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VIDEO GAMES AS AN APOGEE OF CREATIVE INDUSTRIES

Summary: Video game industry is one of the most dynamic and fastest-growing industries in IT sector and in creative industries sector in general. The authors of this paper try to explain the reasons why video game is a commercial pinnacle of creative industries. Furthermore, they analyze influence of new technologies, interdependence of hardware and software industries, as well as new habits of consumers which create every mobile phone or tablet into a gaming system. The authors also analyze demographic data on video game players that might determine the future of video game as a medium. The paper concludes with estimation on further progress of video game industry in technology of virtual and extended reality.

Key words: Video game, entertainment, creative industries, technological advancement, consumer habits

Introduction

The fact that is already undisputable is that the video games are the most significant global phenomenon to start this century with, not only in domain of culture, but life in general. The most expensive product of entertainment industry is video game Destiny. Total costs of production and promotion amounted to 500 million USD[1], which is much higher figure than the budget of the most expensive movies (*Pirates of the Caribbean: At World's End)*, with a budget north of 300 million USD. In addition, tenth most expensive video game to be produced was Tomb Raider from 2013 which costed 102 million USD[2].

Although virtually non-existent until 50 years ago, video games became planetary business whose revenues grow annually like a clockwork. Video game

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[1] http://www.businessinsider.com/the-most-expensive-video-games-ever-made-2014-7#destiny-500-million-10 retrieved on 06. 06. 2018

[2] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

industry will generate more than 100 billion USD this year in revenues. The industry applies immense influence on industry of computer hardware and gives impetus to that branch of the industry which couldn't be possible without the money of hundreds of millions of players. With vast financial investments, video games are getting better and better, more interesting and more desirable, and it creates a magical *circulum vitiosum* of game as a species-aged human dream and dependence of virtual world managed by ourselves, and where unlike anywhere and anytime before in the real world, one can be everything, even a god. Development of nanotechnology creates hardware so tiny and powerful that tens of millions of people play video games on their handheld devices. Accelerated growth of all branches related to video game industry makes predicting long-term trends practically impossible, but the fact that neither recession nor the prolonged financial crisis did not diminish returns or growth of the industry, so the question arises what can stop these trends and remove people from video games as a dominant model of entertainment in 21st century.

All indicators point that video game industry already surpassed other creative industries, and even Hollywood. The fact that in the time of digitalization and displacement into digital cultural space video game is the most suitable form, like it waited since its inception for all the pieces to fall to their places and create a picture which tells that the industry will continue to grow, and it is hard to predict an event that could jeopardize the situation.

Available data illustrate the fact that the players of video games are nearly permanent category, as the average age of the most frequent buyers of video games is 40 years, while average age of player is 34, and they play video games for the last 12 years. That means that the largest number of people who once started with playing video games never ceased to play, with a constant influx of new players, coming from both young people who are coming of age and people who were traditionally non-players who entered the world of video games through social networks and handheld devices. Large film studios have established their interactive divisions that produce video games, and some of them, like the *Warner Bros. Interactive* [3] found their footing in the new field, but that field is an arena where the main players are already known, and these are publishers who built their position for years exclusively in the field of video games.

Hardware manufacturers continually release more and more powerful components, which constantly increases the quality of video games for computers, while console manufacturers are always preparing for the next generation. The console war is now fought between three sides – Nintendo, Microsoft and Sony. Nintendo leads in sales of both console and dedicated games, despite being somewhat technologically inferior to their main competitors. Next-gen consoles planned by Microsoft and Sony will push the boundaries once again, while they constantly release new models of the consoles of the current generation. When Nintendo released its Wii console, it was perfectly timed with motion control input device revolution. Previous generation of consoles by Sony and Microsoft followed the 3D entertainment trend, while new models of the current generation are designed to support 4K HDR gam-

[3] *Warner Bros. Interactive* Entertainment (WBIE)

ing. Consoles have a longer life cycle than the computers, as Sony presented PlayStation 3 in 2006, PlayStation 4 in late 2013, which is in line with previously adopted life cycle of seven to eight years between releasing brand-new consoles. There are rumors that Sony will release its ninth-generation console tentatively titled PlayStation 5 in 2020, but that is yet to be officially confirmed. That differs strongly from the release practice of computer hardware manufacturers, who push the boundaries every year with their next-gen products. Yet, the consoles remain in the race without significant improvement of hardware, and the games that are published are getting better. That is due to elaborate design of the consoles, which offer potential the software makers cannot completely use at the time of the release because they are yet to create products that can use larger percentage of existing computing power in the consoles. It remains to be seen whether the accelerated growth of the industry in whole will push the timetables of console manufacturers, but as we could see over the last three generations, their life cycle remains similar to what was projected two decades ago.

