BASIC CHARACTERISTICS OF THE SOFTWARE PRODUCTS AS A FACTOR FOR STRATEGIC SUCCESS OF THE COMPANMY

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Abstract: *This paper is aim at defining the basic characteristics of the high-tach products, which are the most important factor for strategic success in the high-tech industry. These products differ from products in others industries in many ways, but the most distinguishing features are related to their advanced technology, a relatively short product life cycle and the high level of innovation. Developing business models and strategies managers should avoid thinking that high-tech products are products above all and they can apply the same approach in managing business. They should be fully aware of the distinguishing features of the high-tech products, so to be able to develop and implement successful business strategy in the long run.*

***KEYWORDS**: HIGH-TECH PRODUCTS, BUSINESS MODELS, PRODUCT STARTEGY, MARKETING STARTEGY*

1. *The main features of high-tech products*

Nowadays we witness the rapid development in any businesses, but the most prominent is in the field of high-tech industry. ICT including, blockchain enables the manegers to guide business and give them more options in this distributed microenvironment by introducing clear and highly customizable framework to connect them all. In addition, all information, which is saved on the blockchain, is immutable and transparent for everyone. The technology promises real-time information about the most important KPIs of all the participants [1]. Companies must be able to respond quickly and effectively to change, such as when dealing with new quality problems, rapidly declining prices, or subtle but steady shifts in value from hardware to software and services. The best way to survive and thrive in such an uncertain, competitive world, particularly in an age of technological disruptions as well as economic globalization is to focus on understanding in details the product characteristics that will enable managers to find the best way to prepare the company to perform well over years and decades [2,8]. This means that thay should be able to distinguish short-term tendencies in management thinking from long lasting principles, which are closely related to the nature of the products, that can help them to create value for customers in the long run.

To support ease of reading this paper we will generally use the term “software products” instead of referring to software-intensive products and services as well. The term software product management covers not only software products, but also software in software-intensive systems and services. These products are often intended for specific markets and belong mostly to the industries such as biology, telecom equipment and information, electrical equipment, automotive, aerospace, and energy. Software differs from products of other industries in many ways and they require large investments in research and development [7].

The term “high technology” is a contemporary category that includes any product manufactured with some type of an advanced technology, not only from shoes to long-range missiles, but also can be applied to many categories of services. In the literature, there is no a clear definition for high-tech products but the main finding is that a technology is not the only characteristic and distinguishing feature of these products. According to some authors high-tech products can be described as follows:

- They need sophisticated technology;
- They are changing and updating frequently;
- They are new for the markets;
- They involve high research and development investment;
- They are for specific markets;
- They are integrated into hightech applications [4,10].

Having considered the above mentioned characteristics, as the most important can be pointed out three of them, namely incorporation of sophisticated technology, a relatively short product life cycle and the integration of innovation. Products should also be differentiated as simple components or complex systems and according to their degree of standardization or customization. Last but not least characteristic of high technology products that worth to be mentioned is the fact that public sector has strong influence, either directly, through governmental research programs, or indirectly, through the military budgets.

2. *The specifics of high tech product business strategies*

These differences have a significant impact on the contents of a software product’s business strategy. According to the literature organization’s strategy describes how it intends to create value for its shareholders, customers and society as a whole. The key challenges stem from the fact that strategy is tightly related to three dynamically changing factors, the lack of data needed for one to choose how to reach his/her goal – “ignorance”; the “incommensurable” business context, and the “indeterminate” people, who are sometimes “unpredictable – and creative”. These factors fall in the overarching category of “knowledge absence” [5]. Software product managers are responsible for developing the strategy for the products and for implementing and updating it over time. A strategy covers a time span of about one to five years but it largely dependents on the product’s context, i.e. domain, technologies, and market segments. The product strategy describes how the product is supposed to evolve over this strategic timeframe. There is no difference between high-tech products and other industries in respect of the management objectives. The primary aim of software product management is the same as those in other industries - to achieve sustainable success over the life cycle of the product This generally refers to economic success, which is closely related to the generated profit margins. The role of product manager is also the same. He has to plan and keep track of the business aspects. They should make decisions concerning long term perspective and if the losses related to an investment phase will be followed by a rise in the profits in the next phase, a longer-term perspective is appropriate. They are responsible for applying the most suitable business model, which can lead to sustainable development of the company. In the literature, a business model is described as the rationale of how an organization creates, delivers and captures value by interacting with suppliers, customers and partners. A business model describes which products and services are offered by a company, and how revenue streams relate to the different products and services. It is often considered at the corporate or business unit level, but its consideration can also make sense on a solution level that spans multiple products and services or on an individual product level. There are different classifications of business models according to different dimensions. The most important can be attributed to the: types of products/services provided, business model archetypes used and revenue streams [7,11].

