

Ekonomika preduzeća



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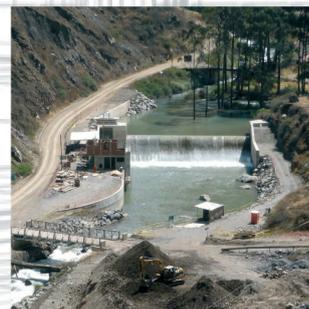
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This edition of *Ekonomika preduzeća* consists of seven papers.

In the first paper in the section *Organization and Management*, *M. Knežević*, *S. Čerović*, *D. Borovčanin* and *A. Unković* identify weaknesses and advantages of the selected hotel attributes by analysis of the guests' importance and performance evaluation. The respondents were accommodated in four and five-star hotels in Serbia. In order to identify the weak points that could enable managers to raise the quality of services, the authors used the IPA method (Importance-Performance Analysis). The results reveal that guests are generally satisfied with the hotel attributes they consider highly important, while this is not the case with those less important. The second paper in this section, written by *I. Kovačević*, deals with convention bureau as the most dominant form of destination management organization (DMO). The methodology is based on interviews that were carried out with convention bureau professionals with the aim of classifying all activities that were defined through literature review into logic groups, each with an understandable objective – coordination of destination stakeholders, destination marketing and destination sales. For each group of convention bureau destination management activities, the author proposes a list of sub-activities.

In the *Law and Taxes* section, *S. Aćimović* and *V. Mijušković* analyze the regulatory framework which provides development guidelines for green initiatives. The relevant EU directives focused on regulating specific issues and areas of managing the green supply chain are treated in detail, as well as the legislative framework in Serbia. The authors explored to which degree the Serbian regulatory framework recognizes, appreciates and encourages implementation of green initiatives within the supply chain and what the general position of this framework is compared to the one set by the EU.

In the *Transition and Restructuring* section, a trio of authors, *E. Manić*, *Đ. Mitrović* and *S. Popović*, analyze regional disparities in Serbia regarding the factors of external environment that create different conditions for business development, primarily for SMEs development. Different economic, demographic and social factors were taken into consideration by using Data Envelopment Analysis (DEA). The composite index, Regional Development Index (RDI), was created in order to identify the main disparities within the existing economic counties in Serbia. The authors demonstrated the expected results in most of the analyzed counties (north-south development axis), but in some cases, there were certain deviations.

In the *Informational Technology* section, *M. Sakal*, *L. Raković* and *V. Vuković* provide answers to the following questions: Are spreadsheets used in SMEs and to what extent? How great is the significance of spreadsheets in respondents' regular activities? In which situations and for what purpose do respondents use spreadsheets in SMEs? The research encompassed 213 respondents from 147 Serbian SMEs.

In the *Marketing* section, *N. Krstić*, *D. Lalić* and *D. Vujičić* explore the state of digital marketing within the business marketing function of the leading advertisers, based on the research question: Has digital marketing in Serbia become an integral part of the strategic marketing function in its organizational, functional and budgetary terms? The findings suggest that in Serbia, similar to the global trends, trust in both traditional and digital marketing performance measurement remains an issue, as does the ability to develop digital talents and to overcome the drag of legacy technologies.

In the last paper in this edition, included in the *Case Study* section, *N. Lojanica* investigates the position of Serbian researchers in the market of economic journals that belong to the M20 category. The author reveals that journals from the most developed countries have a dominant role in the market and that Serbian researchers publish the results of their studies primarily in neighboring countries. The author recommends bringing eminent journals into the focus of Serbian researchers, but also to encourage further development of domestic journals so that they could be more active in the international market.

Prof. Dragan Đuričin, Editor in Chief



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THE USE OF IPA IN THE ANALYSIS OF CUSTOMER SATISFACTION IN THE HOTEL INDUSTRY

Primena IPA metoda u analizi zadovoljstva gostiju
u hotelskim preduzećima

Abstract

Customer satisfaction with service quality is one of the fundamental goals of hotel enterprises. Numerous specifics of hotel services (intangibility, inability to storage, etc.) make this goal hard to reach, and thus hotels invest enormous efforts in identification of guests' needs, in order to adjust their supply. The aim of this paper is to identify weaknesses and advantages of the selected hotel attributes by analysis of guests' importance and performance evaluation. The respondents were accommodated in four and five-star hotels in Serbia. In order to identify the weak points that could enable managers to raise the quality of services, the IPA method (Importance-Performance Analysis) was used. The results obtained reveal that guests are generally satisfied with the hotel attributes they consider highly important, while it is not the case with those less important. Furthermore, certain differences could be observed between the guests who stayed in city hotels and those in mountain and spa hotels.

Keywords: *hotel enterprises, guest satisfaction, IPA*

Sažetak

Zadovoljstvo gostiju kvalitetom pružene usluge jeste jedan od osnovnih ciljeva kojim hotelska preduzeća teže. Zbog brojnih specifičnosti (neopipljivost, nemogućnost skladištenja, itd) hotelske usluge taj cilj nije lako postići, pa menadžment hotelskih preduzeća ulaže velike napore u procesu identifikacije turističkih potreba, a zatim i prilagođavanju hotelskog proizvoda tim potrebama. Cilj našeg istraživanja je da se identifikuju slabosti i prednosti hotelskog proizvoda analizom ocena gostiju o važnosti (importance) i stvarnom stanju (performance) odabranih atributa. Analizirani su hoteli kategorisani sa četiri i pet zvezdica u Srbiji, odnosno 1308 gostiju koji su boravili u njima. Kako bismo identifikovali slabe tačke koje mogu poslužiti menadžerima za podizanje kvaliteta hotelskog proizvoda, koristili smo IPA metod (Importance-Performance Analysis). Dobijeni rezultati pokazuju da su anketirani gosti generalno zadovoljni onim atributima hotelskog proizvoda koji su im veoma važni, dok to nije slučaj sa manje važnim atributima. Takođe, postoje određene razlike između ocena gostiju koji su boravili u gradskim hotelima u odnosu na goste planinskih i banjskih hotela.

Cljučne reči: *hotelska preduzeća, zadovoljstvo gostiju, IPA*

Introduction

The underlying goal of any private enterprise is to make profit. As regards hospitality industry, one of the safest ways to make a profit is through customer satisfaction with services provided. Even though the term quality is nowadays often used in colloquial language, it still represents a category that has not been thoroughly explored and analyzed. That could be mainly attributed to the consideration that everybody knows what the quality is and what it represents. Therefore, quality as a broad term represents a category that is often used in diverse forms, while management literature suggests several different approaches to defining quality. Barjaktarović [5] points out that the definitions of quality can be grouped as follows:

- Manufacturing approach
- Customer approach
- Definitions based on process
- Definitions based on value
- Transcendental approach

The starting point in defining quality comprises two aspects, namely the one that focuses on who provides (creates or offers) services on one side, and the customer (consumer) on the other. Accordingly, quality represents compatibility with production processes from the aspect of manufacturer/producer. From the consumer's point of view, it could be defined as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs and expectations [29]. Crosby mainly worked on defining quality from the aspect of production and claimed that quality represents conformance to customer requirements [15], while Juran identified the quality of the product with its characteristics that can satisfy customers' needs [26].

However, defining quality of services is much more complex than defining quality of a product, considering the specifics of the service process (services are heterogenic, intangible, non-possessable, cannot be stored, etc.).

Due to all characteristics and differences of services with regard to products, their quality cannot be checked prior to their use. Kotler considers that quality represents

a set of all characteristics of a service which come from its capability to fulfill customers' expectations [30]. Avelini defines quality as a level of satisfaction with regard to customer expectations and requirements [3]. Numerous authors believe that service quality is a result of the evaluation process in which service users attempt to determine whether their customer experience matches their expectations [50], [21], [27], [44].

Service quality is by its very nature an extremely important segment in hotel business, and accordingly, quality is the subject of numerous research, both professional and scientific [45], [14], [43]. Čačić [6] defines hotel service quality as a set of its tangible and intangible characteristics based on which interpersonal relations with guests are formed, and their expectations and needs are met. Barjaktarović [5] points out that the core is in service characteristics that enable satisfaction of guests' needs, as they are the ones who can give the final assessment of the level of satisfaction with services experienced. Thus, service quality must fulfill or overcome the customer expectations. Quality defined in such manner encompasses all processes established by employees in work relations with guests and between themselves. The quality of hotel services is often defined as the attitude toward the gap between expectations and experience of services provided [41], [46], [24].

There is a great number of determinants of service quality in tourism and hospitality. Users perceive them through a multidimensional approach and use them as important criteria in the decision-making process [6]. From the customer perspective, the key determinants of hotel service quality are as follows [13]:

- Tangibility
- Reliability
- Responsiveness
- Competencies
- Availability
- Safety
- Communications
- Empathy, etc.

All above-listed determinants are very important, and different models used for determining and measuring quality rely on them.

Research shows that service quality represents an important precondition for business profitability [7], [11], [8]. The results of the majority of such studies have affected the creation of conceptual models and new instruments to measure quality.

Literature review

IPA analysis represents a simple technique that hotel management can perform in order to identify the attributes that are important for guests, and the level of their satisfaction with quality of those attributes [48]. This analysis is very important in market research as it enables exploring customer satisfaction in many areas, such as:

- Administration [34], [31]
- Healthcare [39], [36], [10], [52]
- IT [1]
- Banking [25]
- Education [28], [42], [51]
- E-commerce [33], [38], [37]
- Tourism [53], [12], [49], [32], [19], [17]
- Hospitality [23], [2], [16], [9]
- Restaurant business [35]

Even though this method is subject to criticism [4], it is still widely used and explored in the hospitality literature and related publications [40].

The research on customer satisfaction in hospitality using this method has not been conducted so far (it was mainly done on tourism destinations) [20]. The simplicity of the analysis, and yet the clarity of the results it presents, led the authors to the idea of testing guests' satisfaction in hotels in Serbia. Furthermore, the authors have not found a paper that compared guest satisfaction in city and spa hotels using this method. It should be determined whether there is any difference in the importance of certain attributes when it comes to guests' expectations, as the initial motives of taking a trip to a spa or a city hotel usually differ. On the other hand, performance which spa hotels and city hotels can achieve could also differ bearing in mind disposable resources (work force, infrastructure, facilities on the spot, etc.). Therefore, we decided to analyze the satisfaction of guests who stayed in four and five-star hotels in Serbia.

Data and methodology

By means of a survey, guests' ratings for hotel attributes were determined in 4 and 5 star hotels in Serbia (total of 50 hotels were observed). We used a direct method - a questionnaire, the guests were surveyed in person, and 1,308 guests filled out the questionnaires correctly. All the information was provided strictly anonymously and voluntarily, with prior consent of the respondents in line with high ethical standards. In this way, the risk of giving socially acceptable answers was reduced as well. The guests rated importance and performance on a five-point Likert scale (anchored at 1= very unsatisfied and 5= very satisfied) through 5 attributes in 5 dimensions (25 questions) and two additional ratings for free Internet access and best value for money:

- **Cleanliness:** Room cleanliness, hallways cleanliness, kitchen and restaurant cleanliness, lobby cleanliness, cleanliness of hotel surroundings;
- **Comfort:** Comfortable beds, comfortable restaurant chair, ambience, noise reduction;
- **Location:** Proximity to the bus station, airport distance, distance from the city center, distance from cultural-historical heritage, distance from the competition;
- **Amenities:** Spa & wellness, sport and recreation amenities, facilities for fun & games, banquet amenities;
- **Staff:** Friendliness of staff, staff professionalism, staff communication, language competencies, uncertainty of staff, staff readiness to react in unexpected situations;
- **Free Wi-Fi**
- **Value for money**

We selected these attributes because they are evaluated by guests on the most visited Internet distribution system - Booking.com. The website Booking.com™ has a large market share, especially in Europe, operating on a commission-based model and allowing its registered users to carry out a complete booking procedure online quickly and securely. Shortly after a stay, a user is routinely invited via email to fill out a guest review form. The first part of the form allows users to evaluate the property they stayed in, using

a standardized set of criteria, specifically - cleanliness, comfort, location, facilities, staff, and value for money, while the second part of the form gives users the option to write additional comments.

Many authors have analyzed data generated from online reviews but we have decided not to use data from online reviews, because internet distribution systems (IDS) enable quality assessment only to users who make a reservation of hotel services over them.

In order to collect more objective results, we used a direct method - a questionnaire. In that way, we gave the possibility for all guests to rate the quality of those dimensions, no matter how they have reserved the hotel services.

Collected data were analyzed by means of a statistical program IBM SPSS Statistics 22 (descriptive statistics and t-test used in the analysis), while the model we used is based on the importance-performance matrix, which is widely used in marketing. Nonetheless, it has been intensively used in tourism and hospitality in the last couple of years [31].

Attributes positioning (average importance points, average performance points) is done using an importance-performance matrix whose elements are the cells M(1,1), M(1,2), M(2,1) and M(2,2) (ordinary matrix labeling). Matrix cells M(1,1), M(1,2), M(2,1) and M(2,2) are determined in the following way. Firstly, average

values for all attributes are determined (with regard to importance and performance as well). Secondly, two straight lines are set in a coordinate system, parallel to the axes, (axe Importance and axe Performance), which are placed in average rating points. Accordingly, four cells/quadrants are gained M(1,1), M(1,2), M(2,1), M(2,2) in a rectangle (0,0), (5,0), (5,5), (0,5) (importance-performance matrix graph).

The performance-importance matrix can help managers gain valuable information and compete more successfully. In the outdoor market, some matrix cell tops are determined as follows [22].

- Cell tops M(1,1) are points (0, pp), (pv, pp), (pv, 5), (0,5),
- Cell tops M(1,2) are points (pv, pp), (5, pp), (5,5), (pv, 5),
- Cell tops M(2, 1) are points (0, 0), (pv, 0), (pv, pp), (0, pp),
- Cell tops M(2,2) are points (pv, 0), (5,0), (5, pp), (pv, pp).

As can be seen, the importance and performance ratings were plotted on a matrix divided into four quadrants. Namely, the first quadrant – Possible overkill M(1,1) includes those attributes that are rated low in importance and high in quality performance, while the second quadrant M(1,2) comprises attributes of high importance and high quality performance. The third quadrant – Low priorities M(2,1) includes attributes that are rated low in importance and performance, whereas the last quadrant – Concentrate here M(2,2) includes attributes of high importance and low quality performance.

Results and discussions

The results (Table 1) show that the majority of respondents stayed in city hotels. In addition, it is notable that the four-star hotels dominate in the overall structure. When it comes to education, higher education profile prevails. Business travelers make up the majority of respondents in terms of segmentation, while no significant difference could be observed between domestic and foreign travelers. When it comes to gender structure, male respondents prevail in the sample by 11%.

Figure 1: IPA Graph

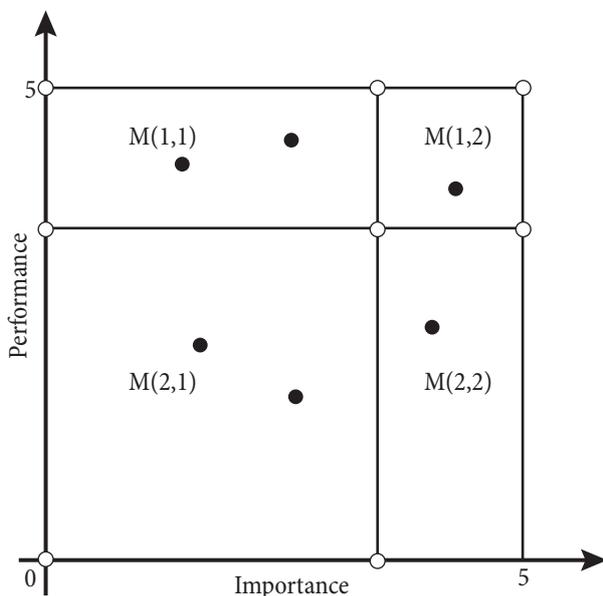


Table 1: Descriptive statistics

Variables		Frequency	Valid Percent
Gender	Male	721	55.1
	Female	587	44.9
Nationality	Domestic	643	49.2
	Foreign	665	50.8
Segmentation	Families	202	15.4
	Couples	199	15.2
	Groups of friends	188	14.4
	Solo travelers	227	17.4
	Business travelers	492	37.6
Education	Elementary school	3	0.2
	High school	137	10.5
	Junior college	385	29.4
	Bachelor's degree	684	52.3
	Master's degree	98	7.5
	Doctoral degree	1	0.1
Hotel Category	4 *	1,094	83.6
	5 *	214	16.3
Hotel location	City	857	65.5
	Mountain/Spa	451	34.5

The results of importance-performance analysis of guests who stayed in the observed hotels are given below. As previously mentioned, the authors have analyzed seven key dimensions: cleanliness, comfort, location, amenities, staff, value for money and free Wi-Fi usage. For the first five dimensions we analyzed 25 elements. We shall first present a graph which relates to all of the surveyed respondents, and then a graph showing the level of guest satisfaction in city and spa hotels.

We marked the dimensions we analyzed with letters: A for “cleanliness”, B for “comfort”, C for “location”, D for “amenities”, E for “staff”, F for “value for money” and G for “free Wi-Fi”, while other elements were marked with numbers from 1-25.¹

Based on the results given in the table above, we can conclude that there are statistically significant differences between importance and perception ($p < 0.05$) in all of the observed dimensions. In order to determine if experience (perception) was in agreement with expectations (importance), the above mentioned IPA analysis was used, and the results are presented in the following graph.

The first quadrant – Possible overkill M(1,1) includes those attributes of low importance and high quality, while the second quadrant – Keep up the good work M(1,2), covers attributes that are rated high in importance and quality performance. The third quadrant – Low priority M(2,1) includes those attributes of low importance and low quality, whereas the last quadrant – Concentrate here M(2,2) includes attributes of high importance and low quality.

Based on the results obtained, we can conclude that guests are satisfied with attributes they consider very important (cleanliness, comfort, staff, value for money, free Wi-Fi), while the results for attributes that guests do not consider very important are not high either (location or amenities).

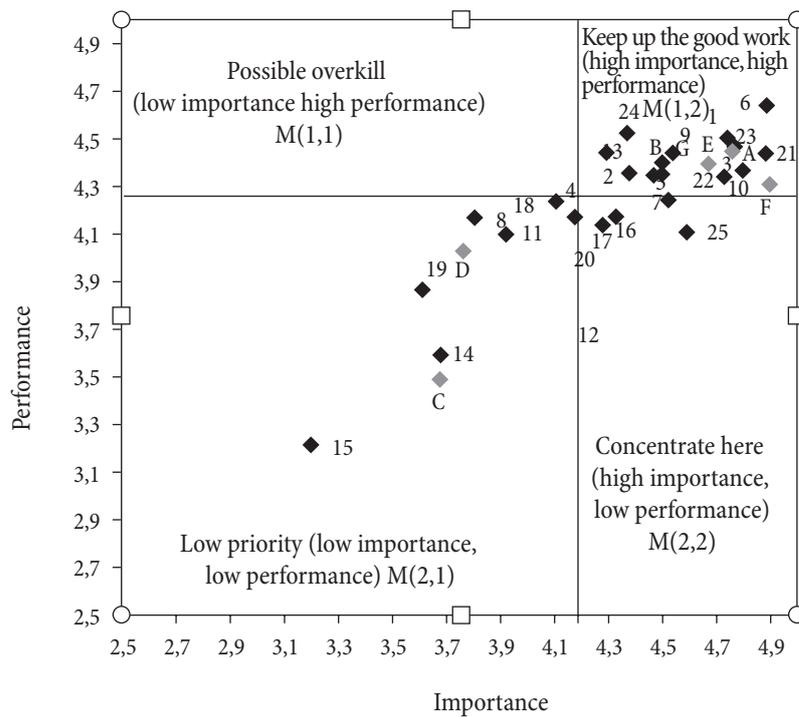
Moreover, it is notable that in the fourth quadrant – Concentrate here, there are no attributes. This shows that there are no elements that guests consider important and

Table 2: Differences in ratings of all respondents surveyed about importance-performance

DIMENSIONS	IMPORTANCE		PERCEPTION		Mean difference	TEST	
	Arithmetic mean (AM)	Standard deviation (SD)	Arithmetic mean (AM)	Standard deviation (SD)		t - statistics	Significance level (p)
A - cleanliness	4.25	0.38	4.11	0.5	0.14	9.6	0.000
B - comfort	4.27	0.39	4.04	0.54	0.23	14.41	0.000
C - location	3.62	0.44	3.57	0.43	0.05	2.941	0.003
D - amenities	3.5	0.61	3.55	0.76	-0.05	-2.161	0.031
E - staff	4.75	0.3	4.13	0.57	0.62	34.125	0.000
F - value for money	4.92	0.31	4.13	0.67	0.79	38.778	0.000
G - free Wi-Fi	4.87	0.38	4.33	1.22	0.54	15.441	0.000

¹ Results for all 25 elements can be accessed in appendix – Table 1

Figure 4: Guests' ratings for mountain and spa hotels – IPA analysis



Conclusion

Numerous studies have underlined the importance of customer satisfaction analysis, as shown in the introductory part. In fact, already in the year of 1992, Peterson and Wilson estimated there were 15,000 studies done on customer satisfaction or dissatisfaction [47]. Yet, little has been said about the implementation of this model in hospitality, although it is widely used in tertiary sector. The authors believe that guests' satisfaction reflects in situations when hotel managers deliver expected value for their customers, respectively guests' dissatisfaction occurs in situations when hotel managers fail to deliver the same expected value [18]. This means that guests have certain expectations and that they create the perception about service performance even before they experience it. Hence, we have decided to use the IPA method which precisely portrays the relationship between importance and performance of certain attributes of services provided.

Upon the analysis of ratings and attitudes of guests who stayed in four and five-star hotels in Serbia, we can conclude that guests' expectations are generally fulfilled when it comes to attributes they consider important. This was clearly presented in Figures 1, 2 and 3, where

the majority of dimensions tested were grouped in matrix 1,2 indicating a high correlation between what is of "high importance" and "high performance" for the guests. Moreover, the slope indicates that tested hotels are moving into a positive direction, properly assessing guests' expectations.

Understanding the importance of certain attributes of hotel service can be crucial for some market segments in the process of service production. Despite such favorable results, it is necessary to perform continuous market research and follow the trend of guests' expectations, as well as the perception of services provided. One such method is the IPA analysis, which has been presented herein. The main advantage of this model for the managers could be the relative simplicity for its implementation. Thus, they could perform this analysis on a regular basis and track their performance according to the changes in customers' expectations. Finally, it could be used as a method of quality improvement through identification of weak points in hotels, as well.

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APPENDIX

All guests

ATTRIBUTES

ATTRIBUTES	IMPORTANCE		PERFORMANCE			TEST	
Ref. No.	Arithmetic mean (AM)	Standard deviation (SD)	Arithmetic mean (AM)	Standard deviation (SD)	Mean difference	t -statistics	Significance level (p)
1	4.83	0.42	4.21	0.74	0.62	27.295	0.000
2	3.93	0.68	4.05	0.73	-0.12	-5.174	0.000
3	4.59	0.57	4.09	0.72	0.5	22.616	0.000
4	3.75	0.8	4.13	0.68	-0.38	-13.768	0.000
5	4.14	0.64	4.1	0.81	0.05	1.806	0.071
6	4.82	0.43	4.24	0.79	0.58	24.279	0.000
7	4.17	0.7	4	0.8	0.17	6.395	0.000
8	3.54	0.79	3.81	0.8	-0.27	-8.95	0.000
9	4.12	0.7	4.09	0.74	0.03	1.271	0.204
10	4.7	0.57	4.05	0.97	0.65	21.073	0.000
11	3.53	0.98	3.69	0.88	-0.16	-5.191	0.000
12	3.8	1.17	3.18	1.15	0.63	17.252	0.000
13	4.57	0.7	4.18	0.95	0.39	12.243	0.000
14	3.31	1.1	3.5	0.95	-0.18	-4.592	0.000
15	2.88	0.86	3.29	0.84	-0.42	-12.016	0.000
16	3.75	1.04	3.39	1.26	0.36	9.564	0.000
17	3.73	1.13	3.37	1.22	0.36	10.035	0.000
18	3.26	1.13	3.56	1.11	-0.31	-9.225	0.000
19	3.23	1.01	3.55	0.97	-0.32	-8.346	0.000
20	3.55	1.3	3.89	0.87	-0.34	-9.609	0.000
21	4.89	0.39	4.23	0.83	0.66	25.934	0.000
22	4.78	0.45	4.2	0.76	0.58	23.929	0.000
23	4.84	0.4	4.2	0.81	0.64	25.28	0.000
24	4.63	0.62	4.15	0.82	0.48	16.738	0.000
25	4.62	0.55	3.88	0.8	0.73	27.084	0.000

Guests in city hotels

ATTRIBUTES

ATTRIBUTES Ref. No.	IMPORTANCE		PERFORMANCE		Mean difference	TEST	
	Arithmetic mean (AM)	Standard deviation (SD)	Arithmetic mean (AM)	Standard deviation (SD)		t -statistics	Significance level (p)
1	4.87	0.405	4.06	0.773	0.81	29.116	0.000
2	3.74	0.627	3.85	0.684	-0.11	-3.672	0.000
3	4.49	0.602	3.89	0.726	0.61	19.981	0.000
4	3.53	0.776	4.11	0.765	-0.58	-16.652	0.000
5	3.93	0.588	3.92	0.864	0.01	0.243	0.808
6	4.77	0.478	4.03	0.820	0.75	23.258	0.000
7	4.01	0.692	3.82	0.799	0.19	5.367	0.000
8	3.40	0.747	3.63	0.845	-0.23	-5.614	0.000
9	3.91	0.677	4.01	0.778	-0.10	-2.851	0.004
10	4.64	0.612	3.88	1.076	0.76	18.219	0.000
11	3.32	0.976	3.48	0.860	-0.16	-4.133	0.000
12	4.11	1.010	3.68	0.941	0.43	10.013	0.000
13	4.67	0.614	4.09	1.064	0.58	13.747	0.000
14	3.12	1.181	3.44	0.994	-0.33	-6.345	0.000
15	2.70	0.851	3.33	0.808	-0.63	-15.690	0.000
16	3.47	1.101	3.00	1.299	0.47	8.813	0.000
17	3.41	1.192	2.95	1.247	0.46	8.920	0.000
18	2.80	1.037	3.21	1.147	-0.41	-9.011	0.000
19	3.03	1.066	3.39	1.008	-0.36	-7.186	0.000
20	4.11	0.944	3.97	0.904	0.14	3.757	0.000
21	4.89	0.427	4.12	0.839	0.76	23.646	0.000
22	4.81	0.456	4.13	0.806	0.68	21.062	0.000
23	4.86	0.389	4.00	0.832	0.86	26.861	0.000
24	4.75	0.510	3.96	0.809	0.80	25.175	0.000
25	4.63	0.539	3.76	0.777	0.86	25.146	0.000

Guests in mountain and spa hotels

ATTRIBUTES

ATTRIBUTES	IMPORTANCE		PERFORMANCE			TEST	
Ref. No.	Arithmetic mean (AM)	Standard deviation (SD)	Arithmetic mean (AM)	Standard deviation (SD)	Mean difference	t -statistics	Significance level (p)
1	4.75	0.433	4.50	0.563	0.25	7.750	0.000
2	4.30	0.634	4.43	0.668	-0.13	-3.969	0.000
3	4.78	0.438	4.47	0.542	0.31	11.474	0.000
4	4.19	0.644	4.17	0.497	0.02	0.486	0.627
5	4.55	0.524	4.43	0.579	0.12	3.381	0.001
6	4.89	0.309	4.63	0.518	0.26	9.717	0.000
7	4.48	0.594	4.34	0.666	0.14	3.487	0.001
8	3.81	0.787	4.16	0.545	-0.35	-8.527	0.000
9	4.53	0.547	4.24	0.638	0.29	7.917	0.000
10	4.81	0.453	4.36	0.619	0.44	11.076	0.000
11	3.94	0.855	4.10	0.774	-0.16	-3.140	0.002
12	3.21	1.227	2.21	0.853	1.00	15.849	0.000
13	4.39	0.815	4.35	0.671	0.04	0.887	0.375
14	3.69	0.784	3.59	0.839	0.10	1.646	0.100
15	3.21	0.789	3.22	0.883	-0.01	-0.145	0.885
16	4.29	0.638	4.14	0.760	0.15	3.897	0.000
17	4.33	0.677	4.16	0.622	0.17	5.095	0.000
18	4.12	0.730	4.23	0.649	-0.11	-2.703	0.007
19	3.63	0.759	3.86	0.794	-0.24	-4.255	0.000
20	2.49	1.226	3.73	0.795	-1.25	-22.157	0.000
21	4.89	0.312	4.43	0.761	0.46	11.744	0.000
22	4.74	0.439	4.33	0.637	0.41	11.880	0.000
23	4.79	0.407	4.57	0.605	0.22	6.705	0.000
24	4.38	0.734	4.52	0.694	-0.14	-3.154	0.002
25	4.60	0.559	4.11	0.808	0.49	11.769	0.000



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CONVENTION BUREAU PERSPECTIVES ON DESTINATION MANAGEMENT: IDENTIFICATION AND CLASSIFICATION OF ACTIVITIES*

Destinacijski menadžment iz perspektive kongresnog
biroa – definisanje i sistematizacija aktivnosti

Abstract

Convention bureau is the most dominant form of destination management organisation (DMO), especially in the sphere of business travel and MICE. Extensive literature review has shown that convention bureau (DMO) activities have been a topic among a large number of researchers and papers, each focusing on a specific and individual activity or small group of activities implemented by a convention bureau, and not on the entire destination management process and classification of those activities. The author has seen the opportunity in the possibility to propose framework which would include all activities previously defined through literature review, to connect them, prioritise them and classify them into groups based on final outcomes. Methodology is based on interviews that have been carried out with convention bureau professionals with the aim of classifying all activities that were defined through literature review into logic groups, each with an understandable objective – coordination of destination stakeholders, destination marketing and destination sales. Coordination of destination stakeholders is focused on creating destination products and stakeholder synchronisation around a unified goal. Destination marketing is focused on communication and representation of destination. Destination sales means selling congress capacities within destination to clients. For each group of convention bureau destination management activities, a list of sub-activities has been proposed.

Keywords: *destination management, convention bureau, destination sales, destination marketing, MICE*

Sažetak

Kongresni biro je najdominantnija forma destinacijske menadžment organizacije (DMO), pogotovo u sferi poslovnih putovanja i MICE. Pregled literature je pokazao da su aktivnosti kongresnog biroa kao DMO bile predmet značajnog broja istraživanja i radova, pri čemu se svaki fokusira na specifičnu i individualnu aktivnost ili manju grupu aktivnosti koje kongresni biro implementira, a ne na celovit destinacijski menadžment proces i klasifikaciju ukupnih aktivnosti. Kroz rad, autor je iskoristio priliku da predloži okvir koji će obuhvatiti sve aktivnosti koje je su definisane kroz pregled literature, da ih poveže, izvrši prioritizaciju i sistematizuje u grupe na osnovu rezultata koji se očekuju. Metodologija je bazirana na intervjuima koji su sprovedeni sa zaposlenima u kongresnim biroima kako bi se izvršila sistematizacija aktivnosti biroa definisanih na osnovu pregleda literature u logične grupe sa jasnim ciljevima, i to na – aktivnosti koordinacije stejkholdera u destinaciji, marketing destinacije i prodaja destinacije. Koordinacija stejkholdera je fokusirana na kreiranje destinacijskog proizvoda i unificiranje aktivnosti oko zajedničkog cilja. Marketing destinacije je fokusiran na komunikaciju i predstavljanje destinacije. Prodaja destinacije podrazumeva prodaju kongresnih kapaciteta destinacije klijentima. Za svaku grupu ovih aktivnosti na nivou kongresnog biroa sistematizovane su i pod-aktivnosti.

Ključne reči: *destinacijski menadžment, kongresni biro, prodaja destinacije, destinacijski marketing, MICE*

* This paper is a part of a PhD dissertation "Influence of congress tourism on destination development" submitted by the author to the Faculty of Economics, University of Belgrade, and its publishing represents an integral part of the dissertation process at the University of Belgrade.