Video games

If the first theoretical thought about games is dated to the age of Heraclites [4], then we have descriptions and definitions of game spanning two and a half millennia. Regardless of accuracy and applicability of these theories, they still do not contain and do not reflect the current zeitgeist[5]. Humankind has changed, and the world has changed. Even in times when Huizinga and Callois gave their definitions of game, there was no professional sports, nor electronic games. Physical and mental efforts modern athletes apply daily are bringing the modern sport, which is still considered a game, to apocalyptical dimension of a corporate game depicted in a cult classic movie Rollerball[6].

While keeping everything that is fundamental and unchangeable as much as a man is unchangeable, the theory and definition of the game shall be refreshed and improved with elements which we now *in flagranti* have, as well as with elements we can say with certainty we will have in near future. Our definition of game, with short theoretical framework, which in addition to traditional and already defined elements includes virtual reality games could be said as:

Game is a free activity of conscious beings that due to demands of the being of the game are consciously moved to spatially and temporally limited reality in physical or virtual reality, while accepting previously defined rules of the game, or, if the being of the game allows or envisages it, creating the rules on the spot[7].

[4] 535–475 BCE

[5] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

[6] Rollerball is a sports science fiction film depicting dystopian society in the USA in 2018. The hero of the story is Jonathan E, the best player of Rollerball in the world. Film was made in 1975, written by William Harrison and directed by Norman Jewison о својој причу „Roller Ball Murder. Протагонист филма је James Caan (Џонатан)

[7] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

Unconditional acceptance of changed reality and respect to the rules of the game are mandatory condition of the game, and the goal of the activity is the game itself as a real activity, or as a meta-activity in mandatory meta-reality. Aesthetical, ethical and logical reception of the being of the game as a phenomenon temporarily situated in „meta-reality within the reality" is based on customized adequate strategies that create the world of the game with in any other place impossible relation of the player, life (reality) and game, with meta-activities equally susceptible to sensory as much as to higher cognitive forms of aesthetical and ethical processing. Existence of the being of the game is limited only by existence of the player and the game, and the being of the game is given and unchangeable as much as is the[8].

Video game is something more, despite primary being a game. It is an integral part of social and ontological corps of a game. In his doctoral dissertation Aleksandar Filipovic wrote a definition of video game, which says that video game is a game created in the form of software and played using appropriate hardware and is a designed ethical object in which one or more players, using their own experience of playing the game completes its goals by using already existing mechanics and rules of the game that cannot be changed by will of one or more players outside already embedded values[9].

The same work continues with studying of specifics and unique aspects of video game, so the more abstract definition follows, oriented to interactivity and relation between the player and the world of a video game.[10]

Video game is a game in a virtual reality, oriented to player without whom it cannot exist, where the player, interacting with hardware, activates already defined game software, and together, within inner space and time of the game create its alternative-reality world whose visible being is shown on the display of an electronic device while virtual being remains inside the parallel world of the game together with the player's avatar, with either being not being aware or dependable on the other.

Creative industries

The term itself, often synonymous with terms creative economy or cultural industry, generally refers to certain economic activities tied with creating or exploitation of knowledge, creativity and information. Usage of the term began some two decades ago, to logically integrate several creative activities comparable in size and revenues to traditional industries but employing human creativity as a resource. It comprises advertising, architecture, art, crafts, design, fashion, film, music, performing arts, publishing, R&D, software, toys and games, TV and radio, and video games[11]. Since the usage of the term began it became a bit controversial, as many artists dislike their work being deemed industrial.

