

Start-ups as an Element Supporting the Development of the Mining and Energy Sector

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Abstract. This study aims at presenting opportunities offered to the mining and energy industry by the emergence and operation of high-risk enterprises – start-ups. Moreover, it analyses interrelations between the developmental status of such entities and their lifespan. We need to stress that start-ups are mostly associated with modern technologies that are used and implemented in various sectors of the economy. Therefore, they are classified as innovative and innovation-implementing enterprises, which gives them a chance to gain market success and competitive advantage. As shown by conducted analyses, start-ups can be an efficient element that supports the development of mining and energy enterprises. At the same time, again on the basis of analyses, start-ups, quickly developing and maturing as well as seeking their own business model, exhibit the largest risk of losing financial liquidity.

1 Start-ups in mining and energy industry

The activity of business entities present on the market represents the key instrument triggering the economic growth and innovativeness of the economy. A lot of businesses are looking for innovative ways to improve efficiency and maintain competitive advantage in order to survive [1, 2]. Innovative enterprises, including start-ups defined in various ways, which through their innovative undertakings that concentrate on seeking their unique developmental path, can quickly dominate the national and global markets, therefore they are of considerable importance for the economy. The reason why new and small businesses have become key players in the innovation process has been their ability to identify and exploit business opportunities which emerge as a result of technological, competitive and market developments. [3, 4]

Modern technologies aimed at improving algorithms and methods of data collection, storage and processing are tailoring the quality of output information for the end user, including the development of artificial intelligence systems, whose analytical modules and methods are used to filter out unnecessary information and search for dependencies between socio-economic processes. [5]

The term start-up is mainly associated with business and we can come across numerous definitions thereof. According to the business dictionary, this is an enterprise in an early

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phase of development, where an entrepreneur acquires funds for the execution of his/her idea, establishes first, basic structures and initiates operation [6]. Therefore, we can assume that the objective behind establishing a start-up is to prove, while at the same time keeping a low level of cost involvement, the possibility of practical execution of an idea the undertaking is based upon. What is also important is the possibility of finding a business model that determines a method of acquiring revenues and potentiality of achieving success measured in business terms [7].

We have to note that there are numerous definitions of a start-up in use. According to Neil Blumenthal, a founder of a start-up, this is an enterprise that works on a solution to a given problem that is not obvious, while success of such an undertaking is not guaranteed [8].

Steve Blank, an author of “The Startup Owner’s Manual”, has coined one of the most widespread definitions of a start-up. In his opinion, a start-up is a temporary organisation that seeks a profitable, scalable and repeatable business model [9].

Eric Ries, another author and entrepreneur popular among novice entrepreneurs, states in his book “Lean Start-Up” that this is an organization that creates products and services under conditions of extreme uncertainty [10].

According to A. Osterwalder, a start-up is an entity that looks for a business model described by ways of creating value as well as providing and gaining profits resulting from that value [11].

Mature enterprises are usually characterised by clearly set objectives and specificity of operation. They execute a plan that provides for acquiring clients and generating revenues. Quite differently, start-ups look for a scalable and repeatable business model that could enable them to survive on the market and observe further growth [9]. Here, scalability means a relatively proportional increase in the market share. We can also assume that a start-up is an organisation that creates products and services under conditions of extreme uncertainty [10].

Please note, that start-ups are associated mainly with modern technologies, applied and implemented in different sectors of the economy, including the mining and energy sector.

We can distinguish four key properties that determine the operation of start-ups in the process of development and activity. These enterprises:

- implement innovative solutions,
- exhibit considerable growth potential, which is often related to the field of their activity,
- do not have a constant business model and most often test various models in the shaping of their activity and implementing new products or services to a sales offer,
- are burdened by a considerable operational risk, which is de facto a consequence of the abovementioned properties and usually the lack of significant sources of funding that could allow testing various operating solutions as well as products or services offered.

Start-ups play an increasingly important role in the mining and energy industry. Their activity concentrates mainly on developing innovative solutions in the field of extraction and raw materials, environmental protection and waste disposal, energy-saving technologies as well as automation, management and security of extractive processes.

