance (Subramaniam & Youndt, 2005; Pew Tan, Plowman & Hancock, 2007; Tovstiga & Tulugurova, 2007; Do Rosário Cabrita & Bontis, 2008; Jawad & Bontis, 2010; Daat, Sanggenafa, & Larasati, 2021). Suraj & Bontis (2012) in their study investigated how telecommunications companies in Nigeria use intellectual capital. The mutual influence of human, structural and consumer capital and their impact on business

performance is analysed. The results showed that managers of Nigerian telecommunications companies emphasize the role of consumer capital, which confirms their view that their business performance is most influenced by market research and consumer relations. In the study conducted in Serbia (Komnenić & Pokrajčić, 2012) applying the VAIC methodology to generate independent variables reflecting intellectual capital, the authors created regression models. This study was followed by more intensive research in domestic business practice (Janošević and Dženopoljac; 2015; Dženopoljac, Janošević & Bontis, 2016).

## **MATERIALS AND METHODS**

Based on the literature dealing with intellectual capital research (Bontis, 1998; Subramaniam & Youndt, 2005; Do Rosário Cabrita & Bontis, 2008; Sharabati, Jawad & Bontis, 2010; Kianto, Sáenz & Aramburu, 2017) a questionnaire was created. An anonymous survey was sent to Serbian ICT companies in 2020. The research sample included 611 employees from ICT companies, so the sample was considered as acceptable. ICT sector is considered as a sector with priority direction of development in the Republic of Serbia (Ivanov, Jevtić, Stanujkić & Karabasević, 2018).

The first part of the questionnaire was composed of 90 input variables, 30 for each construct. The second part of the questionnaire included 11 selected input variables of business performance. A five-level Likert scale was used: 1 - strongly disagree to 5 - strongly agree. The third part of the questionnaire contains questions that more closely define the ICT company and the position of the respondent: total number of employees; function of the respondent in the ICT company (top manager, middle level manager and line manager) and place of business of the company. The used methods included descriptive statistics, Kolmogorov-Smirnov test, Shapiro-Wilk test, Jarque-Bera test and Cronbach's alpha (Barclay, Higgins & Thompson, 1995; Komšić, 2018; Nunnally, 1978; Churchill, 1979; Hair, Risher, Sarstedt & Ringle, 2019).

Factor analysis has also been used in the research (Velicer & Jackson, 1990; Worthington & Whittaker, 2006; Kahn, 2006; Steger, 2006; Pallant, 2009; Subotić, 2013). Exploratory factor analysis (EFA) was applied in the research, and within principal axis factoring method (PAF), and afterwards Partial Least Squares (Hair, Hollingsworth, Randolph & Chong, 2017; Komšić, 2018; Grieder & Steiner, 2022). In the EFA method the data

were processed in the statistical package SPSS for Windows, version 20. PLS-SEM is a linear regression method used for modelling very complex sets of data, when it is not possible to apply the usual regression analysis (Hair et al., 2017; Sarstedt, Ringle & Hair, 2017; Hair et al., 2019; Dash & Paul, 2021), and the data were processed in the Smart PLS v.3.2.7 software.

## RESULTS

Small and medium businesses are most represented in the sample (63.5%). The majority of respondents are managers on lower positions (71.7%) and middle-level managers (23.1%). If it is known that companies have significantly fewer top managers, compared to all other managers, then the participation of 5.2% can be considered significant.

**Table 1.** *Structure of the sample in relation to the total number of employees and the function of the respondents*

Variables	Frequency	Percentage share (%)
Number of employees		
Micro enterprises (<10)	150	24.5
Small businesses (<50)	195	31.9
Medium enterprises (<250)	193	31.6
Large Enterprises (>250)	73	11.9
Top managers	32	5.2
Middle level managers	141	23.1
Lower level managers	438	71.7

Source: Author's elaboration of the data

Table 2 shows the registered place of business of the ICT companies and the majority of businesses are based in Belgrade (57.12%).

