# KARELIA UNIVERSITY OF APPLIED SCIENCES Degree Programme in International Business Timir Barkhanov MARKET POTENTIAL FOR 360-DEGREE PHOTO AND VIDEO AND VIRTUAL REALITY SERVICES IN MOSCOW - CASE COMPANY: 360FINLAND Oy Thesis

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Market Potential for 360-degree Photo and Video and Virtual Reality Services in Moscow – Case Company: 360Finland Oy

Commissioned by 360Finland Oy

Abstract

The thesis provides a market research of 360-degree photo and video and virtual reality services in Russia, in particular Moscow. The aim of the study is to figure out the potential of the Moscovian market and furthermore to create an entry market strategy for a small Finnish company.

The virtual reality market is growing in Russia and globally. Russian companies use the solutions provided by virtual reality and are going to use it more. Moscow is the largest metropolis and a highly developed market ideal for expanding business activities in the country.

Restaurants, hotels, real estate companies, manufacturing companies, marketing agencies, and cultural establishments are six target segments that were selected to provide with the 360-degree and virtual reality services of 360Finland Oy in Moscow. The conducted interviews revealed that respondents are interested in 360 and virtual reality services. They pointed out that price is the key factor regarding purchasing the services. Efficiency, portfolio, and the party offering the services are the other mentioned factors. There are plenty of competitors on the market in Moscow, and the price of the services needs to be carefully monitored in order to stay competitive. In the beginning, the company can offer only 3D environment services on the Moscow market.

Partnership with a marketing agency and direct exporting are the chosen ways of entering the market for 360Finland Oy. In order to find potential customers and partners in Moscow, cold calling and emailing as well as participation in exhibitions and trade shows are recommended promotional activities.

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# 1 INTRODUCTION

# 1.1 Background

Modern technologies are increasingly entering the lives of people, businesses and states. One of the leading technologies is virtual reality, which is at the forefront of technological progress. It is widely developed throughout the world, including Russia. Consumers use virtual reality mainly for entertainment; furthermore, they currently use virtual reality for training and educational purposes. Businesses and states have also drawn attention to virtual reality and strive to utilise it more and more in their activities.

One of the businesses that provides virtual reality solutions by creating 360-panoramas and 360-video, including aerial, and 3D-environments is 360Finland Oy. In other words, the company offers the services to create virtual reality (360/VR services). It is a private limited company from Kontiolahti, Finland and was established in 2019 (Finder.fi 2020).

360Finland Oy works with various companies in the business-to-business field. It has expertise offering professional services that involve, for example, virtual tours targeted at different companies, locations, sightseeing and so on. Customers can use services in terms of either presentation or education as well, as they can also improve the safety of their employees in the workplace. (Saarikorpi 2020a.)

# 1.2 Aim of the research

The goal of thesis is to figure out the potential of the virtual reality and 360-degree photo and video services market in Moscow for 360Finland Oy. Therefore, the research seeks to answer the following questions:

- 1. What is the market situation and demand regarding 360-degree and virtual reality services?
- 2. What are the primary target segments to focus on for 360Finland Oy?

- 3. What are the factors affecting purchasing decisions and customers' attitudes towards 360-degree and virtual reality services?
- 4. What is the competition in the 360-degree and virtual reality field?

As a result, the answers to the questions will determine a relevant entry strategy for 360Finland Oy in Moscow.

#### 1.3 Research methods

The thesis uses both primary and secondary data. The primary data was obtained via interviews. The main goal of the interviews was to find out the relevance of the services including demand, attitude and purchasing decision factors in the target segments.

The interviewed people included a project manager of the real estate company. One interview was obtained from the CEO of a manufacturing company, and one was from the owner of another manufacturing company. An account manager of the marketing agency was interviewed. The other interviews include a banquet manager of a restaurant as well as a Head of the Exposition Multimedia Projects Department of the State Historical Museum.

The study uses secondary data based on online articles, reports, governmental statistics and various databanks. The data relates to the market potential of 360-degree photo/video and virtual reality services.

360Finland Oy operates in Finland and it provides services in euros. The study focuses on the Moscow market in Russia, where the currency is the rouble. Accordingly, the European Central Bank rate as of 24.03.2020 is used throughout the study. The exchange rate is  $1 \in \mathbb{P}$  85.1561, and  $1 \in \mathbb{P}$  1.0843 (European Central Bank 2020).

# 1.4 Thesis outline

The thesis consists of several parts. There is an overview of 360-degree photo/video and virtual reality technology. Also, the current utilisation and potential of the technologies are considered.

Second, an overview of the virtual reality market in Russia is presented. The Russian business environment is analysed according to the political, economic, social and technological situation in the context of a virtual reality business.

Third, Moscow market is examined. It consists of the segmentation, customers' purchasing decision factors and attitudes, competitors' analysis, opportunities and barriers of the Russian market.

Fourth, the market entry strategy is provided for 360Finalnd Oy. In the end, there are conclusions and recommendations.

# 2 VIRTUAL REALITY AND 360-PHOTO/VIDEO

This chapter provides information about 360-degree photo, 360-degree video and virtual reality. It provides an overview, current usage and potential of the technology.

# 2.1 Technology overview

Virtual reality (VR) is "a realistic and immersive simulation of a three-dimensional environment, created using interactive software and hardware, and experienced or controlled by movement of the body" (Dictionary.com 2020). A virtual environment makes a person feel that one is inside and part of a world. In other words, immersion is experienced. The world can be interacted with meaningfully. (Strickland 2007, 2.)

A user can communicate with such an environment either in a simple way by clicking on a hotspot during the navigation inside the virtual tour or in a complex way by utilising a depth-sensing camera. The more a person's full body naturally interacts with an immersive environment, the more a physical sense of existence is strengthened. Some interest and feedback additionally reinforce the immersion. Furthermore, if either omnidirectional treadmills or a room-scale tracking is added, physical interaction is greatly increased. (Banas 2016, 2.)

PlayStation VR, Oculus Quest and HTC Vive Pro Eye are the leaders in virtual reality concepts. Besides, many other industry members keep up with including Lenovo, Samsung, Google and Apple. Hence, they may also bring new industry innovations that will lead the immersion and usability to a new level. (Bardi 2019.)

