

Goran Pitić

Metropolitan University
FEFA, Belgrade

Miloš Kržić

CROZ Serbia
Belgrade

Aleksandra Vuković

Nura Agency
Belgrade

Marija Ilić

Two Desperados and Serbian Games
Association
Belgrade

GAMING INDUSTRY IN SERBIA: A CHANCE FOR A NEW INDUSTRIAL POLICY

Industrija video igara u Srbiji – šansa za novu industrijsku politiku

Abstract

As a fast-growing sector of the entertainment industry, with almost 2.5 billion gamers around the world and the revenue of over \$150 billion in 2019, the gaming industry significantly surpasses the results of the traditionally popular film and music industries combined. New technologies, massive use of smartphones and global hyperconnectivity (internet expansion) contribute to the expansion of the industry's potential, providing room for new and/or hybrid business models. Many countries recognized the multifaceted significance of the development of this industry (ranging from financial and educational benefits and the impact on other industries and various social spheres to the promotion of innovation and creativity at all levels) and provided various financial and nonfinancial incentives, expecting to see multiple returns. Relying on the comparative analysis of the relevant countries and the survey conducted in Serbia, this paper confirms the multifarious potential of the Serbian gaming industry and encourages economic policymakers (also based on the survey) to support the development of this fast-growing industry by introducing primarily nonfinancial, but also minimum financial incentives.

Keywords: *gaming industry, creative industries, digital business models, digital economy, education, industrial policy.*

Sažetak

Industrija video igara, kao brzorastuća grana industrije zabave, sa skoro 2,5 milijarde korisnika širom sveta i prihodom od preko 150 milijardi dolara u 2019. godini, značajno nadmašuje rezultate tradicionalno popularne filmske i muzičke industrije zajedno. Nove tehnologije, masovna upotreba pametnih telefona i hiperkonektivnost sveta, utiču na širenje potencijala ove industrije, otvarajući prostor i za nove i/ili hibridne poslovne modele. Mnoge zemlje sveta prepoznale su višestruki značaj razvoja ove industrije (od finansijskih, obrazovnih, uticaja na druge industrije i različite sfere društva, do podsticanja inovativnosti i kreativnosti na svim nivoima) i raznovrsnim finansijskim i nefinansijskim podsticajima podržavaju njen dalji razvoj, očekujući multiplikatorske povraćaje. Ovaj rad, koristeći komparativnu analizu relevantnih zemalja, kao i anketu sprovedenu u Srbiji, potvrđuje višestruki potencijal industrije video igara u Srbiji i sugeriše kreatorima ekonomske politike (zasnovano i na anketi) da, pre svega nefinansijskim podsticajima, a potom i minimalnim finansijskim, podrže razvoj ove brzorastuće industrije.

Ključne reči: *industrija video igara, kreativna industrija, digitalni poslovni modeli, digitalna ekonomija, obrazovanje, industrijska politika.*

Introduction

Thanks to the Fourth Industrial Revolution and new technologies, the gaming industry, like many others, faced a wave of innovations, disruptions and new business models. Hyperconnectivity, new technologies and expansion of smartphones connected all parts of the world, while the gaming industry “captured” more than two billion gamers and recorded extraordinary growth (higher than the film and music industries combined) and it is projected that the current trends will continue. Continuing to apply the reverse razor-and-blades model, Apple invested \$500 million in its game subscription service Apple Arcade, while Google launched the Stadia streaming platform, a cloud gaming service, as a competitive challenge. Bearing in mind the number of users and forecasts showing further growth of the gaming industry, it is no wonder that the world’s retail giants such as Amazon and Walmart also joined the game. We can now expect new business models, innovations, application of artificial intelligence and other technologies, as well as a gaming “breakthrough” in other industries in which “game” and simulation have a major role, including important spheres in life such as education, healthcare and the like. Many countries recognized the importance of the gaming industry and support its development by providing both financial and nonfinancial incentives, expecting to see multiple returns in many economic and social spheres. The basic question that arises is how and whether Serbian economic policymakers should support the development of this new and growing industry, bearing in mind its solid autochthonous development and potential. After an overview of literature about various issues relating to the gaming industry, this paper will offer ideas/proposals concerning the posed question, using empirical research (including the relevant survey).

Literature review (trends, role of the state, new technologies and digital business models)

Available literature treats the importance and value of the gaming industry in different ways. However, what is common to almost all sources is that they recognize it as a

