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## Application of crowdfunding to video game projects financing

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### Abstract

After the financial crisis in 2007 started, many of the new innovative companies didn't have the access to the capital. The chance for them was crowdfunding. Nowadays, facing the coronavirus pandemic, this innovative method of financing becomes a mainstay in development of video games as well. The video game market has developed rapidly over the last over a dozen years, but not all of the creators have the possibility for the traditional funding. This article presents the results of research aimed at examining the availability and use of crowdfunding – the innovative source of financing of projects on the video games market. The research methods used in the article are an observational method and a method of individual cases as well as the rational reasoning on the basis of achieved results.

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## 1. Introduction

The video game market has developed rapidly over the last several years, which is due to many reasons, mainly the benefits to users and the profits that the producers of these games achieve. Many platforms, such as Google Play, Apple App Store, Steam, PlayStation Store or Xbox Game Store offer convenient access to products and services for players like they never had before. What's more, mobile and online games are available online as free or freemium versions. Users gain the opportunity to try the game without paying. At the same time, for producers this means an increase in interest in software, and satisfied customers, often making in-game purchases, provide them with high revenues in the future. The game publishers eagerly reach for the characters and concepts of games popular several decades ago and thus create a new offer for slightly older generations, for whom they were the first computer games, e.g. 40 years ago. The huge increase in computing power of consoles, smartphones and tablets brings entertainment quality to a much higher level. New standards such as HD, 4K or 8K resolution, HDR quality, virtual, augmented and mixed reality intensify the feeling of immersion and lead to blur the border between the real world and video games. This dynamic development of technology and entertainment, as well as the constantly growing interest of users drives the development of new projects that need new sources of financing, especially for start-ups and creative companies at an early stage of development.

The sector of video games has typically been financed by the developers themselves or by the large publishing companies. The possibilities of funding can also come from government incentives or from private funding. The problem is when the video game is just an idea of the initiator and does not have any possibility for traditional funding. This article presents the results of research aimed at examining the availability and use of crowdfunding – the innovative source of financing of projects on the video games market. The research methods used in the article are an observational method and a method of individual cases as well as the rational reasoning on the basis of achieved results.

## 2. Literature review

The financing of video games and entertainment is an important research area around the world. Funding for the video games market can be done via different sources. The market of entertainment and video games can be considered as the part of art and culture as well. Some researchers draw a difference between arts sector that is unique and cannot be reproduced (like performance in theatres, museums) and cultural industry (like film, music, video games) that can be reproduced many times [Colbert, 2007]. Goggin (2011) also made a research about the funding of entertainment (in the meaning of, film, fiction and computer games). A wide spectrum of financing possibilities for cultural industry was presented by various researchers. The main problem for financing cultural projects in general meaning is that the sources are insufficient. Apart from this, in the aspect of video games the result is unsure. The creators have an idea but they do not know if it is acceptable by the potential players. Therefore, alternative forms of financing cultural initiatives should be sought.

The European Union also dealt with the subject of broadly understood cultural and creative sector. The 2015 report shows solutions and plans for financing cultural and creative sector (CCS) until 2018. [European Agenda for Culture, 2016]. The cultural and creative sector is more and more important not only on the local but also on regional and European level [Bestvina Bukvic, Sain, Harsanji 2018]. Crowdfunding was also among the funding options for culture exchanged at EU level [Boeuf, Darveau, Legoux, 2014]. It is one of the crowdsourcing types which can play an important role for CCS [Ridge 2014]. Crowdfunding can be described as “a collective effort by people who network and pool their money together, usually via the Internet, in order to invest in and support efforts initiated by other people or organizations” [Ordanini et al., 2011, 444].

The similarities and differences between crowdfunding and crowdsourcing in Manufacturing and Services Sectors were presented by Allon & Babich [2020]. Some researchers tried to find correlation between crowdfinancing and patents [Meoli, Munari, Bort, 2019]. Some of them proposed a model where consumers can act as investors and make the capital allocation to innovating companies through crowdfunding [Grüner, Siemroth, 2019].

The role of crowdfunding developing. It started to develop as a consequence of the financial crisis in 2008. Traditional financing was almost impossible to obtain for SME's after the financial crisis. Credit institutions and

banks refused to lend money even to profitable and successful businesses. Paradoxically, the financial crisis was a chance as well – for the alternative forms of financing– both from within the existing financial sector and through newcomers.