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[8] Ibid

[9] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

[10] ibid

[11] *Howkins, John (2001),* The Creative Economy: How People Make Money From Ideas*, Penguin, pp. 88-117*

Central term for understanding creative industries is a concept of intellectual property, meaning the value of the idea that can be protected by copyright, patents, logo or other legal or regulatory mechanism to prevent its copying or transformation in commercial value without permission of author or property holder. Basically, it is the exchange of finance for rights in intellectual property[12].

It is important to stress that development of creative industries is an important component of forthcoming Industrial Revolution 4.0, which mean increased automation of manual labor, meaning potential to increase the revenues and increase the value of life of people around the world by giving routine jobs to the artificial intelligence. People living in developed countries already enjoy the perks of interconnected world, as well as new items or services created to exploit the potential of technology.

This new era is a complementary process, consisting of overtaking of routine labor by robots and artificial intelligence, which will leave time and space to humans to work on creative jobs, which will be protected for automation, because no existing algorithm can think creatively. Vestiges of the Industrial Revolution 4.0 will affect the global employment. Research by University of Oxford estimate that 47% of jobs in the USA will be replaced by robots in the next 20 years, but the research of Nesta called Creativity versus Robots claims that the creative sector is immune to this threat to some degree, with 86% of creative jobs in the USA and 87% in the UK have low or no risk of being obsolete due to automation.[13]

Video games as the most lucrative business of the creative industries

We are witnessing the fact that hundreds of scientists and inventors permanently work on creation and implementation of new inventions and technologies. Much of that effort never come to fruition, but it represents an inception of something someone other will make to work and who will be remembered as bringers of something new and better. Therefore, we have an unwritten rule that for generations some products or ideas are presented as completely original in fact are not[14]. Nearly every new product, with properties that are authentically and endemically their own, actually carries numerous elements from various products from the past, while following the complete unbroken string of circumstances that brings each thing to each moment in time. It is the same with video games. Video games are a sum of different artistic and technological achievements from the past, which caused their genesis and existence. What happened later, and what is still happening is evolution, differentiation and specialization of the video game as a product of cultural industries. With increasing recognition and popularity starting from its early days, video game

[12] *Lash, S; Urry, J (1994),* Economies of Sign and Space, SAGE, p. 117

[13] https://www.nesta.org.uk/report/creativity-vs-robots/

[14] For instance, strategic games are present in every modern culture, but they are not their invention. The oldest ones are chess, from Europe and Middle East, go in Asia or less-known game mankala in Africa. All these games are based on a principle of confronting different strategic systems where turning opponents weaknesses to own advantages is a path to victory

increased its value as a part of cultural industry and became a dominant factor of its own growth, independent from anything other, and it didn't stop there. Through symbiotic relationship video game helped all the branches that made it into existence and became a catalyst for their respective growth. Video game became an important part of the IT industry, and a catalyst for technological progress of certain parts of computer hardware industry, especially in fields of graphics processing and physics processing.

Said symbiotic relationship is a game with a positive sum[15], to use the term from game theory, because in addition to technological advance which guarantees better product,[16]. We shall have in mind that the limit on visual, design, narrative and every other quality of a video game is determined by current hardware capabilities, because when it comes to software, it is always possible to make a game more realistic, complex or interactive, with only remaining question being how much information per second dedicated processors can process, whether they are installed in a computer or in a gaming console. It is questionable whether the Moore Law[17], according to which computing performances double every 18 months would still be true if the software manufacturers did not set harsh hardware configuration requests and by doing that forced consumers to buy new hardware. Again, the most important role in that process was played by video game, although we cannot overlook the myriad of professional software, which is purchased by less people than video games, but their individual prices are much higher and so is their revenue.

The abstract video game production model is similar to abstract production models of several performing arts. Production cycle includes pre-production, production where several different groups of professionals work on certain aspects of the final product, post-production, marketing and sales. Organizational structure depends on the size of the production company, and in companies whose good results lead to growth, which is a bit complicated as horizontal and vertical growth are combined.[18] Similar to film industry, in video games industry production companies need distributors, called publishers in video games, and who are, like in film, main cogs of the industry and major financiers to production companies. There is an independent scene as well, consisting of relatively small video game manufacturers who use Internet as the distribution channel and work almost without marketing, so their share is not significant, especially when compared to independent film scene that has recognition and following, if not money.