new industry. The relevant statistical data unambiguously show that the gaming industry is recording continued growth. However, due to the fact that the gaming industry is relatively young, available literature is less focused on theoretical strongholds, often analysing it more phenomenologically. Thus, it also often provides the reader with a futuristic view of this industry. Analysis of the historical overview of the development of the gaming industry clearly shows that the adoption of new technologies (technological innovation, i.e. technological leadership) played a key role in attaining the leadership position in the industry, since technology enabled gamers to gain new game experience. Traditionally, the gaming industry was analysed from the viewpoint of the so-called “console war” involving three biggest producers – Microsoft, Nintendo and Sony. O’Donnel [21, p. 205] points to the aggravated working conditions, high risk and volatility in the console segment in the United States. The diminishing importance of consoles as a gaming platform is the result of the strengthening of the globalization process, which is accompanied by the development of internet infrastructure. All of this brings about a change in the traditional value chain by introducing digital distribution game model, which connects gamers directly with producers. According to De Prato et al. [21, p. 205], digital distribution has a direct impact on the value chain structure and results in the convergence of the roles of distributors and sellers into the publisher’s activity. This reduces distribution costs, increases gamer satisfaction and improves industry’s efficiency and effectiveness. On the other hand, an increasing number of smartphone users contribute to strong growth of mobile gaming platforms which, for the first time, claimed precedence over the other two platforms (gaming console and PC) in 2018, accounting for 51% of global revenues in the gaming industry [19, p. 14]. The development of such a distribution model, accompanied by a high growth rate of mobile gaming platforms and stable increase in smartphone sales, brought about an increase in the number of gamers to more than 2.3 billion today, thus making the gaming industry the leader in the global entertainment industry, bigger than the film and music industries [19, p. 7].

On the basis of an overview of the relevant literature, we have recognized the dynamic dimension of controversy

over the government's role in or, in other words, the question of whether and to what extent the government can have a positive influence on the development of the gaming industry (with accelerated strengthening of the potential of this industry, the number of its supporters was also increasing). A special dimension to this topic has been given by the Startup Genome's research, according to which there is no direct connection between industrial policies implemented by governments with the aim of strengthening the start-up ecosystem, including the gaming industry, and the ecosystem's performance [30, p. 24]. Some authors had a dilemma about the government's influence, such as Sandqvist, stating that the gaming industry is problematic because it requires a significant amount of capital, labour with specific knowledge and other resources. Moreover, it is very risky when the level of potential earnings is in question [21, p. 205]. On the other hand, Mazzucato concludes that for an innovative ecosystem to be successful the interaction between public and private investments should be dynamic, which implies that the public sector is ready to invest considerable amounts of money into education and R&D in the emerging areas in which the private sector does not invest due to high technological and market risks [16]. These risks are also recognized by Jaffit who points out that it has never been so easy to initiate video game development thanks to markets being easily accessible through digital distribution and very accessible technologies for video game development. He adds that government support can provide a "safety net" which will enable video game producers to have additional time to gain experience that will help them to survive and succeed in the relevant market [22, p. 35]. As a further confirmation of a positive view, we can cite the conclusion of the committee dealing with the development of the gaming industry in Australia: "To maintain economic growth, prosperity and international competitiveness, advanced economies such as Australia need to embrace innovation and transition to a knowledge economy that relies on technology and highly skilled jobs. Many other countries appear to have already reached this conclusion with respect to their domestic video game development industries" [22, p. 71.] After studying national publications on the gaming industry in 40 countries, Wolf [21, p. 204]

stated that all countries acknowledged the great potential of this industry.

The Fourth Industrial Revolution, accompanied by large global investments in the expansion of online infrastructure, development of advanced devices and accelerated development of smartphone usage, enabled video games to reach a huge part of the world's population. One of the game changers is certainly the big data revolution as a driver of competitive strategies used by companies in this and other industries, as well as the basis of artificial intelligence and machine learning, which improved the quality of user experience and the games themselves.

By applying new technologies, such as virtual and augmented reality, which can integrate the physical and digital worlds, as is the case in context-aware games, various industries will be able to increase efficiency and reduce costs. As is known, for years now the automotive industry has been using simulators originating from the gaming industry for testing the designs of new car models in order to save money that would otherwise be spent on testing new models in the real world [33].

The digitalization of distribution also provided room for the emergence of various digital business models in the gaming industry, ranging from pay-to-play (P2P) to advertisement to free-to-play (F2P), as well as various variations of hybrid models. The comparison of these models usually includes comparing the three main components: content, user experience and the character of the platform through which a game is delivered [6, p. 84]. The success of a P2P model depends on the creation of collective demand for a game. Its economic logic is Development-Monetization-Acquisition-Retention (D-M-A-R). F2P logic is more complex (A-R-M-D) and based on the micromanagement of gamers, putting emphasis on experience before monetization. In the F2P model, a game may not be profitable and still be popular, while in the P2P model this is simply impossible.

Today's entertainment industry is dominated by the subscription-based model. This business model is now most commonly used for the consumption of film and musical contents, and the gaming industry is also using it on an increasing scale. According to the Newzoo CEO Peter Warman, gamers will continue to consider the gaming

experience and content to be highly important, whereby content creation will remain crucial, since it represents the heart of a successful subscription-based service [20, p. 2]. Creating quality content requires creativity. Thus, Yoshimatsu believes that the development of creative industries is crucial for the prosperity of a country because they have the potential to create jobs through generating and exploiting intellectual property [38, p. 136]. On the other hand, the current gaming experience in the physical or digital world is expected to be surpassed through the application of new paradigms created by context-aware games (e.g. Pokemon GO) and continuation of successful incorporation of new technologies, such as virtual and augmented reality, artificial intelligence and machine learning. All of this, coupled with increasingly faster internet, forthcoming 5G network and the growth of cloud gaming, is the driver of future development of the gaming industry, which is projected to keep growing until 2022 and reach \$196 bn with a CAGR of +9% for the period from 2018 to 2022 [29, p. 12]. According to Cai et al., cloud gaming overcame its teething problems and it is now a crucial moment to have it in all homes [4, p. 689]. The advantage of cloud gaming lies in the ability of gamers to play games without the need to have serious hardware or gaming consoles as was previously required. In order to make this optimistic forecast come true, it is necessary to deal with outstanding issues concerning network (internet) security and time delay when accessing cloud, which are expected to be successfully resolved in the near future.