According to the former criteria, types of high-tech products/services can be financial products (cash and other assets), physical products (real, physical products, durable and non-durable goods), intangible products (software but also other intellectual property, knowledge and brand image) and human services (people´s time and effort).

The latter criteria (Business Model Archetypes) is described in the literature as a basic patterns of doing business There is no difference in software product industry and the archetypes are as follows: creator, distributor, lessor and broker. In general creator uses supplied goods and internal assets and transforms them to produce a product that can be sold to the customers. The main work that creator should be done is designing the product. For an example of creator can be pointed out Apple who designed the iPod. The main function of distributor is to buy products and to resell the same products to customers. Illustrative examples are companies in the wholesale and retail industries, like Sears or Saks, or stores that sell shrink-wrapped software. A lessor provides the temporary right to use, but not own, a product or service to customers. For instance landlords, lenders of money, consultants and software companies that license their software to customers. For human services, HR lessors lend their employees´ time to customers. A broker facilitates the connection between potential buyers and sellers. A broker don’t have ownership of the products and services. An example is a stock broker. In the context of software products the example is Google´s advertising business, which matches the advertiser with potential customers.

In the practice of high-tech industry a business model is constructed by choosing and combining one or more of these three business model elements. Products and services can be offered standalone, or they can be offered as a group of them. For example of a such combination can be considered software vendors who are typically offering intangible products and act as a creator and lessor of software, but also offer human services like consulting, maintenance and support. A cloud business model not only offering a service to the customer, but also has the software vendor who act as a creator, a lessor and a broker. Furthermore, a service to operate the software products is offered. These different products and services are bundled into a cloud service offering, and there usually is a revenue stream compensating for the cloud service offering. There is a strong relationship between the three dimensions and the canvas areas of business models. The relationship between products/services and revenue streams refers to the fact that single products/services or bundles are compensated by the customer. This compensation can be financial (revenue streams) or non-financial (exchange of products, services or information). Thus, for each product there always is a compensation, which in many cases is a revenue stream. Companies maximize their value in this way, Fig.1

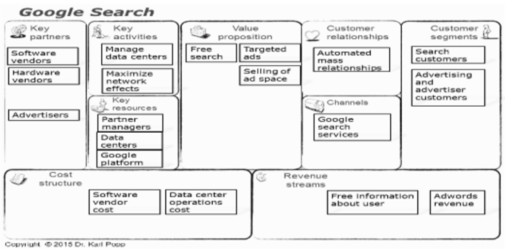

Figure 1: *Google´s Business Model*

Bearing in mind the distinctive characteristics of software products we can conclude that the flexibility of software in combination with human services reveals the wide space for creative business model innovation, in particular in connection with the internet and mobile services.

3. The specifics of high tech product marketing strategy

Marketing strategy is a part of business strategy of the company. That is why it is necessary to pay attention on its specifics in high-tech industries. Excluding the strong technical content, short life cycle and its innovative aspects, a high-tech product should be considered as a product that can satisfy the customers’ needs either an individual consumer or an organization. The “high-technology” dimension comes only as an extra layer that is added to a product. It still can be defined by its tangible or service aspect and the nature of its consumer or industrial market. Thus the marketing of high-tech products is no more than a subset of marketing consumer goods; of industrial marketing; or of services marketing, whichever the case may be. It is contingent on the technological context [3,9].

According to some authors marketing managers agree with these findings and claims that, their objectives are not very different from those of their colleagues who work with more products that are traditional. As a common feature between high-tech and other industries can be specified the fact that both types of managers seek to increase their market share and profits while optimizing their available resources according to the product range, the price, the promotion, and the distribution. Even if the basics of marketing concept aren’t change, their composition and respective importance will have to take into account the distinctive characteristics of high-tech products. From marketing strategy stand-point there are several specifics, derived from specifics of high-tech products, that should be mentioned. When managers developing marketing strategy they have to take into account the four distinctive characteristics of hightech products, namely, a tendency to worry many customers, the need for efficient time management, the direct cooperation with the research and development department, and the ever-changing conditions of the markets.