Introduction to destination management concept

Destination management is based on active cooperation among all tourism stakeholders on one side, and large number of indirectly involved stakeholders on the other side. Destination management can be defined as a proactive tourist-oriented approach that stimulates economic and cultural development of a destination, based on the coordination among tourists and visitors, service providers and local community [21, p. 68]. Fundamental goal of destination management is to create an adequate and effective tourism product and program that will be a foundation for tourist memorable experiences [15, p. 138]. Subjective emotions, expectations and experiences gained during destination visits make satisfaction one of the most essential results of destination management [25, p. 148].

The most often destination management forms applied in practice are departments within public entities, public-private partnerships and separate private entities [1, p. 16], while most often names used for this type of entity include commission, tourist organisation, tourist office, convention bureau, information office, corporation and similar [17, p. 56].

The role of destination management is to coordinate integration of various resources, activities and stakeholders through proper politics and activities that imply certain competences in decision making and implementation processes [13, p. 234]. In practice, destination management organisations can act as self-needed organisation, without fulfilling their role and activities in field of stakeholder coordination [6, p. 7]. This means that, in given economic-political conditions, destination management organisations can put their own existence on first place, placing local tourism stakeholders, community and wider goals to the side.

Destination management is focused on establishing and improving long-term destination competitiveness [19, p. 2]. Successful model of destination management is based on strong public-private cooperation, and in situation when there is a strong control over financial spending on management activities from the private sector, then destination management results in new product development, marketing approaches, as well as in joint

marketing, research and infrastructure development [18, p. 62].

Destination management in the congress tourism¹

Convention bureau is the most dominant form of destination management and marketing organisation [8, p. 332]. As a destination management organisation (DMO), convention bureau has a role of active promoter of destination and all resources to the congress organisers, event planners, groups and individuals [2, p. 427]. Wider effects of the convention bureau activities are related to stimulation of local economic development, advancement of the local society and quality of life, protection of public sector interests and leveraging destination reputation [15, p. 3]. Over the year, a large number of companies and associations from different fields organise one or more meetings, events, congresses, conventions, exhibitions and events, and therefore more and more convention bureaus are established, focusing their resources on these lucrative segments [4, p. 118]. Convention bureau is in most cases a not-for-profit DMO, whose aim is to attract large number of congresses and conferences in a specific destination [12, p. 142], but also always trying to protect the interest of the congress organisers [24, p. 604]. Therefore, convention bureau is a vital communication channel among congress organisers and event planners on one side, and hotels, convention centres and other service providers on the other side [7, p. 163].

Destination management activities of the convention bureau

As a DMO, convention bureau implements a variety of activities. It is important to note that the final scope of activities depends, on one side, on the destination resources for meetings and events and, on the other side,

¹ The term *congress tourism* is used in the same manner as the term MICE; MICE stands for Meetings, Incentives, Congresses and Conventions, Exhibitions and Events; a term that is more frequently used in international market is the *meetings industry*. All previous relates to the business travel motivated by non-tourism motives, such as: attending business meetings, meeting new clients, product presentation, paper and research presentation, networking and similar.

on the bureau's resources, in terms of staff, budget and organisation form.

Convention bureau's first step is to develop an image in order to position destination as desirable for congress organisation [14, p. 61] and as attractive for clients and delegates [22, p. 4]. In this process, the convention bureau coordinates congress offer, decreases fragmentation and creates wider effects on the local economy such as job creation, increase of tax income and development [7, p. 160].

Providing information on congress capacities and service providers, distribution of client requests, bidding process for large events, destination, fair representations and congress ambassador programmes are some of the most important activities of the convention bureau [5, p. 163]. Since attracting new congresses to a destination is the convention bureau's purpose, destination sales is one of the basic activities [10, p. 335] as well as creating mutual trust, understanding and bonds with event planners and clients. Convention bureau advises and informs clients and event planners on best options that will work in a destination [7, p. 159]. Activities of the convention bureau also involve organisation of familiarity trips and destination inspections, during which the bureau plays the role of an objective consultant for the client in final selection of congress locations and service providers [24, p. 601]. Certain number of convention bureaus also provide housing services and registration for their clients [7, p. 164].

Besides activities oriented towards market and clients, convention bureau needs to get support from all congress stakeholders within destination, meaning that it needs to assist and support creation of business alliances and networks in order to reach destination growth. Coordination of meeting industry constitutive elements and playing a leadership role becomes very important destination management activity of a convention bureau. Creating a friendly business environment is a condition for future destination development. Convention bureau needs to stimulate product development, which means coordination of relationships and activities of destination stakeholders in the process of product and experience packaging [21, pp. 194-195].

Challenge for the convention bureau is that there is no total control over the congress destination value

chain, since organisers are providing congress budget themselves and are having holistic view of the destination, while destination stakeholders are focused on reaching profits for their establishments in the short term, creating a situation where the local stakeholder rejects client since it does not fit target [23, p. 130].

Research aim

The extensive literature review has shown that convention bureau has been a topic among large number of researchers and papers. At the same time, based on author's literature findings, analysis of convention bureau destination management activities is also identified as a research topic in a number of papers. It is possible to determine that each researcher has been focusing on a very specific and individual activity or small group of activities implemented by a convention bureau. Therefore, on the basis of analysed papers, it is possible to conclude that the universe of the convention bureau destination management activities is very large and that authors are focusing on individual activities, giving them different position from the strategic-operational aspects and main supporting aspects, but usually not in relation to other activities and other authors.

The following convention bureau destination management activities have been identified based on the literature review: destination promotion [2], delivering values to clients [11], direct communication with supply and demand stakeholders [4], position destination attractiveness for clients, decreased fragmentation, raise of local quality of life, client relationship management [14], development of the local economy [15], supporting creation of business alliances [23], coordination of meeting industry constitutive elements [20], product development, familiarity tours organisation [3], new lead generation [24], client requests' distribution, bidding process [9], responding to client requests, improving business environment, experience packaging, fair participation [5].

The author has seen opportunity for improving the existing literature on convention bureau destination management activities in the possibility to propose framework which would include all activities previously defined through

literature review, to connect them, prioritise them and classify them into groups based on final outcomes.

Methodology

Individual in-depth interviews have been used in the classification process. Interviews have been done personally (face to face) with representatives of national convention bureaus. Semi-structured open questions were used. Respondents were not limited in answering questions, but the interview followed the structure that has been based on the literature review of the convention bureau's scope of activities.

Respondents needed to comment on each activity that has been highlighted through literature review: explaining how they see it, what is the outcome, is it important, is it necessary to implement it, what would they change in certain activities, is there any activity they would add, is there any activity they do not consider important for the list, and similar.

Respondents were representatives of 17 national convention bureaus in Europe: Austria, Czech Republic, Finland, Germany, Hungary, Italy, Netherlands, Poland, Slovakia, Spain, Switzerland, Denmark, Estonia, Latvia, Slovenia, Montenegro and Serbia. In Europe, there is a total of 27 national convention bureaus, meaning that the chosen sample accounts for 63% of the total. Each respondent was on a decision-making position, working for the meetings industry on average for 9 years. It is important to emphasise that respondents were asked not to speak about activities of their national convention bureau, but in general how they see activities of any convention bureau in Europe. All interviews were done personally by the author in the period September 2016 to March 2017, during IBTM trade show in Barcelona, during ECVB Alliance meeting in Florence, and during individual visits to Montenegro and Slovenia. The average length of the interview was approximately 45 minutes.

Results

Research resulted in the following classification of destination management activities of the convention bureau:

- Coordination of destination stakeholders
- Destination marketing
- Destination sales.

Coordination of destination stakeholders has the following aim: destination product development and stakeholder synchronisation around a unified goal. Coordination of congress stakeholders implies the following scope of sub-activities: analyses of destination stakeholders, development of cooperation programmes and platforms, creating industry networks and communication platforms, education and improving the level of service, support to mutual activities.

Destination marketing has the following aim: communication and representation of destination in the market. Destination marketing includes several sub-activities: continuation of market research, positioning in selected markets, client relationship management, communication with clients and presentations, lobbying and intermediary communication.

Destination sales has the following aim: selling total and/or partial congress capacities within destination. Destination sales entails the following sub-activities: defining priorities, bidding for congresses, fair participation and organisation of destination inspections and familiarity (FAM) trips.

Limits

Literature review is based on the number of researches and papers that author has managed to identify. A number of papers dealt with the convention bureau and its activities in terms of destination management organisation as the main topic.

Research was focused on representatives of national bureaus. Although the sample is relevant, still the research did not include opinions and standpoints of local convention bureaus and city convention bureaus. At the same time, research focused only on a limited part of the supply side of the industry – convention bureaus, and did not include opinions of other supply stakeholders, like hotels or agencies, or positions of demand stakeholders such as congress organisers, event planners or delegates.

Future research

Future research can be implemented in order to test the proposed classification on representatives of demand stakeholders. Based on the findings in this paper, international congress organisers can express their position on activities of a destination, which are within the proposed classification, are important for them and have influence on destination selection process.

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REGULATORY FRAMEWORK FOR THE DEVELOPMENT OF THE GREEN SUPPLY CHAIN: EU VS SERBIA

Regulatorni okvir za razvoj zelenog lanca snabdevanja –
EU vs Srbija

Abstract

Business practice indicates that besides the economic and social motives, the orientation towards the usage of green initiatives within the supply chain is mostly determined by strong legislative regulations which exist within the field, and which get more complex as the time passes. However, there is no uniformity regarding the treatment of regulation importance for the usage of the green supply chain concept worldwide. The empirical evidence shows that the degree of regulation of this issue, with the biggest number of accompanying directives is the highest within the territory of Europe, i.e. EU, while, for example, economic reasons of using this concept are more dominant in the USA, with the less developed regulations, which come as second. The rest of the world still recognizes vaguely the importance of the green supply chain concept, thus setting its implementation within these parts of the globe at the beginning stage, and making the motives which drive the implementation pretty unclear and non-differentiated. Therefore, the issue of the regulatory framework which represents the development guideline for green initiatives within the supply chain is very complex and specific and represents the basic preoccupation of the analysis within this paper. The entire paper is divided into two parts. Within the first part of the paper chosen EU directives oriented towards the regulation of specific issues and areas of managing the green supply chain are treated in detail. The second part of the paper is dedicated to the review of the legislative framework which treats the identical field, only within the Republic of Serbia. Precisely, an analysis is carried out to which degree the Serbian regulatory framework recognizes, appreciates and encourages the implementation of green initiatives within the supply chain and what is the general position of that framework compared to the one set by the EU. The aim of the paper is to identify the compatibility degree of the Serbian regulatory framework and the

one set by the EU, as well as to recognize potential incompatibilities or shortcomings within the system of Serbian regulation which defines the green initiatives. Since the ultimate strategic goal of Serbia is to become a full member of the EU, the highest possible degree of harmonization of these two regulatory systems is needed, which shall be checked by the analysis within this paper.

Keywords: *green supply chain, regulatory framework, EU directives, WEEE directive, REACH directive, RoHS directive, EuP directive, ELV directive, Serbia*

Sažetak

Poslovna praksa ukazuje da je pored ekonomskih i socijalnih motiva, usmerenost ka primeni zelenih inicijativa u lancu snabdevanja mahom određena snažnim zakonskim regulativama koje postoje u oblasti i koje se protokom vremena dodatno usložnjavaju. Međutim, ne postoji uniformnost u pogledu tretmana važnosti regulativa za primenu koncepta zelenog lanca snabdevanja u svim delovima sveta. Empirija potvrđuje da je stepen regulisanosti ovog pitanja, sa najvećim brojem pratećih direktiva najviši na teritoriji Evrope, tj. EU, dok su, na primer, ekonomski razlozi primene ovog koncepta dominantniji u SAD, sa manje razvijenom regulativom, koja je u drugom planu. Ostatak sveta i dalje slabo prepoznaje značaj koncepta zelenog lanca snabdevanja, te je u tim delovima njegova implementacija tek u početnoj fazi, a time su i motivi koji ga pokreću prilično nejasni i nediferencirani. Stoga, problematika regulatornog okvira koji predstavlja orijentir razvoja za zelene inicijative u lancu snabdevanja veoma je kompleksna i specifična i predstavlja osnovnu preokupaciju analize u ovom radu. Celokupan rad podeljen

je u dva dela. U okviru prvog dela rada detaljno se tretiraju odabrane direktive EU, usmerene na regulisanje specifičnih problema i područja upravljanja zelenim lancem snabdevanja. Drugi deo rada posvećen je razmatranju legislativnog okvira koji tretira identično područje, samo vezano za Republiku Srbiju. Konkretno, analizira se u kom stepenu srpski regulatorni okvir prepoznaje, uvažava i podstiče implementaciju zelenih inicijativa u lancu snabdevanja, te kakva je načelna pozicija tog okvira u odnosu na onaj postavljen od strane EU. Cilj rada jeste identifikovanje stepena kompatibilnosti regulatornog okvira Srbije sa legislativnom postavkom EU, kao i uočavanje potencijalnih neusaglašenosti ili manjkavosti u sistemu srpske regulative koja definiše zelene inicijative. Budući da je ultimativni strateški cilj Srbije punopravno članstvo u EU, potrebno je postojanje što veće harmonizovanosti ova dva regulatorna sistema, što će analizom u radu i biti provereno.

Ključne reči: *zeleni lanac snabdevanja, regulatorni okvir, EU direktive, WEEE direktiva, REACH direktiva, RoHS direktiva, EuP direktiva, ELV direktiva, Srbija*

Introduction

The legal regulation is becoming more and more the key incentive and development guideline for the green supply chain. Although there is existent pressure made by different external elements (final users, suppliers, non-government organizations, the local community and similar), as well as internal elements (specific organization culture and agitation for moral values) to use green initiatives, the biggest pressure is precisely set by the legal regulation. The authors Kahidir & Zailani have carried out an extensive research with the aim to establish the basic drivers of green supply chain development. Within more than 30 studies which have been analyzed, the dominantly most important drivers of the green initiatives within the supply chain are as follows: regulations (in more than 87% of analyzed studies), social responsibility (much less than regulations, around 43%), client pressure (40%) and expected economic benefits (40%) [15, pp.1-9]. Within the EU project entitled United Nations Global Compact Framework, especially developed as the support for the usage of green initiatives in doing business worldwide, there is another confirmation that legal regulations are the *conditio sine qua non* [10, p.17].

Taking into account the undoubted importance of the legal framework for the implementation of green initiatives among different participants of the supply chain, the paper

further analyzes the specifics of EU regulatory practice, which is considered the most developed within this area. After that, a detailed review of the Serbian legal setting is performed which treats the issues of green initiatives, in order to finally present the comparative review of the European and Serbian legislation, along with additional comments and recommendations for further improvement. All stated elements of analysis follow.

The green supply chain regulatory specifics

It is of crucial importance to point out that there is no uniformity regarding the regulation importance treatment for the usage of the green supply chain concept in all parts of the world. Namely, different empirical research indicate that the degree of regulation of this issue, with the biggest number of accompanying directives is the highest within the EU, while the USA tend to rely more on economic reasons for using the green incentives. The rest of the world, including developing and less developed countries, does not recognize clear enough the importance of the green supply chain concept, which is in those parts of the globe at the beginning stages of its usage and with scarce or non-existent regulation covering the issue [20, pp. 524-546].

Appreciating all the given limitations as the starting point of the analysis, continuing follows the deep review of existent EU directives of influence on the green supply chain. Also, there follow considerations to which degree does the Serbian regulatory framework recognize, appreciate and stimulate the implementation of the green initiatives within the supply chain, and what is the general position of the Serbian legal framework compared to the one from the EU.

The EU directives

The European Union (EU) has the most developed and extensive ecological regulations and rules compared to any other international organization or entity. It's set of ecological regulations significantly intervenes with regulations of other entities, both of supranational and national character. The stated regulations and rules

profoundly influence all other EU member states, but also those countries which want to become its part in perspective, as is the case with the Republic of Serbia. The wide setting of EU ecological regulations assumes that the most important areas have been covered, ranging from acid rains, ozone layer thinning, pollution and quality of air, water and soil, noise issues, up to the question of managing waste of different kinds. Due to the dynamic development of this field, there are no precise data on the total regulation corpus covering this area. In order to create a general picture, the Institute of European ecological policy has set the estimate that this area is closely regulated by more than 500 directives, regulations and decisions [14, pp. 12-16]. The practical involvement of the mentioned set of regulatory settings for the greening of the supply chain is dominantly connected with the issue of waste minimization during the product life cycle, as well as the partial return of product lost value after the end of that cycle [10, p. 35]. Setting the extensive EU regulation in such a green supply chain context, the analysis within this part of the paper focuses on the following directives:

- the WEEE directive
- the RoHS directive
- the REACH directive
- the EUP directive
- the ELV directive

The WEEE directive

The electric and electronic waste such as computers, television sets, refrigerators and mobile phones, represents one of the fastest growing types of waste within the EU, with some 9 million tons cumulatively generated up to 2005 and with the expected growth of over 12 million tons up to 2020 [21]. This type of waste represents a complex mixture of materials and components, which due to its hazardous content, can cause severe ecological and health issues, if not managed correctly. Furthermore, the production of electronic equipment demands that all supply chain participants obtain rare and expensive inputs. For example, about 10% of total global gold diggings are used for the purpose of producing this equipment [21]. In order to deal with this issue, in 2003, the EU has

accepted the set of directives dealing with the disposal of electric and electronic waste. The first in line was The Waste Electrical and Electronic Equipment Directive or shortly- the WEEE directive.

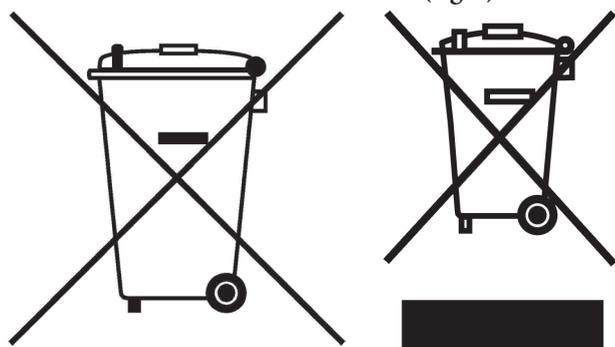
The basic contribution of this Directive is to establish the so-called schemes for gathering electric and electronic waste, according to which the final users return (dispose of) these products for free. The aim is to increase the repeated usage and potential recycling of electric and electronic waste, in order to extract the maximum product usage value. In December 2012, the revision of this Directive has been performed, and its altered and upgraded version came into force in February 2014. According to the revised version of this Directive, the general EU goal is to recycle at least 85% of total electric and electronic waste until the end of 2016 [9, pp. 1-3].

In order to raise the public awareness about the importance of this initiative, during the process of introduction of the WEEE directive and later on, during its implementation, across the countries of the EU a great number of theme manifestations has been organized. The manifestation which certainly caused the most attention occurred in April 2005, on the south bank of the river Thames in London. At that moment a sculpture, 7 meters tall, called the "WEEE man" was revealed. This sculpture was made of 3.3 tons of electric waste, which is the average quantity of waste produced by an individual during his or her lifespan [4].

It is interesting to mention that according to the principals of the WEEE directive all categories of electric and electronic waste can be categorized into historic and non-historic. The historic waste refers to the equipment which has been on the market longer than 2005, and for which the equipment owner has the obligation concerning recycling. The equipment present on the market after 2005 is categorized as non-historic waste and it is the responsibility of the producer/distributor to take care of the collecting and recycling of this equipment [12, pp. 475-493]. The differentiation in practice between these two types of waste has been enabled by using a different graphic illustration, the so-called WEEE symbol which can be found imprinted on the products. Namely, while there is a black line below the WEEE symbol on the graphical

illustration of the non-historic waste, the illustration of historic waste does not have that line. In order to make the explanation clearer, the difference is shown within Figure 1.

Figure 1: Graphical symbols of the historic (left) and non-historic WEEE waste (right)



Source: [21].

Concluding, it can be stated that the improvement of the ecological management of these materials, the upgrading of the production supply cycle and strengthening of resource efficiency regarding gathering, disposal and recycling of electric and electronic waste, represent the key reasons why this Directive is a relevant precondition for the creation and maintenance of the green supply chain.

The RoHS directive

Available evidence has shown that specific measures are needed when it comes to gathering, treatment, recycling and disposal of electric and electronic waste, defined by the WEEE directive, in order to reduce problems of managing waste caused by heavy metals. Despite these measures, a great part of electric and electronic waste ends up in the current trash flows. Even if the waste is separately gathered and subject to the processes of recycling, it still contains hazardous materials such as mercury, cadmium, lead and similar, which represent the risk for the environment and the health of people. Taking into account the technical and economic possibilities, the most effective way to reduce the risk for the environment and human health from these substances is to replace them with some others which are harmless or at least less dangerous. Along with the introduction of the WEEE directive in 2003, the EU also introduced a special Restriction of Hazardous Substances Directive or shortly-the RoHS directive. According to this

Directive, the producers within the supply chain are obliged to replace the heavy metals such as lead, mercury, cadmium or hexavalent chromium, as well as the inflammable compounds like polybrominated biphenyl or diphenyl with safer alternatives which form part of the electric or electronic products. The substances in question can be found in products such as: colors, pvc cables, batteries, lamps, light bulbs, tv glass etc [18].

With the passing of the time, the issue of electric waste has become more and more serious regarding the ecological and health risks, despite of initially introduced directives. Therefore, similar as with the WEEE directive, in 2008, the EU Commission suggested a revision of the RoHS directive in order to reduce the administrative burden and to assure the coherence with new policies and legislation which treats product commercials within the EU. The altered version of the RoHS directive has been announced in the official EU Gazette on July 1st 2011, and it came into force on January 3rd 2013 [18]. At the beginning of the usage, the RoHS directive did not assume the existence of any product mark which respects regulation imposed by this Directive. In the meantime, such a situation provoked a great number of individual producers to create their own marks with the aim to point out that a particular company respects the green initiatives, so in that manner the situation became very confusing. In order to eliminate any doubts regarding the existence of the official symbol of the RoHS directive and its features, the EU Agency for the implementation of the trading standards has determined that the only valid and allowed indicator of accordance with the RoHS directive is the CE mark [19]. The graphical illustration of the CE mark is given within Figure 2.

Figure 2: The only official symbol of concordance with the RoHS directive



Source: [19].

The importance of the RoHS directive from the perspective of the green supply chain can be seen in efforts to minimize the harmful waste, which not only has negative effects on the environment, but is also extremely expensive in economic terms for manipulation and disposal. The elimination or potential minimizing of harmful waste also creates a positive image of the supply chain participant, which puts efforts in that initiative. Therefore, this Directive has a multiple role of importance in the efforts to make the supply chain greener.

The REACH directive

Within the market of the EU a great number of chemical substances has been in the process of production for years now. While that production is often in great quantities there are still insufficient information on the dangers these substances can cause to human health and the environment. That is why a need has occurred to fill in the information gaps, in order for the responsible supply chain participants to estimate the dangers and risks of these substances and to implement measures which neutralize or at least minimize the negative effects. With that aim, REACH was formed as the regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals, while enhancing the competitiveness of the EU chemicals industry. This Directive came into force on June 1st 2007 and it replaced the existing set of partial regulations and directives with a unique system [17]. This regulation introduces the responsibility of the supply chain participant for the estimate and risk management which can be needed in case of hazardous chemicals and offers the adequate safety information to

their users. Simultaneously, where there is an expressed need, the EU uses additional measures connected with highly dangerous substances (such as the analysed RoHS directive). The basic goals of the REACH directive are shown within Table 1.

The REACH directive functions on the principal “no data, no market”. In this manner, producers and importers are targeted and obliged to gather information about the features of their chemical substances, which shall enable them safe manipulation with those substances and data collection within the Central register of The European Chemicals Agency (ECHA) located in Helsinki, Finland. The agency represents a focal point of the REACH directive: it manages the data bases needed for the system functioning, it coordinates the deep evaluation of suspicious chemicals and it creates publically available data bases where all interested parties can obtain the needed information.

As is the case with two previous directives, the REACH directive is also estimated to be in need of modernizing. Differing from the WEEE and RoHS directive, the REACH directive has not yet been revised, i.e. the revision procedure is being performed at the moment. Also, the accordance of a particular product with this Directive is not prone to any specific labeling [3].

The importance of the REACH directive for the supply chain and its greening is similar to the RoHS regulatory framework. A special emphasis in this case is put on the necessity of the adequate timing of information sharing among all participants of the supply chain, in order for the initiative to get it's full sense. With the increase in the number of substances which must be controlled, and with simultaneous time compression given to retailers to answer questions on sold product contents (the current deadline is 45 days [3]), it is a highly demanding task.

Table 1: Main goals of the REACH directive

Aim	Aim description
Protection	Securing a high level of human health protection and the protection of the environment due to the use of hazardous chemicals.
Responsibility	Establishing the responsibility of the producer and the importer which deliver the chemicals onto the market for understanding and managing risks connected with their usage.
Trade intensifying	Allowing the free flow of substances within the EU market.
Competitiveness	Stimulating competitiveness within the EU chemicals market.
Innovation	Promoting the usage of alternative methods of dangerous substances estimate (the QSAR method, for example.)

Source: [17].

The EuP directive

The EU has implemented an ambitious energetic program rounded up by the EuP directive in order to assure the safety of energy supply, as well as to solve energy issues connected with other peoples' health and surroundings. This Directive has been introduced in 2005 and it has completely been adjusted to the Energy action plan according to which by the year 2020, the EU should lower the energy consumption by 20%. If this goal is achieved, that shall help the implementation of the Kyoto protocol and create savings of over 100 billion € on an annual level [6].

According to the EuP directive more than 75 action courses have been identified in 10 priority areas, including new standards of energy performance for different product groups, such as: boilers, copy machines, tv sets, lighting etc. The energy program set by the EuP directive has two key aspects. The first aspect has the goal to influence the awareness of both final, as well as business users when making the shopping decisions. Namely, the idea is to enhance the sales of products labeled with the "EU eco-flower" or "EU energy star", in order to make the products which incorporate the principals of the EuP directive more popular. These are informal symbols which indicate the accordance with the EuP directive, and besides those there are no others, of formal nature. The graphical review of these symbols is given within Figure 3.

The other key aspect targets producers as the participants within the supply chain, demanding and/or stimulating them to reduce the ecological influence on all phases of the product life cycle and to decrease their

Figure 3: The symbols of the „EU eco flower” and „EU energy star”



Source: [6].

energy consumption. The complication of ecological issues has not left this Directive without revision either. Starting from January 2009, an improved version of the EuP directive is used. This version is oriented towards the decrease of stand-by electric energy consumption for 75% up to 2020 [6].

The companies with products falling under the scope of the EuP directive shall have serious challenges regarding its implementation. These companies shall be obliged to gather numerous data and report on various energy measures concerning the consumption of particular product groups, through all the phases of their life cycle. What is most important, the usage of the EuP directive introduces additional demands which are potentially even more challenging than the WEEE, RoHS, REACH or any other valid regulatory framework. Namely, the directives analysed up to now mostly concentrate on one (or dominantly one) aspect- recycling (WEEE), toxic matters (RoHS) and similar, while EuP covers numerous ecological aspects. That is why the importance, as well as the challenges of this Directive are multiple for the participants of the green supply chain.

The ELV directive

The number of motor vehicles used within the EU is among the largest in the world. In 2014, the total number of motor vehicles in the EU was 263 million, out of which passenger cars accounted for the greatest share with 223 million units. With the annual number of newly registered vehicles of 18,7 million, out of which 15,9 million are passenger vehicles, the estimated number of end-of-life vehicles is between 13 and 14 million units per year. However, the official statistics indicates that there are between 7 and 9 million end-of-life vehicles, since a part of the "waste-intended" vehicles is sold as used within the markets of Eastern Europe or Africa. Therefore, every year, the end-of-life vehicles generate between 7 and 9 million tons of waste within the EU, and this waste needs adequate management [5].

With that aim in mind, as one the earliest introduced directives, in 2000, the EU introduced the End-of-Life Directive or shortly- ELV directive. This Directive is the

first regulatory guideline dealing with EU waste, within which the EU Commission introduced the concept of extended producer responsibility. The basic purpose of this Directive is to reduce waste which is generated when vehicles are being disposed of at the end of their lifespan. The span of influence of the ELV directive is such that it covers the passenger vehicles of M1 category and light commercial vehicles of N1 category. The directive refers to all phases of the vehicle life cycle, as well as to the final phase of its disposal [5]. The main goals of the Directive are given within Table 2.

Seeing the basic goals of the ELV directive, it is evident that its features refer to the four key groups of participants within the supply chain: producers, the recycling industry, the last car owner and the regulatory entities. Similar to other analyzed directives, the ELV directive is also under the process of revision. The revision started in 2014, but the modified document has not yet officially been published. However, the already known elements of the revised material, indicate that in order to measure the real performance achieved by the EU member states regarding the implementation of the principles of the ELV directive, grading criteria have to be more strict. The comparative review of old and new criteria is given within Table 3.

The stated criteria are calculated based on the average weight of an individual vehicle per year. According to this methodology, recycling is defined as processing of materials with the aim of their usage for the same or similar purpose, while the return of value assumes incineration with the aim of generating energy. Therefore, the difference between

the two criteria represents the part which is intended for incineration [5].

Concluding, it can be pointed out that the usage of the ELV directive represents a serious obligation for the stated participants within the supply chain covered by the Directive. Taking into account the volume of operations performed in the business processes of the automobile industry and its supply chain, both within EU and globally, the demand sensitivity for products within this chain, as well as the pressure of increasing competition, the conclusion is that the given obligation must be fully implemented. That is the only manner to keep the supply chain sustainable and green.

The regulatory framework in the Republic of Serbia

The analysis performed up to now indicates that the implementation of the green supply chain concept and its stimulation, whether through a convenient regulatory framework or by using economic stimuli, represents a systematic and serious effort of some of the most developed countries in the world in a fight against the growing ecological problems. The analysis has also shown that there is no unique treatment of regulatory framework importance for stimulating the greening of the supply chain with all included entities. Therefore, the position of the Republic of Serbia also has to be defined concerning this issue.

Any interpretation of the issue of treating the green initiatives and regulations which cover this question in the

Table 2: Basic goals of the ELV directive

Prevention of using certain heavy metals such as cadmium, lead, mercury and hexavalent chromium
Gathering of vehicles within convenient locations, organized in the form of specialized car wastes
Purifying of liquids and specific components
Coding and information on parts and components
Offering information to clients and specialized car wastes
Achieving re-usage, recycling and return of targeted performance

Source: [5]

Table 3: Old and new criteria of norm fulfillment imposed by the ELV directive

	Starting from January 1 st 2006	Starting from January 1 st 2015
Re-usage and recycling	80%	85%
Re-usage and partial return of value	85%	95%

Source: [5].

Republic of Serbia, must be performed taking into account the wider geo-political situation within the country. The Republic of Serbia has set as its main strategic goal and orientation for its future the membership within the EU. Although this has been the strategic goal of the country for more than a decade and a half, the Republic of Serbia has officially submitted the demand for EU membership on 22nd December 2009 [16].

Since it has already been elaborated that the EU has the most detailed and developed regulatory elements, which treat the ecological issues and green business initiatives, one of the preconditions of the entrance of the Republic of Serbia into the EU shall certainly be the accordance with such a regulatory framework. That is precisely the main topic of one of the 35 negotiation chapters connected to the acceptance and carrying out of the legal heritage of the EU, which shall be set as a precondition for the membership of the Republic of Serbia, once the negotiations have begun. Precisely, the negotiation chapter 27 deals with this issue and it is called *The environmental issues* [2]. Therefore, all current actions of the Republic of Serbia concerning

the implementation of the green initiatives are closely connected with putting efforts into adopting its legal-regulatory framework treating ecological issues to the regulatory framework of the EU, i.e. the key directives of the Union. Analyzing the current state of the given accordance and practical usage of the green initiatives, unfortunately it can not be said that there is a generally high level of progress. Namely, the last serious step towards the introduction and implementation of the green laws in the Republic of Serbia was made in 2009, when based on the suggestion of the official, at that moment called the Ministry of the environment and space planning, a set of the so-called Green laws (a package of 16 environmental laws) was introduced. Since 2009 up to present, unfortunately there have been no serious advances within this field. Following, all elements of the stated package are presented within Table 4.