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[15] According to mathematical game theory, a game with a positive sum is a game where all the players get something, in contrast to games with a negative sum, where all the players lose something, or games with zero sum, where one players wins everything while other players lose everything

[16] Video game manufacturers often set too steep hardware configuration for playing the game, whether it is a new set of graphics chips or only an ability the new generation of hardware has, and by doing that the stimulate sales of graphics cards, whose main application is in video games

[17] Gordon Moore, one of the founders of Intel, in an interview from 1965 formulated a thesis that, if then-current trends continue, processor manufacturers will be able to place two times more transistors on the same space every 18 months due to decrease in size. His position was explained by one of the Intel directors David House when he said that it means that processor performance will double every 18 months, as a direct consequence of doubled number of transistors. Although Moore predicted the trend will last for 10 years, it is still applicable, so that Moore's thesis is therefore called the Moore Law

[18] Maričić Nikola: *Menadžment radija*, Beograd 2007, 54

Conclusion

The statements on importance of video games as a part of creative industries, and that it left other creative industries far behind are best told through numbers. American Entertainment Software Association publishes annual reports on video games industry, and for the last year, some interesting facts from that report follows:

– 64% of American households own a device that they can use to play video games
– The average gamer is 34 years old
– 45% of gamers in the USA are female
– Gamers older than 18 years old represent more than 70% of video game playing population
– 60 percent of Americans play video games daily
– The total consumer spend on the video game industry in the USA was 36 billion USD in 2017
– There are 2,711 video game company locations across 84 percent of the congressional districts in America
– There are now 65,678 workers directly employed at game software publisher and developer locations in the US.
– Employees in the industry earned an average compensation of $97,000 per year
– The US video game industry's value added to US GDP is more than $11.7 billion[19]

Here we shall stress that the ESA research surveyed only the United States, and while some trends, like demographics, will remain the same when viewed globally, some numbers would be multiplied, total revenue in the first place. Here are some facts from another research that compiled numerous researches from all over the world to provide statistics on a global scale:

– The video games market is expected to be worth over 90 billion U.S. dollars by 2020, from nearly 78.61 billion in 2017
– There are more than 2.5 billion video gamers from all over the world
– Asia Pacific reached a revenue of 51.2 billion U.S. dollars, making them the largest gaming market in 2017
– China covers 41% of the video game market revenue worldwide, making them the first on the list as of October 2017
– United States covers 32% of the worldwide gaming market revenue as of October 2017[20]

As we can see, the numbers are fascinating, and tell a story of a fast-growing industry whose stakeholders are a third of the world's population. When technological innovations are added to the existing mix of the perfect form of escapism, interactivity and freedom, it is easy to predict that the video game industry will continue to grow both horizontally and vertically. The Internet of things, or the Fourth Industrial Revolution will bring new ways and new means of play, combined with increased quality of displays will make it even easier to immerse in meticulously detailed game worlds. Next generation of gaming consoles are around the corner, and

[19] http://www.theesa.com/wp-content/uploads/2018/05/EF2018_FINAL.pdf
[20] https://www.wepc.com/news/video-game-statistics/

they will even bring support for 8K displays in high dynamic range. 5G cellular network technology that provides broadband access will create new possibilities for mobile gaming. And as we said earlier, video games have always been a catalyst for all the fields that helped it to come to be, so it is safe to say that we live in the Golden age of gaming.

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ВИДЕО ИГРА КАО АПОГЕЈ КРЕАТИВНЕ ИНДУСТРИЈЕ

Сажетак: Индустрија видео игара је једна од најдинамичнијих и најбрже растућих у ИТ сектору и сегменту креативних индустрија уопште. Ауторке у овом раду настоје да објасни разлоге који видео игру чине комерцијалним врхом индустрије забаве. Ауторке анализирају утицај нових технологија, међузависност индустрије софтвера и хардвера, као и нове навике корисника које од сваког мобилног телефона или таблета стварају платформу за играње. Ауторке дају и демографске податке о играчима видео игара који би могли да одреде будућност видео игре као медија, будућност која је иначе одређена технолошким напретком. Ауторке предвиђају даљи прогрес индустрије видео игара у технологији виртуелне и проширене реалности.

Кључне речи: Видео игра, забава, креативна индустрија, технолошки развој, потрошачке навике