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Consulting during the coronavirus in the light of an empirical survey in Hungary[1]

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Abstract
Relatively little accurate information about management consulting and its market is available to interested readers. Therefore, in this article, we are committed to presenting the most important global trends from various sources, analyzing the main features of the development of the European, Central and Eastern European, as well as the Hungarian consulting markets. Among several other industries, the consulting sector has been affected negatively by the emergence of corona crisis. Consulting, characterized by stable growth and expansion before the pandemic, is estimated to have declined by 17-18 percent in 2020. However, different experts agree that consulting industry will recover faster from the current crisis than before. The pandemic has caused radical changes in the way we work and communicate, and consultants are ready to keep with the flow. One of the key questions of our empirical study in Hungary was the extent to which each consulting organization experienced an economically negative situation, the areas where there was a decrease or an increase, and the extent to which they see new opportunities for the future. Based on the results obtained, we found that the examined organizations were negatively affected by the crisis in terms of sales and services, but a significant part of the organizations also see new opportunities in the current situation for the future.

Keywords
management consultancy, trends, Central and Eastern Europe, impact of COVID-19 on consulting, Hungary

Introduction

Consulting as a business service appeared about 150 years ago, during the Second Industrial Revolution, first in the United States (Poór, 2016). Nowadays, consulting has covered almost every area of business. Its focus areas have changed significantly over the past decades. The development of counseling from its inception to the present day can be discussed in a number of divisions. Due to the limited space available, the following should be highlighted in this regard:

The most significant and longest-standing trend was the school of scientific management, which was able to influence this field for nearly eighty years. The main reason for its creation is the increased need for efficiency testing and its improvement in the field of management and other areas of economic life. In Europe, the first major advisory bodies appeared in England, France and Germany. Special mention should be made of the advisory trend that developed in Germany, which has set an example for many Eastern European countries to follow. Just before the end of World War I, the RKW (Rationalisierung-Kuratorium der Deutschen Wirtschaft) was established in Germany in 1917 and the REFA (Reichsausschuss für

[1] Extended version of the paper presented at Strategic Management and Decision Support Systems in Strategic Management SM 2021 scientific conference.

Arbeitsstudien, now Arbeitsstudien und Betriebsorganisation) was established in 1925. They provided efficiency gains and the spread of conscious plant organization through state-subsidized means in all spheres of the economy. These organizations have made a significant contribution to the fact that, in addition to large companies, German small and medium-sized companies have been employing consultants since long ago.

As a result of excessive industrial orientation, many social scientists have sought to provide more humane production conditions for workers. The second wave was the emergence of human relations, in the 1920s. Its best-known representative is George Elton Mayo, who noticed the link between effectiveness and mental health and then made suggestions for reducing stress at work.

Management and organization consultants: this includes traditional management consulting firms. Their consulting practices are typically built around the field of corporate strategic consulting. These include the earlier mentioned McKinsey and Co., Booz and Co., Boston Consulting Group, and others (Pereira, Jerónimo, & Ramos, 2017).

Consultant companies based on an accounting-financial professional background: the oldest organizations in the field of consulting. In terms of their professional profile, these firms grew out of some field of accounting or finance in the 1800s and have now grown into global corporate empires. They are the so-called "First generation consultants" or "large audit firms" (Plunkett, 2021).

Business Technology Consultants: This includes consulting firms that were formed in the 1950s and beyond. Their primary area of expertise is business technology consultancies. Typically, they grew out of the manufacturing, application development or consulting circles of the IT industry, and then appeared on the consulting market by purchasing and acquiring the complete consulting business units of serious consulting companies. These include PWC, Unisys, SAP, etc. (Poór, 2016)

The digital revolution that has unfolded in recent years has made IT and outsourcing consulting increasingly important. One important phenomenon in recent years has been that large tech companies (e.g., IBM, SAP, etc.) have all launched their consulting services.

The digital revolution that has unfolded in recent years has made IT and outsourcing consulting increasingly important. One important phenomenon of the recent years has been that large tech companies (e.g., IBM, SAP, etc.) have all launched their consulting services.

Compared to other areas of consulting, HR consulting has developed relatively late, which can be explained by several reasons, one of the most common of which is the differences in region-specific trends and the differences in region-specific factors affecting HRM (human resource management) development. In the more developed economies of Western Europe, the first HR consulting companies were established as early as the 1940s. In addition to traditional HR consultants, more and more service providers are emerging to enter this market with new services (e.g., employee-renting, outsourcing, etc.). (Hitka, Lorincová, & Ližbetinová, 2017; Jaskeviciute Stankeviciene, Diskiene, & Savicke, 2021)

The new trends are well summarized by Brooks and Edwards (2014), who believe that in the field of management consulting instead of problem orientation, result orientation, instead of expert, co-creator, instead of static, dynamic knowledge creation, and instead of professional, personal relationships come to the fore.

However, it is also important to mention that, with the exception of a few cases and countries, counseling has not become a true academic discipline. This is explained by various authors (Srinivisan, 2014), among others, that the consulting industry is very fragmented, there are innumerable companies in this field, the industry is not regulated and there is a lack of important in-depth academic research in this field. This particular situation may also seem strange because the works of great and acclaimed management gurus such as Argyris, Bennis, Ed Schein, McClelland, Nadler, or Porter have had a huge impact on this field, and even more of these have been under their own name or in association with others, they have established and operated recognized consulting firms.

All in all, this is not an insignificant industry. According to a recent survey conducted by IBIS market research, the global consulting industry had sales of $ 630 billion in 2019. In addition to the well-known traditional strategic consulting firms (Bain, BCG, McKinsey, Mercer, etc.), this industry includes atypical consulting firms such as IBM, Tata or Infosys, known from the outsourcing industry, but we must not forget about the many micro, mini and medium-sized

consulting firms that represent the vast army in this field in every country in the world.

The cradle of counseling, as previously indicated, was the United States. Mainly as a result of the Americanization of management, the consulting firms established there were able to gain a significant market position in Western Europe and South-East Asia "without any competitor" (Fröndhoff, 2020)

1. Consulting markets

1.1. The global consulting market

There are relatively few data available on the size of global and regional consulting markets. According to the previously cited IBIS 2019 Global Management Consulting Industry Market Research Report (IBS, 2019), total revenue for the global management consulting industry reached $ 634 billion in 2017, with an average growth rate of 3.4% over the past five years. The above-mentioned report finds that there are nearly 2 million consulting firms worldwide (38% in the U.S.) that employ 4 million consultants.

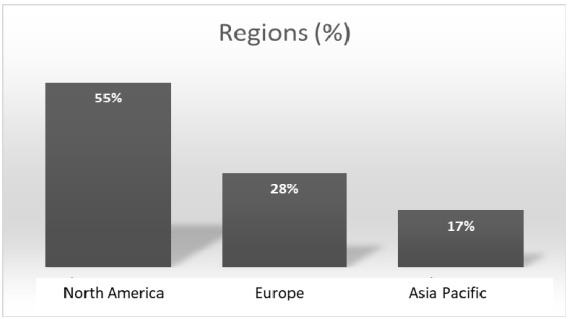

Figure 1 Distribution of the global consulting market by major regions
Source: the authors own compilation by Consultancy.org (2020)

1.2. European consulting market

According to the mentioned report, the second largest consulting market is the European, with its 28 percent share of the global market.

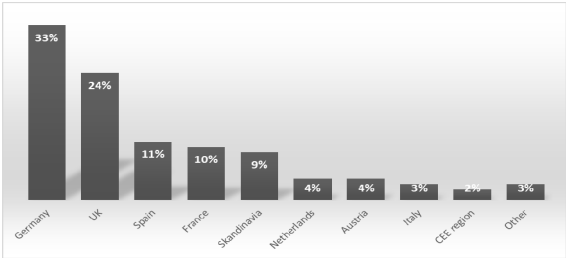

Figure 2 European advisory market share (2018)
Source: the authors' own compilation by FEACO, 2018

The four largest markets are German, English, French and Spanish.

1.2.1. Eastern European consulting market

Prior to the political changes in the late 1980s, advisory services in most Eastern European countries were provided by state-run sectoral research institutes, universities, or departments of individual ministries. In most countries, central institutions of management consulting have been set up with the assistance of the International Labor Organization (ILO) or the United Nations' UNIDO. In these countries, the features of modern management consulting under the previous system were only found in traces. In most cases, the approaches to the previously mentioned trend of scientific leadership were typical.

After the regime change, privatization related consulting has developed significantly in all countries. Billions of euros have flowed into these countries through the European Union's PHARE program, and consultants have played a significant role in setting up and implementing the various programs. At the initiative of FEACO, advisory associations have been set up in almost all countries. The books and publications of Kubr (1996), who is of Czech descent but lived and worked in Geneva, have been translated into several local languages. Despite the indicated growth, Eastern Europe still represents a very modest part of the European consulting market. In recent years, the global decline in the field of counseling before the outbreak of the coronavirus epidemic has hardly been characteristic of our region. During the indicated period, consulting is one of the most developing economic services in Eastern European countries.

According to the latest data, the distribution of the consulting market in the countries of Central and Eastern Europe is shown in the following picture.

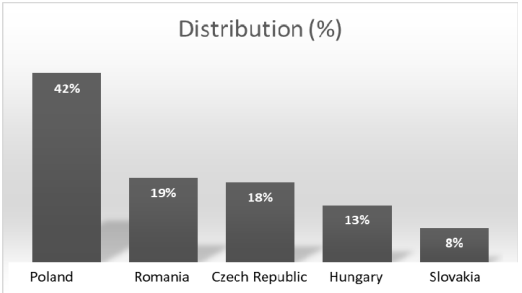

Figure 3 Distribution of the consulting market, in the CEE region by country (2018)
Source: the authors own compilation by Consultancy.org, 2018

1.2.2. The Hungarian consulting market

By the turn of the millennium, the Hungarian consulting industry had reached the level of Greece and Portugal, which serve as a basis for comparison. Unfortunately, this good result did not lead to domestic companies and the public sector. In particular, the large-scale relocation of international companies was an above-average driving force for the sector.

The majority of Hungarian consulting companies can actually be classified as small and medium-sized companies in terms of size. There are two typical groups of companies in the domestic consulting market. One of the groups can be classified as the so-called big (Big Six later the Big Four) that offer all kinds of consulting services to their clients. The largest of the large international strategic consulting firms (e.g., McKinsey, BCG, Bain, Roland Berger), though, the so-called "General or complex or integrated MC services" consulting has (also) become increasingly involved, partly as a result of the proliferation of information technology (IT) and enterprise resource planning (ERP) systems.

The other group mainly provides specialized services (niche companies). Medium-sized players are missing from the Hungarian market. In connection with the analysis described above, it is important to point out that the described structure of domestic consulting looks very similar to the Hungarian corporate structure.

In the last decade, the typical users of consulting in Hungary have been mostly the private sector and, within that, multinational companies. Domestic SME clients did not play a significant role in this regard. In the last 4-5 years, advisory assignments from the public sector and the EU Structural Funds have provided the greatest opportunities.

A survey conducted in 2015 (Poór & Csapó, 2015) shows that domestic consulting firms use both expert, process, and more recently inquiry consulting approaches that are becoming increasingly fashionable.

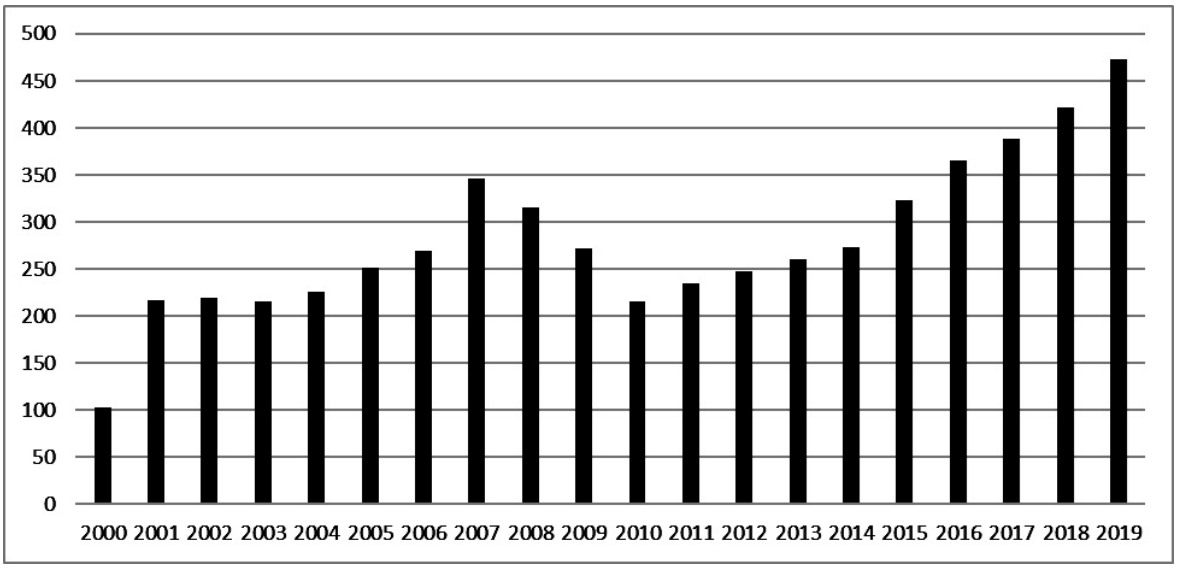

Figure 4 Management consulting in Hungary between 2000 and 2019
Source: Csapó (2021)

After the crisis of 2008-2009, a steady, more modest increase in volume can be observed in terms of the change in sales revenue; however, the sales revenue realized in 2007 was not exceeded by the Hungarian management consulting market before 2016. Market volume growth has been growing steadily since 2016 until 2019 (Csapó, 2021)

2. Effects of COVID-19 on consulting

The consulting industry has already been most significantly affected by the global pandemic in a number of ways. At the start of the outbreak in March 2020, the heads of the German divisions of four leading global strategic consulting firms (MCKinsey, Bain, BCG & Roland Berger) felt the following (Consultancy.org., 2020). Advisers are regular travelers, so they are particularly sensitive to the spread of the virus, while the almost certainly provocable financial downturn of pandemic is likely to have a big impact on their income. In fact, as a result of the last financial

crisis in 2008, the demand for consultants has fallen sharply, and many businesses have suffered greatly over the last decade to recover from it and be able to return to growth. This time, however, the heads of the German divisions of the four leading global strategic consulting firms said the medium-term outlook for the consulting market is much better than it was during the financial crisis. “Many companies are wondering how this new situation and its economic consequences could be handled. Therefore, they continue to seek consultants and demand their services (Consultancy.org, 2020). This is shared by labor professionals, who emphasize that “in the longer term, perhaps even more important is how receptive we are to learning, whether we will be able to recognize the wider context” (Csizmadia & Illés, 2020).

According to another study, also published in the Consultancy.eu website cited above, the decline in the consulting industry will be greatest in Europe (-28%) and the US (-15%) (Consultancy.org, 2020). Handelsblatt, one of the most famous German economic journals, writes about a similar decline. According to the mentioned report, while the German consulting market, which has grown by almost 8-9 percent annually since 2010, realized sales of € 35 billion in 2019, a significant decline is expected. This decline is due to the cancellation or freezing of orders. Smaller consulting firms are more affected by this crisis. This is because many large consultancy projects, such as those for digital transformation, have not yet experienced a “shutdown” - but these will lengthen over time. These projects largely involve larger strategic consultants and IT professionals. In the case of personnel consultants, the situation is different; for example, when the downtime already leaves a clear mark on certain parts of the economy. Training and coaching projects are stopped by clients and they are also very reluctant to start looking for new managers. Important personal contacts and discussions in the field of human resources were currently barely possible at the time of closure (Fröndhoff, 2020). The other research report (IBIS, 2021) published in January 2021 only a 6.5 percent global decline by 2020. The research firm is already forecasting global growth in consulting industry by 2021. That research report highlights that industries such as "certain technology industries and the pharmaceutical and healthcare sectors have performed better than companies with clients in hospitality and travel industries" (IBIS, 2021).

However, some analysts also suggest that during the pandemic, the relationship between awareness and paradigm shift will change. The epidemic will act as an accelerator in the processes that have actually been going on for years, namely, as companies increasingly rely on online solutions and blended learning concepts to improve the work of their staff.

It should also be seen that reopening the economy is also an opportunity for change for the consulting industry. The latest business climate index from the German Advisory Association (BDU) indicates a clear improvement. Based on a survey of 800 consulting firms, the index shows a positive shift, in almost all areas (BDU, 2020).

In this situation, consulting firms, law firms, and other professional service providers prefer to send their employees home to work from home. This situation, in turn, raises a number of data security issues. That the employees of these companies can provide the usual and expected confidential data and information management, as in the office environment. While professional services firms operating remotely in the form of a home office present new and different risks, these risks can be significantly reduced through careful ongoing management, communication and training (Rowlands, 2020; Peters & Waterman, 1982).

The specific communication effects of COVID-19 are raised by the leaders of various professional service companies. In the new situation, such companies have successfully maintained their formal communications and are likely to increase their effectiveness, but occasional, problem-solving innovative conversations are not easy to hold in such an environment (Keogh, 2020).

It is often worthwhile for consultants to build on older examples to find an effective and innovative solution for today’s COVID-affected companies. The McKinsey Global Research Institute’s regular business newsletter provides a number of examples of this. “We looked at the post-World War II era, when countries rebuilt from the ashes to come up with ideas that are just as relevant now. Finally, we have identified ways in which managers can change their mindsets and behaviors to reopen their business safely” (MC Kinsey, 2020). During the current crisis, indications have emerged that we have seen very often during the 2008-2009 crisis, i.e., “Enough of the consultants, rather internal staff is used to

solve our problems" (Morris & Noonan, 2020).

3. Research methods

Our research team conducted an empirical survey between November 10 and December 10, 2020. During the research, we examined the impact of the COVID-19 epidemic on the Hungarian consulting industry. The survey, implemented in the form of a questionnaire survey, was carried out with the support of the professional associations operating in Hungary (HSZOSZ, MÉT, OHE, PMSZ, SZMT, TANOSZT, TK, VOE and VTMSZ).

Participation in the survey was voluntary and free of charge, and the data will be kept confidential. The questionnaire was completed online. It was a single-responder query, meaning an organization means fill.

In our research, we sought answers to the following with our questionnaire containing 14 questions:

- Characteristics of the enterprises responding to our questionnaire (size, sector, turnover, year of establishment and form of enterprise).
- Potential and perceived economic impacts of COVID-19 (revenue, headcount and service activity).
- Potential and perceived effects of COVID-19 on consultancy work (for already contracted projects, for new projects, in consultancy work).
- Finally, we also asked what opportunities the respondents see in the advisory work following COVID-19.

4. Results

4.1 About our sample

According to the definition of almost half of the respondents, consulting enterprises can be classified into the micro category, as most of these organizations operate with 2-9 employees. Small and medium-sized (SME) enterprises make up one third of the respondents in the sample. The share of organizations employing more than 250 people is close to 20 percent. The distribution of the responding organizations by headcount is shown in Table 1.

Table 1 Responding organization size - number of employees (for complex large companies, only the size of the consulting business department was taken into account here)

No.	Headcount (persons)	Frequencies	%
1.	1	49	21.4%
2.	2-9	67	29.3%
3.	10-49	34	14.8%
4.	50-250	37	16.2%
5.	251-500	8	3.5%
6.	501-1000	12	5.2%
7.	above 1000	22	9.6%
	Total	229	

Source: the authors' own research

The largest proportion of respondents came from domestically owned private enterprises, with a share of 64.5 a half percent in the sample. The share of foreign or jointly owned private companies is nearly one-third of the sample. Public sector organizations are included in the survey in the smallest proportion. The distribution of respondents by form of ownership is shown in Table 2.

Table 2 Ownership of responding organizations

No.	Ownership	Frequency	%
1.	Domestic privately owned	145	64.4%
2.	Domestic publicly owned	14	6.2%
3.	Foreign privately owned	47	20.9%
4.	Mix	19	8.4%
	Total	225	

Source: the authors' own research

Our respondents include organizations of different ages in approximately the same proportion, about 11 percent of which were formed before the change of regime and almost 10 percent after 2015. The distribution of responding organizations by period of establishment is shown in Table 3.

Table 3 Year of establishment of responding organizations

No.	Year of establishment	Frequency	%
1.	after 2015	20	9.5%
2.	2011-2015	23	11.0%
3.	2006-2010	43	20.5%
4.	2001-2005	34	16.2%
5.	1996-2000	34	16.2%
6.	1990-1995	33	15.7%
7.	before 1990	23	11.0%
	Total	210	

Source: the authors' own research

4.2. Impacts on consulting companies

In this context, we examined the development of the following three business characteristics:

Revenue

The coronavirus crisis in 2020 affected consulting organizations in very different ways. About three-quarters of the 261 respondents answered the question of how sales in your organization would develop in 2020 compared to the previous year. Nearly a quarter of them said they would not experience significant changes. In their opinion, the sales revenue will be similar to the sales revenue in 2019. Slightly more than that, almost a third of respondents report a decline in sales of more than 10 percent. The data show that the coronavirus crisis is causing a decrease in sales revenue in almost half of the companies (43.6%). We can also see a positive result, with about 20 percent of respondents experiencing an increase of around 10 percent or more.

Headcount

Three-quarters of the respondents also provided information on the development of the organization's headcount during the survey. For most of them (67%), the number of employees did not change compared to the previous year. About 20 percent of respondents report a decline in the workforce, while 10 percent report the proportion of organizations in the sample where the workforce has increased despite the coronavirus crisis.

4.3. Impact on consulting services and consultant work

Consulting services

Based on the responses of the organizations participating in the survey, it can be observed that the current coronavirus crisis has had an impact on the frequency of recourse to counseling services. A relatively large proportion of respondents, 42 percent, reported a decrease in the number and volume of counseling services they provided in 2020 compared to the previous year.

Table 4 Impact of COVID-19 on consulting services

	Frequency	Percentage
Sharply decreased (above 20%)	47	24.6
Slightly decreased	33	17.3
Unchanged	60	31.4
Slightly increased	24	12.6
Sharply increased (above 20%)	15	7.9
Had to pause	12	6,3
Total	191	

Source: the authors' own research

A further 6 per cent marked the "had to pause" option. Nearly one-third of the organizations did not experience a change in the number of services provided. An increase of 20 percent of respondents experienced an increase.

Backlog and future assignments

In this section, we seek to answer how the coronavirus crisis has affected different features of respondents' consulting work (for already contracted and future projects). In the case of already contracted projects, the largest increases concern technology and IT projects, with more than 40 percent of respondents experiencing growth in these areas. 9-10 percent of respondents also experienced a decrease in such projects. The decline is most common in education and training, with 64 per cent of respondents experiencing such a change. Growth in this area was seen in only 10 percent of the organizations surveyed in 2020. In addition to training, there are several areas where the majority of respondents indicated a decrease than an increase. Such service areas include strategy, organizational development, and selection. Detailed results are shown in Figure 5.

The situation is similar for new projects. Growth in most IT and technology projects is experienced by participating organizations, followed by people and change, and finance and risk management. Decreases are most common in education and training, followed by selection and organizational development. Thus, there are very large differences between the responding organizations in terms of the impact of the current situation on ongoing and future projects. Data on new projects are provided in Table 5.

