Development of Startups During the Covid-19 Pandemic

Jaroslav Hura, Samer Al-Rabeei(✉), Peter Korba, Michal Hovanec, Simona Pjurová, and Ingrid Sekelová

Faculty of Aeronautics, Department of Aviation Engineering, Technical University of Košice, Rampová 7, 041 21 Košice, Slovakia
Jaroslav.hura@student.tuke.sk, {Samer.al-rabeei,Peter.korba, Michal.hovanec,Simona.pjurova,ingrid.sekelova}@tuke.sk

Abstract. Currently, both domestic and global economies are facing a crisis associated with a new pandemic such as the coronavirus SARS CoV-2 (COVID-19). Economic leaders are addressing and looking for effective tools to deal with this crisis and start the economy as soon as possible, while mitigating the effects of the crisis as much as possible. In view of these facts, new startups in various sectors of the economy will play an important role in economic growth. At the same time, the world is facing another crisis - the oil crisis, which began with a price war between Russia and other oil-producing countries, followed by a decline in fuel demand due to reduced traffic. In this situation, in which the world economy finds itself, it is possible to assume that new technologies in the form of startups will be among the key ones in starting the economy. This article should highlight how startups can currently help the economy recover and what new risks the current crisis has brought to them. The start-up scene has long been characterized by a high degree of flexibility and the ability to adapt quickly to a new situation. The last year has been very challenging for many industries from a business perspective, e-commerce and the digital environment in general have often seen tens of percent growth. According to experts, startups, which operate in the mentioned segments, have also successfully dealt with the crisis.

Keywords: Startup · Startup subsectors · Global startup economy

1 Introduction

It is possible to meet the term Startup very often with the present, while there are several definitions and views of a startup. The European Private Equity and Venture Capital Association (EVCA) defines a startup as a company that is in the process of starting a business shortly after starting a business, but is not yet achieving it [1, 2].

P. Wells and L. Jeng, who work at Harvard Business School, consider a startup company that is moving from the stage of a business idea and preparing for the production, marketing and sale of the product itself. A business idea can be considered the very first stage of a company's life cycle. At this stage, the founders have not yet taken any steps

D. Perakovic and L. Knapcikova (Eds.): FABULOUS 2022, LNICST 445, pp. 244–254, 2022.
https://doi.org/10.1007/978-3-031-15101-9_18

to implement it. Later, when they start developing a product or analyzing the market, they move on to the so-called seed phase. Only then, at a time when they are starting a company, preparing production, marketing and simply preparing the entire business model, do they move to a stage where they can be described as start-ups. In Slovakia, often (especially in the media) the term startup still refers to a business idea or a company in the seed phase [1–3].

And Steve Blank states that the startup is looking for a repeatable and so-called scalable business model. This model is based on the potential to achieve significant revenue growth without significantly increasing costs. A simple example is a mobile application - whether you sell 100 applications or a million, your costs are practically the same, but sales (and profits) are significantly higher. The scalable business model is therefore a key prerequisite for achieving rapid growth [1, 4].

Startup in our conditions is practically not without international (or global) ambition - t. j. its goal should not only be Slovak, but e.g. also a Pan-European or global market [4, 5].

2 Theoretical Analysis

In the current situation associated with the pandemic of a new type of coronavirus SARS CoV-2, Startups are all the more important for economic growth because they create new jobs and introduce the latest technologies. Startups are also used by large technology companies, which they use to solve various tasks, and at the same time these companies represent the necessary investments for startups [6–8].

But every viable startup must provide such goods and services to its customers in order to stay in the market and continue to grow. Such a successful startup will start to create jobs, thus reducing the unemployment rate in the economy. The result of the pandemic of the new type of coronavirus SARS CoV-2 is the beginning of an economic crisis that has affected individual economies. The rapid rise in unemployment in major consumer markets will lead to an almost immediate reduction in consumer spending.