**Table 2.** *Companies in the sample*

<b>Variables</b>	<b>Frequency</b>	<b>Percentage share (%)</b>
Belgrade	349	57.12
Niš	71	11.62
Novi Sad	54	8.84
Kragujevac	39	6.38
Kraljevo	19	3.11
Subotica	13	2.13
Užice	10	1.64
Šabac	10	1.64
Čačak	7	1.15
Leskovac	7	1.15
Vranje	5	0.82
Sombor	4	0.65
Valjevo	3	0.49
Zrenjanin	3	0.49
Smederevo	3	0.49
Novi Pazar	3	0.49
Pančevo	2	0.33
Babušnica	2	0.33
Kruševac	2	0.33
Šid	2	0.33
Nova Varoš	1	0.16
Nova Pazova	1	0.16
Zaječar	1	0.16
<b>Total</b>	<b>611</b>	<b>100.00</b>

Source: Author's elaboration of the data

Descriptive analysis and factor analysis by EFA method has been conducted (Conway & Huffcutt's; 2003; Onyekachi & Olanrewaju, 2020) as shown in the simplistic model by Lekić et al. (2022a).

**Table 3.** *Results of the reflective measurement model*

	Variable	Factor loadings (Path coefficients)	Cronbach $\alpha$	CR (composite reliability)	AVE (convergent validity)
Human Capital (HC)	HC1	0.840	0.794	0.878	0.707
	HC2	0.869			
	HC3	0.812			
Structural Capital (SC)	SC1	0.748	0.747	0.854	0.662
	SC2	0.816			
	SC3	0.872			
Relational Capital (RC)	RC1	0.705	0.790	0.875	0.703
	RC2	0.902			
	RC3	0.893			

Source: Author's calculation

In Table 3, the values of Cronbach alpha coefficients CR values obtained are satisfactory. In the assessment of the reflective measurement convergent validity, the convergent validity is satisfactory for all latent constructs. Table 4 shows the values of cross-standardized factor loadings (outer loadings) of the reflective measurement model.

**Table 4.** *Values of cross-standardized factor loadings of the reflective measurement model*

		HC	RC	SC	HC	RC	SC
		Fornell-Larcker			Cross loadings		
HC	HC1	0.841			<b>0.840</b>	0.593	0.603
	HC2				<b>0.869</b>	0.525	0.599
	HC3				<b>0.812</b>	0.350	0.528
SC	RC1	0.595	0.838		0.336	<b>0.705</b>	0.388
	RC2				0.560	<b>0.902</b>	0.690
	RC3				0.559	<b>0.893</b>	0.692
RC	SC1	0.689	0.729	0.814	0.405	0.468	<b>0.748</b>
	SC2				0.654	0.492	<b>0.816</b>
	SC3				0.589	0.786	<b>0.872</b>

Source: Author's calculation

Discriminant validity values in Table 5 obtained are satisfactory.

**Table 5.** *Values of the co-linearity coefficient of variance inflation (VIF)*

Variable	VIF	Variable	VIF
Leadership in the ICT sector (BP-1)	1.836	New Product Launch Success Rate (BP-4)	1.913
Market position of the company (BP-10)	1.755	Overall Business Performance and Success (BP-5)	1.898
The share of export income in the total income of the company (BP-11)	1.578	Employee productivity (BP-6)	1.652
Future business prospects (BP-2)	1.688	Process Productivity (Transaction) (BP-7)	1.814
Willingness to react quickly to the moves of the competition (BP-3)	2.161	Sales growth (BP-8)	1.782
		Profit growth (BP-9)	1.809

Source: Author's calculation

The presented results in Table 6 indicate that the variables BP-1 - Leadership in the ICT sector and BP-3 - Willingness to react quickly to the moves of the competition are not statistically significant.