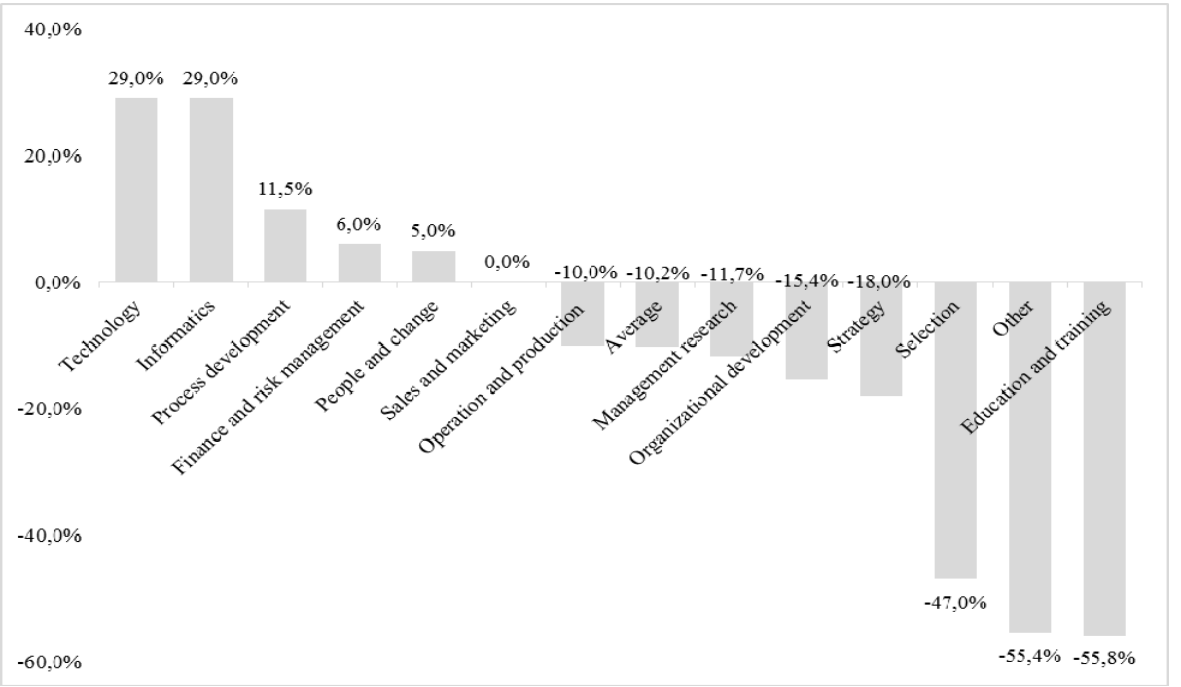

Figure 5 The intensity and direction of changes caused by the crisis
Source: the authors' own research

Table 5 Impact of the crisis on new projects

Consulting areas	Percentage (%)				
	Increased	Unchanged	Decreased	Not perform	Total
Strategy	24.0	37.3	30.6	8.0	100.0
Operation and production	24.5	49.0	20.4	6.1	100.0
Sales and marketing	25.0	50.0	12.5	12.5	100.0
Finance and risk management	32.4	29.4	32.3	5.9	100.0
People and change	34.8	29.0	31.9	4.3	100.0
Technology	40.6	40.8	9.4	9.2	100.0
Informatics	43.5	30.4	23.2	2.9	100.0
Organizational development	24.4	33.3	39.7	2.6	100.0
Process development	29.0	42.0	18.8	10.2	100.0
Education and training	14.8	23.0	59.0	3.2	100.0
Selection	11.8	41.2	41.1	5.9	100.0
Management research	23.5	41.2	17.6	17.7	100.0
Other	6.3	27.8	12.5	53.4	100.0

Source: the authors' own research

Consultant work in the shadow of Covid-19

In this subsection, we examine the direct effects of the coronavirus crisis on employment. Let us first look at how the impact of the current situation on workers has evolved. Unpaid leave is not typical of most responding organizations. Only 15 percent indicated that they had to make more or less use of this opportunity. Withdrawal of annual leave is still in good proportions, with more than half of the companies surveyed not having it. At the same time, most of the participating organizations are characterized by more difficult planning, increased family burdens for employees, more difficult reconciliation of work and private life, and the need to reorganize the flow of information within the organization. Data on the effects of the coronavirus crisis on workers are shown in Figure 6.

More than half of the respondents perceived problems with the need for consultants to move to a home office. Even more people have experienced difficulties in switching to online consulting. The good news is that for half of the responding organizations, the new situation of

uncertainty did not cause a break in their business relationships at all. Unfortunately, however, in situations where personal presence is important (e.g., coaching), the situation caused by the coronavirus was less well bridged by intermediate solutions. Only a quarter of respondents said they did not encounter this problem. Table 6 provides more detailed information on interruptions.

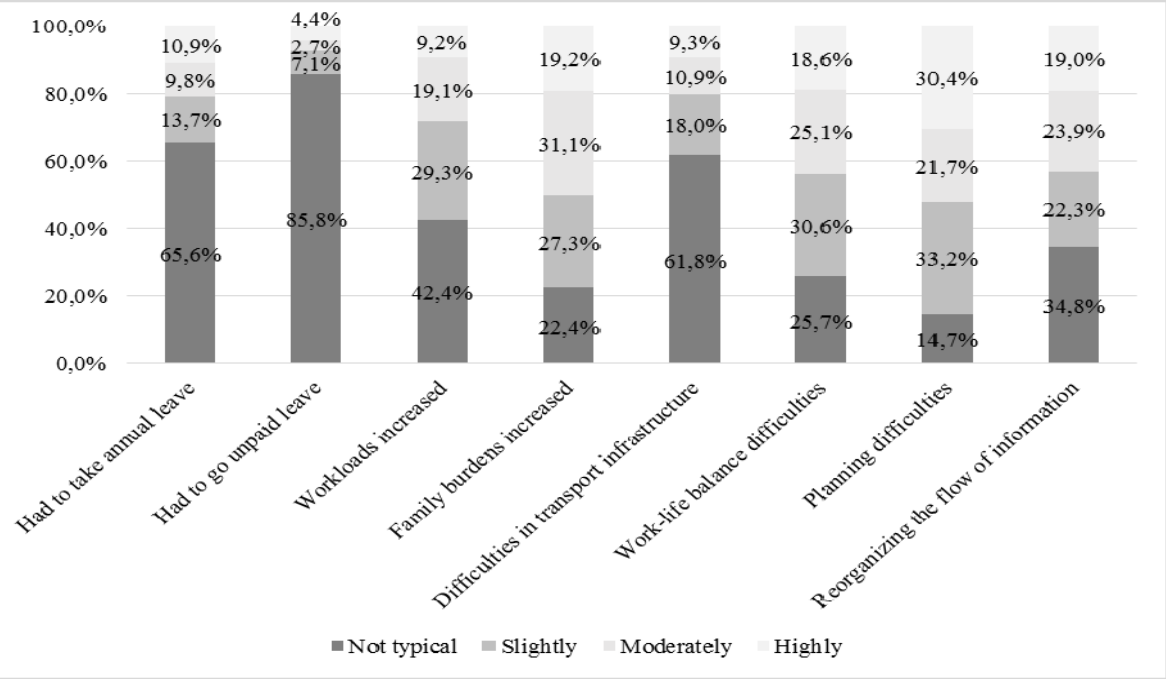

Figure 6 Effects on workers
Source: the authors' own research

Table 6 Problems caused by the pandemic in the work of consultants

Problematic area	Percentage (%)				
	Not typical	Slightly	Moderately	Highly	Total
Home office for consultants	25.9%	20.5 %	13.6%	40%	100%
Home office for administrative workers	34.2%	18%	15.5%	32.3%	100%
Online consulting	14.5%	19.4%	23%	43.1%	100%
The uncertainty caused a break in business relations	49%	22.4%	14.6%	14%	100%
Lack of personal presence in the area of data security and coaching did not cause a disruption	21,2%	23.1%	30.7%	25%	100%
Had to quickly look for answers to different types of customer problems	23.3%	27.6%	22.7%	26.4%	100%
Other	57.4%	9.3%	22.2 %	11.1%	100%

Source: the authors' own research

Consulting business and future opportunities

It is not at all unfamiliar for consultants to seek opportunities or, where appropriate, to steer a negative situation in a positive direction by making better use of opportunities. However, what is the case when faced with a crisis that negatively affects not only clients but also the consulting sector? The respondents to the questionnaire were asked - with a 7-point Likert scale - whether they could see the current crisis as an opportunity. The results of the questioning are shown in Table 7. The vast majority of respondents agree that the crisis also offers opportunities that are just waiting to be discovered and exploited.

Table 7 The potential of the crisis

	Frequency	Percentage
1	13	7.6%
2	10	5.8%
3	7	4.1%

4	24	14.0%
5	38	22.1%
6	30	17.4%
7	50	29,1
Total	172	100.0%

Source: the authors' own research

Conclusion

In the last year of the past decade, very high growth rates approaching 10 percent were not uncommon in the advisory sector of the economies of the developed world and transition countries either. Studying the data of recent years, it can be clearly stated that the development of the consulting sector in Hungary is clearly influenced in a positive direction by economic development (GPD), cultural openness and confidence.

The outbreak of COVID-19 at the end of the decade, which affected almost all actors in socio-economic life, was completely unexpected. Consulting firms were not excluded from the indicated effects either. Most of these companies were very negatively affected by the epidemic. But, similar to certain business sectors (e.g., IT, logistics, warehousing, etc.), many consulting firms in this area have seen significant growth.

Of course, we could not go into all the important details of the development of this field within the narrow framework. In turn, we highlighted some of the most important global, regional and local trends and tendencies. We do not consider our research as final.

The vast majority of respondents agree that the crisis also has opportunities that are just waiting to be discovered and exploited.SM

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Models of technological integration development[1]

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Abstract
Issues of scientific and technological development of the economy, increasing its competitiveness, including various aspects of technological integration, are the subject of foreign and domestic research. At the same time, technological integration is considered as a key direction of the new industrial and scientific-technical policy, as a means of transition to the digital economy, to production processes with higher added value, as a means of establishing a constructive dialogue between industrial enterprises and science. The reason for this is, on the one hand, the relative novelty of this economic phenomenon, and, on the other, the lack of theoretical and methodological tools for modelling the development of technological integration.
The purpose of the article is to study the problems of modelling the development of technological integration in the context of priority scientific and technological development of the Russian economy. The article uses a wide range of general scientific methods: analysis and synthesis, grouping, typing, modelling, economic-statistical and graphical. The main methodological approaches used in the article are: structural-functional, instrumental and process approaches, which are reflected in the scientific and practical material of the general theory of systems, the theory of organization.
The theoretical results of the study are the disclosure of the organizational model for the development of technological integration as a dynamic set of interconnected modules: management and coordination; structure; processes; resources designated to achieve the strategic objectives of technology integration participants. Classification characteristics of technological integration development processes have been identified and theoretically justified.
The applied result is a specialized modelling tool based on a combination of a standardized approach and improved design quality with the ability to test simulated processes and the presence of stable feedback with all participants in technological integration. The process model of technological integration development was argued, its decomposition was carried out, which allows distinguishing the main, supporting and regulatory processes of participants in technological integration. The combination of these models facilitates the management of these processes in order to maximize the efficiency of the modern economy. An organizational and economic mechanism for modelling the development of technological integration is proposed, which allows the use of operational monitoring, due to the vector orientation of which it becomes possible to promptly carry out regular adjustments of key parameters of assessing the impact of technological integration on the results of technological development in national economies.

Keywords
Technological integration, organizational model, process model, development priorities, modelling

Introduction

Technological integration is a phenomenon that can transform the external and internal relationships of business entities that are integrated into each other, or closely interact for the period of performing certain tasks. First of all, this concerns the development of technologies focused on process innovations, including the production of high-tech products of deep processing, as well as technologies for managing industrial complexes. The ultimate goal of these changes is to generate added value along the production chain, as well as to digitalize the

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economy. The study of issues and prospects for the development of technological integration is due to the global challenges of the economic crisis, the sharp deterioration of the environmental situation on a global scale, as well as restrictions and barriers to the free circulation of innovative ideas and developments.

Technological integration contributes to the development of intelligent production technologies based on a system of interconnected and complementary production complexes. In contrast to the existing concepts of managing organizations that operate in the face of external challenges, the development of technology is based on organizational and process modelling, which offers a clear set of tools for simplifying and reducing the timing of the transition to the level of high technological redistribution based on the state of the resource base, using existing and new economic ties inside and outside of industrial complexes. Digital information processing technologies focused on modelling complex technological processes are of particular importance in the development of technological integration.

1. Methodology

1.1. Structural and functional approach

The methodological framework applied here was structural-functional approach, which is based on the methods of analysis and synthesis in the study of the technology integration development in integrity, unity and relationship of its constituent parts; economic-statistical methods (grouping, typing, plotting time series, determination of ratings, etc.) to analyse and compile statistical information, identify trends and characteristics of scientific and technological development of industrial enterprises. The implementation of the approach is facilitated by the use of a computational and analytical method for modelling the development of technological integration of economic entities; whereas a graphical method was used for visualizing the obtained results.

The essence of the structural and functional approach is that technological integration is considered as a dynamic process of transforming the flows of production resources in the form of new technologies at the enterprise level, as well as on a global scale by using the reserves of internal and external development (Miller & Davidenko, 2019). A connection with the theory of structural functionalism can be seen in the definition, especially if the socio-economic system is interpreted in the light of stable complexes, rules and norms (Vanderstraeten, 2019). However, there is a distinctive feature – when determining the object and subject of technological integration, the system of economic relations for regulating the flow of production resources in the form of applied technologies is taken as a basis, since it will be subject to the greatest transformation in case of detection of problem areas in the organization of production.

The key place among the elements of the structural and functional approach is occupied by tools that allow formalizing the procedure for evaluating the effectiveness of the development of technological integration in a set of measures agreed on terms, resources and performers. The toolkit allows users to:

- reveal the causal mechanisms of commercialization of ideas and profit (the direct Causal Mechanisms of Profit, "DCMP"), focused on innovation, technological change and meeting the need for fixed assets (Kim & Lee, 2018);
- determine the key forms of interaction between structures for the purpose of forming economic, technological and social thinking within a single ecosystem (Audretsch & Link, 2018);
- implement innovations based on internal and external knowledge flows. State programs for subsidizing research and scientific and technological developments on the basis of mandatory involvement of universities in the implementation of innovative projects (Guerrero, Urbano & Herrera, 2019; Colombelli, & Quatraro, 2019);
- develop agglomeration economy through geographical concentration of innovations and growth of regional innovation capacity ("RIC"), expressed by the average number of patents, innovations and small innovative firms (Hamidi, Zandiatashbar & Bonakdar, 2019);
- accelerate the process of adaptation to the heterogeneity of integration participants while expanding the areas of global cooperation in the field of technological innovations in order to maximize the impact of external innovations (Huang, Chen, Ye & Wang, 2019).

At its core, basing technological integration on a structural and functional approach contributes to the integration of production, technological, and financial and economic content into a single data set. According to domestic and foreign experts,

the transition to the level of intelligent industrial production is determined by the readiness of enterprises to implement interactive programs of innovative projects on joint production sites by forming a common bank of breakthrough technologies, after which the management system of integrated economic complexes will be able to move to a new level of production organization that meets the requirements of high returns on all types of invested capital.

2. Results of research

2.1. Organizational model for the technology integration development

The research of the processes of selecting models for the development of technological integration in the industrial sector of the economy has shown that today there are two approaches that are most important and play a key role in the development of technological integration: organizational and process modelling.

Organizational modelling should be considered as the process of creating analogues to real objects or processes, which allows isolating the key properties and essential characteristics that correspond to the simulated objects (Visnjic, Ringov & Arts 2019). This does not take into account minor properties and characteristics. Among the tools that make it possible to create organizational modelling, we should highlight the formalization, which is used, on the one hand, to organize knowledge about the object, and on the other – as a way to provide information.

The formalization of the organizational model for the development of technological integration is reflected in the following documents: standards, statutes, regulations, methods, instructions, rules, etc. The main purpose of these documents is to establish a procedure for distributing functions, responsibilities and rights among participants in technological integration (Pfohl, Yahsi & Kurnaz, 2017) The effectiveness of formalization of the organizational model is achieved, on the one hand, due to the action of objective laws that form specific conditions for the implementation of technological integration, on the other hand, due to the consistency of documents of different levels of action, their common perception and application. Implementation of the organizational model of technological integration is possible in the form of graphs and diagrams.

Two types, which are divided according to the signs of their formation, can be distinguished in organizational models of technological integration. The first type allows revealing the characteristic features of the relations of the original and the reflection of its properties, as well as the principles of the model functioning. The second type reveals the reasons for changing the properties and relationships of the generated model, and its relationship with the properties and relationships of the original. The first type allows us to distinguish logical (symbolic, figurative and figurative-sign); semantic and material (geometric functional, functional-geometric) models. The second type of organizational models of technological integration includes mathematical, conditional, and analogue models.

This division of organizational models of the technological integration development into types allows us to reflect their key characteristics. Considering the model of technological integration development as a model of a complex system, it should be emphasized that it reveals all the features of a complex type and can contain a variety of representations.

The development process of technology integration may involve the use of models that reflect the functions of technological integration; resources to fully implement the functions; the processes to meet the objectives of technological integration; the composition and structure of participants in technology integration, providing structural interrelation of all elements of the relationship; the variety of financial, material, informational and other flows characteristic of full the functioning of technological integration (Park, Choi & Hong, 2015).

Thus, the organizational model of technological integration development is a complex characteristic that allows revealing graphically or descriptively the elements of technological integration, as well as reflecting the completeness of their relationship. The main task of the organizational model of technological integration development is to simplify the system representation of existing or projected technological integration on the basis of analogies. The organizational model of technological integration development should be considered as a tool for purposeful research of technological integration, which will allow anticipating all possible variants of technological integration changes using changes in the initial assumptions. The organizational model is actually a means of simplifying the consideration of technological integration, since it allows studying

it in relation to the essential characteristics of technological integration, levelling the actions of non- essential changes.

The formed organizational model of technological integration development reflects the characteristic features of its system-forming elements. Formation of the organizational model, as well as its design, is carried out based on the strategic plan of the business entity. At the same time, the structural elements of a business entity significantly affect their strategy, since it determines the ability to respond quickly to the action of environmental factors. The organizational model of technological integration development should not be considered as a static model, since it changes in the course of the business entity's activity. It is impossible to maintain the static organizational model in relation to the conditions of dynamic development of the external environment (Boschma & Fornahl, 2011).

In the process of forming an organizational model for the development of technological integration, a special place is taken by taking into account the interests of all its participants, since it is necessary to ensure the priority position of the initiator of its creation, based on the fact that it bears both investment and financial risks. It is also necessary to take into account possible differences in the legal status of each participant of technological integration, as well as their right to independence as an economic entity.

The formation of an organizational model for the development of technological integration is carried out in strict accordance with the organizational and strategic lines, taking into account the existing experience of participants, as well as technological, information and other achievements in the rapidly changing conditions and environmental factors.

The organizational model of technological integration development can be disclosed in the form of system modules that are interconnected (figure 1).

Considering each of the modules, it is necessary to select the “resources” module , which shows the sources of formation of all types of production resources, the total volume, the procedural order of their receipt, the direction of use in the main activity of the business entity.

The “structure” module shows the order of interaction of all elements of technological integration. This module includes the technological structure, financial and organizational structure. At the same time, the process of their formation is directly connected to the processes related to ensuring the development of technological integration, which is reflected in the "processes" module. The formation of an organizational model for the development of technological integration should begin with identifying the main products of the business entity, revealing the processes of its production, levelling the "secondary" processes and developing the existing ones.

To provide the "regulation" module for technological integration, it is necessary to take into account such processes as planning, motivation, analysis; centralization of management and regulation of the activities of participants in the development of technological integration.

The development of technological integration takes place with the active participation and influence of factors, both within the business entity and outside it. Thus, dynamic, structural and static aspects of the development of technological integration are updated. In parallel, the functioning of the business entity is being streamlined, which is based on regulatory processes, compliance with business conditions and life cycle parameters (Proskuryakova, Meissner & Rudnik, 2017).

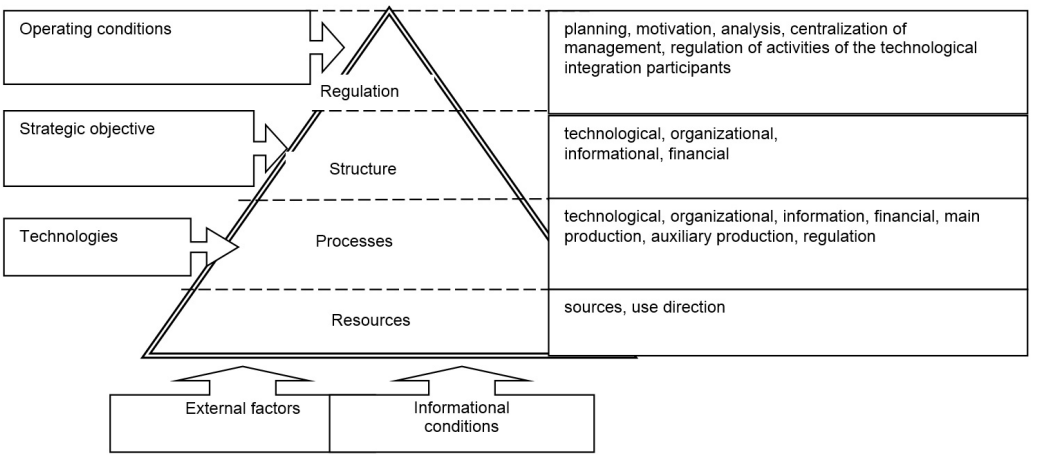

Figure 1 Organizational model of the technological integration development
Source: the authors' research

For the purpose of forming an organizational model for the technological integration development, a specialized modelling tool plays a significant role. The main advantages of the instrumental approach to organizational modelling of technological integration are: the presence of a standardized approach and improving the quality of design; the creation of a single integrated documented system; the ability to reuse the generated models; the ability to test the simulated processes; availability of stable feedback from all participants of technological integration; cultivation of generally accepted terminology. The problem stage of determining the generally accepted approach in relation to organizational models is the achievement of a given level of standardization. However, the formalization of modelling methods is a good basis for standardization. This is largely facilitated by the use of an instrumental approach in organizational modelling.

Of course, modelling is possible without the use of a tool approach, but it is in many ways that makes this process easier. The use of the tool approach is achieved through diagrams, graphical symbols, and links that are set in advance and thus ensure compliance with the unified methodology of model design. Consequently, the processes of creating their own standards are updated, allowing the selection of methods and tools for target use in modelling technological integration.

A reserve in organizational modelling is an information-oriented mechanism for regulating technological integration based on modern information technologies based on the availability of information systems (Oughton, et al., 2018). This, to a large extent, leads to the full functioning of technological integration, to the positive dynamics of the vector of adaptability, as well as to increased competitiveness.

With the development of organizational modelling, the process of modernization and improvement of its tools takes place. As a result, there are built organizational models, both for the initial process of technological integration and for those that are being reorganized in the process of development. It should be emphasized that each business entity should correspond to the organizational model for the development of technological integration. Detailed elements of technological integration contribute to the successful functioning, improvement and development of all participants of the business entity as a system. The key point is the formation of an adequate organizational model that meets the requirements of the information system. Meeting the requirements of the information system contributes to making operational decisions aimed at improving communication and integration of participants in technological integration, and maintaining a full cycle of regulation of the main and auxiliary production processes of the business entity.

Thus, the presence of an organizational model for the technological integration development contributes to the formation of a system of interrelated components. In order to achieve the effectiveness of regulation of this complex system of relations, the use of a process approach based on the separation of business processes of technological integration and their regulation is updated.

2.2. Process model of technological integration development

Economic entities have a complex structure, defined by a wide range of their main activities, the presence of diverse participants, the presence of structured elements of technological integration, which are influenced by the entire range of environmental factors. The data show the difficulties of applying the process approach, both to the regulation of relations between participants in the development of technological integration, and management processes aimed at the main activity. The formation of a process model for the development of technological integration should strictly follow the conceptual framework of the strategy for the development of technological integration, implement preventive measures to neutralize the negative effects of environmental factors, and adhere to the format of existing organizational structures (Druzhinin & Dong, 2018). The process model of technological integration development reflects the entire set of tools for their regulation: planning, analysis, control, organization of the main cycle of production activities , management technology, business process maps, list of regulations, procedures execution regulations, list of indicators, evaluation lists for participants of technological integration, motivation regulations, document flow diagram, operational reporting forms.

The process model for the development of technological integration is the basis for the formation of a long-term process regulation, as approved procedures for the implementation of the process. It should be correctly assessed that the quality of the final product is formed by the quality of the organization and execution of the business process. At the same time, the process should be considered as a stable, purposeful set of interrelated types of main production activities, which, in turn, involves a certain technology for converting incoming initial production resources and outgoing finished products that are in demand by consumers. The presence of a regulated and formalized procedure makes it possible to regulate demand, strictly measuring the vector direction of the specified business process. Time costs are minimized by optimizing the internal structure of the business process (Kovacs, 2018).

The process model of technological integration development can be represented, on the one hand, as a set of independent business processes of their participants, on the other hand - as separate business processes (figure 2).

