ARTICLES

CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE

vol. 32, No 1 (2021) pp. 43-53

DOI <https://doi.org/10.24136/ceref.2021.003>

Katarzyna Sieradzka¹

The conditions of development of innovative business undertakings at the time of the COVID-19 pandemic

Abstract

The paper is theoretical and analytical and aims to analyse and assess the impact of the COVID-19 pandemic on start-ups in Poland. Its first part discusses the specific nature of start-ups and the conditions of their development, known as the start-up ecosystem. The effect of these entities on economic development is addressed, too. The article then attempts to assess, based on domestic and international reports and analyses, the impact of the SARS-CoV-2 pandemic on start-ups in Poland and the prospects of their development.

JELL Classification Codes: M13, O31

Key words: start-ups, development, SARS-CoV2 pandemic

Paper type: Theoretical research article

1. Introduction

The COVID-19 coronavirus pandemic began its active global spread in early 2020. The situation was particularly difficult in Italy, Spain, China, Iran, South Korea, and the United States. It developed very fast, bringing grave changes that affected various areas of society, state, and business as a consequence (Duda et al., 2021, p.140; Starostin *et al.*, 2020, p. 531). Start-ups are becoming particularly important parts of the knowledge-based

¹ Assistant Professor, PhD., Faculty of Economics and Finance, K. Pulaski University of Technology and Humanities in Radom

economy and the stimulants of its international innovativeness and competitiveness. The COVID-19 pandemic has caused huge turbulences in the global markets. Enterprises face a number of restrictions, prohibitions and limitations that often prevent their activities. Tourist, entertainment and catering firms have suffered most painfully. In spite of the difficult socio-economic situation, the COVID-19 pandemic has not become a barrier, but an accelerator of development of Polish start-ups. *“For entrepreneurial ecosystems, 2021 is turning out to be a year of remarkable growth and productivity. And the dispersal of success—already underway before the pandemic—has only accelerated”* (GSER, 2020).

The purpose of this article is to analyse and assess the impact of the COVID-19 pandemic on start-ups in Poland. To this end, the following hypothesis is adopted: *The innovative nature and flexibility of start-ups enables most of them to adapt to the changing market conditions in effect of the SARS-CoV-2 coronavirus pandemic.*

In order to realise the objective and prove the hypothesis, data and information contained in the studies and reports of Polish and European institutions and organisations are analysed and the specialist literature is reviewed critically.

2. Innovative start-up undertakings – the conditions of development

The globalisation of contemporary economy and the very intensive development of information and communication technologies enhance the potential of even the smallest enterprises for expansion to the international market. As a result, businesses offering innovative tangible and intangible products in the virtual environments of the global market gain importance (Sieradzka, 2020, p. 251).

Start-ups are a specific group in the population of enterprises. These entities are capable of creating new markets and thereby contributing to the creation and satisfaction of needs and to the increase of employment and consumer spending (Kowalewski, 2020, p. 13). These firms escape the classic principles of management. The unique nature of start-ups and the relatively high risk of their operations cause only few to survive and expand their activities. Nine out of ten are said to fail (Patel, 2015).

Specialist literature offers a number of original definitions of the start-up that stress their temporary market operations and searching for scalable business models (Blank, Dorf, 2013, p. 50), the development of new products/ services in the conditions of uncertainty (Ries, 2011, p. 37, Kubiński et al., 2017, p. 117), the potential for quick growth owing to technological advantage or a market niche (Beaucham, et al. 2017, p. 9), young age, knowledge absorption, innovativeness of operations,

and the capacity for a dynamic growth of staffing and sales (ESM, 2016, Skala, Kruczkowska, 2016). A. Wilhelm states an enterprise to be treated as a start-up must meet the following conditions: below US\$ 50m of annual revenue, not more than 100 employees, and value of below US\$ 500m (Wilhelm, 2014). A start-up's spending is greater than revenue at the early stages, since its founders focus on the development and testing of ideas. The definitions of start-up commonly underline the issues of risk and uncertainty of business, therefore (Kowalewski, 2018, p. 247).