Analyzing the individual elements of the “Green laws” package, at first glance it could be stated that they cover adequately a wide area of environmental protection and respect the concept of the green supply chain in different

Table 4: The “Green laws”- set of 16 Serbian ecological laws introduced in 2009

The Law on waste management
The Law on package and package management
The Law on air protection
The Law on chemicals
The Law on biocidal products
The Law on environment protection
The Law on influence estimate on the environment
The Law on nature protection
The Law on the protection from the ionizing radiation and nuclear security
The Law on the protection from the non-ionizing radiation
The Law on banning the production, warehousing and usage of chemical weapons and it's destruction
The Law on noise protection within the environment
The Law on the protection and sustainable usage of fish resources
The Law on confirming the Amendment to the Appendix B of the Kyoto Protocol along with the Guideline Convention of the EU on climate change
The Rotterdam convention on the procedure of giving the concordance based on previous notification about certain dangerous chemicals and pesticides in international trade
The convention about information availability, participation of public in decision making processes and the right to legal protection in the matters of the environment

Source: [1].

aspects of doing business. However, although the declarative goal of introducing these regulations was the accordance with the key directives of the EU covering this area, that has not been carried out to full extent in practice.

Namely, the situation regarding the analyzed directives is different. The highest degree of applicability can be noticed with the ELV directive, with its elements recognizable in the valid Law on waste management, as well as within the Rule book on the way and procedure of managing vehicles at the end of their lifespan. However, this regulatory framework only partially corresponds to the ELV directive since it does not respect the analyzed concept of extended producer responsibility, nor does it clearly define the obligations of different economic subjects, which are serious remarks [13]. Also, an effort has been made to implement the key aspects of the REACH directive, which refer to the prohibition and restriction, reports on the data security, as well as to the complete list of questionable substances and chemicals, which is all incorporated within the Law on chemicals [3].

It is a worrying fact that the valid Law on waste management, although it was its previous intention, does not adequately correspond to the WEEE and RoHS directives, for which we can conclude that they do not have the visible transposition into the national regulatory framework [8]. Also, besides a couple of elements mentioned within the Law on energetics, there is no particular, separate and complete treatment of the EuP directive neither [11]. On the other hand, the undoubted importance and complexity of this Directive have already been explained in detail. In order to introduce the stated directives which are missing, in various turns active workshops have been organized by the official EU institutions, in order for the official entities in Serbia to be trained and prepared for their implementation. However, that has not been done up to now.

Concluding the analysis on the regulatory framework in Serbia, it can be pointed out that there are at least two serious issues which need to be solved right away. The first issue is connected to missing regulations, which correspond to the EU directives. In order for the process of Serbian accession to the EU to be completed successfully, it is needed, among other things, to perform an adequate and complete transposition of all important elements of the green regulatory framework into the Serbian legislation. Connected with that, we can identify the second, much more serious problem, and that is a partial and incomplete usage of the EU regulatory framework, but also other international conventions (Kyoto protocol, for example) which are being accepted.

It has already been stated that almost every implemented regulation has serious shortcomings and inconsistencies compared to the original legislation. The issue of EU accession, but also the issue of generally better life and business quality, shall be thus determined by the willingness to completely and efficiently implement the elements of regulatory framework towards which there are official aspirations. Since the stakes are really high, the effort of the state on all levels must be such that the green initiatives become an integral, recognized and completely implemented element in business of various supply chains, but also in the functioning of the environment generally.

The comparative review of regulatory frameworks: EU vs Serbia

In order to obtain a precise picture of the position of Serbia regarding the importance acknowledgment of adequate regulations for the stimulation of green initiatives within the supply chain, preservation of the environment and the way and quality of human life in general, within this part of the analysis a comparative review of the green regulatory

Table 5: The comparative review of regulatory frameworks: EU vs Serbia

Country /entity \ Focus of the regulation	Electric and electronic waste	Usage of dangerous substances in electric and electronic equipment	The usage control of dangerous toxic substances	The security of energy supply	Vehicle disposal at end of lifespan usage
EU	WEEE directive	RoHS directive	REACH directive	EuP directive	ELV directive
Serbia	No existing accepted regulation	No existing accepted regulation	Elements of Law on chemicals	Elements of Law on energetics	Elements of Law on waste management

framework is given for the Republic of Serbia and the EU member states. In that manner, in on place, a practical summary is given of the entire analysis concerning the green regulatory framework. Only remembering, the analyzed elements are the ones which are most often the subject of different issues within the environment. The comparative review is given within Table 5.

Based on the presented comparative review, two main conclusions can be made. First, as was presented at the beginning of the analysis, the most comprehensive regulatory framework covering the key issues connected with the green supply chain is present precisely within the EU. Secondly, compared to the EU, the position of the Republic of Serbia concerning the adopted green regulatory framework can not be marked as drastic, of course excluding the two serious limitations which have been pointed out within the previous part of the analysis. That certainly does not mean that our country should be pleased with the current state and that it should not continue to undertake all possible efforts in order to adopt a full and complete regulatory framework which shall be an excellent incentive for further proliferation of the green supply chain concept in the Serbian business practice.

Conclusion

Concluding the analysis connected with the regulatory framework of the green supply chain, it can be stated that its role is vital and that it can not be replaced by exclusively economic incentives, as an implementation measure. Of course, the *vice versa* also stands. That means that it is not enough to introduce a stiff and compulsory set of green laws, if their usage is not clear, whole and comprehensive. Only a joint usage of a wide set of measures, both regulatory and economic, can significantly influence that green practices should become an integral and usual elements of company business, and the concept of the green supply chain and important and real tool of contemporary competitive fight.

Comparing the legislative setting of the EU and the Republic of Serbia in this domain, it has been concluded that the state in the Republic of Serbia connected with the green regulatory framework is not drastically bad, of course, excluding two serious limitations. Those two limitations

are the absence of some regulations, which correspond to the directives of the EU, on one hand, and the partial and incomplete usage of the contents of the regulatory EU framework which is adopted, on the other hand.

The final conclusion is that in order for the process of accession of the Republic of Serbia into the EU to be carried out fully, it is needed as soon as possible to implement an adequate and complete transposition of all important elements of the green regulatory framework into the Serbian legislative system. Only in that manner shall it be possible to achieve the desired legislative harmonization, and what is more important, that shall make the Republic of Serbia ecologically aware, competitive and a strong national economy, a full member of the EU in the future to come.

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REGIONAL DISPARITY ANALYSIS OF BUSINESS CONDITIONS: THE CASE OF SERBIA

Analiza regionalnih razlika uslova poslovne klime: slučaj Srbije

Abstract

Important drivers of economic growth and job creation are entrepreneurship and creation of an appropriate business environment, both on a national and local economy level. Analyzing business conditions, different factors are usually identified within internal and external groups of factors. But, both of those groups could also be analyzed in the light of regional differences and specificities.

Bearing in mind the need to develop business climate in Serbia so that it could make economic and social recovery, as well as the need for its coherent and balanced regional development, the main idea of this paper was to research regional disparities in Serbia regarding the factors of external environment that create different conditions for business development, primarily for SMEs development. Different economic, demographic and social factors were taken into consideration by using a special methodology – Data Envelopment Analysis (DEA). The composite index, Regional Development Index (RDI), was created in order to identify main disparities within the existing economic counties in Serbia. The analysis showed the expected results in most of the analyzed counties (north – south development axis), but in some cases there were certain deviations (parts in the east of Vojvodina region and in Central Serbia).

Keywords: *business conditions, regional disparities, Data Envelopment Analysis (DEA), Regional Development Index (RDI)*

Sažetak

Jedni od najvažnijih pokretača ekonomskog rasta i otvaranja novih radnih mesta jesu preduzetništvo i stvaranje odgovarajuće poslovne klime, kako na nacionalnom, tako i na lokalnom nivou. Analizirajući uslove poslovanja, faktori koji na njih presudno utiču gotovo po pravilu se mogu svrstati u dve grupe – interne i eksterne faktore. Međutim, bez obzira na to o kojoj grupi faktora je reč, posebno je značajna analiza njihovih regionalnih razlika i specifičnosti.

Imajući na umu neophodnost oporavka i razvoja srpske ekonomije, kao i njenog koherentnog i balansirano regionalnog razvoja, glavna ideja ovog rada bila je istraživanje regionalnih razlika u Srbiji kada je reč o eksternim faktorima koji utiču na poslovnu klimu, u prvom redu klimu pogodnu za razvoj malih i srednjih preduzeća (MSP). U razmatranje su uzeti različiti ekonomski, demografski i socijalni faktori na nivou okruga, koristeći posebnu metodologiju – DEA analizu. Na taj način proračunat je i indeks regionalnog razvoja (IRR), kao kompozitni pokazatelj regionalnih razlika na nivou okruga u Srbiji. Analiza je u najvećem delu pokazala očekivane rezultate, pre svega u pogledu odnosa razvijenijeg severa i slabije razvijenog juga, ali i određena odstupanja (istočni delovi regiona Vojvodine, kao i u pojedinim delovima Centralne Srbije).

Ključne reči: *uslovi poslovne klime, regionalne razlike, DEA analiza, regionalni razvojni indeks*

Introduction

Important drivers of economic growth and job creation are entrepreneurship and creation of an appropriate business environment, both on a national and local economy level. Analyzing business conditions, different factors are usually divided into two groups – internal and external. Internal factors characterize the business system itself (objectives, strategies, equipment, size of the organization, factors related to the labor force, marketing mix, product and production cycle, etc.), and the firms can have influence over them. However, external factors (competition, demand and supply conditions, market prices, etc.) are the product of external environment that has been shaped by different socio-economic policies. The firm itself has little influence over these factors.

External environment is very important in the development and management of business performance. At the same time, it is a very complex system (it is very hard to determine the number, size and range of the factors of external environment). However, for the purpose of research, certain classes of common factors could be created:

- Economic factors include different economic regulators, creators of economic policies, responsible for the creation of economic climates which are supposed to be positive and appealing for the creation of new or expansion of the existing businesses (fiscal and monetary policy, economic growth, levels of interest rates, exchange rates and inflation rate, trade and government budget balances, saving rates, available sources of financing – such as the availability of credits or the level of financial market development, etc.);
- Political and legislative factors actually depict the influence of government on the economy. The government creates and implements the rules under which companies work. They include tax policy, labor, environment and other related laws, political stability, educational policies, stimulative programs for business growth, infrastructure development policies, etc. The government should create the environment of political and legal stability to facilitate business development;

- Social factors are also products of a certain government policy (health consciousness and policies, education policy and development, population policy through regulations of population size, growth, density, migrations and structures, environment awareness). The size and the significance of one country largely depends not only of its economy, but also of its population size and demographic structure (population could give a strategic advantage to a country, but it could also be a very serious burden); and
- Technological factors include ecological and environmental issues (natural resources and conditions), research and development activities (R&D), and product and technology innovations. Today, knowledge application and diffusion is of utmost importance in achieving strategic advantage in market competition. The technological changes greatly affect production costs and quality, and thus, the competitiveness of a company or economy.

The complexity of external environment is reflected not only in the number of its factors, but also in their regional disparities and dynamism. The same factors produce different environments in different geographical areas and, at the same time, they are quite changeable over time (it is very hard to cope with such dynamism). It is quite difficult to include all these moderations in a model of external environment reality. Because of that, there are a lot of attempts to somehow generalize such dynamism and regionalism, with only one purpose: to help those who plan and manage the systems to create appropriate policies in order to create better society and fairer distribution of wealth on a local, regional, national or global level.

Bearing in mind the need to develop the business climate in Serbia so that it could make economic and social recovery, as well as the need for its coherent and balanced regional development, the main idea of the paper was to research regional disparities in Serbia regarding the factors of external environment that create or might create different conditions for business development, primarily for SMEs development. Different economic, demographic and social factors were taken into consideration by using special methodology – Data Envelopment Analysis (DEA). The

DEA method was used in order to investigate whether the regional distribution of SMEs (their significance, efficiency, productivity, number of employees, etc.) is the result of some specific local conditions and, if so, whether there are examples of good practice in local economy development or the prevailing factors are in the government and political sphere. Instead of using a great number of different individual indicators measuring counties' performance, it was more appropriate to use one composite indicator for depicting this complex issue. For that reason, a composite index, Regional Development Index (RDI) was created. However, significant limitation in its creation presented the availability of suitable data, primarily on a county level (some factors affecting the performance of the local economy, which could be considered important, are not included in the model because they were not available at a required level). Despite such imperfection, authors still think this methodology reveals an important aspect of the development of external environment business conditions – differences in local conditions that could be influenced by the local government in cooperation with the national government in order to tackle local specificities and needs.

The development of business conditions in Serbia: the significance and development of SMEs sector

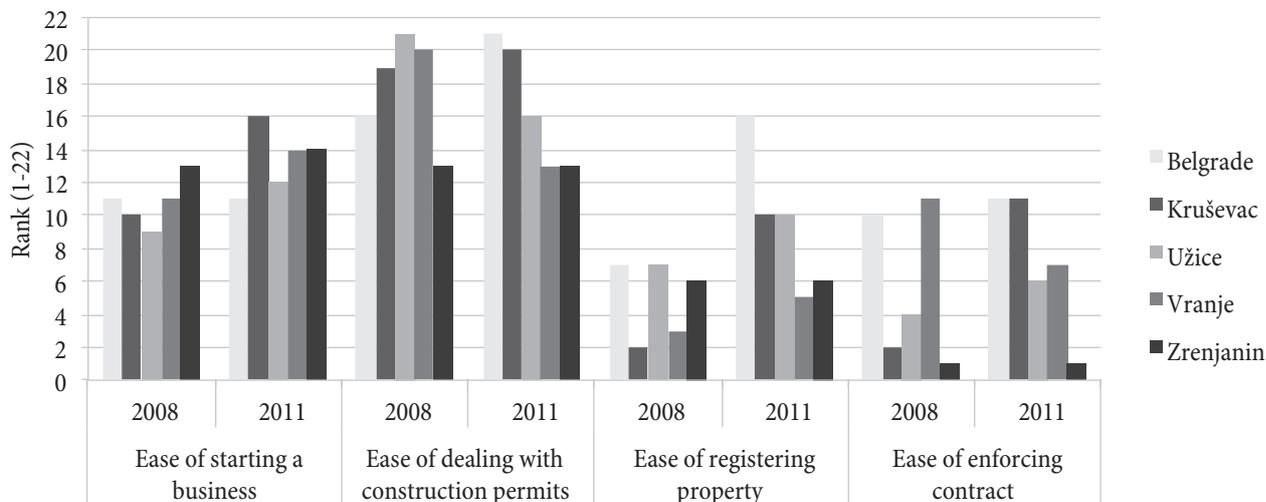
There has been a lot of research concerning the impact of various components of the external environment on business, competition and enterprise development in Serbia. Majority of them stress the crucial role of government in creating simulative environment for the business growth in Serbia. Janković and Mihajlović [20, pp. 34-35] discovered that the most influential factors are political and legal issues, in the negative sense, while Adžić stressed the necessity of government intervention for improving companies' performance in Serbia [1, p. 231], primarily in determining the role of the state in economic, social and cultural development in Serbia. The research of Cvjetković [8, p. 168] is also in accordance with that, where the author emphasizes the key role of government in improving the business environment in Serbia (promotion of export orientation of economy

through different measures and legislations, attracting foreign direct investments and establishing strategic partnerships and national and cross-border regional clusters). Although the SDI is considered to be one of the key factors of economic growth and development for a country like Serbia, there are still major obstacles for its realization: unfinished privatization, macroeconomic instability and the ineffectiveness of government policies [23, p. 34]. Đuričin and Vuksanović suggest new comprehensive economic policies framework in Serbia, based on three pillars: industrial policy, monetary and fiscal policy and competitiveness and regional policy, suggesting the reindustrialization as a strategy to eliminate the output gap (which causes inflationary pressure, twin deficits (current account and budget) and high level of unemployment) [13, pp. 26-29], [14, pp. 292-297].

The World Bank's Doing Business research, which has been conducted continually for different countries based on several indicators (regulation for starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency), provides a certain image of business climate in Serbia. Countries are ranked according to the overall score, and in 2016, Serbia was ranked 54th out of 189 countries according to the ease of doing business [11, pp. 16-23]. In the region, the following countries were better ranked than Serbia: Macedonia (12th), Slovenia (29th), Romania (37th), Bulgaria (38th), Croatia (40th), Hungary (42nd) and Montenegro (46th). Serbia significantly improved its rank over the last 10 years (it was in the 91st place in 2007 and in the 93rd in 2013, while it is expected to be in the 47th in 2017). Most efforts have been devoted to easing the starting of a business, obtaining construction permits and registering property, but there is still a lot of room for improvement.

After analyzing the regulation that is subject to local jurisdiction and enforcement (starting a business, obtaining licenses, registering property and enforcing contracts), World Bank publishes sub-national reports, with indicators for chosen cities in a given country or region [10, pp. 21-28].

Figure 1: Ease of doing business in chosen Serbian cities, 2008 and 2011



Source: Doing Business in South East Europe 2008 and 2011, The International Bank for Reconstruction and Development, Accessed on 12 May 2017 from <http://www.doingbusiness.org/Reports/Subnational-Reports/South-East-Europe>

After comparing ranks for observed Serbian cities across the whole country, it was expected for Belgrade to be singled out as the best for performing business (the most developed in the country). But the analysis in 2011 showed some deviation in certain areas: in the ease of starting business Kruševac was the best, and Zrenjanin, Vranje and Užice performed better than Belgrade. In other segments, Belgrade was at the top, but it was evident that some of the observed cities did a lot at the local level of governance, so their performance was better in comparison to 2008 (Kruševac and Užice), while the others were stagnant (Zrenjanin).

The competitiveness of economies was also monitored via global competitiveness index (GCI) which encompassed three sub-indexes: basic requirements (key for factor-driven economies), efficiency enhancers (key for efficiency-driven economies) and innovation and sophistication factors (key for innovation-driven economies). According to this research, Serbia lags significantly behind its neighbors in creating supportive and competitive business environment: in 2015 it was ranked 90th out of 138 observed economies, which was lower than Bulgaria (50th), Slovenia (56th), Romania (62nd), Macedonia (68th), Hungary (69th), Croatia (74th), Albania (80th) and Montenegro (82nd) [27, pp. 76-91]. Serbia shows the lowest performance in the sector of institutions, innovation and business sophistication (markets are characterized by the insufficient level of efficiency in property rights and intellectual property

protection, judicial independence, efficiency of government spending and regulation, efficiency of legal framework in settling disputes). At the same time, the most important competitive advantages of Serbia are a healthy, educated, skilled and cheap labor force, and capacities for research. However, these potentials are not exploited (out of 138 countries, Serbia is at the penultimate place in relation to two very important indicators – capacity to retain and attract talents!). It is interesting that in the ranking of the most problematic factors for doing business in Serbia (12-0), seen by business executives, fiscal politics and bureaucracy have been singled out as the biggest obstacles.

In the situation of facing with the problems of high unemployment, low level of economic activity, low GDP growth and productivity, lack of competition and investments, entrepreneurship and the development of small and medium enterprises (SME) could have an important role in various aspects of Serbian economy.

The development of SMEs in Serbia started after the introduction of changes in legislation at the beginning of 1990s (more than a half of over 20,000 established SMEs in Serbia in 1990 were located in Belgrade, and the whole sector employed around 110,000 people). In the next ten years, the number of SMEs and stores grew to around 357,000 and slightly fell during the period after the economic crisis in 2008 [26]. Although regional dispersion of the number of SMEs (and, consequently, of employees) improved, sectoral dispersion remained highly unfavorable

(more than 85% of total turnover was generated in only 4 sectors: trade and manufacturing (dominantly), and real estate renting and construction). That was the consequence of a very weak capital base, bad external environment and very low government support. Notwithstanding, the significance of SMEs for Serbian economy was enormous (in 2000, they employed around 1.35 million people and created around 40% of Serbian GDP) [26].

Today, SMEs present a very important segment of the Serbian economy, while they constitute 99.8% of total number of active firms in Serbia. Large part of the population works within the SME sector (65.7% of the total number of employees) and SMEs create 57.7% of gross value added in the whole economy (32% of Serbian GDP) [17, pp. 9-14], [28]. The share of SMEs in export is also significant (44.1%), as well as in import (56.5%) However, micro-entities dominate (the average number of employees per firm is 2.47), which is not a favorable base for the improvement of competition, cost-efficiency through the use of economy of scale and new markets penetration. This means that the SMEs sector in Serbia was not sufficiently strengthened in the previous period to be the driving force in the development of economy. SMEs could be the source of new jobs, by absorbing the surplus of workforce in processes of transformation of state-owned enterprises or in the process of restructuring of large enterprises and, thus, be a sort of economy drivers. But, more importantly, in the long term, the competitive advantage of Serbian economy is the sustainable and balanced socio-economic development. The SMEs sector would also perform better within such an environment and, at the same time, it would help the private entrepreneurial initiative, knowledge, new technology and innovation to develop within the whole country, providing drivers for the local entities which lag behind.

Methodology

The construction of composite indicators is “a useful tool in policy analysis and public communication” [22, pp. 12-14], [30, pp.635-652] for comparison of counties regarding the level of their development in different fields (social, demographic, micro and macroeconomic,

business, ecological, educational, ICT, etc.). Instead of using a wide number of different individual indicators measuring counties’ performance, it is more appropriate to use one composite indicator for depicting complex issues in county development. For that reason and for the purpose of identifying the main disparities within the existing economic counties in Serbia, a composite index, Regional Development Index (RDI), was developed using Data Envelopment Analysis (DEA).

Data Envelopment Analysis (DEA) is a sort of methodology which constructs an ‘efficiency frontier’ based on each county’s individual data using mathematical linear programming. It determines the best practice by measuring the relative position of each of the counties in terms of the value of the set of observed indicators. Such presentation of existing county’s development in different fields and recommendations for possible improvement are clearer to the general public and non-scientific audience.

The very process of composite index construction is not that complex. It consists of four main phases: (1) identifying and analyzing individual indicators using multivariate statistics, (2) filling in the missing data, (3) normalization and, (4) defining the weight of sub-indexes and aggregation model.

The most complex and sensitive step in the process of composite index construction is choosing the aggregation and weights calculation method. Namely, the calculation of the composite index includes the determination of its individual sub-index weights. According to the relevant literature addressing the weighting procedures, one of the simplest ways of determination thereof would be to give equal importance and weight to all sub-indexes [32, pp. 293-296]. In such a way, for example, individual indicators within the Socio-Demographic sub-index would have a weight of 0.20, whereas in the case of the Local Infrastructure Development sub-index it would be 0.33. This was decided on the basis of DEA methodology. However, in order to determine the weights for each county and each individual indicator, the “Benefit of the Doubt” approach is used [4, pp. 435-440], [28, pp. 19-45]. This approach assumes that weights are endogenously determined by the observed performances and benchmark between counties. It is based on the linear combination of the observed best

performances. This combination of weights, calculated through the process of linear programming, enables the overall relative performance index for each county to become as high as possible.

In order to apply the DEA methodology and determine the weight, the values of all the individual indicators must be normalized. This is very important because different indicators are not expressed in the same manner. The raw values are normalized in the interval between 0 and 1 (the indicators with higher values represent better performance of a given country and vice versa).

According to several different authors [31, pp. 305-311], [33, pp. 291-297], [6, pp. 239-251], [5, pp. 111-145], [7], [15, pp.620-630], the basic DEA model assumed that sub-indexes' *CI* (composite indexes) for each county $j (j=0,1,...,m)$ are calculated as the weighted sum of n indicators where the weights are endogenously determined to maximize the value of the composite index for each county. Optimal weights should be determined by solving the next linear programming problem:

$$CI_j = \max \sum_{i=0}^n y_{ij} w_{ik} \tag{1}$$

where

$$\sum_{i=0}^n y_{ij} w_{ik} \leq 1 \tag{2}$$

and

$$w_{ij} \geq 0 \tag{3}$$

for any $i=0,1,...,n$, any $j=0,1,...,m$, and any $k =0,1,...,m$.

Another challenge in this methodology is the size of the data set necessary to complete the DEA analysis. There are several different opinions in the literature on what the optimal size is. Our analysis uses the rule of thumb proposed in [16, pp. 237-250], that the number of analyzed counties should be at least twice the number of indicators considered.

After the calculation of weights for each sub-index using the classical “Benefit of the Doubt” approach, we used the DEA Cross-Efficiency model in order to calculate their final values. Although classical DEA is suitable for identifying the best practice frontiers for each county, its self-evaluation feature has been criticized. In this paper, we used the cross-efficiency matrix that was developed as a DEA extension to rank the countries. This tool for results interpreting consists of a table where the number of rows (j) and columns (j) equals the number of counties in the analysis. For each cell (ij), the efficiency of counties was computed with weights that are optimal to county j [9, pp. 567-578].

RDI composite index construction for Serbia – county level

For each sub-index, a certain number of indicators are introduced (Table 1). Raw data values are given in Appendix 1.

Table 1: Statistical indicators forming the RDI and sub-indexes

Main index	Sub-index	Indicator used
Regional Development Index (RDI)	Socio-Demographic Index (SDI)	SD1 –Physicians per 1,000 people
		SD2 –Ageing rate
		SD3 –Net migration
		SD4 –Unemployment rate (in relation to active population)
	SMEs Development Index (SMDI)	SM1 –SMEs per capita (#)
		SM2 – GVA per capita (000 RSD)
		SM3 –Average employment in SMEs (#)
		SM4 – Profit rate (%)
	Local Infrastructure Development Index (LIDI)	LI1–Length of roads with modern carriageway as % of total road length
		LI2–Incentives for regional development (000 RSD per capita)
		LI3–Water connection rate (%)
		LI4–Computer-literate persons (%)
		LI5–Average net salary (RSD)

Source: Authors.

Table 2: Normalized values of individual indicators

County	SDI				SMED				LID				
	SD1	SD2	SD3	SD4	SM1	SM2	SM3	SM4	LI1	LI2	LI3	LI4	LI5
Belgrade	0.10	0.65	1.00	0.74	1.00	1.00	0.45	0.95	0.29	0.20	0.91	1.00	1.00
West Bačka	0.74	0.48	0.07	0.26	0.22	0.19	0.42	0.86	0.91	0.08	1.00	0.28	0.20
South Banat	0.53	0.65	0.08	0.44	0.44	0.19	0.05	0.70	0.88	0.09	0.95	0.77	0.57
South Bačka	0.25	0.79	0.30	0.51	0.77	0.58	0.46	0.96	1.00	0.12	1.00	0.38	0.64
North Banat	0.60	0.58	0.15	0.68	0.09	0.25	1.00	0.91	0.95	0.22	0.91	0.29	0.25
North Bačka	0.75	0.65	0.15	0.55	0.40	0.43	0.97	0.90	0.68	0.12	0.79	0.52	0.27
Middle Banat	0.73	0.61	0.08	0.43	0.14	0.25	0.72	0.97	0.95	0.06	0.82	0.35	0.27
Srem	1.00	0.63	0.10	0.52	0.42	0.40	0.65	0.93	0.84	0.08	0.87	0.31	0.27
Zlatibor	0.52	0.60	0.00	0.61	0.43	0.25	0.48	0.84	0.31	0.21	0.46	0.22	0.21
Kolubara	0.58	0.49	0.11	1.00	0.58	0.22	0.00	0.83	0.66	0.65	0.56	0.11	0.28
Mačva	0.74	0.63	0.04	0.55	0.29	0.20	0.40	0.92	0.25	0.05	0.43	0.04	0.14
Moravički	0.69	0.48	0.08	0.68	0.66	0.43	0.43	1.00	0.70	0.07	0.66	0.32	0.22
Pomoravski	0.31	0.42	0.09	0.35	0.34	0.16	0.38	0.87	0.74	0.47	0.39	0.14	0.08
Rasina	0.76	0.43	0.06	0.42	0.35	0.11	0.19	0.75	0.44	0.16	0.62	0.18	0.10
Raška	0.56	0.99	0.07	0.18	0.35	0.12	0.30	0.72	0.18	0.03	0.57	0.22	0.09
Šumadija	0.21	0.56	0.14	0.34	0.32	0.29	0.52	0.91	0.78	0.16	0.75	0.40	0.27
Bor	0.18	0.31	0.09	0.67	0.08	0.00	0.51	0.00	0.50	0.25	0.44	0.16	0.56
Braničevo	0.54	0.39	0.10	0.77	0.23	0.02	0.06	0.67	0.72	0.79	0.38	0.00	0.48
Zaječar	0.17	0.00	0.10	0.57	0.03	0.02	0.57	0.57	0.71	0.00	0.78	0.05	0.16
Jablanica	0.44	0.61	0.07	0.03	0.14	0.05	0.44	0.76	0.35	0.04	0.43	0.02	0.02
Niš	0.00	0.49	0.17	0.02	0.27	0.14	0.57	0.72	0.87	0.05	0.00	0.44	0.22
Pirot	0.34	0.19	0.12	0.07	0.05	0.09	0.98	0.73	0.49	0.14	0.50	0.17	0.29
Podunavski	0.68	0.63	0.08	0.42	0.18	0.08	0.03	0.81	0.94	1.00	0.41	0.20	0.27
Pčinja	0.41	1.00	0.06	0.00	0.38	0.08	0.34	0.39	0.00	0.22	0.72	0.10	0.00
Toplica	0.43	0.55	0.10	0.05	0.00	0.04	0.64	0.79	0.28	0.03	0.24	0.01	0.02

Source: Authors' own calculations.

Table 3: Correlation between individual indicators

Correlations	SD1	SD2	SD3	SD4	SM1	SM2	SM3	SM4	LI1	LI2	LI3	LI4	LI5
SD1	1.00	0.23	-0.42	0.19	-0.05	-0.05	-0.06	0.37	0.11	0.08	0.27	-0.17	-0.31
SD2	0.23	1.00	0.10	-0.22	0.41	0.30	-0.16	0.21	-0.27	-0.07	0.20	0.24	-0.03
SD3	-0.42	0.10	1.00	0.24	0.63	0.81	0.07	0.21	-0.07	-0.02	0.29	0.70	0.75
SD4	0.19	-0.22	0.24	1.00	0.40	0.38	-0.20	0.14	0.26	0.38	0.30	0.17	0.51
SM1	-0.05	0.41	0.63	0.40	1.00	0.84	-0.29	0.39	-0.04	0.02	0.38	0.62	0.56
SM2	-0.05	0.30	0.81	0.38	0.84	1.00	0.16	0.55	0.10	-0.16	0.52	0.76	0.66
SM3	-0.06	-0.16	0.07	-0.20	-0.29	0.16	1.00	0.14	0.07	-0.54	0.14	0.09	-0.09
SM4	0.37	0.21	0.21	0.14	0.39	0.55	0.14	1.00	0.33	-0.07	0.27	0.29	0.01
LI1	0.11	-0.27	-0.07	0.26	-0.04	0.10	0.07	0.33	1.00	0.21	0.30	0.24	0.24
LI2	0.08	-0.07	-0.02	0.38	0.02	-0.16	-0.54	-0.07	0.21	1.00	-0.25	-0.20	0.15
LI3	0.27	0.20	0.29	0.30	0.38	0.52	0.14	0.27	0.30	-0.25	1.00	0.49	0.38
LI4	-0.17	0.24	0.70	0.17	0.62	0.76	0.09	0.29	0.24	-0.20	0.49	1.00	0.71
LI5	-0.31	-0.03	0.75	0.51	0.56	0.66	-0.09	0.01	0.24	0.15	0.38	0.71	1.00

Source: Authors' own calculations.

The normalized values for the 13 indicators are calculated for 25 counties in Serbia: Belgrade, West Bačka, South Banat, South Bačka, North Banat, North Bačka, Middle Banat, Srem, Zlatibor, Kolubara, Mačva, Moravički, Pomoravski, Rasina, Raška, Šumadija, Bor, Braničevo, Zaječar, Jablanica, Niš, Pirot, Podunavski, Pčinja, Toplica. The raw data for the analysis were taken from the Statistical Office of the Republic of Serbia indicators database (Municipalities and Regions of the Republic of Serbia 2016). The normalized numerical values were calculated (Table 2).

Although it is expected that all correlation be positive, in several cases it can be noticed that there are trade-offs between several indicators – negative correlations (Table 3 presents Pearson correlation coefficients).

Within the Socio-Demographic Index, the negative correlation has been shown between SD1 (physicians per 1,000 people) and SD3 (net migration) indicators and between SD2 (ageing rate) and SD4 (unemployment rate) indicators. The first pair shows negative correlation because the larger number of physicians per 1,000 people is probably the relict of the previous period in former Yugoslav country where the sectors of health care and education were in much better position within the national economy than today. On the other hand, the age rate is very unfavorable as the consequence of negative population growth rate, and the correlation to the unemployment rate is negative, because it would be expected to have lower rate with such an old age structure of workforce.