A 360-degree video is a form of VR. The main aspect is that the content is based on a pre-recorded physical environment, which is at the core of the immersive 360-video. (Foundry 2017.) A view is achieved by recording every direction all at once. An omnidirectional camera or set of cameras are needed for this purpose. The three hundred sixty-degree video stands on the idea of placing a person in an immersive environment. A virtual reality headset, YouTube, a web-player or a mobile phone are utilised to watch 360-degree footage. (Maio 2019.)

Three hundred sixty-degree photography is a procedure in which the entire surrounding is shot from every angle with the usage of specific hardware and software. The technology is also known as 360-degree panoramic photography, VR, 360-degree implicit tours and so on. It is based on the many photos taken being stitched together by means of special software. A smartphone, a DSLR camera, a set of cameras or even a 360-video camera are employed so that the result can be attained. (Paul 2019.)

# 2.2 Current utilisation and potential of technology

Today, the gaming industry heavily supports virtual reality development and is one of its main drivers. Due to the broad spread of VR hardware, the gaming industry has adapted

rapidly. Virtual reality is already adjusted for the usage of VR headset in some games. (Bardi 2019.)

Besides gaming, virtual reality has been utilised for a long time in scientific and engineering data visualisation. Now, interest has been generated in many areas, for example, related to molecular visualisation, architecture or weather modelling. (Bardi 2019.)

Training in person with dangerous situations, expensive equipment or complex technology can be substituted for appealing VR training in fields such as medicine, military and aviation (Bardi 2019). Risks can be taken inside virtual reality, but benefits can be received from it in the real world (Virtual Reality Society 2020). Examples may include training pilots, surgical operations, and police and soldiers' riskless assaults (Bardi 2019).

Businesses can also be affected by VR. The number of companies seeking new ways to involve virtual reality to increase the efficiency and productivity of their businesses is growing (Flatworld Solutions 2020).

Firstly, companies can obtain a new tool that brings their product prototyping to a new level. Better visualisation and design opportunities are provided. As a consequence, a modification flexibility is also given, especially at the beginning. Secondly, VR allows organisations to benefit from virtual business meetings leading to reduced travelling costs as well as easier hiring processes. Thirdly, virtual reality can be a significant instrument regarding training. The fourth is virtual tours, so that various locations can be readily reached virtually. For instance, in the real estate industry, opportunities to show properties virtually arise. (Flatworld Solutions 2020.)

# 3 THE VIRTUAL REALITY MARKET IN RUSSIA

This chapter provides an overview of Russian VR market and discusses the political, economic, social and technological situation in Russia in the context of virtual reality businesses.

# 3.1 Overview of Russian VR market

According to Momri (2017, 3-4.), 2016 became a breakthrough year for the virtual reality market in Russia as well as the whole world. Virtual reality projects have received significant investments. Some international VR projects were organised and Russian consumers were also able to get VR devices from well-known players in 2016. There was a significant increase in the number of operating companies in the VR field, the number of which reached more than one hundred. At the same time, more than three hundred small firms consisting of one to five people created not only virtual content, but also aggressively promoted VR solutions. The highest concentration of companies was seen in large cities such as Moscow and St. Petersburg. More than 50% of them were located in those areas. The virtual reality market has great potential in regards to technological and content aspects over the next ten years. (Momri 2017, 3-4.)

According to Momri (2017, 4), the Russian consumer market reached 21.7 million dollars (20 million euros) in terms of virtual reality gadgets, software and content by the end of 2016. At the same time, the share of the Business to Business (B2B) side of the market was 6.2 million dollars (5.71 million euros) by the end of 2016. (Momri 2017, 4.)

High-tech government and private companies represented the main users of the virtual reality solutions on the business-to-business side. The benefit of VR in marketing application was seen by known brands. (Momri 2017, 12.) Figure 1 depicts the percentage of the usage of virtual reality by different areas of business as a solution in the B2B market.

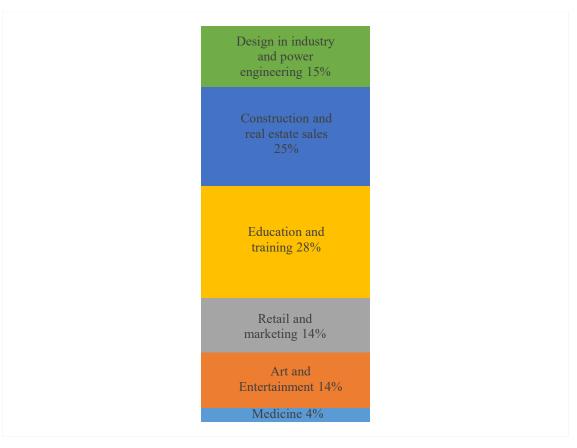


Figure 1. The structure of Russian VR B2B market by project areas, 2017 (Source: Momri 2017, 12).

According to PwC (2019, 54), the Russian VR market is considered one of the fastest developing markets. It reached 26 million dollars (24 million euros) in 2018. The biggest driver of VR industry revenue was videogames. Almost 50% of the turnover came from them. Video content made 40% of the revenue of the VR market, and only 10% was related to apps. The estimated annual market growth is expected to be 31% in 2019-2023. (PwC 2019, 54.)

According to the KPMG (2019, 30) report, 21% of polled companies used VR/AR. However, the percentage varied in regards to different areas of business. The highest percentage of VR/AR being used by companies was in the IT sector, in which 40% of companies introduced VR/AR into their operations. The technologies were utilized by 33% of businesses of the metal industry. One in every four companies representing the telecommunication industry also exploited virtual and augmented realities. The same percentage of companies applied the technologies in the oil and gas extraction sector. (KPMG 2019, 30.)

The Severstal corporation used mainly VR technologies in the educational field as of the beginning of 2019. A special training simulator was used to get full immersion and train production personnel as well as to enhance industrial worker job skills. Besides, workplace safety and an emergency situations were trained for by means of virtual reality. Also, Severstal planned to create its VR model objects based on photographing by scanning instead of being based on project documentation, due to the lack of need for centimetre accuracy. (TAdviser 2019b.)

VR technology based products were planned to be exploited by the petrochemicals company Sibur. Workplace safety rules were going to be demonstrated, and suitable hazardous chemical interaction training would be organised. (TAdvisor 2019a.) Besides, the company created photo instructions and applications with 360 interactive detailed panoramas in order for personnel to know when and how to maintain electric cabinets using VR glasses (Digital Sibur 2019).