Based on a range of start-up definitions, some characteristics can be distinguished that make them different to other firms. Start-ups are said to be (Kaliszczak, Sieradzka, 2018, pp. 93-94):

- Innovative,
- In the early phases of growth,
- Learning,
- Operating in the conditions of extreme uncertainty,
- Looking for a profitable, reproducible, and scalable business model,
- Using some alternative sources of financing,
- Creating new technological solutions in the area of ICT,
- With a potential for a dynamic, above-average development and market expansion owing to a technological advantage or market niche.

Start-ups are described as innovative organisations since they operate in the field of high technologies and their (scalable) business model is founded on the processing of knowledge, data, and information. Most start-ups are unique organisations that escape the schematic, traditional development of enterprises. "They operate on the basis of a new business *paradigm of multi-level openness and attempts at creating effective business models*" (Chrzanowski, Zawada, 2018, p. 42).

The development of start-ups is to a large extent dependent on an efficient environment, both close and more distant. The environment of start-ups is referred to as the ecosystem. It is made up of all entities and organisations interested in the process of initiating innovation and transforming it into prosperous business undertakings (Kořakowski, Góral, 2017, p. 243). The key parts of the start-up system comprise (Debb, 2019): entrepreneurs, investors, mentors, universities, incubators, corporations, central and local administration, service providers, business accelerators, associations, and events. The key features of mature start-up systems encompass (Sagan, Wiśniewska, 2018, p. 14): reinvestment of profits, cohesion with the strengths of a given region, interregional cooperation, implementation of promotional actions, a system of ecosystem

development evaluation, a shared vision, and systematic and persevering work of stakeholders.

Global Start-up Ecosystem Ranking (2021) implies the best start-up systems function in North America (50% of 30 best ecosystems), followed by Asia (27%), and Europe (17%). The ranking assesses the following factors: performance, founding, connectedness, market reach, knowledge and talent, rated on a scale of 1-10. The five best developed ecosystems globally have not changed since 2017 – the Silicon Valley is the world leader, while London and New York City are equal seconds. Peking and Boston come in fourth and fifth. As far as 100 largest emerging ecosystems are concerned in regional terms, the ecosystems from Europe and North America prevail. Poland (Warsaw) doesn't make it to the global forty of the best start-up ecosystems in the world. Two factors, performance and market reach (3 and 2 points, respectively), gain particularly low evaluations.

The Polish start-up ecosystem is analysed by Deloitte (2016) to identify five key areas of support – financing, legal regulations, human and social capital, and institutional environment. By comparing the Polish ecosystem with a model of maturity, a relative assessment of Poland with reference to a group of countries is arrived at. Each of the factors is rated on a scale of 1-4, where 1 is the lowest and 4 the highest rating. Poland scores highest on legal regulations (2.55) and institutional environment (2.5). Social capital (1.5) and financing (1.68) are seen as the least developed. Human capital (2.27) is moderately developed.

Start-up communities are some major sources of innovations as well as impressive business revenues. The top 100 emerging ecosystems represent over \$540 billion in ecosystem value, a 55 percent increase from last year (GSER, 2021). The dynamic development of start-ups contributes to national economic development through (Kowalewski 2020, p. 15):

- The impact on GNP and employment,
- The development of human and social capital,
- Raising household revenue,
- The improvement of living and working quality,
- Contributions to public finances,
- The external effects of innovations.

The largest start-ups in the world are global brands, estimated at billions of dollars and employing thousands. The latest ranking of unicorns, that is, start-ups valued at over \$1 billion, identifies 936 unicorns with an estimated total value of \$ 3,049B in 2021. The ranking is topped by Bytedance and SpaceX, with the values of \$140B and \$100B, respectively (CBISIGHTS, 2021). In 2021, the highest valued unicorn in Central and Eastern Europe is the Romanian UIPath (\$35B), a producer of systems

automating office work (300gospodarka.pl). According to Delroom's *"Coming of age: Central and Eastern Europe"* (2021), there are eight firms with values above €1B in Poland, namely, InPost, CDproject, Huuge Games, DocPlanner, TenSquareGames, eObuwie, WirtualnaPolska, and Allegro.