Within the SMEs Development Index, this was the case between SM1 (SMEs per capita) and SM3 (average employment in SMEs) indicators. Precisely explaining negative correlation between SM1 and SM3 would require much more thorough analysis of data, not just at the county, but also at the municipality level. However, a logical explanation would be the fact that Serbia has areas (counties) where there are large factories and people predominantly work there. This means a smaller number of SMEs per capita. In such areas, SMEs are also associated with higher number of plants, as suppliers or manufacturers of certain components, and that is why we might expect them to be slightly 'larger'. In areas where there are no large companies – factories, there are more SMEs and the vast majority of

them are micro-enterprises, so it turns out that SMEs on average have a smaller number of employees. Of course, for each individual county, it is necessary to conduct a detailed analysis of the relationship between small and large enterprises and numbers of employees, but authors wanted to see if there are some common circumstances, universal factors and regularities.

Finally, within the Local Infrastructure Development sub-index, the negative correlation has been shown between LI2 (Subsidies for regional development), LI3 (Water connection rate) and LI4 (Computer-literate persons) indicators. To explain such a situation, we need to know the precise criteria according to which counties received these incentives. It would be logical that less developed counties got higher level of incentives, which would explain negative correlation. However, we also cannot deny political reasons for certain decisions – either in the form of not having enough capacities at the local level to propose projects or in the form of direct political influence.

Data Envelopment Analysis (DEA) could be an interesting choice of methodology for the purpose of identifying regional disparities and providing useful material for the regionalization process. However, there are certain limitations of DEA analysis, of which the authors of this paper were aware. In the first place, its static nature. With DEA it is only possible to estimate current level of development and weak areas of each county. We cannot analyze the causes and consequences of different development policies, because it requires a dynamic component. We made conclusions about regional development in Serbia based on historical data in the given year. It resulted in the problem of negative correlation between several indicators – DEA analysis cannot give an answer to why these socio-economic variables have opposite directions. This limitation of our analysis brought us before a dilemma whether this methodology is appropriate for the purpose of our research at all. We decided that this is a good methodology for identifying regional disparities in Serbia at a certain moment. The final conclusions were produced on theoretical research and analytical experience, especially in order to give another glance to the economic regionalization of Serbia. This limitation was also one of the reasons why it was

decided to consider DEA methodology as a tool for helping analysts to better understand the economic space within the existing Serbian economic counties and not for economic regionalization itself. However, further research within the improvement of DEA methodology could even bring about a new principle of future economic regionalization.

Results and discussion

Using the DEA methodology, several different indicators classified within sub-indexes were incorporated within the composite Regional Development Index (RDI). This index is calculated as the weight sum of the corresponding individual indicators, where the weights are endogenously determined by mathematical linear programming so as to obtain the maximum possible value of the RDI index

for each individual county. This way, the best possible combination of the individual indicators within a county's sub-index has been delivered (there is no other combination that will enable a county to achieve a greater RDI sub-index value). In other words, we consider the most favorable situation for each county.

Authors chose 12 indicators of the external environment and SMEs performance, grouped into 3 sub-indexes:

- Socio-Demographic Index (SDI) that shows the influence on demographic structure and the state of social implicates (population growth, age structure, migration flows and health care);
- SMEs Development Index (SMDI) calculated as the result of authors' effort to determine differences in SMEs performance across different counties in Serbia; and

Table 4: Calculated values of sub-indexes

County	Cross-efficiency DEA scores (average)				Cross-efficiency DEA ranks (average)			
	SDI	SMDI	LIDI	RDI	SDF	SMED	LID	RDI
Belgrade	1.00	0.95	0.97	0.97	2	4	5	2
West Bačka	0.69	0.85	0.96	0.83	17	13	4	8
South Banat	0.75	0.65	0.94	0.78	14	22	2	10
South Bačka	0.82	0.96	1.00	0.93	9	7	1	3
North Banat	0.82	0.96	0.93	0.90	6	2	3	1
North Bačka	0.87	0.95	0.79	0.87	4	1	10	5
Middle Banat	0.79	0.97	0.82	0.86	10	3	7	6
Srem	1.00	0.93	0.85	0.93	1	6	8	4
Zlatibor	0.71	0.84	0.46	0.67	12	11	20	14
Kolubara	1.00	0.77	0.66	0.81	3	17	11	9
Mačva	0.84	0.90	0.41	0.72	5	9	23	13
Moravički	0.81	1.00	0.66	0.82	8	5	14	7
Pomoravski	0.47	0.86	0.65	0.66	21	12	15	17
Rasina	0.73	0.72	0.61	0.69	16	19	16	18
Raška	1.00	0.71	0.55	0.75	7	18	21	16
Šumadija	0.56	0.91	0.78	0.75	18	8	9	12
Bor	0.60	0.04	0.50	0.38	19	25	17	25
Braničevo	0.78	0.61	0.73	0.71	13	23	12	15
Zaječar	0.32	0.57	0.72	0.53	23	21	13	22
Jablanica	0.61	0.76	0.41	0.59	20	16	22	21
Niš	0.39	0.72	0.05	0.39	24	15	24	24
Pirot	0.28	0.78	0.50	0.52	25	10	18	19
Podunavski	0.81	0.72	0.94	0.82	11	20	6	11
Pčinja	0.88	0.41	0.69	0.66	15	24	19	20
Toplica	0.57	0.79	0.24	0.53	22	14	25	23

Source: Authors' own calculations.

- Local Infrastructure Development Index (LIDI), the indicators are chosen to see if there were significant differences in infrastructure conditions that drove differences in SMEs development.

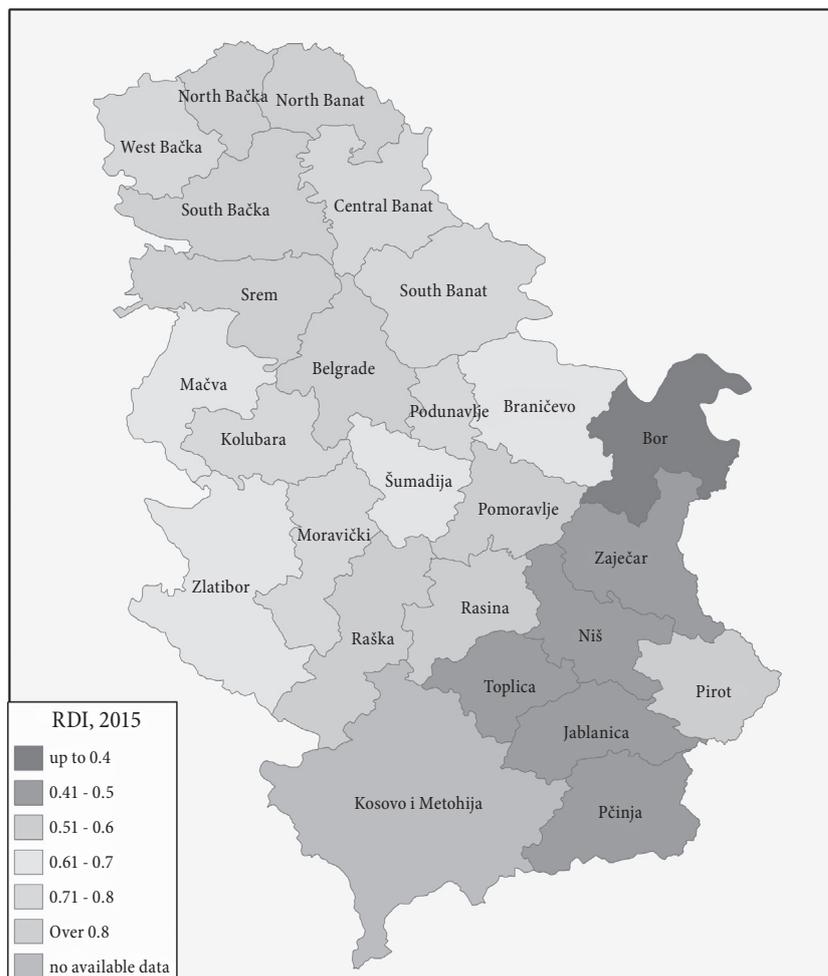
The resulting sub-indexes range between zero (the worst possible performance) and 1 (the best possible performance – benchmark) (Table 4). The optimal calculated set of weights provides the best position for the given county in relation to all other analyzed counties. Any other weighting profile would worsen the relative position of the given county. After creating a cross-efficiency matrix (explained above and presented in Appendix 2), the average values of weighted individual sub-indexes were calculated.

According to the rank level of RDI index, Serbian counties could be divided into three major groups which correspond to the expected general level of regional

economic development (more developed north in relation to the southern and eastern part of the country):

- Developed counties – the counties with better conditions and higher potential for business development and SMEs performance. They include Belgrade, Vojvodina and two counties from Šumadija and Western Serbia region (Moravički and Kolubarski counties);
- Medium-developed counties – most counties in Šumadija and Western Serbia region, which have lower score, conditions and potential insufficiently favorable for business development, as well as three counties from Southern and Eastern Serbia region (Podunavski, Braničevski and Pirotski counties); and
- Underdeveloped counties – most of the Southern and Eastern Serbia counties with significantly unfavorable conditions and potentials for business and SMEs performance.

Figure 2: Regional Development Index (RDI) in the Republic of Serbia, county level, 2015



Source: Authors' own calculations.

However, such general regionalization does have some exceptions, and on a more detailed level of analysis of sub-indexes regional distribution, as well as on a lower, municipality level of analysis, it would reveal a more realistic situation considering business conditions at a local or regional level.

Within the SDI, as expected, the least socially developed counties are those in the southern and eastern parts of the country (Pčinja, Jablanica, Pirot and Zaječar counties). According to the number of physicians per 1,000 people, unexpectedly, the worst situation is in Niš County (250), followed by Zaječar (299) and Bor County (302). Niš is the biggest city in Southern Serbia, and such low performance of this indicator shows diminishing trend of health and social care within local government during the last three decades (period of industrial production decline in Serbia and, especially, Niš County which once was the biggest in the country).

Similar trend could be noticed with the unemployment rate – the lowest performance is seen in southern and eastern counties, over 30 (with the exception of Bor County which has the unemployment rate of 19, due to the unsolved situation with RTB Bor restructuring).

Unfortunately, a relatively low social level of development fades into the background when the demographic situation is in question. The ageing rate shows some of the biggest problems of Serbian society and, further on, its economy as well: depopulation process and very unfavorable age structure of population. This is the result of two simultaneous processes: negative natural increase and strong emigration flow. Only two counties in Serbia record the ageing rate lower than 100 (Raška County with 88, due to the positive natural increase rate in Sjenica, Novi Pazar and Tutin municipalities, and Pčinja County with 87, due to the similar trend of natural increase in Preševo and Bujanovac municipalities). Some counties have ageing rates close to or even over 200, such as Pirot County (194) and Zaječar County (220). This kind of age structure shows that Serbian population as a whole shows old demographic age, with extremes in southeastern and eastern parts of the country (age rate over 40 is the limit above which population is considered to be old).

Low economic and social performance throughout a long period of time caused the continuity of migration flow from rural to urban areas within the whole Serbia (this migration started almost immediately after the Second World War, intensifying with restructuring and industrialization of the country during the 1950s and 1960s) [25, p. 168]. However, although it was logical for this kind of migration to decline with rural population reservoir diminishing, this did not occur in Serbia. Rural population continues to flow toward regional centers, and very often, from local towns or regional centers towards Belgrade (the lowest net migration happens in Zlatibor County (-1,173) and Mačva County (-834)). The consequence of this process is the decline of rural population and its very unfavorable age structure with inability of natural recovery in the future. The rural areas in Serbia are literally dying. At the same time, the migration flows are quite intensive toward Belgrade region from all over the country (Belgrade has the highest net migration, 7,507), as well as toward some regional centers from surrounding areas (Kragujevac in Šumadijski County (80), Niš in Niš County (283) or Novi Sad in South Bačka County (1,473)). Such demographic and social structure, regionally quite unbalanced, leaves little or no room for calculation or maneuver within available instruments of regional and economic development.

As it is expected, the Belgrade region leads in all observed SME indicators and, by far, the worst situation is in Southern and Eastern Serbia (performances of SMEs from Vojvodina are significantly lower than the Belgrade ones, a slightly worse situation is in Šumadija and Western Serbia region). According to the regional distribution of the SMDI, the group of counties with the best SME results includes Belgrade and all Vojvodina counties (with the exception of the South Banat County). However, if we include trade balance as an indicator in the calculation of SMDI in the analysis, the results would be different: Belgrade region would show quite lower results. The reason is a very high trade deficit produced by Belgrade SMEs (out of 25 counties, besides Belgrade, 12 have trade deficits, but the total of those deficits is almost 5 times smaller than the Belgrade one). In 2015, all SMEs in Serbia produced trade deficit of around 450 billion dinars, of

which more than 90% were created by Belgrade SMEs [17, pp. 13-27]. When comparing the contribution of foreign trade balance, measured by the coverage of imports by exports ratio, again the worst performers are Belgrade SMEs, with the ratio rising from 20% in 2008 to 35% in 2015. This is the consequence of bad sectoral structure – two most attractive sectors for small businesses by far are trade (wholesale and retail) and repair of motor vehicles and motorcycles and manufacturing (their share in turnover is almost 65%, in GAV around 51% and they employ around 56% of the total number of employees in SMEs sector) [17, pp. 13-27].

Transportation has a very significant influence on the development of economy, attraction of new foreign investments and increase in living conditions of citizens. The achieved development level of transport corridors is also often an issue for integration into the regional and world economy [2, pp. 3-7]. It is said very frequently that Serbia has a very favorable natural geographical position as its significant competitive advantage, but unfortunately that position is not utilized. Because of undeveloped infrastructure, our socio-economic development is limited. Besides, a significant amount of traffic through our country is lost due to investment in traffic infrastructure in neighboring countries [12, pp. 4-7]. Regarding the Local Infrastructure Development Index LIDI, the best conditions exist in Belgrade and four Vojvodina counties (South and West Bačka and South and North Banat counties). As one goes toward south, the infrastructure conditions worsen, especially toward Southern and Eastern Serbia (exceptions are the counties around big regional centers such as Kragujevac, Niš, Čačak). In Pčinjski County, the share of modern roads is only 36%, while in Raški County it is 47%.

Within the LIDI, the authors have opted for the share of households connected to the city water supply in total number of households as one of the indicators of local infrastructure development. The differences in the use of water and sanitation could be assessed in terms of availability, quality, acceptability, accessibility and affordability. As expected, Belgrade and all Vojvodina counties have the highest percentage of households with access to city water supply (around and higher than 90%,

while in Southern and Eastern Serbian counties, it is worse: in Niš County, slightly less than 50% of households are connected to the city water supply, while in Toplica County around 60%). However, regional distribution of this indicator shows the actual capacity and willingness of local governments (Zaječar and Pčinja counties have access to city water supply higher than 80%). The number of households that are connected to the city sewer is significantly lower, especially in rural areas.

Although the average salary is mostly considered to be an economic indicator, it was classified among LIDI because it reflects the differences in economic development of different areas. The level of this indicator has twofold meaning. On the one hand, a higher salary could mean higher purchasing power (the indicator should be corrected with some price index), and on the other hand, that is a component of cost price of given production. Since cheap labor is very often stressed as its competitive advantage, when calculating RDI, authors accepted the second approach (the counties with lower average salary could have higher potential in attracting investments). The employees earn the most in Belgrade (around 125% of the Serbian average) and two Vojvodina counties have higher salary than the Serbian average (South Bačka and South Banat). While the rest of Serbian counties are below the national average, the exception is only Bor County in the Southern and Eastern Serbia region, in which this indicator is unexpectedly high (the consequence of a relatively high salary in mining and metal sectors). Again, the lowest level of indicator is recorded in three Southern and Eastern counties: Toplica, Jablanica and Pčinja counties, with around 75% of Serbian average.

Regional development incentives, financing through concrete investment projects or directing investments for projects of special importance for regional development, show the capacity of local environment. There are different kinds of projects that have been implemented on local and regional levels: the construction or reconstruction of utility, economic, environmental, energy, social and other infrastructure, building and strengthening institutions, human resources, development of companies and entrepreneurship, stimulation of scientific and research work. Incentives in different forms and with various

characteristics are granted to all sectors and to individuals, legal entities and groups [3]. The highest amount of incentives for regional development per capita in 2015 was awarded to two counties from Southern and Eastern Serbia – Podunavski County, slightly above 54,000 dinars per capita and Braničevo County with almost 40,000 dinars per capita (thermal power plant). According to the size of subsidies, these counties were followed by the counties from Šumadija and Western Serbia regions (Kolubara and Pomoravski counties with 36,600 and 28,200 dinars per capita, respectively). All other counties received incentives lower than 17,000 dinars per capita. It is very interesting that almost all counties from Vojvodina had incentives for regional development lower than 10,000 dinars per capita and the lowest amount by far was granted to Zaječar, Toplica and Raška counties (4,700, 5,900 and 6,000 dinars per capita, respectively). There is, also, one more question considering the policy of incentives and project management, especially at the local level, related to the management instruments for incentives, which largely depends on social and demographic structure (educational structure with a spatial reference to the technological equipment and literacy).

Only Belgrade and South Banat County have more than 40% of computer-literate persons. Other Vojvodina counties record between 30 and 35%, while the lowest ratio is seen in the Southern and Eastern Serbian counties (Braničevo, Toplica and Jablanica counties, 23% and lower). Today's way of doing business largely depends on computer literacy and the adoption, use and speed of information and communication technologies. The counties that are not able to actively embrace the digital economy will have to accept the fact that one more barrier is being created between them and developed counties and the existing gap is increasing. The significance that the digital divide will have for further development of Serbian economy can be compared to the importance of the divide between the literate and illiterate. On the other hand, counties that have poorly developed information technology infrastructure can find themselves in a 'technology trap'. The digital economy cannot develop in counties that do not invest in the creation and continuous improvement of broadband and computer networks. It can be noticed that undeveloped counties are

far behind developed counties when it comes to internet and communications infrastructure. In such counties, yields from information technology and its associated infrastructure are very small. In addition, undeveloped counties still suffer from traditional forms of poverty (lack of basic infrastructure, such as waste water treatment plants, solid waste treatment and adequate health and education services). This raises the question of whether these counties should divert already scarce resources to close the digital divide [21, pp. 102-111].

Conclusion

The Republic of Serbia is trying to find the best appropriate way to develop its economy in the process of EU accession. However, today its economy is still not sufficiently competitive compared to EU economic space. Serbia has not yet managed to create an adequate environment that would be supportive of business development, especially SMEs development. Contrary to popular opinion, analysis showed that a large part of Serbian territory does not have enough potential and adequate conditions for competitive development. There is a pronounced trend of economic and demographic decline south of Belgrade line. The growth model of Serbian economy established in 2000s was based on demand, financed with foreign capital in form of bank credits, privatization revenues and remittances. Current situation regarding the production for export (while domestic market is too shallow, and, thus, not sufficient for more intensive growth of the production and employment) is not encouraging. This inflow of funds was not used to create strong export capacities and to raise productivity, and only if investments raise competitiveness, productivity, production and export, can they help solving a high trade balance deficit problem.

Besides the expected obstacles during and after the transition process, Serbia is facing one more serious problem – uneven regional development [19]. As regards the demographic, social and economic indicators, Serbia is at the very top among European countries by its regional disparities. What is more, these differences do not diminish over time, but grow, leaving already underdeveloped areas far away from EU-28 average (if we analyze GDP per capita

in purchasing power terms, in comparison to EU-28, Belgrade region is around 60%, Vojvodina region 35%, Šumadija and Western Serbia region 23% and Southern and Eastern Serbia region 21% of EU-28 GDP per capita, ppp) [18, p. 14].

There is no doubt that Belgrade is the most developed region, followed by Vojvodina, with a trend of concentrating business activities in Belgrade City and South Bačka County (Belgrade GDP per capita is significantly above Serbian average, while in Vojvodina it is on national average). Going south, almost all indicators for years are showing diminishing trend, which indicates the need for more balanced management (the southern counties must primarily be helped to reverse the trend and create more favorable business conditions). The lagging counties in the South need serious help in different segments of economy and society.

Furthermore, the Central Serbia area is not homogenous in relation to socio-economic development. For example, Zaječar and Bor counties were usually classified in the group of counties with insufficient level of competitiveness, which RDI analysis strongly confirmed with unequivocally unfavorable conditions and potentials for business development. Zaječar County has some basic infrastructural conditions, but its score of socio-demographic factors is among the worst and it got least government support. Bor County, on the other hand, has a higher level of salaries and received high regional development incentives (development was based on mining and metallurgy), but it has low values of socio-demographic, local infrastructure indicators, and the lowest indicators of SMEs development (with monostructural economy and depending on one company, with bad transition, obsolete technology, drop in the copper price on the world market and lower quality of ore deposits, this county is facing a significant reduction in production, decline in living standards, rising unemployment and open question of RTB Bor restructuring). Another example are two counties in the western part of Central Serbia - Moravički and Kolubarski counties, usually classified as counties with insufficient and low level of competitiveness, respectively. But RDI analysis showed that these two counties have greater potential and better conditions for business development. Indicators of SMEs development

for Moravički County are among the highest, its socio-demographic indicators are quite favorable, but it does not have such good performance in local infrastructure conditions. Kolubarski County has a bit lower RDI rank than Moravički, because of the lower value of SMEs development and performance indicators, but it has good development potential according to the socio-demographic indicators, and also local infrastructure indices.

In the era of technology and knowledge-based world economy, Serbia must find an adequate growth model and way to utilize its competitive advantages in order to find its place in sophisticated and demanding European market [24]. Investments in production, infrastructure, science and education are necessary. Further development of SMEs sector in Serbia requires comprehensive government support that would be designed to target specific needs and problems of this sector. Special attention should be devoted to the less developed areas, where a pronounced trend of demographic ageing and depopulation is going on. Facilitating the development of small business could help slow down this trend (employing local inhabitants and raising their standard of living). Targeting specific local needs and problems through the creation of adequate managerial instruments on a local level is the way to raise the level of competencies and capacities of local government. However, current type of regionalization – asymmetrical regionalization, left the Central Serbian counties without the middle level of government, and, thus, without regional mechanisms of financial assistance and coordination. Without questioning the current territorial organization of country, it is certain that it would be desirable to develop demographic, social and economic structure at the regional and local level in order to create sustainable mechanism for a more balanced regional development in Serbia.

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Appendix 1: Raw values data used to calculate RDI

County	Socio-Demographic Index (SDI)				SMEs Development Index (SMDI)				Local Infrastructure Development Index (LIDI)				
	SD1	SD2	SD3	SD4	SM1	SM2	SM3	SM4	LI1	LI2	LI3	LI4	LI5
	Physicians per 1,000 people	Ageing rate	Net migration	Unemployment rate (in relation to active population)	SMEs per capita (#)	GVA per capita (000 RSD)	Average employment in SMEs (#)	Profit rate (%)	Length of roads with modern carriageway as % of total road length	Incentives for regional development (000 RSD per capita)	Water connection rate (%)	Computer-literate persons (%)	Average net salary (RSD)
Belgrade	279.52	132.85	7,505.00	17.88	62.73	287.75	2.49	37.60	0.54	14.59	0.94	0.48	55,551
West Bačka	458.26	156.20	-548.00	27.04	34.98	102.67	2.44	34.40	0.92	8.81	0.99	0.30	37,593
South Banat	400.56	133.26	-467.00	23.68	42.67	101.17	1.96	28.10	0.90	9.14	0.96	0.42	45,928
South Bačka	319.38	114.49	1,473.00	22.34	54.64	191.13	2.49	38.30	0.97	10.59	0.98	0.32	47,445
North Banat	418.97	142.07	120.00	19.00	30.36	114.88	3.20	36.20	0.94	15.52	0.94	0.30	38,630
North Bačka	459.62	133.50	120.00	21.47	41.20	155.79	3.16	35.80	0.78	10.45	0.88	0.36	39,216
Middle Banat	455.35	138.71	-442.00	23.78	31.90	114.92	2.83	38.70	0.94	7.78	0.90	0.31	39,054
Srem	531.17	135.60	-262.00	22.04	41.92	151.00	2.75	37.00	0.87	8.60	0.92	0.30	39,195
Zlatibor	397.42	140.10	-1,173.00	20.44	42.41	116.33	2.53	33.50	0.55	14.86	0.72	0.28	37,875
Kolubara	412.48	154.90	-182.00	12.90	47.85	109.67	1.90	33.30	0.76	36.60	0.77	0.25	39,404
Mačva	457.92	135.20	-834.00	21.50	37.47	104.88	2.43	36.70	0.51	7.15	0.70	0.23	36,233
Moravički	443.17	155.50	-510.00	19.06	50.72	157.28	2.46	39.70	0.79	8.30	0.82	0.31	38,103
Pomoravski	338.51	163.94	-401.00	25.32	38.99	94.67	2.39	34.80	0.82	28.16	0.68	0.26	34,767
Rasina	462.82	162.97	-673.00	24.01	39.68	82.89	2.15	30.20	0.63	12.70	0.80	0.27	35,224
Raška	407.16	88.09	-524.00	28.60	39.47	85.52	2.30	29.00	0.47	6.04	0.78	0.28	35,103
Šumadija	309.45	145.30	80.00	25.55	38.53	125.68	2.58	36.20	0.84	12.38	0.86	0.33	39,026
Bor	302.00	178.79	-393.00	19.28	29.70	58.18	2.56	1.10	0.67	17.13	0.71	0.27	45,581
Braničevo	402.97	167.76	-262.00	17.31	35.07	63.75	1.98	27.10	0.80	43.70	0.68	0.23	43,761
Zaječar	299.29	219.58	-285.00	21.08	28.11	62.95	2.64	23.00	0.79	4.68	0.88	0.24	36,716
Jablanica	374.55	138.62	-590.00	31.44	32.12	68.87	2.47	30.30	0.58	6.55	0.70	0.23	33,502
Niš	250.40	153.93	283.00	31.67	36.56	90.99	2.65	28.80	0.90	7.25	0.49	0.34	37,993
Pirot	346.83	193.76	-135.00	30.70	28.93	77.97	3.18	29.10	0.66	11.39	0.74	0.27	39,548
Podunavski	440.49	135.54	-486.00	24.00	33.50	77.68	1.93	32.40	0.94	54.13	0.70	0.28	39,183
Pčinja	365.76	86.59	-691.00	32.10	40.71	76.90	2.34	16.20	0.36	15.66	0.85	0.25	33,054
Toplica	371.97	146.07	-310.00	31.16	27.00	67.94	2.73	31.60	0.53	5.95	0.61	0.23	33,569

Appendix 2: DEA - Cross efficiency matrices

Socio-Demographic Dimension (scores)	Belgrade	West Bačka	South Banat	South Bačka	North Banat	North Bačka	Middle Banat	Srem	Zlatibor	Kolubara	Mačva	Moravički	Pomoravski	Rasina	Raška	Šumadija	Bor	Branicevo	Zaječar	Jablanica	Niš	Pirot	Podunavski	Pčinja	Toplica
Belgrade	1.00	0.51	1.00	1.00	1.00	1.00	0.88	0.10	0.88	0.74	0.88	0.52	1.00	0.52	0.51	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.65	1.00
West Bačka	0.07	0.75	0.69	0.58	0.69	0.69	0.69	0.74	0.69	0.26	0.69	0.67	0.69	0.67	0.75	0.58	0.28	0.67	0.28	0.74	0.49	0.74	0.69	0.48	0.74
South Banat	0.08	0.75	0.85	0.83	0.85	0.85	0.85	0.53	0.85	0.44	0.85	0.63	0.85	0.63	0.75	0.83	0.45	0.64	0.45	0.76	0.67	0.56	0.85	0.65	0.76
South Bačka	0.30	0.69	0.95	1.00	0.95	0.95	0.92	0.25	0.92	0.51	0.92	0.48	0.95	0.48	0.69	1.00	0.58	0.60	0.58	0.82	0.88	0.50	0.92	0.79	0.82
North Banat	0.15	0.74	0.94	0.90	0.94	0.94	0.93	0.60	0.93	0.68	0.93	0.82	0.94	0.82	0.74	0.90	0.70	0.85	0.70	0.78	0.62	0.68	0.93	0.58	0.78
North Bačka	0.15	0.87	0.97	0.89	0.97	0.97	0.96	0.75	0.96	0.55	0.96	0.84	0.97	0.84	0.87	0.89	0.58	0.87	0.58	0.90	0.69	0.81	0.96	0.65	0.90
Middle Banat	0.08	0.83	0.87	0.79	0.87	0.87	0.87	0.73	0.87	0.43	0.87	0.76	0.87	0.76	0.83	0.79	0.44	0.76	0.44	0.83	0.63	0.74	0.87	0.61	0.83
Srem	0.10	1.00	1.00	0.86	1.00	1.00	1.00	1.00	1.00	0.52	1.00	1.00	1.00	1.00	1.00	0.86	0.54	1.00	0.54	1.00	0.66	1.00	1.00	0.63	1.00
Zlatibor	0.00	0.71	0.88	0.88	0.88	0.88	0.89	0.52	0.89	0.61	0.89	0.73	0.88	0.73	0.71	0.88	0.59	0.68	0.59	0.68	0.59	0.47	0.89	0.60	0.68
Kolubara	0.11	0.66	1.00	0.99	1.00	1.00	1.00	0.58	1.00	1.00	1.00	1.00	1.00	1.00	0.66	0.99	1.00	1.00	1.00	0.69	0.52	0.63	1.00	0.49	0.69
Mačva	0.04	0.86	0.94	0.88	0.94	0.94	0.95	0.74	0.95	0.55	0.95	0.84	0.94	0.84	0.86	0.88	0.54	0.81	0.54	0.83	0.64	0.70	0.95	0.63	0.83
Moravički	0.08	0.72	0.87	0.81	0.87	0.87	0.87	0.69	0.87	0.68	0.87	0.88	0.87	0.88	0.72	0.81	0.68	0.87	0.68	0.72	0.50	0.69	0.87	0.48	0.72
Pomoravski	0.09	0.47	0.58	0.57	0.58	0.58	0.57	0.31	0.57	0.35	0.57	0.43	0.58	0.43	0.47	0.57	0.37	0.45	0.37	0.49	0.44	0.36	0.57	0.42	0.49
Rasina	0.06	0.72	0.73	0.62	0.73	0.73	0.73	0.76	0.73	0.42	0.73	0.77	0.73	0.77	0.72	0.62	0.42	0.76	0.42	0.71	0.44	0.74	0.73	0.43	0.71
Raška	0.07	1.00	1.00	1.00	1.00	1.00	1.00	0.56	1.00	0.18	1.00	0.49	1.00	0.49	1.00	1.00	0.20	0.50	0.20	1.00	1.00	0.57	1.00	0.99	1.00
Šumadija	0.14	0.51	0.66	0.70	0.66	0.66	0.65	0.21	0.65	0.34	0.65	0.35	0.66	0.35	0.51	0.70	0.37	0.40	0.37	0.56	0.60	0.32	0.65	0.56	0.56
Bor	0.09	0.32	0.60	0.65	0.60	0.60	0.60	0.18	0.60	0.67	0.60	0.53	0.60	0.53	0.32	0.65	0.67	0.54	0.67	0.35	0.33	0.25	0.60	0.31	0.35
Branicevo	0.10	0.58	0.81	0.78	0.81	0.81	0.81	0.54	0.81	0.77	0.81	0.84	0.81	0.84	0.58	0.78	0.77	0.84	0.77	0.60	0.42	0.59	0.81	0.39	0.60
Zaječar	0.10	0.10	0.32	0.31	0.32	0.32	0.32	0.17	0.32	0.57	0.32	0.47	0.32	0.47	0.10	0.31	0.58	0.49	0.58	0.14	0.04	0.25	0.32	0.00	0.14
Jablanica	0.07	0.67	0.61	0.57	0.61	0.61	0.61	0.44	0.61	0.03	0.61	0.32	0.61	0.32	0.67	0.57	0.05	0.34	0.05	0.68	0.62	0.46	0.61	0.61	0.68
Niš	0.17	0.34	0.41	0.46	0.41	0.41	0.39	0.00	0.39	0.02	0.39	0.01	0.41	0.01	0.34	0.46	0.07	0.10	0.07	0.42	0.54	0.15	0.39	0.49	0.42
Pirot	0.12	0.33	0.29	0.22	0.29	0.29	0.28	0.34	0.28	0.07	0.28	0.28	0.29	0.28	0.33	0.22	0.10	0.33	0.10	0.37	0.23	0.42	0.28	0.19	0.37
Podunavski	0.08	0.82	0.87	0.81	0.87	0.87	0.87	0.68	0.87	0.42	0.87	0.72	0.87	0.72	0.82	0.81	0.43	0.72	0.43	0.82	0.65	0.68	0.87	0.63	0.82
Pčinja	0.06	0.93	0.88	0.91	0.88	0.88	0.88	0.41	0.88	0.00	0.88	0.28	0.88	0.28	0.93	0.91	0.02	0.30	0.02	0.92	1.00	0.42	0.88	1.00	0.92
Toplica	0.10	0.63	0.57	0.53	0.57	0.57	0.57	0.43	0.57	0.05	0.57	0.33	0.57	0.33	0.63	0.53	0.08	0.36	0.08	0.65	0.58	0.48	0.57	0.55	0.65