Gazprom Neft identified 30 potential cases to utilise VR/AR in 2018. Five out of the 30 were accomplished as research and development in 2018, and five projects were planned to be realised in 2019. The construction of underground and subsea pipeline projects were experimented with by Rosneft via means of virtual reality/augmented reality in the Far East region of Russia. At the same time, RZD considered VR/AR applications for educational purposes as well as for building a high-speed railway. (TAdvisor 2019c.)

According to the research made by Tadvisor (2019c), there are two estimations of the size of the Russian market of VR/AR industrial solutions in 2022. One of them is positive, 18.7 billion roubles (200 million euros). It is calculated with an average increase of 85% per year. However, the negative estimation is 9.2 billion roubles (100 million euros) and based on a 55% annual rise. Both calculations consider the growth since 2018. (Tadvisor 2019c.)

According to Statista (2020), the global market of augmented and virtual reality has reached 18.8 billion dollars (17.3 billion euros) in 2020. At the same time, Fortune Business Insights (2019) forecasted that the size of the virtual reality market would increase up to 120.5 billion dollars (111.1 billion euros) with a compound annual growth rate of 42.2% from 2019 to 2026 (Fortune Business Insights 2019).

# 3.2 Business environment

#### 3.2.1 Political situation

The National Technology Initiative (announced by President Vladimir Putin in a message to the Federal Assembly on the 4th of December of 2014) has recently recognised virtual reality and augmented realities as crucial elements in Russia's social-economic achievements to foster the technological leadership of the country in the world arena. (Petrova 2019.)

The Ministry of Digital Development, Communications and Mass Media of the Russian Federation signed a document titled "Road Map of Development of a 'Cross-cutting' Digital Technology: Technology of Virtual and Augmented Reality" on the 10th of October 2019 (Ministry of Digital Development 2019).

The document concerns the determination and stimulation needed to develop these technologies in the state. It takes into account the possible outcomes and risks that can prevent the application of the technologies. Marketing and entertainment areas have been the most advanced, thus solely considered as the first stage of integration of VR/AR technologies. However, the document furthermore specifies the sectors that virtual and augmented realities are vital technologies for. These sectors include education and corporate training, industry and construction, healthcare and wide-scale consumer-oriented services. Such technological effects as a technological leadership, economic development and social progress are expected to be provided by means of VR/AR. (Ministry of Digital Development 2019, 2, 5, 8.) Thus, the state stimulates the introduction of virtual reality into society, and the market potential of virtual reality will therefore grow.

Another important aspect is that because of regulations Russian companies should primarily purchase goods and services from countries in the Eurasian Economic Union (Armenia, Belarus, Kazakhstan, Kyrgyzstan or Russia) if those goods and services are purchased for state and municipal purposes. However, the procurement of goods and services from foreign companies is not prohibited. (Panova 2019.) This negatively affects the abilities of foreign companies to offer their services and goods on the Russian market.

# 3.2.2 Economic situation

According to the forecast of Bank of Finland, Russia's GDP growth is going to shrink by 1% in 2020 because of the negative worldwide economic perspective and decreased prices of oil. It may recover only in 2021 and grow moderately. (Bank of Finland 2020, 1.)

Although there are now high risks for the Russian economy because of oil price uncertainty, the Bank of Finland specifies that the Russian government's discreet fiscal and floating exchange rate policies contribute to keeping the situation under control. Simultaneously, the National Welfare Fund has accumulated around 150 billion dollars (138 billion euros). Therefore, Russia is better prepared for dealing with possible external shocks. (Bank of Finland 2020, 1,2, 4.)

Weakness in China and the overall global economic situation is more likely to cause a decrease in Russian exports this year. Nonetheless, further gradual recovery of exports is expected in the following year owing to the growth of the demand. (Bank of Finland 2020, 2.)

Import activities are going to significantly decrease this year caused by rouble depreciation. What is more, domestic suppliers may benefit from a changed focus in investment demand in the public sector, leading to the lower imports. However, import growth may recover in 2021 even though it might not reach the levels of 2014. (Bank of Finland 2020, 2.)

Economic stability and self-reliance are the main courses of the current Russian government. In addition, it has aimed at increasing public spending that will support moderate GDP growth in the next year. (Bank of Finland 2020, 1-2, 4.)

The Russian economy is subject to economic and global problems that cause exchange rate fluctuations. The depreciation of the rouble against other currencies leads to the fact that imported goods and services are becoming more expensive for Russian consumers and companies. This significantly affects the demand for goods and services of foreign suppliers.

Moscow is the largest metropolis in Russia. The number of inhabitants of the city is 12,054,243 (Santander 2020). As of 2017, Moscow's Gross Regional Product (GRP) was 15,724.9 billion roubles (184.7 billion euros), while GRP per capita totalled 1263.7 thousand roubles (14.8 thousand euros) (Mostat 2020). According to Moscow's Mayor, Sergei Sobyanin, Moscow is Russia's largest mega-region producing 22% of the country's GRP, and its budget is about 16% of the budget of all Russian regions (Mos 2019b).

An annual growth from 2.3 to 3.4% is expected for Moscow's GRP. At the same time, real wages are annually going to increase by 2.9-3.2%. The projected investment development is 5.5 to 6.8% per year, while the industrial production increase is expected to be 3.4 to 4%. An increase of 2.5 to 3% per year will also concern retail and paid services. Annual inflation is expected be 3.7%. An ongoing low unemployment rate is also anticipated. (Mos 2019a.) To conclude, Moscow is appropriately considered as a starting base for the expansion of most businesses.

According to the Ministry of Economic Development (2019, 10), active implementation of national projects will contribute the increase of incomes for the population. Another source of income growth should be increased productivity. This will be facilitated by the widespread adoption of technological innovations. It is predicted that as a result of such processes, there will be a redistribution of employment from labour-intensive sectors with low salaries (such as trade, a number of manufacturing industries, and transportation) to the services sector with higher salaries (Ministry of Economic Development 2019, 10). It is expected that the real disposable income of the population will grow to 2.4% by 2024, after near-zero dynamics in 2019 (Ministry of Economic Development 2019, 36).

# 3.2.3 Social situation

According to a poll made by Momri (2017, 10-11.), Russian people of Business-to-Consumer market most valued virtual tourism (43%). The second big group of interests consisted of nature, science and technology videos (29%). Men were keen on VR technology. They had greater knowledge about gadgets, games and content. Women valued virtual reality tourism and travelling as well as watching different 360 degree videos. (Momri 2017, 10-11.)