More than 4,700 start-ups are estimated to operate in Poland in 2020, including 60% of IT and ICT enterprises (Duszczyk, 2020). By 2023, they are expected to generate (directly, indirectly, and by induction) a total of PLN 2.2B of added value (Deloitte, 2016). These enterprises are open to international trade. Nearly a half (48%) of the Polish start-ups are exporters. They record a majority (over 50%) of their revenue from operations abroad (Krzysztofik-Szopa, Wisłowska, 2019). Most start-ups are recent business undertakings that have been in the market for a short time (in 2021, 34% for up to 2 years) and have few workers – a third (32%) employed up to 10 people and a quarter up to 3 people. Those with staff of a dozen accounted for 15% of the group, while 16% have 21 to 50 workers (Dziewit, 2021). The start-ups in Poland, however, are estimated to generate more than 34,000 new jobs by 2023 (Deloitte, 2016).

The effect of start-ups on the job market is important from the viewpoint of the quality of human and social capitals, too. Jobs in a start-up require high qualifications in new, dynamically developing industries like: biotechnology, e-commerce, nanotechnology, or information technology. These specific positions require continuing learning and improvement of qualifications. Importantly, start-up teams are frequently international – 25% start-ups hire foreigners (Dziewit, 2021).

The external effects of innovations created by start-ups have a positive influence on the development of the national economy by affecting not only the sectors they are active in but also on the so-called related and supporting sectors.

3. The SARS CoV-2 coronavirus pandemic and the development of start-ups in Poland

The impact of the COVID-19 pandemic on socio-economic development is negative globally. Successive restrictions, lockdown, shrinking revenue, lay-offs, production downtimes, and bankruptcies are the problems faced by all businesses. The perceived effects of the pandemic on start-ups in Poland are polarised. 39% of the firms queried assess the impact of the pandemic on development opportunities as adverse, whereas 34% are of the opposite opinion, while every third start-up (27%) claims the pandemic has had no effect on their operations (Arwaj, 2020, p. 19). If the absence of adverse developments is positive in the face of the pandemic threats, this means positive effects on the start-ups in Poland can be noted (61% point to no impact or its positive effects). The following are listed among the positive factors: the acquisition of new

customers, growing sales, and retention of staff (key workers), indicated by 56%, 48%, and 43% of the start-up owners, respectively. Improved customer loyalty, more opportunities for entering new sales markets, and finding of new clients are seen as positive changes (Table 1). The influence of the pandemic on the development of start-ups is perceived differently by 39% of the entities surveyed, including 14% pointing to a very negative impact. More than a half of the start-ups (53%) identify the impossibility of acquiring new customers and declining market demand (35%) as the crucial threats to their development. More than a third mentioned the necessity of exiting or the limited possibilities of entering new sales markets. As a result of the pandemic, the customer loyalty has been undermined and valuable staff have been lost (Table 1).

Table 1. The impact of SARS-CoV-2 coronavirus pandemic on the operation of start-ups in Poland

POSITIVE IMPACT		NEGATIVE IMPACT	
No reduction of employment	43%	Reduction of employment	8%
Improved customer loyalty	11%	Impaired customer loyalty	16%
Entry in new sales markets	15%	Limited access to new sales markets	34%
Acquisition of new staff	18%	Limited sales of product/ service	35%
Higher sales of product/ service	48%	Limited opportunities for the acquisition of new customers	53%
Acquisition of new customers	56%		
NO IMPACT			
No reduction of employment	43%		
The realisation of entry strategies in new sales markets	41%		
The preservation of financial liquidity	31%		
The growing numbers of new clients are projected	31%		
Unchanged customer loyalty	29%		
An unchanged quantity of products/services sold	29%		

Source: The author's compilation based on: Arwaj A., et al., (2020), *Polskie startupy. Raport 2020. Covid Edition*, Startup Poland.

