

THE SPECIAL ASPECTS OF INNOVATIVE ENTREPRENEURSHIP IN THE IT INDUSTRY

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ბრიგორი გურბანოვი

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აბსტრაქტი

საზოგადოების განვითარების ბოლო რამოდენიმე ათწლეულის ტენდენციამ - ინტერნეტის, საინფორმაციო ტექნოლოგიების და „დიდი მონაცემების“ განვითარებამ, მნიშვნელოვანი წვლილი შეიტანა გლობალიზაციის პროცესში და მოახდინა როგორც სოციალური, ისე ეკონომიკური სფეროს ტრანსფორმაცია. საინფორმაციო ტექნოლოგიების სექტორი გახდა პრიორიტეტული დარგი, რომლის განვითარება არის უმნიშვნელოვანესი ამოცანა განსაკუთრებით განვითარებადი ქვეყნებისთვის. სტატიის ამოცანაა გამოავლინოს საინფორმაციო მენარმეობის განვითარების წყაროები, საინფორმაციო პროცესის თავისებურებები მცირე და მსხვილ საინფორმაციო ტექნოლოგიების კომპანიებში და აჩვენოს როგორ ახდენს გლობალიზაცია და სპეციალიზაცია გავლენას საინფორმაციო პროექტის დაფინანსების ფორმებზე. ავტორი აღნიშნავს, რომ საინფორმაციო პროდუქტის კვლევა და განვითარება უფრო ეფექტიანია მცირე ზომის საწარმოებში, ხოლო მომდევნო კომერციალიზაცია უნდა განხორციელდეს მსხვილი კომპანიების დახმარებით.



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Innovation-based entrepreneurship is the process of creation and implementation of technological innovation than an entrepreneurial entity constantly focuses on innovation search in products and services, methods which creates new markets, promoting the satisfaction of new public needs to make a profit. Innovative technologies create a fundamentally new product, services or improve the technological process of manufacturing an existing product. Innovative firms arise as a result of the public need to reduce costs associated with the process of introducing a product created in the scientific field into the economic sphere. Technological constraints and market conditions that are limitations for a regular company represent the environment in which an innovative entrepreneur works and makes investments.

Representatives of the first economic schools noticed the great importance of scientific and technological inventions in the economic development of the national economy. D. Ricardo emphasized the importance of technological progress. In his works, he identified such types of progress as the production of new products, the opening of new markets, the creation of new forms of organization of production.¹

J. A. Schumpeter made a significant contribution to the development of the theory of innovations. In his famous work, he argued that innovation is a factor of production and the classical political economy did not take into account the main features of the entrepreneur — special organizational skills required to introduce new products and processes to

the market. The role of the entrepreneur is to reform the method of production by searching for inventions or unproven technological capabilities.² Thus, the entrepreneur, creating new products, technologies and introducing them to the market, provides innovative leadership, which moves from individuals to large firms as society matures.

Subsequently, F. Knight identified another important feature of entrepreneurial activity, making a distinction between concepts of risk and uncertainty, the willingness of entrepreneurs to carry out activities related to the adoption of risky decisions, which, according to some researchers, became the theoretical justification for the emergence of venture capital financing innovative startups.

German economist G. Mensch continued Schumpeter's works and distinguishes the following categories of innovations: basic innovations; improvement innovations (imply the development and modification of basic innovations); pseudo-innovations (reflecting false ingenuity, aimed at partial improvement of dying technologies). He linked up economic and technological rise with new basic technologies in production.

W. Lazonick claimed that modern economic science mainly considered a firm in the framework of the theory of optimizing firm, although the optimizing does not automatically mean innovative. According to him, in the real economy,

2 Шумпетер Й. Теория экономического развития (Исследование предпринимательской прибыли, капитала, кредита, процента и цикла конъюнктуры): пер.с англ. М.: Прогресс, 1982.

1 Рикардо Д. Начало политической экономии и налогового обложения. Изд-во: Эксмо, 2016



firms compete by creating sustainable competitive advantages. The latter include new goods or improved quality of old ones, an increase in the number of goods produced from the previous amount of resources, in any other differences between the goods and services marketed. These features of firms, distinguishing them from others, become sustainable competitive advantages if they give decline or not increase in the costs of a unit of production relative to competitors or a reduction in costs in proportion to sustainable market entrenchment.