As an example of a part of virtual reality, 360-degree videos were produced by the Usability and Mixed Reality Centre of ITMO University to present the cultural events. The special project called "video360production" consisted of more than 50 different virtual reality videos aimed at representing concerts, theatre spectacles, museum excursions, mass cultural events as well as technological processes. The main aim of this was to save the cultural heritage by means of virtual reality technologies. (Stolyarov et al. 2016.)

Some concerts were made in the 360-degree format of such musical bands as "Leningrad", "Bravo", "Picnic". In addition, for example, it was applied in an excursion around the fortress *Korela*. The interactive 360-degree video was combined with 3D reconstruction for this purpose. (Stolyarov et al. 2016.)

# 3.2.4 Technological situation

Russia has rich scientific and technical potential. However, there is a low research and development (R&D) efficiency and poor economic results gained from R&D owing to insufficient funding for science. There were 943.8 billion roubles (11.08 billion euros) of R&D costs in Russia in 2016. (Grigoryeva & Morozkina 2018, 124-126.)

Russia took 47<sup>th</sup> place in terms of R&D costs per researcher in 2016. Switzerland took the first place, the USA was the second, China ranked eighth place and Japan ninth (Grigoryeva & Morozkina 2018, 124-126).

Russia is affected by the trend of globalization of economic relationships. Today, products and services are not only produced in one country, but their parts are made in different countries, thereby added value becomes more international and transnational. The centres of value added are largely associated with the technologies used that serve as the trigger for the development of completely "new economies". (Chulok 2018, 88-89.)

The "networked economy" has been developed due to business solutions that are based on platform technologies. Furthermore, significant changes happened in such sectors as tourism, trade, transportation services and logistics. Intellectual services and creative sectors become more important in the "experience economy" and begin to compete with

traditional ones: sports vs e-sports, tourism vs augmented reality, and so on. The "knowledge economy" (widespread digitalisation and cyber-physical systems) contribute to a significant reduction of product testing in various areas. Russia is provided with big opportunities because of this trend. (Chulok 2018, 88-89.)

Virtual and augmented realities (VR/AR) were only some of the most attractive technologies to be embedded by the biggest Russian companies. The costs of carrying out processes might be decreased by means of both VR/AR design and simulation of work. (KPMG 2019, 28-29.)

Digital technologies, which virtual reality and augmented realities have been a part of, affected the surge of productivity and the efficiency of processes so that 77% of over a hundred polled Russian large businesses acknowledged them. At the same time, 63% of respondents have admitted that digitalisation decreased labour costs while 60% of them agreed on overall cost declines. In general, 8% of companies claimed that VR/AR brought about the greatest economic effect. In addition, 21% of companies planned to implement the technologies into their operations over the next two years. (KPMG 2019, 31-32.) Thus, the business environment is technologically well prepared for the introduction of virtual reality into the activities of companies.

# 4 MOSCOW 360/VR SERVICES MARKET

This chapter studies the main target market segments for solutions provided by 360Finland Oy. The factors are specified that affect the purchasing decision as well as the attitude to 360/VR services. There is an examination of the competitors. The final section provides an analysis of opportunities and barriers for 360Finland Oy in the Moscow market.

# 4.1 Primary target market segments

Moscow is a highly populated city both with people and companies. According to the statistics of Federal Tax Service (FTS) of the Russian Federation, as of 1.3.2020, there were 705,449 legal entities and 359,264 sole proprietors registered in Moscow. Thus, altogether there were 1,064,713 businesses (FTS 2020).

Due to the fact that 360Finland Oy operates on the Business-to-Business side of the market, there are six target segments that have been selected as having potential and considered from all areas of activities. The segments are restaurants, real estate companies, hotels, cultural establishments, manufacturing companies and marketing agencies. Some of the segments may be targeted with 360-photo/video and VR as a marketing tool, while for others 360Finland Oy can offer virtual tours or educational guides. The market segments have been chosen taking into account the past experience of provision of services by 360Finland Oy in Finland.

According to Spark-Interfax (2019), there were overall 81,983 companies operating with real estate in Moscow (45,108 legal entities + 36,875 sole proprietors). The number of restaurants was 21,905 (14,094 legal entities + 7,811 sole proprietors). Regarding marketing and advertising specialization companies, there were 31,091 (21,335 legal entities + 9,756 sole proprietors). There were 4,055 hotels (2,865 legal entities + 1,190 sole proprietors). Libraries, museums and other cultural establishments totalled 1,140 (914 legal entities + 226 sole proprietors). The number of manufacturing companies was 54,620 (38,002 legal entities + 16,618 sole proprietors). Thus, there is a large number of companies in the target segments that provide opportunities to expand operations on the 360/VR market in Moscow. (Spark-Interfax 2019.)

# 4.1.1 Real estate

Real estate companies get opportunities to show their property virtually by means of 360/virtual reality services. Their customers may interact with the property without being there. Feelings are engaged, the expectations are justified, and the customer understands whether the property is suitable.

The following findings about purchasing behaviour are based on an interview with the project manager (Rozhkov 2020) and a partner of a development company specialising in building villages and summer cottages and later selling them. The company is interested in 360/VR services. The technologies and the services themselves are relevant, and the company would like to utilise them in the perspective. According to the internal structure of the company, the purchasing decisions are made either individually or collectively by the partners (project managers) and by the investor. (Rozhkov 2020.)

The efficiency and the price are the main factors that affect the purchasing decision. For example, a project manager pointed out that the company would not refuse to buy at least two 360/VR services so as compare the performance of them. In this case, one service would be better to be obtained for free as a promotional offer. Also, the company does not see any difference in 360/VR services provided by a foreign or Russian business. They would be preferably bought from the 360/VR supplier directly. (Rozhkov 2020.)

# 4.1.2 Restaurants

VR/360 services can be utilised by restaurants, for example, in a promotional way. Restaurants can present their premises and offered dishes on their websites from the best angles, thereby expanding the list of potential customers.

According to the banquet manager of the restaurant (Fedorov 2020), the company of this segment, neither used nor knew about the 360-degree photo/video and virtual reality services. 360/VR services are not so essential for the normal operations of the restaurant. The restaurant is not so interested in them for several reasons. First, the restaurant focuses on wealthy customers. Second, the attendance of these customers is high; therefore, the company does not need to do a lot of promotion. (Fedorov 2020.)