At present, a decrease of up to 50% is expected in some consumer categories. Ultimately, business expenses will be reduced in all categories at the discretion of each company. As a result, companies with high growth potential, start-ups and small and medium-sized enterprises, and thus the entire national economies of the world, will be quite affected [6, 9].

The global startup economy has produced 2.8 trillion dollars in economic value over the past two years, a 20% increase over the previous two-year period. This estimate comes from the 2019 Global Ecosystem Launch Report [6, 10].

According to an analysis carried out by startup genome (2020) (Table 1), it follows that:

In the field of "capital":

- 41% of startups worldwide are at risk of having cash to operate for only three months or less.
- Young start-ups only have cash for a few months, 29% were in this situation before the crisis, but the crisis put another 40% in this precarious situation.

– In the field of "jobs":
– Since the beginning of the crisis, 74% of start-ups have had to end their full-time employment.
– 39% of all startups had to lay off 20% or more of their employees and 26% had to lay off 60% or more of their employees.
– The largest share of companies in the reduction of the number of employees is North America (84%), followed by Europe (67%) and Asia (59%).

In the "market" area:

– Since the beginning of the crisis, 74% of startups have seen a drop in revenue. The main reason for the decline in revenues is the impact of the crisis on the industries that startups serve. Three of the four startups operate in sectors that have been severely affected by the COVID-19 crisis.
– It should be noted that every crisis creates opportunities. A small minority of companies are experiencing growth during this crisis. One in every 10 start-ups in the industry is experiencing growth.

In the field of "Operation and Management":

– Since December 2019, more than two-thirds of start-ups have reduced costs. However, some companies reduce costs very aggressively, with more than one in every 10 companies reducing costs by more than 60%.
– Nevertheless, technology startups are unique in that they can continue to operate with restrictive measures by national governments. Unlike technology startups, many traditional businesses, up to 96% of start-ups, said they continued to work during the crisis, even though they were severely constrained by restrictive measures.

Table 1. Reducing the cost of startups that they did in a given period of time.

	January 2020		February 2020		March 2020	
	The first half	The other half	The first half	The other half	The first half	The other half
Asia	4%	5%	6%	8%	18%	35%
Europe	5%	1%	5%	6%	19%	52%
North America	3%	1%	3%	8%	22%	44%

Source: Startup Genome 2020

In the field of "Policy":

– Approximately 60% of startups have already received or are expecting assistance from business support through national government policies.

– According to the founders and managers of start-ups, state aid would be most useful in the following order: 1. Subsidies to maintain the company's liquidity, 2. Investment support instruments, 3. Aid to protect employees and loans to maintain the company's liquidity [6, 11, 12].

Startups can start their journey from anywhere. This means that a startup can be based not only in a developed country. The higher the needs, the greater the opportunities for start-ups. Therefore, it is important to set up startups in underdeveloped countries, in conflict countries, or in countries that are new to business. The result will be not only the profits that startups will bring, but also the overall contribution of startups to the entire economy of the country.

Startups can be divided into two categories:

1. "Subsistence": Companies belonging to categories that will never become large companies. Entrepreneurs of these startups only do their job and at the same time ensure financial independence.
2. "Transformational": We expect these startups to have a significant impact on the economic growth of the economy. They plan to expand their business to other countries and so they plan to open branches in other countries around the world [12–14].

3 Methodology

Not only in a market economy, but the goal of every individual or business entity is to satisfy their needs and maximize the benefits of each of their input. The company's performance is a criterion of financial decision-making and ensures the survival and competitiveness of the company in the market. One way to define a company's performance is the company's ability to achieve the desired business results in the form of outputs that are consistent with the company's goals, expressed in measurable units. [9, 12].

According to the Startup Genome report for 2019, the global startup economy is growing steadily, generating $ 2.8 trillion between 2016 and 2018. This is an increase of 20.6% over the previous period. This value is at the level of the G7 economy.

Ten years ago, when oil sold for more than $ 100 a barrel, oil companies dominated the top ten, as can be seen in the table. Chinese oil giant PetroChine was the largest company in the world in 2008 with a market value of $ 728 billion. Five of the ten largest companies in the world were oil companies. Due to the revolution in electric vehicles, oil companies are unlikely to dominate the top 10 companies in the world.