Apart from technological changes, which accompany the development of the gaming industry from the very beginning, the method for inclusion of consumers in the gaming industry has also changed during the past ten or so years. These changes provided room for the so-called professional gamers who use games for business, in addition to introducing observers. According to forecasts, the mentioned changes will also contribute to the growth of the new version of a free business model, which is closest to the model of Amazon-owned Twitch [4, p. 691]. It is a popular live game streaming platform, which enables gamers to stream their games and be in constant interaction with other platform users – other gamers and observers.

Methodology

The analytics of this paper is based on empirical data from a number of sources. The first is the Global Startup Ecosystem Report 2019 for the purpose of which, over the past ten years, relevant data have been collected and processed on over one million companies in more than 150 cities, thus mapping the emergence, growth and development of start-up ecosystems across the world. The data on the significance of the gaming industry were obtained by a comparative analysis of the countries which are all significant for the development of this industry in Serbia (Germany, Finland, Romania, Poland and Croatia) with a view to showing the development level of the video games market and the best practice in organizing the sector, as well as giving an overview of the activities carried out within government support to the development of the video gaming industry. In this part of the paper, the two most successful countries in the area of video games, China and the United States, will be presented in greater detail. The third source, which is most relevant for understanding the current development of the gaming industry in Serbia, is the survey conducted by the Serbian Games Association¹.

The aim of the collated data is above all to clarify which indicators are significant for assessing the development stage of a start-up ecosystem and its subsectors, to provide a short overview of the video games markets in Europe and the rest of the world, to show how the gaming industry was developed in the countries of the European continent, which government policies and market practices in successful countries are good, what the video games market in Serbia looks like and what should be done to use the potential of the growing gaming industry.

Relying on understanding the local strengths and potentials, as well as on insight into policies of different countries, this paper aims to point out the strength and possible directions of support to the development of this industry.

¹ We express our gratitude to the Serbian Games Association for allowing us to see the results of its survey and use them in our research.

Startup Genome

The 2019 report for the first time presented the data on the Serbian start-up ecosystem, including Belgrade and Novi Sad's start-ups, assessing our start-up ecosystem as being in the first stage of development, that is, the activation stage [30, p. 86]. Some characteristics of the activation stage are limited start-up experience and low start-up output. On the basis of its experience in tracking the growth and development of various ecosystems around the world, Startup Genome's recommendation is as follows: it is necessary to increase the number of start-ups and the opportunities for early-stage funding [30, p. 82]. The report also points out that it is especially important to focus attention on one or two start-up subsectors that can be developed using the existing local strengths and opportunities, and to develop specialized support programmes for selected subsectors. Two strong Serbian start-up subsectors mapped in the report are blockchain and gaming. As for the strengths of the ecosystem, it singles out the accessibility of affordable high-quality talent [30, p. 95].

Video gaming industry overview

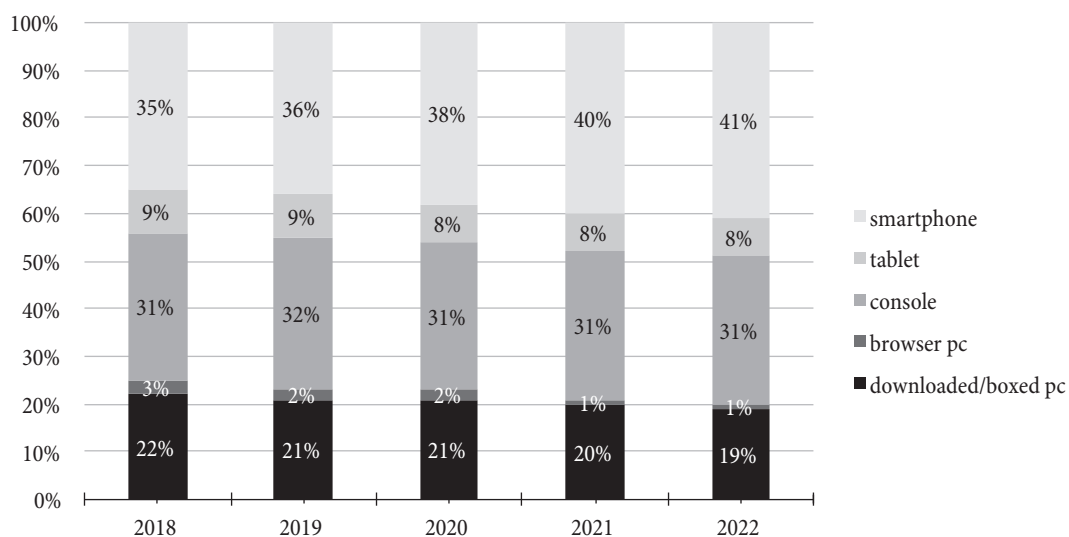
It is estimated that there are 2.5 billion video game players across the world and that in 2019, at the global level, the video gaming industry generated the revenue of \$152.1 bn, recording a 9.6% increase compared to the previous year [20, p. 11]. It is expected that, at the global level, by