Different scientists made research about crowdfunding. The challenges and benefits of crowdfunding to facilitate community-led projects were analyzed by Gooch et al. [2020]. Attention is drawn to the fact that prior financing certifies projects' quality and minimizes information asymmetries in crowdfunding [Kleinert, Volkmann, Grunhagen, 2020]. The subject of the importance of public policy in transforming ecosystems and supporting the creation of functioning ecosystems based on new forms of finance is also being discussed [Cicchello, 2019]. Increasingly, attention is paid to additional (non-financial) benefits that crowdfunding can bring, called inward and outward benefits. [Wald, Holmesland, Efrat, 2019]. Those benefits are known as the non-financial forms of capital that entrepreneurs can take from their investors [Macht, Champan, 2019]. This is especially important in the case of the CCS (culture and creative sector) industry.

Researchers also raise the significance of geographical location of the investors and platforms for the success of campaign [Gallemore, Nielsen, Jespersen, 2019]. In the case of crowdfunding, the platform and its recognition are also very important. What's more, often even a good project may not raise the expected level of funding, because its originators did not find a platform that could properly promote the project and encourage financial support. [Bi et al. 2019].

The research on crowdfunding culture and creative sector funding can be found in the literature, but there is still a gap of study in this area, especially regarding the financing of the video games market. The authors decided to contribute to covering the identified research gap.

### **3. The global video games market**

On the Digital Media market, total revenues reached USD153.3 trillion in 2019, and the share of video games was 54.2% (Statista), which means that it is the largest sector in this market. Other sectors are: video-on-demand (21.3%), ePublishing (15.6%) and digital music (8.9%). At the same time, it was estimated that the number of video games users in the world in 2019 was 1.78 billion people, which resulted in the highest level of ARPU (Average Revenue per User) from the entire Digital Media industry, which reached USD46.5.

In the 21st century, the global video game market is driven primarily by applications for smartphones and tablets (mobile games), which is closely related to the increasing availability and performance of these devices. At the same time, hardware and console games lose their importance, and their publishers must carefully watch the changing trends. At the same time, the market is becoming more open to new producers who want to develop new projects.

In recent years, you can observe the growing popularity of games that require competition, especially interaction with other players, and not only in situations where the opponent is a computer. The concept of eSports has long been known, and organized tournaments of video players with high cash prizes attract many participants and observers. An example was the event called Clash of Clans World Championship 2020, with a grand prize of USD1,000,000. It was supposed to be a great event prepared for several thousand fans of this mobile game. Unfortunately, the Coronavirus epidemic (SARS-CoV-2, COVID-19) thwarted the plans of the organizers of this competition in Poland. The competition finally took place but the audience of the great congress hall was empty and the fans followed the online meeting.

The development of eSports is closely related to the possibility of video game live streaming on platforms such as Twitch or Youtube. These services have many fans, especially among children and teenagers, and the interest in the games played by the most popular idols is compared by these young people to the interest of soccer, American football or basketball matches shown by older generations.

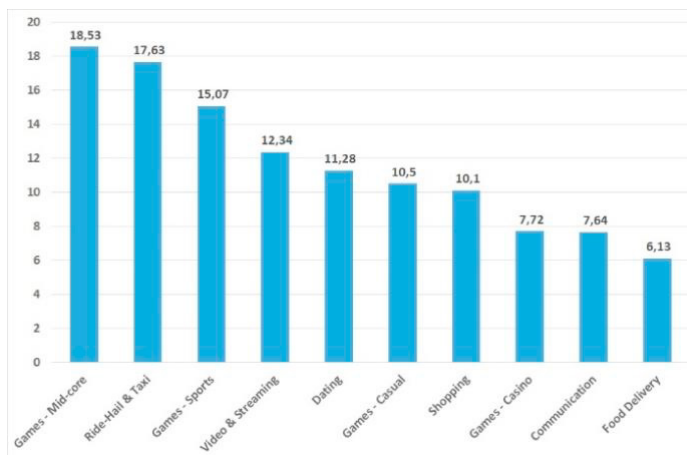


Fig. 1. Global mobile data traffic CAGR from 2017 to 2022, by region

Last but not least element of the video game market are the cloud gaming services offered by many suppliers. The development of these services in 2010-2020 can have a significant impact on traditional video game platforms, i.e. personal computers (PCs) and consoles. This is evidenced by the rapidly growing number of users of gaming clouds. An additional factor contributing to the development of the sector will certainly be the outbreaks of coronavirus and quarantine forcibly introduced in many countries.