At the same time, Fedorov (2020) admitted that 360/VR services might be suitable for banquet promotion so as to find new customers. The general manager makes a decision of whether or not to buy the services. (Fedorov 2020.)

# 4.1.3 Marketing agencies

Marketing agencies professionally operate with promotional and advertising tools. Therefore they may be interested in using unique and modern technologies in their activities that are currently 360/VR. These services may enhance the ability of agencies to attract additional customers.

The account manager of the marketing agency (Shaymardanov 2020) claimed that the company is aware of the 360/VR services. This manager works a lot with Moscow real estate developers. They have previously ordered the services. Digitalisation affects the ways of communication and presentation. In this sense, these services are beneficial for customers. For instance, the remote way of looking at the construction sites are very useful. Therefore, the customers do not have to come to the real construction sites. (Shaymardanov 2020.)

VR/360 services have already been provided before and are offered today as well. For these purposes, the marketing agency involves external contractors/suppliers. They are chosen for several reasons. (Shaymardanov 2020.)

First, it is not cost effective to have employees who are engaged only in 360/VR services. These services represent occasional enquiries and are demanded at times. Secondly, it is very convenient in terms of management. The marketing agency understands the nature of a client. Thus, it has the information about their wishes, demands and wants. Also, it is challenging for the ordering party to do paperwork with the 360/VR external supplier directly. There are some rules for choosing external suppliers, including tenders and different juridical procedures for some of the clients of the marketing agency. The marketing agency plays the role of an intermediary between the final customer and a specific 360/VR services company. (Shaymardanov 2020.)

The portfolio and price of the 360/VR service are the prime factors that the marketing agency considers when seeking an external supplier. The first feature clarifies the expertise and background of the external supplier, while the second aspect implies that the budget is limited. The size of the external supplier company does not matter; it can be either a small, medium or large company. (Shaymardanov 2020.)

Domestic external suppliers are more likely to be chosen than foreign ones. The marketing agency does not have a lot of experience working with foreign external suppliers. The price along with the exchange rate are the main features that affect the decision in this particular case. (Shaymardanov 2020.)

The marketing agency has its own list of the external suppliers. However, they may also be found via the networking. In this case, the external supplier can be suggested by anyone, for example, due to their expertise, portfolio and so on. (Shaymardanov 2020.)

At the beginning, a production director decides which external supplier to choose. This person is given some options from the pool of external suppliers. Then the options are agreed upon with digital director, who makes the final decision. (Shaymardanov 2020.)

# 4.1.4 Manufacturing companies

Virtual reality is applicable for manufacturing companies. Production facilities can be dangerous. It becomes a solution to prevent hazardous situations in advance because employees are prepared and trained to be aware of the environment and facilities. For that reason, the number of accidents decreases. Alternatively, the production premises could be shown virtually to potential visitors or customers from any place in the world without exposing them to any risk. (360Finland Oy.)

The CEO of the cloth factory (Toporkov 2020) pointed out that he knows about 3D models but not about 360/VR services. The company has not used them in its operations. The services are interesting and could be utilised in the future. The company would purchase services from the 360/VR provider company directly. The main reason for that is that it eases the communication process, and the cooperation is not implied with a marketing agency serving as an intermediate party. (Toporkov 2020.)

The positive aspect of these services is that the final customer will know that the factory itself produces hats that would strengthen the image of the factory. In most occasions headwear is offered by clothing sellers that do not have their own production. (Toporkov 2020.)

Price influences the purchasing decisions on 360/VR services. The final decision is made by the CEO of the factory. (Toporkov 2020.)

The 360/VR services would be acquired from a foreign company rather than a domestic one if the services were not offered in Russia. Otherwise, domestic companies are preferable. The negotiation process would be difficult with a foreign company, while the prices are higher. (Toporkov 2020.)

According to the owner of the company (Mashtakov 2020) that produces stands, indoor and outdoor advertising signs, and construction, the company might be interested in purchasing 360/VR services. The company has not yet used it in business activities. (Mashtakov 2020.)

If the company was offered 360/VR services, it would purchase them from the specific 360/VR company directly. Economic factors significantly affect the purchasing decision. The final decision is made by the CEO of the company. Also, a reference from another company is vital. (Mashtakov 2020.)

#### 4.1.5 Cultural establishments

Libraries, museums and other cultural establishments may offer outstanding virtual tours to anyone who would like to become more educated in a specific matter about any place. A person interacts in the same way as he has come, for instance, to the real museum and look at different masterpieces. However, one is fully immersed and cannot be distracted by anything in the real world. Education is improved while a greater number of people get access to a society's heritage.

The Head of the Exposition Multimedia Projects Department of the State Historical Museum (Zateikina 2020) explained the museum knows about 360-degree photographs and virtual reality and utilises them in its activities. There are some special projects aimed at demonstrating past and temporary expositions and exhibition halls by means of 360-panoramas and virtual tours. Alternatively, there are some utilisation difficulties and expensive equipment. Because of this, the museum does not create 360-degree videos by itself.

Because of the 360 panoramas' easy utilisation they are produced by the museum itself. (Zateikina 2020)

The museum does not generally order 360/VR services from external firms or marketing agencies. However, the museum is open to any proposals and interested in mutual relationship by cooperating and negotiating with outside organisations. (Zateikina 2020.)

The decision can be made to use outside parties if the museum does not have sufficient internal means. The lack of equipment, specific project requirements, the efficiency are essential factors. Moreover, if the project is time consuming, needs professionalism and quality content, the specialised both marketing agency and 360/VR service provider may be reached. (Zateikina 2020.)

Project budget, legal restrictions, auctions and tenders influence the selection of external 360/VR companies. A domestic firm is more likely to be chosen due to possible legal limitations. The top management of the museum makes the final decisions. (Zateikina 2020.)

#### **4.1.6 Hotels**

Hotel businesses may provide their tourists or clients with virtual shows of rooms and services. Customers can then figure out everything they need to know about staying in the hotel. At the same time, hotels may carry out an interactive, immersive and uncommon way of promotion to get more clients.

# 4.2 Analysis of competitive situation

There are plenty of companies that are competitors of 360Finland Oy in Moscow. For example, a Yandex search "купить услуги съемка vr 360 москва" (buy services shooting vr 360 moscow), brought up five million results on May 6, 2020. The first five webpages were examined, and they contained 77 links overall. There were 28 companies' webpages out of this number that provide similar services to 360Finland Oy.

