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Digital Organizational Strategy – Ticket for Competitiveness on the International Market

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Abstract
For organizational competitiveness, it is much more important to recognize opportunities than to avoid threats. Strategic management should turn each environmental opportunity into organizational strength, so digital sale and purchase have already become worldwide established practice. In the European Union, only a quarter organizations' total sales usually come from online sale, and the situation with online purchase is even worse. The main goal of this paper is to determine the causes of reluctance to implement digital sale and purchase so the research was conducted based on the European Commission database (Flash Eurobarometer Report 413) and Eurostat database. Online sale and online purchase of EU organizations have been studied based on the available data. Therefore, obstacles to digital sale and purchase, proportion of sale and purchase made nationally and cross-border, value of e-commerce sales, integration of internal processes, security policy and individuals' level of computer, digital and e-skills are observed. Results show that EU organizations do not implement digital sale because delivery costs are too high and guarantees as well as returns are too expensive, and even if they sell online, they are selling only in their own respective countries, mostly using their own websites or applications. Reasons against digital purchase are similar: high delivery costs. In this paper, special attention is directed to Croatian organizations that are not enough digitally oriented. Croatian organizations used to buy online from other EU countries, but stopped doing this although they are currently considering buying products or services online from other EU countries. Also, they are willing to sell online to other EU countries and what is interesting comparing with other EU countries, one in ten organizations in Croatia is selling to Japan and China. A major problem is that a significant percentage of Croatian organizations have tried to sell online to other EU countries but have given up. They are not concerned about data not being well protected or about product labelling having to be adapted, which raises questions about true reasons for giving up from online sale to EU countries. Data indicate a really small number of organizations with precise digital business strategy, not only in Croatia but in the whole European Union. Focus on digitalization could reduce logistics costs and enhance export. Nevertheless, digital orientation undoubtedly must become priority of strategic management.

Keywords
Croatia, European Union, digital purchase, digital sale, organizational competitiveness.

Introduction

E-commerce is only one part of e-business but it is the most visible indicator of direct Internet and digital economy influence. Don Tapscott was the first one (1995) who spoke about importance of digital economy in his book *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*, stressing "networking of humans through technology". Computers and Internet have enabled people and organizations to exchange goods in real time in the simplest and fast-

est way possible, so digital economy is often called Internet Economy or New Economy. Digital economy accounts for almost 8% of GDP of G20 major economies (European Commission, n.d.) and it is assumed that this percentage will grow rapidly every year. This trend is not temporary and it should be monitored by e-commerce including e-sale (online sale or digital sale), and e-purchase (online purchase or digital purchase). Being present on a national market without digital strategy is only survival strategy, but it is almost impossible to penetrate on the international market without digital orientation. However, organizations with long-term development strategy can find their key for competitiveness in digital economy both nationally and internationally. Therefore, application of e-commerce is not added value, but the only right way of doing business. Primary focus should be digital sale that contributes to general sale growth. It is easy to know how much organizations are engaged in e-commerce sale, but not how much they really sell via e-commerce (Brynjolfsson & Kahin, 2002). This paper hence tries to investigate real digital sale and purchase in European Union organizations with special emphasis on Croatian organizations. Organizational e-commerce implies the existence of Internet access, an IT platform in the workplace and also employer's computer and digital knowledge and skills. Only when all digital conditions are ensured, digital sale and purchase can be applied.

1. Literature review

Digital economy includes a lot of new platforms such as crowdsourcing and 'free' media services, funded by advertising and Big Data but their direct influence on productivity and GDP is questionable (Ahmad & Schreyer, 2016, p. 4). According to van Ark (2016, p. 3), digital economy is still in "installation phase" an there is no "visible improvement in productivity growth" due to digital progress. "Global GDP growth has been propelled by two key factors over the past 50 years: growth of the size of the overall labour force, which doubled in the G20 countries as a result of brisk population growth, and rising productivity" (Labaye & Remes, 2015, p. 47). The same authors warn that population will fall in all G20 countries so much that "productivity would need to grow 80% faster than the already high rate of the past 50 years". They suggest that only digital economy can respond to this productivity imperative. The most common trap with digital organizational strategy is that they are still mainly process-oriented and less product-oriented (Spil, Kijl, & Salmela, 2016). Comprehensive digital business strategy could bring competitive advantage, added value and profit to each organization (Pagani, 2013).

"The key to realizing the potential of the digital economy is widespread access to the Internet" (Hamid & Khalid, 2016, p. 276). Internet and IT are not sufficient without human capital which implies certain knowledge. This is why Knowledge Management is indispensable support for e-commerce establishment. The domain of electronic commerce is much wider than online sale and purchase so it could be summed up that e-commerce is collection of commercial activities conducted through electronic networks whose ultimate goal is sale or purchase (Lontoš & Vuković, 2016).

Organizational e-commerce can move in different directions (B2B, B2C, B25, C2B, C2C, C2G, G2B, G2C and G2G), but two of them will be observed from organizational aspect: Business to Business (B2B) and Business to Consumer (B2C). B2B is defined as "business activities fulfilled electronically in order to enhance competitive advantage, related to selling, buying, exchanging, or transferring goods, services, and information among organizations" (Hamad Elbeltagi, Jones, & El-Gohary, 2015, p. 405). E-commerce in B2B context can increase profitability (Borenstein & Saloner, 2001; Luckey-Reiley & Spulber, 2001) and improve company performance through lower purchasing and administrative costs (Efendi, Kinney, Taken, & Murphy, 2013). One study form Taiwan has showed that in the terms of B2B web site characteristics increase relationship quality (trust, commitment and satisfaction) whose result is e-loyalty (Hsu, Wang, & Chin, 2013). Decision on implementing B2B c-commerce depends on environmental factors, technological factors and organizational and interorganisational factors. Excluding contextual variables, "pressure from competitors, network reliability, scalability, top management support, and trust play a significant role in contributing to firms' decision to adopt B2B EC. However, pressure from trading partners, costs, data security, and complexity do not" (Sila, 2013, p. 230). Despite all, context is not irrelevant so it is necessary to examine it both for B2B and B2C. For example, there are different taxes and classifications in each county (Jensen, Lewis, DoVale, & McGahan 2015) which means that change management is

not expected only of organizations, but also of governments.

Opportunities for B2C e-commerce are even bigger than in case of B2B while consumers are online 24/7/365. For B2C c-commerce, social networking is very important (Sheikh & Basti, 2015; Oestreicher-Singer & Zalmanson, 2013), visibility (Grover & Kohli, 2013), as well as reviews, ratings, and recommendation systems (Amblee & Bui, 2012). Although consumer behaviour depends on "internal beliefs, attitudes, intention for online shopping, social network, personal experience, convenience, marketing, mass media and internet" (Sharma, 2016, p. 46), the adequate digital strategy can bring organization to consumer even closer than geolocation. Repeat purchase is crucial for e-sale which can be achieved with various tools such as web pages, social media, blogs, Internet advertising, CRM software etc. Dean (2017) unites three steps for Digital Sale Success: Review (tracking and analyzing previous marketing initiatives), Repent (identifying gaps in your sales process and support) and Renew (creating strategy by setting achievable goals).

2. Methodology

Secondary research in this paper was conducted based on the European Commission database (Flash Eurobarometer Report 413 – Companies engaged in online activities) and Eurostat database (European Commission, 2015; Eurostat, 2016). There is a specific examination on data related to Croatia both on European Commission and Eurostat database. Flash Eurobarometer Report 413 was audited by HENDAL Institute, which conducted a survey of 300 interviews within 13,432 businesses. Research was carried out in 2015. On the other hand, Eurostat provides even more recent data, mostly referring to 2016. The main limitation of Eurostat research is sample which excludes financial sector and collects the data only for organizations that have more than 10 employees. Therefore, data comparing brings minor deviations.

3. Results and discussion

3.1. EU and Croatian organizations in digital environment

According to Eurostat database (2016), 97% of EU organizations have Internet access. 92% of them are using DSL or other fixed broadband connection, while 67% are connecting to the Internet via a mobile broadband connection (3G modem or 3G handset). 44% of total employed persons in Croatia in 2016 were using computers with access to World Wide Web. This is below EU average (50%) but also decline comparing to 2013 when this percentage was 45. 88% of employees using computers are using computers with access to World Wide Web. 47% of employees are working in organizations which use computers and have Internet access. 90% of organizations in 2016 have had broadband access (fixed or mobile). 11% of organizations in Croatia have problem with Internet connections (European Commission, 2015). 56% of organizations provide the employed with remote access to the organization's e-mail system, documents or applications. 72% of organization in 2014 provided portable devices that allow a mobile connection to the internet for business use to their employees (Eurostat, 2017).

In 2016, 77% of EU organizations had a web site or homepage, which is an increase of 10% comparing to 2010. 25% of EU organizations have advertised on the Internet, and 30% of Croatian organizations have paid to advertise on the Internet (17% have paid to advertise on the Internet based on the web pages' content or keywords searched by users, 9% have paid to advertise on the Internet based on the tracking of Internet users' past activities or profile, 7% have paid to advertise on the Internet based on the geolocation of Internet users). 45% of EU organizations are using social media, and 41% of Croatian organizations (Facebook, LinkedIn, Xing, Viadeo, Yammer, etc.). 14% of EU organizations and 7% of Croatian organizations are using blogs or microblogs, while 13% of Croatian organizations are using multimedia content sharing websites (e.g. YouTube, Flickr, Picasa, SlideShare, etc.). 69% of organizations in Croatia have a web site or homepage.

21% of EU organizations bought cloud computing services used over the Internet. Cloud computing has become very popular in Croatia so 23% of organizations bought some cloud computing services, while 13% bought high CC services (accounting software applications, CRM software, computing power). Still, only 3% of Croatian organizations have recognized importance of buying Customer Relationship Software which could strongly increase online sales. In 2013 only 6% of Croatian organizations had websites with online ordering, reservation or booking and at least one

of: webacc, webctm, webot or webper, and use social media for more than one purpose. In 2015, 29% of them developed image or market products, 10% involved customers in development or innovation of their goods or services.

20% of EU organizations have ICT/IT employees. Around half EU organizations outsource ICT functions, and in only 19% of them ICT is performed by their own employees. In Croatia, 22% of organizations provide training to their personnel to develop/upgrade their ICT skills and this percentage is so "high" thanks to big organizations that have more than 250 employees.

For e-commerce, e-invoice is one of the basic technical preconditions. Only 18% of EU organizations have e-invoices suitable for B2B, and only 20% receive orders via computer mediated networks. Only 10% of organizations In Croatia have e-invoices suitable for B2B.

3.2. Digital sale

According to data from 2015, only a quarter of organizations' total sales in the European Union come from online sale (25.7%) (European Commission, 2015). Eurostat database refers to 17% for the same year, and 18% in 2016. Considering first mentioned data, Croatia is below average with 23.6%, which is quite a small percentage compared to Luxemburg (46.4%), but on the other hand is not that bad a result comparing to Hungary (20,3%) and Slovakia (19.2%). Due to the fact that the highest proportion of online sale is noticeable in hospitality sector, it is possible to assume that this percentage in Croatia is the result of increasing tourism development.

"80% of companies sell online using their own websites or apps" so this is the most common method in Croatia as well (European Commission, 2015). Among all European Union member states, Croatia is a country with the lowest percentage of small commercial platforms usage with only 7% comparing to 61% in Spain for example. 19% of Croatian organizations have received orders via computer mediated networks, and 17% of them have done electronic sales to the own country, while 9% have done electronic sales to the other EU countries and 7% to the rest of the world (Eurostat, 2017).

Organizations realize less than 15% of online sale outside the national boundaries and only 4.3% outside the EU. It is interesting that almost 6% of Croatian online sale is in countries outside the EU. In 2014 at least one in ten organizations in Croatia sold to China (10%) and Japan (12%). It only indicates that there is a small number of big organizations selling online in Croatia because big organizations mostly sell to the USA, which is not the Croatian case.

Organizations that do not sell online in other EU countries generally have negative opinion about their potential online sale outside the national boundaries. Only one in five organizations are considering selling online in other EU countries, so the problem is that "majority of companies say they will probably never sell their products or services online in other EU countries (58%)" (European Commission, 2015). 26% of organizations in Croatia stated they will probably never sell their products or services online in other EU countries, 29% of organizations in Croatia are trying now to sell to other EU countries, but 10% have already given up, which means that certainly at least one third of Croatian organizations will probably sooner or later completely eliminate option for selling online in other EU countries.

Organizations that sell online or used to sell online to other EU countries mention the following common problems:

- delivery costs are too high
- expense in resolving cross-border complaints
- guarantees and returns are too expensive
- slow Internet speeds
- client's Internet connection is not fast enough
- complications or costs of dealing with foreign taxation
- not knowing the rules that need to be followed
- lack of language skills
- lack of security for cross-border payments
- data protection concerns
- interoperability
- products and services specific to the local market
- product labelling needing to be adapted (European Commission, 2015).

32% of Croatian organizations that sell online or used to sell online to other EU countries state that delivery costs are too high. 52% of them do not think that resolving complaints and disputes cross-border is too expensive; 59% do not think that guarantees and returns are too expensive and dealing with foreign taxation is not seen as a problem (69%) as well as knowing the rules that need to be followed (69%). Also, organizational Inter-

net connection is not a problem at all (77%), likewise Internet connection with foreign clients (79%), and language skills are not problem (84%) and there are no concerns about data not being well protected (87%). Of all EU member states, along with the Finns and Estonians, Croatians give the least concerns about data protection. 72% of Croatian organizations state that payments from other countries are not a problem at all and 62% think there are no problems with interoperability. Products and services specific to own local market are not problem (62%), as well as selling abroad at different prices (79%). The issue of product labelling having to be adapted is not problematic (73%) and there are no suppliers' restrictions or prohibitions to sell abroad (77%).

Similar results appear in the case of Croatian organizations that do not sell online to other EU countries but are trying to now: lack of security for payments from other countries is not a problem at all, as well as expensive guarantees and returns, rules to be followed, language skills, cost of resolving cross-border disputes, and other. The only significant problem appears with product labelling (43%). Also, Croatian organizations that do not sell online, and are currently not trying to, do not differ in relation to other Croatian organizations. 30% of them believe delivery costs are too high, but other than that, they do not point out larger problems.

Only 4% of Croatian organizations state that an obstacle for web sale is that goods or services are not suitable. Only 3% think that there are problems related to logistics (shipping of goods or delivery of services), or problems related to payments, and 2% of them mention problems related to ICT security or data protection. Problems related to the legal framework are recognized only by 1% of Croatian organizations. Hence, the greatest obstacle is the fact that the costs of introducing web sales are too high compared to the benefits (21%) (Eurostat, 2017).

All these data call into question the real reasons why the Croats do not sell online to other EU countries. Except somewhat problematic delivery costs and web sale costs, there are no other obvious big problems. Therefore, there is a need to scratch beneath the surface and try to find out what is behind all mentioned favourable indicators. "Almost one quarter of companies that either sold online to other EU companies in 2014, who used to do this, or who are currently considering or trying this, say they would definitely start or increase online sales to other Member States if there were common rules for e-commerce across the EU (23%)" (European Commission, 2015). 22% of Croatian organizations say they would definitely start or increase online sales to other Member States if there were common rules for e-commerce across the EU, while 41% say they would do it to some extent.

3.3. Digital purchase

42% of EU organizations in 2016 have at least one purchased via computer mediated networks, and 23% of Croatian organizations have purchased via computer mediated networks (Eurostat, 2017). "On average, 23.3% of the value of total goods/services purchased in 2014 came from online purchases" (European Commission, 2015). Croatia is even 10% above average, and there are only Denmark and Austria above Croatia. 9% of Croatian organizations have purchased via computer networks from suppliers located in Croatia (Eurostat, 2017). In 2015, 39% of them have been sending e-commerce orders over the last calendar year.

Organizations in the information and communication sector had by far the largest proportion of value from online purchases, and they are most likely to buy online using the websites or apps of their suppliers. Similarly to the case of selling, organizations mostly buy from other organizations from their own country (83.3%) (European Commission, 2015).

Only 7% of Croatian organizations in 2015 have purchased via computer networks from suppliers located in other EU countries (Eurostat, 2017). Croatia has the highest average proportions of online purchases from countries outside the EU (9.5%), and relatively low percentage (21%) of those organizations that will probably never buy products or services online from other EU countries. 43% of Croatian organizations are currently considering buying products or services online from other EU countries, and 16% are trying to do it now. Although 12% of Croatian organizations that used to buy online from other EU countries stopped doing it, only 2% have definitely given up.

Organizations that purchase online or used to purchase online from other EU countries mention the following common problems:

- high delivery costs
- expense of resolving cross-border complaints and disputes
- data protection when purchasing abroad

- lack of language skills
- payments to other countries not being secure enough
- foreign suppliers refused to deliver to their country (European Commission, 2015).

30% of Croatian organizations that purchase online or used to purchase online from other EU countries believe that resolving cross-border complaints and disputes is too expensive, while 35% believe that delivery costs are high. However, they are not concerned about data protection, language skills, payments, interoperability nor refused deliveries. Likewise, organizations that do not purchase online from other EU countries but are trying to do it now, have the similar opinion.

3.4. Profiles of organizations that sell/purchase online

Total turnover from e-commerce in Croatia is 14%, and 5% from web sale (Eurostat, 2017). According to Flash Eurobarometer Report 413Croatian organizations that sell and purchase online are mostly small organizations. 72% of those who sell online are small organizations with 1-9 employees, while 77% of those who purchase online are small organizations with 1-9 employees. 21% of those who sell online are small organizations with 10-49 employees, while 20% of those who purchase online are small organizations with 10-49 employees. Less than 2% of middle (50-249 employees) and big (250 and more employees) organizations buy and purchase online.