Seven of the 10 largest companies in the world today are technology companies. Another interesting development is the growth of Chinese technology companies. Tencent (the equivalent of Chinese Facebook) and Alibaba (the equivalent of Chinese Amazon) are now the sixth and eighth largest companies in the world (Table 2). [6, 14, 15].

Table 2. Comparison of global companies in 2018 and 2008.

2018				2008			
No.	Company	Estalished	Market value (billions of USD)	No.	Company	Established	Marke value (billions of USD)
1	Apple	1976	890	1	PetroChina	1999	728
2	Google	1998	768	2	Exxon	1870	492
3	Microsoft	1975	680	3	General Electric	1892	358
4	Amazon	1994	592	4	China Mobile	1997	344
5	Facebook	2004	545	5	ICBC (China)	1984	336
6	Tencent (China)	1998	526	6	Gazprom (Russia)	1989	332
7	Berkshire	1955	496	7	Microsoft	1975	313
8	Alibaba (China)	1999	488	8	Royal Dutch Shell	1907	266
9	J&J	1886	380	9	Sinopec (China)	2000	257
10	JP Morgan	1871	375	10	AT&T	1885	238

Source: Startup Genome 2019

However, striving for the highest possible profit is associated with higher risk and financial instability. Such a traditional approach to measuring performance and its use in financial decision-making in the company has been replaced in recent years by additional so-called modern approaches to performance measurement that take into account several factors.

The definition of startup subsectors may be different, and these subsectors are not mutually exclusive, but on the contrary, some subsectors are interconnected as soon as possible, such as technologies such as software and artificial intelligence.

Division of startup subsectors [16, 17]:

Advertising Tech (Adtech) - includes various types of analysis and digital tools used in advertising and marketing. Extensive and complex systems are used to target, mediate or monitor advertising to target groups of any size and scope.

Advanced Manufacturing & Robotics - advanced manufacturing involves intelligent technology to improve traditional manufacturing products and/or processes. Robotics is the science and technology of robots, their design, manufacture and application.

Agriculture Tech (Agtech) & New Food - is the use of technology in agriculture, horticulture and water management to improve yield, efficiency and profitability through information monitoring and analysis of weather, pests, soil and air temperature.

Artificial Intelligence (AI), Big Data & Analytics - Artificial Intelligence, Data and Analytics refers to the field of technology dedicated to extracting meaning from large sets of raw data, often including simulations of intelligent behavior in computers.

Blockchain - is a decentralized method of data storage secured by cryptography. Cryptomens are one of many blockchain innovations. Companies that build their product/architecture on this decentralized and encrypted technology are defined as blockchain companies.

Cleantech - consists of sustainable solutions in the fields of energy, water, transport, agriculture and manufacturing, which include advanced materials, smart grids, water treatment, efficient energy storage and distributed energy systems.

Construction and Property Tech - They focus on improving the processes and methods of construction companies, offering increased productivity, cost savings, better safety, shorter delivery times and maximizing resources. Property tech helps organizations and individuals research, buy, sell, rent and manage real estate. Applications include property search, list of available properties, setting browsing dates, and finalizing leases and deals.

Consumer Electronics or Home Electronics (includes Wearables, Smart Devices) - consumer electronics or home electronics (including wearable devices, smart devices) includes electronic or digital devices designed for everyday use, including smart devices used for entertainment, communication and home office activities, such as and other wearable devices.

Cybersecurity - A set of technologies, processes, and practices designed to protect networks, computers, programs, and data from attack, damage, or unauthorized access.

Education Tech (Edtech) - deal with the development and application of tools (including software, hardware and processes) designed to redesign traditional products and services in education.