A similar search was done on the 12th of May. It showed about eight million results. The first five pages have also been regarded. As a result, there were 87 different links, of which 24 were the companies' webpages. Thus, roughly 30% of links were to companies that provide similar services as 360Finland Oy.

The competitors provide a versatile range of services. For example, some of them specialise in all media related services, including photo, video, sound and graphics production, whereas others provide only 360/VR services. Next, a selection of competitors is shown. It is dependent on a few criteria: similar services, operational approach, a portfolio of previous performed works and clients, and price.

SFP media production is a firm that focuses on all related brand media production services and positions itself as a full-service video studio. One of the services includes VR/360 photo and video shooting. The company adheres to a beginning-to-end approach, meaning that the entire media production process is developed and accomplished by SFP media. First of all, every technical aspect is analysed, thus the most suitable strategy is to be applied for client's VR/360 photo and video. Then the whole video/photo script is planned and negotiated with a customer concerned. As soon as everything is discussed, the shooting is done. The last object is a post-production, where the footage is subject to montage. (SFP media production 2020.)

The company provides production of static, moving or aero 360/VR photo and video. The first type concerns the way the shooting is done with a camera being statically placed. Hence scenery is movable but only around one point. On the other hand, SFP media may produce a moving VR video when the process is shot with a camera placed on a moving platform. Consequently, the immersion is fully provided and a user can move. The third option offers an aero VR/360 by means of drone shooting in the air. (SFP media production 2020.)

The company has a ten-year presence on the market and has already implemented more than 300 different projects, for example, for Sberbank, Merlion, Coral Travel, RUSBUSI-NESAVTO. SFP media has established strong relationships with over 40 companies that constantly use its services. (SFP media production 2020.)

A VR/360-degree photo is offered at 7,000 roubles/hour (82 euros/hour). If it is aero one then it is 12,000 roubles/hour (141 euros/hour). As for 360/VR video, it is 10,000 roubles/hour (117 euros/hour) for an ordinary one, while aero shooting costs 15,000 roubles/hour (176 euros/hour). The minimum required shooting shift is 4 hours for 360/VR video. (SFP media production 2020.)

**MODERN EVENT** is a company that is mainly specialised in virtual reality solutions. It provides the VR creation of apps, games, quests, tours, entertainment zones and events. The VR educational and technical aspects of VR solutions are also implied. (MODERN EVENT 2020.)

One of services includes 360-photo and video production. The service includes professional shooting with special equipment, video montages, logo instalment, sound, archiving recorded videos, video dispatch to chosen recipients and others possibilities. (MOD-ERN EVENT 2020.)

The company does not have different pricing for either 360-degree photo or 360-degree video. Hence, the same price applies for both services. The price for 360-degree service is 30,000 roubles/3 hours (352 euros/3 hours). The following hours are charged at 5,000 roubles/hour (59 euros/hour). (MODERN EVENT 2020.)

MODERN EVENT's services are offered for many corporations operating in different business areas. For instance, RZD, Colgate, Rostelecom, Sberbank represent MODERN EVENT's customers (MODERN EVENT 2020.)

**Video-VR-360** is a six-year company that provides the entire 360-degree services, of which a virtual tour is one. The operational area includes events, interior shootings, advertising, autos, travelling, different products and services. The customer base consists of at least 120 pleased parties. (Video-VR-360 2020.)

The company has accomplished more than 160 projects and 180 videos. The business applies a full-cycle approach that involves four aspects. They are concept and script creation, shooting and video montages. (Video-VR-360 2020.)

Three hundred sixty-degree video is priced at 20,000 roubles/hour (235 euros/hour) while 5000 roubles (59 euros/photo) are charged per one 360-degree photo. The price of aero video is 5,000 roubles/hour (59 euros/hour). Introduction of a navigation panel, pop-up dialog box or sound into video costs 20,000 roubles (235 euros) at minimum. (Video-VR-360 2020.)

The company uses different pricing for its segments for 3D tours. There is a 20,000 roubles minimum price (235 euros) for 3D tour for an ordinary shop, beauty shop and restaurant. Virtual tour of either auto shop or office starts at 25,000 roubles (294 euros). The same price applies for hotels and educational establishments. A 3D tour of either sports club or clinics costs from 30,000 roubles (352 euros). (Video-VR-360 2020.)

The previously-mentioned companies present some examples of potential competitors of 360Finland Oy on the market. Every company provides 360/VR photo and video services. However, some of them may provide even more diverse services. They may involve different media, event or education virtual reality related solutions. Due to this, they operate with different customers and may address different issues. What is more, a full-cycle approach is employed so as to fulfil customers' needs, wishes and demands, thus to add more value, stand out and be able to win the competition.

Each of exampled businesses have established its own customer base. Their market presence and a number of projects completed reveal their expertise in the corresponding field. The services' prices are different, while they can be adjusted according to customers' preferences and a project's requirements.

# 4.3 Opportunities and barriers of market in Moscow for 360Finland Oy

360Finland Oy has high expertise and has implemented plenty of different projects in Finland. Hence, there is already a portfolio to show to Moscow clients and ordering parties. The services are customisable in accordance to customer's preferences. This means the 360/VR services can be tailored. Therefore, any specific requirement can be met. 360Finland Oy is a small firm that, nevertheless, has an opportunity to expand the services on the Moscow market, where there is plenty of potential customers in various segments,

except for the municipal and state sectors. Russian companies are interested in 360/VR services, while the government is also stimulating both the demand and supply of virtual reality. Because of this, the demand for services will grow.

However, a barrier can be a lack of a translated company website into Russian as well as having no Russian speaking employee in order to operate on the market. Besides, if there is an economic crisis or exchange rate depreciation, the capabilities of companies to purchase the 360/VR services from foreign suppliers will be negatively influenced. For example, due to the changes in exchange rate, the costs of the services in euros of Russian competitors are decreased. Therefore, their service prices becomes more competitive on the market. Legal regulation also creates a barrier to cooperate with municipal and government organizations for foreign companies.

# 5 MARKET ENTRY STRATEGY

This chapter provides a market strategy to enter the Moscow market for 360Finland Oy. The entry strategy is based around the 4Ps of marketing in accordance to the previous findings.