87% of Croatian organizations that sell online are independent, and 90% of Croatian organizations that purchase online are also independent. Organizations that are part of national and international groups are not inclined to online sale and purchase. "In Croatia 35% of companies that sell online sell digital services delivered online to consumers, compared to 16% that purchase online. A similar difference exists in Croatia for companies that sell digital services delivered online to other companies: 32% sell online compared to 17% that purchase online" (European Commission, 2015).

Table 1 Types of products and services of e-commerce in Croatia

Types of products and services	Sell/purchase	%
goods to individual consumers	Sell online	83
goods to individual consumers	Purchase online	60
goods to other organizations	Sell online	82
goods to other organizations	Purchase online	78
digital services entirely delivered online to individual consumers	Sell online	35
digital services entirely delivered online to individual consumers	Purchase online	16
digital services entirely delivered online to other organizations	Sell online	32
digital services entirely delivered online to other organizations	Purchase online	17
services delivered offline or not entirely delivered online to individual consumers	Sell online	26
services delivered offline or not entirely delivered online to individual consumers	Purchase online	19
services delivered offline or not entirely delivered online to other organizations	Sell online	33
services delivered offline or not entirely delivered online to other organizations	Purchase online	24

Source: European Commission, 2015

83% of Croatian organizations are selling goods online to individual consumers; 82% are selling goods online to other organizations; 35% are selling digital services entirely delivered online to individual consumers; 32% are selling digital services entirely delivered online to other organizations; 26% are selling services delivered offline or not entirely delivered online to individual consumers; 33% are selling services delivered offline or not entirely delivered online to other organizations. 60% of Croatian organizations are purchasing online goods from individual consumers; 78% are purchasing online goods from other organizations; 16% are purchasing digital services entirely delivered online from individual consumers; 17% are purchasing digital services entirely delivered online from other organizations; 19% are purchasing services delivered offline or not entirely delivered online from individual consumers; 24% are purchasing services delivered offline or not entirely delivered online from other organizations. Among all EU countries, Croatia has the highest percentage of selling online digital services entirely delivered both to individual consumers and other organizations.

Conclusion

Bharadwaj et al. (2013) conclude that it is the time "to rethink the role of IT strategy, from that of a functional-level strategy—aligned but essentially always subordinate to business strategy—to

one that reflects a fusion between IT strategy and business strategy. This fusion is herein termed digital business strategy".

Comparing to other EU countries, Croatia has the largest proportion of online purchase outside the EU but it definitely could not be interpreted as disloyalty to European Union because Croatian organizations among all other EU countries the least averse to purchasing products and services in European Union. Except that, it is commendable that Croatia exports to China and Japan, but why does Croatia not want to sell to EU? There is Internet access, mostly without problems in connection, employees are provided with needed support, guarantees and returns are not too expensive, foreign taxation and rules are familiar, there are no data protection concerns or problems with language skills or interoperability, there are no supplier restrictions or prohibitions to sell abroad and the only evident problem (same in all EU countries) with e-sale is high delivery cost. The problem is obviously internal. There are no Internet advertisements; almost a third of Croatian organizations in 2016 did not have web pages; websites with online ordering, reservation or booking are almost non-existent; there are no small commercial platforms; importance of social media is still not sufficiently recognized, as well as importance of blogs, microblogs and multimedia content sharing websites; IT education is common practice only in big organizations, but they mostly do not implement e-commerce. When only one in ten organizations in Croatia have an e-invoice, situation with e-commerce in Croatia is not surprising. If there were no hospitality sector, online sale in Croatia probably would not even exist.

It is not an enviable situation when the economy of a country relies only on tourism. Since manufacturing sector in Croatia is not moving in positive direction, it would be good to increase proportion of online sale at least in information and communication sector so Croatian organizations should create their own small platforms for online sale. Common rules for e-commerce across the EU could help solving e-commerce problems, but if Croatia wants to become recognizable on the EU market, firstly there is a need to create and implement national digital strategy. Therefore, organizations should be more directed to digital CRM and employee education, especially in small organization because they are current holders of e-commerce in Croatia. Digital organizational strategy is a big challenge but the profitable investment that leads to competitiveness. SM

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The Technological Availability: Incentive for Opportunity Entrepreneurship

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Abstract
The availability of technology and the improvement of its existing changing business conditions by some market players generate new business opportunities, and represent a major business constraint for some. Thus, technological change at the same time and represent opportunities and threats. In the center of these developments is an individual who called an entrepreneur. On the behavior peculiar to itself (enterprise) realizes "a new combination of means for the production of" (innovation, J. Schumpeter) which leads to the aforementioned phenomenon. The power and potential of technological change lies not only in individuals who act independently on the market stage, but also for those who are called "dependent" (absurd, because these individuals are solely dependent on their own creations, while everyone else in the organization or even organization dependent on the compared to them) within the existing organization.
The focus of this work are individual entrepreneurs in the truest sense of the word (entrepreneur is not a profession but his behavior is not a permanent condition, J. Schumpeter), and their behavior is not identified with the "management" function, as defined by Marshall, if entrepreneurial venture thanks entrepreneurial management does not ensure survival.
Being a true entrepreneurial success depends on the individual's cognitive ability to see things in a way that would later prove to be true, even if you currently cannot be proven.
This approach generates the basic aim, which seeks to uphold the fact that the availability of technology allows individuals to be confirmed as entrepreneurs (based on options). This type of entrepreneurial behavior, as opposed to individuals that drive entrepreneurial venture out of necessity, has resulted in high levels of innovation and business internationalization.
The nature of the available data, and set performance targets necessitate application of multiple regression in order to check the proposed research assumptions.

Keywords
Entrepreneurship, technology, entrepreneurial condition, opportunity entrepreneurship.

Introduction

The availability of technology and its improvement alter the existing business conditions by giving some market actors new business opportunities, and for some it represents a significant business limitation. Thus, technological change at the same time is both a chance and a threat. At the center of these events, there is an individual called an entrepreneur. He realizes "a new combination of means of production" (innovation, J. Schumpeter) through his own behavior (entrepreneurship), which leads to the above mentioned phenomena. The power and potential of technological change is not limited to individuals who independently perform on the market stage, but also in those we call "dependent" (absurd, because these individuals are solely dependent on their own creation, while everyone else in the organization and the organization dependent on relation to them) within existing organizations.

This approach generates the basic goal of the work, which seeks to confirm the fact that the availability of technology and individual commitment (individual readiness) enables individuals to confirm themselves as entrepreneurs (based on

capabilities). This type of entrepreneurial behavior, in contrast to individuals that drive an entrepreneurial venture out of necessity, results in a high level of innovation and internationalization of business, primarily because of the great potential that comes from one side due to the characteristics possessed by the individual and the available possibilities of the environment.

1. Theoretical background of the paper – review of dominant attitudes

In the focus of this paper, there are individual entrepreneurs in the true sense of the word (entrepreneur is not a profession, and his behavior is not a lasting state, J. Schumpeter, 1934), while their behavior is not identified with the "management" function, as defined by Marshall, if the entrepreneurial venture , thanks to entrepreneurial management, does not provide survival.

Because genuine entrepreneurial success depends on the individual's congratulatory abilities, things are seen in a way that will later prove to be accurate, even if it cannot be proven at the moment, but also from the decision to make the necessary steps to make the visible possibilities of the environment in a business venture.

Motives as determinants of human behavior, or motivational factors as the determinants of the behavior of an individual are the basic reasons why someone is ready to change and direct their attitudes, immatures and activities, which in any case applies to entrepreneurs as well. If we try to explain the origin of the motives or the basic sources of motivational factors by the basic motivation theory of A. Maslow (1954), then we come up with a response called unmet for the needs of the reader. Thus, the level of satisfied needs is expressed by the individual through his willingness to undertake certain activities, but also through his entire behavior as a commute indicator of the achieved goals and future intentions.

1.1. Technological intensive environment – incentives for entrepreneurship

The generally accepted indicator of living standard, that is, the quality of life of an individual, but also the achieved level of economic development of a country, is certainly the average GDP per capita (GDP per capita in US $) expressed in US dollars, taking into account the relative value of the purchasing power of national currencies (PPP - purchasing power parity basis). This macroeconomic indicator was a key determinant for grouping countries into three phases of economic development according to WEF (World Economic Forum) methodology.

It is precisely this correction that allows the comparison of national economies at a global level starting from the same basis. The quality of life of an individual expressed GDP per capita is not only a certain level of material basis, but an expression of social, economic, political and cultural conditions that shape the behavior of an individual, determines the possibilities and needs, and the very nature and intensity of the influence on future development trends in terms of acquired ability to realize certain activities, specifically in the field of entrepreneurship. Countries of varying degrees of development, measured and expressed by this indicator, exhibit different capacities for entrepreneurial behavior, in terms of volume and type of entrepreneurial activity, as well as different motivations for undertaking them. On the basis of this consideration, we can say that countries of varying degrees of economic development have different potentials available to individuals for creating entrepreneurial ventures, first of all in the light of the achieved level of technological development and the availability of technology, not only in the field of consumption but also in economic (entrepreneurial) development.

Research development transfer, identified as a key factor in the entrepreneurial environment, is a way for entrepreneurs to increase their efficiency through the use of modern technology and current knowledge, and thus perform the transformation process through economic activities into profit. The very process of selection of economically useful knowledge is unquestionably made by entrepreneurs, revealing the economic potential of certain innovations through the process of commercialization and market appearance.

The model emphasizes that "new knowledge is the dominant result of research within research institutions and large companies. An important precondition for influencing the economy is that the original knowledge is converted into economically useful knowledge, that is, transformation of inventions into innovations occurs. Acs (2006) states that the aforementioned conversion process may occur within existing business entities, in which case this process is regulated by their capacities, or by innovative entrepreneurial enterprises. Thus, entrepreneurship becomes a key generator of economic growth by serving as the carrier of this process, although not the only one, the knowledge created in existing organizations is

being spun into agents that create new enterprises (Acs, 2006). Within this model, it is pointed out that countries where the transfer of knowledge generated by research and development institutions towards entrepreneurs is a relatively fast and cost-effective process creates conditions for creating much more new innovation-based ventures than where this process is expensive and slow (Levi & Autio, 2008). If previously referred to in connection with Schumpeter's definition of entrepreneur and his role in economic growth based on a temporary monopoly, then a much greater chance is created for the great impact of entrepreneurship on economic growth.

The technology-intensive environment and the availability of technology for entrepreneurial initiatives generate incentives, but also numerous advantages that are manifested by a different outcome. Technological differentiation in entrepreneurial ventures and small enterprises in the early stages of development provides a competitive advantage, enabling managers a high level of tolerance in terms of uncertainty. For this outcome, a combination of managerial skills and entrepreneurial capabilities with small business managers is needed in order to achieve success in a technologically intensive environment (Tornikoski, Rannikko & Heimonen, 2017). Authors Dutta and Hor (2017) point out partner alliances in order to take advantage of technological opportunities. The approach to forming partner alliances implies a method of vertical integration, with the aim of securing technology, and down to the goal of using the acquired technology. When considering this topic and the contribution of the technology for entrepreneurial initiative to the availability of technology, it is necessary to separate the special area of the technological environment that relates to information and communication technologies. Alderete (2017) considers information and communication technologies as responsible for creating entrepreneurial ventures and for the development of existing small businesses. This phenomenon is especially noticed by the comparison of developing and highly developed countries, where, due to lower costs and affordability, the role of these technologies is more significant in the development of the entrepreneurial sector. The main visible results are reflected in the greater scope of innovation and the use of modern technology. On the basis of previous starting points, we try to set the following model:

(1) Eop= f (Ta,eD)

Taking into account the previously defined model in which entrepreneurship based on capabilities (Eop) is the function of availability of technology (Ta) and the degree of economic development (eD), we set the basic research assumption:

H0: There is a positive correlation link at the level of statistical significance between the levels of entrepreneurial activity based on opportunities on the one hand, and the availability of technology and the level of economic development on the other.

1.2. Entrepreneurship based on the opportunities (individual and environment) – proactive approach/individual orientation

Levi and Autio (2008) in the GEM study detail the conceptual framework of the entrepreneurial and general economic environment, establishing relationships and relationships with certain forms of entrepreneurial activity, treating the environment as the primary source of initial entrepreneurial behavioral impulses. This conceptual model of the entrepreneurial environment has a strong foothold and is supported by the views of the classical Austrian economic school in all its segments. It is indisputable that the first economist who linked entrepreneurs with business flows was Schumpeter, who freed himself from the prevailing approach to comparative statistics and recognized the economy as a self-transforming system with an entrepreneur as an agent of change (Schumpeter, 1934). Schumpeter presents entrepreneurs as innovators who create the conditions for gaining profits by creating temporary monopolies through organizational and technological innovations. With their activities, they continuously disturb the existing state of balance that is preferred by existing business players, compelling them to react to new threats. This process of "creative destruction" (Schumpeter, 1934) is manifested in the improvement of productivity, and therefore the growing economic growth. This approach has been further developed and developed further by Baumola (2002) and Acs (2006), who, as the last in a series, developed a new growth theory with the explicit role of Schumpeter entrepreneur as a knowledge transformer in economic knowledge and a significant participant in economic growth. As we have said, Schumpeter's entrepreneur disrupts the state of economic equilibrium through the process of innovation, while the alternative observation of en-

trepreneurship and economic growth came from another part of Austrian economists such as Ludwig von Mises (1949) and Kirzner (1997) who emphasize the role of entrepreneurs as inventors of favorable market conditions, stating "in every real and living economy, each participant is always an entrepreneur" (Kirzner, 1997). Similar to Schumpeter, Leibenstein (1968) identifies two basic types of business activities that participate in economic activities: routine entrepreneurship or management, include activities related to the coordination and management of existing business systems, and new activities or nascent entrepreneurship involve activities necessary to create or relocate companies to markets which so far have not existed or have not been clearly defined. Drucker (1985) also shares previous views and does not seek to diminish the importance of entrepreneurship as a meta-economic event. In his opinion, some other forms of innovation should also be considered as entrepreneurs, since once the original innovator can make certain mistakes that can be identified and removed only by entering the market by other participants. He calls this type of innovation "creative imitation". Ducker's broader outlook on entrepreneurship has been widely accepted over the past 30 years by most management theorists, which is currently recognized as a critical factor that determines long-term strategic success in competition with other organizations, reflected in the company's ability to be more innovative, more flexible and responsive on rapid market changes.

The existing model (Levi & Autio, 2008) requires that new business activities are undertaken by those who believe that they possess the skills, knowledge and motivation to start a business venture by recognizing the necessary conditions. It is pointed out that initial technical business skills alone are not sufficient, individuals must recognize the capabilities before undertaking any kind of activity. Factors affecting business activities in the general sense, such as formal education, are presented in a model within general national business conditions (institutions, infrastructure, macroeconomic stability, primary and higher education, efficiency and size of the market, availability of technology), while those factors that form a specific framework of entrepreneurial activities, such as entrepreneurship training, are presented as entrepreneurial conceptual conditions (government policy, programs, financing, market rejection). The previous model highlights general entrepreneurial conditions that directly influence the generation of volume and the nature of entrepreneurial activities. Thus, the business environment determines business opportunities for entrepreneurs and small businesses that can be exploited (Davidson, 1989). All this can be an advantage in defining the economic circumstances of small enterprises and entrepreneurial ventures in various dimensions resulting from the subjective perception of small business owners and include heterogeneity, hostility, dynamism, consumer structure, and competition (Pelham & Wilson, 1995).

Since most entrepreneurs in the technology sector have dominant technical skills (Klofsten & Jones-Evans, 1996), which is a great advantage in the initial stages of business development, this sector is the dominant carrier of technology transfer from the university to the economy (Samson & Gurdon, 1993; Westhead & Storey, 1994). For entrepreneurship, we say that the engine of innovation (Hindle & Yencken, 2004), explaining this in a way that accumulated codified knowledge and entrepreneurial culture represent the basic resource in the process of commercialization of research results, that is, leading to transformation of inventions into innovations, technological innovations and on these bases of new entrepreneurial ventures. Thus, technologically oriented small businesses have a double effect, first of their own growth, and then through enhanced inputs and other businesses (Lindholm Dahlstrand, 2007). What is inevitable to say and point out when this topic is concerned is the interdependence of entrepreneurial ventures based on technological basics, whose strategic decisions and growth processes are in line with the process of internationalization of business and innovation (Onetti, Zucchella, Jones & McDougall-Covin, 2012). The interdependence of the aforementioned process is primarily sought to be explained by pressure from the competition. Starting from the initially set models and factors contained in it, and appreciating the theoretical assumptions from the second section of the paper, justified reasons are created for the inclusion of new factors and extension of the model. Model 2 considers the following relations:

$$(2)\ Eop = f(Ta, I, In)$$

Within the framework of the model 2, entrepreneurship based on capabilities (EOP) is the function of availability of technology (Ta), internationalization of business (I) and innovation, we set the research assumption:

H1: There is a positive correlation link, at the level of statistical significance, between the level of entrepreneurial activity based on capabilities on the one hand, and the availability of technology, internationalization of business and innovation.

2. Methodology

Data and variables

The main source of data of the analyzed features (variables) of the activities of the entrepreneurial process in this paper are the results of the research on the GEM project in 2013. The criterion for the selection of countries for entering the sample was the availability of data for selected variables, participants of the GEM project in 2013, which were in the total assembly of 80 participants.