<table>
<tr><td>Real opportunities of technological integration</td><td>The effect of environmental factors</td><td colspan="2">Goals of technological integration participants</td><td>Finished products</td><td>Information resources participants</td></tr>
<tr><td>Technological integration regulatory mechanism</td><td colspan="4" rowspan="3">Process model of technological integration development</td><td>Potential technological integration participants</td></tr>
<tr><td>External investment</td><td>Financial results</td></tr>
<tr><td>Bank credits</td><td>Contractors</td></tr>
<tr><td>Means of technological integration</td><td>Productive resource</td><td>Technological, software, and financial support</td><td colspan="2">Functional services and production units of participants in technological integration</td><td>Technological, software, and financial support</td></tr>
</table>

Figure 2 Process model of technological integration development
Source: the author's research

Decomposition of the process model of technological integration development in the form of a conditional method makes it possible to see the entire set of technological integration convenient for real understanding. This makes it possible to clearly define the structural elements of technological integration and reveal the main relationships between them. The degree of decomposition depth is determined by the goals of process modelling.

The process model of technological integration development includes the following information items:

- nomenclature list of sequential functions, procedures, and operations required to perform in order to achieve the effectiveness of technological integration development;
- a minimum list of entities in the form of specific individuals, services, and divisions as the main performers of business process functions;
- defining the procedure for relationships and interactions between participants in the

development of technological integration when performing the full functions of business processes;

- development of accounting, control and regulation mechanisms in relation to implemented business processes;
- selection of parameters that reflect the degree of completeness of the execution of each of the functions separately, and processes as a whole;
- creating a list of outgoing and incoming information, formalized in the form of a specific document, which is performed during the implementation of each process;
- defining all types of resources necessary for the full implementation of each of the process functions;
- availability of documentation regulating the execution of each individual business process.

As a rule, the process of technological integration development depends on the nature of production activities, as well as on the nature of the final product. They can be divided into three groups: main processes, supporting processes, and regulatory processes (Wu, Harrigan, Ang & Wu, 2019). The main business processes are aimed at creating added value, generating profits, and producing final products that are in demand by potential consumers.

Supporting processes are focused on building the infrastructure of technological integration and providing the necessary resources to the main business processes. With the help of regulatory processes, the actions of participants in technological integration are coordinated, as well as the functions of planning, analysis, control, and motivation are performed.

At the same time, a number of authors (Harrigan, Di Guardo & Cowgill, 2017) identify the fourth group of processes for the development of technological integration – business processes of development aimed at achieving profit in the forecast period and ensuring the progressive development of technological integration. It should be emphasized that the processes of technological integration development can be classified as regulatory processes, since a number of their main characteristics are very similar, which makes it possible to integrate them into the algorithm of the corresponding processes. However, for the purpose of objective justification of the process model for the development of technological integration, it is still necessary to emphasize that the existing traditional typologies of business processes do not fully reflect the characteristics inherent in the development processes. Groups of processes that are typical for the development of technological integration are presented in Table 1.

2.3. Decomposition of the process model of technological integration development

The decomposition of the process model for the development of technological integration is primarily related to the need to identify the main and supporting processes, the subjects of which, as a rule, are the participants of technological integration. (Figure 3). The regulatory processes are managed by managers of business entities (Meissner & Carayannis, 2017).

Table 1 Classification characteristics of the technological integration development processes

Process groups	Process subjects	Characteristics	Goal
Main processes	Participants in technological integration	Aimed at the production of main products. Generate profit. Responsible for the development strategy	Meeting the needs of consumers
Supporting processes	Participants in technological integration	Are aimed at ensuring the main processes. There is no direct link to the final product. Generate costs.	Providing resources for the main processes
Regulatory processes	Managers of a business entity	Regulatory processes are directly related to the core business	Regulation of the activities of participants in technological integration
Development process	Participants in technological integration	Coordinates interests and strategies of technology integration participants	Coordination of investment and financial direction of development

Source: the author's research

Participants in technological integration are also subjects of development processes, which allow them to coordinate their interests and strategic goals. The need to identify business processes in order to form specific process models for the development of technological integration

should be carried out with certain principles in mind:

- all processes must have clearly defined contours;
- every process must have input, output, and subjects of technological integration;
- a process must have process subjects, criteria and parameters, resource support, methods and methods for converting input and output, and regulatory techniques;
- every process must contain factors that are focused on a specific economic result;
- there should be a possibility to exclude non-resulting processes.

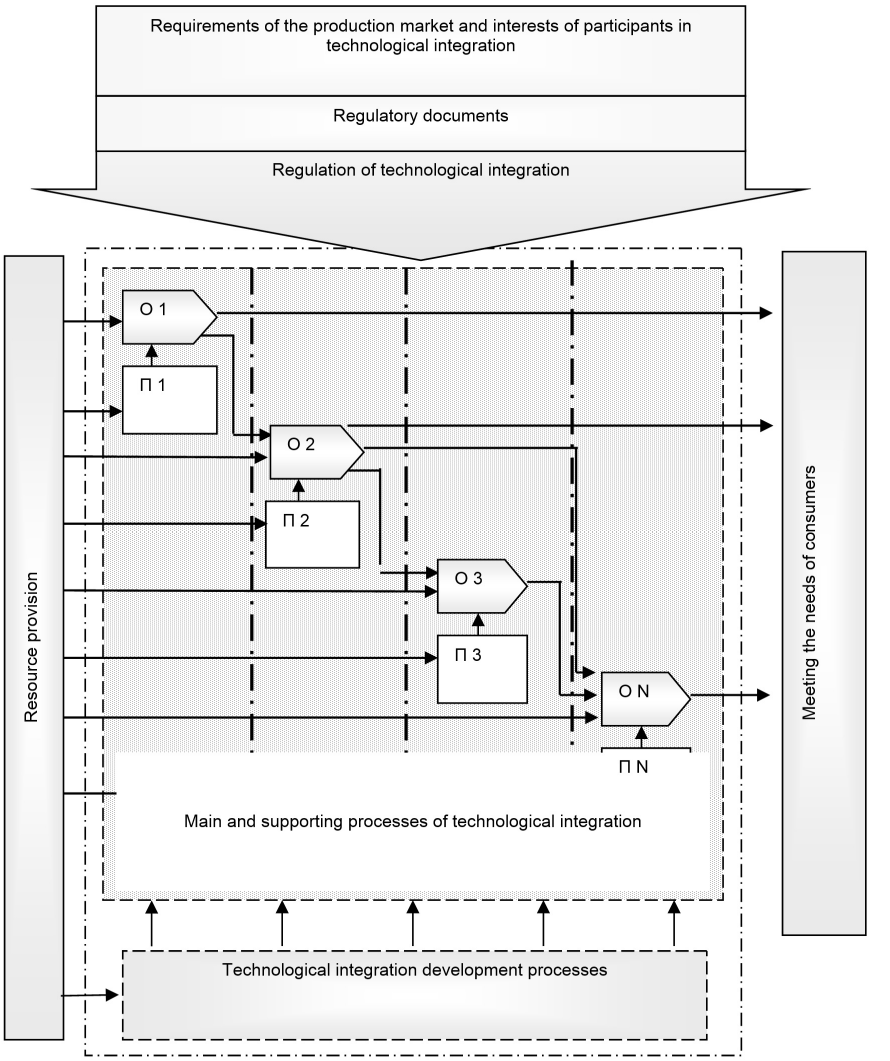

Figure 3 Decomposition of the process model of technological integration development
Source: the author's research

Figure 4 presents decomposition of the supporting and regulatory processes of technological integration in the form of a business process system.

The effectiveness of the process model of technological integration development is determined not only by optimizing the existing business processes of the participants of technological integration, but also by identifying business processes aimed at performing functions, operations and procedures (Zambelli, Fredholm & Venkatachalam, 2017). The allocation of support and regulatory processes greatly facilitates the use of the results achieved at the output of these groups, since they actually serve as combined resources for the main processes and processes of technological integration development.

In these groups, by prior agreement with the subjects of the main processes and processes of development (O), it is possible to include those

supporting and regulatory processes (P) that allow providing of specific internal results aimed at the action of the entire set of main processes and processes of development. As a basic solution, information support (software products), compliance with environmental safety, innovative processes, financial and legal support processes, and regulation of relations with contractors can be attributed to these groups.

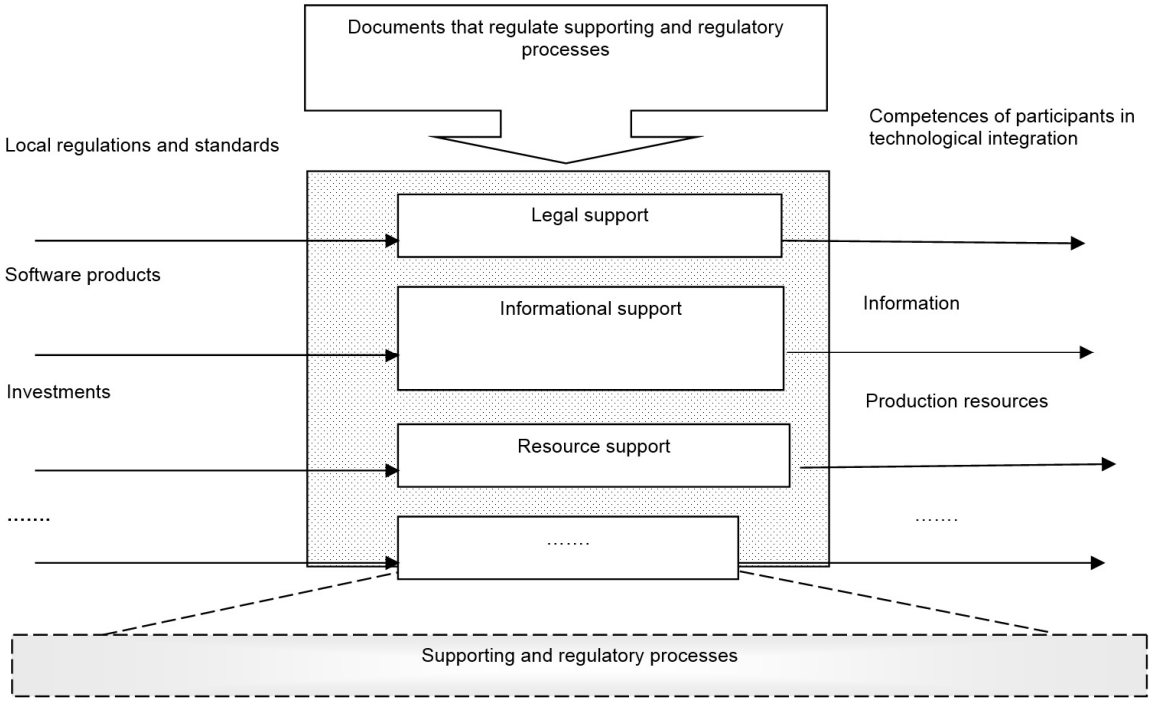

Figure 4 Decomposition of supporting and regulatory processes of technological integration
Source: the author's research

Certain difficulties in forming a process model of technological integration may arise when the regulation of relations between individual participants of technological integration as legally independent and separate units is combined with tasks aimed at solving common issues for the business entity. The system of coordination and regulation of relations between participants of technological integration focused on the development of technological integration is presented as a system that includes subsystems of development strategy, regulation of specific business processes, motivation of participants of technological integration, and others. The list of elements of subsystems is formed on the basis of specific features of the organizational structure, as well as the directed activities of business entities.

The set of regulatory methods is formed in close connection with the key functions and specifics of the organizational structure. The formed set of regulatory methods usually changes in the course of the main activity of the business entity.

The subsystem of the development strategy is included in the process of coordination of the business entity, the subjects of which are the participants of technological integration. The subsystem of regulation of specific business processes is focused on the entire set of processes and business processes of the business entity participants, as well as on the processes of technological integration development. The subsystem of motivation of technological integration participants is focused on increasing the effectiveness of the process that can be integrated into other business processes.

When creating a process model of technological integration, certain principles must be observed. These principles are the structure of technological integration is determined by the process; consistency of goals of technological integration participants; rational balance of coordination and regulation; the ability to combine disparate procedures in a single business process; optimal combination of the organization of technological integration; dynamic development of processes and structures of

technological integration; multiplicity and variation of participants in technological integration; a combination of centralized and decentralized approach.

The complexity and problems of applying the process approach to the development of technological integration actualize the use of software products for business modelling.

Modelling the process of technological integration development is carried out through documentation (as a description of the process with the help of documents regulating technological integration), as well as a detailed assessment and rationalization of the process. The optimal choice of the process design procedure and related software product algorithm is considered a key factor in promoting the process approach to the development of technological integration.

When making selection of the tools, the following aspects must be considered (Richter, Kraus, Brem, Durst & Giselbrecht, 2017):

1) the purpose of the project;

2) requirements for information support that reflects the content of the business process and is necessary for analysis and decision -making;

3) features of the algorithm and certain software products used in business process modelling;

4) capabilities of software products required for documenting processes.

The tools needed to create a process for regulating technological integration can be divided into manual tools (MS Office, MS Visio), as well as automated tools (application software systems – IDEF, ARIS, AllFusion). Manual tools are used to detail the process of regulating technological integration, usually in the text version. This is due to the convenience of reading and understanding all the ongoing processes by participants of technological integration who do not have special training. Automated software tools are more focused on both visual and text design. These tools are more time-consuming to set up, are expensive, but are more adapted for the purposes of current and subsequent evaluation and optimization.

The process model of technological integration is aimed at achieving the following goals:

1) Standardization of business processes of technological integration and their regulation, which allows ensuring the stability of their passage and reducing to a minimum the cost of their implementation. When expanding production activities, the involvement of new participants in technological integration significantly speeds up the procedure for applying regulatory processes, as well as modern technologies implemented in the course of technological integration development.

2) Building a system of criteria and indicators for the development of technological integration in relation to the regulation of the entire set of business processes;

3) Preservation of the experience of joint activities by participants of technological integration and involvement of new subjects of relations in this process;

4) Evaluating the prospects for technological integration, improving the quality of existing business processes, and increasing the level of customer satisfaction;

5) Involving the subjects of technological integration in the process of their formation and development, as well as levelling inter-organizational and inter-functional contradictions by involving the participants of technological integration in the creation of system regulations that provide for their powers and main functions;

6) Increasing the flexibility of technological integration to respond to changes in the production market;

7) Availability of the ability to certify the processes of technological integration development in accordance with current standards;

8) Optimization of the document flow procedure that regulates the processes of technological integration development;

9) "Transparency" of technological integration development for all their participants, as well as investment processes.

Thus, the organizational model of technological integration development as a form of its complex characteristic can usually be represented in the relationship of four interrelated modules: regulation, structure, processes, and resources. The formation of the organizational model is due to the tools of organizational design, focused on the organization and functioning of technological integration, their organizational and strategic orientation, the use of modern technologies, existing experience, information, taking into account the levelling of the action of environmental factors.

An important role in organizational modelling is played by business process modelling aimed at ensuring the regulation of technological

integration, evaluation, coordination and regulation of their development processes. The process model of technological integration development is designed to determine the vector direction of coordination of actions of all participants of technological integration to achieve goals. Process modelling is based on the principle of processes "nesting", which allows for the decomposition of process models for the development of technological integration, providing a consistent movement from the general to the particular.

2.4. Organizational and economic mechanism for modelling the development of technological integration

The development of the global economic system highlights the need to expand the formats and practices of interaction between economic entities, including in the industrial sector. The focus of industrial entities on building modern, compact, high-tech production is indicative. It becomes impossible to produce products with high added value that are in demand on the market without taking into account organizational and process modelling of integrated technologies.

The desire for a high degree of technologization, which is embodied in the introduction of Industry 4.0 technologies into the production process (industrial Internet of things, additive technologies, industrial robotics, additive technologies, big data, digital design and modelling of parts and products, etc.), is explained by the inability to further improve productivity using the so-called traditional technologies widely used in the last century. In this regard, organizational modelling of technological integration finds its application in the world and Russian practice.

Taking into account the characteristics of organizational and process development models technology integration, it is necessary to identify the trend of intra and interdisciplinary collaboration designed to combine the technical and technological capabilities of business entities, embedded in the productive industrial chain to complement the missing technologies and competencies of its own process. In addition, it is important to emphasize that one of the outcomes of the application of organizational and process models can often lead to original technological solutions that have arisen in the process of mutual technological "settings" subjects of technology integration with each other and is a transformation applied input technologies.

The key issue related to integration and requiring methodological study is the justification and application of the organizational and economic mechanism for modelling the development of technological integration. The procedural organizational and economic mechanism includes the following stages.

At the initial stage of the organizational and economic mechanism, the subjects responsible for organizing the integration process are selected both by the business entity as the object of integration, and by the subjects (participants) for integration.

Then, based on the monitoring data, obtained at the second stage, there are identified priority directions for implementing technological integration measures. The results of monitoring of technological integration, implemented on an ongoing basis, provide important information for the business entity, necessary for making further decisions on integration measures, including data on the scale of technological integration practices in the industry context; the practices of technological integration in the areas of integration (Industry 4.0 technologies); the structure of the types of participants of business entities for technological integration; the typical difficulties faced by business entities in the process of technological integration; the practice of involving third-party specialists who are not employees of integrated organizations in the implementation of technological integration; the approximate level of making changes to related production processes in the business entity in the process of developing technological integration, etc.

At the third stage, priority areas are identified – a common understanding of further activity on technological integration, considered as enlarged blocks of the planned process, and at the fourth stage of the mechanism, these blocks are transformed into activities that have a pronounced contextual, applied nature. In addition, at this stage of the organizational and economic mechanism, qualitative and quantitative benchmarks are defined in the form of targets that reflect the desired outcome of technological integration activities.

The fifth stage of the mechanism is the systematization of previously identified integration activities by dates and performers in the form of a plan in the appropriate presentation

form. The resources necessary for implementing technological integration activities are also recorded in this plan, including as estimated (in cases where the exact amount is not yet clear for objective reasons).

The budget of the action plan adopted during the sixth stage is a separate document that reflects only the monetary part of the necessary resources and is coordinated by the amounts of funds and their sources with the financial services of the integrated business entities.

The seventh stage covers the process of implementing measures for technological integration according to the approved plan. At this stage, various situations and circumstances may arise, the presence and impact of which makes it necessary to deviate from the accepted guidelines for the content of the event, the period of its implementation and the necessary resources, including financial ones. Therefore, a motivated return to the fifth stage of the organizational and economic mechanism in this case is justified and allows you to show a flexible approach to such a complex and not always easily predictable task as the introduction of advanced technology in the production process.

The final stage is to analyse the achieved targets, as well as possible reasons for deviations from the initially set values. The results obtained at this stage are the basis for making organizational and managerial decisions on technological priorities in general or individual components of the integration process in particular.

Despite the increasing number of practices of using a model approach to the development of technological integration (by building a technological space and implementing Industry 4.0 technologies), this integration is still fragmented on a general scale. Meanwhile, we should pay attention to the main global trends in the implementation of technological integration as guidelines for understanding the further trajectory of its development:

1. Productive practices of using a model approach to the development of technological integration strengthen the desire of business entities to search for and implement new forms of production and technological partnership.

2. In the modern sense, the implementation of technological integration becomes unthinkable without involving the consumer (customer) as a participant in this process.

3. Technological integration becomes relevant only in the case of promising productivity improvements and the creation of high-tech jobs for cooperative participants.

4. The main content of technological integration is shifting from the material and production component of collaboration to building cooperative chains for the use of software and intellectual property rights management.

5. If you change the preferences of the consumers, the emergence of new quick and/or temporary forms of technological interaction between the subjects of integration becomes possible.

6. Development of the 4th industrial revolution leads to the emergence of intersectoral technological interaction, mainly related to the Internet of things, "big data" and other digital solutions.

It should be noted that the organizational and economic mechanism for modelling the development of technological integration, along with the monitoring system and technology for evaluating technological integration, is considered as a necessary methodological support for research on the development of technologization in national economies.

Conclusion

It should be concluded that the development of technological integration in general is logically and consistently integrated into the global trends of transformational changes in production within the framework of Industry 4.0. However, the scale and frequency of technological integration practices is still part of the overall "catch-up" strategy of technological development.

Understanding the importance and necessity of involvement in the process of modelling the development of technological integration gives significant advantages to business entities, regions and the national economy as a whole. The use of various formats of interaction between economic entities up to close and continuous technological integration should be considered as an opportunity to ensure the sustainability of both technical and technological, and general economic progressive development of the national economy.SM

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Application of modern Enterprise Resource Planning (ERP) systems in the era of digital transformation

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Abstract
Modern digital technologies – acronym SMACIT (Social, Mobile, Analytics, Cloud, and Internet of Things [IoT]) – are the generator of digital business transformation today. Companies that have done their business in the same way for years can not, without adequate transformation, respond to the fresh challenges induced by modern digital technologies. The authors described the concept and content of digital business transformation and the impact of modern digital technologies on ERP systems. The paper conducts empirical research using the survey method. We conducted a survey on a sample of 25 small companies in Serbia. The results of the empirical research show modern ERP systems in small companies in Serbia, and the main drivers and barriers for their application.

Keywords
Digital transformation, digital technologies, ERP system, Cloud ERP system

Introduction

Modern digital technologies – acronym SMACIT (Social, Mobile, Analytics, Cloud, and Internet of Things [IoT]) – are the generator of digital business transformation today. Companies have been doing their business in the same way for years, while, according to Wade (2015), with various digital technologies, they are facing the inevitable digital transformation of their business. Wade highlights seven categories of content that can be digitally transformed in a company: business model (how the organization earns), organizational structure, people, processes, IT capacities (how information is managed), offer (what products and services the organization offers), and engagement model (how the organization deals with its clients and other actors). These categories are the most important elements of the organizational value chain related to digital transformation (Wade, 2015). Organizations in all branches of industry feel the pressure to digitize and know that they have to do it quickly before falling behind innovative and digitally focused competitors or brand new market players. (Leipzig, Gamp, Manz, & Schöttle, 2017)

An integrated information system is a complete software solution that meets the overall business model of the company, supports and integrates all its organizational parts and business functions, and connects them into business processes within the organization and business processes that connect the company with business partners. An integrated information system is a prerequisite for the success of modern companies that operate based on electronic business models, and which are characterized by digital technologies. The integrated information system supports business processes internally within the organization and business processes externally towards business partners. The most important integrated software

solution on which modern companies should base their more effective business is ERP. The application of the ERP system ensures the integrity of information and a unique database available to employees in any organizational part of the company. The integrity, timeliness, and quality of business data is a necessary prerequisite for making adequate and timely decisions and ensuring competitiveness in the modern market.

The application of ERP systems requires the company to improve its business processes. This includes a thorough analysis of existing processes and their partial or radical redesign to determine the best way to implement them and achieve significant improvements in process performance measures. These include cost, quality, and speed. Redesign of business processes, and changes in entire business models are even more necessary in the conditions of developing ERP systems under the influence of modern digital technologies.

The era of digital transformation enables small companies to use modern ERP systems, such as the Cloud ERP system and mobile ERP system, although their use has reduced the cost of maintaining servers and other necessary hardware and software infrastructure (Picek, Mijac, & Androcec, 2017).

Based on the described subject of research, the authors of the paper asked the following research questions:

RQ1: What is the application of modern ERP systems in small companies in Serbia in the era of digital transformation?

RQ2: What are the drivers and barriers to the application of modern ERP systems in small companies in Serbia?

We will describe the answers to these questions in the chapter Results of empirical research. The results of the conducted empirical research show modern ERP systems in small companies in Serbia, and the main drivers and barriers for their application.

1. Methodology

Theoretical research included the analysis of reference literature from the described domain of the research subject and was the basis for starting empirical research.

Empirical research was conducted with a survey method, using a questionnaire as an instrument for its implementation. To facilitate distribution, the questionnaire was created in electronic form, on Google Drive, using the Google Forms tool. The initial version of the questionnaire was made at the end of January 2020, after which it was sent to three experts for evaluation. The experts assessed the significance of each potential issue and provided accompanying comments and suggestions for several issues. Questions with a content validity index <0.8 were eliminated from the questionnaire, and several questions were reformulated, because of the evaluator's suggestions that they were not clear enough. The index of content validity (Polit & Beck, 2006) of the questionnaire was 0.83. The revised questionnaire was sent to the experts for re-evaluation; however, there were no requests for additional changes. The questionnaire contained nine questions. The research was conducted on a sample of 25 small companies in Serbia, of different activities. The criteria for small companies in Serbia are that they have less than 50 employees, that their gross income is up to 2.5 million euros and the value of the asset is 1 million euros. For a company to fall into this category, it is enough to meet two of the three conditions.