#### 5.1 Product

360Finland Oy provides professional VR/360-degree services. They consist of shooting 360-panorama, a 360-video, 360-aero panorama, 360-aero video, and the creation of a 3D environment. The high quality of work, professionalism and equipment contribute to the competitive edge of the company on the Moscow market.

The advantages of the company's services involve the customisation with accordance to a customer's project requirements. Every project's detail is taken into account; as a consequence, the customer may see that the service provider increases value and is aiming at fulfilling the needs.

# 5.2 Place

There are two ways of starting business operations in Russia for 360Finland Oy. The first way is directly exporting of 360/VR services. The second one is a partnership with a marketing agency.

The VR/360 services are provided at the location of the ordering party. This means that there is no need to have an office in order to implement operations in Moscow. Both parties negotiate the details via the Internet, and 360Finland Oy representative would come by means of a business visa. If there is a demand, then an office can later be opened in Moscow.

The establishment of a separate legal entity is not considered in the Russian Federation because 360Finland Oy would have larger costs to start operations. According to LawyersRussia (2020), in order to open a business in Russia, there are several steps to take. They include document preparation, finding premises for a legal address, opening a bank account, paying registration fees, obtaining a registration certificate and registration with tax authorities. (LawyersRussia 2020.)

In case of setting up of a separate legal entity, either a sole proprietorship, or a limited/general partnership, or a limited/joint stock company can be founded. Alternatively, a representative office or a branch may be established. Every founded organisation is subject to the registration with the authorities on a mandatory basis. Representative offices and branches are obliged to be registered in the Federal Taxation Service. (Lawyers-Russia 2020.)

A second way to enter the market is to make a partnership with a marketing agency. 360Finland Oy would have certain advantages in terms of getting a customer base, easier communication processes with customers, potential for establishing customer relationships as well as overall access to the Moscow market, because the marketing agency has expertise, knowledge and network in the target market. Even though the representative of the marketing agency (Shaymardanov 2020) pointed out that the agency would prefer to work with domestic 360/VR companies. This way is taken into account as well because price is the key factor.

In the case of partnership, a marketing agency would obtain a unique and contemporary tool to enhance and diversify its operations, whereas 360Finland Oy would get access to the market in Moscow. Consequently, both parties have a win-win situation, and customers are satisfied.

There are plenty of different marketing/creative/advertising agencies that can be potential partners of 360Finland Oy in Moscow. Appendix 1 contains contact information for five companies that might cooperate with 360Finland Oy to use its services in their operations. The selected companies are different in terms of size, as well as the number of team members and expertise while they mainly offer creative, media, and digital services. Specifically, the agencies have excellent project portfolios and significant numbers of customers already worked with. At the same time, companies do not point out the information on whether the full set of operations is done by themselves independently. For this reason, there is the possibility that companies involve external suppliers of 360/VR services such as 360Finland Oy. However, either interviews or negotiations are required with these companies' representatives so as to deal with the issue of a potential partnership and its conditions.

#### 5.3 Price

The price of VR/360 services is a crucial factor that needs to be considered when 360Finland Oy starts its business activities Moscow. Many potential customers and partners pay great attention to this particular aspect.

To enter the Moscow market, the following prices are suggested for 360Finland Oy: 360-panorama is 7,000 roubles/hour (82 euros/hour); a 360 aero panorama costs 12,000 roubles (141 euros/hour); a 360-video is priced at 10,000 roubles/hour (117 euros/hour); the price of 360 aero video is 5,000 roubles (59 euros/hour), and a 3D-environment is from 20,000 roubles (235 euros). The price implies including all related service production activities from the beginning to the end. In other words, any supplementary elements such as, for instance sound or any dialog boxes inserted in the footage are already included in the price of the service.

Firstly, these prices are given taking into account the minimum prices of services of previously mentioned competitors. In particular, the lowest price of 360 panorama is 7,000 roubles/hour (82 euros/hour) (SFP media production 2020); 360 video is 10,000 roubles/hour (117 euros/hour) (MODERN EVENT 2020); a 3D environment costs 235 euros (Video-VR-360). In case of 360 aero panorama, the price starts from 141 euros/hour (SFP media production 2020), and 360-aero video costs 59 euros/hour (Video-VR-360). Hence, if the prices are higher, then they will become uncompetitive.

Secondly, provision of the entire service will contribute to understanding the market in the initial stage while the market is being tested. In this case, 360Finland Oy will comprehend the perception of its services by the Russian customers. Subsequently, it will be able to adjust price depending on a further situation of demand. If the services are perceived well and the Russian customers would like to buy them, any additional feature of the services provided may be charged separately.

Thirdly, it is crucial to constantly take into account the exchange rate. The fact is that Russian currency depends on commodity prices, even when the Russian Government now takes economic stabilisation actions. If the commodity prices are low, the rouble devaluates against other currencies. Then, the import goods and services become more expensive for Russian consumers. This may significantly affect the demand of the service and the overall activities of 360Finland Oy. In this case, the prices of the services offered should be monitored and adjusted in order to compete. Otherwise, there is a risk that the customers may switch to a domestic service provider.

If 360Finland Oy receives an order, the company's representative needs to travel and stay in Moscow to perform work. Depending on the service to be provided, the duration of staying and costs will be different.

In particular, the table 1 contains the minimum expenses of visa and transportation are roughly 644.22 euros per one business trip for one employee.

Table 1. Types of visa and transportation expenses.

Туре	Expenses
Visa (Russiavisacentre 2020)	35 Euros
	28 Euros
Passport photo (Kuvatehdas 2020)	25 Euros
Insurance (Fennia 2020)	29.12 Euros
Joensuu-Helsinki train round-trip (VR 2020)	88 Euros
Helsinki-Moscow flight-round trip (Finnair 2020)	372 Euros
Taxi Sheremetyevo – the Read Square (Yandex.Taxi 2020)	8.6 Euros
Taxi the Read Square – Sheremetyevo (Yandex.Taxi 2020)	8.5 Euros
Unforeseen expenses	50 Euros
Total	644.22 Euros

A three-star hotel stay is 53 euros per night including breakfast and dinner for a business traveller in centre of Moscow (booking.com 2020). Other food expenses cost 50 euros/day.

According to the Association of Freelance Journalists (2020), the wage rate of a photographer is 97 euros per hour, 727 euros per day, 1,454 euros per two days and 3,635 per week. Hence, staying and labour costs are 830 euros per day, 1,660 euros per two days and 4,150 euros per week.