The firms that have experienced neither a negative nor a positive impact on their functioning and development plans constitute a major grouping (27%). This is most often shown with no necessity of firing key workers (43%), the realisation of an assumed entry strategy in new sales markets (41%), and the preservation of financial liquidity. The maintenance

of customer numbers and loyalty and an unchanged quantity of products/services sold are important as well (Table 1).

As far as the pandemic's effects on the particular sectors are concerned, those that take a natural advantage of a growing demand for their products or services are the greatest beneficiaries, including agrotech, e-commerce, cybersecurity, medtech, social media, and e-sport. Gaming firms record the most positive assessments (80%). The fintech sector has been stimulated to develop, too – 50% of the industry approve of the effects of the crisis. Difficulties and development restrictions are experienced by the lending sector, tourism, food deliveries, and transportation. The most adverse effects (60%) are identified by businesses offering HR and blockchain technology services, due possibly to discontinued actions and the freezing of funding for development and innovation.

Faced with the changing market situation, nearly a third (28%) of the entities examined have changed their business model, seeing it as an opportunity for rising revenue and improved customer relations. The following causes are indicated (Arwaj, 2020, p. 29):

- Opportunities for more revenue are noted in another model (52%),
- A change of customer relations (43%),
- The necessity of changing distribution channels (33%),
- Lower revenue and attractiveness of the current business model (26%),
- Departure of partners (6%),
- Other (9%)

In connection with changes in the market, any new sources of financing are increasingly hard to find. Own funds continue to be the first source of capital for Polish start-ups. The resources obtained from the Polish Agency for Enterprise Development and domestic accelerators, VC funds and business angels are some major sources of capital. 3-5% start-ups use the support of foreign investors (business angels and VC funds). Entities utilising investor capital normally carry through a single round of financing (33%), with far fewer (8%) engaging in two rounds and a mere 3% engaging in three. The amount of financing commonly ranges within PLN 1-2m and 0.5-1m – this is true of 24% and 19% of firms acquiring external capital, respectively.

37% of the entities studied mention mounting problems with obtaining external capital. Moreover, half the start-ups examined expect more support of the state, chiefly as subsidies, tax incentives for investors, government acceleration programmes, and tax simplifications (Fig 1). As part of the latter, the need for the so-called Estonian CIT is cited to improve the competitiveness of domestic businesses by simplifying reporting

and realising more capital for investments (as CIT needn't be paid as long as profits remain in a company). In spite of the clear expectations, a majority of start-ups do not benefit from public aid. Scarcely a third resort to national insurance exemptions and loans as part of the so-called anti-crisis shields for small and medium-sized enterprises in Poland. Such a meagre percentage results, among others, from their inability to meet the key condition – demonstrating a loss of revenue (quarterly or year after year) – due to their short operation, an utter lack of revenue, or possibly an excellent standing that does not qualify them for the support.

Figure 1. Start-ups' expectations of public aid during the SARS-CoV-2 coronavirus pandemic

Source: The author's compilation based on: Arwaj A., et al., (2020), *Polskie startupy. Raport 2020. Covid Edition*, Startup Poland.

The continuing pandemic and subsequent restrictions raise the question, how will the coronavirus pandemic circumstances affect the future of start-ups? The distribution of responses is optimistic. There are roughly the same shares of positives and negatives, with the former slightly prevailing. 44% of those surveyed outline optimistic development prospects for their undertakings, with 7% seeing their business future in highly bright colours. 39% of the firms asked, on the other hand, declare an adverse impact of the pandemic on the operation of start-ups in future, including 5% offering very pessimistic forecasts.