P. Drucker believed that it was the entrepreneur who was able to perceive and bring to the market innovative ideas while carrying out systematic innovation.¹

Entrepreneurship is an activity related to the creation and development of new enterprises, based on market opportunities or technological inventions and requiring the mobilization of financial, human, organizational and research resources. Typical entrepreneurial activities oriented on the intensification of internal resources to increase profitability which can provide growth of the company but not always development. It includes such stages as searching for new ideas and opportunities, checking its feasibility; business plan development; attracting the required resources and formation management of the company. However, typical entrepreneurship does not necessarily imply that the proposed product is a new product. Innovation-based entrepreneurs starting their activity from the development of innovative ideas, selection the most perspective one and its expert evaluation. And in cases of technological innovations research and development process starting from the beginning of such activities.

The innovative activity can proceed within the framework of various organizational and legal forms. So, Schumpeter believed that large firms are more able to carry out an innovative activity in the framework of routine processes

than small enterprises because of economies of scale. And the stronger the market power of the company, the more incentives it has to participate in innovation to maintain the possibility of obtaining monopoly rents.²

Subsequent research (Cohen, Levin, 1989; Wakasugi, Koyata, 2003; Hicks D., Hedge D., 2005; Chesbro, 2008 and others) and recent growth of internet-based companies, and other examples have shown inconclusiveness of these allegations. The problem of large companies is that with a quantitative increase in costs associated with the process of creating an innovative product, resources can be allocated inefficiently compared to small innovative enterprises. Thus, an innovative enterprise arises when the transaction costs of business entities related to the acquisition of an innovative product in the market are less than the internal costs associated with the creation of a similar product by the business entity itself. Small innovative enterprises combine two functions. They are developers of a new product or technology and a link in the value chain for transferring an innovative product or technology to consumers.

As we notices before, not all innovative firms are technological. High technologies include those that have significant potential in replacing existing technologies or to produce products with new qualities that represent new progressive changes. The high-tech market has been greatly developed during the last twenty years that greatly contributed to the formation of era of globalization. Such technologies bring significant competitive advantage to the country and include nanotechnology, biotechnology, and information technology (IT). Innovation activities in high-tech industries is much higher than in low-tech, which include food, paper, wood processing, metal-processing and others.

2 Шумпетер Й. Теория экономического развития (Исследование предпринимательской прибыли, капитала, кредита, процента и цикла конъюнктуры): пер.с англ. М.: Прогресс, 1982.

1 Друкер П.Ф. Бизнес и инновации / Пер. с англ. М.: Вильямс, 2007.

There are several factors that influence the development of innovative processes in IT companies:

- economical
- technological
- legal
- managerial
- cultural and psychological

Economic factors that might impede the development of innovative processes are funds availability, material incentives, important technological factors are scientific basis and physical infrastructure. Examples of legislative factors are anti-monopoly, tax and patent legislation, governmental support of IT-innovations. Managerial and psychological factors include levels of flexibility of organizational structures, democratic and participatory style of management, resistance to changes, moral encouragement or punishment for unsuccessful projects, possibilities of self-realization, public recognition.

The modern market for information technology is influenced by a combination of two processes: globalization and specialization. One example of globalization is the widespread use of specific software developed by various large and small companies by many millions of users around the world. Specialization refers to the development and implementation of certain technologies to solve specific problems. Thus, it seems more likely that specialization will emerge in small-scale firms.

Even though that large IT companies have significant resources for the implementation of innovative projects, advantages of small IT-companies in innovation are mobility and flexibility in decision making, strong motivation, and narrow specialization, focus on a result, ability to take a conscious risk.

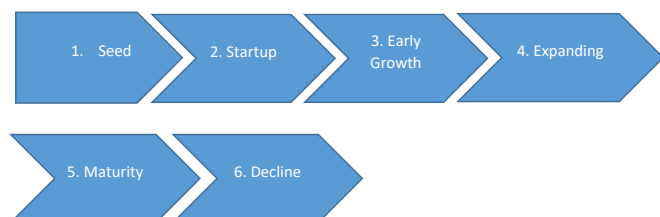


Fig. 1. Six stages of development of innovative enterprise¹

Innovation process of any innovative enterprise, regardless of its size, goes through several stages of development (fig. 1.). The “seed” stage covers the initial research and developing ideas or business concepts; the focus is on the feasibility study, the determination of market potential and economic viability. At this stage, entrepreneurial activity is carried out without a legal form or any profits.