Thus, overall, there are 1,474.22 euros of approximate costs per day per one company employee in case of a business trip to Moscow. In case of a two-day trip, there are 2,304.22 euro expenses whereas a week trip costs are 4,794.22 euros.

In order to recoup only costs, 360Finland Oy should provide the services at the following minimums (Table 2):

Table 2. Minimum amount of hours per service.

Type of service	Amount of hours
360 panorama	18 hours (1,474.22 euros/82 euros)
360 video	13 hours (1,474.22 euros /117 euros)
3D environment	6 hours (1,474.22 euros/235 euros)
360 aero panorama	10 hours (1,474.22 euros/141 euros)
360 aero video	25 hours (1,474.22 euros /59 euros)

According to the above calculation a business trip's costs will be paid off if the 3D environment service is provided on the Moscow market. In regards to other services, they require more than one-day trip in case of the provision of services with the lowest competitive price.

# 5.4 Promotion

First of all, the website of 360Finland Oy should be translated into Russian, and all the prices of the services should be converted into roubles. The vast experience and expertise with the 360/VR projects of the company in Finland should play an important role on the Russian Market as well. The company has a significant portfolio of proven works that will contribute to the attraction of attention.

Also, it is important to serve some number of Russian customers in the beginning. Subsequently, the promotion will be eased by the word-of-mouth of satisfied clients talking about 360Finland Oy.

One way of promotion and finding new customers or partners is cold emailing and calling. The company used to do this in the beginning, especially targeting small companies in Finland (Saarikorpi 2020b). The Russian market is also suitable for this type of promotion, but it would be better to focus on all the potential organisations in the target segments so as to establish some client base. For this purpose, an employee from Russia can be

hired to do remote work. This person would offer the services of the company. For example, according to chosen criteria of the Russian recruiting website (HeadHunter 2020): Moscow, Sales, Telemarketing, English B1 Intermediate, Remote working, the salaries of possible employees start from 18.000 roubles (211 euros) per month. Also, it is important to take into consideration additional hiring related expenses.

It is also possible to make an agreement with a freelancer. For example, according to freelance website Fiverr (2020), there is a market analyst freelancer who offers the service of finding contacts as well as the service package consisting of finding contacts and sending emails with the report of answers in the CIS countries including Russia. The price of finding five contacts is 4.73 euros. It costs 9.45 euros for twelve contacts and 42.54 euros per 20 contacts. (Fiverr 2020.)

Another way of promotion and finding customers and partners in Moscow is to participate in trade shows and exhibitions. One of them is the 17th International Retail Real Estate Exhibition and Forum MAPIC Russia. The next chapter of the annual exhibition takes place 16-18.9.2020. The participants of this exhibition are real estate organisations and companies that provide different business services, advertising and marketing agencies, retail and many others. (MAPIC Russia 2020.) The given exhibition provides the opportunity to find customers in the real estate field for 360Finland Oy while it can position and show itself as an organisation that offers solutions for Russian real estate. Simultaneously, there is an opportunity to meet partners such as marketing and advertising agencies.

The participation costs consist of raw space renting from 483 euros to 595 euros per one square meter, a registration fee of 650 euros, and shell scheme type from 60 euros to 125 euros per one square meter. At the same time, the exhibition offers promo packages that may assist in advertising the company as well as insurance for the civil liability of a participant. (MAPIC Russia 2020.)

Another trade fair in which 360Finland Oy can take part is the International Festival of Promotion and Advertising Technologies ProMediaTech. A trade fair is an annual event, and the next one is scheduled for 10-11.2.2021. Participants of this trade fair are professionals that work in the event industry, expo business, experience & live marketing, the MICE and brand promotion. The effective tools of promotion and modern technologies

are shown in the trade fair. The festival provides an opportunity to find contacts with representatives of marketing and advertising agencies. (ProMediaTech 2020.)

The price of a standardly equipped stand is 195 euros per one square meter. An unequipped one costs 150 euros one square meter for new participants. The registration fee is 260 euros. (ProMediaTech 2020.)

# 6 CONCLUSION AND RECOMMENDATIONS

The virtual reality market is growing globally and in Russia. The trend applies to the business-to-business and business-to-consumer sides of the market. There are different companies in Russia that use the solutions provided by virtual reality. Virtual reality may affect the efficiency and provide new business solutions.

The Russian Government has recently begun considering virtual reality. The legislation changes will stimulate the development of virtual reality; therefore, they contribute to the increase in both the demand and supply of virtual reality services as well as the overall usage of the technology.

There is demand for 360/VR services in Moscow. Most of the interviewed respondents have shown an interest in the services. Price is the key factor that affects the purchasing decision. The other revealed factors include the efficiency gained from the acquired services, portfolio and the party offering the services. Domestic 360/VR service companies are preferable; also many companies would prefer to work with them directly. There can be cooperation with foreign companies if the prices of the 360/VR services are competitive.

Marketing agencies, manufacturing companies, hotels, restaurants, cultural establishments and real estate specialised companies are the primary target market segments for 360Finland Oy in Moscow. Every segment has a lot of organisations for which the 360/VR services are relevant. The companies can use the solutions provided by the services for presentation, workplace safety and educational purposes.

There is tough competition on Moscow's market. Many companies represent competitors of 360Finland Oy. For example, companies such as Video-VR-360, MODERN EVENT, u SFP media production are some of them. The rivals use a full-cycle operational approach and they have customer bases as well as portfolios of proven works and experience working on the market.

There are two ways to enter the Moscow market for 360Finland Oy. The first one is direct exporting, whereas the second one is a partnership with a marketing agency.

Despite the fact that the quality of 360Finland Oy's services is high, the services are customisable to customers' requirements and the company has a portfolio, the price needs to be competitive to enter the market. Otherwise, customers will select domestic 360/VR companies. At the beginning, the company can offer only 3D environment service on the Moscow market.

One way of promotion and finding new partners is cold emailing and calling. For these purposes, employees from Russia and Russian speaking freelancers can be hired to perform the remote work. At the same time, another way includes participation in trade fairs and exhibitions such as MAPIC Russia and ProMediaTech. They are held annually and provide opportunities to meet potential customers and partner such as, for example, advertising, marketing agencies and real estate organisations for 360Finland Oy in Moscow.

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