The dependent variable in the model of this paper is an entrepreneurial activity based on capabilities (% 18-64 pop: TEA and Opportunity motives) and it is analyzed depending on the selected set of variables that determine the development of the business environment and, therefore, the greater scope of business opportunities.

The group of independent (predictor) variables consists of: activity in the technology sector (TEA: Active in technology sectors) as the main predictor variable, use of new technology, age 1 - 5 years (TEA: Uses new technology - 1 - 5 years old) (TEA: Export: 1-25%, 25 - 75%, 75 - 100%), innovation of entrepreneurial activities of medium and high level (TEA: Export: 1-25%, 25-75%, 75-100%), : Few businesses offer the same product, TEA: No companies offer the same product).

Methodology

The number of observations in the sample (the number of GEM project participants in 2013) enables and imposes the application of parametric statistical techniques, which due to their sensitivity will enable the implementation of more precise and accurate conclusions.

The central research intent is to determine the interdependence of entrepreneurial activities based on the capabilities and availability of technology. The availability of technology as a predictor variable in relation to the originally set model is completely dependent on the achieved level of economic development. This interdependence is determined independently of the set model, because in relation to the selected set of predictor variables and the application of multiple regression, the results of the survey change qualitatively, or because of the exceeding of certain reference values, this predictor variable is excluded from the model due to strong correlation with the dependent variable. Therefore, the high level of determining the mentioned variable makes the other variables inferior, and thus it is assumed to be the default.

The standard multiple regression as the method used in this paper allows us to predict a certain outcome by a certain set of predictor variables, and which variable, individually, represents the best predictor. Also, this method can find out how much of the unique variation of the dependent variable is explained by each of the independent variables individually.

3. Results analysis and discussion

As a prerequisite for the reliability of the models and conclusions based on the analysis of the obtained research results, the selected methodology in this paper, i.e. the standard multiple regression, should fulfill a number of assumptions that indicate the validity of the performed statistical procedures. The first of these assumptions is, of course, multicolarity, which cannot often be identified from the correlation coefficient. Collinearity diagnostics is shown in Table 3, the coefficients in the Tolerance and VIF columns (Variance inflation factor). Tolerance shows how much of a given independent variable is not explained by the variations of other independent variables in the model. When this value is small (less than 0.10), this indicates the existence of multicolorarity. The second value of the VIF is reciprocal with respect to Tolerances and here would be problematic values greater than 10. When analyzing these two columns in Table 3, we can say that our model has no problem with the first precondition. Other important prerequisites are atypical points, normality, linearity and homogeneity of variance. After analyzing the Normal P-P Plot diagram, we can say that all the points lie in the right diagonal line, from the lower left to the upper right corner, which indicates that there is no significant deviation from the normality. On the scatterplot standardized residual diagram, the residuals are approximately rectangularly arranged and most of the results are grouped in the center, indicating that none of the model assumptions are distorted.

Table 1 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.512[a]	.262	.179	8.53669

a. Predictors: (Constant), % within TEA: Export: 75-100% of customers outside country, % within TEA: Uses new technology (1 to 5 years), % within TEA: Few businesses offer same product, % within TEA: Export: 1-25% of customers outside country, % within TEA: None businesses offer same product, % within TEA: Active in technology sectors (high or medium), % within TEA: Export: 25-75% of customers outside country
b. Dependent Variable: % within TEA: Opportunity motive: independence

Source: Authors' calculation

The following is important for the analysis within the defined concept of work is the evaluation of the model, which appears on the basis of the square value of the coefficient of determination, which is in Table 1 and is r2 = 0.262. This value indicates how much of the variation of dependent variable, entrepreneurial activities based on capabilities, explains the set model. In percentage terms, the coefficient has a value of 26.20%, which means that 26.20% of the entrepreneurial activities based on the possibilities are explained by the set model.

Table 2 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1602.839	7	228.977	3.142	**.007**[b]
	Residual	4518.259	62	72.875		
	Total	6121.098	69			

a. Dependent Variable: % within TEA: Opportunity motive: independence
b. Predictors: (Constant), % within TEA: Export: 75-100% of customers outside country, % within TEA: Uses new technology (1 to 5 years), % within TEA: Few businesses offer same product, % within TEA: Export: 1-25% of customers outside country, % within TEA: None businesses offer same product, % within TEA: Active in technology sectors (high or medium), % within TEA: Export: 25-75% of customers outside country

Source: the authors' calculation

In order to evaluate the extent to which the value of the determination coefficient is statistically significant for the set model, it is necessary to refer to table 2, ANOVA, where the results of the zero hypothesis tests are r2 = 0. Since Sig = 0.007, which in fact means r <0.05), the model achieves statistical significance.

Table 3 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	23.567	5.512		4.276	**.000**					
	TEA: Export: 1-25%	.112	.077	**.206**	1.460	**.149**	.236	.182	.159	.598	1.673
	TEA: Export: 25-75%	-.196	.310	**-.125**	-.632	**.529**	.059	-.080	-.069	.306	3.266
	TEA: Active in technology sectors	1.056	.338	**.409**	3.123	**.003**	.299	.369	.341	.696	1.437
	TEA: Few businesses offer same product	.122	.156	**.098**	.781	**.438**	.055	.099	.085	.761	1.313
	TEA: None businesses offer same product	-.420	.276	**-.195**	-1.522	**.133**	-.078	-.190	-.166	.727	1.376
	TEA: Uses new technology	-.389	.151	**-.295**	-2.574	**.012**	-.259	-.311	-.281	.909	1.100
	TEA: Export: 75-100%	-.186	.380	**-.090**	-.491	**.625**	-.020	-.062	-.054	.356	2.811

a. Dependent Variable: % within TEA: Opportunity motive: independence

Source: the authors' calculation

The following essential for the analysis within the available research results is the determination of the contribution of each variable in the prediction model of the dependent variable. These values are found in Table 3. The coefficients in the Beta column are the standard coefficients that allow comparison. In order to determine the contribution of each independent variable, we find the highest value of 0.409 for the TEA variable: Active in technology sector, which means that this variable individually contributes most to the explanation of the dependent variable, in a relative amount of 40.9%. If we add a value from the Sig column, which is 0.003, we can conclude that this is a statistically significant single contribution in the prediction of the dependent variable. The next size in terms of the set of research assumptions and correlation coefficients (Table 1) is the variable TEA: Export: 1-25% where the value of the beta coefficient is 0.206, which in relative terms amounts to 20.6% contribution to the prediction of the dependent variable but without statistical significance in the contribution of the TEA variable: Few businesses offer the same product, where

the value of the beta coefficient is 0.098 or 9.8% of the contribution to the prediction. Other variables from the aspect of the correlation coefficient do not support the set model. Based on the previously analyzed data, we can say that model 1 has been fully confirmed, while model 2, that is, expanded model 1, which includes the variables of internationalization of business and innovation, is dismissed regardless of the fact that there is a positive correlation link, but without the level of statistical significance.

Conclusion

"For those who want to do something new (entrepreneurs), they have a social reaction that never fails. Any deviation in the behavior of a member of a social group is condemned, though not always to the same extent, depending on whether the social group has become accustomed to such behavior or not. Deviation from any kind of anticipated behavior or any kind of social norms is a resistance that is, of course, even greater in extreme situations. This resistance is stronger in the early stages of a certain degree of social development, but it is never absent. Even the perception of deviation, and even the mere observation of deviation, puts pressure on the individual. The manifestation of condemnation can at present bring noticeable consequences. It can even lead to social repudiation and ultimately to physical prevention or direct attack. Recognizing the fact that progressive differentiation weakens the intensity of social resistance, primarily because of an attempt to explain the phenomenon of development, it under certain circumstances acts on the determination and behavior of many individuals as a stimulus." These observations Schumpeter is trying to explain the favorable conditions of the environment and the abilities of entrepreneurs used in such situations.

The obtained results confirm the H0 hypothesis, i.e. that there is a positive correlation link at the level of statistical significance between the levels of entrepreneurial activity based on the possibilities on the one hand and the availability of technology and the level of economic development on the other. Thus we can say that the technologically intensive environment encourages entrepreneurial activities based on opportunities, both to launch new and to grow existing, thus achieving such indirect impact on other participants in economic events. SM

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Appendix 1. Multiple correlation

		TEA: Opportunity motive: independence	TEA: Export: 1-25%	TEA: Export: 25-75%	TEA: Active in technology sectors	TEA: Few businesses offer same product	TEA: None businesses offer same product	TEA: Uses new technology	TEA: Export: 75-100%
Pearson Correlation	TEA: Opportunity motive: independence	1.000	.236	.059	.299	.055	-.078	-.259	-.020
	% within TEA: Export: 1-25%	.236	1.000	.597	.403	.276	.186	.047	.417
	TEA: Export: 25-75%	.059	.597	1.000	.467	.311	.165	.203	.760
	TEA: Active in tech. sectors	.299	.403	.467	1.000	.179	.268	.196	.473
	TEA: Few businesses offer same product	.055	.276	.311	.179	1.000	.410	.095	.296
	TEA: None businesses offer same product	-.078	.186	.165	.268	.410	1.000	.071	.329
	TEA: Uses new technology	-.259	.047	.203	.196	.095	.071	1.000	.271
	TEA: Export: 75-100%	-.020	.417	.760	.473	.296	.329	.271	1.000
Sig. (1-tailed)	TEA: Opportunity motive: independence	.	.025	.313	.006	.327	.260	.015	.435
	TEA: Export: 1-25%	.025	.	.000	.000	.010	.062	.351	.000
	TEA: Export: 25-75%	.313	.000	.	.000	.004	.086	.046	.000
	TEA: Active in tech sectors	.006	.000	.000	.	.069	.013	.052	.000
	TEA: Few businesses offer same product	.327	.010	.004	.069	.	.000	.217	.006
	TEA: None businesses offer same product	.260	.062	.086	.013	.000	.	.280	.003
	TEA: Uses new technology	.015	.351	.046	.052	.217	.280	.	.012
	TEA: Export: 75-100% of customers outside country	.435	.000	.000	.000	.006	.003	.012	.
N	TEA: Opportunity motive: independence	70	70	70	70	70	70	70	70
	TEA: Export: 1-25%	70	70	70	70	70	70	70	70
	TEA: Export: 25-75%	70	70	70	70	70	70	70	70
	TEA: Active in technology sectors	70	70	70	70	70	70	70	70
	TEA: Few businesses offer same product	70	70	70	70	70	70	70	70
	TEA: None businesses offer same product	70	70	70	70	70	70	70	70
	TEA: Uses new technology	70	70	70	70	70	70	70	70
	TEA: Export: 75-100%	70	70	70	70	70	70	70	70

Source: the authors' calculation

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Technology's Impact on the Marketing Function

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Abstract
This paper provides an overview of classical subjects contained in the Marketing discipline, with an emphasis on the impact of technology on the functional roles of Marketing Management within a firm. The significance of Marketing, rooted in its power to influence customers, to increase the value and demand for an entity (or person) and its service or good, create exceptional cash flow, and deliver a market premium, through differentiation from the competition remains unchanged. Behind the buzz and dazzle of such huge topics as social media and internet technology, there are further reaching changes being caused by a plethora of new technologies that are being applied inside the Marketing organization. The future of technology promises to transform traditional marketing functions. Several of these technologies and their impact on the marketing function are reviewed and dissected in order to provide insight as to the benefits they can provide, the most significant of which are decision support technologies, and closely behind demand planning and sales team management tools. Specifically, to what extent is technology supplanting the "set of disciplines and responsibilities", encompassed in classical marketing functions? How is the function being transformed with superior, affordable technology based processes that better target demand, allowing individuals to achieve what an entire "set of institutions" toiled to execute? These technologies are available today and the firms that master these technologies will have clear competitive advantages, ensure that the customer's expectations are fulfilled in a more personal, customized process, in a more efficient manner that benefits both investors and customers.

Keywords
Decision support technology, neuromarketing, market intelligence, collective intelligence, predictive analytics.

Introduction

This paper provides an overview of classical subjects contained in the marketing discipline, with an emphasis on the impact of technology on the functional roles of marketing management within a firm. Behind the buzz and dazzle of such huge topics as social media and internet technology, there are further reaching changes being caused by technology being applied inside the marketing organization. The future of technology promises to transform traditional marketing functions. Several of these technologies and their impact on the marketing function are reviewed and dissected in order to provide insight as to the benefits they can provide, the most significant of which are decision support technologies, and closely behind demand planning and sales team management tools. The American Marketing Association (2016) maintains its definition as: "**Marketing** is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large." The significance of marketing as a field of study is rooted in its power to influence customers, to increase the value and demand for an entity (or person) and its service or good, create exceptional cash flow, and deliver a market premium, through differentiation from the competition. Marketing as both a profession and an art form helps customers, entrepreneurs, consultants, financiers, and politicians

This paper explores to what extent technology is supplanting the "set of institutions", underlined above, and transforming them with superior, affordable technology based processes that better target demand, allowing individuals to achieve what an entire "set of institutions" toiled to execute.

1. Analyzing markets and identifying opportunities

"The aim of Marketing is to make selling superfluous"

(Drucker, 1974)

Marketing Analytics is a growing set of tools and processes that leverage the boom in consumer data to better understand all aspects of marketing responsibilities: current and potential customers, competitors, products, services, and new ways to measure the effectiveness of marketing activities themselves. The American Marketing Association, in their 2014 edition of their annual marketing analytics survey found that these tools allowed marketing teams to better target their marketing campaigns, but only 31% of firms surveyed had fully them integrated into their marketing processes (Sullivan, 2014). Julie Davis, in the AMA Marketing Insights, listed what she sees as the top four trends for marketing in 2015, each of them is based on the application of data driven: customer focused insights, entire teams focused on obtaining the insight, and sharing within an institution, and finally, the growing impact of mobile technology as the source for the data and outlet for marketing campaigns (Davis, 2014).

Situational Analysis has different schools and advocates of different approaches to answer the same questions: where are we and what are the opportunities that are available to us. Theoretical approaches, changing toolsets, and common goals make people want a product or service. Quantitative and qualitative analysis, the methods for each of the 5C model: collaborators, customers, company, competition, context. (Ohmae, 1991) Further, technology is also affecting the implementation of Porter's five forces approach, as well as the classic Strengths-Weaknesses-Opportunity-Threat (SWOT) approach to analyzing the status quo.

1.1. Learning about your Customer

"*We find that ... millions of people become simultaneously impressed with one delusion, and run after it, till their attention is caught by some new folly more captivating than the first"*

(McKay, 1852)

Leading marketing organizations have renewed their focus on understanding the motivations of customers and what has "**meaning**" to them has driven the field of qualitative research and success at focused studies on tribe and group behaviors conducted by staffs of sociologists, anthropologists, and historians helping the likes of Adidas, Lululemon, Lego better understand what their markets want and desire, and how to securely place their products in these precious situation (Madsbjerg & Rasmussen, 2014).

Analysis of the Customer in the analytical, quantitative sense, is the methodical study and approach to making a customer recognize and value a product or service, and understanding the mechanics of the process of recognition and value, the psychology and the behaviors which are the foundation upon which the customer makes their decision to value, want, and desire. **Customer Relationship Management** (CRM) is one technology toolset that has revolutionized the process of analyzing customers, both current and hopeful, using a highly sophisticated and disciplined approach to gathering both internal and external information about the customers. **Predictive Analytics Technology** (PAT) that allow enhanced access to sophisticated algorithms and data tools, such as RapidMiner, allow firms to integrate and utilize customer models in real-time.

Neuromarketing as a new approach to trying to understand what drives customer behavior has gained popularity, with even dedicated departments such as the Neuroscience wing of Emory University. Neuromarketing and the Buyology study conducted by Lindstrom combines market research, behavioral psychology, with the exciting field of brain scan medical imaging (Lindstrom, 2008). By interpreting the visual representation of the human brain response to specific topics and situations, marketing gurus believe they have uncovered new techniques to understand the impact of marketing and to improve the effectiveness of marketing.

Combining Neuromarketing, CRM, and Predictive Analytics, enables new efforts in the field of **Behavioral Economics.** Behavioral Economics is dedicated to the learning and understanding behind the actions of customers. There is a spectrum of beliefs and leading theory's into what drives most people, most of the time. This ranges from the rational school to the motivational approach. The rational approach says that the customer behaves in a way that follows is the Standard Economic Theory of maximizing utility and optimization per budget constraint. The motivational approach says that people are more impulsive, driven by their unconscious and uncontrolled motivations. The Behavioral approach says that

people have limited capacity for analysis, take short cuts by relying on the experiences of others; word-of-mouth, personal referrals. Prospect Theory says that people have imbalanced sensitivities and may treat losses or bad purchases differently from gains or good purchases (Areily, 2010). Three concepts from prospect theory are reference pricing, framing, and loss aversion (need references). Daniel Kahneman and Vernon Smith won the Nobel Prize for trying to explain idiosyncrasies in people's decision making processes (Thaler & Sunstein, 2009).

1.2. Competitive Analysis

Competitive analysis is yet another of the many aspects of marketing that has been transformed by technology. One form of technology dubbed "**Market Intelligence Technology**" automates and facilitates the collection of information from both the internet and internal sources on competitors, competitor's products, and developments that may affect a firm's prospects in the marketplace. Market intelligence technology integrates web news feeds **RSS** and **XBRL** machine readable, web financial statements, and captures all internal competitive information that a multinational firm collects every day – and hosts it back to the hundreds of people who can benefit from better information. The executives who have such technologies available to them are better informed about potential opportunities and developments, and are notified daily or continuously, instead of perhaps randomly stumbling on information days or weeks after the general public was informed. Global organizations are able to gather internal knowledge, host, and share out the information on their businesses obtained from all corners of the world in private meetings, in ways that were impossible previously.