The research was realized through 3 phases. In the first phase, the Business Registers Agency was consulted to define a preliminary list of small companies for potential participation in the research. The companies were contacted by phone, but only 25 accepted to participate. In the second phase, e-questionnaires were sent to the companies that agreed to take part in the research. In the third phase of the research, the collected data was processed.

2. The era of digital transformation

Digitization is part of the great global trend of the fourth industrial revolution (Industrie 4.0), which provides companies with glorious opportunities for business transformation, but carries the risk of their survival if the transformation is not effective.

For this reason, organizations in all branches of industry feel the pressure to digitalize before falling behind innovative and digitally oriented competitors or unknown market players (Leipzig et al., 2017). The potential benefits of digitization are multiple, including: increasing sales, improving productivity, fostering innovation in value creation, and creating fresh forms of customer interaction (Matt, Hess, & Benlian, 2015).

The term digital transformation encompasses all transformational effects because of the application of new SMACIT) technologies in business. Digital transformation involves the use of modern technology in order to radically improve the performance or achievements of the company.

The exploitation and integration of digital technologies can influence the transformation of many parts of a company, starting with the products themselves, sales channels, and the entire supply chain. Often, entire business models can be redesigned or replaced (Matt et al., 2015).

Digital business transformation is a significant challenge and can be efficient and effective only if the company has a clear picture and goal of why it would transform. Several internal and external factors can motivate the digital transformation of business. Sometimes, the motive may be customers who are looking for improved service, lower prices, and a higher level of quality. The motive for transformation may also stem from the competition that has a better offer, a better business model, or lower prices. A powerful motive for change also comes from modern digital technologies that provide new opportunities. Digital technologies can provide a company with competitive differentiation if it is first adopted or integrated into new ways (Wade, 2015).

The complexity of digital transformation are far greater than the previous transformations that originated from information technologies. Although companies recognize its importance, it is still a significant challenge for most companies to start it, and especially to reach a position in which they can exploit its benefits. The authors suggest that only a few companies develop the right management and technology skills to exploit the transformational benefits of new digital technologies (Hess, Benlian, Matt, & Wiesböck, 2016).

Thus, the digital transformation of a business can take many forms, so it is necessary for a company to explicitly determine the priorities of its transformation. Wade (2015) identified seven categories of content that can be digitally transformed in a company: business model (how the organization earns), organizational structure, people, processes, IT capacities (how to manage information), offer (which produce and services the organization offers) and the engagement model (how the organization deals with its clients and other actors) (Wade, 2015).

Table 1 Transformation categories

Transformation category	Orientation questions for each of the transformation categories of the organization
Business model (how to make money)	What are the paths to the market and how relevant are digital trading methods (e-commerce, m-commerce)?
	Where does most of the income and profits come from?
	What are the main segments of the client and should something change in that regard?
	How is it different from the competition and how relevant is it in the future?
Structure (what is the organizational structure)	What is the type of organizational structure?
	What is the balance between local and global decision making?
	Where are the different digital aspects located in your organization, is it effective?
People (Employees working in the organization)	What is the digital awareness of employees in different parts of the organization?
	What is the digital awareness of executives?
	What new skills are needed and how to acquire them?
Processes (how activities are performed)	To what extent are processes automated and digitized?
	To what extent are processes consistent throughout the organization?
	To what extent do processes adapt to change?
IT Capacities (how information is managed)	How efficient is the IT infrastructure (core system, network, databases) and can it support digital ambitions?
	How effective is the outward-facing part of IT: websites, mobile sites, social media?
	How effective is the customer relationship management system?
	Is there a clear IT strategy associated with your corporate strategy?
	Are all elements of the system connected in such a way as to provide the necessary data, is the value extracted from the data?
Offer (products and services)	How much are the products digitized?
	How digitized are the services?
Engagement model (what is the relationship with customers, suppliers, etc.)	How strong and developed is the relationship with clients?
	How many points of contact are there with clients (web, mobile, mail, face to face) and how are they managed?
	How loyal are customers?

Source: Wade, 2015

3. Influence of digital technologies on ERP systems

Schallmo & Williams (2017) addressed the technical aspects of digital transformation content, identifying the characteristic technologies that enable digital transformation. All digital technologies are classified into four categories that make up the so-called Digital Radar: Digital Data, Automation, Digital Client Access, and Networking. Figure 1 presents all four categories with associated digital technologies and their applications.

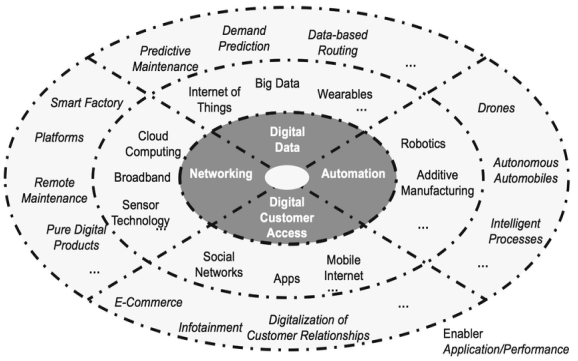

Figure 1 Digital radar with technologies and their applications
Source: Schallmo & Williams, 2017

The most popular digital technologies of "Digital Radar" and their impact on ERP systems will be described in the following section of this chapter.

3.1 Cloud technology and ERP systems

Cloud technology is one of the most popular digital technologies. The key benefits are its availability and transparency, because its use is conditioned only by the connection to the Internet. Its biggest drawback, which is also the biggest obstacle for companies to use it to a greater extent, is data security. For this reason, there are several types of Cloud technology: Private Cloud (cloud is on a private network), Public Cloud (cloud is on the Internet), Hybrid Cloud (a combination of the previous two clouds) (Elbahri et al., 2019).

In previous decades, ERP systems have been available mainly to large companies to which investments in large software solutions would pay off. With the innovation of Cloud technology, ERP systems have become available to small companies as well (Nofal & Yusof, 2013). Business via the cloud allows access to data from anywhere. It is possible to customize software packages to suit the needs of the company in the form of software modules that facilitate business.

The largest suppliers of cloud technology are Amazon.com, VMware, IBM, Salesforce.com, Google, Rackspace, Citrix Systems, IBM, etc. The largest suppliers of Cloud ERP systems are: Microsoft, SAP, Oracle, Intuit, Workday, Zero, etc. (Liyang, Zhiwei, Zhangjun, & Li, 2011)

Using the Cloud ERP system has many advantages and challenges. Cloud systems provide real-time access to information and thus enable timely corporate decisions to be made (Liyang et al., 2011).

The way software works in the cloud affect the regulation of the entire business process and thus provides transparency and consistency of data throughout the system (Immhoff & White, 2011). Cloud ERP systems are showing great popularity in the world, primarily because of their following characteristics:

1. Lower costs - the software solution is leased only for the required period of use, there is no purchase and storage of software on the company's server (Nofal & Yusof, 2013)
2. Easy access to data - access to the software solution is possible from any location where there is an Internet connection (Ruíz, 2015)
3. Fast implementation - no purchase of servers and hiring of workers for infrastructure maintenance, with the help of Cloud technology only the server is rented from major suppliers (Immhoff & White, 2011)
4. Business reorganization - eliminates unnecessary business processes so that the focus is on the main advantages of the company (Immhoff & White, 2011)
5. Gaining strategic advantage - transparency of data throughout the business process enables faster decision-making focus on the main advantages of the company, and not on IT administration (Immhoff & White, 2011)

The challenges that need to be addressed related to implementing the Cloud ERP system are:

- Data security (Liyang et al., 2011)
- Access control
- Lack of IT skills by users
- Limitations in integration with other software solutions (Immhoff & White, 2011)

3.2 Internet of Things (IoT) and ERP systems

IoT technologies perform communications between devices after which this data is transmitted to the company (manufacturer) via the Internet. IoT collects extensive databases that affect changes in the business process and its management using ERP systems. Because of a sizeable amount of data, companies cannot analyse them all because the analysis requires a lot of time and is expensive because of the small number of experts in this field.

An advantage of IoT is much greater and faster availability of data, which allows access to this data from any sector or place in the company. Real-time communication opens up the possibility for managers to get an overview of inventory reports, without depending on workers and their efficiency. If the company is engaged in the activity of courier services, it is then possible to follow, in real-time, the entire route of the shipment from sender to recipient with the help of IoT. Communication between physical devices is direct thus reducing data transmission costs (Elazhary, 2019).

IoT technology has its specific shortcomings, such as a connection to infrastructure, data security, and human resources. Should there be business interruptions or plant failures, this would cause huge losses (Elazhary, 2019). Because this technology is made up of the interconnection of multiple smart devices, data security is perilous (Dornean & Rusu, 2019). One of the chief reason's companies do not use this technology to a greater extent is data security. Also, one disadvantage is less employment of people because the data is sent between devices with no human intervention. The way the business model works could cause changes in the number of employees in the company, which can be a potential problem. The conclusion is that the data got from the IoT will be the basis for a new generation of business systems that will change the way data is collected, processed, and analyzed that is currently used in ERP systems.

3.3 Artificial intelligence (AI) and ERP systems

AI learns algorithms that try to embed artificial intelligence in software that will perform certain types of tasks (Paschek, Luminosu & Draghici, 2017). If we follow the development of digital technologies, it could be stated that there is a lot of progress on artificial intelligence. How advanced this technology is is stated by the fact that the robot Sofia (robot with AI) is recognized as a citizen of Saudi Arabia (Paschek et al., 2017). "Chatbots" (digital assistants) are available on most Internet sites to answer common questions from customers / interested parties. Companies, with the help of AI can influence business management using ERP systems by creating a learning algorithm that determines, based on historical data, what should be produced and what are the right amounts of inventories to produce based on entered historical data (Paschek et al., 2017).

If ERP systems use AI, then based on huge amounts of data, which are of different types, reports can be created, which may lead to less waste of resources or reduced costs, and eliminate unnecessary connections in the business process/model, etc. (Paschek et al., 2017).

With the help of AI, the largest companies in the world manage their plants that are geographically dislocated. It is possible to manage the entire production process, from production to sales. Procurement companies can track enormous quantities of goods. Tracking the movement of goods is facilitated because real-time analysis of turnover, consumer habits and enables the creation of offers of goods and services that correspond to consumer preferences (Kaplan & Haenlein, 2019).

The disadvantages that accompany this technology stem from the fact that AI are robots/machines that perform a certain work and are limited only to certain tasks. Implementing this technology in companies is expensive, which also limits its application in companies (Kaplan & Haenlein, 2019).

3.4 Big data and ERP systems

Big data is an extensive database that collects data from various sources, and their analysis is done by many scientists and experts (Comput et al., 2015).

The company must analyze each layer of data to get the right information. It is first necessary to group an enormous amount of data, which are from unique sources and original formats, then to filter this data, "clean" and finally analyze. Companies must strive to come up with the results of the analysis first to become competitive in the market and have an advantage over other companies that do not use this digital technology (Khan et al., 2014).

The main reason this digital technology is used is to make quick decisions based on the collected data, because in that way higher productivity can be achieved, costs are reduced (missed decisions), and transparency of all data on assets and processes is available, etc. (Comput et al., 2014). If the data got from the ERP system is well analyzed by experts, then companies with the help of Big data

can find out a large amount of information about what customers want and thus adjust their offer (similar to IoT). ERP systems serve digital data. Big Data as another resource from which data to be analyzed is extracted, since ERP systems have a platform that is not suitable for analyzing sizeable amounts of data.

One disadvantage of this technology is that it is financially inaccessible. Experts who deal with analysis and mining in databases are expensive and their research can take a long time. For this reason, many companies do not have the financial capacity to keep huge amounts of data, nor do they have the tools to process/analyze that data. The biggest challenge for digital data big data is to reduce the cost and time required to get concrete results from the extensive databases that are created daily.

The technology that can help Big data overcome shortcomings is Cloud technology that overcomes problems by providing only that data that the company needs and the costs are proportional to the services provided. Accessing new data is much faster and simpler, no longer requiring a large infrastructure in the company to analyze the database.

4. Results of empirical research

Companies from several industries took part in the research. The largest share in the survey, as much as 32%, were respondents from real estate management companies. Companies from trade, construction, and transport have approximately the same percentage share in the research, which is 16%. Respondents who had a share of less than 10% in the survey come from companies belonging to the activities of catering, manufacturing, computer programming, and engineering.

Respondents who agreed to take part in the research belong to different job positions in companies. The largest percentage share is made up of employees with 72%, followed by managers with 16%, and last place are directors who make up 12% of respondents.

The first research goal was to determine how many small companies in Serbia use ERP systems and on which platforms. After collecting answers through a survey method and their analysis, it was found that the use of ERP systems is present in small companies but that there are diverse structures in terms of technology. Of the total number of companies surveyed, 68% use a traditional ERP system. The second place is occupied by the Cloud ERP system used by the surveyed companies, while the last place is occupied by the ERP Hybrid with 8% representation. Respondents who responded to using the ERP Hybrid argued that it was a transition period until they fully implemented Cloud technology. Given these statistics, it is expected that companies using the ERP Hybrid will implement Cloud technology shortly, which will increase the percentage of use of the Cloud ERP system from 24% to 32%.

The results of the research show that the percentage of traditional ERP systems in small companies in Serbia is much higher than the percentage of Cloud ERP systems. However, the results of the research also show that over 50% of the surveyed companies want to switch to Cloud technology. Only 32% are companies that for various reasons do not yet intend to leave the traditional ERP system they already use.

Although the second research goal of the paper was to identify the major drivers and barriers to the use of Cloud ERP systems, they are systematized and described below based on the answers of the respondents.

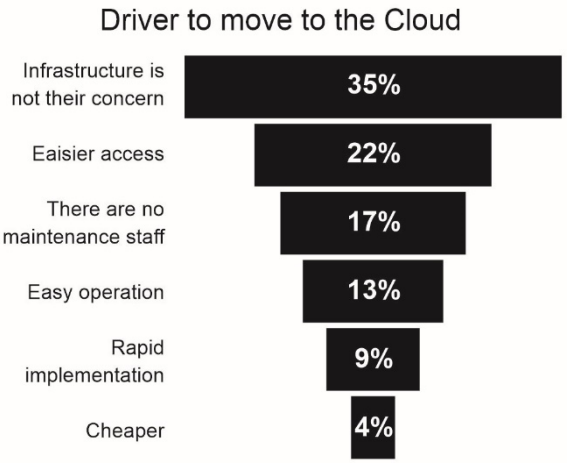

Figure 2: Drivers to move to the Cloud
Source: the authors

The results of the research show that most respondents, in the amount of 35%, confirmed that they want to switch to the Cloud ERP system because then the infrastructure "is not their concern", which makes this reason the first key advantage. Respondents know that with the transition to Cloud technology, the responsibility of maintenance shifts from the company to another person.

Another key advantage is easier access to the system. Of the 100% of respondents, 22% confirmed that they know how wide the availability of the ERP system is if it is based on Cloud technology.

The third key advantage confirmed by 17% of respondents is the opinion that Cloud technology does not require employees to maintain the system. Respondents who state that this is an advantage of Cloud technology are mostly private companies that have only one person to maintain the software.

The fourth key advantage is the very easy management of the company's business. This reason for switching to the Cloud ERP system is seen by only 13% of companies as an advantage.

The fifth key advantage is the faster implementation of the Cloud ERP system, 9% of respondents confirmed. Respondents believe that implementing the Cloud ERP system takes less time than the traditional situation. They explain their answers by saying that the software on the Cloud is immediately ready for use.

The last key advantage that the respondents mentioned is that they think the Cloud ERP system is cheaper than the traditional ERP system. The number of respondents who made this statement is at a tiny percentage level of 4%.

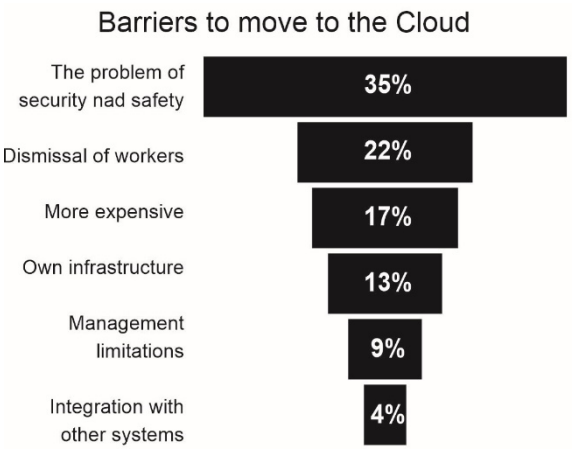

Figure 3: Barrier to move to the Cloud
Source: the authors

The results of the research show that 40% of respondents agree that the major barrier to implementing the Cloud ERP system is the problem of data security and safety. Respondents feel that important business data is not as secure as on their infrastructure.

Another key barrier is the dismissal of workers, which is the major reason for not using the Cloud ERP system mainly in public companies, which make up 20% of our respondents. Respondents state that layoffs would produce additional enormous costs for severance pay, because an entire sector has employees engaged in infrastructure maintenance.

The third key barrier to transition to Cloud technology is the belief of 16% of respondents that implementing the ERP Cloud system is more expensive than traditional ERP. Based on a review of the professional literature, the author Salleh points out the following advantages of Cloud ERP systems: reduction of hardware and licensing costs, lower operating costs, reduced upgrade costs, easier implementation, and the ability to transfer internal resources to other tasks and focus on the company's core business function (Salleh, Teoh, & Chan 2012).

The fourth key barrier is the existence of its infrastructure. Respondents who explained that switching to Cloud technology would be at an enormous loss because of previous enormous investments in infrastructure make up 12% of companies.

The fifth key barrier is the management constraint mentioned by 8% of respondents in their responses. This reason is explained by the fact that the Cloud ERP system is not sufficiently adapted to the current business model of the company and its current functioning. With traditional ERP systems, they believe that there are many more adjustments, but that is why their implementation takes longer.

The last barrier, accounting for the lowest percentage in the amount of 4% of the above answers, is integration with other systems. Respondents think that other systems are very difficult to integrate with the Cloud ERP system. In their answers, they explain that these systems do not provide enough possibilities to adapt to other systems, unlike the traditional ERP system.

5. Conclusion

Digital business transformation implies changes in the established way of doing business, due to the application of modern digital technologies, to achieve greater performance and achievements of companies. The authors describe the most popular digital technologies and their impact on the development of modern ERP systems.

The results of the conducted empirical research lead to the conclusion that the percentage of modern ERP systems in small companies in Serbia is lower than the representation of traditional ERP systems. Specifically, only 24% of small companies that took part in the survey use the Cloud ERP system. Traditional ERP systems are represented in 68% of surveyed companies. This seemingly illogical decision of small companies to use traditional ERP systems to a greater extent is

supported because almost half of these companies, do not intend to leave the traditional ERP system they use, because of the existing infrastructure and business data security concerns. The other half of the companies are in the process of transition from the traditional to the Cloud ERP system, which will soon affect the change in the current picture of the representation of modern ERP systems in small companies.

The results of empirical research show that many companies have some conflicting opinions about the barriers and benefits of Cloud ERP systems. Specifically, the research results show that price occupies 16% in the structure of all identified barriers and is the third reason companies have resistance to Cloud ERP systems. On the identified list of drivers for implementing Cloud ERP, the price was also found as a factor, but in this case negligible with only 4% in the structure of all drivers. The research results in terms of price are not in agreement with the findings in the literature. Namely, Cloud ERP systems are more favorable than traditional ERP systems because of the lack of infrastructure costs and its maintenance, payment by the use of resources, and the absence of additional memory costs (Picek et al., 2017).

We can conclude that small companies in Serbia need adequate education in terms of the advantages that modern ERP systems provide them compared to traditional ERP systems. Modern digital technologies will have an even greater impact on the advancement and capabilities of modern ERP systems, so small companies must understand the importance of their application.SM

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Sustainability Balanced Scorecard: Four performance perspectives or more?

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Abstract
This paper analyzes the Sustainability Balanced Scorecard (SBSC) as a renewed framework for measuring and managing sustainability performance of a company. The paper presents the main characteristics of original Balanced Scorecard (BSC), explains its purpose and main performance perspectives. Based on literature review, paper address the various approaches to design and prioritize performance perspectives within the SBSC. Firstly, casual links within and between performance perspectives are described: hierarchical links (as is in original BSC approach), semi-hierarchical links and network links. Secondly, the paper explains how the sustainability issues are incorporated within SBSC framework. Several solutions are explained as suggested in the literature: (1) adding additional single or multiple performance perspectives to deal with strategically important sustainability issues, (2) incorporating sustainability aspects within original four performance perspectives, (3) adding additional sustainability perspectives and incorporating sustainability aspects in four original performance perspectives simultaneously, (4) organize separate SBSC for managing only sustainability issues. Specific features of these approaches are explained as well as appropriateness of their application in practice. Advantages and disadvantages of SBSC are highlighted and recommendations for future research.

Keywords
Sustainability Balanced Scorecard, corporate social responsibility, environmental protection

Introduction

Various systems for measuring and managing business performance are developed in order to facilitate monitoring of the goal achievement and the position of the company. These systems refer to the collection, processing and analyzing the information about company performance which serve as the basis for decision-making processes. Measuring performance helps to assesses whether and to what extent the goals have been achieved, whether there is a discrepancy between planned and achieved performance, and what should be done to eliminate it. Hence, systems for measuring and managing performance enable managers to monitor, manage, and improve business performance, maximize progress efforts and motivate workers in task accomplishment (Kellen & Wolf, 2003). These systems include formal routines and procedures, based on gathered information, which help managers to better navigate in managing performance dimensions (Simmons 2000). The use of systems for measuring and managing performance gains special importance in large companies where supervision, control and coordination of the organizational activities and goal accomplishment becomes more difficult. Nevertheless, some researchers (Dudic, Dudic, Gregus, Novckova & Djakovic, 2020) found that the use of BSC is important in SME business as well because it facilitates innovative activities and effect the development of those companies positively.

One of the performance measuring and managing systems is the Balanced Scorecard (BSC) System. It is a tool for balancing various

measures of a company's success through harmonizing financial and non-financial performance, short-time and long-time performance, qualitative and quantitative performance, external stakeholder (customer) needs and internal stakeholder (owner) needs that are organized hierarchically within the main performance perspectives (Kaplan & Norton, 1992; 1996; 2001). Kaplan and Norton (1996) state that additional perspective could be incorporated in BSC depending on industry type and/or business strategy.

The need for creating the Sustainability Balanced Scorecard (SBSC) appeared as a consequence of orientation toward corporate social responsibility (CSR). CSR is a managerial approach through which a company contributes to sustainable development, considering not only interests of a company but concerns of other stakeholders as well (World Bank). Within CSR organizations conduct business in ethically sound and responsible way that goes beyond the legislation or other external requirements, aiming to achieve environmental and social quality while preserving profitability (Osagie, Vesselink, Blok, Lans & Mulder, 2014). The concept of sustainable development is characterized by ''3Ps'' – (People, Planet, and Profit/Prosperity), which highlights the importance of balancing among "social, natural, and financial resources" (Osagie et al., 2014).

Various approaches have been developed to renew the original BSC that will adjust sustainability requirements (Figge, Hahn, Schaltegger & Wagner 2002). In other words, original BSC have been modified to consider economic, environmental, social or other non-market perspectives. The literature offers various approaches to structuring the SBSC. Some scholars offer modification within four dimensions of original BSC, while other assume it is better to add additional dimensions regarding sustainability issues. Furthermore, there are differences in approach how to link elements of various SBSC dimensions and how to link their strategic objectives.

1. Business performance measurement and management systems

Systems for measuring and managing business performance can be perceived as a cycle of performance planning, performance execution and performance evaluation aiming to achieve strategic goals (Vrdoljak Raguž, 2010). This requires the measurement of results (such as an amount of product or some other type of realization) and the measurement of process parameters that affect the realization of output (Bakotić, 2012). It is necessary to determine what will be measured, what will be the key performance indicators, what will be the sources of performance data, how the data will be collected and the specification of measurements (Sehić & Dizdarević, 2011). Performance indicators assess not only the company as a whole, but could also assess departments, processes, programs, products or services, projects, and organized teams and groups within the company (Vrdoljak Raguž, 2010). In this sense, one can distinguish between performance measures on corporate, divisional, functional, individual level etc.