**Table 6.** *Results of statistical analysis of formative measurement variables*

Variable	Outer weights	Std. Dev.	t-value	p-value
BP-1	-0.034	0.049	0.694	<b>0.487</b>
BP-10	0.180	0.043	4.156	0.000
BP-11	0.095	0.046	2.071	0.038
BP-2	0.325	0.046	7.020	0.000
BP-3	0.081	0.050	1.629	<b>0.103</b>
BP-4	0.101	0.048	2.131	0.033
BP-5	0.115	0.044	2.635	0.008
BP-6	0.223	0.044	5.072	0.000
BP-7	0.110	0.045	2.457	0.014
BP-8	0.100	0.043	2.332	0.020
BP-9	0.248	0.045	5.480	0.000

Source: Author's calculation



The reliability, relevance and quality of the model, the ability to predict the movement of the endogenous variable, Business performance of companies in the ICT sector, was assessed. In the process of testing the structural model, collinearity between sets of predictor variables was first examined.

**Table 7.** *Inner VIF Values of the model*

	BP
HC	
RC	2.131
SC	2.131

Source: Author's elaboration of the data

The results of the investigation of collinearity between latent constructs (VIF) are 2.131 (Table 7), that is, the obtained values are less than 3 (Hair et al., 2017; Hair et al., 2019; Dash & Paul, 2021). The obtained values confirm the fact that there is no collinearity problem in the model.

**Table 8.** *Values of path coefficients in the model*

	Direct path	Total indirect effect	Specific indirect effects
HC → RC	0.595		
HC → SC	0.689		
RC → BP	0.473		
SC → BP	0.348		
HC → BP		0.522	
HC → RC → BP			0.281
HC → SC → BP			0.240

Source: Author's calculation

Human capital (Table 8) confirms the fact that it significantly, but indirectly affects the Business performance of the company, which is in line with its direct impact on Business performance in the Simplistic model (Lekić et al., 2022a).

The  $R^2$  adjusted of 0.583 indicates that 58.3% of business performance is explained by the predictor variables Structural Capital and Relational Capital. In addition, the predictor variable Human Capital explains Relational Capital with 35.5% and Structural Capital with 47.5%.

The value of cross-validated redundancy was calculated using the Stone-Geisser  $Q^2$  indicator (Tenenhaus, Esposito Vinzi, Chatelin & Lauro, 2005; Henseler, Ringle & Sinkovics, 2009; Chin, 2010; Akbari, Bahrami, Dehghani Bidgoli, Karamali, & Hosseini, 2023), with a satisfactory level of predictive significance of the model. The value of  $Q^2$  is shown in Table 9.

**Table 9.** Values of the Stone-Geisser indicator of cross-validated redundancy –  $Q^2$

	SSO	SSE	$Q^2 = (1 - SSE/SSO)$
BP	6,721.000	5,282.518	0.214
HC	1,833.000	1,833.000	
RC	1,833.000	1,390.405	0.241
SC	1,833.000	1,275.161	0.304

Source: Author's calculation

The results (Table 10) show that the obtained values indicate a small influence of exogenous latent constructs on Business Performance.

