



Business Incubators - Drivers of Innovation in the Entrepreneurial Ecosystem

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ABSTRACT

Business incubators play a key role in developing and supporting the entrepreneurial system as they provide a nurturing environment for start-ups, providing important resources and mentoring needed to turn innovative ideas into successful businesses. By facilitating access to experienced management and funding networks, incubators facilitate the growth and development of early-stage entrepreneurs. A characteristic element of incubators is the provision of innovation support, which is fundamental for market competitiveness. Start-ups can be helped to optimize their go-to-market strategy and shorten their time-to-market through acceleration programs in business incubators. Accelerator programs increase the chances of success of new businesses, contributing to the dynamism of the whole entrepreneurial ecosystem. By gaining a deeper understanding of how business incubators contribute to entrepreneurial success, more effective strategies can be formulated to support new businesses and foster a dynamic entrepreneurial ecosystem. The significant impact of business incubators on entrepreneurship enables the creation of a collaborative environment where ideas can be effectively tested and developed. Incubators are important drivers of economic development, providing not only financial and technical resources, but also strategic support through mentoring and networking, contributing to the consolidation of a robust and sustainable entrepreneurial system capable of generating value and continuous innovation. In the present research we analyze the impact of business incubators on the entrepreneurial system by reviewing the existing literature. We used the VOSviewer tool to map and visualize research networks and the relationships between key concepts. The VOSviewer provides a clear picture of the current research landscape, highlighting both well-covered areas and gaps that require further investigation.

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1. Introduction

Business incubator is a combination of activities including the provision of infrastructure, practical policies and regulations to turn innovative business ideas into economic value (Mahmood, Jamil & Yasir, 2016). The role of business incubators is essential in developing and sustaining the entrepreneurial ecosystem as they can provide support to start-ups by providing resources, mentoring and access to networks of investors and business partners. The importance of business incubators on the entrepreneurial system can be analyzed from several perspectives, including by increasing the success rate of start-ups, stimulating innovation and contributing to regional economic development. Incubators enable the transfer of knowledge and provide services and resources to businesses or individuals, thereby creating links between businesses and entrepreneurs (Porter & Kramer, 2011) and correcting the resource shortages often faced by start-ups. Business incubators therefore ensure business stability, economic growth and long-term survival of enterprises (Schwartz & Hornych, 2008).

Business incubators frequently produce successful enterprises (Mas-Verdú, Ribeiro-Soriano, & Roig-Tierno, 2015). Business incubators play a particularly important role in increasing the success rate of start-ups as businesses that benefit from incubator support have a much higher survival rate compared to those without this support. Moreover, incubators provide access to low-cost office space, legal and tax advice, and networking opportunities, all of which contribute to the stability and growth of start-ups.

In business incubators entrepreneurs can experiment and develop new ideas as they are given access to advanced technological resources and specialized expertise. This encourages the development of innovative products and services. Moreover, collaboration within business incubators enables the creation of

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interdisciplinary solutions, which increases the potential for innovation and market competitiveness. The positive impact of business incubators is also visible in regional economic development.

The goal of incubators is to produce successful businesses, which is why incubators help businesses to survive and grow in their early stages (Aernoudt, 2004). At the same time, they stimulate innovation and regional development (Más-Verdú, Ribeiro Soriano & Roig-Tierno, 2015). By attracting talent and investment to the areas where they operate, they create jobs and stimulate the local economy. Business incubators help to diversify the economy and reduce dependence on traditional sectors as they enable start-ups to be supported.

In order to perform effectively, according to Michelacci (2003), business incubators require a broad entrepreneurial background and appropriate skills. Therefore, entrepreneurship involves finding new ways to manage resources by pursuing all opportunities. Urban or rural areas are being revitalized by transforming unused spaces into hubs of innovation and entrepreneurship, so the importance of business incubators is obvious. In addition to all these benefits, business incubators also bring challenges. It is necessary to maintain a balance between supporting start-ups and the financial sustainability of the incubator.

Thus, business incubators need to adapt to the changing needs of entrepreneurs and rapidly evolving technology. With all these challenges, the importance of business incubators cannot be disputed. Ravesteijn and Sjoer (2010) state that innovation, recognizing opportunities and contributing to economic growth are common factors in all entrepreneurial activities.

The future outlook for business incubators is promising as more and more governments and institutions recognize their importance and invest in their development. Business incubators are stylizing the entrepreneurial ecosystem, contributing to increasing the success rate of start-ups, encouraging innovation and regional economic development. According to Hughes et al. (2007), a business incubator is a facility that houses young, small firms to help them grow rapidly into competitive businesses.