Competitive analysis and a firm's ability to monitor real-time positional advantages have been totally transformed by data providers such as Google. In a recent blog post and article titled "What to change in 2015 using **Google Analytics Benchmarking**", Christopher Penn demonstrates the ease of use and instant ability to log into a system to see immediately how your firm is competing against another, and areas for immediate action or reinforcement of a successful strategy (Penn, 2014).

With technology of the internet and online businesses, and speed with which these companies can quickly dominate an entire national, regional, or global market, concerns have surfaced that tech startups are a threat to competition and stability of markets (The Economist, 2014a, 2014b).

Michael Porter's Five Forces (Porter, 1979) is a tool and construct that facilitates the analysis of a market place and determines if it is attractive, profitable, or comfortably protected from competition. Porter identifies profitability as the key criteria to measure the success of a firm, rather than sheer size, and defined competition as five competitive forces. Porter's five forces are: 1) Buyers always want to pay less, 2) Suppliers want to be paid more, 3) Substitute products and services, 4) New entrants are another disturbing force, and finally the force of your existing competition (5).

The identification of competitors is a subject unto itself that is not always correctly analyzed; particularly given the impact of modern technology and every increasing availability present a permanent disruptive threat. Other significant factors such as market structure (monopoly, oligopoly, monopolistic competition, pure competition) market type (regulated, unregulated, high barriers to entry, cost structure) are important to consider in competitive analysis.

1.3. Company Analysis

Most manufacturing, technology, and service companies, when looking inwardly to understand their strengths and weaknesses, will utilize the classical tools such as the four-quadrant "Strength-Weakness-Opportunity-Threat" (SWOT) analysis, and the application of the disciplines of Lean Management, Six-Sigma Process Quality, and Operational Excellence and 360-degree evaluation programs. These programs are mostly internal in focus and other tools such as corporate mission setting and benchmarking to standards are commonly used to measure one's performance vis-a-vis their competitors. Firms such as General Electric under Jack Welch led under the mantra of being top global firm of choice in whatever segment it was participating in, were well led and successful, but not without limitations or consequences of marching to achieve a single dimensional goal. This led to the introduction, by thought leaders such as Robert Kaplan, of the **Balanced Scorecard** initiatives as a way of balancing out priorities and better reflecting the mission of the enterprise, using multi-dimensional metrics.

All of these measures of internal performance have technology products available to the firm that automates and conducts and warehouses in-

formation about process quality, quality audits, compliance audits, 360 degree evaluations of personnel, management dashboards, all with real-time instant availability to literally the "palm-of-your-hand". Big data, Data analytics, and **business analytics** will transform this further, until the "age of brilliant machines" begins to augment decision making (Dobbs, Ramaswamy, Stephenson, & Viguerie, 2014).

1.4. Context: Interpretation and Decision Making

Over the last 20 years, technology has evolved that is beginning to aid management and leaders challenge their decisions and obtain better insight into potential outcomes. The market leader in this technology is Hypermind.com, based on prediction market technology, provides tools to leverage and harness the collective intelligence of the organization (Servan&Schreiber, Wolfers, Pennock, & Galebach, 2004). Based on mass intelligence, with an automated learning capability, this **decision support technology** is seen to be transforming the future of corporate leadership, including marketing (National Public Radio, 2014). In a recent study, the firm Lumenlogic found "that prediction markets provide superior results in 67% of the forecasts, reduce average error by approximately 15 percentage points, and reduce the error range by over 40%" (Lang, Bharadwaj, & DiBenedetto, 2010). Additionally, these tools provide a forum and marketplace for superforecasters – individuals who have an exceptional ability to study a situation and accurately predict outcomes – and a tool for the organizational leadership to leverage their talents (Tetlock & Gardner, 2016).

An important part of the theory of customer behavior is the study of the commonly made errors in interpretation or decision making, due to the following errors (Hartley, 1995):

- False consensus: assuming that everyone is like you
- Overconfidence: believing you are more right than you really are

Tactics, structures, and strategies to help individuals and organizations avoid these decision making errors have been discussed by Marks and Miller (Marks & Miller, 1997) and their work on false-consensus, and studies on reducing overconfidence (Arkes, Christensen, Lai, & Blumer, 1987). However, the state-of-the art and future of organizational decision making lies in technologies to assist and improve recommendations as recently predicted at the 50th anniversary of McKinsey & Co's Quarterly journal (Dobbs et al., 2014). The ability of collective intelligence tools to span large populations and demographics presents and approach for leaders to avoid or mitigate the "echo chamber" effects, of particular significance in a digital society where individuals filter and tailor their exposure to unwanted interruptions (Jaimeson & Capella, 2008).

1.5. Psychological Value and Brand Value

"Today's marketplace is no longer responsive to the strategies that worked in the past. There are just too many products, too many companies, and too much marketing noise"

(Ries & Trout, 1981).

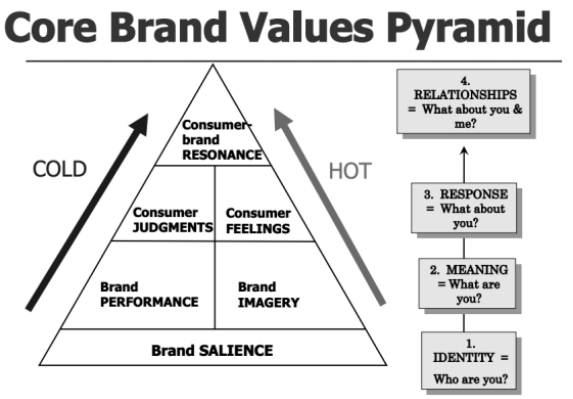
A brand is a name, symbol or sign that identifies the unique attributes of a seller or service provider or person. The brand becomes a mutual shared set of expectations between the brand owner and the brand consumer, regarding quality, standard of service, and loyalty. Identification presupposes memory and recognition, and displacement or priority in recall and remembering (Lindstrom, 2008) Today Brands can be designed by competing groups of designers, from all over the world, through such **websources** as crowdspring.com and designcrowd.com and surveys and opinions can be had automatically via **webtools** such as zoomerang.com or surveymonkey.com.

There are many popular quotes and examples illustrating how brands influence customers' perceptions and decision making (Ries & Trout, 1981). Brand value equates to financial power and reward in both the consumer marketplace as reflected in product or service pricing power and also in financial markets through firm value. Consumer based brand value equates to loyalty and reduced price sensitivity in the consumer goods arena. Brand equity in the product market differentiates and builds a protective barrier against inferior, unbranded and new entrants, and also enables easier entry into new markets or segments. The financial market focuses its attention on well-known brands and rewards them with generous availability of funding, higher valuations (Srivastava, Shervani, & Fahey, 1998) and higher price-to-equity ratios than unbranded firms – justified by the accumulated investment in establishing and maintaining a brand – although subject to

volatility and difficult if not impossible to value using a single method or approach (Mizik & Jacobson, 2008, 2009).

Brands are not unlike delicate plants, which can require a specific regime of care and feeding and environmental conditions. Examples of Brand disasters from the US such as Schlitz beer and clear brand contrast on twin products such as the vehicles the GM Geo Prizm (Aaker, 1992) and Toyota Corolla in the 1980's – built in the same factory with identical components, with Toyota outselling GM 5:1 (Sullivan, 1998).

The Brand Value Pyramid created by Kevin Keller and shown below can be used in strategizing on building brands, and brand owners can have paths that follow either side of a two-sided pyramid: the cold, technical performance path, or the hot, emotional, psychological paths. Made of four levels, Keller's model has four layers: Brand Identity, Brand Meaning, Brand Responses, and Brand Relationships. Examples of the cold path to technical recognition can be the example of Cadillac vehicles in the US, and the hot, emotional path to the Mastercard "priceless" campaign (LaSalle, & Britton, 2003).



Picture 1 Brand Value Pyramid
Source: Keller, 2001

Brand Communities (McAlexander, Schouten, & Koenig, 2002) are a concept whereby a group of consumers share a consciousness, share rituals or traditions, and a sense of responsibility and morality. Many internet websites and mobile technologies have worked to build powerful and dynamic and ever changing assortment of communities of buyers, consumers, and social networks.

Brands have also played a role in the changing competitive landscape as globalization affects every market, and opens the world to everyone's products. This is discussed in Gabor Rekettye's paper on Hide and Seek in pricing, where predatory or marginal loss pricing of an increasingly global and transparent market has an impact on the competition. In further works, Rekettye discusses the impact of discounters mass private label brands and their growth and significance in the 2008 downturn and their impact on classical premium brands as shoppers turn to value purchasing (Rekettye, 2013, 2014).

The process of creating a brand is a critical process with regards to new product introductions. An excellent example of how technology is lowering the costs of entry and making branding easier is the revolution in craft product sales and marketing created by the website ETSY and its enormous population of trade craftspersons, each of whom is establishing their own brands day by day, customer by customer (Abrahams, 2008).

Another example of brands being created en masse via another web technology are the **crowdfunding** websites such as Kickstarter.com and Fundable.com which use crowdfunding to turn concepts and ideas into real products and services, via advanced funding from the customers advance purchases, donations, and social support for their products.

In an interview with the head of Google, Inc.'s BrandLab, it was mentioned how all companies that come to Google to try and learn more about how to use Youtube to reach out to their customers, the most popular topic is the "**viral video**" and finding new, exciting, amusing ways to connect, and the case of the Volvo Epic video series was an overwhelming success (Drell, 2014). Additionally, in the US, the football superbowl weekend holiday weekend is dedicated to video commercials that "go viral", as has also become a tradition in the UK around the first of December, with the beginning of the Christmas shopping season (Taube, 2014)

2.0. Marketing strategy

The marketing plan summarizes the assessment of customer, product, service, and value, pricing, marketing strategy, advertising strategy, as an action plan for approval, consensus for action and finally implementation. For small companies, and the even smaller startup, the marketing plan is also essential to the funding and launch of the company. The theoretical foundation and thought leadership in the development of marketing plans starts with the 4 P's Pricing, Product, Promotion, Place (McCarthy, 1964)

2.1. Product

There are many types of new products and services, and the analysis of new products, how they relate to existing products, existing consumer bases, competition, and the customers is a complicated and important aspect of the science of marketing.

Companies introduce new products to enhance the sales of existing products. Some of these introductions can be strategic in order to take advantage of what has been termed the asymmetric dominance effect, which may pull-down or undermine a competitor (Huber, Payne, & Puto 1982). The compromise effect occurs when a product is positioned as an intermediate option or an extreme option, with differing outcomes (Shafir, Simonson, & Tversky, 1993).

Customers adopt new products because of the characteristics described in the mnemonic "ACCORD": Advantage, Complexity, Compatibility, Observability, Risk, and Divisibility (Meijer, Samuels, & Terpstra, 2002).

Calantone & Cooper (1981) enumerate the common reasons that new product launches fail as:

1. better product not wanted
2. fail to differentiate from strong market leader
3. technical fault or inferiority
4. better product came to market
5. price pressure
6. failure to understand the market

The product marketplace has been segmented into innovators, early adopters, early majority, late majority, and laggards (Moore, 1991). It can also be sliced into profitability phases of the product life cycle: the introduction, profit growth phase, maturity, and decline. Segmenting the customer population allows a firm to identify strong and weak customers, desirable or undesirable populations, or in ways that allow targeted marketing to be customized and more successful than a blanket, single approach, message, or campaign. This can benefit both the seller and consumer, by allowing more customized product or service offerings that are tailored to the needs of a smaller population, which should result in better customer satisfaction.

Product or service differentiation, in order to obtain a unique perceived or real advantage in the marketplace, and allow efforts to be more successful.

This combines with positioning as a strategic decision, where a firm establishes its products and services in a unique position relative to its competition, be it for a service or a product. Positioning strategies are often describes in a bipolar format – with poles aligned in both a vertical, same market sense, where things such as smaller cheaper and faster are values along this dimension. Horizontal positioning is used to describe alignment across disparate or disconnected dimensions, such as family status, or country/continent.

Long term, high accuracy **Demand Planning** is something that is also benefiting from technology. Although it may seem a common function of the Enterprise Resource Planning (ERP) or Manufacturing Information Systems (MIS), long-term planning is something that is not often done in full detail of the existing product portfolio, and seldom linked to other information that exists within a company's databases, such as future product pricing captured in quotes provided to customers, product designs, future product costs, commonly contained in computer-aided-design (CAD) and Product Lifecycle Management (PLM) systems. And are very rarely connected with any detail regarding future manufacturing processes and associated changes in manufacturing costs. This is where niche software firms are stepping into the realm of the ERP market. Linamar, founded by a Hungarian, is Canada's second biggest car parts manufacturer and uses such software to map and control its future profitability in ways that give it a strict competitive advantage.

2.2. Price

Price is the amount of currency sought after and ultimately received in the sale of a good or service. Pricing, the process of setting the price, is such a significant topic that it exists as its own discipline. It is an organizational process that is often oversimplified as determined by Fabiani's study of 11,000 European firms and over half of which used cost-plus pricing models (Fabiani, et al., 2005). Kotler & Keller (2005) catalogue the main pricing strategies to include the following:

1. cost plus
2. reference pricing
3. last price paid
4. competitor pricing / positioning
5. expected future price
6. usual discounted price
7. adaptive pricing, smart pricing

8. destructive competition and marginally negative pricing/predatory pricing

An Economic Value to the Customer (EVC) based pricing strategy bases pricing on the value to the customer can be defined in three part model made of a psychological, and economic, and a functional value component (Kotler & Keller, 2005). Functional value to the customer is commonly assessed via a multi-attribute analysis or conjoint analysis. Psychological value is often part of brand analysis extending the brand and valuing the brand

Methods and approaches to attempt to quantify the economic value of a product or service to the customer is a discussion that allows one to estimate the economic value of a specific program, segment or service. Research and work in this area spans the globe (Slater & Narver, 2000; Ravald & Grönroos, 1996). The value to the customer can be made of functional, economic, or emotional/psychological benefits (Smith & Colgate, 2007).

The multi-attribute model (Wilkie & Pessemier, 1973) of functional value to the customer describes functional value as the sum of the product of all features and the customer's individual value for each of the features.

One common approach is determine EVC is to dive in and quantify the economic value of a purchasing decision, where TOC is Total Ownership Cost, and is defined by Khalifa (2004) as the difference between the TOC of a current product, less the TOC of the new and better product:

$$Economic\ Value\ to\ Customer = TOC\ of\ Existing - TOC\ of\ the\ New$$

Economic Value to the customer can be decomposed into components of cost and value that match to the product or service selection and replacement process, including for example transaction costs, installation costs, maintenance costs, energy efficiencies, etc.

Another important quantification of the value of a customer is the value of the customer over the lifetime of the relationship (Rust, Zeithaml, & Lemon, 2001) with them is defined as the "customer lifetime value", and is the net present value of all future profit streams that result from the business with this customer.

2.3. Promotion – Going Viral

New trends in marketing, mostly driven by a landscape of incredibly fast changing technologies and mass preferences for the latest technology that fits in the palm of their hand or onto the screen of their smartphone. Early on, firms specializing in selling "**Adwords**", a term introduced by Google, allowed sellers to make their advertisements appear on the computer screens of people looking on the internet for specific words, search terms. Given the small amount of visual space or "real estate" on the screen, established a smart way of allowing advertisers to try to outbid their competition for a presence on that scarce monitor real-estate. The search tools such as Google and other Internet media have become the heart of marketing as traditional channels such as broadcast television and cable television become obsolete, and are no longer used by affluent, ambitious, and classes with large purchasing power. This has evolved through the creation of social networking, applications and sites that allow individuals, generations, cultures, and niche segments to connect together in ways that were never before possible. The speed with which these sites rise and fall from popularity is breathtaking (Elmani, 2013). The increase in the ability of an internet firm to grow organically and cover the globe has become a model for marketing that is best embodied by the firm and viral software called "**The Plague**" which "infects" the people immediately closest to the person "sending" a message (Walker, 2014).

2.4. Place – There are no more borders

2.4.1. Where to grow by challenging the competition

Strategies to take on competition include attacking the market leader, challenging firms of similar size with specific weaknesses, or pursuing small local or regional firms – all dependent upon resources and ambition (Kotler & Keller, 2005)

Another strategy to grow market share or footprint would be to find a synergistic partner or a way to complement players in the existing market. Indeed, one school of thought that has been made illegal is the concept of cooperation between competing firms to balance out supply and demand, and avoid destructive competition. Although taboo and fringe, the term "**coopetition**" combines the concept of competition and cooperation (Tsai, 2002). This goes back to the insights from Alexander von Humboldt, who took Darwin one step further by realizing that the environment

determines which traits or characteristics will dominate in Darwin's survival of the fittest capitalistic evolutionary model.

2.4.2. International Markets

Entry into Foreign Markets can be both rewarding and dangerous. It has transformed economies and built global leaders when pursued as a national strategy (Kim, 1996). Deciding to go global can be both rewarding and dangerous. In a recent interview with the former CFO of Kuss Filtration, a successful manufacturer of automotive air filters, the company expanded into China, mispriced its product and underestimated the start-up costs, driving losses for the parent that became insurmountable, causing loan covenants to be violated and the company to be put into quasi-receivership.