2022 the video gaming industry will be worth \$196 bn [20, p. 12]. When we observe the share of different video game segments in 2019, we can conclude that the highest revenue was generated by mobile games – \$68.5 bn (45%); followed by console games – \$47.5 bn (32%) and computer games – \$35.7 bn (23%) [20, p. 15]. In 2018, in addition to these segments, the key players, such as Google, Sony, Apple and Microsoft, embarked on the development of cloud gaming platforms [20, p. 19]. Cloud gaming promises gamers that they will be able to play games regardless of hardware restrictions.

If we observe the distribution of video game revenues by region, it can be seen that the Asia-Pacific region holds the leading position with its share of 47% (\$72.2 bn) in the global revenues of this industry, while the North American region is the second with the share of 26% (\$39.6 bn), followed by the EMEA region with the share of 23% (\$34.7 bn) and Latin America with the share of 4% (\$5.6 bn) [20, p. 13]. The dominance of this part of the world in the video gaming industry is also confirmed by the fact that the two most successful gaming companies, Tencent and Sony, belong to the Asian continent and, to be more specific, come from China and Japan [20, p. 19].

It is interesting to note that in 2018, the world's biggest gaming company Tencent recorded growth of only 9% (versus 51% in 2017), which was the result of China's game licensing freeze [20, p. 13]. The Chinese Government's decision to suspend the approval of game licences reflects its complex attitude towards video games. At the same

Figure 1: Segment breakdown of global game revenues



time, Beijing welcomes the economic benefits from video games, especially e-sports [9]. The Chinese Government also points to the harmful impact of video games on the health of players [29, p. 4].

The country that replaced China in the leading position in 2019 was the United States where this industry emerged as early as in 1958 [1] and which is known for its advanced music and film entertainment industries. It is interesting to note that in 2017 the video gaming industry was proclaimed the fastest-growing entertainment industry, generating more revenue than the music and film industries [24] and consisting of more than 2,457 companies that support more than 220,000 jobs [8].

Germany is the top-ranked European country in terms of size of its video games market. This country is also interesting because of the extent of self-organization of this industry at the country level and governmental financial and nonfinancial incentives for the development of the said sector. Finland is also interesting for analysis, since the current level of development of the Serbian gaming industry can be compared to the development

of the gaming industry in this country in 2010 when this sector consisted of 70 companies with about 1,100 employees [5]. The Serbian gaming industry today consists of 60+ companies with more than 1,200 employees [28, p. 5]. Romania is a neighbouring country in which the government’s nonfinancial support to the development of this sector can already be presented.

Comparative analysis Finland, Germany, Slovakia, Romania and Croatia

Comparative analysis of the selected countries shows that Germany has the largest video games market (€3.3 bn) [32, p. 14], followed by Finland (€2.1 bn) [18, p. 27]. This ratio almost matches the number of gaming studios in these countries, with the exception of Romania. It is also interesting that these countries most often have “star” companies in this sector. Thus, the Finnish company Supercell accounts for 65% of the total industry turnover [18, p. 26]. In Romania, the top five companies account for 79.2% of its revenues [27, p. 3].

Figure 2: Revenue of gaming companies in 2018 (in \$M) and year-over-year growth (%)

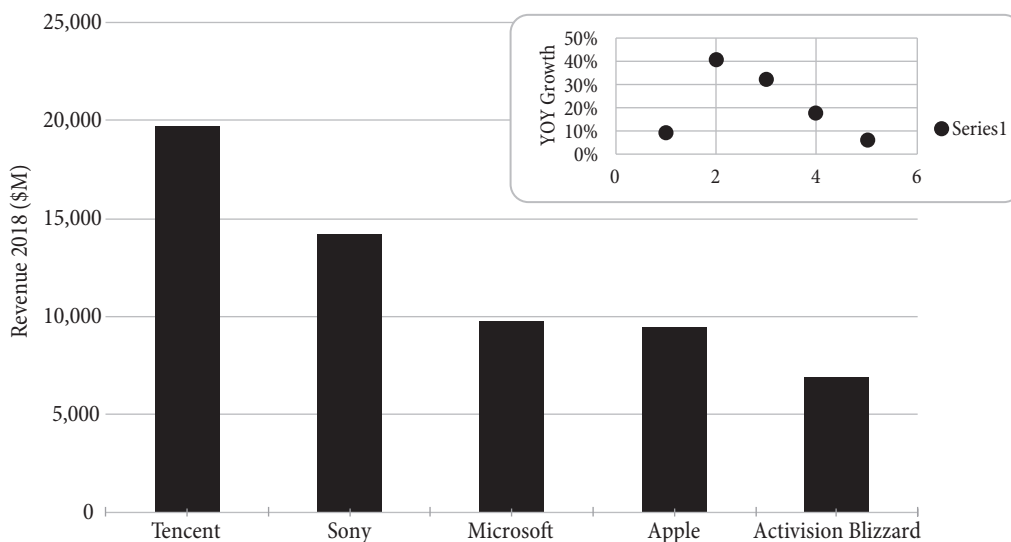


Table 1: A comparative overview of the most important quantitative indicators of the gaming industry in the selected countries