Systems for measuring and managing business performance are usually based on wide number of performance indicators (evaluated from different points of view), which include financial and non-financial measures. Most often used indicators are financial indicators, such as return on assets (ROA), return on equity (ROE), return on investment (ROI), return on capital employed (ROCE), economic value added (EVA), market value (MV), market value added (MVA) etc. These traditional performance measures focus on the overall financial results that the company has achieved over a period of time. Although important, they provide little insight into why and how certain results have been achieved. Furthermore, there is an understanding that traditional financial measures are only one-dimensional and that long-term success of a company needs to be based on more holistic performance measures. The performance indicators should serve not only to describe past events, but should help the company to understand the present situation and lay the foundations for future directions (Montemari, Chiucchi & Nielsen 2019). Therefore, multidimensional performance measures are developed that take into account various performance perspectives. Such approaches to business performance measurement and management are Balanced Scorecard System (BSC), Total Quality Management (TQM), Performance Measurement Matrix (PMM), Performance Prism (PP), EFQM's business excellence model, Macro Process Model, SMART Performance Pyramid, Results and Determinants

Framework (RDF), Holistic Performance Management Framework (HPFM), the Dynamic Multidimensional Performance Framework (Sooroshian, Aziz, Ahmad, Jubidin & Mustapha 2016), Value Based Management (VBM), Activity Based Costing (ABC), etc.

Systems for measuring and managing business performance have certain common functions: control function (based on comparison of planned and achieved results); development and guidance function (they serve as the basis for strategy formulation and implementation); motivational function (they encourage the achievement of goals). Regardless of which measurement systems the company chooses, it is necessary for performance indicators to be (Sehić & Dizdarević, 2011): understandable, interconnected, suitable for defined goals, easily measurable and cover all aspects and critical success factors.

2. Balanced Scorecard (BSC)

The BSC was introduced by Kaplan and Norton (1992) and refers to comprehensive methods of measuring and managing performance, oriented to monitor indicators that directly affect organizational strategy. What the BSC system provides to organizations is a multi-perspective framework through which organizational vision and strategy are transformed into a coherent system of strategic objectives, performance indicators, targets and initiatives.

2.1. Characteristics of the Balanced Scorecard (BSC)

The model of BSC provides a carefully selected set of measures that have strategic importance. The usefulness of BSC comes from the situation that one of the fundamental strategic problems is related to the strategy implementation as well as operationalization through the lowest organizational levels. A properly designed system of the BSC shapes the strategic side of business, determine basic business perspectives and strategic initiatives that should be taken to achieve defined goals within these performance perspectives. Therefore, it serves as a significant instrument to support strategy implementation.

To make the BSC operational, a methodology of strategic maps was introduced. Strategic maps show the casual linkage among strategic goals among and within performance perspectives, from the lowest to the highest level (Kaplan & Norton 2001; 2004). Maps provide a framework by which in a reasonable and logical way the strategy descends from the highest to the lowest levels of the organization, creating BSC's architecture. By creating causal hierarchical relationships between goals, initiatives and results, methodology of strategic maps can clearly identify how the strategy is transmitted throughout the organization. In order to be relevant, the development of strategic maps is based on annual reports, mission and vision statements, values, project plans and initiatives, consulting studies and similar documents that provide a fundament for understanding the current position of the company and its orientation in forthcoming period.

2.2. Performance perspectives of the Balanced Scorecard (BSC)

Traditional BSC system allows managers to look at a company's performance answering to fundamental questions in four important perspectives (Kaplan & Norton, 1996).

The first is *financial perspective*, which provides insight into the organizational achievements and goals from the financial aspect. It shows how and to what extent the strategy helps in improving the financial results of the company. The financial goals have been set in the short run and long run, whereby companies strive to achieve the highest possible return on investment to secure the business prospective. Performance indicators for financial goals are often considered as the most important and result from all other factors over a period of time. At its core, this perspective encompasses traditional methods of measuring finance. Within the system of benchmarks and indicators, this perspective show what will motivate shareholders and other investors to invest in the company and to keep the shares.

In practice, most companies use the following financial measures (Belak, 2002): (1) business growth (revenue growth, asset growth or income from new products and services etc.), (2) business profitability (profit margin, return on investment, return on assets, profit per employee etc.), (3) value creation for owners – (economic value added, market value added, dividends or stock prices etc.). Atkinson, Kaplan, Matsmura and Young (2007) emphasize that value creation for shareholders is achieved through: (1) revenue growth, which is realized either by new products/services or increasing the profitability of the existing products/services, by deepening relationships with customers, increasing the

product value, (2) productivity improvement, achieved through cost reduction and more efficient management of existing assets.

Within financial perspective, one should be careful when interpreting indicators. Financial indicators give a picture of past activities of the company, and although they provide a basis for forecasting, these indicators do not provide much information about the processes of value creation in the future. Yet, the system of balanced objectives cannot be applied without financial perspective (consideration of the financial aspects). Furthermore, the results in other performance dimensions ultimately effect the financial performance.

The customer perspective includes defining the goals and indicators in customer segments and in certain markets. Satisfied loyal customers are important precondition for future business growth (Lončarević, 2006) and are achieved through the customer value creation (includes quality, design, technological advancement, size, availability, time, service, expenditures etc.). Creating customer value is an indispensable part of any strategy. Market segmentation allows the company to select target segments and to identify customer-related goals in those segments. The company needs to supply customers with products/services that are better than those of competitors and are tailored to satisfy specific customer needs in selected markets. Customer perspective incorporate customer and market oriented processes including marketing activities aimed at maintaining the brand, retaining existing customers and gaining new customers (Gulin, Janković, Dražić Lutilsky, Perčević, Perišić & Vašiček, 2011).

Some of common measures of customer perspective are: customer loyalty, customer acquisition, customer profitability and sales growth, (Atkinson et al., 2007). Additional measures within customer perspective are: customer satisfaction, customer retention, the value delivered to the customers, customer complaints, the share of key customer accounts, product return rate, the number of partnerships with customers, etc. These measures are the basis for the development of marketing, operation, logistics, production and service processes, but they also derive from them and directly affect the financial indicators. Unlike the indicators within financial perspective, which are obtained from the basic financial statements, indicators of the market dimension require research through surveys and questionnaires on a specific sample of customers.

The process perspective (perspective of internal processes) reflects upon the internal elements of the company. This dimension includes identifying the core organizational processes that are crucial for increasing business performance and such processes must be perceived as very important in BSC system based on continuous improvement. The fundamental task of operative processes is the production and delivery of valuable products/services to the customers, but these processes serve to improve other organizational processes, to reduce costs and leverage better productivity in financial terms (Sofiyabadi & Nasab, 2012). The goals of process dimension are set after the goals in financial and market dimension, because the way of implementing the processes are set in order to achieve higher level goals and contribute to the value creation within the company. The following key processes are often determined within this perspective (Atkinson et al., 2007): (1) operational processes - include activities from the production to delivery (procurement, production and distribution of the finished product or service to customers); (2) customer management processes - includes activities that furtherly develop customer relations (selection and acquisition of customers, customer retention, increasing business with customers); (3) innovation processes – refers to constant innovation while focusing on customer needs (depends on the ability of employees to be innovative and turn new innovations into new products and services), (4) social processes and regulatory processes (activities to adhere to a set of national and local regulations, activities to promote the common good of the community etc.).

Measures that can be used for this performance perspective are (Kaplan & Norton, 1992; Belak, 2002): time to market (in relation to the plan or in relation to competitors), production cycle time, delivery cycle time, manufacturing capability vs. competitors, equipment effectiveness, number of defective products, debugging runtime, asset utilization, inventory turnover, unit costs, engineering efficiency etc.

The *learning and growth perspective* emphasizes the importance of intangible drivers of company performance, covering a wide range of areas related to human, information and organizational capital. This dimension primarily

emphasizes the importance of investing in human capital and employee capabilities that leverage business development. The core of this dimension is the orientation towards the future, based on constant learning, growth and employee development. Ideas and incentives to increase performance and improve processes should come from employees at all organizational levels who participate in internal processes and are in direct contact with customers. The base is motivation and education of employees on knowledge needed to accomplish company's vision and long-term strategies. Learning and development perspective emphasizes the importance of investing in human potential, whereby the measurement focuses on development of employee potential, motivation and goal orientation (Gulin et al., 2011). This dimension measures the level of motivation and goal achievement, the strategic potentials of human resources and the information system (Lončarević, 2006). This requires in particular the motivation of employees by top management who should set values of learning and development as fundamental values within organizational culture.

Measurement in the area of learning and growth is not simple because it largely relates to difficult-to-measure and intangible elements. Kaplan & Norton (2001) differentiate between three main measurement areas: employee retention, employee satisfaction and employee productivity. Additional areas could be included in this perspective such as "information systems" and "organizational alignment (culture, leadership and teamwork)" (Gekonge, 2005). Commonly used measures within this perspective are: retention rate, worker satisfaction score, worker motivational index, worker qualification index, training rate, number of worker suggestions, improvement of personal goal achievement, income per employee, value added per employee, investment in innovations, technological support of the processes, informatization level, measures of organizational culture (Medaković, 2010: Belak, 2002) etc.

3. Sustainability Balanced Scorecard (SBSC)

To create the SBSC, environmental and social objectives and performance measures are explicitly included within the original BSC framework, in addition to financial objectives.

Financial goals that are additionally incorporated within financial perspective of the SBSC might be: increasing return of sustainability investment; reducing the costs based on energy savings, lower consumption, social issues and environmental tax; increasing additional revenue by environmentally friendly ("eco") products, increasing income from recycling or cycling schemes, increasing income from sustainability improvements (Hristov, Chirico & Appolini, 2019) etc. World Business Council for Sustainable Development (2005) emphasizes the importance of adding objectives such as eco-efficiency and socio-efficiency (The value of Product/Services / Environmental or Social Value) to accompany financial objectives.

Environmental objectives cover various objectives ranging from reducing air, water and soil emissions, reducing waste, reducing resource consumption, reducing hazardous material consumption and waste to increasing the proportion of renewable energy use, improving energy efficiency, improving resource efficiency, improve recycling and reuse of products, reducing noise and vibrations, etc.

According to the huge variety of social issues and the lack of unanimous approach, it is not easy to create a general framework of social aspects (Hristov et al., 2019). Social objectives incorporated within SBSC could be ensuring ethically conduct business, ensuring fair-trade supply, improving health and safety, increasing philanthropy and donations to local or other selected communities, increasing local economic development etc.

Financial (economic) performance are mostly evaluated by quantitative indicators, while environmental and sustainability performance are assessed using quantitative and qualitative indicators. To measure environmental performance, the key performance indicators (KPI) are developed within various frameworks (such as standard ISO 14001) as well as KPI that are developed under frameworks for measuring sustainability performance (such as Global Reporting Initiative).

3.1. Cause-and-effect linkages of the SBSC

Based on the literature review, Hansen and Schaltegger (2016, 2018) explain various approaches in structuring the SBSC in comparison to traditional BSC system. Regarding casual linkage among performance perspectives and their strategic objectives, several approaches are offered: (1) the first approach suggests sustaining original hierarchy of BSS "performance perspectives and strategic objectives", with

financial performance as an end point (Figge et al., 2002), (2) the second approach proposes a semi-hierarchical framework among various performance perspectives and strategic aims (Sundin, Granlund, & Brown, 2010), (3) while the third approach argues the need to create network structure among them (van Marrewijk, 2004).

The first approach retains the strict hierarchy of original BSC in which other strategic objectives have to lead to economic (financial) goals. This approach is based on profit-driven value system that focuses toward profit maximization. Therefore, social and environmental objectives subordinate economic (financial) objectives. Environmental and/or social goals are incorporated in casual links to facilitate achieving financial performance perspective, with ultimate profit-driven aims. In that case, the sustainability goals and initiatives that will be accepted are those that eventually influence financial results positively. Yet, the problem might appear, especially if certain sustainable initiatives that could bring radical improvement are rejected because of long-term payback period or uncertainty. Some scholars (Schaltegger & Wagner, 2011; Hockerts & Wüstenhagen, 2010) emphasize it is important to assure that profit prioritization does not become an obstacle but helps in developing sustainability initiatives that requires healthy financial base.

The second approach argues that there are no strict causal relationships from other strategic objectives toward financial performance (Hsu, Hu, Chiou & Chen 2011). Relationships among these objectives are not linear and in one-way direction all the time, as mutual interdependencies among them may exist (Brignall, 2002). Such approach emphasizes the importance of all three objective areas (economic, environmental, social) aiming to balance among them and achieve results that are at least minimally acceptable along all perspectives. Environmental and social objectives are not necessarily used as a source for ultimate financial goals (Chaker, Idrissi & Manoar, 2017). An example is setting triple bottom line strategic objectives instead of only financial bottom line (van Marrewijk 2004).

According to the third approach, perspectives are interlinked within network architecture (Bieker & Waxenberger, 2002) or set independently of others (Voelpel, Leibold & Eckhoff, 2006). No particular perspective is targeted as ultimate goal with highest priority. Economic, environmental and social objectives are equally significant (Bieker & Waxenberger, 2002; Hubbard, 2009; Voelpel et al., 2006; Nikolaou & Tsalis, 2013) where no single goal predominates.

In the second and third approach, where there is no strict hierarchy toward financial strategic goals, managers have to deal with the balancing among various objectives that might be conflicting and require compromise, especially when win-win solution could not be achieved (Jensen, 2001). It is emphasized that trade-offs between conflicting objectives, which is demanding task for strategy experts, should be resolved during strategy formulation (Hansen & Schaltegger, 2016). Setting a priority system regarding these objectives could be helpful in this process.

Appropriate approach regarding casual linkage between performance perspectives and their objectives will depend on the development and maturity of sustainability strategy and significance of certain environmental, social and other non-market elements in future orientation. The second and the third approaches could be appropriate where companies follow more advanced sustainable strategies.

3.2. Performance perspectives of the SBSC

Regarding the number of performance perspectives within SBSC framework, dilemma is whether to incorporate sustainability issues within the four existing perspectives or create additional fifth or sixth perspective dedicated to sustainability issues (Epstain & Wiesner, 2001; Hubbard, 2009).

The first approach offers ability to supplement additional one or more perspectives oriented toward sustainability objectives within SBSS framework (Sidiropoulos, Mouzakitis, Adamides, & Goutsos, 2004; Hubbard, 2009) so there will be overall five or six perspectives. Such approach puts a great value on sustainability aspects and allows the company to organize sustainability management separately. An additional performance perspective might be organized around environmental and social aspects (aimed to achieve sustainability goals), or additional two performance perspectives can be formed to manage environmental and social goals separately. Schaltegger and Wagner (2006) emphasize that such approaches could be taken if additional sustainability perspective has long-term strategic aims that do not adequately commit to economic objectives, but states that even in that

case sustainability perspectives should not be completely detached from conventional perspectives, because the natural connection among them exist.

The second possibility is to incorporate sustainability aspects within original four perspectives of the BSC framework (Gminder & Bieker, 2002; Dias-Sardinha & Rejinders, 2005; Sundin et al., 2010; Watti & Koo, 2011; Nikolaou & Tsalis, 2013). Sustainability issues could be only partly integrated in one or more perspectives, or could be deeply integrated in all four perspectives.

In the case of partial integration of sustainability aspects, it is usually done within the *perspective of internal processes.* This may happen if environmental issues are managed mainly at operational process level. Within process perspective, environmental objectives might be: improving transport efficiency, improving energy efficiency, increasing water recycling, improving environmentally friendly packaging, increasing resource productivity, reducing waste and wastewater, reducing the use of toxic materials, increasing quality control through the value chain, recycling production and office materials, eliminating environmental accidents and spill, etc. Example of social objective in process perspective could be assuring health and safety.

If sustainability aspects are integrated more deeply in all four perspectives, it is based on greater dedication of a company toward achieving corporate social responsibility. In that case sustainability problems are managed within all four performance perspectives, not only in process perspective. Table 1 shows sustainability performance measures within main four perspectives of the SBSC.

Table 1 Sustainability measures integrated in the SBSC with four performance perspectives

FINANCIAL PERSPECTIVE	STAKEHOLDER PERSPECTIVE
Environmental aspect • eco-efficiency • return on environmental investment • revenues from "eco" products/services • recycling revenues • operating costs • cost savings from environmental improvements • disposal costs • costs of reactive environmental initiatives/costs of proactive environmental initiatives • environmental fines and penalties • environmental risk *Social aspect* • socio-efficiency • philanthropy/donation expenditures • investment in development of local community	*Environmental aspect* • the value of "eco" products/services, • customer satisfaction with "eco" products/services • brand reputation of "eco" product/services • image of environmentally responsible company • strength of regulatory relationship/complying with future environmental regulations • relationship with sustainable suppliers • relationship with bankers • press coverage *Social aspect* • community satisfaction • community complaints • volunteering and donations in local or other selected communities • transferring the knowledge to the local community
PERSPECTIVE OF INTERNAL PROCESSES	**PERSPECTIVE OF LEARNING AND GROWTH**
Environmental aspect • operative efficiency • energy efficiency • water cycling • environmentally friendly packaging • resource productivity • waste • wastewater • greenhouse gas emission • use of hazardous materials • use of recycled materials • recycling rate for production and office materials • product reuse rate • effectiveness of quality control • number of environmental accidents and spills *Social aspect* • workplace health and safety	*Environmental aspect* • environmental awareness of employees • environmental skills of employees • knowledge on environmental protection • proposals for environmental improvements • "eco" innovations • development of environmental infrastructure • development of environmentally friendly materials *Social aspect* • hiring from local community • employee wellbeing • respecting diversity

Source: the authors

The base for environmental improvement and innovation lies in development of knowledge which is part of *learning and growth perspective*. In that perspective, environmental objectives could be: increasing environmental awareness, increasing environmental skills of employees, increasing training on environmental-protection knowledge, improving eco-innovations, developing environmental knowledge base, improving environmental infrastructure and resources (equipment, materials), increasing motivation toward achievement of environmental goals etc. An example of social objective is to increase hiring from local community, increasing employee wellbeing, decreasing violation reported by employees, respecting diversity etc.

Regarding *customer/market* perspective in the SBSC, some scholars (Journeault, 2016; Dias-Sardinha & Reijnders, 2005) suggest renaming it into *stakeholder perspective*. Environmentally friendly ("eco") products/services, based on green innovations, are integrated into this perspective. Environmental objectives in this perspective could be: improving the value of "eco" products/services, improving customer satisfaction with "eco" products/services; customer wellbeing, increasing the sales of "eco" products/services; improving the image of environmentally responsible organization; reducing the risk associated with future environmental regulation; good relationship with bankers and other "green" investors, improve favorable press coverage, etc. An example of social objective could be increasing community satisfaction, increasing philanthropy, donations and volunteering activities, transferring the eco-knowledge into local community, decreasing community complaints etc.

Within *financial perspective*, various environmental objectives could be incorporated, such as increasing eco-efficiency, cost savings from environmental improvements, increase in revenues from "eco" products/services (Bieker, Dyllick, Gminder, & Hockerts, 2001) increasing return on environmental capital investment, improving recycling revenues, reducing disposal costs, reducing fines and penalties, decreasing the costs of proactive environmental initiatives in relation to the costs of reactive environmental initiatives etc. (Epsteein & Wisner, 2001). Social goals within financial perspective could be increasing socio-efficiency, increasing expenditures of knowledge transfer, philanthropy, donations, development of local or other selected communities etc. Some scholars that argue semi-hierarchy or network architecture suggest renaming financial perspective into *sustainability perspective* (Dias-Sardinha & Reijnders, 2005; Hsu et al., 2011).

It is suggested that companies might simultaneously follow both approaches i.e. integrate sustainability issues into original four BSC performance perspectives and add additional one or two sustainability perspectives on aspects of strategic importance (Hansen & Schaltegger, 2016; Figge et al., 2002; Hristov et al., 2019). That approach is usually used in the case of the most developed and proactive sustainability strategy.

Some scholars suggest incorporating additional performance perspectives within the SBSC, such as Ethics (Bieker & Waxenberger, 2002) and Corporate Governance (Dias Sardinha & Rejinders, 2005) claiming that governance appeared as a significant factor that explains not only the financial crisis, but also the differences in corporate performance across countries (Mitton, 2002).

Butler, Henderson and Raiborn (2011) suggest that there is a possibility to create separate SBSC, which can be appropriate for companies that did not previously create the BSC system, but want to manage sustainability with the BSC tool or for companies which already have the BSC but do not want to change it, emphasizing that certain problems might appear if environmental initiatives miss the connection to other perspectives.

Comparing the use of SBSC with 4 performance perspectives and SBSC with 5 performance perspectives in making environmental investment decisions, Jiangtao and Pin (2010) did not find significant difference between them, but find that participants needed more time to utilize SBSC with 5 perspectives than SBSC with 4 perspectives. Kaplan and Wisner (2009) concluded that environmental measures were less emphasized in judgments regarding decision-making in SBSC with 5 performance perspectives then in SBSC with 4 perspectives when communication about environmental objectives was on low level, but when communication was at a high level, environmental parameters were more emphasized in 5-perspective SBSC then in 4-perspective SBSC. Jassem, Che Azmi and Zakaria (2018), (Jassem, Zakaria & Che Azmi 2020) assume that the link between SBSC architecture (refer to the

number of performance perspectives) and decision-making process in environmental protection is not always forthright and that they are connected through mediation variables such as knowledge on SBSC and strategic risk knowledge.

Conclusion

The purpose of performance measurement and management systems is to achieve goals, enable business continuity, monitor the implementation of activities and ensure optimal use of the company's potential. Simmons (2000) considers business performance measurement is the tool that can be used to strike a balance between: different demands placed on an enterprise.

Accordingly, the Balanced Scorecard System (BSC) considers the sufficient importance is given to different aspects of the business. Advantages of the BSC are connectivity and balance among various market and non-market areas, inclusion of financial and non-financial performance indicators, current and forthcoming business aspects. It is assumed that otherwise BSC system would not be efficient enough. BSC measures reflects overall organization "health" as opposed to solely traditional performance accounting measures based on the past period. BSC provides an assistance in strategy planning, implementation and operationalization to the lowest organizational levels. However, Hočevar (2007) points out certain issues regarding insufficient completeness of BSC model (refers to the main perspectives that are not completely comprehensive, although they cover many business areas) and the problem of the wide scope and amount of information, time and commitment required to create BSC model.

Advantages of the Sustainability Balanced Scorecard (SBSC) are ability to support sustainability initiatives, to help in planning and implementation of sustainability strategy and usability for multiple stakeholders (internal and external). SBSC serves as the tool to connect the strategic and operative organizational levels by choosing sustainability initiatives that are important for achieving company's prosperity (Falle, Rauter, Engert, & Baumgartner, 2016; Searcy, 2012). It is generally agreed that SBSC is useful for assessing future investing options by integrating sustainability aspects in management approach (Huang, Pepper & Bowrey, 2014). Yet, it is pointed out that the SBSC is not intended to be the completely independent tool for sustainability strategy formulation, or for setting sustainability priorities or for facilitating radical changes toward sustainability (Hansen & Schaltegger, 2016).

Scholars still struggle to find the most appropriate way to create SBSC architecture that will be the effective framework for measuring and managing sustainability performance. There are various approaches regarding casual links within and between performance perspectives. The approach based on strict hierarchy with the financial perspective on the top, argues that the profit goal is not a barrier but is a precondition for survival as it serves as a source of sustainability investments and sustainability initiatives (Hockerts & Wüstenhagen, 2010; Schaltegger & Wagner 2011). Yet, it is emphasized that profit prioritization should not become a way to marginalize sustainability issues and way to limit sustainability progress. Hence, SBSC literature has offered advanced models of casual linkages within and between performance perspectives, such as semi-hierarchical or non-hierarchical (flat network) model. Semi-hierarchical model offers the possibility to focus on multiple objectives simultaneously (economic, environmental and/or social), while network model assumes that all objectives are equally important. It is assumed that semi-hierarchical and non-hierarchical models better illustrate the essence of the relationship between economic, environmental and social systems. The literature emphasizes that the use of these two models (semi-hierarchy and network) requires struggling with numerous trade-offs between market and non-market objectives, when win-win solution couldn't be found. Nevertheless, semi-hierarchy and non-hierarchy models are considered to be more appropriate for companies with advance sustainability strategies. Yet, to address this issues additional empirical researches are needed to investigate effectiveness of these renewed casual relationships (semi-hierarchy and network) to offer more evidence and fulfill this SBSC literature gap.