Regional free trade zones can be a benefit to expanding globally. Several strategies exist: licensing, joint ventures, acquisitions, and direct investment are all proven methods of expanding abroad. Product or service adaptation to local markets is a decision that needs to be made, requiring a cost-value analysis comparing the options of adaptation. Branding changes and branding strategy are additional decisions that companies need to consider in going global.

2.4.1. Multi-Sided Demand Markets

Two-sided demand markets such as newspapers and software providers exist where a product is given away free, or at a subsidized, lower price, which is offset by revenue from another market, i.e. advertisers, content creators, and software firms such as Google's free search paid for by advertisers (Rochet & Tirole, 2006).

2.5. Ethics and Social Responsibility

Holistic marketing (Kotler & Keller, 2005), a term for growing trend in approaches to managing marketing organizations. Included in the holistic approach is the topic that has become important since the turn of the century: Corporate Social Responsibility. Corporate Social Responsibility consists of:

- Responsibility to meet and operate within legal guidelines.
- Responsibility to operate in an ethical manner, including having a written code of ethics to better ensure compliance and prosecution of transgressions
- Responsibility to be socially responsible for others, the community and environment, greater good.

Technology to support the dissemination of policies and the code of ethics and statement of social responsibility are commonplace, as are additional tools such as whistleblower hotlines and anonymous reporting mechanisms for transgressions or worse, help ensure that management is made aware of issues in ways that allow them to fulfill their responsibilities in a timely and competent manner.

Summary

Marketing as a function within the enterprise is a vast, multi-faceted responsibility area. Every aspect of this function can, and will be transformed by technology. Current technologies such as Market Analytics and Customer Relationship Management (CRM) provide quickly available well-disciplined infrastructures to capture and manage all information related to customer inquiries and future customer pursuit strategies. Market Intelligence Technology (MIT) allows a firm to collect and publish both internal and external information about competitors, customers, products, and technologies. With a more universal scope, Decision Support Technology (DST) is transforming the fundamental task of decision making by using prediction markets to harness the organization's collective intelligence and the superforecaster's predictions on most likely outcome on decisions ranging from product planning, product placement, and branding and advertising decisions. High accuracy long-term demand planning tools exist today to manage a product portfolio at levels of detail and future durations that are unprecedented, and are linked into the product and process design models, capturing all modifications and improvements over the entire lifecycle of the product. Viral video campaigns, brands, logos can be developed competitively via crowdsourcing websites, thereby driving down costs and increasing the number of alternatives explored. Crowdfunding and crowd promotion techniques will increase the availability to market earlier in the product development cycle and increase the speed with which a global audience will adopt new products and services. Neuromarketing and predictive analytics of consumers' emotional responses will improve targeting of Corporate Dashboard and Balanced Scorecard tools monitor and track performance through all levels of an organi-

zation. Each of these technologies are available today and the firms that master these technologies will have clear competitive advantages, ensure that the customer's expectations are fulfilled in a more personal, customized process, in a more efficient manner that benefits both investors and customers. SM

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Human Capital Theory in the Framework of Organization Theory

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Abstract
The purpose of this paper is to investigate human capital theory in the framework of organization theory. To get a full picture about the topic, on the one hand, it is important to handle organizations as operating entities, in which we analyze human resources as human capital; on the other hand, organization theory is helpful in clarifying the crucial issues an organization faces. First, i introduce organizational structure in more detail, after that, i list the tasks of human resource management in connection with the role of human capital in the operation of companies. In that part, handling discrimination plays a crucial role because the different suggestions to solve this issue turned the direction of the investigation to structural changes. Based on these we can state that human resource management works as a "system in the system" because of its participation in every task the organization has to handle from the structure through culture towards strategy. In this framework of the investigation, ways of managing discrimination led towards unexpected consequences.

Keywords
Human capital, organization theory, human resource management, organization development.

Introduction

In our fast-changing environment, it is inevitable to understand the new challenges and opportunities that a company can face. To understand the future, we have to investigate the past and the present. Over the past centuries, organization theory has developed into an independent social scientific discipline. It can explain and influence the working of organizations. Organization theory provides an insight into the corporation to understand the profound challenges to the ways how organizations work and how we can design them. However, the aim of organization theory is to improve organizational efficiency and efficacy in order to achieve shared organizational goals. What does it mean? In more details, organization theory enables organizations to achieve their previously predetermined goals successfully (efficacy) with as little use of its resources as feasible (efficiency). Moreover, it should help employees and employers to deal with issues that might hinder or prevent such goal achievement. (McAuley, Duberley, & Johnson, 2007)

The relationship between organization theory and human capital is direct and indirect as well. To understand the connection between these two, it is unavoidable to analyze the tasks of human resource management. Organization theory is a social science, which means it deals with people, their behavior and about the questions which have the power within the organization. When we are talking about organizations, human capital, and power, we are immediately focusing on management issues and human resource management. When we are comparing organization theory with natural sciences, we realize they seem to deal with an entirely different world because the reaction to changes may come later and in ways we do not envision. Employees and employers can change their behavior in the light of new knowledge. (McAuley, Duberley, & Johnson, 2007) This interpretation turns our attention to new challenges. Organization theory describes the organization, with its structure and culture and throughout these it has an indirect connection with human resource management and human capital. To achieve purposeful goals planning is inevitable. Because of

that organizational management should have an appropriate planning for its resources. One of the resources which are strategically important for the company is human resources which is a significant component for strategic planning. Human resource planning is a process for measuring the demand and evaluating the nature and size of supplies it helps to meet the request. Because of the above human resource planning is directly connected to strategic planning and institutional policies. (Bagheri, 2016)

In the section below, i will introduce key aspects of organization theory in connection with human resource management (HRM) and human capital. The literature review starts with the analysis of corporate structure as invisible control, after that the next part deals with organization culture, followed by how companies can and should handle discrimination. Every part of the literature review will start with hypotheses. As a result of the literature overview in the last part in HR as an integral system, I would introduce a model which became the result of the investigation.

Literature review and hypotheses

I would like to inspire innovative thinking and provide information for new streams of research with providing insight into the role of human capital theory in the framework of organization theory.

1.1. Organizational structure as invisible control

Hypothesis 1: Organizational structure is a form of hidden control.

Throughout history, management has been trying to find the best possible way to organize their workforce for creating maximum value. (Altman, 2016) As organizations are becoming incrementally structured around projects the role of teams are increased, the focus of research articles has changed from traditional organization structures to new ones because structure demonstrates hierarchy which leads to power. This new broad examination of how human resource management and practice can be furthered points to new ways of studying attributes of the connections between jobs and individuals. (Hollenbeck & Jamieson, 2015) It is easy to realize that new organizational structures lead to new forms of organizational tasks which lead to new ways of how individuals handle their work, how effective they are. The way employees are organized can create synergy, but it can also impede. Determining organizational structure involves automating HR processes, coordinating hiring, pay, promotion responsibility, defining transaction routing, security. Based on this, the structure defines who has access to which workers' data and who gets what report. Previously hierarchy has been the dominant element of organization structure. Hierarchies are all about control and command, who is supervising others, and who is the supervisor of a supervisor until the top node is reached. (Altman, 2016) It was always an important question who has power within the organization. Based on Wrong (1968) power equals control because when you are in a management position, and you have position power, you are able to control people.

We need to understand that each company needs its power structure, a particular hierarchical structure to be competitive enough on the market. Leading a corporation with strict hierarchical structure is always easier than leading a company where we cannot realize the control lines. Management control systems (MCSs) are essential parts of every organization's life. MCSs include everything in which managers help to ensure the proper implementation of corporation's plans and strategies or if conditions require then to do some modifications. Results control is also part of MCSs, and this is significant because it involves motivation of employees to produce the appropriate amount of products in a decent quality. This type of management control demands performance evaluations and measures which are connected to the compensation policies in the vast majority of organizations. Incentives are part of compensation policy which consists of monetary incentives, like stock options or bonuses and nonmonetary incentives, like autonomy, recognition, and praise. Autonomy turned back our attention to hierarchical structures and the fact that structure is a hidden control. (Merchant & Van der Stede, 2007) There are other types of organizational structures, as well, such as organizations with matrix structures or virtual organizations. We can state that the high-performing organizations of today are a network of teams which require an entirely new way of thinking about goals, leadership, roles, jobs and tools what we use to share information and measure the success. There are, of course, always new types of organizational structures such as holacracy (flat, flexible organizational structure, gives more autonomy to individuals and teams) and sociocracy (people organized in circles, with representatives bridging from one circle to another, consent decision mak-

ing). (Altman, 2016) To be able to adopt a new structure successfully, the company needs to have an open-minded leader who can create an innovative environment with an appropriate organizational culture.

1.2. Organizational culture's effect on strategic human resource management

Hypothesis 2: Organizational culture is one of the decisive components of organization theory and HRM.

We have already talked about strategic planning and structure. In this part, the focus changes to the social part of the company. Human resource management (HRM) practices provide employees with incentives, information, skills, and decision-making responsibility that are highly connected to developing business performance. As every organization has its particular structure and hierarchy, they have their organizational culture, as well, which depends on the different national culture. (Al-Sarayrah, Tarhini, Obeidat, Al-Salti, & Kattoua, 2016) National cultures are not identical to one another. Organizational and domestic culture are different terms. (Hofstede, 1993) Corporate cultures are distinct from each other even though the companies may reside in the same country. They shape organizations' processes because corporate culture refers to the beliefs, values, and practices that are shared by organizational members. This culture helps to hold the whole organization together by providing standards for employees to know what they should say and do. In other words, it guides employees' behavior and attitudes to do the right thing. (Robbins & Judge, 2013) The main difference between organizational culture and national culture is the fact that national culture distinguishes members of one nation from another one while corporate culture distinguishes organizational members from other organization's employees. The understanding of different national cultures is crucial for international managers to use the appropriate, culturally specific management philosophy and techniques. (Al-Sarayrah et al., 2016) Training can help managers to know how to handle different situations in international organizations where different cultures are living together under the umbrella of organizational culture. Developing and assessing human capital is a central, most significant goal for every single team. Training is a basic task of HRM; however, training interventions not always get the full support from leadership. This intervention will be much more efficient if employees have the essential support network within which they can discuss their newly acquired skills and knowledge and have the appropriate social environment in which they feel comfortable trying out their newly learned materials. (Hollenbeck & Jamieson, 2015)

In the following section, we are arriving at the most sensitive topic of this paper, which is handling discrimination. Organization theory deals with organizational practices, policies, and hierarchies. Among the phenomena of organizational practices we can observe the glass ceiling effect and the relatively new phenomenon "glass cliff". The "glass effects" are defined by organizational practices and policies consequently they are affected by organizational structure.

1.3. Handling discrimination

Hypothesis 3: Human resource managers cannot handle discrimination by themselves.

Based on Mathis and Jackson, (2010, p. 4) human resource management is designing the management systems in order to ensure that human (capital's) talent is used efficiently and effectively to accomplish organizational goals. In other words, we are starting to play chess with people. When we are trying to ensure that talent is used efficiently, we are focusing on the performance of the company. Efficiency in the case of organizations mostly connected to cost efficiency. To build a sustainable, efficient corporation, we should concentrate on diversity. Diversity means more diverse, differently talented individuals in one place. As diversity is growing in the corporation, the performance level will develop. To improve performance, we have to ensure equal employment opportunities and help protected-class members to become effective. Protected class members are people who are different based on:

- race, colour, ethnic origin
- gender
- age
- disabled people
- military experience
- religion
- marital status
- sexual orientation (Mathis & Jackson, 2010).

Protected class members are individuals who are members of the protected category under Equal employment opportunity (EEO) laws and

regulations. In the first figure, we can see the gender wage gap in the different Canadian provinces, in 2014. The sample consists of private sector employees aged 25-59. I chose this figure as an indication because Canada is a significant, developed country which means that statistics from developing countries would show higher differences. You can see clearly that wage gap still exists between males and females in every province. We can find evidence that companies are still trying to solve discrimination issues which mean it is not solved.

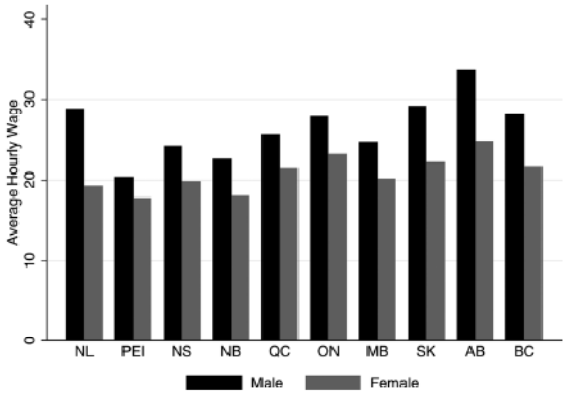

Figure 1 Average hourly wage in different Canadian provinces based on gender
Source: Schirle, 2015

Gardiner (2016) asked Iris Bohnet in an interview to analyze the leading causes of fighting against discrimination. Based on the interview, we can state that the problem still exists because the different discrimination programs do not work. Many American corporations conduct diversity training without measuring whether they are effective or ineffective. The reason behind inefficiency is the fact that the problem is within the organizational structure and not within people. Companies need to redesign their different processes in order to prevent discriminative choices. Human thinking is stubborn; it is very hard to eliminate biases even when we are trying. That is why it is necessary to redesign organizations to make it easier for our minds to get things right. In the case of recruitment, you can use software to put job candidates "behind the curtain." This software allows the managers to skip discrimination biases towards, age, gender, race or another socioeconomic background so they can focus on talents only. Managers should be conscious about the recruitment language that they use in this process. After that, they have to focus only on hard data because this process does not allow them to be biased based on their subjective evaluation. Gender discrimination is probably the most significant one because sometimes even the victims cannot see where things went wrong. We have to face the fact the humans are different based on their gender, as well. It is hard to focus on every aspect of the job, but once a manager starts to collect hard data those will be helpful because they allow us to study the phenomenon and to make changes and measure the progress. (Gardiner, 2016)

An HR manager does not work alone. They have to work in close collaboration with the functional areas of business, such as marketing and finance, and as it was already discussed with the top managers in order to develop the appropriate strategy. It can be a highly significant goal to promote the company's name as the best employer, or the best workplace. The employment branding of a corporation means that applicants see the organization as a desirable place to work for and because of that the company is able to attract more highly qualified applicants than those whose employment image is poor. These tasks can be connected to the marketing efforts of the companies. In the case of finance, we cannot forget the fact that human capital requires compensation which means we have to design a satisfying wage structure which fits the corporate and HR strategy. In this case, we arrive at the point when I introduce the second largest HR task which is connected to discrimination, reducing gender wage gap.

Despite decades of political mobilization and new directions of public policy, the differences between females' and males' wages remain one of the most significant forms of workplace inequality. Comparisons of salaries for female and male workers consistently reveal that female employees earn substantially less than similarly qualified men working in the same positions. To understand the sources of this kind of inequality, a significant number of research articles have focused on the role of organizational pay systems and practices within the United States, Canada and even in Germany. (Abraham, 2017; Abendroth, Melzer, Kalev, & Tomaskovic-Devey, 2017; Graham, Belliveau, & Hothchkiss, 2017; Schirle, 2015)

Schirle (2015) made a gender wage gap analysis for the period of 1997-2014 to see the differences between the years. She realized that the gender wage gap narrowed substantially in some provinces while in others the differences changed only a little. The provincial differences in the size

of the gap were mainly reduced when the gender differences in job characteristics were taken into consideration. Equal employment opportunity and affirmative action have a limitation to their success rate because of the pre-labor market gender imbalances. It is not enough to reduce the differences in the workplace we have to focus on the equal opportunities in education as well.

In the case of the American gender wage gap, the literature is considerable. There are studies which deal with workplace cultures, or hierarchies, but most of the articles are dealing with compensation systems. In the past years, there were papers about the formalization of pay systems and how they can reduce inequalities, but some of the recent studies suggest otherwise. The goal of Abraham's (2017) study was to determine whether female and male managers differ in how they are handling less formalized pay systems. Abendroth et al. (2017) studied, in Germany, whether and how gender differences in the case of power associated with gender differences in earnings. Based on these articles we can state that it is important to develop an appropriate pay system because male managers like to make advantages for their in-group members while females behave otherwise. They prefer male managers and do not pay more for their female co-workers out of jealousy, lack of self-confidence, lack of self-awareness, and because they feel threatened by other women workers.

In this study, i would like to advance our understanding of the relationship between handling discrimination and human resource management. It was evident that HR managers should highly focus on equal employment opportunities in different human resources practices and policies, but these last articles made it clear that discrimination is closely connected to financial aspects of the company, as well. To be able to build a bias-free organization it is indispensable to design a formalized pay system and to think over the previously used strategic processes, to collect hard data about employees and measure them in an appropriate discrimination-free process. These together will help to ensure that the company has a sustainable strategy.

1.4. Human capital theory

Hypothesis 4: As an aspect of organization theory, human capital theory is still changing.

Human capital measurement is not a new topic; researchers have been dealing with it since the middle of the last century. However, there were different researches, from the years of the 1950s, about the determination of the value of human capital there is no single model what the companies can use. The history of human capital measurement helps the experts in developing a new paradigm which can show the real value of human capital. Accounting calculates with human capital in another aspect it is using data from past events and data. With the development of human capital valuation, there is an opportunity to focus on the future and determine a new system. This new regime could use the development of different systems without their mistakes.

In their article, Folloni and Vittadini (2010) examined human capital evaluation from the beginning of 1600. Thanks to their extended research, which consists of more than 400 years, they were able to introduce different models: cost-based model by Engel from 1883 and Dublin & Lotka from 1930, value-based model by Farr from 1853, present value based model by Jorgenson and Frauemeni from 1989, referred to Folloni and Vittadini in their 2010 article.