The Entrepreneur's Small Business Encyclopedia defines a business incubator as an organization designed to accelerate the growth and success of entrepreneurial companies through a range of business support resources and services that might include physical space, capital, coaching, shared services, and networking connections. This may be one of the most relevant definitions today. Business incubators provide resources and support, create a favorable environment for new business growth and development, and have a significant positive impact on the economy and society as a whole.

2. Literature review

Entrepreneurship involves continuous business development through innovation, adapting to market changes, managing resources efficiently and building a strong team. A successful entrepreneur must be able to manage financial challenges, maintain a clear vision and develop long-term strategies for sustainability and business growth. Kuratko (2004) suggests that the performance of entrepreneurs is not limited to just starting a new business and exploiting opportunities to turn ideas into viable businesses, entrepreneurship itself is more than simply launching a business. Entrepreneurship is a complex process that requires diverse skills including leadership, creativity and resilience. Groenewald et al. (2006) and Lose (2016) view entrepreneurs as risk-takers in terms of offering products, identifying and developing new business ideas. They defined an entrepreneur as a person with the ability to identify business opportunities and utilize them, as well as the ability to manage those business opportunities to generate revenue.

Entrepreneurs need to be innovative, have a strategic vision and be able to adapt quickly to market changes. Success in entrepreneurship requires a combination of courage, insight, management skills and adaptability. The concept of business incubators was originally defined as resource-sharing initiatives, but their roles and characteristics have evolved and they have become an important tool offering many services such as training, consultancy and networking (Peters et al. 2004).

Currently, many definitions are available in the literature reflecting aspects of national policies and local cultures covering a wide range of services, approaches and objectives (Hamdani, 2006). Thus, Aernoudt (2004) describes the term incubator as an umbrella concept covering a heterogeneous group of institutions. Incubators are a powerful tool to promote innovation and entrepreneurship (Aerts et al., 2007). Numerous studies emphasize the essential role of business incubators as tools to promote entrepreneurship. Business incubators offer significant support to start-ups, including logistical assistance, mentoring, access to business networks and, in many cases, financial resources.

This support is essential in the early stages of business development when risks are high and resources are limited. Over the last 30 years, interest in business start-ups has been on the rise, and this increased interest is leading to changes in entrepreneurship policies (Lewis et al., 2011). In this context, most studies find that business incubators are a tool to encourage entrepreneurship (Dee et al., 2011; Lewis et al., 2011; Lewis et al., 2011; McAdam & Marlow, 2007), as they provide support to start-ups (Roberts, 1991). Business incubators are organizations created to support the development and growth of startups by providing essential resources and services.

Business incubators provide equipped workspaces and modern technology, thereby eliminating the high upfront costs that can deter many entrepreneurs. The services offered by business incubators are vital to

new ventures (Lai & Lin, 2015). The literature on business incubators contains much detail and a large number of similar definitions (Hackett & Dilts, 2004).

Allen and Rahman (1985) define a small business incubator as a center that helps young businesses grow in their early stages by providing rental space, shared office space, and assistance through business advisory services. In a later publication, Allen and Bazan (1990) define incubators as networks or organizations that provide skills, motivation, knowledge, real estate expertise, business services, and shared services. In business incubators entrepreneurs receive valuable guidance and advice, access to experts and mentors, which increases their chances of success.

Business incubators make it easier for entrepreneurs to get the finance they need to grow, creating an environment for collaboration and exchange of ideas, providing opportunities for partnerships and expansion. Business incubators also have close links with investors and venture capital funds. Business incubators help create new jobs and stimulate the local economy, the impact of these structures on the local and global economy is considerable. Shane and Venkataraman (2000) suggested that entrepreneurship involves the study of (a) the sources of opportunities, (b) the discovery processes, (c) the evaluation and exploitation of opportunities, and (d) the group of individuals who discover, evaluate and exploit these opportunities.

By promoting innovation, creating jobs and stimulating the economy, business incubators contribute significantly to local and global economic development. Their success depends on their ability to overcome challenges and adapt to a changing business environment. Business incubators play a key role in economic and technological progress. They need to adapt quickly to market changes and new technologies to stay relevant.