SMEs Development Dimension (scores)	Belgrade	West Bačka	South Banat	South Bačka	North Banat	North Bačka	Middle Banat	Srem	Zlatibor	Kolubara	Mačva	Moravički	Pomoravski	Rasina	Raška	Šumadija	Bor	Branicevo	Zaječar	Jablanica	Niš	Pirot	Podunavski	Pčinja	Toplica
Belgrade	1.00	0.95	0.95	1.00	0.45	0.56	0.99	1.00	0.98	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.56	0.95	0.92	0.95	0.98	0.45	0.95	1.00	0.92
West Bačka	0.19	0.87	0.86	0.83	0.42	0.44	0.84	0.85	0.85	0.81	0.87	0.86	0.87	0.86	0.86	0.87	0.44	0.86	0.84	0.87	0.85	0.42	0.86	0.47	0.84
South Banat	0.19	0.68	0.70	0.64	0.05	0.09	0.63	0.65	0.65	0.70	0.68	0.70	0.68	0.70	0.70	0.68	0.09	0.70	0.62	0.68	0.65	0.05	0.70	0.32	0.62
South Bačka	0.58	0.97	0.96	0.99	0.46	0.53	0.97	0.99	0.98	0.98	0.97	0.96	0.97	0.96	0.96	0.97	0.53	0.96	0.94	0.97	0.98	0.46	0.96	0.85	0.94
North Banat	0.25	0.96	0.91	0.98	1.00	1.00	1.00	0.99	1.00	0.83	0.96	0.91	0.96	0.91	0.91	0.96	1.00	0.91	1.00	0.96	1.00	1.00	0.91	0.83	1.00
North Bačka	0.43	0.95	0.90	1.00	0.97	1.00	1.00	1.00	1.00	0.87	0.95	0.90	0.95	0.90	0.90	0.95	1.00	0.90	0.98	0.95	1.00	0.97	0.90	1.00	0.98
Middle Banat	0.25	1.00	0.97	0.98	0.72	0.73	1.00	1.00	1.00	0.90	1.00	0.97	1.00	0.97	0.97	1.00	0.73	0.97	1.00	1.00	1.00	0.72	0.97	0.64	1.00
Srem	0.40	0.95	0.93	0.96	0.65	0.69	0.96	0.97	0.97	0.90	0.95	0.93	0.95	0.93	0.93	0.95	0.69	0.93	0.95	0.95	0.97	0.65	0.93	0.77	0.95
Zlatibor	0.25	0.85	0.84	0.85	0.48	0.52	0.84	0.85	0.85	0.82	0.85	0.84	0.85	0.84	0.84	0.85	0.52	0.84	0.83	0.85	0.85	0.48	0.84	0.65	0.83
Kolubara	0.22	0.80	0.83	0.76	0.00	0.06	0.74	0.76	0.77	0.84	0.80	0.83	0.80	0.83	0.83	0.80	0.06	0.83	0.73	0.80	0.77	0.00	0.83	0.38	0.73
Mačva	0.20	0.92	0.92	0.89	0.40	0.43	0.89	0.90	0.90	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.43	0.92	0.89	0.92	0.90	0.40	0.92	0.50	0.89
Moravički	0.43	1.00	1.00	1.00	0.43	0.50	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50	1.00	0.96	1.00	1.00	0.43	1.00	0.76	0.96
Pomoravski	0.16	0.87	0.87	0.84	0.38	0.41	0.84	0.85	0.86	0.84	0.87	0.87	0.87	0.87	0.87	0.87	0.41	0.87	0.84	0.87	0.86	0.38	0.87	0.51	0.84
Rasina	0.11	0.74	0.75	0.71	0.19	0.23	0.70	0.71	0.72	0.73	0.74	0.75	0.74	0.75	0.75	0.74	0.23	0.75	0.70	0.74	0.72	0.19	0.75	0.38	0.70

EKONOMIKA PREDUZEĆA

SMEs Development Dimension (scores)	Belgrade	West Bačka	South Banat	South Bačka	North Banat	North Bačka	Middle Banat	Srem	Zlatibor	Kolubara	Mačva	Moravički	Pomoravski	Rasina	Raška	Šumadija	Bor	Braničevo	Zaječar	Jablanica	Niš	Pirot	Podunavski	Pčinja	Toplica
Raška	0.12	0.72	0.72	0.71	0.30	0.34	0.69	0.71	0.71	0.70	0.72	0.72	0.72	0.72	0.72	0.72	0.34	0.72	0.70	0.72	0.71	0.30	0.72	0.46	0.70
Šumadija	0.29	0.92	0.91	0.90	0.52	0.55	0.91	0.92	0.92	0.87	0.92	0.91	0.92	0.91	0.91	0.92	0.55	0.91	0.90	0.92	0.92	0.52	0.91	0.61	0.90
Bor	0.00	0.04	0.00	0.12	0.51	0.51	0.10	0.10	0.10	0.01	0.04	0.00	0.04	0.00	0.00	0.04	0.51	0.00	0.10	0.04	0.10	0.51	0.00	0.44	0.10
Braničevo	0.02	0.65	0.67	0.60	0.06	0.08	0.59	0.61	0.61	0.64	0.65	0.67	0.65	0.67	0.67	0.65	0.08	0.67	0.60	0.65	0.61	0.06	0.67	0.19	0.60
Zaječar	0.02	0.60	0.57	0.60	0.57	0.56	0.60	0.60	0.61	0.52	0.60	0.57	0.60	0.57	0.57	0.60	0.56	0.57	0.61	0.60	0.61	0.57	0.57	0.45	0.61
Jablanica	0.05	0.77	0.76	0.74	0.44	0.45	0.74	0.75	0.76	0.70	0.77	0.76	0.77	0.76	0.76	0.77	0.45	0.76	0.75	0.77	0.76	0.44	0.76	0.43	0.75
Niš	0.14	0.74	0.72	0.75	0.57	0.59	0.74	0.75	0.76	0.69	0.74	0.72	0.74	0.72	0.72	0.74	0.59	0.72	0.75	0.74	0.76	0.57	0.72	0.61	0.75
Pirot	0.09	0.78	0.73	0.82	0.98	0.98	0.82	0.82	0.83	0.66	0.78	0.73	0.78	0.73	0.73	0.78	0.98	0.73	0.83	0.78	0.83	0.98	0.73	0.79	0.83
Podunavski	0.08	0.78	0.81	0.70	0.03	0.05	0.71	0.72	0.72	0.76	0.78	0.81	0.78	0.81	0.81	0.78	0.05	0.81	0.72	0.78	0.72	0.03	0.81	0.14	0.72
Pčinja	0.08	0.41	0.39	0.44	0.34	0.38	0.41	0.42	0.43	0.41	0.41	0.39	0.41	0.39	0.39	0.41	0.38	0.39	0.41	0.41	0.43	0.34	0.39	0.51	0.41
Toplica	0.04	0.82	0.79	0.79	0.64	0.63	0.81	0.81	0.82	0.71	0.82	0.79	0.82	0.79	0.79	0.82	0.63	0.79	0.82	0.82	0.82	0.64	0.79	0.49	0.82

Local Infrastructure Development Dimension (scores)	Belgrade	West Bačka	South Banat	South Bačka	North Banat	North Bačka	Middle Banat	Srem	Zlatibor	Kolubara	Mačva	Moravički	Pomoravski	Rasina	Raška	Šumadija	Bor	Braničevo	Zaječar	Jablanica	Niš	Pirot	Podunavski	Pčinja	Toplica
Belgrade	1.00	0.87	1.00	1.00	0.97	1.00	0.29	0.94	1.00	0.97	0.93	0.54	0.30	0.97	0.99	0.56	1.00	1.00	0.92	0.93	0.54	0.97	0.20	0.97	0.29
West Bačka	0.28	0.95	0.99	0.58	0.98	0.96	0.91	1.00	0.98	0.98	1.00	0.89	0.91	0.98	0.99	0.89	0.60	0.28	1.00	1.00	0.89	0.98	0.08	0.98	0.91
South Banat	0.77	0.91	1.00	0.89	0.94	1.00	0.88	0.97	0.96	0.94	0.95	1.00	0.88	0.94	1.00	1.00	0.88	0.58	0.96	0.95	1.00	0.94	0.09	0.94	0.88
South Bačka	0.38	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.66	1.00	1.00	1.00	1.00	0.12	1.00	1.00
North Banat	0.29	0.87	0.92	0.64	0.98	0.97	0.95	0.91	0.98	0.98	0.93	0.93	0.96	0.98	0.91	0.94	0.70	0.42	0.91	0.93	0.93	0.98	0.22	0.98	0.95
North Bačka	0.52	0.75	0.82	0.54	0.81	0.83	0.68	0.80	0.81	0.81	0.79	0.76	0.69	0.81	0.82	0.76	0.57	0.35	0.79	0.79	0.76	0.81	0.12	0.81	0.68
Middle Banat	0.35	0.78	0.83	0.65	0.80	0.83	0.95	0.83	0.81	0.80	0.82	0.95	0.95	0.80	0.83	0.94	0.66	0.31	0.82	0.82	0.95	0.80	0.06	0.80	0.95
Srem	0.31	0.83	0.87	0.61	0.86	0.85	0.84	0.88	0.86	0.86	0.87	0.84	0.84	0.86	0.87	0.83	0.62	0.33	0.87	0.87	0.84	0.86	0.08	0.86	0.84
Zlatibor	0.22	0.44	0.48	0.32	0.56	0.54	0.31	0.47	0.56	0.56	0.48	0.34	0.32	0.56	0.47	0.36	0.38	0.35	0.46	0.48	0.34	0.56	0.21	0.56	0.31
Kolubara	0.11	0.54	0.61	0.54	0.92	0.88	0.66	0.56	0.92	0.92	0.64	0.62	0.69	0.92	0.56	0.68	0.75	0.75	0.57	0.64	0.62	0.92	0.65	0.92	0.66
Mačva	0.04	0.41	0.42	0.23	0.43	0.39	0.25	0.42	0.42	0.43	0.43	0.23	0.25	0.43	0.42	0.23	0.24	0.17	0.43	0.43	0.23	0.43	0.05	0.43	0.25
Moravički	0.32	0.63	0.67	0.51	0.66	0.68	0.70	0.67	0.66	0.66	0.66	0.72	0.70	0.66	0.67	0.72	0.52	0.27	0.66	0.66	0.72	0.66	0.07	0.66	0.70
Pomoravski	0.14	0.37	0.43	0.40	0.65	0.66	0.74	0.39	0.65	0.65	0.44	0.70	0.77	0.65	0.39	0.75	0.57	0.44	0.39	0.44	0.70	0.65	0.47	0.65	0.74
Rasina	0.18	0.59	0.62	0.28	0.67	0.64	0.44	0.62	0.67	0.67	0.63	0.44	0.45	0.67	0.61	0.46	0.33	0.23	0.62	0.63	0.44	0.67	0.16	0.67	0.44
Raška	0.22	0.55	0.57	0.16	0.55	0.51	0.18	0.58	0.55	0.55	0.57	0.23	0.18	0.55	0.58	0.23	0.16	0.13	0.57	0.57	0.23	0.55	0.03	0.55	0.18
Šumadija	0.40	0.71	0.77	0.58	0.79	0.81	0.78	0.76	0.80	0.79	0.76	0.81	0.79	0.79	0.76	0.82	0.62	0.37	0.75	0.76	0.81	0.79	0.16	0.79	0.78
Bor	0.16	0.42	0.46	0.71	0.57	0.56	0.50	0.44	0.57	0.57	0.47	0.49	0.51	0.57	0.44	0.51	0.76	0.66	0.45	0.47	0.49	0.57	0.25	0.57	0.50
Braničevo	0.00	0.36	0.44	0.74	0.84	0.80	0.72	0.38	0.83	0.84	0.48	0.65	0.77	0.84	0.37	0.73	0.99	1.00	0.39	0.48	0.65	0.84	0.79	0.84	0.72
Zaječar	0.05	0.74	0.75	0.45	0.73	0.68	0.71	0.77	0.72	0.73	0.77	0.65	0.70	0.73	0.76	0.63	0.44	0.17	0.78	0.77	0.65	0.73	0.00	0.73	0.71
Jablanica	0.02	0.41	0.41	0.17	0.42	0.39	0.35	0.42	0.42	0.42	0.43	0.32	0.35	0.42	0.41	0.32	0.19	0.07	0.43	0.43	0.32	0.42	0.04	0.42	0.35
Niš	0.44	0.00	0.06	0.58	0.03	0.20	0.87	0.02	0.05	0.03	0.01	0.90	0.87	0.03	0.05	0.90	0.58	0.21	0.00	0.01	0.90	0.03	0.05	0.03	0.87
Pirot	0.17	0.48	0.51	0.47	0.55	0.54	0.49	0.50	0.55	0.55	0.51	0.48	0.49	0.55	0.50	0.49	0.50	0.36	0.50	0.51	0.48	0.55	0.14	0.55	0.49
Podunavski	0.20	0.39	0.51	0.65	1.00	1.00	0.94	0.42	1.00	1.00	0.54	0.89	1.00	1.00	0.42	1.00	1.00	1.00	0.42	0.54	0.89	1.00	1.00	1.00	0.94
Pčinja	0.10	0.69	0.72	0.00	0.81	0.69	0.00	0.72	0.80	0.81	0.74	0.03	0.02	0.81	0.71	0.05	0.08	0.21	0.72	0.74	0.03	0.81	0.22	0.81	0.00
Toplica	0.01	0.23	0.24	0.14	0.24	0.23	0.28	0.24	0.24	0.24	0.24	0.26	0.28	0.24	0.24	0.25	0.15	0.05	0.24	0.24	0.26	0.24	0.03	0.24	0.28



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A SURVEY OF THE USE AND PURPOSE OF SPREADSHEETS IN SMES IN SERBIA

Istraživanje upotrebe i svrhe programa za tabelarne kalkulacije u mikro, malim i srednjim preduzećima u Srbiji

Abstract

Due to their unique simplicity and flexibility, spreadsheets are nowadays used for various purposes, from financial calculations, planning and data aggregation, to decision making at different levels of management. Despite being created with the intention of being of temporary character, research shows that spreadsheets tend to provide support even in key business processes in organizations, often over longer periods of time. Starting from the related work mentioned in the paper, and prompted by issues to which articles dealing with spreadsheet errors especially drew attention, the objective of this research was to answer the following questions: Are spreadsheets used in SMEs and to what extent? How great is the significance of spreadsheets in respondents' regular activities? In which situations and for what purpose do respondents use spreadsheets in SMEs? The research encompassed 213 respondents from 147 Serbian SMEs. Among other things, research results have shown that more than 90% of respondents use spreadsheets to a certain extent, most frequently MS Excel. Almost three quarters of respondents regard spreadsheets as important for performing their work. More than two thirds of respondents have more than four years of spreadsheet experience, using them most frequently up to one quarter of their working hours, usually as an auxiliary tool, as follows: more than a quarter of respondents use spreadsheets when they cannot perform the task with the existing IS, and as many as 60% when they find it easier to perform their task with spreadsheets than using the existing official IS.

Keywords: *spreadsheets, shadow system, shadow IT, Serbian SMEs*

Sažetak

Zbog svoje jedinstvene jednostavnosti i fleksibilnosti, programi za tabelarne kalkulacije se danas koriste za različite svrhe, počevši od finansijskih kalkulacija, planiranja, agregiranja podataka, pa do donošenja odluka na različitim nivoima upravljanja. Istraživanja pokazuju da elektronske tabele, iako tipično nastaju sa namerom da budu privremenog karaktera, često u dužim vremenskim periodima pružaju podršku čak i ključnim poslovnim procesima u organizacijama. Polazeći od povezanih istraživanja navedenih u radu, a podstaknuti pitanjima na koja su radovi koji se bave greškama u elektronskim tabelama posebno skrenuli pažnju, istraživanje je imalo za cilj da pruži odgovore na sledeća pitanja: Da li se i u kojoj meri elektronske tabele koriste u mikro, malim i srednjim organizacijama? Kolika je važnost elektronskih tabela u redovnim poslovnim aktivnostima ispitanika? U kojim situacijama i za koju svrhu ispitanici koriste elektronske tabele? Istraživanjem je obuhvaćeno 213 respondenata iz 147 mikro, malih i srednjih preduzeća sa teritorije Republike Srbije. Rezultati istraživanja su, između ostalog, pokazali da više od 90% ispitanika u određenoj meri koristi elektronske tabele, najčešće MS Excel. Skoro tri četvrtine ispitanika smatra programe za tabelarne kalkulacije važnim za obavljanje njihovog posla. Više od dve trećine ispitanika steklo je iskustvo u radu sa elektronskim tabelama duže od četiri godine, koristeći ih najčešće do četvrtine svog radnog vremena, obično u svojstvu pomoćnog alata, i to: više od četvrtine ispitanika kada radni zadatak ne mogu da obave pomoću postojećeg informacionog sistema, a čak 60% kada im je lakše da svoj zadatak obave pomoću programa za tabelarne kalkulacije nego korišćenjem postojećeg, zvaničnog informacionog sistema.

Ključne reči: *programi za tabelarne kalkulacije, shadow system, shadow IT, mikro, mala i srednja preduzeća u Srbiji*

Introduction

Proliferation of spreadsheets in the late 1970s and the early 1980s created the phenomenon of initialization and delegation of the development of small software applications for end users not possessed of specific IT knowledge. However, due to sudden IT dissemination that was soon to follow and has persisted to present day, this phenomenon wriggled out of control, became independent and ceased to be transparent both to the management and to the IT sector [41].

Despite being present for over three decades, this phenomenon has only recently approached the focus of interest of the expert and academic community. It is for this reason that there is still no generally accepted terminology, but literature uses a broad spectrum of terms, whose meanings often overlap or are used in different contexts. When drafting this paper, the authors started from the terminology proposed by Kopper and Westner [19]. According to them, the use of information technology in non-standard ways, whose existence the IT sector is unaware of or does not control, is referred to as *Feral Practice* [41]. It is an umbrella term encompassing Workarounds and Shadow IT. The term *Workarounds* refers to the use of the mandatory information system (IS) within the official IT infrastructure in a manner not foreseen by design, whereas *Shadow IT* denotes all forms of unofficial supplements to official IT portfolios, starting from devices (smart phones, laptops, etc.) to locally developed and used spreadsheets to complex on-demand cloud services [19], [41]. The subset of Shadow IT with software in focus is referred to as *Shadow systems*. The most common forms of materialization of Shadow systems are Excel spreadsheets and Access databases [3], [13], [16], [17], [18], [22], [37]. Further narrowing the focus primarily to the development of Excel spreadsheets and Access databases, the literature uses the term End-User Computing (EUC) [1], [20], [45].

According to some estimates, only in the USA the number of people dealing with EUC to some extent is estimated to approximately 11 million, compared to 2.75 million professionals [12]. The reasons for emergence and proliferation of EUC are numerous. The literature lists as the most common the functionally inadequate and

untimely response of IT sectors and/or vendors of the mandatory IS to changed user demands [2]. The reason, however, can be the IS users themselves: making a powerful contrast to the practically ubiquitous resistance to the introduction of a new IS and fossilization of earlier acquired habits, contemporary IS end users are technologically emancipated to such an extent that they find the use of digital and network technologies an organic part of both business and private daily practices. Accustomed to instant information, they are fairly intolerant to the relatively long time periods required for upgrades of the official ISs and easily reach for their own instant solutions (mostly in the form of spreadsheet development), without informing and consulting the IT sector. This usually happens in situations when they cannot perform their tasks quickly enough or at all by using the official ISs. Due to all of the above, the IT sector finds it increasingly difficult to establish and maintain high-quality communication with such users [41].

Still, authors viewing EUC in a predominantly positive sense emphasize that it is not subversive by nature [7], but rather a source of flexibility and innovativeness in the organization [46]. It potentially contributes to improving working performance and thus supports the official IS, even when it is not fully in accordance with the official IT-related norms of the organization ([10], [11] mentioned in [19]). On the other hand, authors bringing the negative sides of using Shadow systems (and thus the EUC) in the foreground, emphasize significant safety risks, problems related to harmonization with legislation, potential loss of transparency of IT costs, low level of efficiency ([10], [11] mentioned in [19]). Although it may seem that Shadow systems (and the EUC within them) are cheaper in comparison with the official IS, some analyses show just the opposite [5]. One should also not disregard the fact that often, due to the development of a Shadow system, the completion of current tasks is often delayed, and the time used for the development of a Shadow system is not recorded as an IT cost, which affects the total performance of the organization [41]. Due to their rather disintegrated nature, Shadow systems may create redundancy of operations and problems with data integrity and quality ([2], [16] mentioned in [19], [41], [42]).

The most common topic within which literature deals with spreadsheets are spreadsheet errors [4], [14], [22], [23], [24], [25], [26], [27], [34], [36], [43]. The predominant opinion is that, although spreadsheets are ubiquitous in business operations, what is (mostly) neglected and insufficiently elaborated is the data on how much the spreadsheet-generated data are used, how important they are to end users, what the level of the users' knowledge is and in which situations and for which purposes the end users use spreadsheets.

Taking into account the above-stated opinions and questions, the objective of the study was set: to establish the extent, manner and purpose of using spreadsheets in the operation of micro, small and medium enterprises (SMEs) in Serbia, as the starting point for defining further investigation in the area of user-driven IT.

The paper is structured as follows: after a brief presentation of related work in Section 2 (that represented the starting point in defining of the research questions), the objectives, design and implementation of the survey are described in Section 3. The results are shown in Section 4, and discussion and conclusions, as well as the possible directions of further research, in Section 5.

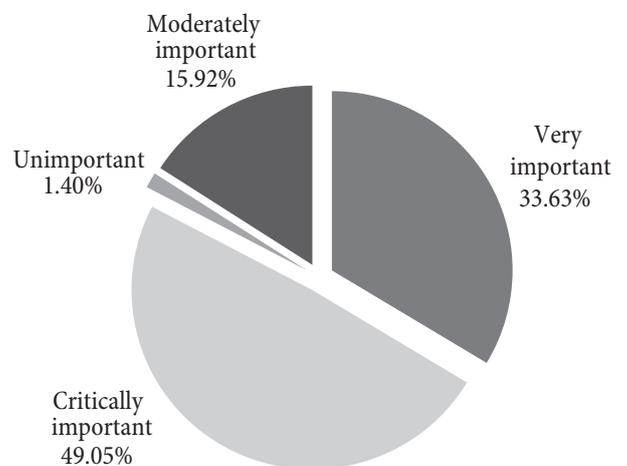
Section 2: Related work

Grossman, Mehrotra and Özlük [9] point out that spreadsheets are widely used for mission-critical functions and represent an efficient development platform for user applications. Pemberton and Robson [28] state that the focus of research on the use of spreadsheet applications is necessary to provide specific information. The authors state that it is very difficult to reach respondents in organizations, so that they decided to survey part-time students at the Newcastle Business School, who are employed on a full-time basis, as the target group. According to the classification of work, the majority of respondents belong to the group of clerical/technical staff (35%), junior management (26%), middle management (24%) and senior management (9%). Only 13% of respondents did not use spreadsheets in their work, 10% of respondents used them less frequently than monthly, 10% of respondents once or twice a month, 17% once/twice a week, and almost half of them (48%) used

them at least three times a day. The largest number of respondents used MS Excel (94%), while only 5% used Lotus 1-2-3, and Quattro Pro 1%.

A few years after the research conducted by Pemberton and Robson [28], a project was initiated at Dartmouth Tuck School of Business, entitled The Spreadsheet Engineering Research Project (SERP) [33]. The aim of the project was to improve the design and use of spreadsheets by individuals and organizations. The authors presented research results in several papers [29], [30], [31],[32]. The survey included almost 1,600 respondents. When asked which type of software they used in their work, the majority of respondents answered MS Excel (99.3%) and Microsoft Access (32.2%). As regards other spreadsheet programs, the users also use Lotus 1-2-3 (2.4%) and Quattro Pro (1.5%). Almost half of respondents regard spreadsheets as critically important for doing their work (Figure 1).

Figure 1: Level of importance of spreadsheets in respondents' jobs



Source: [33]

More than half of respondents state extensive experience (some expertise) within the classification of their experience, somewhat fewer state that they are very experienced (high expertise) (39.3%), and 6.4% qualify themselves as beginners, whereas less than one percent (0.7%) deem that they have little or no experience with spreadsheet programs. Somewhat less than one third of respondents work with spreadsheets between a quarter and a half of working hours (30.4%), whereas 44.7% of respondents use spreadsheet programs for up to a quarter of their working hours (Table 1).

Table 1: Approximate percentage of time spent with spreadsheets in respondents' jobs

Percentage of time	Percentage of respondents
0-25%	44.7%
26-50%	30.4%
51-75%	17.8%
76-100%	7.2%

Source: [33]

Spreadsheets are mostly used for making user applications for performing daily tasks. In the research conducted by Baker, Powell, Lawson and Foster-Johnson (2006), the largest number of respondents used spreadsheets for data analysis, evaluating alternatives, determining trends and creating projections and tracking data (Table 2).

Table 2: The main purposes of respondents' use of spreadsheets

Purpose	Percentage of respondents
Maintaining lists (e.g. names and addresses)	25.0%
Tracking data (e.g. budgets, sales, inventories)	47.2%
Analyzing data (e.g. financial, operational)	87.6%
Determining trends and making projections	54.8%
Evaluating alternatives	56.8%
Other	12.1%

Source: [33]

Section 3: Survey goal, design and execution

Survey goal and research questions

The survey goal was to provide latest insight into the usage and purpose of spreadsheets in SMEs in the Republic of Serbia. In relation to the set survey goal, the following research questions (RQ) were defined:

- RQ1 - Are spreadsheets used in SMEs and to what extent?
- RQ2 - How significant are spreadsheets in respondents' regular business activities?
- RQ3 - In which situations and for which purpose do respondents use spreadsheets in SMEs?

Survey design and questions

The majority of questions (questions 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 13, 14, 15 and 16) from the questionnaire contain predefined answers (metrics) and an option for the respondent to give an answer that is not offered in the content of the question, whereas some questions (questions 7 and 11) are worded as statements for which respondents expressed agreement using grades 1 to 6. In some questions, respondents could opt for several answers (5, 9, 12, 13, 14, 15 and 16).

Table 3: Structure of the questionnaire in relation to the defined research questions

Aspect (RQ)	Questions (and metrics)
Respondents' profiles and demographics	<ol style="list-style-type: none"> Completed education level Area of activity of the organization you are employed in Number of employees in your company Your position in the company Your area of work How long have you been using spreadsheets? Rate the level of your own experience acquired in work with spreadsheets (1 – very little experience, 6 – considerable experience)
Use of spreadsheets (RQ1)	<ol style="list-style-type: none"> Do you use spreadsheets? Which spreadsheet do you use (Excel, Lotus 1-2-3, Google Spreadsheets, etc.)? Average time of spreadsheet use during a workday
Degree of importance of spreadsheets in work (RQ2)	<ol style="list-style-type: none"> Your opinion on the degree of importance of spreadsheets in the work you do (1 – not important, 6 – extremely important)
Purpose of the use of spreadsheets in SMEs business (RQ3)	<ol style="list-style-type: none"> Out of all programs that I use for performing work, I use spreadsheets as... I use spreadsheets (MS Excel, etc.) in the following situations: The purpose for which you use spreadsheets is... I use spreadsheets in the following manner: I/We exchange data with other companies...

Note: Questions are adapted from [37]

Respondents' population, sample size and survey execution

The basic set of organizations is comprised of micro, small and medium-sized enterprises in Serbia. The negative experience from the previous research (insufficient response of organizations of only 5.62% [37, p. 120]), where the intention was to form a random sample of municipalities and organizations, led to the formation of a purposive sample of organizations. The survey strategy was executed on a purposive sample of 147 organizations which the European Commission [6] ranks among the categories of micro, small and medium-sized enterprises. 228 respondents took part in the survey, 15 of whom stated that they did not use spreadsheets in their operation. The number of relevant respondents for this research is therefore 213. They filled in an online questionnaire that was created using Google Forms web application. The data were exported in the Excel format and then were the subject of analysis of quantitative data, out of which predominantly individual descriptive statistical procedures were used.

Section 4: Results and findings

A detailed report of survey results and findings, according to directions of Wohlin et al. [44], is presented in this chapter in the order determined in Section 3.2 (Table 3):

- Organizations and respondents;
- Use of spreadsheets;
- Degree of importance of spreadsheets in work; and

- Purpose of using spreadsheets in operation of SMEs.

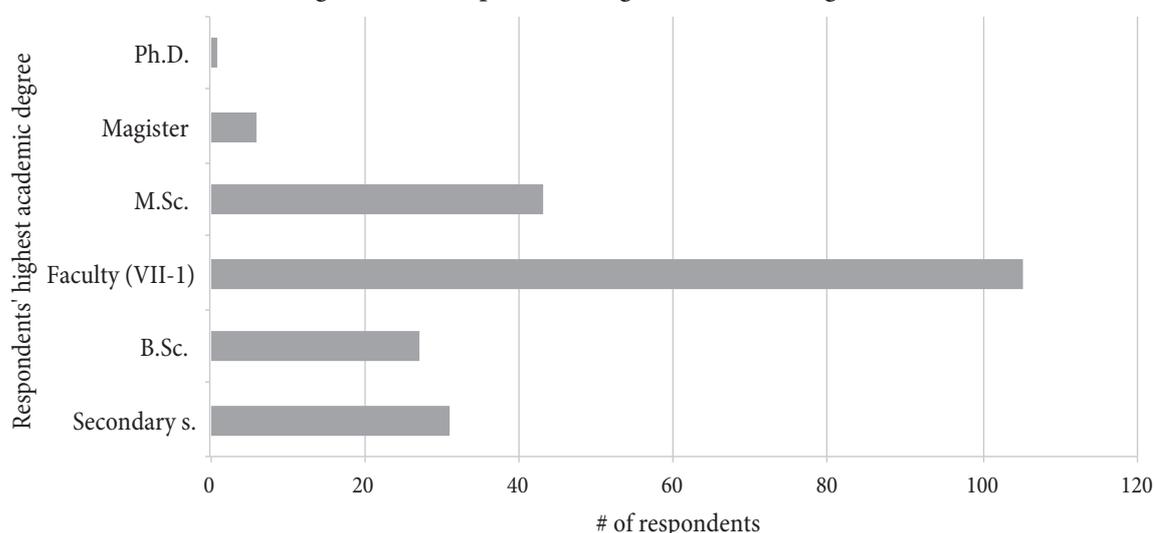
Organizations and respondents

To establish the respondents' education levels, data were gathered on their highest completed level of studies. The majority of respondents (Figure 2) have a VII-1 degree (49.30%); 20.19% of them have a M.Sc. degree, 12.68% have a B.Sc. degree, and 14.55% of respondents have secondary school degrees. The respondents include six Magisters of Science, whereas one has a doctoral degree.

The structure of the industries of SMEs' activity where the respondents are employed is varied. The largest number of respondents, 20.19%, perform their tasks in production industries, followed by finance (15.02%), 13.15% in trade and logistics, 12.68% in public enterprises and services, 11.74% in the IT sector, whereas somewhat under 10% work in education, science, social activities and agriculture. The least represented areas of activity are bookkeeping and construction, with 1.88% and 0.94% respectively. 7.98% of respondents work in areas of activities that were not predefined in the questionnaires: hospitality, media, healthcare, auditing, marketing, telecommunications and consultant services.

The structure of micro, small and medium enterprises where respondents are employed is equally distributed in the sample of organizations. Namely, one respondent from each micro-enterprise responded to the questionnaire, which resulted in 51 micro-enterprises in the sample of

Figure 2: The respondents' highest academic degree



organizations. A total of 61 respondents from 52 small enterprises responded to the questionnaire, plus 101 respondents from 44 medium-sized enterprises.