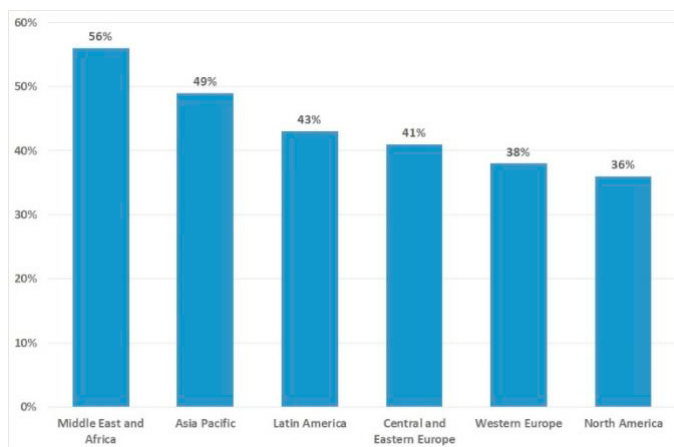


Fig. 2. Fastest growing mobile app categories in 2018, by categories, in [%]

Among the data that allow predicting future trends in the development of the video game market, attention should be paid to the CAGR (compound annual growth rate) of global mobile data traffic. Using data from the years 2017-2019 and the forecast for the years 2020 to 2022, it can be expected that data traffic will increase by 56% annually in the Middle East and Africa and 36% in North America (see Fig. 1).

The conducted research shows that among the TOP-10 mobile applications with the highest growth rate in the number of installations in 2018, as many as 5 belonged to the group of games. The fifth category that can also be included in the gaming market is "Video & Streaming" (see Fig. 2).

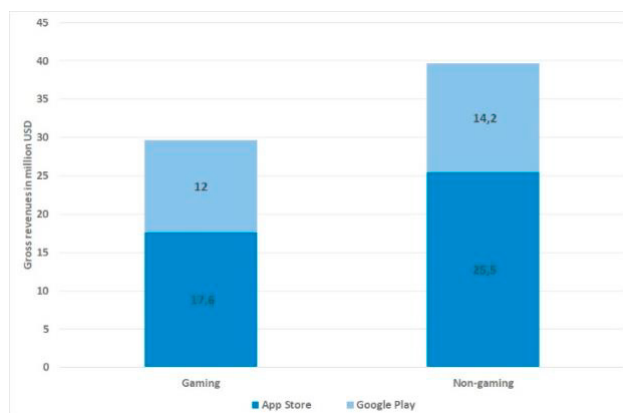


Fig. 3. Mobile app store revenues for gaming and non-gaming apps worldwide during 1st half 2019 (in billion U.S. dollars)

In the first half of 2019, revenues from mobile applications for games and applications other than registered games worldwide reached USD69.3 billion, of which the share of gaming apps was USD29.6 (43%) and non-gaming apps USD39.7 billion (57%). On the Fig. 3. there is shown the distribution of these revenues between the two main stores, i.e. App Store and Google Play. It can be assumed that in 2020, due to the coronavirus epidemic, revenues will increase significantly in both categories, and this trend may continue in subsequent years.

In order to systematize further considerations on innovative forms of financing, Table 1 presents the classification of video games. On this basis, you can deepen the conclusions of your research, as well as indicate for what types of games crowdfunding is the most appropriate source of funding for new projects.

Table 1. An example of a table.

Category	Mobile Games	Download Games	Online Games	Gaming Networks
Type of devices/access	Smartphones and tablets	Gaming consoles or PCs/laptops	Different devices	Gaming consoles
Pay to play	Paid app-downloads (single purchases)	Paid online sales of video games via direct download	Subscription-based games like massive multiplayer online games (MMOGs); casual and social games that can be either played directly in the internet browser or via clients that need to be installed.	Subscription-based access to online premium services
Free to play	Freemium games that are free to download, but allow in-app purchases	X	Freemium games with in-game purchases for additional premium contents or functionalities	X
Store/Vendor	Google's Play Store, Apple's App Store	Steam, PlayStation Store or Xbox Games Store	On line stores	Xbox Live Gold, PlayStation Plus, or Nintendo Switch Online
Additional features				online multiplayer gaming; monthly changing collection of free games, exclusive or early

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access to upcoming games; fee-based subscriptions allowing subscribers to access a constant as well as continuously growing library of playable games.