**Table 10.** Values of the influence size coefficients –  $f^2$

	BP	HC	RC	SC
HC			0.549	0.906
RC	0.252			
SC	0.137			

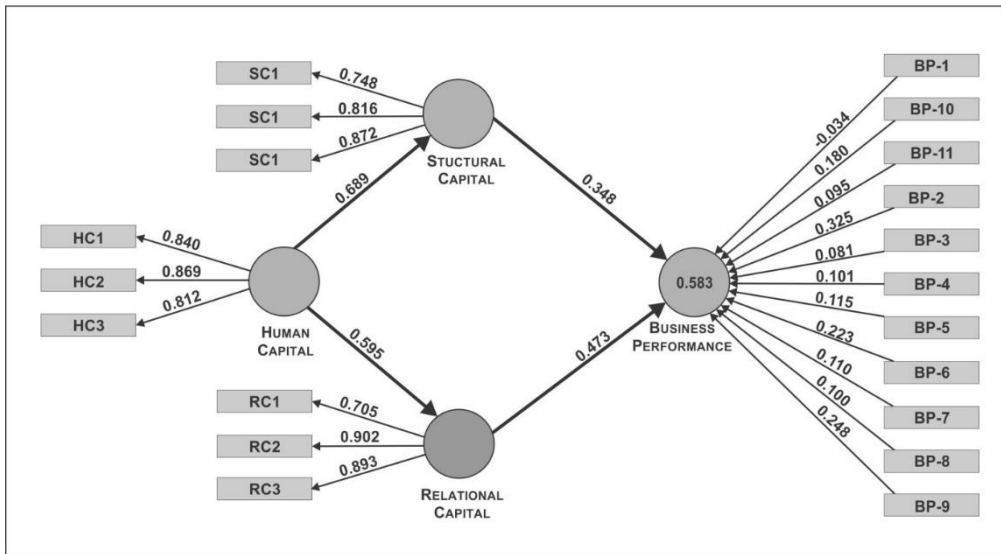
Source: Author's calculation

The results of hypothesis testing using the PLS-SEM technique are shown in the Table 11 and all the hypotheses were confirmed.

**Table 11.** Results of hypothesis testing using the PLS-SEM technique

	$\beta$ Original Sample (O)	Standard Deviation (STDEV)	t Statistics ( $ O /STDEV$ )	P Values	Confidence interval 2,5-97,5%		Confirmatio
<b>H1:</b> HC → RC	0.595	0.028	21.593	0.000	0.541	0.648	✓
<b>H2:</b> HC → SC	0.689	0.022	31.650	0.000	0.645	0.730	✓
<b>H3:</b> RC → BP	0.473	0.052	9.061	0.000	0.370	0.574	✓
<b>H4:</b> SC → BP	0.348	0.053	6.626	0.000	0.245	0.452	✓

Source: Author's calculation

**Chart 1.** Graphical presentation of the results of hypothesis testing using the PLS-SEM technique (Diamond model)

Source: Author's calculation

## CONCLUSION

The review of previous empirical researches has shown that there are important unexplored questions that should be looked at in more detail,

as well as investigated and examined in a comprehensive study, while respecting the conclusions of modern theoretical and methodological knowledge to which studies conducted in the Republic of Serbia have arrived. This created an opportunity for the research that is the subject of this paper, because there is a theoretical and practical need for the proposed research. The aim of the paper was to broaden the existing research model related to the determination of the interconnection of intellectual capital components and business performance of Serbian companies in the ICT sector by the Diamond model, in which all the hypotheses have been confirmed. The findings should be taken cautiously, since there are certain shortcomings when conducting the empirical part of the study. First of all, the study covers a relatively small number of companies from the ICT sector. The perceptions can differ significantly because each respondent perceives a certain indicator in a different way. Future research should focus on a larger number of companies and expand the coverage to other sectors.

## REFERENCES

1. Abeysekera, I. (2021). Intellectual Capital and Knowledge Management Research towards Value Creation. From the Past to the Future. *Journal of Risk Financial Management*, 14 (6), 238.
2. Akbari, H., Bahrami, A., Dehghani Bidgoli, S., Karamali, F., & Hosseini, A. (2023). Using Structural Equation Modelling to Predict Safety and Health Status among Stone Industries. *La Medicina del Lavoro*, 114 (1), e2023005.
3. Ali, M. A., Hussin, N., Haddad, H., Al-Araj, R., Abed, I. A. (2021). Intellectual Capital and Innovation Performance: Systematic Literature Review. *Risks*, 9 (9), 170.
4. Barclay, D., Higgins, C., & Thompson, R. (1995). The partial least squares (PLS) approach to causal modelling: personal computer adaptation and use as an illustration. *Technology Studies, Special Issue on Research Methodology*, 2 (2), 285–309.
5. Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, 36 (2), 63–76.
6. Bontis, N., Chua Chong Keow, W., & Richardson, S. (2000). Intellectual capital and business performance in Malaysian industries. *Journal of Intellectual Capital*, 1 (1), 85–100.