The highest percentage, 39.91% of surveyed respondents in SMEs, have clerical jobs in administration, while 12.21%, 20.19% and 16.90% work as managers in junior, middle, and top management, respectively. 10.8% of respondents perform other jobs that were not predefined.

As regards area of work, the respondent sample is heterogeneous (Table 4). Such results suggest that spreadsheet programs are used in most business functions and processes in surveyed enterprises.

Table 4: The respondents' area of work

	No	Percentage	Percentage of cases
Administration	71	22.61%	33.33%
Sale/purchase	65	20.70%	30.52%
Marketing	22	7.01%	10.33%
Human resources	18	5.73%	8.45%
IT jobs	56	17.83%	26.29%
Finance	52	16.56%	24.41%
Legal services	14	4.46%	6.57%
Other	16	5.10%	7.51%
Total	314	100.00%	147.42%

Note: Respondents could select more than one answer

Figure 3: Industries of SMEs

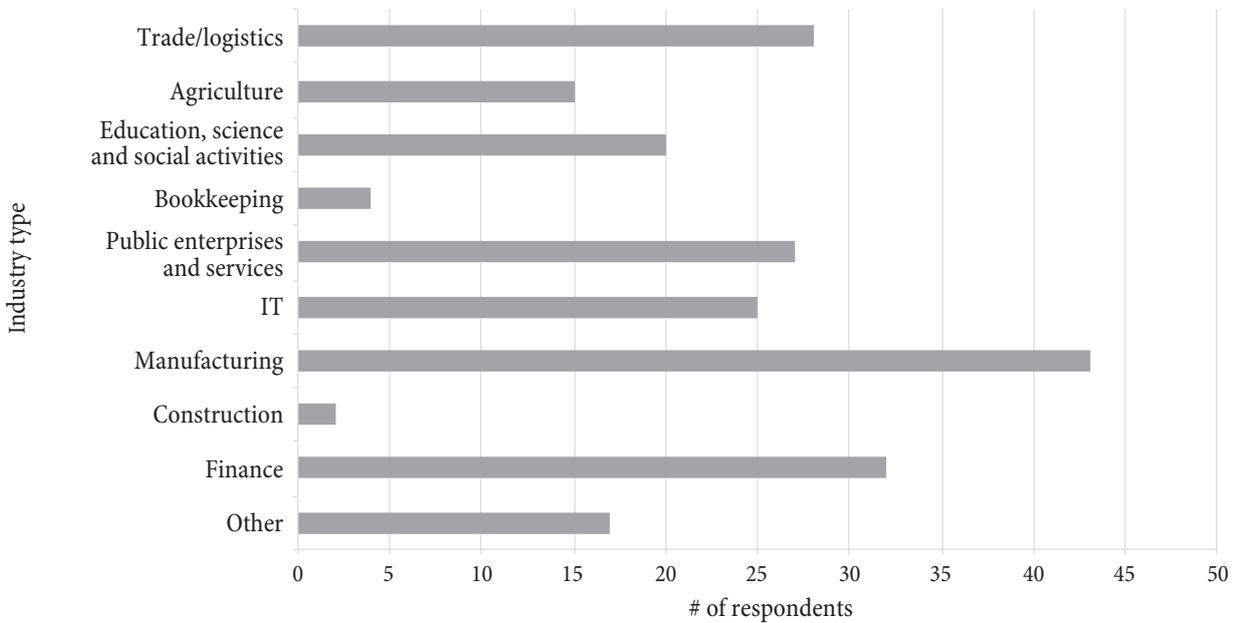
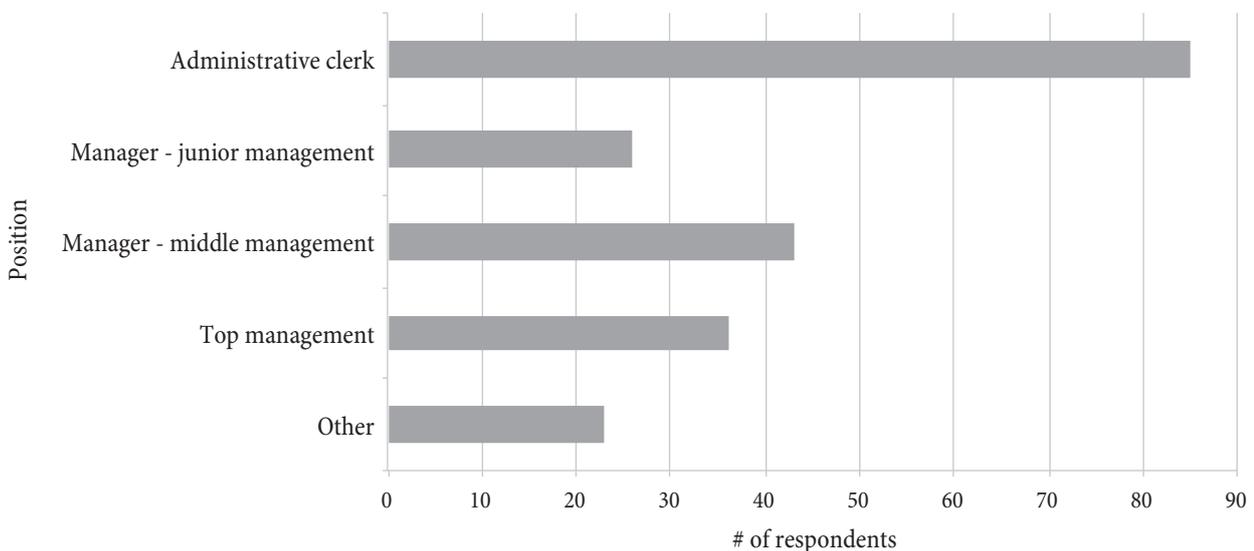


Figure 4: Respondents' positions

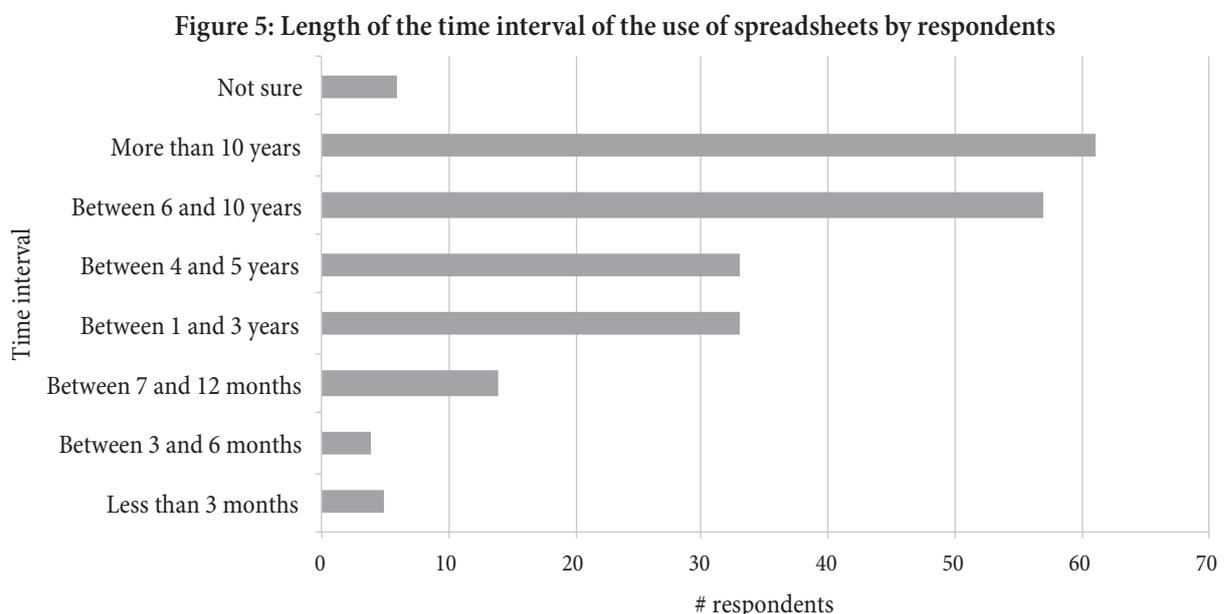


As regards the length of time interval of using spreadsheets, results show that the highest percentage of respondents, 28.64% of them, have been using these programs for more than ten years, 26.76% between 6 and 10 years, whereas a small percentage of them have been using these programs for less than six months (4.23%) (Figure 5). More than half of respondents have a significant experience in using spreadsheets.

Research results related to the respondents' self-assessment of the level of their own experience are shown in Table 5. The lowest percentage is present in respondents who reported to have very little experience in work with spreadsheets. Approximately one sixth of respondents reported to have considerable experience in working with worksheets. After the classification of assessments into low (1, 2 and 3) and high grades (4, 5 and 6), information was derived showing that there is a much higher percentage of experienced respondents in comparison to inexperienced spreadsheet users.

Table 5: Level of respondents' experience

	Frequency	Percentage	Cumulative percentage
Grades	1	7	3.29%
	2	7	3.29%
	3	49	23.00%
	4	68	31.92%
	5	46	21.60%
	6	36	16.90%
	213	100.00%	



Use of individual spreadsheets

Among surveyed respondents in SMEs, 93.42% of them use spreadsheets, whereas 6.58% of them do not. The respondents who do not use spreadsheets had no obligation to fill in the questionnaire for this research, thus, the number of respondents whose data are encompassed by the analysis amounts to 213, rather than 228 as stated in the respondent sample.

The results on the use of individual spreadsheets are shown in Table 6. By far most respondents use Microsoft's spreadsheets, whereas much fewer respondents use all other software products from this domain.

Table 6: Use of individual spreadsheets

	No	Percentage	Percentage of cases
MS Excel	205	80.08%	96.24%
Calc (OpenOffice)	35	13.67%	16.43%
Lotus 1-2-3	4	1.56%	1.88%
Google Spreadsheets (Google Docs)	12	4.69%	5.63%
Other	0	0.00%	0.00%
Total	256	100.00%	120.19%

Note: Respondents could select more than one answer

The highest percentage of respondents, 56.81% of them, use spreadsheets on average up to 25% of working hours. 19.72 % of respondents spend 26% to 50% of their workday using spreadsheets, 15.02% of them use spreadsheets from 51% to 75% of their workday, while 6.57% of them spend 76% to 100% of their workday using

these tools. A negligible number of respondents, less than 2%, could not estimate the average time of use.

Degree of importance of spreadsheets in work

The highest percentage of respondents think that spreadsheets are extremely important in the work they perform, while a really small percentage of them are of the opposite opinion (Table 7). After the division of grades into low (1, 2 and 3) and high (4, 5 and 6), the results have become even clearer. In particular, it can be seen that as many as 83.57% of respondents regard spreadsheets as important for performing their work.

The purpose of the use of spreadsheets in the operation of SMEs

The research results on the ratio of spreadsheets to other software products used in enterprises are shown in Table 8. The highest percentage of respondents use spreadsheets as

an auxiliary (secondary) software, whereas a significantly lower percentage use these programs as the only or primary software.

The research results pointing to situations in which respondents in SMEs use spreadsheets are shown in Table 9. The highest percentage of respondents use spreadsheets in situations where they find it easier to use them for performing a certain task than to use the existing information system. Then, almost half of respondents stated that they used spreadsheets in situations when they could not perform a certain task using the organization's information system, and a somewhat smaller percentage used them as the only software.

The research results pointing to the purpose of using spreadsheets are shown in Table 10. The use of spreadsheets for keeping various records was stated by most respondents. A somewhat lower percentage is related to creating reports, followed by data analysis. A significant

Table 7: Importance of spreadsheets in the respondents' work

	Frequency	Percentage	Cumulative percentage
Grades	1	2	0.94%
	2	5	2.35%
	3	28	13.15%
	4	36	16.90%
	5	54	25.35%
	6	88	41.31%
Total	213	100.00%	100.00%

Table 8: Ratio of spreadsheets to other software products

	No	Percentage	Percentage of cases
Only software	39	17.65%	18.31%
Primary software	47	21.27%	22.07%
Auxiliary (secondary) software	132	59.73%	61.97%
Not sure	3	1.36%	1.41%
Other	0	0.00%	0.00%
Total	221	100.00%	103.76%

Note: Respondents could select more than one answer

Figure 6: Average time of use of spreadsheets during the workday

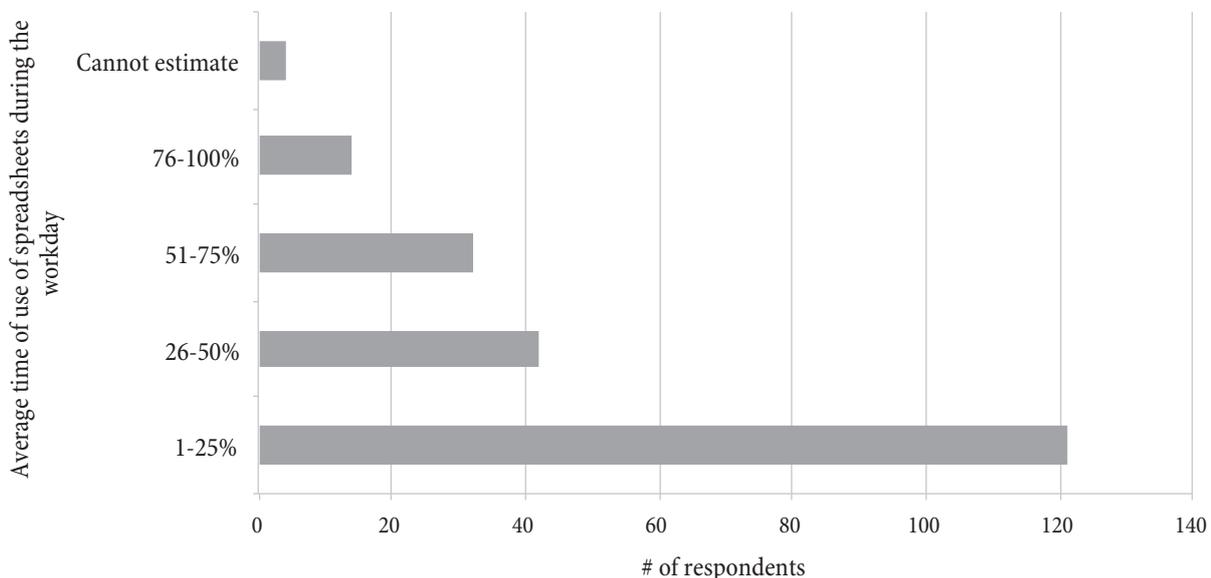


Table 9: Situations in which respondents use spreadsheets

	No	Percentage	Percentage of cases
When I cannot perform a certain task using the information system	67	25.28%	31.46%
When it is easier to perform the task using spreadsheets than using the existing information system	131	49.43%	61.50%
I use spreadsheets as the only software	61	23.02%	28.64%
Other	3	2.26%	2.82%
Total	262	100.00%	124.42%

Note: Respondents could select more than one answer

Table 10: Purpose of using spreadsheets

	No	Percentage	Percentage of cases
Data analysis	149	20.67%	69.95%
Assessing alternatives	32	4.44%	15.02%
Determining trends and creating projections	47	6.52%	22.07%
Data tracking (budget, sales, inventories, etc.)	128	17.75%	60.09%
Creating reports	163	22.61%	76.53%
Various records (e.g. lists of names, addresses, etc.)	168	23.30%	78.87%
I conduct the entire operation by using spreadsheets	28	3.88%	13.15%
Other	6	0.84%	2.82%
Total	721	100.01%	338.50%

Note: Respondents could select more than one answer

Table 11: Way of using spreadsheets

	No	Percentage	Percentage of cases
For complete data entry and processing (I do not use other programs for this)	65	21.89%	30.52%
For processing data that I obtain from DW databases	29	9.76%	13.62%
For processing data obtained from the information system	130	43.77%	61.03%
For entering data to be processed by the information system	66	22.22%	30.99%
Not sure	7	2.36%	3.29%
Other	0	0.00%	0.00%
Total	297	100.00%	139.44%

Note: Respondents could select more than one answer

number of respondents also use spreadsheets to track data related to the budget, sales, inventories, etc. However, spreadsheets are used significantly less for determining trends and creating projections, as well as for assessing alternatives. The lowest percentage of respondents use spreadsheets for the entire operation.

Research results regarding the way of using spreadsheets are shown in Table 11. In most cases, respondents use spreadsheets for processing data obtained from information systems. This is followed by the use for the purpose of entering data that will be processed by the information system, and the complete data entry and processing (without using other programs). The lowest percentage of respondents use spreadsheets for processing data that they obtain from DW databases.

The research results showing the ways of data exchange between SMEs and other enterprises are shown in Table 12. After printed documents, spreadsheets are the

second most preferred choice for data exchange between SMEs and other enterprises. Also, a significant percentage of respondents use the XML standard for this purpose.

Section 5: Discussion and conclusions

The results of empirical research conducted on the purposive sample of 213 participants from 147 Serbian SMEs provide a cross-section on the issue of respondents' profiles and

Table 12: Data exchange methods between SMEs and other enterprises

	No	Percentage	Percentage of cases
Spreadsheets	135	32.22%	63.38%
XML	79	18.85%	37.09%
Printed documents	143	34.13%	67.14%
Not sure	15	3.58%	7.04%
PDF	33	7.88%	15.49%
Other	14	3.34%	6.57%
Total	419	100.00%	196.71%

Note: Respondents could select more than one answer

demographics, use of spreadsheets, degree of importance of spreadsheets in work, and purpose of the use of spreadsheets in SMEs operations. A typical spreadsheet user in the surveyed micro, small and medium-sized enterprises is educated: about 85% of surveyed spreadsheet users have an academic degree. They are employed in manufacturing industries, financial organizations, trade and logistics, public enterprises, utility services, agriculture, science, social activities, hospitality, healthcare, telecommunications, marketing, etc. This confirms the postulations about the omnipresence of spreadsheets in business operations [8], [20], [39], [40]. Respondents are mainly performing jobs of administrative nature, or occupy positions in lower, middle or top-level management. Judging by the years of use of spreadsheets, respondents can be regarded as experienced users – about 60% of them have been using spreadsheets for more than 6 years. The respondents' own subjective assessment of their experience corresponds to the number of years of use: about 79% of them assess their spreadsheet experience as significant.

As expected, based on the results of similar research [15], [37], [38], the most frequently used program is Microsoft Excel (80.08%), and the second position, with a far lower percentage (8.08%), belongs to OpenOffice Calc. The largest number of respondents, somewhat more than 55%, use spreadsheets for up to one quarter of their working hours. About 20% of them spend between one quarter and a half of their working hours using spreadsheets, about 15% of respondents spend from a half to three quarters of their working time on these tools, whereas 7% use spreadsheets for more than three quarters of working hours. A significant percentage, almost 85% of respondents, regard spreadsheets as important for performing their tasks (similar results were also obtained by Baker et al. [33]), while they are mostly used as a secondary software (60% of cases). What is interesting is the finding that as much as 50% of respondents use spreadsheets instead of the existing IS, because they subjectively find using spreadsheets more productive than the use of the existing IS. This fact may point to the conclusion that the users are not sufficiently trained for working in the existing information system and/or that the information system is problematic from the aspect of usability, which could be a subject matter of

a separate research. Half of respondents use spreadsheets as a supplement to the existing IS, when the IS does not have the required functionality.

Spreadsheets are most frequently used for keeping records, creating reports and data analysis, while the least frequent use is related to determining trends, creating projections and assessing alternatives. The data used in spreadsheets are mostly exports from the existing IS (in about 43% of cases) whereas the case in which exports from spreadsheets are used as inputs in IS accounts for half of the frequency. In 22% of cases, respondents perform data capture and processing with spreadsheets only.

The limitation of the conducted empirical research is the formation of a purposive rather than a simple random sample of SMEs. The chosen forms of ethnographic interview, especially in the segment related to the purpose of the use of spreadsheets, would definitely present an additional confirmation of the validity of results of the conducted research. In order to place further research in the context of studying the user-driven IT, it would be desirable to conduct the following research: studying the gathered spreadsheets from the aspect of errors, determining the impact (quality) of spreadsheets on decision making, considering the presence of risk of using spreadsheets and awareness of the existence of risks, presence and detrimental effect of the overconfidence of spreadsheet users and defining the framework for creating and using spreadsheets.

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AWARENESS AND USAGE OF DIGITAL MARKETING IN SERBIA*

Svest i upotreba digitalnog marketinga u Srbiji

Abstract

With the rapid development of new technologies and the propensity of today's online shoppers towards the digitalised media, integrating digital marketing into the strategic marketing function and business goals has become a challenge. Managing today's marketing function requires a constant review of new digital opportunities which, if successful, lead towards operational transformation into e-business. Compared to the global trends, due to the unfavourable demographic and economic conditions, media investments in Serbia still favour the traditional channels, although recent national studies show that Serbian consumers are increasingly shifting to digital channels, using the internet throughout their purchase journey. The objective of this article was to explore the state of digital marketing within the business marketing function of the leading advertisers, based on the research question: *Has digital marketing in Serbia become an integral part of the strategic marketing function in its organisational, functional and budgetary terms?* The findings suggest that in Serbia, similar to the global trends, trust in both traditional and digital marketing performance measurement remains an issue, as does the ability to develop digital talents and to overcome the drag of legacy technologies. The leading domestic advertisers strive to achieve a deeper integration of their digital marketing activities into the strategic marketing function, and to foster the support of senior executives to the digital transformation of the entire business, starting with marketing and sales.

Keywords: *digital marketing, strategic marketing, marketing executives, leading advertisers, Serbia*

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Sažetak

Sa ubrzanim razvojem novih tehnologija i sklonostima današnjih kupaca ka elektronskim kanalima prodaje i medijima, izazov je kako integrisati digitalni marketing u stratešku marketinšku funkciju i ka poslovnim ciljevima. Upravljanje marketingom u današnje vreme zahteva neprekidno razmatranje novih prilika iz digitalnih medija koje, ukoliko su uspešne, vode ka operativnoj transformaciji poslovanja u elektronsko poslovanje. U poređenju sa svetskim trendovima, usled nepovoljnih demografskih i ekonomskih činilaca, marketinške investicije u Srbiji još uvek daju prednost tradicionalnim medijima, iako novija istraživanja u zemlji pokazuju da srpski potrošači sve više koriste digitalne kanale tokom celokupnog potrošačkog ciklusa. Cilj članka bio je da se istraži stanje digitalnog marketinga u poslovnoj marketinškoj funkciji kod vodećih oglašivača, na osnovu istraživačkog pitanja: *Da li je digitalni marketing u Srbiji postao sastavni deo strateške marketinške funkcije u organizacionom, funkcionalnom i budžetskom pogledu?* Nalazi ukazuju da u Srbiji, slično globalnim trendovima, poverenje u merenje učinka tradicionalnog i digitalnog marketinga ostaje problem, kao i sposobnost razvoja digitalnih talenata i prevazilaženje otpora nasleđenih tehnologija. Vodeći oglašivači u zemlji nastoje da ostvare bolju integraciju svojih digitalnih marketinških aktivnosti sa strateškom marketinškom funkcijom, i da podstaknu podršku izvršnog rukovodstva u digitalnoj transformaciji celokupnog poslovanja koja počinje sa marketingom i prodajom.

Ključne reči: *digitalni marketing, strateški marketing, marketing menadžeri, vodeći oglašivači, Srbija*

Introduction

Of all the differences between traditional advertising, the media and the emerging world of digital communications, none is greater than the fundamental difference between the idea of communication in terms of delivering messages through the media channels, versus communication being about an electronic world of networks, algorithms and automated systems for managing the connections between information and people [39, p. 86]. The massive information and communication technology (ICT) development and its increasing acceptance contributed to the changes in all areas of business, including marketing, assisting the consumers in bonding and communicating with each other and in establishing a two-way connection with brands, products and services [21], [23], [32]. Since the appearance of the first banner ad in 1994, online advertising has redefined the global advertising landscape [40]. Technology advancement and the changes in the consumers' media habits consequently contributed to the global rise in online advertising and the occurrence of new diverse platforms which, according to Austin and Pinkleton [3], include the services that enable customer relations management, search engine optimisation (SEO), trackable analytics, social media engagement and networking, online advertising, e-mail marketing and content-based applications. Advertising has evidently evolved from a mass-media marketplace to one driven by digital and mobile media. Consequently, the rise of a transformative global society headed by massive social, marketing and media changes redirected advertising allocation from traditional to digital media [29]. We already witnessed the internet surpassing television (TV) to become the top media category in Europe in 2015 [25], whilst it is forecasted that in 2017 the internet will be the largest advertising medium in twelve key markets, representing one third of the global ad spend [45], [56]. From the marketing perspective, the expanding role of the digital environment has created two important opportunities for companies: firstly, they have access to a vast array of new digital tools that can be utilised for marketing purposes, and secondly, the digital environment has made marketing more measurable by enhancing

the ability to access, collect, process and report data on marketing activities [27, p. 102].

Our research was conducted on companies in Serbia, a country which is still lagging behind the global trends in terms of digital media usage. On one hand, according to the data of the Statistical Office of the Republic of Serbia [47] related to the usage of ICT between 2011 and 2014, the usage of digital media rises each year, together with the number of internet users. The internet consumption in Serbia also grew by 11.2% year-on-year at the expense of all traditional media [25, p. 15], [57, p. 160]. However, comparing the online ad spend per capita, a metric that shows how much an online consumer is worth in terms of advertising, €49.6 per person was spent in Europe on online advertising in 2015, versus only €2.8 in Serbia [25, p. 18]. The reasons for such a small online ad spend in Serbia could be explained by the fact that most of the national advertisers allocate their digital marketing investments in line with the overall domestic investments in internet advertising [1], [26], driven by strong marketing and media buy outsourcing facts and the fact that native digital media consumers (under the age of 18) make up a very small percentage of the total population of 17.6% [46].

Methodology

In our research, we are using the term digital marketing to cover all the promotional activities in the digital marketing space, or the practice of promoting products and services using digital distribution channels. Other synonyms used include the terms internet marketing, electronic marketing (or e-marketing), online marketing and web marketing [16, p. 9]. We are also distinguishing digital marketing from electronic commerce (e-commerce), which covers all businesses conducted electronically in the value chain [10], [43]. Moreover, authors Gervet and de Chanville believe that defining digital marketing through digital activities is too narrow, and offer a definition of marketing in the digital age, whose core goal is capturing the attention of the always connected customers [19, p. 3].

Next, we assumed that the increase of new media channels and touchpoints between consumers and brands made the job of today's marketing executives increasingly

complex due to the explosion of data, social media, proliferation of channels, the significant dispersion of internet communications and shifting customer demographics [16], [33]. Based on this, we wanted to examine whether digital marketing (DigM) had become an integral part of the strategic marketing function in organisational, functional and budgetary terms in the Serbian companies. We defined the strategic marketing function as the way in which both digital and traditional marketing aims at transforming corporate objectives and business strategy into a competitive market position, differentiating products and services by meeting today’s customer needs more effectively than the competitors [14, p. 11].

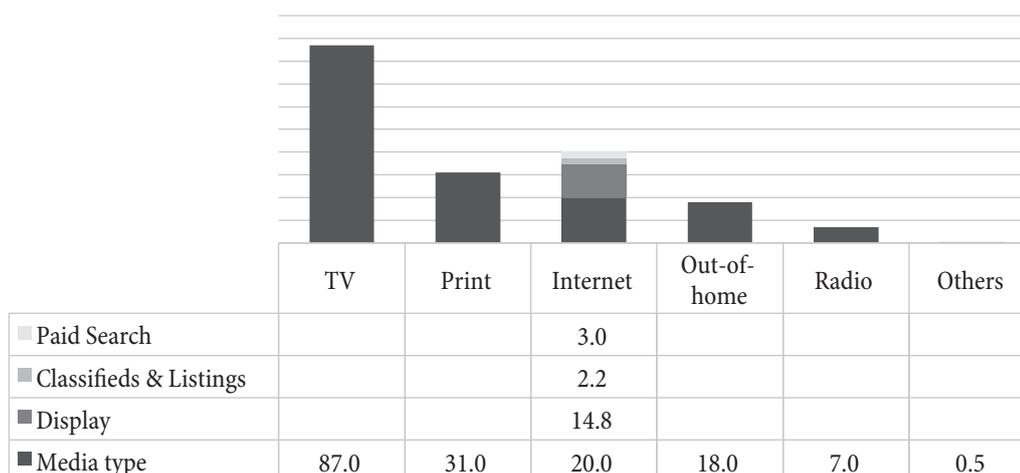
To verify this hypothesis, we conducted a research consisting of desk-research to obtain data about the leading advertisers in Serbia, and a quantitative online survey of 69 top and middle-marketing executives employed with the leading domestic advertisers. The survey was first submitted to the top 100 advertisers in Serbia according to the AGB Nielsen Media Research base [1], who participated in the total media investments for the year 2015 with 96.8% (€84.2 million). Unfortunately, the data on the top online advertisers are not available in the market, except for the information that the internet advertising spend totals at €20 million, contributed mainly by display (display advertising, mobile display advertising, online video advertising, social media display advertising, affiliate marketing, native advertising, content marketing), paid

search (non-mobile and mobile search), classifieds and listings.

The online survey set up on the SurveyMonkey platform was active from March to May 2016, consisting of 24 predominantly closed-ended questions, but also including certain options for expressing personal opinion, or the Likert scale (with 1 being the lowest and 5 the highest weight). The questions spanned from gathering sample information on the surveyed companies in terms of digital marketing deployment, budget allocation between traditional and digital media channels, necessity of advancing in digital marketing skills, applied planning and measurement models and the usage of digital media tools and channels (current and future plans) – aiming at providing a snapshot of the market trends, needs and future enhancement of the business marketing function.

The highest number of marketing executives responding to our survey came from the finance sector (26%), followed by agriculture and food production (19%), retail trade (12%), transport and telecommunications (8.7%), showing a strong correlation with the AGB Nielsen Media Research analysis on the top 100 advertisers/sectors [1]. A solid participation of creative industries (7.2%) is explained by the fact that some of the leading advertisers do not operate locally through the in-house marketing sector, but rather outsource these activities to advertising and/or media agencies.

Figure 1: Breakdown of investments per media type and share of digital media investments per channel (2015, in EUR million)



Note: media investments are presented in the full rate card and equivalent gross rating points (GRPs); Source: AGB Nielsen Media Research AdEx Analysis (2015), IAB Serbia

In addition to this, the majority of the surveyed participants (62.3%) came from large companies which employ over 250 employees. Then, over one half of the surveyed marketing executives (52.2%) claimed to be operating through both business-to-business (B2B) and business-to-consumer (B2C) models, followed by “pure” B2C companies (43.5%).

In terms of the title of the respondents and their function, one third of the participants were members of executive management, which was our core target group. Despite the fact that the invitation letter was addressed to marketing decision makers within the leading advertisers, another third of the participants came from middle management, occupying specialised marketing positions. Some of the participants exclusively came from the digital marketing area (14.5%), which showcases a functional

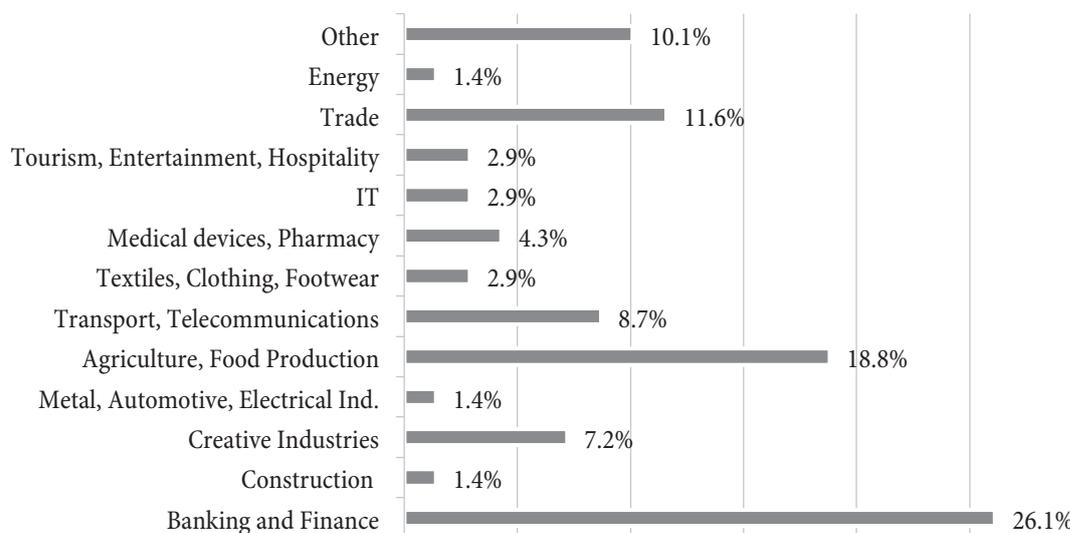
dedication to the subject. With the development of digital marketing, a profusion of new specialist roles has been emerging, which was stated as “Other” in our research, and included positions such as User Experience Manager, Digital Brand Communications Manager and Content Marketing Manager (8.7%).