None of these models determined the real value of human capital. The writers concluded that although there are hundreds of different articles which deal with human capital theory there is not a unified accepted view. The recent researches are dealing with family background, culture, skills, marital status, gender, and lifestyle not just with education and wages.

Schultz, Chowdhury and Van de Voort (2013) stated that we could determine human capital through his or her productive abilities which are coming from: education, qualifications, participation in training and working experiences. There is a new view of human capital which requires the perfect motivation of employees which leads us to Self-determination theory. Those people who are perfectly motivated are willing to learn and put special knowledge and skills into their working habits to improve the effectiveness of the company. Based on the theory we can state that individuals who have intrinsic motivation are much more valuable for an organization than a demotivated worker or employees with extrinsic motivation because people with intrinsic motivation have an inherent desire to finish the tasks, jobs to increase organizational performance. (Deci & Ryan, 2000)

2. Methodology

In this paper I chose desktop research that is literature review as a method. It is important to

show a clear research overview because it gives the opportunity to understand the background of the topic and to learn the new information better here. This study aims to review the literature that shows the relationship between human capital and organization theory. More specifically, consideration of the research on the concepts of human resource management, strategic human resource management, organizational structure, corporate culture, handling discrimination will be discussed briefly. After showing the background data and processes, the paper shows some alternative solutions to the problems. This article will provide insights for management to recognize the impact of organization theory on human capital.

3. HR as an integral system

If we think of HR as an integral system, it means we cannot separate it from other parts of the organization such as:

- structure
- culture
- finance
- marketing
- strategy

I have already introduced the topic from the structural and cultural point of view because these two are closely connected to organization theory. In the first figure, you can see the underlying relationships between these fundamental functions within the framework of organizational theory and human resource management in connection with human capitals.

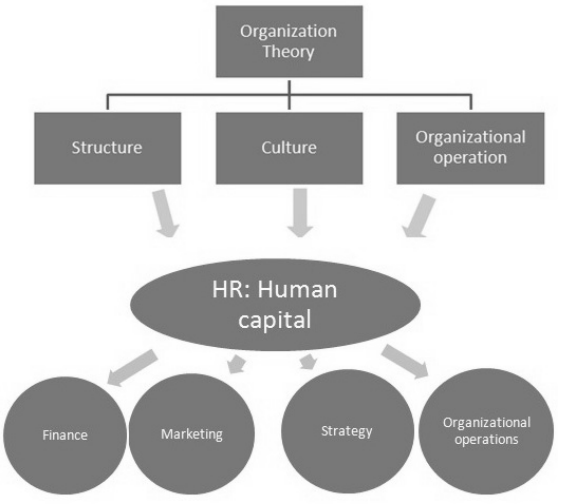

Figure 2 Capture (Style: SM-PictureHeading)
Source: Authors

As we have already discussed, the evaluation of human resources makes it to the most valuable asset of the organizations, but only a few company can employ its full potential. The tasks of human resource management involve all managerial personnel duties such as recruitment, hiring, selection, placement, compensation, training, and terminations, as well. All these process human resource management can enhance organizational performance. (Al-Sarayrah et al., 2016)

Conclusion

As a conclusion, I can state that I found evidence to decide whether the above-described hypotheses such be rejected or accepted.

The first hypothesis: *Organizational structure is a form of invisible control*: it should be accepted because structure is not immediately visible but guides human behavior. Hierarchy and different designs are not always directly visible, but they have control over what you can and cannot do within the organization.

The second hypothesis: *Organizational culture is one of the decisive components of organization theory and HRM:* should be accepted. However, we can find only a limited amount of evidence that corporate culture has a measurable effect on organization theory. National and entrepreneurial culture has a significant impact on the life of the company and through that to organization theory.

The third hypothesis: *Human resource managers cannot handle discrimination by themselves:* should be accepted because to build a bias-free organization all functions have to work together in a synchronized way. HR managers should work closely with marketing, finance, and operational managers to develop a newly designed corporation where discrimination is limited.

The fourth hypothesis: *As an aspect of organization theory, human capital theory is still changing*: could be accepted. There is no universal human capital evaluation method at the market of company evaluations. From year to year, there are newer and newer valuation systems, but there is no evident "one best way" of human capital valuation.

Summary

This paper aimed to shed light on the relationship between human capital theories in the framework of organization theory. I presented the connections between organizational structure, culture, and organization theory. I also discussed human

resource management and its link to human capital theory. Finally, I briefly reviewed human resource management as an integral system. This study will provide insights for management to recognize the relationship between organization theory and human capital and evaluate the impact on the performance of the whole organization. SM

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The Role of the Internet and Social Networks in Recruitment and Selection Process

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Abstract
Contemporary challenges and intense changes in the age of digitalisation significantly influence the design of business activities of all entities. Development of the Internet and social networks opens new opportunities the in implementation of human resource management. Internet's usage greatly changed the recruitment and selection of candidates. Internet recruitment has significant advantages compared to traditional recruitment, both in terms of companies and in terms of candidates. Usage of social networks, such as LinkedIn, Facebook & Tweeter, in implementing recruitment is becoming increasingly popular. The aim of this paper is to determine the role of the Internet and social networks in the implementation of recruitment and selection activities in companies in Serbia. Based on the review of available literature and presentation of the ruling attitudes, the authors have attempted to determine the importance of the Internet and social networks in the implementation of human resources activities in companies. Statistical techniques of descriptive statistics applied to the data of 160 companies that participated in the CRANET researches in 2014/2015 from the territory of Serbia have been used in the paper.

Keywords
Recruitment, selection, internet, social networks, Serbia.

Introduction

The generation Y, young people born between 1980 and 2000, has a growing share on the labor market. By 2020, more than 50% of the global workforce will be comprised of this generation (Saxena & Jain, 2012). This generation, which grew up and developed with information technologies, the internet, and social networks, really sees the world as a global village. Bearing in mind what is important for the generation Y, when it comes to job search, there may be some major differences in comparison with the requirements of the earlier generation. Members of this generation want flexible working hours, incentive pay based on performance, the ability to grow and develop their careers, to participate in decision-making, and they want clearly defined and delineated responsibilities. Young people live in the virtual world, therefore, in addition to the traditional ways of communicating and attracting workforce, the use of modern technologies, especially the internet and social networks is necessary (Orrell, 2007). This significantly influences the implementation of human resource management activities, primarily the process of recruitment and selection in modern business conditions. If employers really want to be attractive to modern potential candidates, they have to adapt their recruitment and selection techniques. If companies are not visible and accessible on the Internet and social networks and if they are not interesting (they do not have a good image, advertising, and

reputation), they probably do not exist for this generation (Tulgan, 2009).

In 2001 Cappelli stated that "the war of talent moves to the internet and that employers need to have plan of a battle" because, in the conditions of ever stronger competition for talents, companies that conduct online recruitment and selection will be able to attract and retain the best candidates (Cappelli, 2001, p. 139). Bearing in mind that the use of the Internet for the purpose of recruitment and selection was still at the beginning then, and that today it has a more important role, it can be expected, due to further development of technology, that in the recent future e-recruitment and e-selection will be even more in the usage and will become a way of the copany's struggle for the best candidates.

The development of the Internet and social networks opens up new opportunities for the implementation of human resource management activities. The role of the Internet and social networks, such as LinkedIn and Facebook, is becoming increasingly important and popular in the implementation of the human resource recruitment process. Internet recruitment has significant advantages compared to classical recruitment techniques both from the aspect of companies and from the perspective of the candidates. Many companies have found out that the labor force structure on the labor market has changed, and in order to attract and retain a new generation with more demands and expectations from work, traditional recruitment techniques and selection are not enough. In order to obtain credible and useful information necessary to make valid decision on the selection of an adequate candidate, it is necessary to combine traditional and modern techniques. The paper presents the results of various researches that indicate the increasing importance of the internet and social networks in attracting and selecting suitable candidates for the advertised vacancy. The authors attempted to determine the role of the internet and social networks in the process of recruitment and selection using statistical techniques of descriptive statistics on a sample of 160 companies that participated in CRANET research in 2014/2015 on the territory of Serbia.

1. Theoretical background

1.1. The role of the Internet and social networks in recruitment

Recruitment is the most important area of human resources management because it determines the quality of all other activities that follow: selection, orientation, training and development, performance appraisal, rewarding employees, etc. Recruitment is defined as the process of aligning the professional preferences and goals of the individual with the goals of the organization (Bahtijarević-Šiber, 1999).

The earlier research was focused on providing as realistic job information as possible and traditional recruitment methods (Saks, 2005), while more recent studies focus on timely recruiting, recruiting through the organization site and online recruitment. Advertising a vacancy only through the company's official website is not sufficient for new generations. Recruitment must be guided by a marketing strategy, and modern technology should be one of the "tricks" that companies use to attract the workforce of a new generation, the Y-generation. Some companies that have recognized new trends and implemented them in their business already use blogs and social vacancy advertising networks for advertising and creating closer contacts with their potential candidates (Tulgan, 2009).

The internet as a recruitment method was recognized in the mid-1990s, and it was marked as a revolutionary recruitment method for the benefit of companies and candidates (Cappelli, 2001; Birchfield 2002; Boydell, 2002). The advantages of the usage of the internet, as a method of recruitment, were stated by numerous authors, and these advantages have been confirmed in practice in numerous researches. The list of benefits is long, while some of the most important are: cost savings, access to a large number of candidates, the possibility of easier targeting of potential candidates, faster responses and time savings, and ease of use (Starcke, 1996, Zusman & Landis, 2002; Parry & Tyson, 2008). However, in addition to the above advantages, one must take into account that there are certain shortcomings, too, such as: a large number of non-serious responses, a large number of applicants who do not have the necessary qualifications, and the mere fact that not all people have the possibility to access the Internet (Starcke, 1996). Bearing in mind that it is 2017 and the fact that the number of people who do not have access to the Internet is decreasing; the above mentioned disadvantages are not serious ones. In addition, the number of Internet users on the global level has increased by 10% in 2016 compared to 2015; in the absolute amount it would be 332 million (Kemp, 2016).

Apart from private, there are also professional social networks, among which the most famous is LinkedIn. These are specialized social networks that focus on the professional aspect of an individual. People on this network create their profile, which consists of a summary in electronic form that contains information about education (formal and non-formal education), careers (previous employment, organization, and volunteering, professional practices). Also, different professional groups of people who have common interests are created, or who belong to the same organization, or they are engaged in the same profession, or work/worked on a joint project, etc. This saves time while an employer is looking for potential employees. On the other hand, it is easier to inform the individual about the company for which he applied.

Recruitment through social networks is gaining in popularity, and the trend towards the growing popularity of both personal and professional (LinkedIn) will continue (Dery, Tansley, & Hafermatz, 2014). Social networks allow faster information exchange, faster collection of large amount of information, and the barriers between private and public domains and networks are reduced (McFarland & Ployhart, 2015); McDonald & Thompson, 2015). Research carried out by Nigel Wright Recruitment (2011) found that more than half of the people in the United Kingdom use social networks for job searching, of which 18% use Facebook, and 31% use LinkedIn. An interesting fact is that research conducted by Potentialpark 2011 on a sample of 30000 graduates, students and people at the beginning of career development showed that as many as 100% of respondents in Europe would like to get in touch (interacting) with employers online. Respondents prefer LinkedIn (48%) to Facebook (25%) (Potentialpark, 2011).

According to El Ouirdi, El Ouirdi, Segers, and Pais (2016) recruiters use social media such as LinkedIn, Facebook and Twitter to post job ads, attract and recruit job applicants, and pre-screen applicants (Jeske & Shultz, 2016). The recruitment process in their organizations becomes more "dynamic, relational, and authentic, and the employer brand and attractiveness are enhanced" (Carrillat, d'Astous, & Grégoire, 2014; El Ouirdi et al., 2016).

The fact that LinkedIn is the most popular social network used for recruitment was also shown by a survey conducted by Jobvita in 2012. More than 93% of surveyed employers use LinkedIn for recruitment purposes, while 66% of employers use Facebook, and 54% use Twitter (Broughton, Foley, Ledermaier, & Cox, 2013).

1.2. The role of the Internet and social networks in selection

The process of selection of human resources is a logical continuation of the recruitment process, in which the collection of data of potential candidates is evaluated, and it has been decided who should be employed on a certain position (Dowling, Festing, & Engle, 2008). These two activities are interconnected and dependent. Recruitment is used to provide an adequate number of candidates for completing a job position, while the selection is used to select among the best candidates the one who will receive the position.

The use of modern information technologies can improve the process of sorting and contacting candidates. The Internet can facilitate the selection of candidates, especially when it comes to geographically distant candidates. Video conferencing and on-line tests can be used in the early stages of the selection process, saving time and cost. Even now there are huge numbers of companies which accept only resumes submitted online. On-line testing is now being used more and more, too.

The usage of the Internet for the purpose of selection of candidates provides many opportunities and poses new challenges for professionals who are in charge of staffing. First of all, social networks and other websites represent a rich source of information that in most cases is not available in any other way. Often, this information relates to questions concerning former employees and former employers (e.g.: the reason for termination of employment, attitudes and opinions about the previous employer or former employee). This is information that is often impossible to get through the traditional selection process (Gatewood, Feild, & Barrick, 2008). Information can be reached via Google, but also through social networks such as Facebook and Twitter, based on networking of individuals, where they place information about themselves, their interests, hobbies and other personal and professional information. A survey conducted by Harris Interactive in 2013, one of the world's leading marketing companies, shows that more than 43% of HR managers have found that information they got through social networks has influenced their decision not to hire specific candidates. The reasons for this were: dissemination of inappropriate content (50%), criticism and dis-

respect of the previous employer (33%), discriminatory comments on women, members of other races and religion (28%). On the other hand, HR managers said that some of the information they came up with by searching for social networks contributed to consolidate the choice of candidates: the candidate leaves the impression of a professional person (57%), information on social networks confirms the candidate's qualifications (49%), the candidate is creative (46%). This information was helpful, but they were not crucial in deciding on the selection of candidates (Jovandić, 2014).

Employers use the Internet primarily for selection in order to get information about candidates quickly and with cost savings. For example, the American Society for Human Resource Management, SHRM, in 2008 found that organizations use social networks for the following reasons: getting information with less effort and time (51%), obtaining information that cannot be found in a cover letter or in a business biography (49%), the ease of checking the information listed in the accompanying letter and business biography (26%) (Karl, Peluchette, & Schlaegel, 2010). In addition to the above mentioned reasons, the literature emphasizes other reasons, such as: shortening the time needed to select an adequate candidate and cost saving.

The e-selection process consists of the following phases: Electronic Job Analysis, Electronic Job and Initial Screening, Electronic Tests and Assessments, e-interviews (Electronic Interviews), Selection Decision Making, Evaluation of Selection Systems (Stone, Lukaszewski, Stone-Romero, & Johnson, 2013, p. 53). The first phase is related to defining the job requirements, and accordingly, the characteristics of the individual that will be adequate for completing a job. Based on this information, an ad is created. The next phase relates to the vacancy advertising and online registration (CV, motivation letter). Companies today often use the official company website and commercial sites to advertise job positions. The next phase relates to the on-line testing. Lately, on-line tests have become attractive for employers because they save resources, but also for applicants (for example, they are free from time pressure – they can fill out the test they want and when they think they are ready and restful) (Makransky & Glas, 2011). However, the results of the research on the usage of on-line tests differ. Harris et al. (Harris, Van Hoye, & Lievens, 2003) showed that applicants preferred more classic paper tests than on-line tests. In contrast, the results of the research of Potosky and Bobko (2004) indicated that applicants prefer online tests in comparison to classical tests. When it comes to the next phase, online interviews, although they are more and more in use, there is a small number of researches dealing with their effectiveness. Scientific papers mainly refer to describing various types of online interviews, but there are no concrete results on their level of representation to a significant extent (Stone, Lukaszewski, Stone-Romero, & Johnson, 2013). The next phase refers to the decision-making on the selection of candidates based on the results of all previous stages. This is a critical phase as the primary goal of the selection is to make a decision that will lead to the selection of candidates who will be the best for the job (Guion, 1965). Different strategies for effective selection are used to make a decision at this stage. The online selection process can significantly facilitate decision-making on selection, but also to save time for decision-makers (e.g.: HR specialists, managers) in comparison with traditional decision-making strategies (Stone, Stone-Romero, & Lukaszewski, 2003).

The usage of the on-line selection process is on the rise. However, the whole process is rarely carried out on-line. Employers opt for on-line collection of applications, and then use on-line tests to save costs and time. However, the other stages of the process continue to be predominantly carried out in a traditional way (e.g.: classical interviews are still much more present in relation to online interviews). Although the popularity of e-selection is growing, there are still a small number of scientific papers dealing with this problem. The application of e-selection can significantly facilitate and shorten the time that elapses from the moment of advertising of the job vacancy until the selection of an adequate candidate, as well as reduce the selection costs. However, there is a need for additional research into the factors that positively and negatively affect the possibility and efficiency of the implementation of the e-selection process, especially when it comes to their effect in the selection process of candidates from Y generation. For example, Van Iddekinge, Lanivich, Roth, and Junco (2016) suggest that organizations should be very cautious about using social media information such as Facebook to assess job applicants because they found in their research that recruiter ratings of applicants' Facebook information were unrelated to supervisor ratings of job

performance, turnover intentions, and actual turnover.