We need to stress that the development of start-ups in recent years has been one of the areas supported by Polish state institutions and large business entities present on the market. This takes place through various acceleration programmes, offering not only a broad spectrum of advisory services, but also financial support [12]. One of the best known endeavours in this respect is an initiative guided by the Polish Oil and Gas Company and the Hub Poland Foundation, which invited foreign start-ups that offer innovative solutions for the energy sector. Those foreign start-ups offer solutions for the energy sector that make use of modern information technologies.

2 Risk of losing financial liquidity by start-ups

Risk is an indispensable component of each business activity and has its theoretical and practical definitions. However, it is mainly referred to entrepreneurial activity, where it is reflected in classical and neoclassical theory of entrepreneurial risk.

Sources of risk that accompanies start-up activity can be traced to macro-, meso- and microeconomic factors. They can be defined as [13]:

- macro-surroundings, i.e. broader surroundings of an enterprise that determine the emergence of a systemic risk and covering such elements as, in particular: capital market, business cycle, central bank policy, governmental policy, inflation and unemployment;
- micro-surroundings, also known as narrower surroundings of an enterprise that determine the emergence of a systemic risk and consisting, among others, of competition intensity, demand on a given sector's products and a sector's lifecycle;
- an internal situation of an enterprise, also determining the emergence of a systemic risk, consisting of: an enterprise's competitive position and its development possibilities, marketing policy, income generating capacity, own capacity management.

As regards start-ups, the last category of risk sources is of key importance to their activity and survival in a turbulent market environment.

One of the main risks faced by start-ups that has impact on their survival is the loss of financial liquidity. Availability of capital in each stage of their development is one of the key elements of operation and achieving market success. Demand for a given source of capital depends on numerous factors, in particular on the level of enterprise development as well as the type and risk of a project envisaged for execution and funding. Methods of acquiring each form of funds and the availability thereof are highly diverse too. In consequence, many potential sources of capital, due to the obligation to meet restrictive requirements placed by capital holders, become unavailable to entities in need for that capital. What is also important is that projects prepared and tested by start-ups are always linked with considerable risk. When preparing for testing, one cannot always foresee an actual reaction of the market to an innovative product. Often there is a situation that an enterprise lacks funds for starting production or launching a service.

The risk of insolvency means the emergence of a financial gap when the project executed by a start-up is marred by the lack of funds and external capital holders are not ready to involve themselves financially in a given activity. A definition of this phenomenon is fluid and it can appear in each stage of developmental work and presentation of new solutions by start-ups. It is particularly hazardous when the product or service developed by a start-up is not refined enough to be offered to clients or has not been adapted to their real needs, so no one is quite interested in buying them.

The assessment of financial liquidity constitutes an important element of a general assessment of a start-up condition. Therefore, a sizeable group of stakeholders is interested in any information concerning liquidity, which can be measured in various ways. Depending on the needs of information users, static and dynamic liquidity indices, absolute values concerning the level of cash or the level of net or gross working capital are used and the cash conversion cycle is sometimes calculated; cash flows (particularly operating ones) generated by an enterprise are also assumed as the measure of liquidity [14, 15].

3 Changeability of the financial risk experienced by start-ups

Operating objectives of start-ups, similarly as with other newly established enterprises, have a monetary dimension and the majority of managerial decisions made throughout the entity's lifespan is reflected in financial categories [16], therefore the quality of managing

the financial domain is an important component of start-up success. Decisions related to that domain include:

- acquiring capital related to the selection of rational sources of financing;
- investing capital in ventures related to the development of the entity – processes, projects and activities executed in the course of activity,
- managing the working capital, including controlling current assets, current liabilities and receivables.

As regards the financing of their activity, the needs of start-ups can be divided into the ones related to a current operation of an enterprise and the ones related to investment. They should serve the fulfilment of the overriding objective of the business activity, namely the maximisation of enterprise value.