The next research dilemma is how to integrate sustainability issues within SBSC framework. Several approaches are offered in SBSC literature: (1) to add single or multiple additional perspectives dedicated to sustainability issues, i.e. expand SBSC model to five or six performance perspectives, (2) to integrate sustainability aspects into SBSC with four original perspectives, (3) to follow both approaches simultaneously (adding new sustainability perspectives and supplying

existing four perspectives with sustainability principles), (4) to formulate separate SBSC dedicated exclusively to sustainability issues. Adding additional perspectives dedicated to sustainability issues could be chosen if the company focus on long-term sustainability objectives that do not completely fit with short-time profit (economic) priorities. But, it is assumed that in that case problems might appear due to the lack of connections and synchronization between market and non-market performance perspectives. The same problem could appear in the last approach (where separate SBSC for managing sustainability issues has been formulated). The use of separate SBSC might be encouraged by the fact that company did not previously have the BSC or had the BSC but did not want to modify it.

The level of incorporating sustainability in business objectives and strategy will depend, among others, on environmental context and external incentives (may vary according to the industry type and sector, environmental legislation, market demand for environmentally friendly products, social demand, demand of responsible investors and bankers, activists etc.) and internal motives (image improvement, brand improvement, marketing improvement, increase in sale of environmentally-friendly products, resource productivity improvement, risk control, better employee motivation, better competitiveness etc.). Hence, selected environmental strategy will consequently determine which of the presented SBSC architectures, regarding the number of performance perspectives and type of linkage among them, would be chosen. It could be concluded that appropriate SBSC architecture will depend on the level at which sustainability is woven into the organizational vision, mission, goals, and strategy, whether the sustainability issues are managed only on process level or on overall organizational level, whether the focus is on environmental control or on environmental prevention, whether the focus is on incremental environmental changes or on radical and fundamental ones etc. If sustainability issues are managed only at operational level, focused more on pollution control and incremental sustainability improvements, then the aspect of sustainability could be included only partially in the SBSC framework which is often done within perspective of internal processes, not within other three performance perspectives. On the other hand, if the company is more focused on pollution prevention, strives for comprehensive sustainability changes and when sustainability principles are incorporated throughout the whole company, the aspect of sustainability needs to be included into all four dimensions of SBSC, or an additional fifth or sixth sustainability dimension should be added, or these approaches could be combined. Furthermore, the separate SBSC for managing only sustainability performance could be formed, but in that case sustainability issues should not be completely detached from other aspects of strategic management and from other performance dimensions.

Jassem et al (2020) found that knowledge on SBSC and strategic risk are significant variables that moderate the relationship between SBSC architecture (SBSC with 4 performance perspectives vs. SBSC with 5 performance perspectives) and environmental decision-making outcomes. Therefore, sufficient knowledge on SBSC and strategic risk knowledge are important base for effective use of the SBSC and for the progress along sustainability avenue. Yet, more evidence is needed to examine variables that influence the effectiveness of chosen SBSC architectures in achieving sustainability success, so future research should be oriented toward deeper examination of that issues to provide additional insight.SM

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Job satisfaction and organizational commitment of employees in tourism: Serbian Travel agency case

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Abstract
The aim of this research is to examine the relationships between the factors of job satisfaction (pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, co-workers, nature of work and communication) identified by Spector and the organizational commitment in travel agencies in Serbia. The survey was conducted during March and April 2020, on a sample of 152 respondents, using a survey method and validated instruments: Job Satisfaction Survey and Organizational Commitment Questionnaire. Research findings indicate a significant positive relationship between job satisfaction and organizational commitment. Furthermore, the results indicate that pay, promotion, fringe benefits, co-workers and communication correlate significantly with employee commitment, while between the other factors of job satisfaction (supervision, contingent rewards, operating procedures, nature of work) and organizational commitment, there are moderately positive relationships. Implications, research limitations and suggestions for future research are presented.

Keywords
Job satisfaction, job satisfaction factors, organizational commitment, travel agency, Serbia

Introduction

Organizations are beginning to realize that employees are their most valuable asset, out of all the resources available (Valaei & Rezaei, 2016; Perić, Gašić, Ivanović & Stojiljković, 2015; Govaerts, Kyndt, Dochy & Baert, 2011; Glen, 2006). As the most valuable resource, employees are the bearers of introducing change and innovation, creating added value, increasing business efficiency, and thus launching the future performance of the organization (Perić, Gasic, Stojiljkovic & Nešić, 2018). When employees are satisfied, they are motivated to commit to the accomplishment of their business tasks and achieving the organization's goals (Perić, Dramićanin & Sančanin, 2019). When employees are not satisfied it leads to negative effects on the organization. On the other hand, organizations face the demands of continuous development, as the only known sustainable source for the continuous increase of living standards in modern societies and the necessary improvement of the quality of life (Andrei, Mieila & Panait, 2017).

As employee knowledge and skills are intangible assets of any service organization, employee satisfaction has become one of the most significant issues facing the hospitality and tourism industry (Matzler & Renzl, 2007). Employees who are satisfied with their job tend to be more productive, positive and creative (Kong, Jiang, Chan & Zhou, 2018). However, tourism employees show low levels of job satisfaction and there is a high employee turnover (Kim, Knutson,

& Choi, 2016; Vujičić, Jovičić, Lalić, Gagić & Cvejanov, 2015; Lam, Zhang, & Baum, 2001). Organizations should focus on building relationships with their current as well as potential employees.

Measuring job satisfaction and organizational commitment, as well as understanding their relationships, is especially important in tourism (Ozturk, Hancer & Im, 2014), which is highly dependent on human resources and their direct contact with consumers (Dramićanin, 2019; Yeshanew & Kaur, 2018: Perić et al., 2018). As a result of the association between job satisfaction and organizational commitment, there is a close relationship among them and service quality emerges (Bai, Brewer, Sammons & Swerdlow, 2006).

A limited number of studies have examined the relationships between factors of job satisfaction and organizational commitment (Dalkrani & Dimitriadis, 2018; Valaei & Rezaei, 2016; Eliyana, Yusuf & Prabowo, 2012; Gaertner, 1999), while there is no research conducted in the field of tourism. The aim of this research is to examine the relationships between the factors of job satisfaction identified by Spector (1997) and the organizational commitment in travel agencies, because of the numerous positive effects of job satisfaction and organizational commitment (Mihajlov, Perić & Mihajlov, 2015).

1. Literature review

1.1. Job satisfaction

When referring to the phenomenon of job satisfaction, according to one of the first definitions, this phenomenon is understood as a combination of psychological or environmental factors that cause an employee to be satisfied with his job (Hoppock, 1935; cited in Mirković & Čekrlija, 2015). Similarly, Locke (1976) defines job satisfaction as a pleasant or positive emotional state resulting from the performance of a job or the overall experience of a job.

According to Spector (1997), satisfaction is a feeling of the person about the job and different aspects of the job. Spector (1997) identified nine aspects of work, respectively factors relevant to job satisfaction: pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, co-workers, nature of work and communication. Ay and Avsaroglu (2010), on the other hand, view job satisfaction as one of the important needs of each individual to be successful, happy and productive, which represents a sense of satisfaction as an expression of the perception of what all the work provides for the individual.

Lease (1998) points out that employees with higher levels of satisfaction have lower absenteeism rates, they are more productive, more committed to the organization and its goals, and generally they are more satisfied with their lives. Statt (2004) believes that job satisfaction is manifested through satisfaction with the rewards the employee receives for doing their job. Jessen (2010) states that an employee who is satisfied at work is more productive and focused on achieving organizational goals. Josanov-Vrgovic and Pavlović (2014) point out that job satisfaction affects organizational behavior and organizational performance.

The results of empirical research identify numerous benefits of employee satisfaction, beginning with employee retention and organizational commitment (Yang, 2008; Collins, Collins, McKinnies & Jensen, 2008; Chiang, Back, & Canter, 2005), through satisfied consumers (Jung & Yoon, 2013; Pantouvakis & Bouranta , 2013; Chi & Gursoy, 2009; Burke, Graham & Smith, 2005), market share and increasing competitiveness (Sandhya & Kumar, 2014; Resurreccion, 2012), to profitability (Rodríguez-Antón & Alonso-Almeida, 2011; Chand, 2010; Chi & Gursoy, 2009; Yee, Yeung & Cheng, 2008).

1.2. Organizational commitment

Commitment is a type of emotional attachment to the values and goals of an organization (Bazvand, Kashef & Esmaeili, 2014). Commitment is an obligation related to the interaction between employees and organization (Esmaeilpour & Ranjbar, 2018). Commitment is important because of all the positive outcomes that are generated in organizations (Schaufeli, Bakker & Salanova, 2006).

Mowday, Steers and Porter (1979) define organizational commitment as the strength of an individual's identification with and involvement in particular organization. These authors defined organizational commitment through three main characteristics: a strong belief in the organization, an acceptance of the organization's values and goals; tendency to invest effort in the organization; a strong desire to belong to the organization (Mowday et al., 1979). Organizational commitment is also the level of

acceptance of a relationship with a job by employees, a function of the extent to which an employee adopts or internalizes the characteristics or values of an organization (O'Reilly & Chatman, 1986). Organizational commitment could be treated as some sort of extension of job satisfaction. Otherwise, organizational commitment represents positive attitudes that an employee feels not towards his job, as in the case of job satisfaction, but towards to the whole organization (Janićijević, 2008).

Given the importance of organizational commitment when talking about the success of an organization in a competitive market, an organization must understand the factors that influence organizational commitment (Tett & Mayer, 1993). Organizations strive to achieve sustainable growth to meet market demands in the context of excessive integration and globalization in the employee market and need to adapt to it (Andrei, Popescu, Nica & Chivu, 2020). According to Richard, Devinney, Yip and Johnson, (2009), the factors that influence organizational commitment are job satisfaction, motivation, and organizational culture, locus of control, discipline and work environment.

1.3. Job satisfaction and organizational commitment

The relationship between job satisfaction and organizational commitment has interested many researchers.

A certain number of studies have shown that there is a relationship between job satisfaction and organizational commitment (Morrow, 2011; Moynihan & Pandey, 2007; Falkenburg & Schyns, 2007; Meyer, Stanley, Herscovitch & Topolnytsky, 2002; Martin & Bennett, 1996; Mathieu & Zajac, 1990; Porter, Steers, Mowday & Boulian, 1974). All authors have the general conclusion that the relationship exists, but there is also controversy over the direction of the relationship.

Some research supports the hypothesis that job satisfaction influences organizational commitment (Yang & Chang, 2008; Tsai & Huang, 2008; Williams & Hazer, 1986; Angle & Perry, 1983; Stevens, Beyer & Trice, 1978), while other research indicates that organizational commitment precedes job satisfaction (Vandenberg & Lance, 1992; Curry, Wakefield, Price & Mueller, 1986; Bateman & Strasser, 1984; Price & Mueller, 1981).

Hellman and McMillan (1994) noticed that general job satisfaction and commitment are directly related. Sager (1994) observed that job satisfaction has a significant impact on organizational commitment, and Harrison and Hubbard (1998) found that job satisfaction directly affects organizational commitment. In addition, DeCotiis and Summers (1987), Yavas and Bodur (1999), and Yousef (2001) found a significant association between job satisfaction and organizational commitment. Babakus, Yavas, Karatepe and Avci (2003) found a significant positive relationship between training, empowerment, reward and performance, mediated by roles of job satisfaction and organizational commitment. The existence of a moderate to strong relationship between job satisfaction and employee commitment has been noted in numerous studies (Fu & Deshpande, 2014; Chen, 2007; Falkenburg & Schyns, 2007; Moynihan & Pandey, 2007; Saari & Judge, 2004; Meyer et al. 2002; Currivan, 1999).

1.4. Conceptual framework and research hypotheses

There are a certain number of studies in tourism that have examined the relationship between job satisfaction and organizational commitment (Yeshanew & Kaur, 2018; Akasoy, Şengün, & Yilmaz, 2018; Blešić, Pivac, Divjak, 2017; Vujičić et al., 2015; Ozturk et al., 2014; Back, Lee & Abbott, 2011; Gunlu, Aksaraylİ & Perçİn, 2010; Kim, Knutson & Choi, 2016), and research findings indicate that there is a significant relationship between the observed variables. On the other hand, there are a limited number of studies that have examined the relationship between factors of job satisfaction and organizational commitment (Dalkrani & Dimitriadis, 2018; Valaei & Rezaei, 2016; Eliyana et al., 2012; Lumley, Coetzee, Tladinyane, & Ferreira, 2011; Gaertner, 1999), while there is no research conducted in the field of tourism.

Dalkrani and Dimitriadis (2018) examined the factors of job satisfaction and organizational commitment in the private sector of Greece, and the research findings indicate that social aspects of work, job characteristics and work environment have a positive effect on organizational commitment. In their study, Valaei & Rezaei (2016) examined the relationship between the job satisfaction factors identified by Spector (1997) and the organizational commitment in the IT

sector and research findings indicate that most job satisfaction factors have a positive effect on organizational commitment (normative, affective and continuance commitment). Eliyana et al. (2012) examining manufacturing workers in a company in India found that there was a strong relationship between ability utilization, compensation, co-workers' relationship, working conditions, recognition and achievement and organizational commitment. The relationship between job satisfaction factors (Spector, 1997) and organizational commitment was examined by Lumley et al. (2011) in the IT sector in South Africa and research findings indicate a positive relationship between all job satisfaction factors and organizational commitment. The same results were obtained by Mosadeghrad, Ferlie and Rosenberg (2008) in their study examining the relationship between job satisfaction, organizational commitment and intention to leave hospital staff. By examining the relationship between the factors of job satisfaction and organizational commitment, Gaertner (1999) examined six factors and found that distributive justice, the chance to advance and supervisor support were directly related to organizational commitment.

Based on an overview of the relevant theoretical and empirical research concepts, Figure 1. presents the conceptual framework of the research.

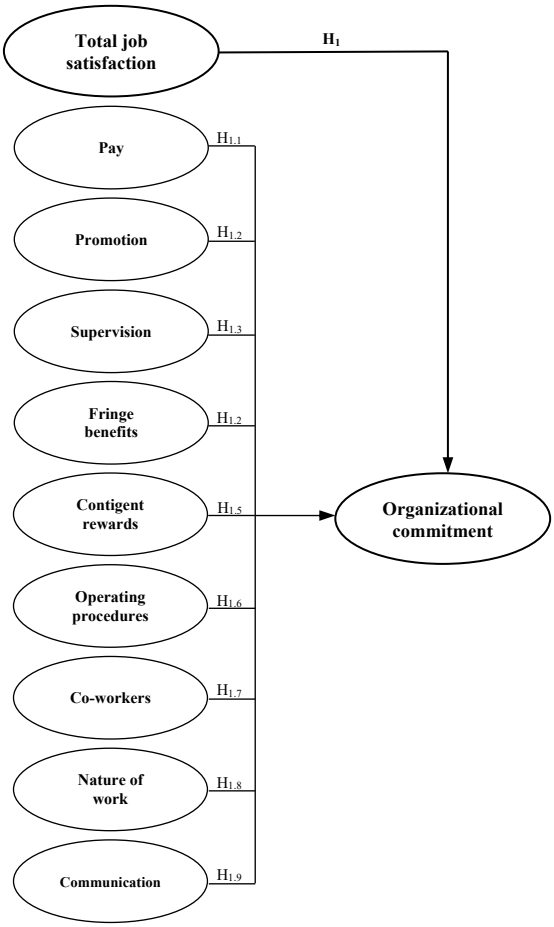

Figure 1 Conceptual framework
Source: Based on literature review

In this research, we start from the presumption: there is a positive correlation between job satisfaction and organizational commitment, as well as that there is a positive correlation between job satisfaction factors and commitment of employees in travel agencies. Accordingly, the following hypotheses are set:

H_1 There is a strong positive relationship between job satisfaction and organizational commitment. $H_{1.1}$ There is a strong positive relationship between pay and organizational commitment.

$H_{1.2}$ There is a strong positive relationship between promotion and organizational commitment.

$H_{1.3}$ There is a strong positive relationship between supervision and organizational commitment.

$H_{1.4}$ There is a strong positive relationship between fringe benefits and organizational commitment.

$H_{1.5}$ There is a strong positive relationship between contingent rewards and organizational commitment.

$H_{1.6}$ There is a strong positive relationship between operating procedures and organizational commitment.

$H_{1.7}$ There is a strong positive relationship between co-workers and organizational commitment.

$H_{1.8}$ There is a strong positive relationship between nature of work and organizational commitment.

$H_{1.9}$ There is a strong positive relationship between communication and organizational commitment.

2. Methodology

2.1. Sample and data collection

The collection of primary data was carried out using questionnaire technique, which includes a survey method that systematically collects data from a set of respondents in the form of personal views. The survey was conducted during March and April 2020, through an online questionnaire, distributed through closed groups on the social network Facebook, consisting of employees of travel agencies in Serbia. The respondents were informed that participation in the research was anonymous and voluntary and that the results would be used exclusively for scientific and research purposes.

The sample on which the analysis was made consisted of 152 respondents. There are no missing data among these 152 respondents. The characteristics of the respondents are shown in Table 1.

Table 1 Characteristics of respondents

	Frequency (N=*152*)	
	N	*%*
Gender		
Male	62	40.8%
Female	90	59.2%
Age		
18 – 25	12	7.9%
26 – 35	80	52.6%
36 – 45	37	24.3%
46 – 55	17	11.2%
Over 56	6	4%
Education		
Secondary school	30	19.7%
College	35	23%
Faculty	58	38.2%
Master	28	18.4%
PhD	1	0.7%
Length of service in present travel agency		
Up to 1	31	20.4%
2 – 5	62	40.8%
6 – 10	28	18.4%
11 – 15	17	11.2%
16 – 20	11	7.2%
Over 20	3	2%

Source: the authors' calculation based on SPSS 21.0

The largest number of respondents are female (59.2%), between 26-35 years (52.6%), with a university degree (38.2%) and employed 2-5 years in the agency where they currently work (40.8%).

2.2. Measurement

The Job Satisfaction Survey (Spector, 1997) scale was used to measure job satisfaction, consisting of 36 items (see appendix 1) classified into 9 subscales (pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, co-workers, nature of work and communication). In addition to scoring on job satisfaction factors, based on all the claims, the score that is the result of overall job satisfaction. The scale was developed in 1984 by the American scientist Paul Spector primarily for the service sector (Li & Huang, 2017), but scale has met with wide range of application ranging from industrial workers (Bruck, Allen, & Spector, 2002), librarians (Sierpe, 1999), hotel employees (Silva, 2006), nurses (Khamisa, Peltzer, Ilic, & Oldenburg, 2016) to the employed in the other sectors (Mladenović & Petrovic, 2015; Josanov-Vrgovic & Pavlovic, 2014; Schudrich et al., 2012). Also, previous studies have shown that this instrument has high internal consistency and validity (Tsounis & Sarafis, 2018; Ogunkuade & Ojiji, 2018; Li & Huang, 2017; Yelboğa, 2009).

Organizational commitment was measured using the Organizational Commitment Questionnaire (Mowday et al., 1979), which consists of 15 statements (see appendix 2). It is an instrument developed in 1970 by Porter and Smith (Kanning & Hill, 2013) and it is one of the most frequently used instruments for measuring organizational commitment (Hidalgo-Fernández, Mero, Alcivar & Santa Cruz, 2020; Bar-Haim, 2019; Kanning & Hill, 2013; Hartmann & Bambacas, 2000). Empirical research has confirmed that it is an instrument that has high internal consistency and validity (Hidalgo-Fernández et al., 2020; Kanning & Hill, 2013; Yousef, 2003; Lam, 1998).

Respondents evaluated the degree of agreement with both questionnaires using a five-

step Likert scale (from 1 = strongly disagree to 5 = strongly agree). The reliability of the scales used in this study was measured over the Cronbach's alpha coefficient using SPSS 21.0. Cronbach's alpha coefficient values range from 0 to 1, with values higher than 0.7 being considered to indicate adequate reliability (DeVellis, 2016). The results presented in the following table indicate the high reliability of the scale for measuring job satisfaction, as well as the adequate reliability of the instrument for measuring organizational commitment.

Table 2 Reliability of measurement instruments

Scale	Cronbach's alpha
Pay	0.76
Promotion	0.71
Supervision	0.84
Fringe benefits	0.70
Contingent rewards	0.74
Operating procedures	0.80
Co-workers	0.87
Nature of work	0.87
Communication	0.89
Overall job satisfaction	0.96
Organizational commitment	0.77

Source: the author's calculation based on SPSS 21.0

3. Analysis and results

The analysis starts from the level of job satisfaction of employees in travel agencies in Serbia, and the results are shown in Table 3.

Table 3 Descriptive statistics of job satisfaction

Items/Factors	*M*	*SD*
Pay	**13.119**	**3.695**
PAY1	3.961	0.860
PAY10	3.105	0.970
PAY19	2.803	0.809
PAY28	3.250	0.951
Promotion	**12.481**	**4.321**
PRO2	3.086	0.935
PRO11	3.724	0.889
PRO20	3.072	0.957
PRO33	2.599	0.963
Supervision	**14.085**	**4.284**
SUP3	4.072	0.921
SUP12	3.421	0.910
SUP21	2.901	0.783
SUP30	3.691	0.958
Fringe benefits	**12.146**	**4.659**
FRB4	3.303	0.964
FRB 13	3.546	0.856
FRB 22	3.211	0.939
FRB 29	2.086	0.958
Contingent rewards	**12.809**	**4.312**
COR5	3.776	0.938
COR14	3.204	0.975
COR23	2.704	0.897
COR32	3.125	0.996
Operating procedures	**13.283**	**3.699**
OPP6	3.204	0.986
OPP15	3.770	0.942
OPP24	2.638	0.917
OPP31	3.671	0.998
Coworkers	**14.592**	**4**
COW7	4.105	0.855
COW16	3.007	0.942
COW25	4.118	0.805
COW34	3.362	0.987
Nature of work	**14.684**	**4**
NOW8	3.270	0.921
NOW17	4.033	0.880
NOW27	3.368	0.961
NOW35	4.013	0.876
Communication	**14.842**	**3.461**
COM9	4.105	0.862
COM18	3.375	0.897
COM26	4.059	0.791
COM36	3.303	0.956
Overall job satisfaction 1 – 36	**122.041**	**20.867**

Source: the author's calculation based on SPSS 21.0

Survey results indicate that respondents are ambivalent about their pay satisfaction (13.119), promotion opportunities (12.481), fringe benefits (12.146), and satisfaction with the contingent rewards (12.809). Respondents were satisfied with other factors of job satisfaction. The highest level of satisfaction among employees in travel agencies is communication (14.842), followed by satisfaction with the nature of the job (14.684), co-workers (14.592), satisfaction with the immediate manager (supervision) (14.085) and satisfaction with operating procedures (13.283).

The overall job satisfaction score is 122.041, which shows that the employees of travel agencies in Serbia are satisfied with their job, the results are on the line between ambivalence and satisfaction.

The following table shows the results of organizational commitment in travel agencies in Serbia.

Table 4 Descriptive statistics of organizational commitment

Items	*M*	*SD*
ORC1	4.303	0.710
ORC2	4.132	0.795
ORC3	2.671	0.800
ORC4	3.441	0.862
ORC5	3.763	0.897
ORC6	4.066	0.803
ORC7	3.355	0.981
ORC8	3.908	0.879
ORC9	3.059	0.937
ORC10	4.026	0.821

ORC11	3.184	0.902
ORC12	2.947	0.926
ORC13	4.026	0.805
ORC14	3.875	0.856
ORC15	2.210	0.941
***Level of* organizational commitment**	**3.531**	**0.887**

Source: the authors' calculation based on SPSS 21.0

The results shown in the previous table show that the arithmetic mean (M) values are in the range of 2.210 and 4.303. Respondents expressed the highest degree of agreement regarding their willingness to put a great deal of effort, even above the expected level, to make the travel agency they work for successful, while the lowest level of agreement expressed their claim that the decision to work for the current agency was their fault as well as feeling very little loyalty to the agency they work for. The level of commitment of employees in travel agencies is 3.531. This result means that employees have medium levels of organizational commitment to their travel agencies.