7. Brooking, A. (1997). *Intellectual Capital* (2nd Ed.), Boston (Mass.), International Thomson Business Press.
8. Chin, W. W. (2010). How to Write Up and Report PLS Analyses. In: Esposito Vinzi, V.; Chin, W.W; Wang, H. (Eds.), *Handbook of Partial Least Squares: Concepts, Methods and Applications* (pp. 655–690). Berlin, Heidelberg, Springer.
9. Churchill, G. A. Jr (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16 (1), 64–73.
10. Conway, J. M., & Huffcutt's, A. I. (2003). A review and evaluation of exploratory factor analysis practices in organizational research. *Organizational Research Methods*, 6 (2), 147–168.
11. Čavlin, M., Vapa Tankosić, J., Miletić, V., & Ivaniš, M. (2021). Analysis of the impact of liquidity on the profitability of assets of medium and large enterprises in the meat production activity of the Republic of Serbia. *Economics of Agriculture*, 68 (3), 789–803.
12. Čavlin, M., Vapa Tankosić, J., Mirković, Z. (2022). Analiza faktora finansijske i profitne pozicije u funkciji integrisanog upravljanja rizicima u sektoru rudarstva. *Ekonomija - teorija i praksa*, 15 (3), 56–73.
13. Daat, S. C., Sanggenafa, M. A., & Larasati, R. (2021). The Role of Intellectual Capital on Financial Performance of SMEs. *Universal Journal of Accounting and Finance*, 9 (6), 1312–1321.
14. Dash, G., & Paul, J. (2021). CB-SEM vs PLS-SEM methods for research in social sciences and technology forecasting. *Technology Forecasting and Social Change*, 173, 121092.
15. Demirbag, M., Tatoglu, E., Tekinkus, M., & Zaim, S. (2006). An analysis of the relationship TQM implementation and organizational performance: Evidence from Turkish SMEs. *Journal of Manufacturing Technology Management*, 17 (6), 829–847.
16. Dženopoljac, V., Janošević, S., & Bontis, N. (2016). Intellectual capital and financial performance in the Serbian ICT industry. *Journal of Intellectual Capital*, 17 (2), 373–396.
17. Do, M. H., Tam, V. T., & Kim-Du, N. (2022). Investigating intellectual capital: The role of intellectual property rights reform. *Cogent Economics & Finance*, 10 (1), 2106630
18. Do Rosário Cabrita, M., & Bontis, N. (2008). Intellectual capital and business performance in the Portugese banking industry.

- International Journal of Technology Management*, 43 (1-3), 212–237.
19. Farida, I., & Setiawan, D. (2022). Business Strategies and Competitive Advantage: The Role of Performance and Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 8 (3), 163.
  20. Grieder, S., & Steiner, M. D. (2022). Algorithmic jingle jungle: A comparison of implementations of principal axis factoring and promax rotation in R and SPSS. *Behavior Research Methods*, 54, 54–74.
  21. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31 (1), 2–24.
  22. Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems*, 117 (3), 442–458.
  23. Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In: Sinkovics, R. R., & Ghauri, P. N. (Eds.) *New Challenges to International Marketing* (pp. 277–319). Bingley, Emerald Group Publishing Limited.
  24. Hormiga, E., Batista-Canino, R. M., & Sánchez-Medina, A. (2011). The role of intellectual capital in the success of the new ventures. *International Entrepreneurship and Management Journal*, 7 (1), 71–92.
  25. Ivanov, B., Jevtić, M., Stanujkić, D., & Karabasević, D. (2018). Evaluation of websites of IT companies from the perspective of it beginners. *BizInfo*, 9 (2), 1–9.
  26. Janošević, S. (2019). Uloga i značaj intelektualnog kapitala u procesu formulisanja i implementacije strategije. *Ekonomski efekti tranzicije i restrukturiranja privrede Srbije u funkciji ekonomskih integracija* (str. 197–212). Kragujevac, Ekonomski fakultet Univerziteta u Kragujevcu.
  27. Janošević, S., & Dženopoljac, V. (2015). Uticaj intelektualnog kapitala na tržišnu vrednost i finansijske performanse preduzeća. *Ekonomika preduzeća*, 63 (7-8), 354–371.