Results

The state of digital marketing in the leading Serbian advertisers

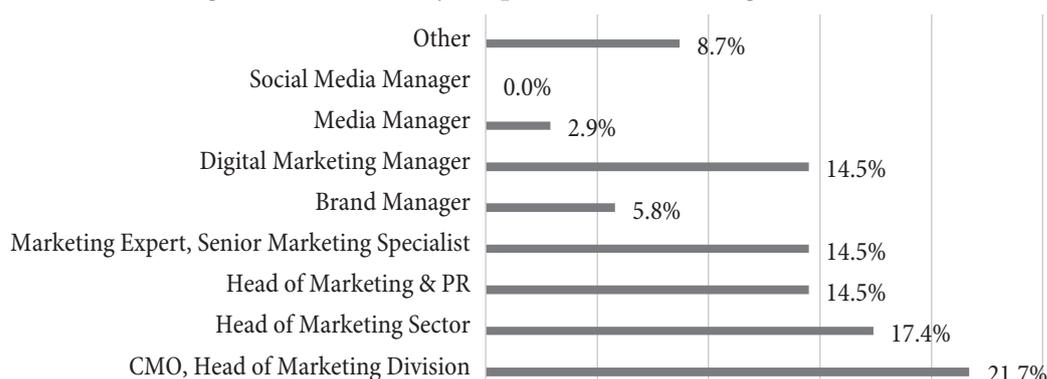
In this section, we assessed the level of development of digital tools and channels usage as a precondition for further digital marketing progress as a promotional, service, communications and sales tool [16, p. 7]. Due to

Figure 2: Online survey sample, sectors



Note: The sectors are divided according to the Serbian Chamber of Commerce and Industry nomenclature; n=69

Figure 3: Online survey sample, titles of marketing executives



Note: n=69

the fact that internet communication is considerably more elaborate than the traditional forms of communication [ibid, p. 63], we also included major tools and channels such as e-commerce, SEO, paid search and display, Google Analytics, customer relationship management (CRM), e-mail and mobile marketing and presence on social networks.

Over one half of the surveyed participants (52.8%) confirmed that their company sells goods and services through the internet, or offers some kind of internet-driven service to their customers (such as responding to an enquiry, e-banking, online catalogue search, appointment scheduling, online after-sales services, etc.). According to the Statistical Office of the Republic of Serbia [47], over 1.2 million of Serbian citizens purchase goods and/or services online, but only one fifth of all companies (21.5%) offers e-commerce service. By comparing these findings, we could conclude that the leading Serbian advertisers consider themselves rather as offering broad e-commerce services (besides online sales and ability to transact online) than as being dedicated e-commerce benefactors [10, p. 14]. Thus, only one third of the respondents stated to have put a SEO strategy in place (38.2%), claiming to perform occasional website audits for improving or maintaining their organic rankings on the search engines – the finding which does not correspond to their online sales intentions. When observing the subject from the Search Engine Marketing (SEM) perspective, the surveyed participants demonstrated a greater inclination towards paid search – one third of the respondents are using paid search as an integral part of their annual advertising strategy (32.6%) and/or tactical media channel in their advertising campaigns (34.8%). This finding is in correlation with the IAB Serbia study on digital advertising consumption, where Paid search and Display account for 89% of the internet advertising spending [26]. By comparing the findings on the strong usage of paid search with non-optimised websites, and by having in mind that paid search ads with associated organic results have higher click-through rates [11], [55], we concluded that there is a lack of SEM strategy in the majority of the leading Serbian advertisers.

Given that most of the companies in Serbia do not dispose of sufficient funds to purchase specialised software for sophisticated online monitoring of their customers,

and neither for subscription to the allegedly offered reports with aggregated data of this type [16, p. 151], we focused on assessing the level of Google Analytics usage, being a free tool for all website owners. Bearing in mind that setting up clear goals in Google Analytics is the first step to understand which sources of traffic and campaigns are most effective [10], [12], the majority of the surveyed marketing executives (80%) confirmed the usage of this web analytics tool.

To continue, our presumption towards the data-driven marketing approach was that detailed customer databases are available to the leading Serbian advertisers. The exploitation of such data improves the ability of organisations to implement customer valuation and segmentation, customer response analysis and market intelligence, representing a major reorientation of the marketing practice towards evidence-based decision making [39, p. 93]. Given the above, we found it disappointing that more than one half of the surveyed participants (56.6%) reported a lack of a fully segmented customer database which could be deployed in tactical marketing activities. This finding also explains the low level of usage of e-mail marketing, a digital channel which is today most widely used as a cost-effective, prospect conversion and customer retention tool [16]. Namely, more than one quarter of the respondents in our survey stated not to be using e-mail marketing at all, or to be using it in combination with direct post (37%).

When exploring the attitude towards mobile marketing, more than one half of the surveyed participants confirmed that their company had developed a mobile application and that it actively advertised on mobile platforms (53.7%). Another 13% stated to have plans to introduce a mobile application in the forthcoming period, having in mind that applications became an important platform for brands to interact with the customers, and whose adoption and continued use contributes to the increase in future spending [30].

Finally, almost all the respondents in our research stated that their company was present and active on social media (98.1%), with Facebook as the undisputed market leader (98.1%), a finding which does not come as a surprise given that 45% of the Serbian citizens have a

Facebook profile [38]. The second ranked social platform in our survey was YouTube (82.7%), again in line with the national data stating that one quarter of the citizens uses it for watching movies and listening to music [ibid]. Following closely behind are Twitter (67.3%), LinkedIn (63.5%) and Instagram (53.8%).

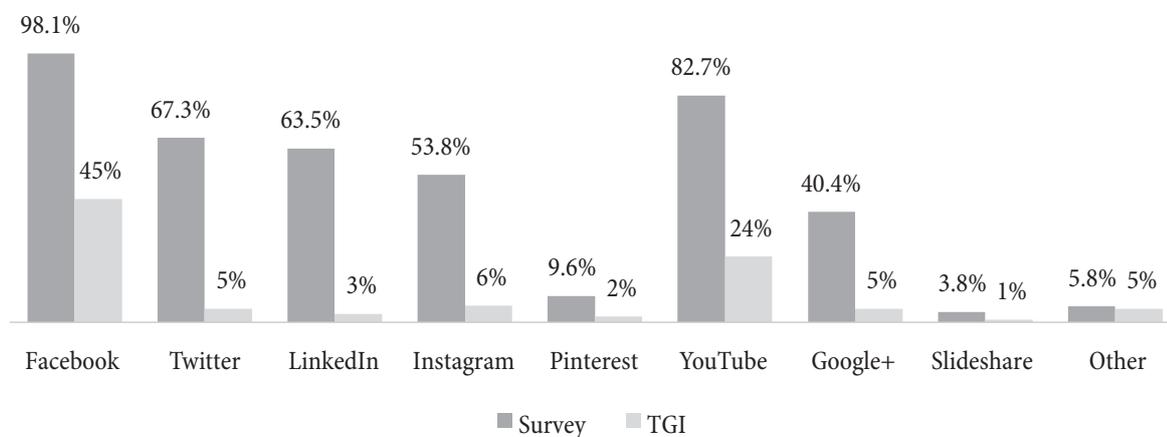
Summary of the state of digital marketing in the leading Serbian advertisers in terms of deployed digital tools and channels usage is presented in Table 1.

Discussion

Referring to our survey of the leading Serbian advertisers aimed at investigating if digital marketing has become an integral part of the strategic marketing in organisational and budgetary terms, we performed a digital marketing capability assessment, where organisations were divided into five stages [9]:

Stage 1: "Initial", no digital marketing strategy, no KPIs;

Figure 4: Online survey sample, social media presence



Note: n=52

Table 1: Level of development of digital tools and channels usage (online survey sample)

Research Question	Results
1. Does the company you work in offer e-commerce?	Yes (36.4%) No (47.3%) We are offering some internet-driven services (16.4%)
2. Is your company's website optimised for search engines (SEO)?	Yes, we are performing SEO/website audits (38.2%) Partly – we applied SEO only during the new website launch (41.8%) No (20%)
3. Do you advertise on search engines and the internet (paid search, display)?	Yes (83.6%) No (16.4%)
4. Do you use Google Analytics in support of marketing activities?	Yes (80%) No (20%)
5. Does your company have a database of customers which is regularly updated and used for data-driven marketing?	Yes, a very detailed one (43.4%) Only for certain products, services, customer segments (24.5%) No (32.1%)
6. Does your company use e-mail marketing?	Active usage (31.5%) Occasional usage (31.5%) Both e-mail and direct post (14.8%) Only direct post (3.7%) No (18.5%)
7. Does your company own a mobile application?	Yes (53.7%) No (25.9%) No, but we are planning to introduce it in 2016 (13%) Not applicable to our business (7.4%)
8. Is your company present on social networks?	Yes (98.1%) No (1.9%)

Note: n = 69

Stage 2: “Managed”, with prioritised digital marketing activities and some KPIs;

Stage 3: “Defined”, with a clear vision and strategy, quality-based KPIs, partial integration of data;

Stage 4: “Quantified”, KPIs with weighted attribution, fully integrated data and systems;

Stage 5: “Optimised”, digital marketing as an integral part of the marketing strategy, lifetime value KPIs.

Consequently, to examine the digital marketing capabilities in functional terms, we cross-referenced our results with research findings of Gervet and de Chanville [19], which identify three levels of digital marketing functionality:

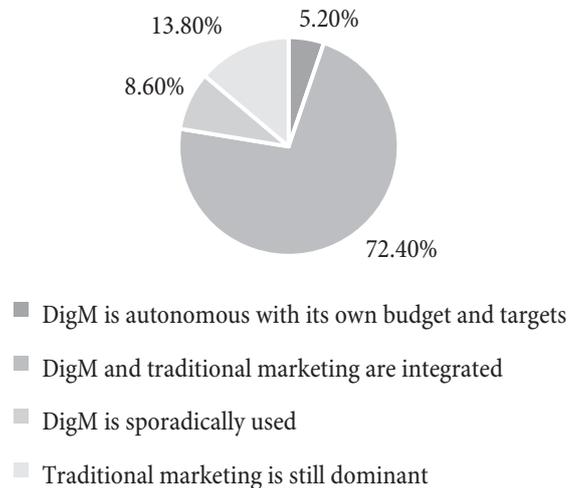
1. open towards digital marketing, but sceptical: lack of digital exposure and desire to know ROI for digital activities;
2. passionate, but out of practice: lack of knowledge, organisational silo;
3. digital native: customer-centric focus, but lack of momentum in managing communities.

Digital marketing as an integral part of the strategic marketing in organisational terms

On the topic of the place and role of digital marketing compared to the traditional marketing function in organisational terms, over two thirds of the surveyed leading advertisers (72.4%) stated that digital and traditional marketing are increasingly used as integrated in their advertising campaigns and marketing activities, considering that digitalisation and consumer evolution lead to a paradigm shift in integrated marketing communication (IMC), where digital and traditional media are fully integrated to reflect the multichannel nature of today’s consumer decision-making journey [37], [51]. Consequently, several of the core IMC principles such as consumer insight, data-driven decision making and cross-media integration make up an improved framework for managing marketing in the digital world [39]. The growing desire for integrating traditional with digital marketing has resulted in a survey finding that only 5% of the leading Serbian advertisers structured their digital marketing function as an autonomous business unit with its own budgets and targets, acting as

a common platform that creates new digital businesses, generates new revenues, helps enhance the portfolio and improve customer experience [7, p. 6].

Figure 5: The place and role of digital marketing compared to the traditional marketing function



Note: n=58, Q: Which of the following statements comes closest to your company regarding the place and role of digital marketing, in comparison to the traditional kind?

Furthermore, we compared our sample characteristics (job titles of the respondents and their business function) with research conducted by Gervet and de Chanville [19, p. 10], whose suggestions on how companies can organise their digital marketing positions are the following:

- one job: Internet Manager;
- two jobs: E-marketing/Digital Marketing Manager and Community Manager;
- three jobs: Content Developer, Community Manager and Media Manager.

In addition to this, de Swaan et al. [13, p. 62] found it useful to categorise marketing roles not by title, but as belonging to one of the three broad types:

- “think” marketers, who apply analytic capabilities to tasks such as data mining, web analytics, media-mix modelling and return on investments (ROI) optimisation,
- “do” marketers, who develop content, design and lead production,
- “feel” marketers, who focus on consumer interaction and engagement in roles from customer service to social media and online communities.

By comparing the theory with our sample, we concluded that the majority of leading Serbian advertisers belonged,

in organisational terms, to the categories of “two jobs” (Digital Marketing Manager and Social Media Manager) and “feel marketers”, with customer engagement, rather than sales, being the primary role.

Digital marketing as an integral part of the strategic marketing in functional terms

Two thirds of the surveyed leading advertisers (67.2%) operate under the framework of annual plans, using the marketing planning technique as an intangible productive resource to operationalise market orientation strategy [48, p. 825]. Furthermore, over one half of them are supported in their everyday marketing operations by more than one outsourced marketing agency, and amongst them one half are using outsourcing services of a digital marketing agency. Those findings, combined with the presence of creative industries in the survey sample, speak in favour of strong outsourcing trends of the business marketing function in Serbia.

When it comes to gaining importance of today’s digital marketing function [28], [33], the respondents had to choose between various answers aimed at weighted activities which might make a future impact on the digital marketing function and contribute to its strategic importance.

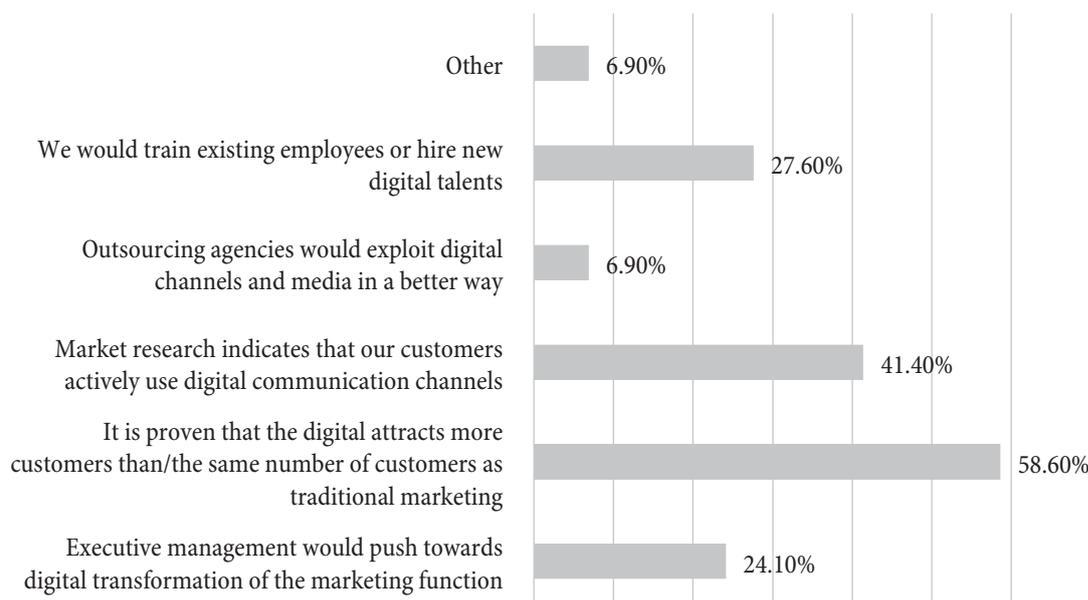
One half of marketing executives would use more digital tools in their marketing activities if this would prove to attract the same number of, or more customers compared to traditional marketing. Therefore, we concluded that the leading Serbian advertisers have not mapped their consumers’ journey, whose decision-making process today is mainly circular, with four phases, all strongly influenced by the digital media and channels [35]:

1. initial consideration;
2. active evaluation, or the process of investigating potential purchases;
3. closure, when consumers buy brands, products or services;
4. post-purchase, when consumers experience these.

Thus, two thirds of touchpoints during the initial consideration and active evaluation phase involve SEO, SEM and the internet-driven activities such as online reviews, forums and customer testimonials [37]. Our conclusion is in line with the Google Consumer Barometer [20], where eight out of ten consumers in Serbia are online at least once a day, using the internet throughout their entire purchase journey.

Furthermore, our survey findings revealed that senior executives’ support to the digital transformation of the business is also marked as important, starting with the marketing and sales function (stated in “Other”).

Figure 6: Factors which might positively influence the importance of the digital marketing function



Note: n= 58, multiple answers. Q: Digital marketing would become more important in our company if...

Namely, where CEO actively champions the digital, it is not viewed as a separate strategy but it rather sets and steers the company's digital vision and addresses the inevitable challenges that come with new ways of doing business [41].

Taking into account that global competition for digital experts is fierce, companies must distinguish among digital activities that require new hires, those which could be handled by employees with additional trainings, or should be outsourced [37]. Within our survey, over one third of the marketing executives prefer to enhance the skills of their existing marketing teams (36.2%), or to combine new hiring of digital talents with additional staff trainings (25.9%), explained by the headcount budget freeze. In terms of desired new skills necessary for building in-house digital capabilities, the leading Serbian advertisers gave the highest weights to the areas of content marketing (69.2%), mobile marketing (53.8%) and digital marketing analytics (56.4%). By comparing our findings with global trends [15, p. 17], the areas of mobile marketing and SEO were the most desired skills among marketing executives, albeit the highest shortage in digital talents was recorded in areas of marketing analytics (37%), mobile marketing (29%) and content marketing (27%) [35].

Furthermore, the majority of surveyed leading advertisers (82.8%) expressed their intention to experiment in the forthcoming period with new forms and opportunities which digital marketing and digitalised media can offer to their businesses, rather than just doing more of the same. Within the possibility to openly state those tools or channels, the most frequently mentioned were the new forms of content marketing, mobile marketing, affiliate marketing and visually driven social networks (Instagram, Snapchat), exhibiting a parallel with global trends [15, p. 8] where the most commonly cited channels were those that lend themselves to personalising the customer experience through social media, mobile web and content marketing. Namely, personalisation increases the level of loyalty that a customer holds towards a retailer or brand, and combines deep understanding of a customer's wants, needs and desires with timely and tailored delivery of relevant content, products and services [43]. Furthermore, the top three channels for the customer in the future will be those

that focus on personalisation and engagement, whilst the bottom three channels will focus on publishing [49, p. 10].

In terms of major digital marketing trends for the Serbian market in the year 2016 observed through the lens of leading advertisers, most respondents mentioned online video as a form of content marketing, followed by mobile marketing and advertising on Instagram, but also the need for an even stronger integration of digital marketing into the overall marketing function and advertising mix. This finding shows a low correlation with research on global digital trends where customer experience (CX) was seen as a major imperative for leading advertisers, followed by data-driven business, content optimisation, mobile marketing, privacy and security concerns due to data velocity [15], [16]. We would also like to highlight that big data, the new capital in today's hypercompetitive marketplace which provides tremendous opportunity for organisations looking to transform their operations, innovate in their markets and better serve their customers [36] was not mentioned at all by the leading Serbian advertisers. In that respect, we define big data as data sets so large and complex that they become difficult to process using on-hand database management tools or traditional data processing applications and which are bringing challenges such as how and what to capture, curate, storage, search, share, transfer, analyse and visualise [33], [44].

In highlighting digital marketing activities which the leading Serbian advertisers believed that they would have the greatest impact on their business and/or customers in 2016, one quarter of the participants gave the highest weight once more to content marketing (25.5%), the process in which relevant and valuable content is produced and distributed to attract, acquire and engage a clearly defined target audience with the objective of driving profitable customer action [42]. Popularity of content marketing in achieving effective marketing strategy lies in its ability to accomplish content localisation, personalised customer experiences and to appeal to emotions with its storytelling capabilities [54, p. 1062]. Second mentioned was mobile marketing (16.4%), an ever increasingly important component of the overall promotional strategy, whose importance can be seen through the time customers spend using mobile devices, the number of searches, and direct and

indirect mobile-generated sales [4, p. 431]. Furthermore, the leading advertisers also cited engagement on social networks, SEO and CX (each 9.1%). We found it particularly disappointing that the results indicated low importance of CRM among the leading Serbian advertisers, taking into account that keeping the existing customers who come back for more is ten times more profitable than recruiting new ones [17]. Thus, the key CRM concept is sense and respond marketing of delivering relevant, contextual marketing communications by monitoring customer actions or behaviour, reacting with appropriate messages and monitoring those responses [10, p. 418]. This finding is also connected with the low levels of e-mail marketing usage among leading advertisers in Serbia, as an up-to-date and segmented database serves as its prerequisite.

In terms of social media usage, the surveyed advertisers gave an almost equal weight to all of its attributes – social interactions, distribution of company news, advertising and brand awareness. Despite the fact that almost one half of the Serbian population have a Facebook profile [38], due to the mixed weight of answers related to all social media attributes, we concluded that there was no clear social selling strategy in place, corresponding to the McKinsey survey, where 91% of companies did not believe that social media significantly affected sales [37]. Thus, Galante et al. presented that social media campaigns did not lend themselves to straightforward ROI calculations [18, p. 19], although some new measurement models are

emerging, amongst others the Social Gross Rating Point which quantifies the value of “earned media” – publicity that a company has not paid for, such as tweets, comments, shares or forum posts [5].

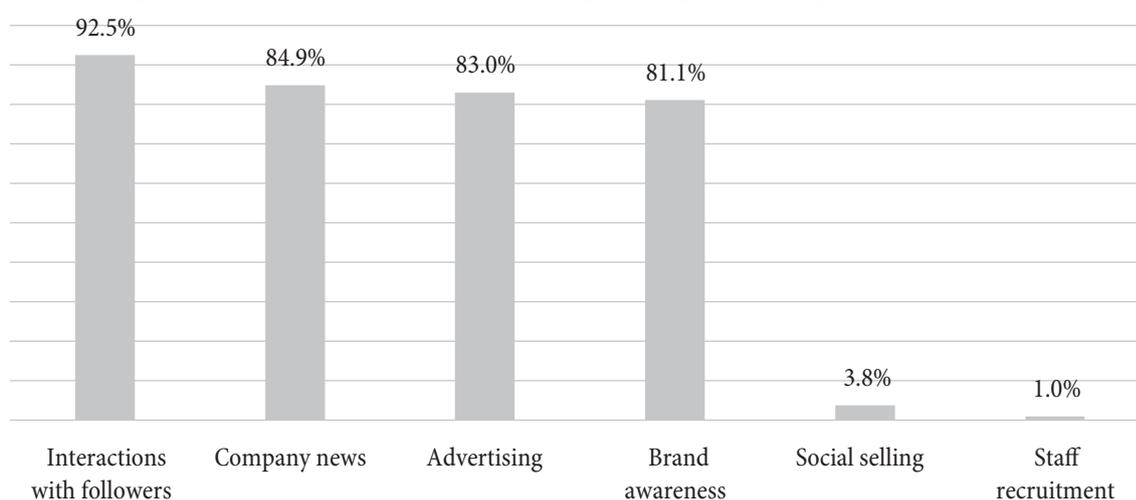
Digital marketing as an integral part of the strategic marketing in budgetary terms

Within our survey, almost one half of the companies have an advertising/marketing budget which exceeds two million euros: 10.1% have clearly stated so and 34.9% were not willing to disclose the amount range, where we assumed that it is within the highest brackets, taking into account that they belong to the leading country advertisers from the AGB Nielsen base [1].

Furthermore, over two thirds of the leading advertisers (75.4%) claimed that their company, despite the global trends of digital advertising surpassing traditional advertising on major markets [52], invested less than 20% in digital ad spends.

We compared our findings with the research by Jayaram et al. [28, p. 120], where ten characteristics are influencing development and usage of digital marketing and media spending in individual markets: digital connectivity/divide, economic power, demand type, privacy laws, demographics, competitive conditions, attitude towards technology, institutional maturity, corporate social responsibility and corruption. Thus, the reason for

Figure 7: Motivations for social media usage among the leading Serbian advertisers



Note: n=69, multiple answers. Q: Do you use social media as a channel for...?

such a small percentage dedicated to digital marketing ad spend with the leading Serbian advertisers could be explained by:

- unfavourable demographic structure, where persons under the age of 18 account for only 17.6% of the total population [40];
- due to low economic power, young people live with their parents almost ten years longer than the European Union average [40];
- Serbia has one of the lowest percentages of internet users in relation to the total population – 54% [53];
- despite 9.2 million of mobile phone users, Serbia has a low smartphone penetration of only 23% [20], [47].

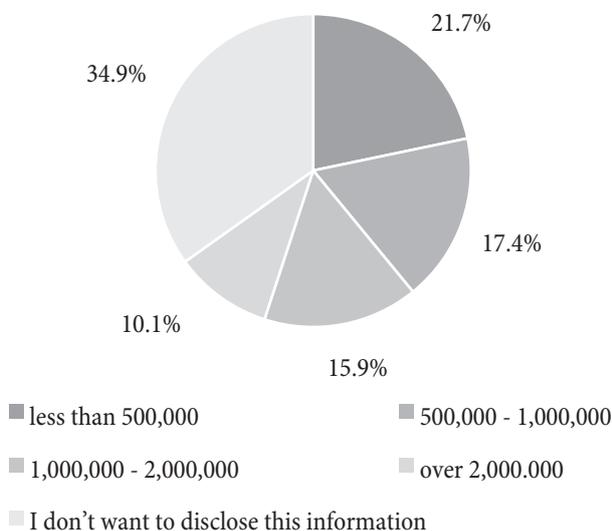
Based on this, we concluded that the advertising budgets were still predominantly channelled towards the traditional media, led by TV, taking into account low economic power, digital connectivity, unfavourable demographics and that the household media consumption is predominantly driven by middle-aged parents.

Furthermore, we posted an additional question to the survey respondents belonging to the category of lower spenders in digital marketing (below 20%), aiming to find out the reasons for low ad expenditure within the category. As a result, the majority of the surveyed respondents stated that the amount allocated to digital marketing activities was lower due to the overall budget constraints, lack of knowledge about its opportunities and channel deployment,

internal resistance and difficulty to measure their outcome. In line with this, demonstrating the return on investments (ROI) achievements and obtaining more budget are also one of the leading challenges that global marketers are facing [22]. However, global issues related to the digital talents gap due to increased data complexity [8] are not given too much emphasis in Serbia. For example, it is estimated that half a million of analytically trained people will be needed in the USA in 2018 to analyse customer data, create digital advertisements, develop websites and perform statistical analyses [34].

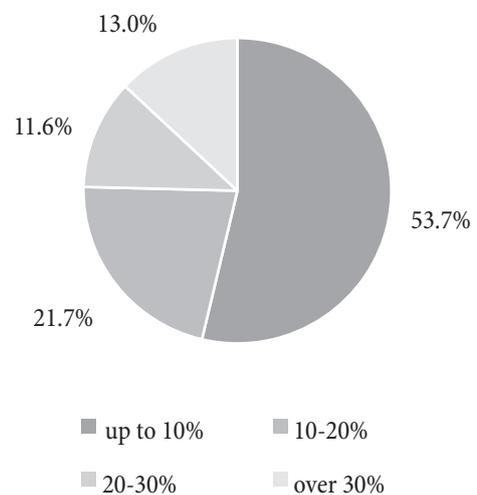
Measurability is a marketing imperative, whether it refers to customer behaviour, campaign engagement or ROI. With the increasingly complex customer journey and difficulty to distinguish the influencing touchpoints, the measurement of ROI from different channels influencing purchase decisions in today’s multiconnected, digitalised world may well suffer [6]. Within our survey, the majority of the respondents are moderately confident in measuring their marketing activities and advertising ROI, with the average weight of 3.4 (on the Likert scale from 1-5). The measurement of digital media ROI achieved a slightly higher weight (3.5) which corresponds to global trends, where confidence in digital ad spend was also the highest (41%) [15, p. 33]. Thus, global marketers perceive an increasing ability to measure customer behaviour and ROI, taking into account technology improvements, which brings

Figure 8: Range of advertising/marketing budgets

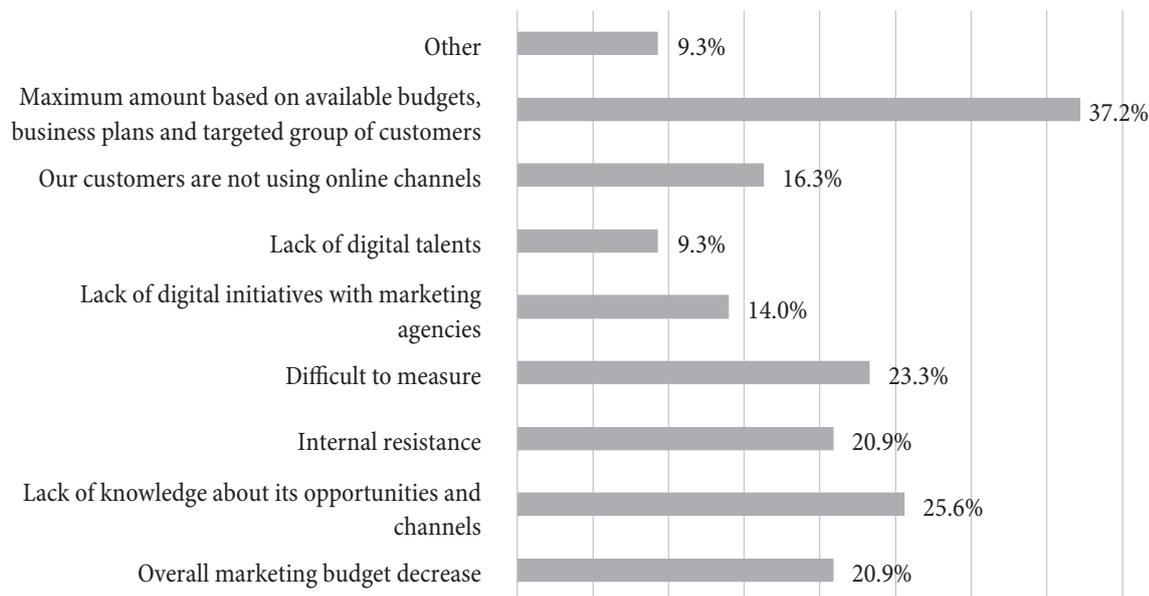


Note: n=69. Q: What is the range of the advertising and marketing budget in your organisation for 2016 (in Euros)?

Figure 9: Participation of digital ad spend in the total advertising & marketing budget



Note: n = 69. Q: How much of your budget is related to digital ad spend?

Figure 10: Reasons why top Serbian advertisers are spending less on digital marketing

Note: n=43, multiple answers. Q: What are the reasons for your company not wanting to spend more on digital marketing and advertising vs traditional marketing?

Table 2: Ability to measure advertising results: Traditional and digital marketing

Answer Options	1	2	3	4	5	Rating Average
Traditional media ROI	4	9	13	18	9	3.36
Digital media ROI	3	9	15	13	13	3.45
PPC advertising ROI	3	6	17	12	15	3.57
Social media ROI	7	8	11	16	11	3.30
E-mail marketing ROI	7	9	15	11	11	3.19

Note: n=53

confidence in the expectations that (digital) marketing activities of the future will bring even more measurability to advertisers by replacing performance metrics with impression-based metrics [50, p. 719].

Conclusion

After compiling all the results, we reached a conclusion that from the organisational point of view, the leading Serbian advertisers strongly preferred the integration of their traditional and digital marketing activities. Through the business position of the surveyed participants and IMC – mentioned among the major digital marketing trends, in most of the leading advertisers we recognised a silo where traditional marketing deals with traditional media channels and then adds a vertical digital media function. Thus, the digital marketing function focuses predominantly on consumer interaction and engagement (from customer service to social media and online communities), without clearly defined strategic support in sales.