4 Research and Results

The current Covid-19 pandemic has caused major changes in the various sectors in which startups operate. The changes are mainly in the fact that in some sectors startups are in decline and, on the contrary, in some they show above-average growth. Figure 1 points to the development of startup sub-sectors according to the amount of investment and the impact of larger business transactions. The startup sub-sectors Advanced Manufacturing & Robotics, Blockchain, Agtech & New Food, AI & Big Data are the fastest growing in the world. And Fintech has also seen significant growth over the last 5 years. Similarly, Edtech and Gaming, which were in decline in 2019, have seen significant growth in recent years [16, 20, 21].

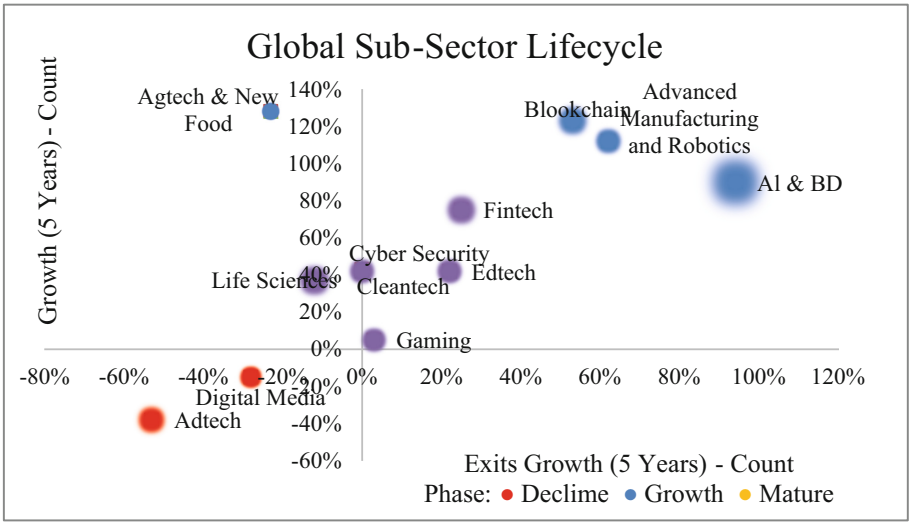

Fig. 1. Life cycle of selected startup subsectors according to the number of offers and deals. Source: https://startupgenome.com/ and authors.

On the other hand, Fig. 2 offers an alternative view of startup subsectors by measuring their growth based on the amount of investment and output value. This view largely reflects the growth of startup sub-sectors with higher investment values and their impact on output growth. It is interesting that the subsectors of startups AI & Big Data, or even Advanced Manufacturing & Robotics are experiencing a high level of growth, as shown by Fig. 1 but also Fig. 2 [16].

Based on the graphs, it can be seen that among the fastest growing subsectors of startups with financing agreements in the initial stage for more than five years are:

- Agtech & New Food (128%),
- Blockchain (121%),
- Advanced Manufacturing & Robotics (109%),
- AI & Big Data (98%).

And on the other hand, the declining subsectors include:

- Adtech (-35%),
- Digital Media (-21%)

Growth subsectors:

- Blockchain,
- Advanced Manufacturing & Robotics,
- AI & Big Data,
- Fintech.