2. The role of the Internet and social networks in the process of recruitment and selection in companies in Serbia

2.1. Methodology

The research in this paper was based on data from the Cranet project, collected in Serbia during the 2014/2016 round of research carried out by researchers from the Faculty of Economics in Subotica. In the first half of 2015, 160 organizations from the territory of Serbia were investigated. Answers to the questionnaires were provided by human resource managers or managers in organizations with more than 50 employees (Leković, Slavić, & Berber, 2015), based on a standardized questionnaire containing questions from the key areas of human resources management (see the questionnaire structure in Berber & Slavic, 2016; Morley, Slavic, Poór, & Berber, 2016; Brewster, Mayrhofer, & Reichel, 2011; Lazarova, Morley, & Tyson, 2008).

Table 1 Structure of the sample – size (N=160)

Size of organizations (number of employees)	Frequency	%
1-249	97	60.6
250-1000	42	26.3
1000+	21	13.1
Total	**160**	**100.0**

Source: The authors.

The largest share of analyzed organizations in Serbia in 2015 was in the group of small and medium enterprises (60.6% of organizations). Large enterprises were present in 26.3% (over 250 workers in the organization). Very large enterprises, with over 1000 workers, accounted for 13.1% of the whole sample.

Table 2 Structure of the sample according the ownership

Ownership structure	Frequency	%
Private	105	66
Public	54	34
Mixed	0	0
Other	0	0
Total	159	100
Missing	1	-
Total	**160**	**100**

Source: The authors.

The data from Table 2 indicate that the largest share of analyzed organizations in Serbia was in the private sector, 66%, while 34% of the analyzed organizations belonged to the public sector.

Table 3 Structure of the sample – sector of industry (N=160).

Main sector of industry	%
Agriculture, hunting, forestry, fishing, mining and quarrying	7.5
Manufacture of food, beverages, textiles, wood and paper, coke and refined petroleum, and related products	13.8
Manufacture of chemicals, pharmaceuticals, and medicinal chemical products	1.3
Manufacture of basic metals and metal products, plastic and other non-metallic products	3.1
Manufacture of computers, electronic products, electrical equipment	2.5
Manufacture of machinery and equipment	1.9
Manufacture of transport equipment	1.9
Other manufacturing	5.0
Electricity, gas, steam, and water supply, waste management	5.0
Construction	3.8
Wholesale and retail trade	9.4
Transportation and storage	6.3
Accommodation and food service activities, publishing, broadcasting activities	3.1
Telecommunications, IT and other information services	6.9
Financial and insurance activities	6.3
Accounting, management, architecture, engineering, scientific research, and other administrative and support service	1.9
Public administration and compulsory social security	5.7
Education	6.3
Human health services, residential care and social work activities	5.0
Other industry or services	3.1
Total	**100**

Source: The authors.

According to Table 3, around 45% of enterprises are engaged in production sector, while around 55% of organizations belong to the service sector. The largest share of organizations analyzed in the Cranet Research in 2015, are in the food, trade, telecommunications and IT sector.

For the purposes of this research and exploration of the practice of e-HRM in organizations, the following variables have been analyzed:

- The usage of the Internet and social networks for recruitment of managers, professional workers and administrative and physical workers in the organization;

- The usage of the Internet and social networks for selection of managers, professional workers and administrative and physical workers in the organization.

Data analysis was done with statistical program SPSS, using descriptive statistics.

3. Results of the research

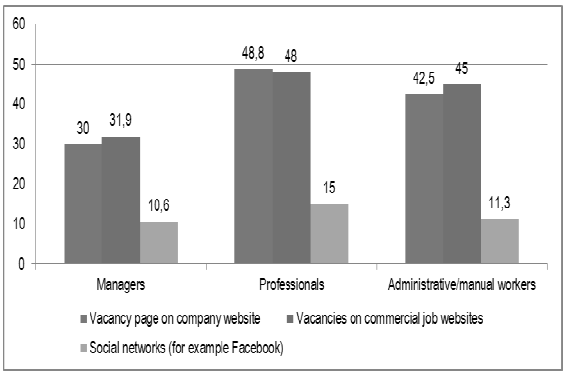
According to the research results shown in Table 4, it is noticeable that 30% of organizations in Serbia use advertising of a vacancy on the official website of the company for managerial positions and 32% of organizations do the same on commercial sites (for example https://poslovi.infostud.com, http://www.lakodoposla.com, etc.). Organizations use company's website and commercial sites to advertise a vacancy for professional workers in 49% and 48%, respectively. The companies from the sample indicated that 43% of them recruited administrative and physical workers through their own website and 45% through commercial employment sites.

Table 4 The level of the usage of internet and social networks for recruitment (%)

	Managers	Professionals	Administrative/ manual workers
Vacancy page on company website	30	48,8	42,5
Vacancies on commercial job websites	31,9	48	45
Social networks (for example *Facebook*)	10,6	15	11,3

Source: The authors.

The usage of social networks such as Facebook or LinkedIn is only in the beginning phase, as it is indicated by the results from Table 4. Only 10.6% of domicile organizations use such networks for recruiting managers, 15% for professional workers and 11.3% for recruitment of administrative and manual workers.



Picture 1 The level of the usage of the Internet and social networks for recruitment (%)
Source: The authors.

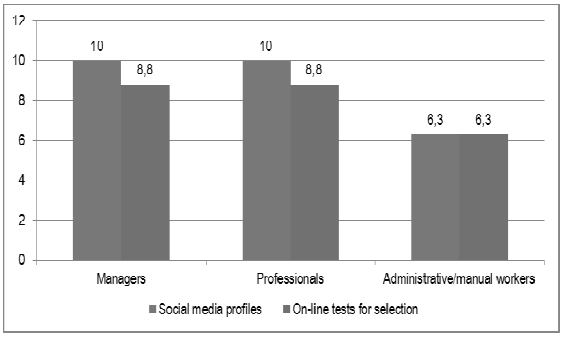
According to the research results presented in Table 5, only 10% of organizations in Serbia use social network profiles for selection for managerial and professional positions, and only 6.3% of organizations do so for selection of administrative and manual workers.

Table 5 The level of the usage of internet and social networks for selection (%)

	Managers	Professionals	Administrative/ manual workers
Social media profiles	10	10	6,3
On-line tests for selection	8,8	8,8	6,3

Source: The authors.

When it comes to on-line selection tests, the situation is similar, only 8.8% of organizations in Serbia use these selection methods for selection in managerial and professional positions, while 6.3% of organizations do so for selection of administrative and manual workers.



Picture 2 The level of the usage of internet and social networks for selection (%)
Source: The authors.

Conclusion

The development of the Internet and social networks opens up new opportunities in the implementation of the recruitment and selection activities. The majority of company management finds that the structure of the labor force in the labor market has changed a lot, and traditional recruitment and selection techniques are not sufficient to attract and retain a new generation which has different demands and expectations from work. In order to obtain credible and useful information necessary for deciding on the choice of an adequate candidate, it is necessary to combine traditional and modern techniques, with the increasing use of the internet.

The results of the conducted research show that in Serbia, the Internet and social networks are used in the process of recruitment, but still not to a great extent. According to the results of the survey, 30% of organizations in Serbia use advertising of a vacancy for managerial positions on the company's official website and 32% of organizations do so, on commercial sites. The social networks, such as Facebook or LinkedIn, are used to a lesser degree, while the implementation of social networks for recruitment is still in its beginning phase.

In Serbia the internet and social networks are still not significantly used in the selection process. In only 10% of cases, organizations from Serbia use profiles on social networks for selection for managerial and expert positions, and only 6.3% of organizations do so for selection for administrative and manual workers. With regard to on-line selection tests, only 8.8% of organizations in Serbia use these selection methods for selection for managerial and professional positions, while 6.3% of organizations do so for the selection of administrative and manual workers.

The internet and social networks are more common and more used for the recruitment process than for the selection process. This can be explained by the purpose of the recruitment process. The aim of the recruitment is to inform available suitable candidates about the free job positions and that the best and most qualified of them apply for the job. The second reason is significant time and cost savings.

When it comes to the selection process, the role of the internet and social networks is important, but not crucial. The role of the internet in the selection process is most often viewed through on-line testing. This can be significant due to the acceleration of the selection process and cost saves, but there are still a modest number of surveys and researches on the application of on-line tests, as well as their efficiency and acceptability. When it comes to the role of social networks in the selection process, the conclusion is that the decision to choose an adequate candidate should not only rely on social networking data, but this information can help in making decisions. A combination of traditional selection methods with modern on-line methods can provide better results and provide better information base for the decision makers to select an adequate candidate. SM

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The Impact of the Digital Economy on Controlling

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Abstract
Due to the information technology revolution, the capacity of the IT data management has increased dramatically. Therefore, those companies which are unable to adopt the new opportunities, which can't integrate these data as the result of the digital economy, will be at a disadvantage in the long run. Integration of these databases into the operational or strategic planning allocates more information, since the company may get important information, which is sometimes absolutely critical for the company's survival.
Today, the big stores, the pharmaceutical firms and banks use such IT solutions whose costs cover a significant part of the sales and marketing budgets, and in addition to these solutions, tools did not even exist a few years ago. These drastic changes take effect on the activity and behaviour of the economy, so it affects the functionality of companies which was working for past centuries as well.
Based on the above mentioned, we can say that the company's controller and the controlling organization also must consider that in the future how to do, how to adapt the activities, processes within the company and outside the company, since a much larger amount of data is available, there is no difficulty to be able to get information to complete a task, solve a problem, but how they choose and filter data source, and then what conditions are used to limit the amount of available data.
The examples listed above reflect that an efficient use of digitized information nowadays is essential to make quick management decisions, it ensures a competitive advantage, and for this change the companies must change their traditional controlling activities.
If a company recognizes the inefficient practice of present reports, it raises the idea that it would be worthwhile to develop a new business intelligence tool. The goal is how to read the data in the future. It is important to know that before the implementation of the BI tool, what the practice of the organization is, what controlling activities are, how the relationship is between the decision-maker and the controller, how the controlling helps the business, how the controlling helps to set company's goals.
In the 21st century large companies want to keep the competitiveness and the implementation of BI applications is very important for it. The advantage of BI implementation is that the new system uses pre-defined templates to be able to get information for an entire business, to get complete analysis on time, on product or company level very fast. Thus, it follows that the applied BI can help employees and managers using the basic functions can get the information of a client, markets very easily in just a few seconds.
First and last we can say that the use of the digital economy the businesses become more productive and efficient, and they could enter into the digital market of the world economy, so their business could operate more effectively.

Keywords
Controlling, digital economy, business intelligence.

Introduction

At present, due to the information technology revolution, the volume of data which are processed and the capacity of the computing systems has increased dramatically. Under the present circumstances, those companies that are unable to live in the new facilities and do not integrate the data as a huge information base of digital economy, may be at a serious competitive disadvantage in the long run. The integration of these data-

bases brings additional information for the company in both operational and both strategic planning sides, because it is clear that this information brings important information, which sometimes is essential.

This study aims to verify that the fast and effective decision-making executive business intelligence solutions are not only a competitive advantage, but also providing up to date information is considered a basic requirement for all users. Research questions are in relation to the objective of controlling activities related to the future: we are looking for an answer to the questions how the digital economy changes the controller activity, and whether modifying the decision supports the functions of controlling.

In our analysis, we describe the practical implementation of digital technology through many sectors and after that we interpret relevant determination connected with our research based on domestic and international literature, concerned with both business intelligence and controlling the activities. Due to the nature of theme works, based on online resources we show the usage of domestic business intelligence and we examine the controlling functions' - planning, monitoring, information supply and reporting – changes that affect the everyday work of the controllers as well using case studies. We finish our study presenting the benefits and difficulties, expectations and experiences from the application of business intelligence solutions and the results of the tests obtained by summing, statements based on practical applications.

1. Digital technology nowadays, business intelligence systems

Businesses should use innovative solutions, since it will be able to fully exploit the potential of digital technology benefits and opportunities on the one hand in order to improve efficiency and productivity, and on the other hand, in order to reach your customers and operate your business to ensure higher profits.

Digital economy

The importance of e-commerce eloquently demonstrates their research results, according to which an average of 21 or even 33 per cent of developed countries' GDP growth can be traced back to the Internet. For example, at the 2015 Hanover technology fair, CeBIT had digital economy as the central theme. The traditional German agricultural companies can digitize their activities. The Claas "clever tractor" recognizes obstacles on its way and makes the work more efficient by using intelligent navigation. It creates a production (output) map on which the farmer knows exactly how much they can harvest in any cornfield.

What opportunities can the rapid expansion of digital economy offer the players of the national economy, and how can e.g. internet help market-making activities and market operators whether in small and medium sized companies or large companies?

Today, the supermarket chains, pharmaceutical companies and banks use such IT solutions, which accounts are a significant part of the sales and marketing budgets, and in addition to these solutions, tools did not even exist a few years ago. This operation can change drastically the performers of economy and it has an impact on the operation of companies in the centuries-old heritage. The economic environment is going through a change never encountered before, which requires performers to update their knowledge and ability of continuous learning and adaptation to new challenges.

Business intelligence

The first definitions related to business intelligence systems come from Luhn, who in 1958 dreamed of a future in which using the complex, intelligent systems the information can automatically be obtained among the accumulating data, and therefore storing the information and the distribution of it to the right people becomes much more efficient (Luhn, 1958). The term itself was introduced into the professional vocabulary towards the end of the nineties, before a decision support system (DSS), management information system (MIS), or executive information system (EIS) definitions are used (Sidló, 2004).

The second definition is came in 1989 from Howard Dresner (Dresner, 1989), which is considered most generally more accepted in the literature definition: "The business intelligence is all of such methods, concepts which improve the decision-making process using the so-called evidence-based Systems (MIS, DSS OLAP, DM, ...) help."(Cser, Fajszi, & Fehér, 2010, p. 39)

In the nineties, new trends emerged and the need arose for online analytics, customizable plan-fact analysis and forecasts. Such technologies, applications, which elements of the scope of business intelligence, have the main aim to ensure proper storage of data, real-time access to corpo-

rate decision-making and support a variety of analysis, forecasting and data mining capabilities. Due to Howard Dresner's definition it can be stated that BI is not software, which is available after installation, nor a classic enterprise resource planning (ERP) system that operates after setting the parameters, but something much more complex: multiple software coordinated operation, data warehouse of technologies. Thanks to incredible technological development in the 21st century in the same technology functional areas, which exist in the EIS, DSS and MIS applications based on the repository house. The business intelligence systems are the combined and improved technology of them. (Kővári, 2007)

Eckerson projected in the future the following changes in advance in respect of the business intelligence (Eckerson, 2016):

- *BI tools move away from the use of desktop machines;*
- *The cloud technology is reaching a turning point;*
- *Application extensions of BI becomes standardized;*
- *The management of the data "sea" gets management tools;*
- *Data Analysers discover Data Catalogues;*
- *BI managers' influence increases in the world.*

In summary, we regard business intelligence as a collective term that includes all system architectures, tools, databases, applications and methodologies, with the aim of data analysis being a decision support tool for corporate management.

It is important that we look at the world's business intelligence systems, as in the 21st century, for a large company wishing to preserve the competitiveness it is very important to introduce the BI application. We need to consider what the term itself is that is used, what we can see in terms of its importance, usefulness, and what a plus for users, which greatly facilitates their weekdays. The new system has the advantage of using the predefined templates, thus the enterprises are able instantly to perform a complete analysis of geographical, time, or product level, and the matrix for an entire business. It reveals that with the help of BI the working staff and managers using the basic functions they can get the information of a client, and market it very easily in just a few seconds.

2. Changes in controlling activities

Today for most large companies the most challenging is to fight preserving competitiveness. Everyone strives to achieve the highest possible results with the least effort, so that standards are raised, growing higher and higher. We can detected in the previous examples that in a company the controller, i.e. the controlling department must also consider the future activities and processes and they have to overview how to perform these, how to adapt to all within the company and the company's micro and macro environment with much higher amount of data available. The difficulty is not to be able to obtain information to complete a task, solve a problem, but how, by what means, select the data source, and narrow down the amount of data available based on what conditions exist inside it.

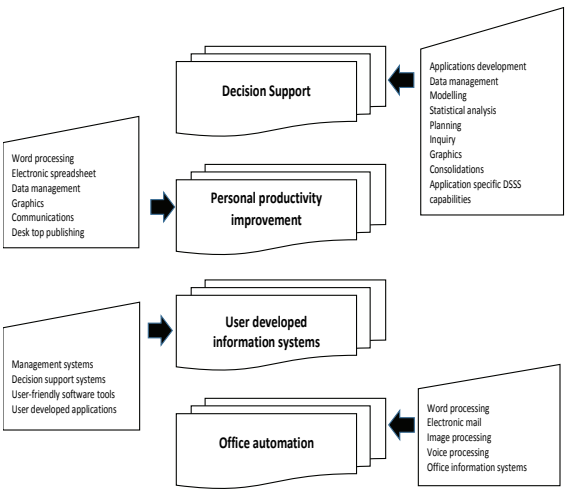
We can conclude that all aspects of online commerce have several options in the future. This has a great importance from the controlling point of view, because one must consider the preferences of customers, their payment habits, resulting in almost immediate access to information on the sales revenue, margin analysis. Exploring the causes of planned and actual differences and preparation of decision-support materials are performed much more effectively and faster.

As one way to reduce public spending we offer online modern, efficient tools for public services. The efficiency gains are achieved so that businesses, people and workers in public institutions alike see their lead. In addition – just like online commerce – the additional information stored this way is used for analysing the operation.