Pearson's correlation coefficient was used to test the hypotheses and examine the relationship between job satisfaction and organizational commitment, as well as the relationship between job satisfaction factors and organizational commitment.

Table 5 Relationship between job satisfaction and organizational commitment

	Organizational commitment	
	Pearson correlation	*Statistical significance*
Overall job satisfaction	0.526	0.01**

Source: the authors' calculation based on SPSS 21.0
Note: **Correlation is significant at the 0.05 level

Correlation results indicate that job satisfaction correlates positively with the commitment of employees in travel agencies. Cohen (1988) determined the strength of the correlation as follows: small (r=0.10 to 0.29), moderate (r=0.30 to 0.49), and strong (r=0.50 to 1.00). The result obtained shows a high correlation between the observed variables.

Table 6 Relationship between job satisfaction factors and organizational commitment

	Organizational commitment	
	Pearson correlation	*Statistical significance*
Pay	0.790+++	0.01**
Promotion	0.623+++	0.03**
Supervision	0.490++	0.02**
Fringe benefits	0.566+++	0.02**
Contingent rewards	0.314++	0.01**
Operating procedures	0.488++	0.01**
Coworkers	0.504+++	0.02**
Nature of work	0.424++	0.01**
Communication	0.534+++	0.01**

Source: the author's calculation based on SPSS 21.0
Note: **Correlation is significant at the 0.05 level
+++Strong correlation; ++ Moderate correlation

The previous table shows that there is a correlation between the factors of job satisfaction and organizational commitment. Between pay as a factor of job satisfaction in travel agencies and organizational commitment, there is a strongest positive relationship (r=0.790; p<0.05.), followed by a relationship between promotion and organizational commitment (r=0.623; p<0.05.). There is a moderately positive relationship between supervision and organizational commitment (r=0.490; p<0.05). There is a strong positive relationship between fringe benefits in travel agencies and organizational commitment (r=0.566; p<0.05). There is a weak positive relationship between satisfaction with the travel agency reward system (contingent rewards) and organizational commitment (r=0.314; p<0.05). There is a weak positive relationship between operating procedures and organizational commitment (r=0.488; p<0.05). A strong positive relationship exists between co-workers and organizational commitment (r=0.504; p<0.05), then a moderately positive relationship between nature of work performed at travel agencies and organizational commitment (r=0.424; p<0.05), while there is a strong positive relationship between communication and organizational commitment (r=0.534; p<0.05).

Based on the correlation results, it can be confirmed that there is a strong positive relationship between job satisfaction and organizational commitment, as well as that there is a positive moderate to strong relationship between job satisfaction factors and organizational commitment of employees in travel agencies in Serbia. Accordingly, the results of the set hypotheses can be seen in the table below.

Table 7 Results of hypothesis testing

Hypothesis	*r*	*Decision*
H_1 TJS → OC	0.526**	Supported
$H_{1.1}$ PAY → OC	0.790**	Supported
$H_{1.2}$ PRO → OC	0.623**	Supported
$H_{1.3}$ SUP → OC	0.490**	Not supported
$H_{1.4}$ FRB → OC	0.566**	Supported
$H_{1.5}$ COR → OC	0.314**	Not supported
$H_{1.6}$ OPP → OC	0.488**	Not supported

$H_{1.7}$ COW → OC	0.504**	Supported
$H_{1.8}$ NOW → OC	0.424**	Not supported
$H_{1.9}$ COM → OC	0.534**	Supported

Source: the author's
Note: **Correlation is significant at the 0.05 level
OJS = overall job satisfaction; OC = organizational commitment; PRO = promotion; SUP = supervision; FRB = fringe benefits; COR = contingent rewards; OPP = operating procedures; COW = coworkers; NOW = nature of work; COM = communication.

Discussion and conclusion

The findings of the research indicate a significant positive relationship between job satisfaction and organizational commitment, respectively, employees who are more satisfied with their job feel more committed to the travel agencies where they work, which is in line with the results of previous studies conducted in the tourism and hospitality industry (Yeshanew & Kaur, 2018; Akasoy et al., 2018; Blešić et al., 2017; Vujičić et al., 2015; Ozturk et al., 2014; Back et al., 2011; Gunlu et al., 2010; Kim et al. , 2005).

Research findings indicate that overall job satisfaction is at the boundary between ambivalence and satisfaction, as well as a moderate commitment to the agencies where they work. These results are almost identical to the results of a study conducted among employees in tourism (hotels, travel agencies and restaurants) in Serbia (Vujičić et al., 2015). According to the results of the research, the most important factors of job satisfaction are communication, nature of work, relationships with co-workers and supervision. They are moderately satisfied with pay and operating procedures and dissatisfied with the opportunity for promotions, benefits and rewards. Accordingly, the poor economic situation and position of employees in Serbia, which has been present for many years, the results of the survey can be interpreted as "surreptitious" job satisfaction. The poor economic situation causes that employees need to be satisfied, because they have a job, so often job satisfaction is equated with permanent job opportunities, regular salary, compulsory health and social insurance.

Research findings indicate that there is a strong to moderate relationship between the job satisfaction factors identified by Spector (1997) and employee commitment. Accordingly, the results obtained will be beneficial to owners and managers of travel agencies, as they can identify, through this research, what factors are important to employees in terms of their organizational commitment.

According to the research results, there is a strong positive relationship between pay and organizational commitment, which is consistent with the results obtained by researchers examining the relationship between pay and organizational commitment (Valaei & Rezaei, 2016; Fu, Deshpande & Zhao, 2011; Lumley et al., 2011; Mosadeghrad et al., 2008). Employees prefer a balance between the effort they put into the business and the results they receive in the form of pay, but also compare their own efforts and pay with the efforts and pays of other employees, so it is important for managers to be fair in determining pay and other benefits. The perception of unfair distribution can negatively affect employees' emotions and therefore their behavior (work performance, leaving, etc.) in the organization (Cohen-Charash & Spector, 2001).

When it comes to promotion opportunities, the results of this research reveal that promotion is positively related to organization commitment, which is consistent with previous research findings (Dalkrani & Dimitriadis, 2018; Valaei & Rezaei, 2016; Lumley et al., 2011; Mosadeghrad et al., 2008). Employees are given the opportunity to move forward (promotion) because it involves higher levels of responsibility, personal growth and development, and increased social status. In addition, managers need to know that employees who are dissatisfied with the opportunity to move forward show a lower level of job satisfaction and commitment and plan to leave the organization.

Contrary to the results obtained by Valaei and Rezaei (2016), this study found that there is a moderately positive relationship between supervision and organization commitment. Research findings are consistent with previous studies that have examined the relationship between observed variables (Lumley et al., 2011; Mosadeghrad et al., 2008; Gaertner, 1999). Relationships between employees and direct supervisors are important for achieving the goals of a travel agency and improving levels of satisfaction and commitment. In this sense, employees should value their immediate supervisor, but the manager should also promote fairness, willingness to solve problems, good communication, and motivate employees.

There is a strong positive relationship between fringe benefits in travel agencies and organizational commitment, which is consistent with the results obtained by Mosadeghrad et al. (2008), while Lumley et al. (2011) in their research identified a moderate association

between the observed variables. Managers and owners of travel agencies have to make huge efforts in creating benefits to attract and retain quality employees. Higher levels of satisfaction with employee-preferred benefits increase their performance and encourage higher levels of organizational commitment (Suliman, & Iles, 2000). On the other hand, research findings identified a moderate positive relationship between contingent rewards and organizational commitment in travel agencies, thus confirming the results of previous research (Eliyana et al., 2012; Lumley et al., 2011). Employees need to know not only how well they have done their job, but that their achievements are valued. Recognizing employees by managers for their efforts and work well done is a form of gratitude that positively affects their satisfaction and confidence in work and that is one of the most important motivators.

The results of the research obtained by Valaei and Rezaei (2016) are in agreement with the findings of this study, which confirms the positive relationship between operating procedures and organizational commitment in travel agencies. Operating procedures must be clear and unambiguous and not make it difficult to do the job, otherwise they will be a source of dissatisfaction for employees. On the other hand, the involvement of employees in creating work procedures is necessary because in this way, the travel agency improves communication with employees, increases satisfaction and commitment. Also, dissatisfaction with operating procedures should be an alarm for managers and owners of travel agencies to review the effectiveness of existing procedures.

Furthermore, research findings indicate that there is a strong positive relationship between co-workers and organization commitment in travel agencies, as confirmed by previous research (Eliyana et al., 2012; Lumley et al., 2011; Mosadeghrad et al., 2008). Social atmosphere such as good interpersonal relationships, absence of conflict, friendly atmosphere at work, as well as the support of co-workers at workplaces are important aspects of employee satisfaction and commitment. When it comes to the nature of work, research findings indicate that there is a positive relationship between nature of work and organizational commitment, which is consistent with the results of previous studies (Valaei & Rezaei, 2016; Lumley et al., 2011; Mosadeghrad et al., 2008). Working in a travel agency is a challenging and dynamic job in itself. In order to increase the level of satisfaction and commitment, managers and owners of travel agencies should encourage creativity with their employees, as well as give them a degree of autonomy, feedback and opportunity for further development.

Communication plays an extremely important role in the functioning of the organization. Accordingly, the results of the research indicate that there is a strong positive relationship between communication and employee commitment in travel agencies in Serbia, as confirmed by previous research (Lee, Lorentzen & Choi, 2019; Lumley et al., 2011; Chen, Silverthorne & Hung, 2006).

The contribution of this research is reflected in the identification of relationship between job satisfaction factors and organizational commitment. To be exact, this is the first study in Serbia to examine the relationship between job satisfaction factors and organizational commitment in travel agencies. The research results provide an opportunity for travel agencies to evaluate their job satisfaction and commitment to their employees, to formulate strategies and allocate significant resources to increase employee satisfaction and commitment.

The research conducted has practical implications. First of all, the results indicate to what extent employees in travel agencies are satisfied with their job, that is, which factors (pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, co-workers, nature of work and communication) are stronger and which are weaker influence on organizational commitment. Also, the results of the research show the importance of each factor of job satisfaction on the level of organizational commitment in travel agencies in Serbia. It is therefore of primary importance for managers and owners of travel agencies to identify the needs and desires of their employees and to work to improve job satisfaction and organizational commitment, given that high levels of employee satisfaction and commitment generate numerous positive effects.

It is necessary to point out some of the limitations of this research and to take into account the fact that the research was conducted during the pandemic of Coronavirus, which first hit the tourism sector and that a modest sample of respondents does not provide the basis for some more general conclusions and allows only partial insight into relationship between factors of job

satisfaction and organizational commitment in travel agencies.

One of the recommendations for further research may be the need for broader research, especially regarding sample size. Next, it would be useful to examine whether the findings of this research only apply to employees of travel agencies or can be applied to the hospitality industry and other complementary activities that participate in meeting travel needs. It would also be important to observe the causal relationship between job satisfaction and organizational commitment factors, as well as the impact of job satisfaction and organizational commitment on service quality and customer satisfaction in travel agencies.SM

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Appendix 1 **Job Satisfaction Survey (Spector, 1997)**

Subscale	Items
Pay	
PAY1	I feel I am being paid a fair amount for the work I do.
PAY10	Raises are too few and far between in my travel agency. ®
PAY19	I feel unappreciated by my travel agency when I think about what they pay me. ®
PAY28	I feel satisfied with my chances for salary increases.
Promotion	
PRO2	There is really too little chance for promotion on my job. ®
PRO11	Those who do well on the job stand a fair chance of being promoted.
PRO20	People get ahead as fast in my travel agency as they do in other travel agencies.
PRO33	I am satisfied with my chances for promotion.
Supervision	
SUP3	My supervisor is quite competent in doing his/her job.
SUP12	My supervisor is unfair to me. ®
SUP21	My supervisor shows too little interest in the feelings of subordinates. ®
SUP30	I like my supervisor.
Fringe benefits	
FRB4	I am not satisfied with the benefits I receive. ®
FRB 13	The benefits we receive are as good as most other travel agencies offer.
FRB 22	The benefit package we have in my travel agency is equitable.
FRB 29	There are benefits we do not have which we should have in my travel agency. ®
Contingent rewards	
COR5	When I do a good job, I receive the recognition for it that I should receive.
COR14	I do not feel that the work I do in my travel agency is appreciated. ®
COR23	There are few rewards for those who work in my travel agency. ®
COR32	I don't feel my efforts are rewarded the way they should be in my travel agency. ®
Operating procedures	
OPP6	Many of our rules and procedures in my travel agency make doing a good job difficult.®
OPP15	My efforts to do a good job are seldom blocked by red tape.
OPP24	I have too much to do at work. ®
OPP31	I have too much paperwork. ®
Co-workers	
COW7	I like the people I work with.
COW16	I find I have to work harder at my job because of the incompetence of people I work with. ®
COW25	I enjoy my co-workers.
COW34	There is too much bickering and fighting at work. ®
Nature of work	
NOW8	I sometimes feel my job is meaningless. ®
NOW17	I like doing the things I do at work.
NOW27	I feel a sense of pride in doing my job.
NOW35	My job is enjoyable.
Communication	
COM9	Communications seem good within my travel agency.
COM18	The goals of my travel agency are not clear to me. ®
COM26	I often feel that I do not know what is going on with my travel agency. ®
COM36	Work assignments in my travel agency are not fully explained. ®
Overall job satisfaction1 – 36	

Note: ® = reverse-coded item

Appendix 2 **Organizational Commitment Questionnaire (Mowday et al., 1979)**

	Items
ORC1	I am willing to put in a great deal of effort beyond that normally expected in order to help my travel agency be successful.
ORC2	I talk up my travel agency to my friends as a great organization to work for.
ORC3	I feel very little loyalty to my travel agency.®
ORC4	I would accept almost any type of job assignment in order to keep working for my travel agency.
ORC5	I find that my and values of my travel agency are very similar.
ORC6	I am proud to tell others that I am part of my travel agency.
ORC7	I could just as well be working for a different travel agency as long as the type of work was similar. ®
ORC8	This travel agency really inspires the very best in me in the way of job performance.
ORC9	It would take very little change in my present circumstances to cause me to leave my travel agency. ®
ORC10	I am extremely glad that I chose my travel agency to work for over others I was considering at the time I joined.
ORC11	There is not too much to be gained by sticking with my travel agency indefinitely. ®
ORC12	Often, I find it difficult to agree with this policies of my travel agency on important matters relating to its employees. ®
ORC13	I really care about the fate of my travel agency.
ORC14	For me this is the best of all possible travel agencies for which to work.
ORC15	Deciding to work for my travel agency was a definite mistake on my part. ®

Note: ® = reverse-coded item

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Consumer behavior related to buying wines on the retail market in the City of Niš

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Abstract
The subject matter of the paper is research in consumer behavior in connection with the purchase of wines of both domestic and foreign brands on the market of the City of Niš. The paper is structured so as to perceive the issue from several aspects. In the first place, our wish was to determine whether the respondents are regular wine consumers, and which sorts of wine they consume, and how many of them are not wine regular consumers. An effort was made to determine consumer habits via survey research. The examination method that implied personal examination using a questionnaire was applied. The suitable sample included 230 respondents from the territory of the City of Niš. The research was conducted in November 2019.
While processing the data, it was noticed that a larger number of the respondents were regular wine consumers, namely consuming specific brands. The respondents mainly preferred domestic producers' wines. The results obtained can be observed at the level of the strategic marketing of the offering companies. The research study provides an insight in connection with the different aspects of the consumer behavior of those who consume wine, both at the general level and in connection with the choice of brands.

Keywords
consumer behavior, marketing research, brand, wine, Niš

Introduction

Competition on the domestic wine market is quite pronounced. Struggling to acquire a loyal consumer, in many cases it is not necessary to maintain a fixed lower price for the product; – it is enough to view this problem from the multiple aspects that can be important when selecting a certain wine. In this case, the significance of marketing is dual – in the first place, it reflects the knowledge of the current determinants in the said scientific area, and in the second place, it reflects the significance of conducting the marketing research itself that was carried out via a survey. Wine marketing is a specific field within marketing strategies, having specific particularities. (Martinho, 2021). Wine suits this research idea. When considering consumer behaviour related to wine, product design and especially labeling are a strong decision factor in the buying process, with high relevance to the strategic positioning of the producer. Labels provide relevant product information but also serve for strategic communication by the producer. (Dressler, Paunovic, 2021)

The wine industry in Serbia is a significant sector of economic activity that has the potential to stimulate development in agricultural and rural areas. Increasing the quality of wine in the Republic of Serbia will contribute to the improvement of the country's market position and its domestic and international competitiveness. (Balenović, et al., 2021).

The subject matter of the paper is research into consumer behavior in connection with buying and consuming wine on the market of Niš. An effort was made in the paper to determine how many respondents participating in the survey buy wine and drank it in their households, whether they buy wines of specific brands, and how many of them do not; whether when selecting wines they prefer white, red or rosé wine.

The research in the wine sale channels shows that big supermarket chains mainly offer a large assortment of imported wines of varying quality and domestic wines of lower and medium quality. Admittedly, there has been a trend of the presence of higher-quality domestic wines recently, which have increasingly been included in the offer. The majority of retail facilities – mainly convenience stores – are insufficiently supplied with wines, and if they are, those are mainly low-quality wines. The most significant high-quality Serbian wine distributors are shops and restaurants. Wine boutiques are owned by some wine producers, and their offer consists of their own wines and sometimes imported wines (Salai, Gašović, & Čelić, 2013).

The wine world is going through a rapid transformation linked to changes in consumer preferences, consumption habits, climate, new regulations, and the reduction in available economic resources. (Merlino, et al., 2021)

Wine culture is defined as refined and civilized wine consuming not measured by the quantity of the wine consumed, but rather measured by the acquired knowledge of brands and procedures in the fields of viticulture, wine production and hospitality. A combination of food and wine very often makes a meal a unique gastronomic experience, simultaneously respecting the rule that there is no such wine that cannot be combined with a meal, and enjoying good wine is always a ceremonial event for connoisseurs. Food, wine, culture and other elements create new commercial and territorial opportunities for brands (Cristófol, Cruz-Ruiz, & Zamarreño-Aramendia, 2021). A dominant segment of the population in Serbia consider themselves to be wine consumers, so, although wine is classified into the group of alcoholic drinks, it is often served in many homes in accordance with the tradition and customs, together with brandy and beer (Vlahovic, Potrebić, & Jeločnik, 2013).

1. Methodology and data sources

As sources for writing this paper related to consumer behavior within marketing, the following books are certainly significant: Kotler & Keller (2006). *Marketing Management*, and Fahy & Jobber (2012). *Foundations of Marketing*.

The inevitable book in the marketing management process is by all means a book by Kotler and Armstrong (2014). *Principles of Marketing*.

While writing this paper, an effort was made to apply the above-mentioned methodology from the generally known literature to the level of wine sale and consumption. So, special attention was paid in this paper to the aspects of consumer behavior when speaking about wine buying and consumption, the factors of the choice of particular brands, and the consumption of particular sorts of wine.

The methods used in the paper best reflect the character of the analysis given in the title of the paper. The quantitative methods of economic analysis are predominant in wine sale research. In the first place, those are various statistical data and literature sources related to consumer behavior. While conducting the research, the analysis of the content of the secondary data sources was also carried out. The secondary data sources (information) are, first of all, related to the statistical research in consumer behavior. Internet-based information, which is abundant and significant, was also used.

The contribution of the paper is reflected in the original reviews and analysis related to consumer behavior when speaking about buying and consuming wine, the factors of the choice of particular brands and the consumption of particular sorts of wine.

An effort was made in the paper to indicate the fact that wine sale, and, simultaneously, wine consumption, are substantial on the territory of Niš. As can be seen in the paper, the result of this research study is an attempt to gain knowledge of the real condition of wine consumption, which may have an influence on the potential model that may result in initiating business activities, primarily in small family-owned wineries.

A special contribution has been achieved in the part of the research paper that is processed based upon the conducted survey.

An effort was made in the paper to provide an insight into the current state of the matters in connection with wine consumption on the territory of Niš – namely, if and to what extent

wine is consumed, which brands are the most present, which wines are most frequently consumed (white or red wines), whether consumers prefer domestic or foreign wines, and what they think of the price of domestic and what they think of the price of foreign wines.

2. Research

2.1. Sample

The research study was carried out on the territory of the City of Niš. The encompassed population were those aged from 18 to 75. The main condition was that a person or a respondent bought wine for the household and/or that he/she decided whether to buy it or not. A convenient sample was used. The research study was carried out in October and November 2019. A total of 230 respondents were included in the survey, simultaneously endeavoring to make their age group distribution match the distribution at the level of the whole population of the city.

The sample includes 39.7% of men and 60.3% of women. Of the total number of the respondents, a total of 68.2% are employed, 14.6% are unemployed, 6.3% are students, and 10.9% are retired persons. Simultaneously, a total of 74.6% of the respondents are married, whereas a total of 25.4% are not. The average age of the respondents is 46.1, the average household size is 3.34 members, and the average number of years of education is 12.11.

2.2. Questionnaire

For the needs of this research study, an original questionnaire was developed by applying factor analysis. Apart from the said factor analysis, more precisely, apart from the analysis of the factors in the development of the questionnaire, the rational method based upon the application of the knowledge of the experts in the fields of enology and marketing was also used. Namely, the initial questionnaire was built into the first step by engaging experts from the mentioned fields, simultaneously taking care of the fundamental bases on which classical test theory is built. Based on their knowledge and experience, they made a proposal for the initial questionnaire consisting of a total of the 60 questions that encompassed all the aspects pertaining to the behavior, i.e. the decision-making process, of wine consumers on the territory of the City of Niš. While creating the initial questionnaire, they particularly took care of the internal consistency of the questions, the problems related to the semantics, the avoidance of double negations in the formulation of the questions and so forth. In the second step, the initial questionnaire was validated by applying factor analysis. To be more precise, the principal components analysis was carried out for this purpose.

For the needs of the validation of the initial questionnaire, a total of 500 respondents were included in the survey, simultaneously taking care of the presence of the sample regarding the respondents' sex, education, labor engagement and purchasing power. The internal consistency of the questionnaire was measured by using the Cronbach alpha coefficient (Hinkin,1998, pp. 104 – 121).:

$$\alpha = \frac{(N^2 M(Cov))}{\left(\sum s^2 + \sum Cov\right)} \quad 1$$

where:

α - Cronbach alpha coefficient
N - The number of the variables/questions,
M - The number of the variables/questions reduced by 1
S^2 -Variance,
Cov - Covariance

The value of this coefficient was 0.812, which is indicative of the fact that there is consistency between the questions. Apart from this indicator of the internal consistency between the questions, the validation of the questionnaire was carried out by also using the principal components analysis. Given the fact that the first step in the application of this type of factor analysis implies the examination of the adequacy of the sample size, the KMO test was applied. Numerous authors point out the fact that it is only enough to ensure a total of 10 to 15 respondents per question for a sample to be adequate for the validation of a questionnaire (Petrović, 2013, p. 579) although there are also those who highlight the fact that it is only enough for the value of the KMO test to exceed 0.6 (Field, 2009, p. 8). The first pool of authors base their attitude upon the belief that it is a sufficient size of a sample in the existence of an inverse relationship between the sample size and the probability that the correlation coefficients between the questions from the questionnaire will differ from the correlation coefficients between the questions in other samples (Field, 2009, p. 8). The value of this test was 0.792.

Given the fact that the principal components analysis implies that data should be intervals since

the same is based upon the assumption that said data included in a questionnaire are normally distributed, a further analysis was carried out based upon the assumption that the data were normally distributed and treated as intervals in spite of the fact that those were ordinal data.

In order to identify the key factors, i.e. a reduction in the number of the questions from the initial questionnaire, principal components analysis was applied, noting that the condition stipulating that a factor should have the eigenvalue greater than 1 was used as the factor extraction criterion. Table 1 accounts for the results of the application of the analysis.