The first distinctive characteristic is predominantly related to the concerns of the customers that they can’t managed with the new technology. This is due to different reasons. For example customers are intimidated by the task of learning how to use a high-tech product, some are risk-averse to any novelty, and others are afraid that the current technology available will become obsolete quickly. Consequently, this lead to postpone their buying decisions.

The same pattern of consumer’s attitude toward the high-tech products can be found in the organization’s managers behavior. Many of them are worried to adopt the new technology and innovative solutions and that’s way tend to use various strategies to reduce risks in purchasing high-technology products. They constantly try to evaluate strictly the risk/return ratio of such investments. However, the role of marketing is to make consumers, either final consumers or companies, to be acquainted with innovation, to make them more comfortable with technology and to help them to work out precisely the return on their investment.

The second distinctive characteristic, namely the short product life cycle, requires efficient time management including development of schedules and defining marketing time limits. From time period perspective the average life cycle of a personal computer, a mobile phone, and many consumer electronics, is under one year while the number of models is increased dramatically. The high-tech industry is similar to fashion industry, since more than 90 percent of the models change every 6 months. [6]. Therefore, operational excellence and agility becomes of a prime priority, not only in development and manufacturing, but also in marketing. In other word if they miss a sale a drop of 30% in margins of the producer’s sale price will occurred. As un example can be shown Apple. In 1990s they underestimated demand for two of its best-selling products and in turn it had lost around $300 million in potential sales. Furthermore, the market for these products had disappeared. The positive effect was that Apple learned the lesson and today it can now make and deliver a computer ordered on-line within 3 days. The same marketing pattern concerns industrial products which also have a short-term life cycle. In application software, the life-cycle duration is at most 2 years. Similarly, in the firewall market, a new product can become obsolete within 12 months, and that makes time to market critical problem for any firewall vendor, like Cisco Systems, Nokia, IBM.

Product innovation, as a third distinctive characteristic, requires interactions between research and development and other services. According to findings of numerous studies, conducted by academics and practitioners research and development and marketing interact and have a significant role in the new product development process. Their main conclusion is that the integration of research and development and marketing can cause influence on the success or failure of new product development projects, both at the project and the company [4]. From managers perspective this close collaboration is not limited to the development of new products. It is also very important in all the different stages of product management, starting with the product launch and ending with its exit from the market, as well as in the management of the different components of operational marketing. Some scholars and practitioners believe that the most important driver of a high-tech firm's performance is the interaction between marketing and research and development capabilities [6].

The last one, related to the ever changing conditions of the market is of vital importance. This is due to the fact that sometimes technology will dramatically change the market conditions by creating an exceptional attraction for a product. For example, consider broadband technology. Consulting firm McKinsey estimates that more than 40 million households and businesses had subscribed to broadband, and more than 100 million people around the world had access to it. This means that broad band has achieved around 25% penetration only for six years from its launch. According to the literature in US in 1925, only one in 10 households had a radio, but by 1930 more than 45% of households were tuning in. In 1950 fewer than 10% of U.S. households had a TV, but after 5 years that number soared to 65%. The most important characteristics of high-tech products marketing is that that it crosses the boundaries of B2B and B2C.

There is a general perception that the marketing of technology is essentially important for market organizations. But there is no denying that technology is penetrating the consumer markets very rapidly, due to the adoption of information technologies, such as the personal computer, the cellular phone, and the Internet. This is also can be noticed in the new developed strategies of the largest high-tech firms. Companies such as HP, IBM, Microsoft, and Nokia are marketing solutions for both business customers and consumers. Some B2B companies seceded in entering the consumer market very successfully. From one hand can be pointed out HP with its digital cameras and Samsung, which is today the second leading producer of cell phone handset. On the other hand Microsoft and Dell Computer have made substantial penetration into the professional markets.

4. Conclusion

Taking into consideration mentioned above we can conclude that product marketing and product management are deeply connected. Despite the fact that product management deals with control over the product, its development, and lifecycle, while product marketing is focused on bringing a product to the customers, both processes have shared stages and deliverables and above all they start at the same point - a product vision. That's why it is very important to understand the distinguishing characteristics of the products, since it appears that traditional marketing and managemnt concepts and tools should be adapted to the specific requirements imposed by high-tech products. With so much unpredictable change, which are typical for those kind of industry, managers experience difficulties to predict which practices, firms, industries, and geographies will dominate two or three decades from now. But, if they have a deep knowledge of the nature of their products they will be able to apply principles that can stand the tests of time and help managers overcome both internal and external challenges to their business.

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