Regarding the functional integration of digital marketing in the strategic marketing, by comparing our findings with three stages in marketing functionality [19], and taking into account that only 5% of the leading Serbian advertisers structured their digital marketing function as autonomous, the low importance of global digital trends such as CX and CRM, the lack of SEM and social selling strategy, we concluded that the vast majority of the leading advertisers could be classified as open towards digital marketing (e.g. Trade) and/or passionate about its implementation (e.g. Banking and Finance). The real digital natives were recognised in only a few respondents belonging to the Sectors of IT, Telecommunications, Agriculture and Food Production, due to their technological advancements and/or advanced marketing strategy model applied from the head office.

Our digital marketing capability assessment from the budgetary point of view [9] might confirm that some of the leading Serbian advertisers have reached the medium Stage 3, by showcasing a clear vision and strategy, quality-

based KPIs and partial integration of data and systems. Sadly, the majority of the leading advertisers are still somewhere between Stage 1 – without a digital marketing strategy and KPIs, and Stage 2 – with prioritised digital marketing activities and some of the KPIs defined. The high percentage of creative industries in our survey brought us to another conclusion that low investments in digital marketing in comparison with global trends are (besides unfavourable demographics) mainly related to the fact that the leading advertisers are heavily outsourcing their marketing activities, thus investing less than 10% in digital marketing based on the national trends where internet counts for 12% of the total media investments for the year ahead [1], [26].

Based on the abovementioned findings, we have concluded that digital marketing in Serbia has not (yet) become an integral part of the strategic marketing function. Thus, the major contradiction in our research is that while digital marketing is still in the early development stage in the majority of leading advertisers in Serbia, consumers are way ahead, being frequently online, comparing products and services, discussing their experiences and expecting relevant interactions with brands [20]. Changes towards a more strategic deployment of digital marketing in the business marketing function could be expected by providing more academic and professional research which would clearly demonstrate the benefits of new business generation from online customer acquisition, and consequently, after enhancing existing marketing teams with new digital skills, with special emphasis on those supporting the sales function.

The results of this study point to several practical implications. With the maturing of digital marketing from the current “fancy and/or trial-and-error stage”, which should be driven by enhanced digital skills and financial accountability to connect marketing efforts with financial returns, and by providing more research data for evidence-based decision making, the strategic influence of the marketing function could enhance among Serbian senior executives. Management needs to understand that new media and digital marketing are not an option, but a prerequisite for successful business. The latter would gain their support for the digital transformation of the entire

business, with benefits such as innovations, cost-effective business models and new strategic alliances [16, p. 29].

Our recommendation for future research would be to use a combination of quantitative online surveys and in-depth interviews with marketing executives and heads of the leading advertising agencies, or to compare the findings from different sectors, analysing their changing preferences towards digital advertising.

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EVALUATION OF THE SCIENTIFIC JOURNAL MARKET AND POSITION OF SERBIAN RESEARCHERS IN THE FIELD OF ECONOMICS

Ocena tržišta naučnih časopisa i pozicije srpskih
istraživača u oblasti ekonomije

Abstract

Publications in reputable journals are a crucial condition for successful scientific profiling and accomplishment of significant academic results. The primary goal of this paper is to conduct an analysis of the market of economic journals that belong to M20 category and thus have corresponding impact factors. The aim is to emphasize the position of Serbian researchers in this specific market. The empirical results have revealed that journals from the most developed countries have a dominant role on the market and that Serbian researchers publish the results of their studies primarily in neighboring countries. Recommendations are to bring eminent journals into focus of Serbian researchers, but also to encourage further development of domestic journals so that they could be more active in the international market. In addition, the focus of Serbian researchers should be directed toward the hard core of economic science and the goal of further development of economic disciplines should be more clearly emphasized.

Keywords: *the market of scientific journals, economics, impact factor, researchers from the Republic of Serbia*

Sažetak

Za uspešno naučno profilisanje i ostvarivanje zavidnih akademskih rezultata, publikacije u renomiranim časopisima predstavljaju veoma važan uslov. Osnovni cilj ovog rada je da izvrši analizu tržišta časopisa u oblasti ekonomske nauke, koji su referisani u odgovarajućoj M20 kategoriji sa pripadajućim impakt faktorom. Cilj rada je i da ukaže na sveukupnu poziciju srpskih istraživača na ovom specifičnom tržištu. Empirijski rezultati su pokazali da časopisi iz najrazvijenijih zemalja imaju dominantnu ulogu na tržištu, i da srpski istraživači rezultate svojih studija prevashodno publikuju u časopisima iz okolnih zemalja. Preporuke se odnose na potrebu da u fokusu srpskih istraživača budu eminentni časopisi, kao i razvijanje domaćih, koji bi se kasnije aktivno uključili na međunarodno tržište. Isto tako, usmerenost autora u Srbiji treba da bude ka tvrdom jezgru ekonomske nauke i jasno izraženom cilju - razvijanje ekonomskih disciplina.

Ključne reči: *tržište naučnih časopisa, ekonomija, impakt faktor, istraživači iz Republike Srbije*

Introduction

Publications have an important role in accomplishing success in an academic career. They are used to evaluate the work of a researcher. Publications in reputable international journals are thus an indicator of research competence. By publishing the results of a study, an author or a researcher presents them to a wide scientific audience. Research activities thus contribute to an increase in scientific knowledge and improve the quality of human capital in a national economy [27, p. 1716]. The process of publishing research papers in international journals is a long, unpredictable and demanding task. The ratio of accepted papers in leading international journals is about 10% of the total number of applications, which proves that criteria are extremely high, especially when it comes to originality and relevance [19, p. 14]. The primary goal of the scientific community in Serbia is to make their results visible to wider international audience and become recognizable in academic circles globally. Publishing papers in journals covered by Web of Science (WoS) increases the possibility of being cited and presents a necessary requirement for active participation in the market of journals. In order to achieve this, it is important to improve the quality of the national journals and bring them into line with international criteria. This problem is also present in socio-humanistic sciences. The main focus of this paper would be on the economic journals, but only those which according to the latest data from 2015 are listed with selected impact factors.

There is a dominant presence of the journals which come from the most developed countries. The necessity of publishing articles in those journals gives them a crucial advantage in respect to the less eminent journals. Consequently, the demand is not elastic and practically there is no real competition. The main task for researchers from Serbia is to be present in world renowned databases. Serbian authors face obstacles. According to the latest data, there is just one journal of economics with impact factor from the Republic of Serbia. On the other hand, the scientific community has been constantly increasing on the global level, which makes the competition among researchers very harsh, especially when it comes to publishing articles

in reputable journals. Hence, the estimation of the share of the journals from the most developed countries in the total structure of the previously defined market is very important. Also, it is of great importance to determine the position of Serbian researchers on the market of economic journals.

The primary goal is to evaluate the degree to which most prominent journals participate in the market. One of the goals is also to point out key problems which Serbian authors are facing by reviewing their publications. This kind of study has not been conducted in Serbia, which makes it a novelty. Academic contribution of the paper is that it will reveal current situation on the market of scientific journals in the field of economics, providing thereby an evaluation of the dominance of economic journals from developed countries. In the context of formulating policy for evaluating scientific work, estimation of the position of Serbian authors may further open new questions and dilemmas.

In addition to this introduction, the paper also includes a literature review which provides an overview of the most relevant studies that reveal current trends in science development, dominant position and influence of publishing companies and the evaluation of research work in Serbia. The sources used in this study are defined and the overview of journals which are the subject of the analysis is presented in the data and methodology section. The next section involves results and discussion and it presents the ratio of journals coming from certain countries through categories they belong to, the prevalence of Serbian authors in the international journals and the journals published in neighboring countries. Finally, the conclusion provides a short discussion and the guidelines for future studies as well as some recommendations.

Literature review

According to the contemporary understanding of science, the results of a study or research are not relevant if they are not published and presented to the public and global academic community which can check it, evaluate it and use it for further research [17]. The first commercial publishers of scientific publications appeared in the second half of the

19th century. Then, the number of scientists and also the number of published articles began to grow. During the 20th century, scientific journals became the basic communication channel in science. Nowadays, the leading journals are published by commercial publishers and they make above one half of the journal market (Elsevier, Springer, Wiley and Taylor & Francis). According to Lariviere et al. [14], the degree of market concentration, i.e. the presence of these four publishers, is the most prominent in the field of social sciences and it amounts to 70%. Monbiot [16] emphasizes that publishers of scientific journals are the cruelest capitalists in the Western world. He further points out that their monopoly practices outgrow corporate frauds and that it is necessary to establish institutions which would enable fair competition.

Recently, a new scientific discipline, scientometrics, was founded with the aim to provide quantitative evaluation of scientific accomplishments. Most commonly, quantitative methods are used to evaluate published papers. That sphere of scientometrics is usually called bibliometrics. Its aim is to measure scientific and academic contribution of an individual or an organization through the following indicators: productivity and citation. Productivity is expressed through the number of published and reviewed articles in eminent journals. The number of citations represents the total citations of an author by other authors in scientifically recognized journals [25, p. 62]. The whole procedure of counting is based on searching bibliographical and citation databases.

Significant increase in publishing nowadays is the result of a constantly increasing academic community. Namely, from the total number of scientists in the history of civilization, about 80 or 90% is living today. By the '60s of the 20th century more than 50,000 journals were launched worldwide and over 6 million papers were published. Currently, there are about 300,000 scientific journals and they publish about 1,500,000 papers a year [17]. Price [22] has indicated that the number of researchers in America is skyrocketing with about 1,000 researchers in 1800, 10,000 in 1850, 100,000 in 1900 and about 1,000,000 researchers in the middle of the previous century, with a strong tendency to keep growing. This kind of scientific activity, called "large" science by Price [22], still prevails in the whole

world. Also, for scientists, a task of publishing certain number of papers in the given time period is strictly set. All institutions which need quantitative evaluation of research work turn toward quantitative scientometric indicators [26, p. 611]. Ortinau [20, p. 153] has emphasized that authors need to fulfill or even overcome the expectations of the reviewers and editorial boards by providing convincing and understandable arguments about the significance and relevance of their topic and research question, scientific problems they are dealing with and the significance of the results and conclusions, thus emphasizing the contribution of their study to further development of the sciences.

"Publish or perish" is a widely known and accepted saying in academic circles, and it emphasizes the importance of academic publishing; in many countries it has led to the practice that students of doctoral and even master's studies are obliged to publish in order to obtain a degree [5]. This saying actually means that the basic criterion for the evaluation of researchers is the number of publications. Recently, citations have begun to be used for the same purpose and a new saying, "Be cited or die", appeared. Consequently, solidarity among researchers increased and the number of citations per paper increased.

Klavans and Boyack [11, p. 11] call the authors who are extremely cited superstars, and use them as an example in all-inclusive studies showing that superstars do not publish in isolated communities which are dying away or in communities with less dynamics. Highly productive and cited authors have a tendency to seek new possibilities. Following their stream of thought is very significant in order to understand scientific policy and in order to understand how scientific system functions. Many papers discuss and explore correlations between various indicators that can be used to evaluate success of authors [2]. One of the results where consensus is achieved is that there is a strong correlation between the number of published papers and the number of citations [4, p. 846]. Both these indicators are included in the Hirsch index [8, p. 16570]. The most commonly used indicator of the journal quality is the impact factor. It is a bibliometric indicator which is most widely used. The idea of impact factor was first mentioned by Garfield in the journal *Science* in 1955 [6]. Impact factor for a given

year is a numerical value obtained by dividing the number of citations in the current year to articles published in the previous two years by the number of cited articles published in the period concerned. Hoeffel [9, p. 15] has emphasized that the impact factor is not a perfect tool for quantitative evaluation of articles but that there is no better technique for scientific evaluation of journals and authors. The experience has shown that the most difficult journals to publish in are also the journals with the highest impact factor. A great deal of these journals had existed even before the introduction of impact factor.

In order for an author or a paper to appear in top 5% or 1% of the most cited authors, it is necessary for him/her to have twice more citations than 40 years ago. Such articles usually find their place in prominent journals, although it has to be emphasized that the hierarchy of journals is constantly moving and that being an eminent journal is not a permanent state [15, p. 652]. Investigating research output in Germany, Ketzler and Zimmermann [10] have shown that the number of citations is influenced by the following indicators: publication quality, number of published pages, number of more common articles and a number of co-authors.

It is very important to point out the importance of Internet technologies to the future trends. Google Scholar plays a major role in finding free full-text versions of articles. According to Harzing [7, p. 1060], the use of Google Scholar might redress the traditionally disadvantaged position of the Social Sciences in citation analysis. Academics can now use the web and social websites to disseminate scholarly information in a variety of different ways (profiles in Google Scholar, Microsoft Academic Search, Mendeley, Academia and LinkedIn or any content in SlideShare, ResearchGate). According to Bleda et al. [3, p. 341], in order to be more cited, it is highly important to use such web profiles. Also, by their widespread availability and dissemination through open access media and ORCID system, scholarly outputs witness an improved visibility supposed to cause a better citation performance [24, p. 19].

The evaluation of research output in Serbia and surrounding countries was examined in a wider context by Babić et al. [1, pp. 405-34] and Kutlača et al. [13, pp. 247-65]. For years and years the evaluation of scientific work

was based on the number of published papers. Recently, the additional bibliometric criteria have obtained more importance [18, p. 57]. These are criteria which definitely require adjustment. Serbian citation index has huge importance for the development of bibliometric indicators and provides a more realistic overview of scientific work in a small scientific community such as Serbia. The quality of scientific results is determined based on the several criteria. The first criterion is the influence, and it is presented through the total number of citations and fractionally through the share of the author in the cited paper. The second criterion is an impact factor of a journal, and some general evaluations of the journal quality can also be given. The third criterion is an effective number of articles. The evaluation of scientific work in Serbia is under a huge influence of bibliometrics. Universities use this grading system in the position election procedure. Universities also prescribe certain requirements to PhD students. PhD students are now required to have articles published in adequate categories. These criteria are not identical in all universities or faculties. Taking into consideration that for the Serbian scientific community this is a novelty, there are certain disagreements. For example, institutes in the field of socio-humanistic sciences are fighting against some criteria which, according to their interpretations, represent Americanization of Serbian science and the recognition of only those articles published in commercial journals during position elections [21].

Data and methodology

Based on the defined subject and goals of the study, the article will test the following hypotheses:

- H₁: On the market of economic journals, a high level of presence of journals from developed countries becomes more emphasized as the impact factor rises.
- H₂: Authors from Serbia predominantly publish their research results in the journals of the neighboring countries.

The analysis of the concentration in the field of scientific economic journals uses data from the official website of the Consortium of Libraries in Serbia for Unified Science [12]. 344 journals had predetermined impact factors in the

field of economics in 2015. Based on their impact factors, journals were divided into four categories: M21a, M21, M22 and M23. The short descriptions and explanations of these categories are given in Table 1.

Table 1: Categories of scientific journals in the field of economics with their impact factors

Category M20	Description	Economics
M21a	Excellent international journal, which is among the top 10% in its field	34
M21	Top international journal, which is among the 30% in its field	69
M22	Prominent international journal, which is between 30% and 60% in its field	103
M23	International journal which is indexed in SCI or SSCI	138

Source: Author [12].

In order to determine the position of Serbian researchers on the market of economic journals, it is essential to give an overview of their presence in the journals published in the countries of Southeastern Europe. According to the impact factors for 2015, only three journals from Southeastern Europe were on this list. Two journals are from Croatia and one is from Serbia. All three journals belong to the same category M23. Economic Research – *Ekonomska istraživanja* is the best-ranked journal among them. More information about these journals is given in Table 2.

The examination of the position of Serbian researchers on the market of scientific economic journals does not use the number of citations or the number of authors present on the WoS, but the number of articles in which Serbian authors (one or more) were present in the given time period. The time period under investigation is divided into the period by 2010 and after 2010 in order to conduct more adequate comparisons. The sample included 45 journals obtained through the service ScienceDirect [23]. Those journals are divided into M20 categories: 5 journals in M21a, 14 journals in M21, 17 journals in M22 and 9 journals in M23 category. The titles of the journals and their corresponding categories are presented in Table 3.

Table 2: Economic journals from the Southeastern Europe with impact factors

Journal	Country	Category	Category M20	Impact factor (2015)	Service
PANOECONOMICUS	Serbia	Economics (274/344)	M23	0.412	Open Access Journal
ECON RES - EKON ISTRAZ	Croatia	Economics (261/344)	M23	0.466	Taylor & Francis
ZB RAD EKON FAK RIJE	Croatia	Economics (290/344)	M23	0.346	Open Access Journal

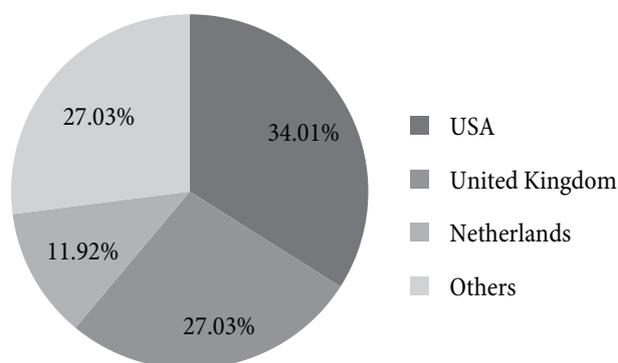
Note: The table uses abbreviated titles of the journals, respectively: Panoeconomicus, Economic Research – Ekonomika istraživanja and Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu.

Results and discussion

Based on the data from Figure 1, it can be said that the USA and the UK dominate the whole structure, participating with more than 60%. The third most dominant country is the Netherlands, whose journals have the most prominent role in the field of financial economics. Thus, from 344 journals listed in 2015, 117 come from the USA, 41 from the UK, 41 from the Netherlands and 93 from other countries. The following Figure shows the structure for each of the M20 categories.

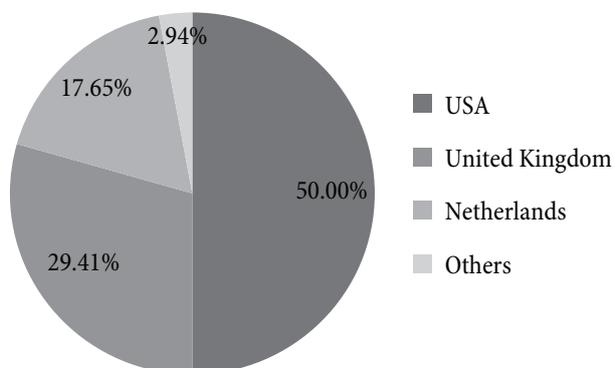
The highest degree of the concentration is present in the category M21a, which is evident based on the data given in Figure 2. The share of the American journals is 50% (17 journals), British journals participate with about 30% (10 journals), and 18% (6 journals) comes from the Netherlands; only one comes from New Zealand. Among the journals in M21 category, there is still a significant concentration of the journals from the USA and the UK (Figure 3) and their share is above $\frac{3}{4}$. This category has 69 journals: 29 American, 23 British, 13 from the Netherlands and only four from other countries. Among the journals in M22 category, there is a certain change in terms of their origin. The German journals enter the scene. Among 103 journals in this category, there are 36 from the USA, 34

Figure 1: The market of scientific journals in the field of economics



Source: Author.

Figure 2: The market of scientific journals in category M21a

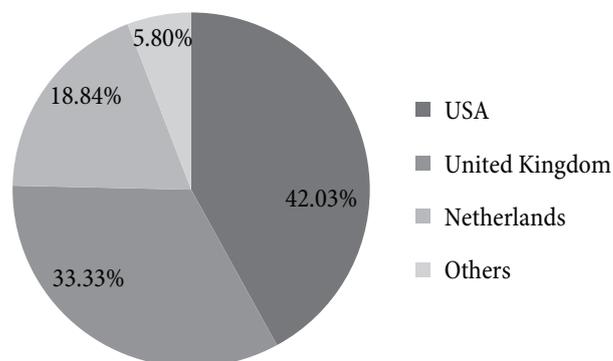


Source: Author.

from the UK, 15 from the Netherlands (Figure 4). The journals from these three countries make about 82% of the market. If we add 7 German journals, the rest of the countries participate with only 11 journals (three journals are from the Czech Republic).

In the category M23, certain tendencies of deconcentration become visible, i.e. this market includes the journals from 29 countries (Figure 5). Nevertheless, with the share of two thirds, the journals from the USA and the

Figure 3: The market of scientific journals in category M21



Source: Author.

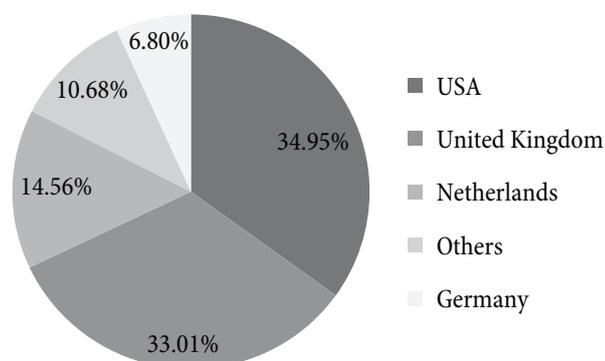
UK are still dominant. However, the share of the German journals is higher. There are 14 German journals on this list. Australia has a significant share with 10 journals as well as the Netherlands with 7. The rest of the countries participate with 46 journals. Only three journals come from Southeastern Europe – two from Croatia and one from Serbia. Their presence in the total structure is practically insignificant, but it is definitely significant for the authors from this region. It is interesting that, in addition to a large

Table 3: The selected economic journals available at ScienceDirect service

M21a	M21	M2	M23
Journal of Financial Economics	Journal of Environmental Economics and Management	European Journal of Political Economy	Economic Systems
Ecological Economics	Journal of Urban Economics	Review of Economic Dynamics	Economics Letters
Energy Economics	Journal of International Economics	Journal of Economic Theory	Japan and the World Economy
Journal of Monetary Economics	International Review of Economics and Finance	European Economic Review	International Review of Law and Economics
Journal of Health Economics	Journal of Development Economics	Journal of Choice Modelling	Journal of Mathematical Economics
	Emerging Markets Review		
	Journal of Econometrics	Journal of International Financial Markets, Institutions and Money	Mathematical Social Sciences
	International Journal of Forecasting	Regional Science and Urban Economics	Journal of Behavioral and Experimental Economics
	Agricultural Economics	Economic Modelling	Journal of Applied Economics
	Journal of Economic Behavior and Organization	Journal of Policy Modeling	Investigacion economica - Facultad de Economia de la Universidad Nacional Autonoma de Mexico
	Insurance: Mathematics and Economics	Journal of Empirical Finance	
	Journal of Comparative Economics	Labour Economics	
	Journal of Public Economics	International Journal of Industrial Organization	
	Journal of Banking and Finance	Structural Change and Economic Dynamics	
		Information Economics and Policy	
		Socio-Economic Planning Sciences	
		Research in Transportation Economics	
		Journal of Macroeconomics	

Source: [23].

Figure 4: The market of scientific journals in category M22

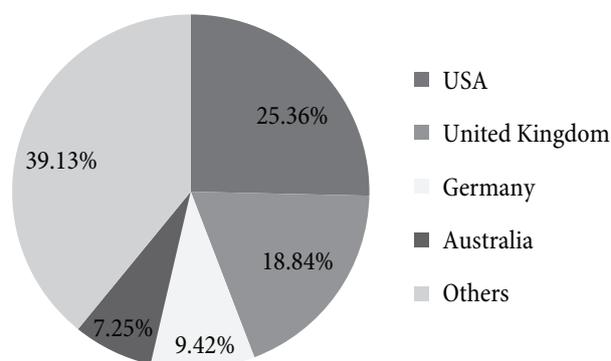


Source: Author.

number of authors who are recognized in wider research community, no journal from Slovenia is on this list.

The significance of the journals from Southeastern Europe for Serbian authors is obvious based on Table 4, which shows the number of articles published by Serbian authors in the last five years (the total number of articles published by a journal is given in the brackets; book reviews are not included). Figure 6 also presents the number of articles published by Serbian authors, and the ratio of articles written by Serbian authors in the total number

Figure 5: The market of scientific journals in category M23



Source: Author.

of published articles. The percentage is the highest in the domestic journal Panoeconomicus; the highest number of articles is published by Economic Research – *Ekonomska istraživanja*, because this journal is a part of Taylor & Francis Group and thus publishes more articles per year. The share of the journals from Croatia is at the similar level.

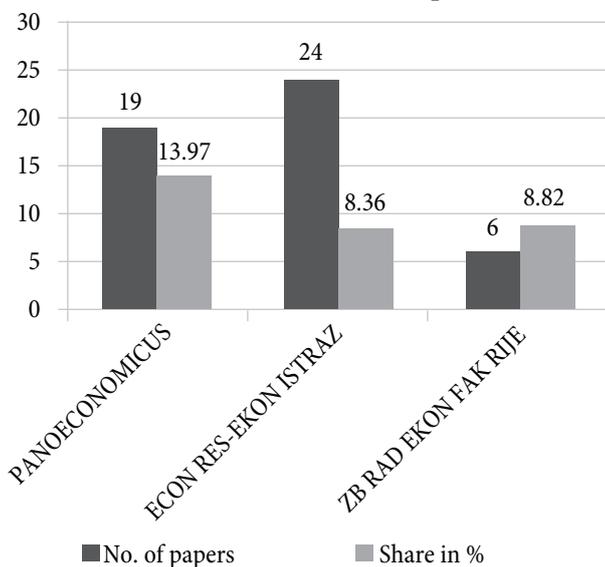
In order to show that it is a large number of articles and to emphasize the significance of the existence of the journals from this region, Figure 7 presents the numbers of articles published by Serbian authors in international

Table 4: The position of Serbian authors in the journals from Southeastern Europe

Journal	2011	2012	2013	2014	2015
PANOECONOMICUS	5 (29)	7 (27)	2 (27)	1 (26)	4 (27)
ECON RES - EKON ISTRAZ	2 (49)	6 (62)	2 (48)	10 (58)	4 (70)
ZB RAD EKON FAK RIJE	0 (18)	4 (11)	1 (11)	1 (15)	0 (13)

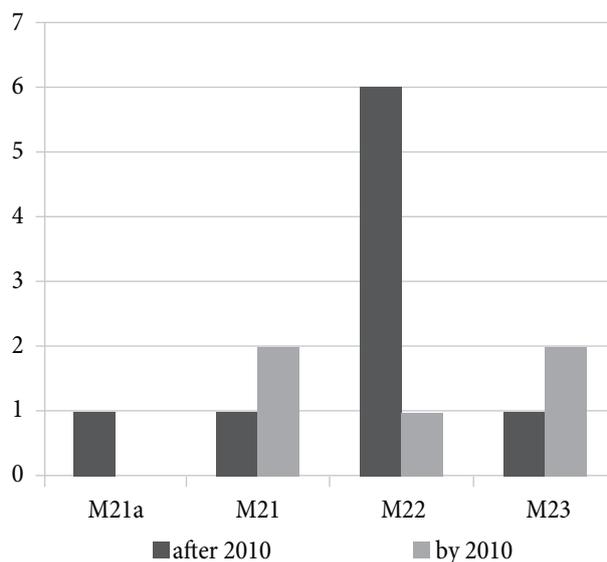
Source: Author.

Figure 6: The presence of Serbian authors in journals from Southeastern Europe



Source: Author.

Figure 7: The number of articles of Serbian authors available at ScienceDirect service



Source: Author.

journals of different categories which are available at ScienceDirect. It is evident that the number of articles published in these journals is rather small in comparison to the journals from Southeastern Europe. On the other hand, it is encouraging that there is an increase in the number of published articles in respect to the time before 2010, especially in M22 category. The authors from Serbia should increase their share by improving the quality of their articles. The huge problem is that the dominant role is held by the journals from the most developed countries which have the power to determine specificity of topics, publishing policy and reviewing process length, which may fluctuate depending on the recognition of the author. The key factor is to become recognizable on this market. The dominant position of those who have the most power is present in all spheres and entrance to those markets is something that must be achieved. The conditions for the election are very clear in scientific sense. Both the authors and the journals are striving to achieve higher impact factors. That is their mutual goal, so articles which have research potential and possibility for further exploiting and citing definitely have an advantage in successful overcoming of all obstacles which journals set before authors.

Conclusion

The primary aim of this paper is to examine the level of presence of journals from the most developed countries in the field of economics. The results obtained through an adequate analysis have shown that on the market of scientific journals in the field of economics the dominant role is reserved for the journals from the USA and the UK. The domination of journals from these countries is becoming more emphasized as the category of a journal becomes higher. This confirms the basic hypothesis of this paper. In the category M23, there is a certain reduction in the concentration of the journals from these countries. Consequently, it is clear that there are elitist journals and authors who have a privilege to publish in them. This position enables the journals from the most developed countries to create publishing policy, specificity of topics and to further shape public thinking through their publications.

In addition, the goal of the study is to explore the role of Serbian authors on this market. In accordance with the hypothesis made in this study, it has been revealed that Serbian authors predominantly publish their articles in the journals from Serbia and Croatia. On the market of the journals listed in one of the most famous services, Serbian authors are not so prominent, but the number of published articles has increased after 2010. Based on this, it can be said that the interests for publishing Serbian authors were negligible because publishing was not a condition for academic titles. It takes time to enter those new markets. On the other hand, the question still remains about the interests of elite journals to accept Serbian authors and, above all, their articles which concern a small open economy such as the Serbian economy.

In authors from Serbia, conscience was awakened after the legislation had prescribed that the institutions of high education should put an emphasis on eminent journals and develop domestic ones that would have the potential to enter international markets. These two processes go side by side. The direction of the authors from Serbia should be set toward the hard core of economic sciences and toward clear goals of developing economic disciplines. Multidisciplinary and interdisciplinary approaches are a contemporary trend, and the links between economics and other scientific fields could be interesting to explore. Consequently, since the number of such journals is constantly growing, the possibilities for publishing articles on such topics are increasing, too.

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Savez ekonomista Srbije i Društvo ekonomista Niša
organizuju tradicionalno *Niško savetovanje ekonomista*

Niš, Oficirski dom, 17. 10. 2017. godine

NAPREDNE TEHNOLOGIJE U FUNKCIJI EKONOMSKOG RASTA

Republici Srbiji je neophodan ekonomski model zasnovan na međusobno povezanim politikama čiji je cilj dostizanje održivog dugoročnog rasta. Povezane informatičke tehnologije dramatično povećavaju količinu i vrednost informacija dostupnih pojedincima, preduzećima i vladama, omogućujući im da vrše efikasniji izbor i ostvaruju superiornije performanse.

Odnos implementacije naprednih tehnologija i ekonomskog rasta možemo posmatrati na mikro i makro nivou, a njegovu evaluaciju pratiti kroz rast i strukturu bruto domaćeg proizvoda i spoljnotrgovinsku razmenu.

Na mikro nivou neophodni su nova poslovni modeli vođenja preduzeća, njihove reorganizacije i redefinisane konkurentskih prednosti u smislu uključivanja novih tehnologija.. Preduzeća moraju biti spremna za efikasno i dinamično tržište kapitala i fleksibilno tržište rada. Rizik, neizvesnost i promene postaju pravilo, a ne izuzetak u dinamičnoj ekonomiji i preduzetništvu. To je ekonomija u kojoj hijerarhijska organizacija preduzeća ustupa mesto mrežnoj organizaciji koja se neprekidno usavršava.

Na mezo i makro nivou podrazumevamo duboku transformaciju industrijske proizvodnje i celokupne ekonomije. Rast ekonomije ne možemo tražiti u postojećoj proizvodnji, sa postojećim tehnikama i procesima, već u novim proizvodima dobijenim tehnologijama utemeljenim na inovacijama. Nova radna mesta i povećanje zaposlenosti potrebno je osigurati novim preduzetničkim poduhvatima, a ne pukom reorganizacijom postojećih preduzeća.

Države bi svoje delovanje morale fokusirati na jačanje infrastrukture koja će podsticati inovacije, na investicije u obrazovanje i nauku, na podsticanje industrijskih klastera, na poboljšanje životnog standarda i kvaliteta rada. Reforma sistema školovanja na svim nivoima i povećana potreba za permanentnim obrazovanjem trebalo bi da dovede do bolje osposobljene radne snage spremne da koristi i usavršava savremenu tehnologiju.

Uloga države se, dakle, svodi na implementaciju politika za uspešno uvođenje novih tehnologija, a to se naročito odnosi na fiskalnu, trgovinsku, obrazovnu i investicionu politiku. Države, regioni i lokalne samouprave moraju težiti da postanu interesantno područje sa povoljnim poslovnim ambijentom koji uključuje i obrazovane i kreativne radnike. U tim uslovima investitori ne bi bili primarno motivisani stimulacijama za otvaranje novih radnih mesta, koje najčešće podrazumevaju i jeftinu radnu snagu.

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