28. Kahn, J. H. (2006). Factor Analysis in Counseling Psychology Research, Training, and Practice: Principles, Advances, and Applications. *The Counseling Psychologist*, 34 (5), 684–718.
29. Kianto, A., Sáenz, J., & Aramburu, N. (2017). Knowledge-based human resource management practices, intellectual capital and innovation. *Journal of Business Research*, 81 (C), 11–20.
30. Kolaković, M. (2003). Teorija intelektualnog kapitala. *Ekonomski pregled*, 54 (11-12), 925–944.
31. Komnenić B., & Pokrajčić, D. (2012). Intellectual capital and corporate performance of MNCs in Serbia. *Journal of Intellectual Capital*, 13 (1), 106–119.
32. Komšić, J. (2018). *Mjerenje reputacije turističke destinacije na društvenim medijima i zadovoljstva turista*. Doktorski rad, Opatija, Fakultet za menadžment u turizmu i ugostiteljstvu, Sveučilište u Rijeci.
33. Lekić, N., Carić, M., Soleša, D., Vapa Tankosić, J., Rajaković-Mijailović, J., Bogetić, S., & Vučićević, M. (2022a). Employees' Perceptions on the Relationship of Intellectual Capital and Business Performance of ICT Companies. *Sustainability*, 14 (1), 275.
34. Lekić, N., Vapa-Tankosić, J., Mandić, S., & Lekić, S. (2022b). Intellectual capital in the function of competitiveness and sustainability. *IV International scientific – practical conference – CIBEK 2019 Circular and Bioeconomy*, School of Engineering Management Belgrade, Serbia, March 9, 2022.
35. Lekić, N., Vapa-Tankosić, J., Rajaković-Mijailović, J., & Lekić, S. (2020). Analysis of structural capital as a component of intellectual capital in ICT enterprises. *Oditor*, 6 (3), 33–54.
36. Lekić, N., Vukosavljević D., Vapa-Tankosić, J., Lekić, S., Mandić, S. (2021). Uticaj motivacionih faktora na organizacionu posvećenost zaposlenih u bankama. *Ekonomija – teorija i praksa*, 14 (1), 1–22.
37. Mitić, S. (2014). *Upravljanje izvozom: Nematerijalni marketinški aspekti konkurentnosti*, Beograd, Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu.
38. Moslehi, A., Mohaghar, A., Badie, K., & Lucas, C. (2006). Introduction a Toolbox for IC Measurement in the Iran Insurance Industry. *Electronic Journal of Knowledge Management*, 4 (2), 169–180.

39. Muhammad, R. A., & Salma, N. (2021). The Effects of Intellectual Capital and Knowledge Management Processes on Dynamic Capabilities of the Organizations. *Journal of Contemporary Issues in Business and Government*, 27 (3), 2154 – 2162.
40. Namasivayam, K., & Basak Denizci, G. (2006). Human capital in services organizations: Identifying value drivers. *Journal of Intellectual Capital*, 7 (3), 381–393.
41. Nunnally, J. C. (1978). *Psychometric Theory* (2nd Ed.), New York, McGraw-Hill.
42. Onyekachi, A. M., & Olanrewaju, S. O. (2020). A Comparison of Principal Component Analysis, Maximum Likelihood and the Principal Axis in Factor Analysis. *American Journal of Mathematics and Statistics*, 10 (2), 44–54.
43. Pallant, J. (2009). *SPSS priručnik za preživljavanje*, Beograd, Mikro knjiga.
44. Petrović, N., Radosavac, A., Karabašević, D. (2021). Rewarding employees in foreign companies with headquarters in Serbia. *Quaestus*, 19, 150–161.
45. Pew Tan, H., Plowman, D., Hancock, P. (2007). Intellectual capital and financial returns of companies. *Journal of Intellectual Capital*, 8 (1), 76–95.
46. Sarstedt, M., Ringle, C. M., & Hair, J. F. (2017). Partial least squares structural equation modeling. In: Homburg, C., Klarmann, M. and Vomberg, A. (Eds), *Handbook of Market Research*, Chapter 15 (pp. 1–40). Heidelberg, Springer.
47. Seleim, A., Ashour, A., & Bontis, N. (2004). Intellectual capital in Egyptian software firms. *The Learning Organization*, 11 (4/5), 332–346.
48. Seleim, A., Ashour, A., & Bontis, N. (2007). Human capital and organizational performance: A study of Egyptian software companies. *Management Decision*, 45 (4), 789–801.
49. Sharabati, A. A. A., Jawad, S. N., & Bontis, N. (2010). Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management Decision*, 48 (1), 105–131.
50. Steger, M. F. (2006). An illustration of issues in factor extraction and identification of dimensionality in psychological assessment data. *Journal of Personality Assessment*, 86 (3), 263–272.
51. Stewart, T. A., & Losee, S. (1994). Your company's most valuable asset: intellectual capital. *Fortune*, 130 (7), 68–73.