4. Conclusions

The ability of an economy to innovate determines its competitiveness. At the company level, innovations can help develop efficiency, and in times of crisis (such as the COVID-19 pandemic), they can ensure continuity

or profitability. The countries of Central and Eastern Europe (including Poland) are essentially emerging innovators (EIS, 2021). One of the key issues when it comes to catching up in economic terms and modernisation in the region is the development of innovative capacity. Start-ups play an important role in this process: they can boost innovative potential significantly, mainly through the technological solutions and innovations they implement (Wisniewski, 2021, p. 3).

Start-ups, like other enterprises, contribute to economic growth. With their innovative nature, they make a creative contribution to the production process and launch new products/ services in the market. They influence employment and the quality of human and social capitals. A vital significance of the external effects of innovation to intermediate and supporting sectors is highlighted.

The development of start-ups is conditional on an efficient ecosystem comprising institutions, organisations, and entities supporting the process of initiating economic innovation. It is beyond any doubts that central, regional and local, public and private institutions should undertake any actions to improve the conditions fostering the development of start-up ecosystems.

The following conclusions can be offered based on this analysis:

- Start-ups are innovative business undertakings whose characteristics are different than those of classic firms;
- A dynamic development of start-ups can have a considerable impact on innovation of an economy and economic growth;
- The perceived effects of the pandemic on start-ups are not uniformly adverse;
- New clients and improved sales, combined with the lack of a necessity of redundancies are the measures of success of many a Polish start-up at the time of the pandemic;
- A great majority of the start-ups (75%) have not taken advantage of the so-called anti-crisis shields;
- Most start-ups expect more state assistance with, for instance, obtaining financing and simplified taxation.

References

1. 300gospodarka.pl, *Te 3 polskie strupy ścigają się o miano pierwszego polskiego jednorożca*, from <https://300gospodarka.pl/news/te-3-polskie-startupy-sciagaja-sie-o-miano-pierwszego-polskiego-jednorozca>
2. Arwaj A., Dziewit W., Jagieło M., Jedliński K., Król P., Pawlak M., Snażyk T., (2020), *Polskie startupy. Raport 2020. Covid Edition*, Startup Poland, from https://startuppoland.org/wp-content/uploads/2021/03/Polskie-Startupy-2020-COVID-EDITION-PL_-www.pdf

3. Beaucham M., Kowalczyk A., Skala A., (2017), *Polskie startupy. Raport 2017*, Wyd. Fundacja Startup Poland, Warszawa.
4. Blank S., Dorf B. (2013). *Podręcznik start-upu. Budowa niewielkiej firmy krok po kroku*, Wyd. HELION, Gliwice.
5. CBINSIGHTS, (2021), *The complete list of Unicorn Companies*, from <https://www.cbinsights.com/research-unicorn-companies>
6. Chrzanowski M., Zawada P. (2018), *Otwarte innowacje i ich wykorzystanie w przedsiębiorstwach typu start-up*, Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów.
7. Debb G. (2019), *How to build startup ekosystem*, Forbes April 4, from <https://www.forbes.com/sites/georgedeeb/2019/04/04/how-to-build-a-startup-ecosystem/?sh=5c0e8e9f6130>
8. Deloitte (2016), *Diagnoza ekosystemu start-upów w Polsce*, from <https://www2.deloitte.com>.
9. Delroom (2021), „*Coming of age: Central and Eastern Europe*” from <https://dealroom.co/blog/central-and-eastern-european-startups-2021>
10. Duda J., Wolak-Tuzimek A., Wójtowicz Ł. (2021), *Instruments of competition applied by large enterprises at time of crisis triggered by COVID-19 pandemic*, European Research Studies Journal, Vol. XXIV(2), 139-151.
11. Duszczak M. (2020), *Liczba startupów w Polsce podwoiła się w 5 lat. Najnowsze dane*. Rzeczpospolita, 2020.11.20, from <https://cyfrowa.rp.pl/biznes-ludzie-startupy/art18252231-liczba-startupow-w-polsce-podwoila-sie-w-5-lat-najnowsze-dane>
12. Dziewit W. (2021), *Polskie startupy. Raport 2021*, Startup Poland, from <https://startuppoland.org/raporty>
13. *European Innovation Scoreboard* (2021), from https://ec.europa.eu/info/research-and-innovation/statistics/performance-indicators/european-innovation-scoreboard_pl#european-innovation-scoreboard-2021
14. *European Startup Monitor* (2016), from <http://startupmonitor.eu>
15. *Global Startup Ecosystem Report* (2021), from <https://about.crunchbase.com/blog/startup-genome-2021-global-startup-ecosystem-report/>
16. Jakubowska M., Maciejewska O., Sytek A., Panek-Owsińska M., Rok B., Sobol A., Szymańska K., Wrzosek A., Kurek B., (2020), *Startupy pozytywnego wpływu*, Wyd. kozminskyhub.com, Warszawa.
17. Kołakowski A., Góral J., (2017), *Ekosystemy startupowe w Polsce*, [in:] Kołakowski A., Wysocki J. (ed.), *Start-up a uwarunkowania sukcesu. Wymiar teoretyczno-praktyczny*, Oficyna wydawnicza SGH, Warszawa.
18. Kowalewski K. (2020), *Skuteczny rozwój startupów jako wyzwanie dla współczesnego zarządzania*, Marketing i Rynek, Vol. XXVII, No. 10.