„Startup” stage involves working on a prototype, trial product testing, initial market research and finding ways entering the market, as well as giving the company official

status. Even though we consider “Startup” as one of the stages of development of an innovative enterprise, in recent years, the term has come to describe business ideas in the IT and telecom sector. With the development and penetration innovative IT technologies in other areas of the economy, the term eventually came to describe any microenterprise whose development based on an innovative idea or technology that can provide a sustainable competitive advantage. It is important to note, however, that LLC, JSC and sole proprietor are the most common legal forms of such enterprises and the term “startup” is their informal name.

The early growth stage is related to achieving small scale commercialization of the product and creating foundations for further expansion. If the project is developing successfully, the innovative enterprise moves to the next stage of development which repeats typical stages of traditional firms.

It must, however, be noted that due to specific characteristics such as flexibility, mobility and adaptability the cost of the first three stages of innovation development for small enterprises is lower than for large enterprises (Table 1.).

Table 1. Innovation cost distribution by stages of development, (%)*

Stage of development	Large enterprise	Small enterprise	Individuals
Idea Generation	1,6	0,3	0,1
Advocacy and Screening	3,2	1,8	0,4
Experimentation	0,8	0,9	1,0
Commercialization	16,0	9,0	5,5
Implementation	78,4	88,0	93,0
Total	100	100	100

*Source: Мотин Г.А., Рождественский В.Г. Инновационный менеджмент – Н. Новгород: НИМБ, 2007. 126 с. (p. 58)

As shown in table 1., expenses of large enterprises at the idea generating stage are five times higher than those of small enterprises. But at the stage of implementation large enterprises benefit from mass production due to economies of scale by selecting the most promising innovations that have passed market approbation. Despite the prediction from representatives of earlier economic schools that large companies would put small businesses out of the innovation sector, the above-mentioned characteristics predetermined opportunities for cooperation between large and small high tech companies. As international practice shows, full innovation cycle inextricably linked to such cooperation

¹ <https://www.sciencedirect.com/science/article/pii/S1809203916300341>

which takes various forms. The diversity in the ways of cooperation enhances sustainability of alliances to current circumstances.

There are the following types of innovative small enterprises according to their interaction with partners:

- Scientific innovative enterprises – conducting scientific research which is applicable in nature at the order of ministries, funds, public and private corporations. For example, subcontracting represents a complementary way of working for these companies;

- Integrated innovative enterprises – carrying out active cooperation with other innovation stakeholders and transfer them selected functions. To meet the challenges of technological change, which require considerable financial, logistical and human resources, alliances, consortia and joint ventures between large and small enterprises are established. Cooperation at the production and marketing stages makes it possible to reduce financial costs, rationalize production, use joint experience in developing markets and share financial risk due to the high level of failure.

Joint scientific and technical entrepreneurial activity is based on barter transactions and scientific information is disseminated between participants of agreement exclusively. Consortia requires a co-financing of joint R&D activities. The most prevalent type of such cooperation in IT industry is consortia with permanent staff, own laboratories and scientific centers. Some of them prefer to collaborate with universities.

The most important form of cooperation is cooperation with entities operating within the framework of the state strategy in the field of innovation. According to the Georgian law on innovation, such entities include: a science / technology park, a business incubator, a business accelerator, a technology transfer center, a laboratory and an innovation center. The main task of such organizations is to support start-up IT enterprises, provide them with educational and administrative services, prototype and commercialize IT projects. An example of such an organization is the Georgian Innovation and Technology Agency – GITA. The agency provides the necessary environment for creating high-tech products by allocating grants and providing infrastructure. The agency has funded local projects such as Lingwing, Cnick, Optio Discovery, Elven Technology, Edvexy, Hand4help, VADAC, CLPHUb and others.

- Self-innovating enterprises – that have sufficient resources for small scale production. All scientific works conduct by internal departments based on planning and monitoring.

- Innovative enterprises getting profit from transfers of innovation to other innovation stake holders by selling it. A growing number of firms focuses on the acquisition of shares of small firms that have already demonstrated the market viability of their innovative product (for example, Esri, Oracle, Uber and others). Such cooperation is mutually beneficial for all stakeholders.

Thanks to such collaboration the cluster of small and



medium-sized enterprises specializing in design, development, implementation and maintenance of information systems and its components were formed. Such companies deal with both individual functions of information systems and their combinations. In general, IT companies operate in all segments of the IT market.

Therefore, small innovative enterprises can solve various tasks on design, development and implementation of innovative IT-projects of small series, switching to new IT-projects by the whole team. They are able to adjust to the current market situation, solve most demanded tasks in the market and quickly attract various specialists on a temporary basis for a specific IT-project. They have an ability to integrate with different structures in order to solve technical tasks.

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