	Finland [18] (2018)	Germany [32] (2017)	Romania [27] (2018)	Poland [3] (2017)	Croatia (est.) (2019)	Serbia [28] (2018)
GDP (US\$) (2018) [37]	276.74 bn	3,947 tn	239.55 bn	585.66 bn	60.97 bn	50.6 bn
Size of the gaming market (\$M)	2,315	3,638	186.37	486.32	~55	~55-110
Number of studios	220	524	103+	N/A	45	60+
Number of employees	3,200	11,705	6,000+	N/A	1,000+	1,281

Almost as a rule, the top-rated countries in terms of the size of their video games market, Finland and Germany, provide excellent education so as to satisfy the video gaming industry needs for quality and specifically educated personnel. Finland educates such personnel from secondary school to university. In the past years, its university education has undergone reform which made the strict curriculum more flexible, while students have an opportunity to work on the development of video games at the beginning of their studies [18, p. 50]. The aim of this method of education is to bridge a gap between formal and informal education, and respond to actual employer needs. Like Finland, Germany also aspires towards adjusting education to fit the industry needs. Over 50 state colleges and universities in Germany (as well as private educational institutions) offer various study programmes specialized for the video gaming industry, while their curricula cover versatile knowledge and skills, ranging from computer science to video game design, art, 3D animations and the like [32, p. 49].

Apart from government support to strategic modernization of education in these two countries, their video gaming ecosystem is organized in such a way that it provides regional support to studios in project development. In Finland, there are regional clusters and hubs which provide support to smaller start-ups and foreign companies in terms of their establishment and funding, as well as finding suitable locations for their business in any region of this country [18, pp. 18-19]. On 8 November 2018, the German Government took an additional step forward in supporting the video gaming industry by earmarking €50 million in the budget of the Federal Ministry of Transport and Digital Infrastructure “for support to the production of computer and video games” [32, p. 12]. Apart from financial support, Germany also provides significant non-financial support to industry development by forming business development bodies in all of its 16 regions. These bodies support both local and international companies in finding an appropriate location, provide information about the market and business environment, offer advice on taxes and financing, and provide a connection with their network of various experts. The information and communication technology industry in Romania enjoyed

strong support from its Government: “the exemption of the income tax for developers (2004), the state aid scheme for large investments in IT (2012), the Startup Nation program (2016)” [27, p. 41].

These programmes resulted in the opening of representative offices of the world’s largest companies operating in this industry just in Romania (Ubisoft, Electronic Arts), which brought about an increase in the number of employees in the gaming industry (6,000 people in 103 studios) [27, p. 3]. For comparison purposes, the Finnish gaming industry consists of 230 studios and has about 3,200 employees [18, p. 11], while in Germany 554 studios employ 1,705 people [32, p. 20].

Educational reforms in Romania do not satisfy the needs of this young and fast-growing industry. Therefore, the lack of options for formal education of personnel for the video gaming industry is offset by the private sector taking various employee training initiatives. The Romanian Game Developers Association recorded the existence of several private academies, which were most often established with the support of industry actors and which offer certified courses for those interested in specialization in one of the relevant areas.

Survey of the Serbian gaming industry

The research was based on a closed internet survey and was intended for the members of the Serbian Games Association. It was created by relying on the practice of foreign gaming associations, adjusted to the current development level of the Serbian video games market.

An invitation to take this survey was accepted by 40 out of 70 members of the Association (57%). They answered 54 questions divided into 6 groups: basic information, projects, capital, employee-related information and ecosystem.

The first mapping of the video gaming industry in Serbia shows that this industry generates revenue of approximately €50-100 M [5] and employs approximately 1,500 highly qualified workers [28, p. 3]. Assessing the real value of the Serbian video games market is challenging due to the fact that Serbia has no support for doing business on some of the biggest platforms for

publishing video games, such as Apple and Sony (as well as Google Merchant until recently), so that companies register the total revenue generated from the video games published on these platforms abroad. Due to this restriction, companies publishing video games on the mentioned platforms must do this through their daughter companies founded abroad. Domestic gaming companies are focused on the development of mobile games. Therefore, the highest revenue is generated just from mobile games. In 2018, mobile gaming platforms took the lead for the first time [18, p. 15], thus indicating that our companies follow global trends and respond to gamers' habits.

Like studios from the countries covered by the comparative analysis, Serbian studios mostly rely on self-publishing (71%), while almost one-fourth of studios (24%) [28, p. 6] publish video games via publishers, which has certain advantages, such as the increased visibility of video games at the very beginning of their launching and more modest focus on marketing and user acquisition. At the same time, however, it implies more moderate revenues from video games.