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Source: own elaboration

As you can conclude from the table (Table 1) presenting the types of games, platforms that facilitate access for users, as well as payment methods, the development of computer, software and network technologies radically increases the potential of the video games market. Complicated games with many threads and ways of playing the game are gaining popularity among players, as well as simple projects, which, however, can catch the attention of players for a long time. It is clear that both types of projects differ in scale and budget. However, in both cases crowdfunding works well as a source of financing, especially when the originators are not creditworthy or intend to raise capital and at the same time want to promote the project among future users.

#### 4. The idea of crowdfunding

Crowdfunding is the practice of funding an initiative by raising money from a large number of people (crowd) via the Internet [Dresner, 2014]. The idea of funding by the crowd is not new. One of the most famous examples of such an initiative was fundraising campaign for financing of the pedestal for the Statue of Liberty. It was announced by Joseph Pulitzer in the New York World, his newspaper.

The growing importance of crowdfunding in economy has started during the financial crisis in 2007, when the traditional form of capital was highly limited or even inaccessible to organizations and entrepreneurs. It started to be an alternative opportunity to traditional funding like bank loans or credits. The first country that allowed the development of crowdfunding was the United States of America. The first changes in law because of crowdfunding were made there with the JOBS Act [Cunningam 2012]. Crowdfunding came soon to Europe and Asia as well [Brüntje, Gajda 2016; Jiazhuo G. Wang et al. 2018 ]. The initiative that made crowdfunding more popular was the collection for the presidential campaign of Barack Obama. The crowdfunding has been explored in various fields and disciplines since 2010.

The table 2 presents the value of crowdfunding projects since 2014 till 2019 with the prediction for 2020-2023 (the prediction was estimated before COVID-19 pandemic).

Table 2. Value of crowdfunding projects

Year	Value in USD million
2014	597.14
2015	762.52
2016	738.9
2017	3 979.4
2018	5319.2
2019	6 923.6
2020	8 537.3*
2021	9 963.2*
2022	11 113.7*
2023	11 985.6*

\*Prediction

Source: ICO Partners, <https://icopartners.com/> access 28.03.2020.

The scientists consider that the wisdom of crowds in financing plays important role [Polzin, Toxopeus and Stam 2018]. A number of scientific papers have emerged including descriptive approach and case studies [Ingram, Teigland, Vaast 2014; Tomczak, Brem 2013]. Various models of crowdfunding appeared along with the

development of crowdfunding. There are different types of crowdfunding. There can be distinguished four main types of crowdfunding, depending on the forms of benefits associated with project support [Belleflamme, Lambert, Schwienbacher 2013]:

- donation-based crowdfunding,
- reward-based crowdfunding,
- equity-based crowdfunding,
- lending-based crowdfunding.

If there is no financial return for the funder, donations and reward-based crowdfunding occur. The donation model is usually characteristic of charity and social actions serving the good of the general public in which the funder gains no profit. In comparison, the funder receives a reward or bonus in gratitude for taking part in the initiative in the reward crowdfunding model. These rewards can have a material dimension (e.g. a record, book, game) or an intangible dimension (e.g. a diploma, meeting with the author, a picture). The more donor gives, the better the reward is. This kind of crowdfunding is popular for the musicians, theatres but also video games [Laudon, Traver, 2020].

The last two types of crowdfunding relate to the situation when financial return is involved in the campaign. They can be classified as either lending or equity crowdfunding. Equity crowdfunding is similar to the contribution to the company by shareholders-donors become co-owners of the idea in proportion to their contribution. The equity crowdfunding can even dominate on the seed capital market in the future. It can be a strong competitor for investors such as private equity or business angels. The value of equity crowdfunding in 2016 for the first time exceeded the value of Venture Capital Funds [Löher 2017]. Scientists predict that the importance of equity crowdfunding will increase. The World Bank estimates that by the end of 2025 equity crowdfunding will be worth more than USD93 billion [The World Bank 2013]. The other type – lending-based crowdfunding is when the investor expects a financial return on invested capital with interest. The platform is an intermediary between originators and investors, but they don't create deposits or accumulate assets and they don't provide guarantees for investors. Platforms give the possibility for the funders to choose a specific project with the risk they want to take. The lending model is also more and more popular on the market. Apart from the main four forms of crowdfunding, there are other models which are often a combination of the forms mentioned above.