Table 1 The extracted factors

Factors	The Initial Values of Factors			The percentage of the explained variation			Factor weights
	total	% of the variation	Cum %	total	% of the variation	Cum %	total
1	5.274	18.999	18.999	5.274	18.999	18.999	4.971
2	3.236	14.738	33.737	3.236	14.738	33.737	3.654
3	2.387	11.977	45.714	2.387	11.977	45.714	3.144
4	1.881	11.133	56.847	1.881	11.133	56.847	3.223
5	1.482	10.468	67.315	1.482	10.468	67.315	3.75
6	1.155	9.597	76.912	1.155	9.597	76.912	2.985
7	1.131	3.984	80.896	1.131	3.984	80.896	3.3
8	0.989	1.77	82.666				
9	0.872	1.575	84.241				
10	0.74	1.355	85.596				
11	0.711	1.307	86.903				
12	0.635	1.18	88.083				
13	0.593	1.109	89.192				
14	0.546	1.031	90.223				
15	0.524	0.994	91.217				
16	0.416	0.815	92.032				
17	0.404	0.794	92.826				
18	0.375	0.746	93.572				
19	0.328	0.668	94.24				
20	0.29	0.605	94.845				
21	0.28	0.587	95.432				
22	0.253	0.543	95.975				
23	0.231	0.505	96.48				
24	0.194	0.444	96.924				
25	0.185	0.43	97.354				
26	0.161	0.39	97.744				
27	0.135	0.347	98.091				
28	0.116	0.315	98.406				
29	0.113	0.266	98.672				
30	0.108	0.242	98.914				
31	0.1	0.212	99.126				
32	0.085	0.169	99.295				
33	0.074	0.134	99.429				
34	0.065	0.093	99.522				
35	0.06	0.087	99.609				
36	0.042	0.042	99.651				
37	0.0415	0.042	99.693				
38	0.04	0.041	99.734				
39	0.038	0.04	99.774				
40	0.021	0.026	99.8				
41	0.02	0.019	99.819				
42	0.019	0.018	99.837				
43	0.018	0.017	99.854				
44	0.017	0.016	99.87				
45	0.016	0.015	99.885				
46	0.015	0.014	99.899				
47	0.014	0.013	99.912				
48	0.013	0.012	99.924				
49	0.012	0.011	99.935				
50	0.011	0.01	99.945				
51	0.01	0.01	99.955				
52	0.009	0.009	99.964				
53	0.008	0.008	99.972				
54	0.007	0.007	99.979				
55	0.006	0.006	99.985				
56	0.005	0.005	99.99				
57	0.004	0.004	99.994				
58	0.003	0.003	99.997				
59	0.002	0.002	99.999				
60	0.001	0.001	100				

Source: the authors' calculations

The results of the application of the analysis are indicative of the fact that a total of the seven factors that meet the criterion were extracted. These seven factors account for about 81% of the total variation. The extraction of these seven questions enabled a valid questionnaire.

Given the fact that, based upon the obtained matrix of the unrotated components, it was impossible to group the questions precisely into a particular factor, the validation further continued by applying the Promax rotation (with Kaiser normalization).[1] This rotation orthogonally rotates unrotated solutions so as to enable correlations between the factors. The results of this rotation are presented in Table 2.

Table 2 The matrix of the structure

	Components						
	1	2	3	4	5	6	7
Q1	-0.001	0.025	0.228	0.074	0.044	-0.291	-0.005
Q2	0.002	0.046	0.201	-0.035	0.212	-0.071	0.014
Q3	0.071	-0.116	0.25	0.093	0.02	-0.045	-0.075
Q4	-0.302	0.249	0.317	0.059	0.172	-0.077	0.04
Q5	-0.333	0.282	0.239	-0.013	0.185	-0.041	-0.141
Q6	-0.275	0.101	0.269	0.097	0.165	-0.156	-0.32
Q7	-0.353	0.23	0.165	0.076	0.055	-0.243	-0.099
Q8	-0.023	0.213	-0.005	0.025	0.07	-0.207	-0.05
Q9	0.027	0.334	0.026	-0.198	-0.022	-0.243	-0.213
Q10	-0.001	0.27	0.043	-0.179	0.178	-0.334	0.02
Q11	0.012	0.341	-0.32	-0.028	-0.23	-0.173	-0.275
Q12	0.062	0.334	-0.302	-0.036	-0.297	-0.217	-0.256
Q13	-0.035	0.185	-0.169	0.015	-0.084	-0.054	-0.559
Q14	-0.091	0.339	-0.343	-0.026	-0.359	-0.268	-0.449
Q15	0.158	0.187	-0.018	-0.32	-0.118	-0.151	-0.432
Q16	-0.143	0.325	0.069	-0.208	-0.1	-0.037	-0.548
Q17	0.092	0.013	-0.311	-0.253	-0.024	-0.464	-0.029
Q18	-0.027	0.155	-0.128	-0.343	-0.092	-0.459	-0.205
Q19	0.321	0.021	0.102	-0.441	-0.265	-0.254	0.001
Q20	0.144	0.095	0.026	-0.354	-0.201	-0.364	0.125
Q21	0.299	0.127	-0.024	-0.441	-0.274	-0.432	0.066
Q22	0.281	0.07	0.027	-0.418	-0.225	-0.39	0.089
Q23	0.002	0.243	0.057	-0.032	-0.501	-0.035	0.01
Q24	0.26	0.018	-0.02	-0.135	-0.607	-0.168	-0.002
Q25	0.377	-0.059	-0.059	-0.195	-0.359	-0.145	-0.071
Q26	0.257	0.014	-0.039	-0.253	-0.344	-0.031	-0.214
Q27	-0.174	0.195	0.014	-0.086	-0.271	0.287	-0.282
Q28	0.307	-0.008	0.008	-0.345	-0.291	0.016	-0.258
Q29	0.266	0.031	0.085	-0.42	-0.092	0.209	-0.13
Q30	0.241	0.008	0.025	-0.414	-0.095	0.217	-0.153
Q31	0.244	-0.013	-0.168	-0.406	-0.002	0.15	-0.1
Q32	0.274	-0.273	-0.037	-0.42	0.088	0.289	-0.023
Q33	0.222	-0.242	-0.11	-0.325	0.026	0.237	0.008
Q34	0.248	-0.224	-0.095	-0.2	0.058	0.096	-0.167
Q35	0.372	-0.222	-0.166	-0.233	0.01	0.03	-0.298
Q36	0.323	-0.211	0.137	-0.029	0.026	-0.094	-0.061
Q37	0.218	-0.221	-0.023	0.248	-0.259	0.014	-0.2
Q38	0.425	-0.321	0.057	0.081	-0.134	-0.241	-0.193
Q39	0.457	-0.316	0.015	0.12	-0.1	-0.135	-0.12
Q40	0.374	-0.366	-0.072	0.256	-0.105	-0.152	-0.223
Q41	0.431	-0.358	0.008	0.166	0.008	-0.264	-0.24
Q42	0.366	-0.372	-0.093	0.195	-0.084	-0.257	-0.196
Q43	0.379	-0.354	-0.045	0.136	0.033	-0.304	-0.266
Q44	0.213	-0.231	-0.236	0.048	-0.245	-0.142	0.076
Q45	0.399	-0.21	-0.23	0.064	-0.138	-0.111	-0.115
Q46	0.312	-0.225	-0.178	0.017	-0.101	-0.168	-0.035
Q47	-0.248	0.218	-0.273	-0.041	-0.085	0.002	0.012
Q48	0.167	-0.254	-0.189	-0.02	-0.014	-0.193	-0.045
Q49	0.204	0.05	-0.584	-0.163	0.159	-0.128	0.088
Q50	0.128	0.034	-0.629	-0.164	0.296	-0.168	-0.081
Q51	0.071	0.096	-0.665	-0.215	0.283	-0.145	-0.182
Q52	0.15	0.034	-0.657	-0.091	0.03	-0.133	-0.143
Q53	0.087	0.171	-0.317	0.18	-0.131	0.037	-0.373
Q54	-0.028	0.078	-0.46	-0.089	0.047	-0.085	-0.046
Q55	0.091	0.182	-0.479	0.077	-0.206	-0.005	-0.127
Q56	0.081	-0.007	-0.269	0.236	-0.404	-0.019	0
Q57	-0.055	0.2	-0.275	0.16	-0.296	0.035	0.102
Q58	-0.234	0.322	-0.095	0.202	-0.248	-0.009	0.2
Q59	-0.034	0.137	-0.214	-0.017	-0.043	0.044	0.33
Q60	-0.231	0.079	-0.175	0.207	-0.2	0.117	0.198

Source: the authors' calculations

[1] Due to the length of the paper, the matrices of the unrotated and rotated components are not presented herein.

Based on this rotation, a total of the seven key factors that were reformulated into the seven questions included in a new questionnaire were identified. More precisely, the new questionnaire consisted of seven questions. Each question is specially discussed in each individual item given further in the paper.

The questionnaire consisted of seven questions. Each question is separately processed in every individual point that follows in our further presentations.

In the first part of the Questionnaire, the respondents' sociodemographic characteristics (i.e. their sex, age, employment status (employed, unemployed, students or retired persons), their marital status (married, cohabiting or single), the number of household members, and the number of years of education) were determined.

The second part of the Questionnaire was dedicated to certain aspects of behavior when buying wine: the usual frequency of buying wine at a monthly level (more rarely than once a month, once a month, several times a month, once a week, several times a week, on a daily basis) and the brands in the assortment of a retail shop where the largest number of wine purchases were made. At the same time, what a shop looked like, what it was specialized in (whether it was a shop only selling wine or a general retail store – a supermarket, a 24-hour service shop, etc.) was in focus.

The third part of the Questionnaire related to the statement of the favorite brand/wine that is used in the household the most. Apart from that, the respondents were also asked to mention the brand within that sort of wine they prefer the most, even when, first of all, they prefer the sort, not the brand of the wine.

2.3. Questionnaire

In order to find out the frequency of buying wine at a monthly level, the consumers were asked a few questions. The first question was about the usual purchases at a monthly level. As can be concluded from Table 3, more than a half of the respondents buy wine at least once a month.

Table 3 The usual purchase of wine at a monthly level

Respondents' answers	Number of survey answers	Share in %
More rarely than once a month	57	24.78
Once a month	71	30.87
Several times a month	42	18.26
Once a week	27	11.74
Several times a week	24	10.43
Daily	9	3.91
Total n = 230	230	100.0

Source: the authors' survey-based calculation

There is also a substantial number of consumers buying wine several times a month, as well as those buying it several times a week. That indicates the fact that consumers buy and consume wine eagerly.

The next question posed to the respondents related to their selection of the shop where they made the largest number of wine purchases.

Table 4 In what shop do you buy wine most frequently?

Respondents' answers	Number of survey answers	Share in %
At a specialized wine shop	4	1.74
At shops of supermarket chains	121	52.61
At a self-service shop	84	36.52
At a 24-hour service shop	18	7.83
In another place	3	1.30
Total n=230	230	100.0

Source: the authors' survey-based calculation

The answers given to this question are interesting. More than 52.61% of the respondents buy wine at shops of big supermarket chains (Tempo, Maxi, Aman, Idea, Roda, Lidl). Self-service shops and 24-hour service shops owned by small merchants rank second and third. The number of only four respondents, i.e. 1.74%, who buy wine at a specialized wineshop is almost negligible. The reason for such a small purchase of wine should be sought in the simple reason that there are a very small number of shops like these on the territory of Niš. Based on the answers like these, it is possible to conclude that the respondents buy wine at the shops of famous supermarket chains to the greatest extent.

As has already been said, the third part of the Questionnaire related to the statement of the favorite brand/wine which is consumed the most in the household. At the same time, the following sorts of wine were in our focus: white and red wines, rosé and champaign (sparkling wines). According to the answers given by the respondents, it can be seen that red wines are consumed the most. On the other hand, the

second-ranked is white wine, which does not lag much behind red wine.

Table 5 Which favorite sorts of wine are consumed in your household?

Respondents' answers	Number of survey answers	Share in %
White wine	83	36.09
Red wine	95	41.30
Rosé	36	15.65
Champaign	16	6.96
Total n=230	230	100.0

Source: the authors' survey-based calculation

The respondents were also asked the question: which sorts of wine within white wine are most gladly consumed.

Table 6 Which favorite sorts of white wine are consumed in your household?

Respondents' answers	Number of survey answers	Share in %
Pinot Blanc	36	15.65
Riesling	39	16.96
Chardonnay	18	7.83
I do not know	137	59.57
Total n=230	230	100.0

Source: the authors' survey-based calculation

Based on the received answers, it can be concluded that the respondents most frequently buy and simultaneously consume Riesling white wine (16.96%). That same question was also asked about buying and consuming red wine.

Table 7 Which favorite sorts of red wine are consumed in your household?

Respondents' answers	Number of survey answers	Share in %
Cabernet Sauvignon	38	16.52
Merlot	23	10.00
Pinot Noir	12	5.22
I do not know	158	68.78
Total n=230	230	100.0

Source: the authors' survey-based calculation

When the answers related to the asked question about the sorts of red wine most gladly bought/consumed are concerned, the respondents answered that the wine Cabernet Sauvignon was consumed the most.

Besides, the respondents were also asked to state the brand within the sort of wine they prefer the most, even when the sort of that wine, not a wine brand, is their favorite. It was impossible to obtain a simple answer to this question because of a large number of the brands of the wines present in our market. In order to relatively narrow the answer to this question, the consumers were, first of all, asked to mention the domestic wine brands they like to drink the most. In compliance with the posed question, the respondents answered as shown in Table 8.

Table 8 Which are your favorite domestic wine brands consumed in your household?

Respondents' answers	Number of survey answers	Share in %
Ždrepčeva krv (*Stallion's Blood*)	24	10.43
Medveđa krv (*Bear's Blood*)	17	7.39
Tri Morave (*Three Moravas*)	8	3.48
I do not know	181	78.70
Total n=230	230	100.0

Source: the authors' survey-based calculation

What can immediately be noticed when speaking about the posed question is that wine buyers and consumers know best the wines mainly present on the market. At the same time, those wines are also bought most frequently. These wines are also reasonably priced.

Table 9 Do you buy domestic or foreign wines?

Respondents' answers	Number of survey answers	Share in %
Domestic wines	67	29.13
Foreign wines	56	24.35
I do not know	107	46.52
Total n=230	230	100.0

Source: the authors' survey-based calculation

The respondents were also asked a question related to the purchase of domestic/purchase of foreign wines ratio. We were interested in finding out which wines were more popular with our consumers. According to the answers obtained, it can be noticed that domestic wines are but slightly more popular than foreign wines. A large number of the respondents did not know how to answer this question, either.

Conclusion

In spite of certain limitations related to buying and consuming wine, which is the subject matter of our research study, it can be highlighted that there is a certain theoretical contribution out of which it may be possible to make a framework for understanding the behavior of wine consumers. We consider that our research studies can help to some extent to perceive the consumer behaviors that may help wineries to ensure their survival and growth on the unstable and competitive wine

market. First, it was noticed in our research study that it was very significant whether wine consumers were or were not knowledgeable of the wines they drank. The knowledge of wine significantly influences consumer behavior when buying and consuming wine in general.

We consider that wineries should help consumers create new types of knowledge and impressions when buying and consuming wines. The majority of wine consumers are either confused or insufficiently educated about wines. Consumers feel frightened because of a large number of the wines offered on the market, and they have a problem to remember which wines they have bought and which wines they have liked. The researchers who observe consumer behavior have noticed that buyers are confused during the wine selection process. When buying, they feel insecure and have a problem which wine to choose (Stallcup, 2005). It is our wish to highlight the fact that the problem related to a choice of wine appears at a global level, not only in our country. The world wine market is big and quite diverse.

Finally, we want to highlight the fact that winegrowing production still has a modest annual share in the total achieved value of agricultural production, only accounting for a few percentages. Recently, the deficit in foreign-trade exchange has been explained by the growing trend of the domestic consumption of wine. It is a good trend, which can certainly encourage wine producers.SM

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➲ **Book, more than six authors**

Mirković, D., Tanasijević, V., Perić, O., Jovanov, N., Boškov, T., Strakić, F., et al. (2007). *Supply chain management*.
Subotica: Faculty of Economics in Subotica.

➲ **Book, no author or editor**

Web user interface (10th ed.). (2003). Subotica: Faculty of Economics.

➲ **Group, corporate, or government author**

Statistical office of the Republic of Serbia. (1978). *Statistical abstract of the Republic of Serbia.*
Belgrade: Ministry of community and social services.

➲ **Edited book**

Dimitrijević, M., & Tanasijević, V. (Eds.). (2004). *Data warehouse architecture*. Subotica: Faculty of Economics.

➲ **Chapter in an edited book**

Boškov, T., & Strakić. F. (2008). Bridging the gap: Complex adaptive knowledge management. In T. Boškov, & V.
Tanasijević (Eds.), *The enterprise knowledge portal and its architecture* (pp. 55-89). Subotica: Faculty of Economics in Subotica.

➲ **Encyclopedia entry**

Mirković, D. (2006). History and the world of mathematicians. In *The new mathematics encyclopedia* (Vol. 56, pp. 23-45).
Subotica: Faculty of Economics.

C. UNPUBLISHED WORKS

➲ **Paper presented at a meeting or a conference**

Ljubojević, K., Tanasijević, V., Dimitrijević, M. (2003). *Designing a web form without tables*. Paper presented at the annual meeting of the Serbian computer alliance, Beograd.

➲ **Paper or manuscript**

Boškov, T., Strakić, F., Ljubojević, K., Dimitrijević, M., & Perić, O. (2007. May). *First steps in visual basic for applications*.
Unpublished paper, Faculty of Economics Subotica, Subotica.

➲ **Doctoral dissertation**

Strakić, F. (2000). *Managing network services: Managing DNS servers*. Unpublished doctoral dissertation, Faculty of
Economics Subotica, Subotica.

➲ **Master's thesis**

Dimitrijević, M. (2003). *Structural modeling: Class and object diagrams*. Unpublished master's thesis, Faculty of Economics
Subotica, Subotica.

D. ELECTRONIC MEDIA

The same guidelines apply for online articles as for printed articles. All the information that the online host makes available must be listed, including an issue number in parentheses:

Author, A. A., & Author, B. B. (Publication date). Title of article. *Title of Online Periodical, volume number* (issue number if
available). Retrieved from http://www.anyaddress.com/full/url/

➲ **Article in an internet-only journal**

Tanasijević, V. (2003, March). Putting the user at the center of software testing activity. *Strategic Management*, *8* (4).
Retrieved October 7, 2004, from http://www.ef.uns.ac.rs/sm2003

➲ **Document from an organization**

Faculty of Economics. (2008, March 5). *A new approach to CRM*. Retrieved July 25, 2008, from http://www.ef.uns.ac.rs/papers/acrm.html

➲ **Article from an online periodical with DOI assigned**

Jovanov, N., & Boškov, T. A PHP project test-driven end to end. *Management Information Systems*, 2 (2), 45-54.
https://doi.org/10.5937/StraMan213302003S

➲ **Article from an online periodical without DOI assigned**

Online journal articles without a DOI require a URL.

Author, A. A., & Author, B. B. (Publication date). Title of article. *Title of Journal, volume number*. Retrieved from http://www.anyaddress.com/full/url/

Jovanov, N., & Boškov, T. A PHP project test-driven end to end. *Management Information Systems*, 2 (2), 45-54. Retrieved from http://www.ef.uns.ac.rs/mis/TestDriven.html.

REFERENCE QUOTATIONS IN THE TEXT

➲ **Quotations**

If a work is directly quoted from, then the author, year of publication and the page reference (preceded by "p.") must be included. The quotation is introduced with an introductory phrase including the author's last name followed by publication date in parentheses.

According to Mirković (2001, p. 201), "The use of data warehouses may be limited, especially if they contain confidential data".

Mirković (2001, p. 201), found that "the use of data warehouses may be limited". What unexpected impact does this have on the range of availability?

If the author is not named in the introductory phrase, the author's last name, publication year, and the page number in
parentheses must be placed at the end of the quotation, e.g.

He stated, "The use of data warehouses may be limited," but he did not fully explain the possible impact (Mirković, 2001, p. 201).

➲ **Summary or paraphrase**

According to Mirković (1991, p. 201), limitations on the use of databases can be external and software-based, or temporary and even discretion-based.

Limitations on the use of databases can be external and software-based, or temporary and even discretion-based
(Mirković, 1991, p. 201).

➲ **One author**

Boškov (2005) compared the access range…

In an early study of access range (Boškov, 2005), it was found...

➲ When there are **two authors**, both names are always cited:

Another study (Mirković & Boškov, 2006) concluded that…

➲ If there are **three to five authors**, all authors must be cited the first time. For subsequent references, the first author's
name will be cited, followed by "et al.".

(Jovanov, Boškov, Perić, Boškov, & Strakić, 2004).

In subsequent citations, only the first author's name is used, followed by "et al." in the introductory phrase or in parentheses: According to Jovanov et al. (2004), further occurences of the phenomenon tend to receive a much wider media coverage.

Further occurences of the phenomenon tend to receive a much wider media coverage (Jovanov et al., 2004). In "et al.", "et" is not followed by a full stop.

➲ **Six or more authors**

The first author's last name followed by "et al." is used in the introductory phrase or in parentheses:

Yossarian et al. (2004) argued that…

… not relevant (Yossarian et al., 2001).

➲ **Unknown author**

If the work does not have an author, the source is cited by its title in the introductory phrase, or the first 1-2 words are placed in the parentheses. Book and report titles must be italicized or underlined, while titles of articles and chapters are placed in quotation marks:

A similar survey was conducted on a number of organizations employing database managers (Limiting database
access, 2005).

If work (such as a newspaper editorial) has no author, the first few words of the title are cited, followed by the year: (The Objectives of Access Delegation, 2007)

Note: In the rare cases when the word "Anonymous" is used for the author, it is treated as the author's name (Anonymous,
2008). The name Anonymous must then be used as the author in the reference list.

➲ **Organization as an Author**

If the author is an organization or a government agency, the organization must be mentioned in the introductory phrase or in the parenthetical citation the first time the source is cited:

> According to the Statistical Office of the Republic of Serbia (1978), …

Also, the full name of corporate authors must be listed in the first reference, with an abbreviation in brackets. The abbreviated name will then be used for subsequent references:

> The overview is limited to towns with 10,000 inhabitants and up (Statistical Office of the Republic of Serbia [SORS],
> 1978).
>
> The list does not include schools that were listed as closed down in the previous statistical overview (SORS, 1978).

➲ When citing **more than one reference from the same author**: (Bezjak, 1999, 2002)
➲ When several **used works by the same author were published in the same year**, they must be cited adding a, b, c, and so on, to the publication date:

> (Griffith, 2002a, 2002b, 2004)

➲ **Two or more works in the same parentheses**

When two or more works are cited parenthetically, they must be cited in the same order as they appear in the reference list, separated by a semicolon.

> (Bezjak, 1999; Griffith, 2004)

➲ **Two or more works by the same author in the same year**

If two or more sources used in the submission were published by the same author in the same year, the entries in the reference list must be ordered using lower-case letters (a, b, c…) with the year. Lower-case letters will also be used with the year in the in-text citation as well:

> Survey results published in Theissen (2004a) show that…

➲ To **credit an author for discovering a work**, when you have not read the original:

> Bergson's research (as cited in Mirković & Boškov, 2006)…

Here, Mirković & Boškov (2006) will appear in the reference list, while Bergson will not.

➲ When **citing more than one author**, the authors must be listed alphabetically:

> (Britten, 2001; Sturlasson, 2002; Wasserwandt, 1997)

➲ When there is **no publication date**: (Hessenberg, n.d.)

➲ **Page numbers must always be given for quotations**:

(Mirković & Boškov, 2006, p.12)

Mirković & Boškov (2006, p. 12) propose the approach by which "the initial viewpoint…

➲ **Referring to a specific part of a work**:

(Theissen, 2004a, chap. 3) (Keaton, 1997, pp. 85-94)

➲ **Personal communications, including interviews, letters, memos, e-mails, and telephone conversations**, are cited as below. (These are *not* included in the reference list.)

(K. Ljubojević, personal communication, May 5, 2008).

FOOTNOTES AND ENDNOTES

A few footnotes may be necessary when elaborating on an issue raised in the text, adding something that is in indirect connection, or providing supplementary technical information. Footnotes and endnotes are numbered with superscript Arabic numerals at the end of the sentence, like this.[1] Endnotes begin on a separate page, after the end of the text. However, *Strategic Management* Programming Board **does not recommend the use of footnotes or endnotes.**

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