When considered in terms of average net earnings, the shift in the number of companies from lower to higher earnings rankings becomes evident – the number of companies generating revenue from 20 to 50K and 50-100K in 2018 declined by 1 and 2 (respectively) when compared to the 2017 data, while the thresholds 100K-1M, 1-5M, 5M+ obtained one more company [28, p. 8].

As for their sources of financing, domestic studios mostly rely on direct sales (57%) and self-financing (15%) [28, 6]. Only 10% of studios opt for publisher revenue, 8% rely on investor capital (other industries), 5% depend on funds, while the crowdfunding campaign and investor capital (gaming industry) each cover 3% of studios [28, p. 8]. These data show that domestic studios opt for a bootstrapped approach to development or that there are not enough financing options based on funds or investments and, especially, that smart-money investments do not exist. Smart-money investments are especially important for young industries because, apart from money, the development of a company can also be sped up by knowledge.

81% of companies are optimistic about the future of the Serbian gaming industry.

If domestic gaming companies are investment-oriented, they obtain investments mostly from angel investors (40%) and then through crowdfunding (30%), VC (20%) and funds (10%) [28, p. 8]. Both angel and crowdfunding money point to capital market underdevelopment. Angel investors are most often individuals who invest their own money, while crowdfunding also relies on money from a great number of individuals. This means that the amounts of money are not large and that our studios have limited access to institutional investors to ensure support to their growth. The fact that 68% of companies sought investments in 2019 points to the need for investments in the domestic gaming scene.

Figure 3: Specialization and revenues of domestic gaming studios by platform

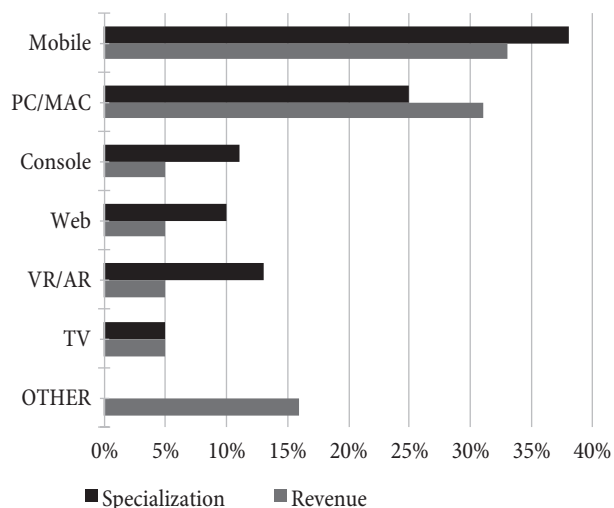
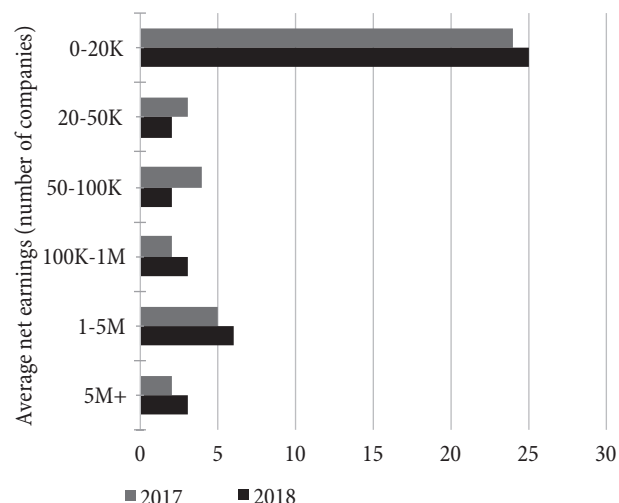


Figure 4: Average net earnings (number of companies) in 2017 and 2018



Asked to assess the current level of support from the chamber of commerce, i.e. the government, the majority of companies (64%) emphasized that they were not aware that any support existed; 18% stated that certain support did exist, but was not adjusted to the industry needs [28, p. 9].

Respondents least expect the government to provide financial incentives. Their expectations are predominantly oriented toward tax reliefs (40%) [28, p. 9]. They also harbour great expectations concerning changes in the curriculum and modality of the educational segment (18%) [28, p. 9]. A significant number of respondents also point to the need for support to international promotional activities (18%) [28, p. 9].