The crowdfunding platforms play important role in the whole process of raising money. There can be distinguished two main types of crowdfunding platforms – KIA (“Keep-it-all”) and AON (“All-or-Nothing”). The creator keeps the entire amount of money regardless of whether or not it reached the designated goal in the KIA type. The transfer of money goes to the originator only when 100% of the value of the collection is achieved in the AON type. In a situation when the collection fails, the money returns to donor accounts.

Many great products and services saw the light of a day thanks to the crowdfunding model. They probably would never have been created in another classic financing model, because no investor would have been crazy enough to support such uncertain projects without any incomes, history and money. Crowdfunding also involves the risk of project failure. It should be remembered that even a successful collection does not always end with the premiere of the product. It is also very good possibility for video games market. Many of players and fans of video games can be interested in paying some money and in the result have some influence on the game.

## **5. The analysis of video game projects realized on Kickstarter**

One of the most recognizable crowdfunding platforms Kickstarter was launched in 2009, shortly after the financial crisis began [<https://www.kickstarter.com> 2018]. The founder of this platform was a musician who wanted to gather money for his music projects. He also wanted to give other artists and musicians an access to the capital. There were realized more than 180 thousand projects for the total sum of USD4,9 billion since 2009. This platform works on principles “All or Nothing”, the total fee is 8-10%. Everyone who starts a Kickstarter campaign must specify their financial goal (how much money is needed for the project) and the date of its achievement. If the goal is reached before the set date, the collection will last until the originally planned end date of the campaign - there is no upper funding limit. The campaign can last from 1 to 60 days. In the beginning only American innovators could make project creation on Kickstarter. It is also available for people from UK, Canada, Australia, New Zealand, the Netherlands, Denmark, Ireland, Norway, Sweden, Germany, France, Spain, Italy, Austria, Belgium, Switzerland,



Luxembourg, Hong Kong, Singapore, Mexico, and Japan in 2020. Innovators from other countries have also the possibility to gather money but they have to register an activity in one of those countries.

Gaming is one of the most popular categories on this crowdfunding platform. Crowdfunding is a good way for independent game developers who need capital but also want to connect with an audience and fans. The interest in this form of crowdfunding in the video games sector increased after the success of the Double Fine Adventure collection at Kickstarter in 2013. The goal was to collect USD 400,000, as a result raised over USD3.3 million from over 87 thousand. users. This project showed video game developers that it is possible to obtain financing for projects without the support of banks or other financial institutions. The video games category is one of the three most active categories of projects on Kickstarter. Some authors even indicate that crowdfunding is a type of game - game for money.

Table 3. Video games projects on Kickstarter

Year	All video games projects	Successful video games projects	Successful projects in relation to all the projects	Money pledge (in USD)
2012	987	239	24.21%	37 367 478
2013	1504	397	26.40%	47 679 832
2014	2081	418	20.09%	20 370 108
2015	2222	374	16.83%	41 507 653
2016	1955	388	19.85%	16 509 280
2017	1728	358	20.72%	17 233 792
2018	1501	352	23.45%	15 862 307
2019-1st sem	678	193	28.47%	10 194 355

Source: Statista, <https://www.statista.com/outlook/335/100/crowdfunding/worldwide#market-revenue>

Most projects were submitted in 2015 (2,222 projects) but also the lowest percentage of successful projects was recorded (16.83%) then. The highest percentage of successful projects was recorded in the first half of 2019 (28.47%) and in 2013 (26.40%). Most funds for successful projects were collected in 2013 (over USD47 million). At least in 2018 (taking into account the whole year), see table 3.

The table 4 presents the top 10 successful projects on video games on Kickstarter since 2009 till 2019.

Table 4. Top 10 successful projects of video games funded on Kickstarter

Project name	Created	Campaign goal	Pledged	Backers	Average contribution	Country
Shenmue 3	YS Net	2 000 000	6 333 295	69320	91,36	Tokyo, Japan
Bloodstained: Ritual of the Night	Koji Igarashi	500 000	5 545 991	64867	85,50	Tokyo, Japan
Torment: Tides of Numenera	inXile entertainment	900 000	4 188 927	74405	56,30	Newport Beach, USA
Project Eternity	Obsidian Entertainment	1 100 000	3 986 929	73986	53,89	Irvine, USA
Mighty No. 9	comcept USA LLC	900 000	3 845 170	67226	57,20	Tokyo, Japan
Double Fine Adventure	Double Fine and 2 Player Productions	400 000	3 336 371	87142	38,29	San Francisco, USA
Ashes of Creation	Interpid Studios	750 000	3 271 809	19576	167,13	San Diego, USA
Yooka-Laylee - A 3D Platformer Rare-vival!	Playtonic Games	257 866	3 079 810	73206	42,07	Derby, UK
Wasteland 2	inXile entertainment	900 000	2 933 252	61290	47,86	Newport Beach, USA
Myst 25th Anniversary	Cyan Worlds, Inc.	247 500	2 810 127	19304	145,57	Mead, USA