The degree of efficiency through digitization services offered in the health system can be greatly improved. The controlling analyses of digitized information and setting future goals become more established by the use of such information.

The controller - we can see at least three levels as IT end user - such as Individual level where the worker himself appears, he or she looks for and uses technology required for the work. The second level is the level of functional units of the company. At this level, the department's needs, searching, selecting and applying appropriate functioning of key applications. The third level is the level of the enterprise, which covers all areas of the company, from sales to production (service office). At this level is also emphasized the exploration of future needs, the release of the IT strategy. The controller makes plans, makes decisions,

writes reports, communicates with colleagues, managers, collects, organises, and stores information necessary for their work. These functions are consolidated together in the following figure, which divides the tasks into four areas.



Picture 1 The informatics end user categories of a controller
Source: Long, 1989

The examples listed demonstrate that effective use of digitized information is indispensable today to make quick management decisions so as to ensure a competitive advantage and is necessary to change the traditional controlling activities.

Changes of controlling activities in practice

What trends can influence digitized society and how do they influence the controllers' work? On closer examination of the issue, two major strands emerge. On the one hand, in business, and on the other, changes occurring in technology. To do this, we can set out the work of Steven Alter wrote in 1992 (Alter, 1992), which has preserved its actuality today.

Trends in business

- *Widespread application of using computers;*
- *Ongoing convergence of computing and communications;*
- *Increasingly automated workflows;*
- *Information brings more and more value;*
- *New forms in organizations and management;*
- *Increasing dynamics in business;*
- *Accelerating global competition;*
- *Gradual acceptance of global standards.*

Trends in technology in terms of information systems

- *Increasing capacity and speed of electronic tools;*
- *Digitized information growing number availability;*
- *Easier portability of electronic devices;*
- *Expanding connection, connectivity possibilities;*
- *Expansion of application opportunities;*
- *Automation of human thinking will eventually happen.*

These trends almost all make an impact on the controllers' work, due to the fact that digital economy has changed the controllers' work, because before it the controllers analyse the business and compare plan-actual data based on weekly, monthly closing data performed. They are able to give recommendations for decision makers after the results reveal the reasons for the differences. It requires relatively long times, often only provided an opportunity for "fire-fighting". However, mitigated by the effects of a long series of coincidences, in individual cases, it was not necessary to use techniques that treat these outliers. This "extended" period – up to an annual series – gives a very well founded analysis for the work efficiency and productivity, and consequently, revenue improvement.

Today, however, we have such very detailed data, which can be available by job groups, by technology of production or per shift. This means a huge amount of material, for which the need to use statistical methods becomes much more important. Let us consider the fact, that even after data shift, analytics are to be implemented. We can give the managers a short time in which they can intervene in the company's processes more quickly and effectively, thus meeting the corporate objectives would take more.

Analysing data in such shorter periods, however, may have more uncertainty. In case of a shift in the role of coincidence is present to a greater extent, longer data series smooth out these fluctuations by chance that the results of the analysis of the data sets more useful. Several methods can help in the treatment of this problem, for example, application of the Six Sigma method.

We should not forget that today controllers must use IT tools, manage the growing data needs increasing IT knowledge. When performing each task, especially in areas where a large amount of data is available before or perform the work them-

selves or together, they must answer with their IT colleagues the following questions due to Alter:

- *What data and information will be required?*
- *Where and how will the data be collected?*
- *How will the tests' results, analyses be transmitted?*
- *Where will the results and the data themselves be stored?*
- *What applications will be used for the treatment of the data, and how will these applications be linked with existing systems in a unified enterprise information system's structure?*

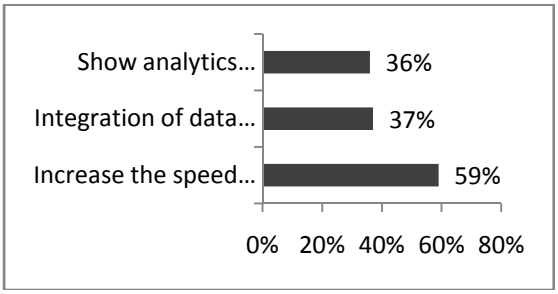
Most of these are of technical nature, but it is also important for the controller issues. They essentially determine the success of future activities, which may directly or indirectly, influence the effective and successful operation of the company.

Another important change of the controlling work was the 2008 crisis, which influenced the extent and depth in almost every industry and company. What challenges did the controlling encounter in connection with the crisis?

The controller must support for a variety of businesses, management institutions to provide the necessary information for their work to executives working at different hierarchical levels. This information, of course, should be improved taking into account the business around customer business environment, managerial and executive level is needed. If there are changes, the controller's job is to convert the information to new demands. The crisis has seriously affected most sectors, almost every organization and therefore the individual activities of daily drivers as well. This means that they needed to develop a new approach to controlling tasks.

Of course, the three key pillars of controlling activity have not changed; only the main points, the reporting system has changed. Tirnitz (2010a; 2010b) have shown based on an empirically survey that a significant number of companies use about 2-22 days, (the mean value of ten days) to prepare standard monthly reports. Such companies, which are strongly affected by the crisis, however, have typically faster and completed monthly report within 10 days. In connection with the weekly reports are increasing expectations that after a week closing Friday the controller has to compile the weekly data on Monday morning. Also, based on empirical data it stated that the aforementioned shorter turnaround compiling reports of the companies have not been used for more workforce. Reducing the time usually means a more efficient use of IT support. Among the larger companies using management information systems and where the impact of crisis was significantly detailed, they needed less time to prepare their reports than those who had less of the crisis was felt. The managers of company have become critical quickly and very succinctly, but can receive in a transparent way the information necessary for their work. The research also showed that the size and content of reports has been reduced. The crisis has significantly reduced the number of companies, which used 30 more pages monthly reports, while such companies, which compiled more 100 pages of reports with some exceptions, have disappeared. The average size of reports decreased from 15 to 12 pages. This is a serious challenge for a controller as a huge quantity of data provided by the digital economy will be compiled into a tighter but useful managerial report.

The tasks of controlling depend on the size of a company, organizational complexity, and business circles. The larger, more powerful company has more difficult controlling tasks. In a highly dynamic economic environment where the competition is extremely strong, controlling is running as a separate organizational unit. If an enterprise recognizes ineffectiveness report practice, it raises the idea that it would be worthwhile to develop a new business intelligence tool. The purpose of the change is how the available data can be read "differently".



Picture 2 The three most frequent reasons of business intelligence implementation based on the surveyed SMEs
Source: Kővári, 2007

In our analysis we came to the conclusion that the first important step is to understand what practices a company follows before implementing the BI tool, how is working the budgeting and control activity of controlling, and how the decision eventually influences on the way it helped the com-

pany to achieve its objectives. The factors and reasons that have led to the change in the existing methodology should be explored after that. In addition beside the strengths and weaknesses of a new system introduced one ongoing goal is the maintenance and further development of the implemented system, because if not fully exploited, for example there are extra data that does not contain even more, and it would be important to make our systems available to others. During the practical analysis, we examined the two companies about the effect of the digital economy on the traditional controlling activities.

3. Case studies

Case study 1

The first company provides telecom and IT services. Its traditional market is means of telecommunications, but a rearrangement of the scope of activity can be observed. In addition, beside the previously less pronounced IT services where we can experience significant expansion, the company recorded a significant reduction in case of telecommunications revenues. As long as in the case of telecommunications services the customers use standardized services, while IT activities reflect a unique nature of project-based tasks. The environmental challenges put pressure on company leaders to develop more quickly and adapt to changes in organization. One of the pillars of the development of the internal information system is a better use of available data. During the analysis, we examined how the controlling functions can be improved using advanced digital data processing and, despite the fierce market competition, how to be able to increase sales revenues by an advanced decision support system that will be implemented, because this new system could form the basis for effective management.

The company's leaders realized that the dynamic growth of data volumes needed to be processed, which complicated the traditional spreadsheet management systems and made them difficult to solve. In addition, there was an increasing need to compare planned and actual data, flexible and user-friendly reports for executives. All these lead to development for the company's managers. The next step was the formulation of demands on the new system. The basic objective was to support the planning and preparation of the report controlling functions, and intuitive management using advanced analytical tools and flexibility in the data structure is incurred by the staff. The introduced new tool of company is a single and unique database, which in fact organized and plan data stored in applications multidimensional cubes; and a key user interface for managing applications and cubes, and finally, key and end-user interface to query the data, so overall was introduced in the enterprise performance management and business intelligence application.

The business intelligence tool for company stores data in eleven dimensions, the fact regular data are stored by ten minutes, the loading process automatically updates the database, but the data load starts manually, if it is necessary. These activities are carried out by object groups, and plan-fact analysis is made in the different structures. The original goal was to improve the analysing and controlling reporting features, to enhance the end-user ad hoc query and fast possibility of access options to the data-item, self-report preparation, and easy to maintain reporting structure has solved.

We can state based on experience after the introduction of the new tool:

- support for controlling activity is corresponding with expectations,
- the flexibility of the multidimensional data cube makes the system suitable to meet the new needs that arise,
- easy to use, easy to learn to use,
- they are not fully exploited the possibilities offered by the system.

Case study 2

The second company is a financial institution where the controlling operates as a separate division, has a wide range activity and it has a diversified relationship with the other business units of the institution. The units of the financial system are increasing burden in recent times, which significantly affects their operations. Financial institutions studied have a significant position in each business line, and that they want to keep the long-term reason of the preparation for extraordinary events, often-changing environmental influences and the constant, stable, even resulting in increased operation, especially paying great attention to the development of the controlling activities. The management's objective is to maximize the efficiency of the internal processes of the opportunities, to find such tools, methods, which are the most able to support decision-making. In addition, the financial institution operates as a subsidiary of a foreign parent company in a country, so

every year strategy, future plans are greatly influenced by expectations that the parent company imposes on them.

In case of a financial institution the basic problem was that typically, the received report could serve the needs of the central data warehouse and retrieve the data; however, a special program was needed, which was not appropriate skills across all disciplines. Thus extracting the information required a lot of time. The experts were not able to make good use of, or because of inappropriate management practices in the tables drawn data, or because the accumulated data was not read out, for a given month information so that they could not observe the trends. The financial institution required to move constantly, comparable monthly executive reports in time and space, which could not be met from the available options. Thus, the demand is a faster, easier, more meaningful data available access in the data warehouse, which meets the individual needs. It has become necessary to create complex data generated not only themselves but also elemental depth should be examined down to the transaction level. Against this background, the new demand was born to build a new business intelligence system.

The implementation of the new system took place with the involvement of external experts, as an outsider firm can assess the strengths and weaknesses much more realistic, they can see the operating habits for optimal in notices of risk threats. So actually, a system has been developed which fully meets the expectations of leaders.

The BI platform system was set up displaying the usual spreadsheet. The new system does not use a separate program, but known and used software has been built into the relationship between the systems. The BI uses tables and lists not prepared in advance, but through direct contact with extracting data from the data warehouse. Thus, within a few seconds at any time it is made using a huge amount of data corresponding detection, reporting, and illustrative diagrams. The principal dimensions, by which the actual data can be grouped and analysed are in the hierarchical relationship, which means that there have been presubordination, hierarchical relationships between elements of the given hierarchy mapped in the system. With the dimension segment can collate the data and indicators are among the factors about pre-defined for different segments, according to which they would like to calculate the actual data.

The advantage of the new system is that the data significantly improved the purity of data, sharing more accurately trackable customer movements. The actual and planned results allocation among the different business units is fairer and more realistic. Because of these conditions, it is possible to analyse the past, to develop action plans, so that the main purpose of the system i.e. decision support is fulfilled. The key of the system is the possibility of movement in time and space at the same time when a leader or staff member wants to see the results or the performance of the portfolio in the given business unit. The answer to that demand is quickly recovered from the system. The disadvantage of the system is that currently they record in separate systems the administration of the new customer relationships and the negotiations of the acquisitions. The future goal is for most of the information to be in one place. This information has to be collected and has to be readily available to everyone within one system. At present, the system contains only profit and stock information, but many other systems are still related to customers or products data. The main objective in the future is that the most of the data will be available from the BI system, so it gives a complete, dynamic data management across all possible data.

Conclusions

Nowadays, due to changes in environmental, business and technological conditions, it is no longer sufficient to use conventional approaches of controlling. According to the new challenges, controlling activities can vary, but the task, i.e. providing information for decision-makers, remains. The companies' managers want to get information faster, highly aggregated, more or less graphically, which are prepared by the controllers based on the digitized economy. Thus, their activity influences the business and results of the company. One special area of change in controlling activities is using business intelligence (BI) tools. Our research and analysis revealed that using digitized economy, businesses improve a level of efficiency and productivity, whereby they could put their feet in the digital world economic market, and their business could operate more effectively. The future-oriented thinking is the essential condition for more successful improvement and competitiveness. SM

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- Alignment: Justified
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Leave an empty line between paragraphs.

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The references should specify the source (such as book, journal article or a web page) in sufficient detail to enable the readers to identify and consult it. The references are placed at the end of the work, with sources listed alphabetically (a) by authors' surnames or (b) by the titles of the sources (if the author is unknown). Multiple entries by the same author(s) must be sequenced chronologically, starting from the earliest, e.g.:

Ljubojević, T.K. (1998).
Ljubojević, T.K. (2000a).
Ljubojević, T.K. (2000b).
Ljubojević, T.K., & Dimitrijević, N.N. (1994).

Here is a list of the most common reference types:

A. PERIODICALS

Authors must be listed by their last names, followed by initials. Publication year must be written in parentheses, followed by a full stop. Title of the article must be in sentences case: only the first word and proper nouns in the title are capitalized. The periodical title must be in title case, followed by the volume number, which is also italicized:

Author, A. A., Author, B. B., & Author, C. C. (Year). Title of article. *Title of Periodical, volume number*(issue number), pages.

➲ Journal article, one author, paginated by issue

Journals paginated by issue begin with page 1 in every issue, so that the issue number is indicated in parentheses after the volume. The parentheses and issue numbers are not italicized, e.g.

Tanasijević, V. (2007). A PHP project test-driven end to end. *Management Information Systems, 5* (1), 26-35.

➲ Journal article, one author, paginated by volume

Journals paginated by volume begin with page 1 in issue 1, and continue page numbering in issue 2 where issue 1 ended, e.g.

Perić, O. (2006). Bridging the gap: Complex adaptive knowledge management. *Strategic Management, 14*, 654-668.

➲ **Journal article, two authors, paginated by issue**

Strakić, F., & Mirković, D. (2006). The role of the user in the software development life cycle. *Management Information Systems, 4* (2), 60-72.

➲ **Journal article, two authors, paginated by volume**

Ljubojević, K., & Dimitrijević, M. (2007). Choosing your CRM strategy. *Strategic Management, 15*, 333-349.

➲ **Journal article, three to six authors, paginated by issue**

Jovanov, N., Boškov, T., & Strakić, F. (2007). Data warehouse architecture. *Management Information Systems, 5* (2), 41-49.

➲ **Journal article, three to six authors, paginated by volume**

Boškov, T., Ljubojević, K., & Tanasijević, V. (2005). A new approach to CRM. *Strategic Management, 13*, 300-310.

➲ **Journal article, more than six authors, paginated by issue**

Ljubojević, K., Dimitrijević, M., Mirković, D., Tanasijević, V., Perić, O., Jovanov, N., et al. (2005). Putting the user at the center of software testing activity. *Management Information Systems, 3* (1), 99-106.

➲ **Journal article, more than six authors, paginated by volume**

Strakić, F., Mirković, D., Boškov, T., Ljubojević, K., Tanasijević, V., Dimitrijević, M., et al. (2003). Metadata in data warehouse. *Strategic Management, 11*, 122-132.

➲ **Magazine article**

Strakić, F. (2005, October 15). Remembering users with cookies. *IT Review*, *130*, 20-21.

➲ **Newsletter article with author**

Dimitrijević, M. (2009, September). MySql server, writing library files. *Computing News, 57,* 10-12.

➲ **Newsletter article without author**

VBScript with active server pages. (2009, September). *Computing News,57,* 21-22.

B. BOOKS, BROCHURES, BOOK CHAPTERS, ENCYCLOPEDIA ENTRIES, AND BOOK REVIEWS

Basic format for books

Author, A. A. (Year of publication). *Title of work: Capital letter also for subtitle*. Location: Publisher.

Note: "Location" always refers to the town/city, but you should also include the state/country if the town/city could be mistaken for one in another country.

➲ **Book, one author**

Ljubojević, K. (2005). *Prototyping the interface design*. Subotica: Faculty of Economics.

➲ **Book, one author, new edition**

Dimitrijević, M. (2007). *Customer relationship management* (6th ed.). Subotica: Faculty of Economics.

➲ **Book, two authors**

Ljubojević, K., Dimitrijević, M. (2007). *The enterprise knowledge portal and its architecture*. Subotica: Faculty of Economics.

➲ **Book, three to six authors**

Ljubojević, K., Dimitrijević, M., Mirković, D., Tanasijević, V., & Perić, O. (2006). *Importance of software testing*. Subotica: Faculty of Economics.

➲ **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.

➲ **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.

➲ **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 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. doi: 10.1108/06070565717821898.

➲ **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), "The use of data warehouses may be limited, especially if they contain confidential data" (p. 201).

> Mirković (2001), found that "the use of data warehouses may be limited" (p. 201). 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), limitations on the use of databases can be external and software-based, or temporary and even discretion-based. (p.201)

> 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 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 journal **does not recommend the use of footnotes or endnotes.**

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