Figure 5: Assessment of current government support

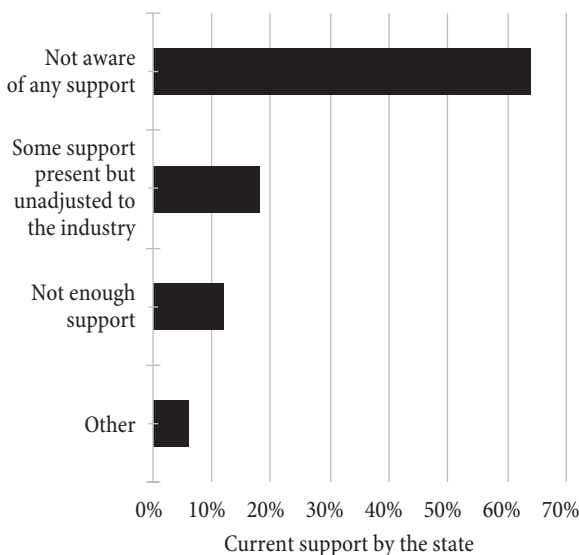
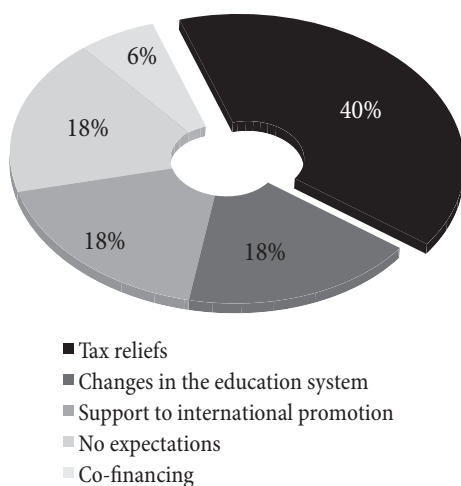


Figure 6: What kind of support do you expect from the government?



Discussion

Europe sees the gaming market potential in the inclusion of new technologies (AI – artificial intelligence, VR – virtual reality, AR – augmented reality) and games exports (competitive gaming at a professional level in an organized format - tournament or league) in which €2 billion was invested only in 2017 [15]. The Interactive Software Federation of Europe (ISFE) acknowledges that the positive impact of the gaming industry embraces social and cultural development, talent development and creativity, innovation development and achievement of economic results [15]. In 2018, according to Global News Wire, the video games market in Europe was worth \$19 billion and it is projected that it will be worth \$21.5 billion in 2020 [26].

Is it possible that the hitherto development of the emerging industries and projections of the tempo of their progress, including the gaming industry presented in this paper, provide sufficient grounds for stronger government support and better competitive positioning? The character of industrial policy in this area will be considered on the basis of the Porter’s Diamond Model which defines the quality level of the business environment [23, pp. 188-194]:

In terms of factor conditions, i.e. raising the level of access to high-quality factors (business inputs), the government should ensure the following:

1. High-quality local human resources who possess advanced skills and knowledge (technological and business) thanks to targeted curricula defined previously according to the gaming industry needs, or strengthening inclusion, i.e. gender equality, as well as employing foreign human resources by simplifying the procedure of issuing work permits to foreign experts (immigration policy change). The example of how the link between the educational system and gaming industry should be developed is provided by Finland (its annual revenue increased from €105 million in 2010 to €2.4 billion in 2015, [18]), as one of the most successful global examples when gaming industry development is in question: “During the past few years, Finnish games education has moved from strict curriculums to a more flexible

and student-oriented approach, where the first games are developed as early as possible, and where all the gaps between a formal and non-formal educational path will be bridged“ [11, p. 50].

2. Higher level of availability of capital which does not originate from the banking sector (Serbia adopted the new Law on Alternative Investment Funds which will be applicable as of April 2020), by enabling financing through various government funds with the aim of promoting the growth and sustainability of the gaming industry, supporting the protection of intellectual property rights and spurring the development of necessary skills, as well as creating the conditions for the collection of funds through crowdsourcing.
3. Conditions for building entrepreneurial culture through various entrepreneurship education programmes.
4. The ecosystem that promotes innovation through, for example, direct (construction) or indirect (financial assistance) provision of coworking business facilities, such as innovative hubs which promote cooperation and exchange of experience and knowledge, and provide start-ups with technological preconditions, such as high-speed internet.
5. Favourable preconditions for the provision of various support programmes – SSOP – Startup Support Organizations and Programs, as well as Go-Global support.

In terms of context, which facilitates the launching of new businesses (firms) and encourages investment, the government can participate by ensuring various incentives, adjustment of rules (e.g. the rule of law, tax incentives, protection of intellectual property rights), corporate governance, openness to foreign competition (absence of trade barriers, law on competition and antitrust legislation) and enabling easier access to money, as well as through:

1. Government participation in initial planning, R&D and marketing costs;
2. Tax refund introduction;
3. Regulatory sandbox (framework – for developing regulation that keeps up with the fast pace of innovation);
4. Regulation of the bankruptcy;

5. Tax incentives regarding travel and marketing costs.

In terms of related and supporting industries, the government can help through the formation of clusters – a cluster can be joined by educational institutions and creative industries – with a view to boosting innovative capacity. It can also help through the promotion and linking of the gaming industry with the sectors which need “serious games”, such as health care, education, personnel training and education, and the like. The economy relying on clusters is less exposed to external shocks and movements in foreign markets, since it competes and achieves competitive advantage on the basis of technology and differentiation.

In terms of demand, the government can help through an increased quality and volume of local demand, especially in the public sector where the use of “serious games” helped in the process of employee education and training (e.g. health care, education, defence, etc.). The Netherlands excels in its support to the serious games segment via subsidies and various funds, and Finland’s Tekes (a publicly funded expert organization for innovation) and UK Games Fund are also very relevant examples.