19. Kowalewski K., (2018), *Uwarunkowania rozwoju start-upów – perspektywa północno-wschodniej Polski*, Nowoczesne Systemy Zarządzania, Vol. 13, No. 3.
20. Krzysztofik-Szopa J., Wiśłowska M., (2019), *Polskie startupy. Raport 2019*. Startup Poland, <https://startuppoland.org/wp-content/uploads/2021/11/Startup-Poland-raport-Polskie-startupy-2019-PL-www-1.pdf>
21. Kubiński P., Ropuszyńska-Surma E., (2017), *Rola instytucji otoczenia biznesu w kreowaniu sieci współpracy i rozwoju przedsiębiorstw typu start-up*, Zeszyty Naukowe Politechnik Śląskiej, Organizacja i Zarządzanie, No. 13.
22. Kuranowski M., Szymańska K. (2018), *Uwarunkowania rozwoju start-upów w Polsce*, Przegląd Nauk Ekonomicznych nr 29.
23. Patel N., (2015), *90% of startups will fail. Here's what you need to know about the 10%*, <https://www.forbes.com/sites/neilpatel/2015/01/16/90-of-startups-will-fail-heres-what-you-need-to-know-about-the-10/?sh=2fcfadd46679>
24. Reis E. (2017), *Metoda Lean Start-up*, Wyd. Helion, Gliwice.
25. Sagan M., Wiśniewska E. (2018), *Tworzenia systemu start-upowego w Lublinie jako narzędzie przełamania peryferyzacji regionu*, [in:] *MŚP a konkurencyjność regionu peryferyjnego*, Zeszyty Naukowe WSZEiL w Lublinie, Vol. 15, No. 1.
26. Sieradzka K., (2020), *Crowdfunding as a source for start-up financing in Poland*, Scientific Papers of Silesian University of Technology, Organisation and Management Series, Issue No 147, Wyd. Politechnika Śląska, Gliwice.
27. Skala A., Kruczkowska E., (2016), *Polskie startupy. Raport 2016*, Startup Poland, <https://startuppoland.org/wp-content/uploads/2021/11/Raport-Polskie-Startupy-2016-official-3.pdf>
28. Starostin V., Samokhodkin E., Elzon A. (2020), *Changing Consumer and Brand Behavior in the Early Stages of the COVID-19 Pandemic in Russia*. European Research Studies Journal, Vol. 23(4), 531-543.
29. Wilhelm A., (2014), *What the hell is the startup anyway?*, <https://techcrunch.com>
30. Wisniewski A. (ed.), (2021), *The innovation and start-up ecosystem in Poland and Hungary*, Institute for Foreign Affairs and Trade, from https://kki.hu/wp-content/uploads/2021/03/41_2021_08_Innovation-and-start-ups-1.pdf