## Collection

Source: Kickstarter.com access: 17.03.2020

The funds raised exceed the goal amount several times in crowdfunding. Another, after Double Fine Adventure example, is Yooka-Lavlee - assumed goal of USD 257.8 thousand, more than USD3 million was collected. The average amount invested by donors ranged from USD38.29 for Double Fin Adventure to USD167.13 at Ashes of Creation. The amount of average payments increased with the recognition of crowdfunding in the industry. Kickstarter is an international platform, innovators from all over the world try there. Japanese, American and British projects predominate among the largest projects implemented in the video game sector, and for large and well-known projects, the actual collection amount has often exceeded the target, and for three of the ten largest projects, the amount collected exceeded the original target more than 10 times.

Crowdfunding is an opportunity not only for large and recognizable players on the video game market but also for smaller initiatives. Table 5 presents the smallest projects finalized on the Kickstarter platform related to the video games market.

Table 5. The smallest 10 successful projects of video games funded on Kickstarter

Project name	Created	Campaign goal	Pledged	Backers	Average contribution	Country
Silver:Line - Fantasy Visual Novel	CodeV	6 096	11 612	325	35,73	Singapore, Singapore
Kaichu - Kaiju Dating Sim	Squiddershins	10 000	11 310	441	25,65	Garden Grove, USA
Magnetic By Nature	Triplash Studios	10 000	11 285	416	27,13	Salt Lake City, USA
Siegebreakers	MEGAbase Studios	10 000	11 262	187	60,22	Santa Cruz, USA
Bunka no Kenkyū - Revival of Queen Leyak	BnK Team	6 000	11 213	265	42,31	Depok, Indonesia
The Cosmotic Mission - VR Game	Ian Davis	11 040	11 212	66	169,88	Stillwater, USA
Caveman Warriors - Multiplayer Platformer Arcade Game	JanduSoft	10 000	11 205	359	31,21	Barcelona, Spain
Pato Box - A full action duck fighting experience	Bromio	10 576	11 142	369	30,20	Puebla, Mexico
A Little Less Desperation - A Point & Click Adventure Game!	Marian Cerman	9 464	11 110	243	45,72	Regulshausen, Germany
CHOP - A bloody, visceral local multiplayer game	Claws Up Games	10 212	10 900	179	60,90	Lyon, France

Source: Kickstarter.com access: 17.03.2020

In this case, both the amounts requested and actually collected were several times lower than those that received the largest funding. On the other hand, it is also important information for potential interested in raising capital in this form, because it is clearly seen that crowdfunding is not only dedicated to large and high-budget projects. The average payment for the smallest projects ranged from USD25.65 to USD169.88. Kickstarter is a platform operating on an "all-or-nothing" basis, therefore, each completed undertaking had to reach a minimum of 100% of the assumed capital. For some projects, the value invested accounted for almost 2 times more than initially assumed in the project. In addition to American projects, the originators included initiatives from Singapore, Indonesia, Spain, Mexico, Germany and France.

## 6. Conclusions

The video games market is a dynamically developing market with many development opportunities. The current socioeconomic situation triggered largely by the coronavirus pandemic may also appear to be an opportunity for this industry due to the time spent by potential players at home. On the other hand, it is known that the economic effects of a pandemic will be the beginning of another economic crisis in the world. This may cause that traditional forms of financing ventures will once again be severely limited or even frozen for new innovative companies with an idea but without equity capital.

At this point, crowdfunding can become one of the best, if not the only form that allows you to get specific financing in a short time. On the video game market there is a place both for award-based financing, which is just present on the Kickstarter platform, as well as for other forms such as equity or loan crowdfunding. Many players and fans would happily become a co-owner of a venture related to their favorite video game.

Not only large and recognizable crowdfunding platforms like Kickstarter can be used by the innovators. There are many local smaller crowdfunding platforms in other countries, and they can be helpful for gathering money as well.

Given the above, it seems valuable to continue the analysis of the video games market in terms of other crowdfunding models used there.

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