52. Stewart, T. A. (1997). *Intellectual Capital: The New Wealth of Organizations*, New York, Doubleday/Currency.
53. Subotić, S. (2013). Pregled metoda za utvrđivanje broja faktora i komponenti (u EFA i PCA). *Primenjena psihologija*, 6 (3), 203–229.
54. Subramaniam, M., & Youndt, M. A. (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal*, 48 (3), 450–463.
55. Suraj, A. O., & Bontis, N. (2012). Managing intellectual capital in Nigerian telecommunication companies. *Journal of Intellectual Capital*, 13 (2), 262–282.
56. Syriopoulos, T, Tsatsaronis, M, & Gorila, M. (2022). The global cruise industry: Financial performance evaluation. *Research in Transportation Business & Management*, 45, 100558.
57. Teece, D. (2000). *Managing Intellectual Capital: Organizational, Strategic, and Policy Dimensions*, New York, Oxford University Press.
58. Tenenhaus, M., Esposito Vinzi, V., Chatelin, Y. M., & Lauro, C. (2005). PLS path modeling. *Computational Statistics and Data Analysis*, 48 (1), 159–205.
59. Torelli, R. (2022) Sustainability, responsibility and ethics: different concepts for a single path. *Social Responsibility Journal*, 17 (5), 719–739.
60. Tovstiga, G., & Tulugurova, E. (2007). Intellectual capital practices and performance in Russian enterprises. *Journal of Intellectual Capital*, 8 (4), 695–707.
61. Tudose, M. B., Rusu, V. D., & Avasilcai, S. (2022). Financial performance – determinants and interdependencies between measurement indicators. *Business, Management and Economics Engineering*, 20 (1), 119–138.
62. Velicer, W. F., & Jackson, D. N. (1990). Component Analysis versus Common Factor Analysis: Some Issues in Selecting an Appropriate procedure. *Multivariate Behavioral Research*, 25 (1), 1–28.
63. Wang, W. Y., & Chang, C. (2005). Intellectual capital and performance in causal models: Evidence from the information technology industry in Taiwan. *Journal of Intellectual Capital*, 6 (2), 222–236.

64. Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist*, 34 (6), 806–838.

## INTELEKTUALNI KAPITAL I POSLOVNE PERFORMANSE U IKT KOMPANIJAMA

Nemanja Lekić

Jelena Vapa Tankosić

Slavica Mandić

Bojan Vapa

Snežana Lekić

**Sažetak:** *Zahtevi savremenog poslovnog okruženja inicirali su pojavu nove paradigme koja svoje polazište nalazi u tome da je intelektualna imovina ključna varijabla uspeha svake kompanije, što je podstaklo brojna istraživanja u ovoj oblasti. Brze i ekstenzivne promene u svim domenima poslovanja zahtevaju od kompanija da budu fleksibilne i spremne da na date promene odgovore u skladu sa specifičnošću konkretne situacije. U takvim uslovima kompanije moraju kreirati svoju bazu znanja i imati vredne i kompetentne zaposlene kojima treba na pravi način upravljati. Ljudski resursi koji poseduju adekvatno znanje, koji su ovladali specifičnim veštinama i kompetencijama, koji su posvećeni timskom radu, inovacijama i permanentnom usavršavanju čine bazu intelektualnog kapitala. Cilj rada je da se nadogradi postojeći model istraživanja da bi se analizirala međupovezanost komponenti intelektualnog kapitala i poslovnih performansi srpskih kompanija IKT sektora.*

**Ključne reči:** *intelektualni kapital / poslovne performanse / IKT sektor.*