The analysis of risk faced by start-ups, the main one being the risk of insolvency, as indicated by the interested parties, should be carried out in this very context. We need to emphasize that the abovementioned risk depends on the scale of development of such enterprises and their lifespan.

The results of conducted analyses indicate that the risk of losing financial liquidity faced by start-ups, taking account the presented parameters, is changeable – see Chart 1.

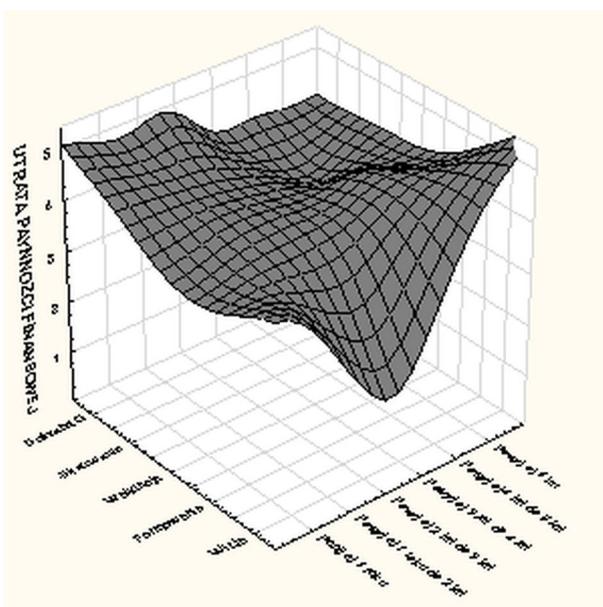


Fig. 1. Assessment of the risk of losing financial liquidity – risk diversity depending on the start-up’s lifespan and development stage.

Source: own calculations made with the aid of the Statistica software.

The chart topography indicates that the impact of losing financial liquidity on the start-up operation is evaluated as:

Maximal (5 points) – by enterprises active for up to 3 years, in the phase of scaling and maturity, as well as enterprises active for over 4 years, in the phase of vision and forming. The former can be justified by the fact that start-ups in the scaling and maturity phase need increased amounts of financing for the sake of further development, while at the same time experiencing a high degree of risk related to the entry on the market and uncertainty of demand. The latter makes us suspect that start-ups active for over 4 years, but still remaining in the early stage of development, do not have any idea for their further development or a product that could be subject to validation processes. Certainly, such

situation discourages potential investors, while own funds are insufficient for continuing the development process.

Average (3 points) to high (4 points) – by enterprises remaining in the validation, scaling and maturity phase (regardless of their lifespan). This could be justified by the fact that at this stage of development start-ups have a ready product to offer, while potential investors or external financing entities exhibit interest in it.

Minimal (1 point) and low (2 points) – by enterprises active for between 2 and 4 years and at the vision and forming stage. In this case we can assume that such start-ups have reached certain developmental stagnancy or their activity is financed by stable external funds that limit the financial risk and allow testing new products or technological solutions.

Each start-up's determination to reach product scalability and maturity in a relatively short time ensues incurring further financial expenditure for boosting sale and product advertising. At the same time, the increasing revenue streams for production begin to emerge. Beyond doubt, this is a chance for continuing dynamic growth and achieving market success, which is exactly what every enterprise aspires to.

4 Summary

By striving to reach maturity and competitive advantage, start-ups come across the issue of efficient financing of their operation, the lack of which means failure. Today's financial market offers start-ups a broad spectrum of opportunities for obtaining funds for conducting business activity, regardless of the scale of development of an undertaking. This is a result of the constant development of financing sources, which influences the introduction of innovative tools and financial support instruments, e.g. new markets, services, previously unknown tools. However, this does not eradicate the need to monitor the operating risk on an ongoing basis and, if possible, to use risk-limiting tools (e.g. various warranties, insurance, deferred payment terms, etc.). Only sustainable growth of these enterprises, taking account of a considerable operating risk and, in consequence, insolvency on the one hand, and of development chances and opportunities as well as acquiring attractive financing sources offered by the market on the other, allows achieving market success by start-ups.

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