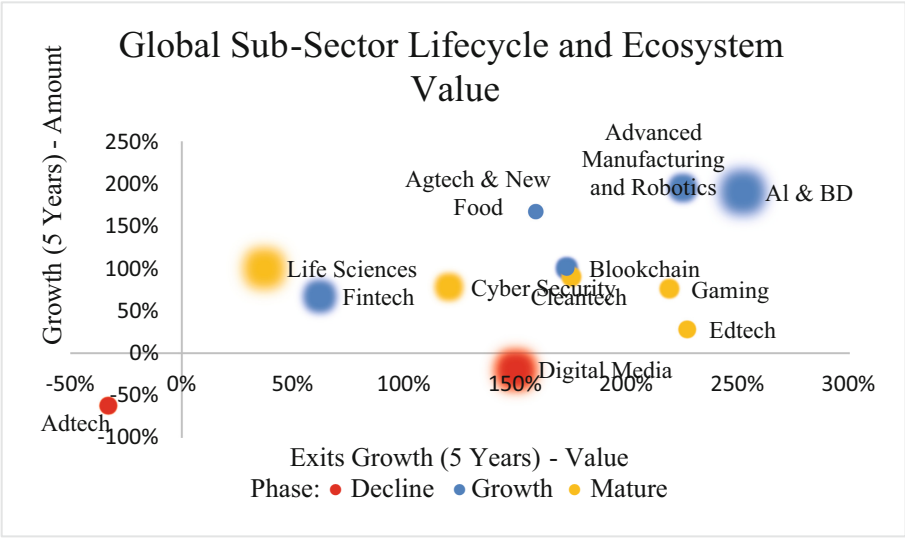

Fig. 2. Life cycle of selected startup subsectors and the value of the whole system according to the number of offers and deals. Source: https://startupgenome.com/ and authors.

The size of the five growing subsectors is growing at a significant pace, with an average growth of 107%. The Fintech sub-sector is a new participant in the group in this area due to higher investments than in other sub-sectors. AI & Big Data and Analytics are among the growth sub-sectors, accounting for up to 27% of all global startups. Agtech & New Food is the smallest subsector so far (Table 3) [16, 22, 23].

Table 3. Growth subsectors in the growth phase.

Subsector	Growth over a 5 - year period	Share in global startups
Agtech & New Food	– 14%	2%
Blookchain	52%	10%
Advanced Manufacturing and Robotics	61%	10%
Al & Big Data	93%	27%
Fintech	25%	10%

Source: https://startupgenome.com/ and authors

Start-up subsectors:

– Cybersecurity,
– Edtech,
– Cleantech,
– Life Sciences,

– Gaming.

Cybersecurity, Cleantech and Life Sciences are in the maturity phase. Edtech and Gaming are among the sub-sectors that have gone from declining to maturity. Taken together, these subsectors saw an increase of 33% and 3% in departures over the last five years (Table 4) [16, 24, 25].

Table 4. Startup subsectors in the maturity phase.

Subsector	Growth over a 5 - year period	Share in global startups
Cyber security	0%	8%
Edtech	22%	4%
Cleantech	0%	7%
Life sciences	– 11%	8%
Gaming	2%	5%

Source: https://startupgenome.com/ and authors

The subsectors in the downturn are:

– Adtech,
– Digital media.

Over the last five years, the Adtech and Digital Media subsectors have seen a decline compared to other startup subsectors. Gaming and Edtech are sub-sectors that have successfully re-entered the mature phase of the startup lifecycle in the treasure phase. This increase is probably caused by the COVID-19 pandemic period, which forced millions of people around the world to have fun at home and at the same time schools moved to the online space (Table 5).

Table 5. Startup subsectors in a phase of decline.

Podsektor	Rast za 5 - ročné obdobie	Podiel v globálnych startupov
Digital media	– 24%	4%
Adtech	– 51%	6%

Source: https://startupgenome.com/ and authors

5 Conclusion

The COVID-19 pandemic has shown that digitally oriented companies can do business from anywhere. At the same time, it can be said that startups - unicorns focused on IT

technologies with a value in excess of billions of dollars, are not only in Silicon Valley as expected, but are worldwide. In 2021, two startups were born every day - unicorns. There are currently more than 2,000 companies in the world that can be considered startups - unicorns. As a 35 trillion dollar industries, technology currently has a major impact on cities and local communities, affecting all sectors. Startups are a fast and resilient engine of job growth, with the number of new jobs growing by an average of 10% year-on-year worldwide. And it is not only the established startups but also the younger generations of startups that create the same value as the older ones. More than a quarter of all companies worth $ 1 billion or more have achieved unicorn status this year. More and more international investment strategies are aimed at enabling startups to be set up, financed and expanded anywhere in the world, making local support even more important for supporting individual startup ecosystems. According to experts, the pandemic has helped many startups - especially those in the digital world - to accelerate their development, but also to identify other opportunities for business.

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