Successful implementation of the new industrial policy could yield the following results:

- Participation in a new global value chain; support to the creation of digital ecosystems and diffusion of innovations in many areas; increase in value added and GDP; attraction of FDI; job creation; arrival of foreign firms; reduced gender differences – diversity and inclusion [13, p. 24.]; increasing student motivation by including video games in the learning process and support to curriculum reform and method of teaching [14, p. 5]

Some initial steps have been taken in that direction. Amendments to the Corporate Profit Tax Law and the Individual Income Tax Law have introduced several tax incentives (accelerated R&D deduction; tax on income generated from intellectual property is reduced from 15% to effective 3%; tax credit of 30% for investments and start-ups; tax limit on marketing investments is lifted; change in the taxation of the employee participation programme; employee recreation costs are exempt from taxes and contributions).

Conclusions

The gaming industry is much more than merely a new and growing sector of the entertainment industry. It changes the methods of interactive communication, thus providing room for being used in many spheres of human life. It is based on global online connections, new technologies and innovation, thus resulting in new, digital business models and strategies also employed by the world's biggest companies. The experiences of the countries covered by the comparative analysis in this paper and the countries at a significantly higher level than the ones covered point to great expectations from the development of the gaming industry, accompanied also by significant financial incentives (Germany, Romania, Finland), as well as nonfinancial support. The provision of systemic incentives to the development of creative and technological potentials of the gaming industry can help the Serbian gaming community to become a sustainable and significant industry. It must be taken into consideration that this industry has multiple positive effects on the overall development thanks to its innovativeness, creativity and possible applications in other industries. Such an industry will enable Serbia to have a larger share in economic activities and highly qualified jobs created by this industry. It must also be considered that the gaming industry has a global character, which means that it is primarily export-oriented and that earnings generated abroad will be repatriated as a taxable revenue. The survey conducted in Serbia points out that government support to the tax relief segment, as well as the modernization of curricula, which will satisfy the needs of the labour market and, thus, the gaming industry, would mean a lot to the domestic gaming industry. The needs for relatively small amounts of capital were also emphasized. Strengthening of the gaming industry can certainly be of great help in Serbia's process of transition to the digital economy.

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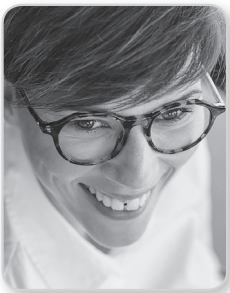


is Professor of Macroeconomics and Digital Economy at the Metropolitan University – FEFA. Mr Pitić holds a PhD from the Faculty of Economics, University of Belgrade and two MA degrees – from the Faculty of Economics, University of Belgrade and from the University of Toronto, Department of Economics. As a British Council scholar he attended a one-year Quantitative Development Economics Program at the University of Warwick. He is a member of the Supervisory Board of Metalac a.d. Gornji Milanovac. From 2005 to 2019 he was Chair of the Board of Directors of Société Générale Serbia. Furthermore, Mr. Pitić was Chair of the Board of Directors of the Association of Serbian Banks, President of the Fair Competition Alliance at NALED, member of the Board of Directors of the Foreign Investors Council in Serbia. From October 2000 to March 2004, he held the position of the Minister of International Economic Relations in the first democratic Government of the Republic of Serbia.



Miloš Kržić

is a professional with 24 years of working experience, 13 of which in CEO positions, and 16-year expertise in management, sales and marketing strategies, covering the market of former Yugoslavia. He worked in the leading regional IT companies (such as InterTrade, ComTrade and Saga) and global automobile manufacturing companies (Toyota and Peugeot). He currently occupies the position of General Manager at CROZ Serbia. In addition to developing advanced software solutions, this company also provides agile transformation consulting services that help organizations of different sizes and complexity to become more resilient and adaptive. Current areas of his professional interest include strategic management and digital transformation, with special reference to implementation of agile methods such as Scrum, Kanban, etc. As for his academic career, Mr. Kržić is a PhD candidate at the Metropolitan University – FEFA.



Aleksandra Vuković

is the founder and creative strategist of the Nura Agency specializing in communication and innovation design. During her 10-year professional career, Aleksandra was professionally evolving in technological start-ups and digital agencies, holding the positions that merged communications, technology and art. This taught her to connect these seemingly different areas in her own business and oriented her towards innovation design and specialization in design thinking. Apart from communication practice, today her agency also successfully provides design thinking training and creates sprints for its clients. As for her academic career, Ms. Vuković is a master's degree candidate at the Metropolitan University – FEFA.



Marija Ilić

is the co-founder and Chief Product Officer at Two Desperados, a video games development studio. She is also Board member at the Serbian Games Association, a non-profit, non-government organization, whose goal is to support the growth of the video games sector in Serbia. Her first love being video games, it only seemed natural to pursue her career in creating fun, challenging and addictive casual games. Ms. Ilić is an experienced game producer and project leader with more than 14 years of experience in management/ leadership roles in IT and over 9 years of experience in games development. Both technical knowledge and background in games, movies, literature and art provided her with a strong ability to interact with various team types on a project. She is the go-to person in the team if you are unsure what actions to take in order to develop an idea into a successful final product.