The incubation concept has gained popularity worldwide due to its ability to create such an environment that is conducive for entrepreneurship development (Eshun, 2009; Mahmood et al., 2015). Business incubators can play a very important role in reducing business risks and motivating business innovation. In addition to risk reduction, business incubators stimulate innovation as they create a conducive environment for experimentation and development where new ideas can be tested and refined in a supportive environment. By organizing workshops, networking sessions and pitching events, incubators encourage the exchange of ideas and collaboration between entrepreneurs, investors and mentors.

Allen and Rahman (1985) and Smilor and Gill (1986) have argued that start-ups and small businesses typically fail due to lack of managerial skills and/or access to high-risk capital, especially in high-technology firms. Entrepreneurship is defined by Ahmad and Seymour (2008) as a dynamic process of identifying economic opportunities and acting on them by producing and selling products. Identifying economic opportunities requires a deep understanding of the market, consumer needs and economic trends. This requires analytical skills and an ability to anticipate change and recognize the potential for developing new products or services.

The primary function of business incubators is to help start-up firms survive and assist in the development and growth of existing companies (Allen & Rahman, 1985). Although new business survival is often used as a measure to assess the performance of business incubators, many researchers argue that this should be accepted as a necessary but insufficient condition for success, emphasizing the importance of the extent to which business incubators contribute to firm growth and job creation (Aerts et al. 2007).

Business incubators are thus an important factor in supporting and developing the contemporary entrepreneurial ecosystem. Researchers found that the provision of training and coaching are important services offered by business incubators. Coaching is considered necessary for continuous learning and skill development and ultimately for strong performance (Somsuk and Laosirihongthong, 2014). The organized framework and resources made available facilitate the growth and success of start-ups by integrating a range of essential services and resources for new entrepreneurs. Through well-structured mentoring programs incubators connect start-ups with experts and mentors who provide valuable knowledge and strategic guidance.

Mentors support entrepreneurs to overcome initial challenges and develop the skills needed to effectively manage their business. The strategic management offered by business incubators is essential as they not only provide workspace and infrastructure, but also administrative, legal and accounting facilities, thus reducing the operational burden on start-ups. Business incubators are relevant for solving economic problems, generating income and creating job opportunities. In addition, entrepreneurship has the ability to generate significant benefits of growth, employment, development and innovation Hassan, N. A. (2020).

Thus, the support provided by business incubators allows entrepreneurs to focus more on developing innovative products and services. Marketing strategies and market analysis are essential for the success of start-ups. Incubators provide support in developing these strategies, based on detailed market research and competitive analysis. These strategies help start-ups identify their target markets, position their products and strengthen their brand.

3. Methodology and research stages

By conducting this research, we aim to assess what is the impact of business incubators on the entrepreneurial system. Thus, we will analyze the literature, pursue a clear framework to explore the impact of business incubators on the entrepreneurial system, providing an objective perspective on the changes brought about by these entities. We have started this study from the interest of practitioners in business incubators. Researchers have studied the ability of incubators to support the development and growth of new businesses, providing essential resources, mentoring and access to business networks, all of which can facilitate entrepreneurial success. In addition, some researchers argue that business incubators can reduce the uncertainty and risks associated with starting a business by providing expertise and financial support.

Thus, we observe that the success of incubators in the entrepreneurial system depends on the ability of managers and teams to understand and capitalize on the resources and opportunities offered by these structures. There is a need to adapt the entrepreneurial culture to support the effective utilization of incubators and to ensure effective implementation of growth strategies. Thus, the analysis of the impact of business incubators on the entrepreneurial system reveals their crucial role in promoting innovation and facilitating economic development by supporting entrepreneurs and reducing initial barriers to business start-up and growth.

Underlying this research is the question: what is the impact of business incubators on the entrepreneurial system? The bibliometric analysis provides an objective, clear and comprehensive overview of the impact of business incubators on the entrepreneurial system. We want to identify the opportunities, but also the challenges associated with the integration of business incubators in various fields. Through this research we are looking at how business incubators influence entrepreneurial development, start-up collaboration and growth strategies in the modern economy.

Through this study we aim to contribute to a deeper understanding of how business incubators can be used to improve entrepreneurial performance and create a competitive advantage in the contemporary global marketplace. For the collection of scientific articles we used the Web of Science database, we set several criteria, including:

- keywords: business incubators, start-up, mentoring, management, financing, funding, innovation, resources, acceleration, entrepreneurial ecosystem, market strategy, entrepreneurship;
- article publication period: 2018 - 2023;
- research domain: Operations Research Management Science;
- English;
- open access articles.

After applying these filters, we obtained 8475 scholarly articles (Figure no. 1), which form the basis of the present research.

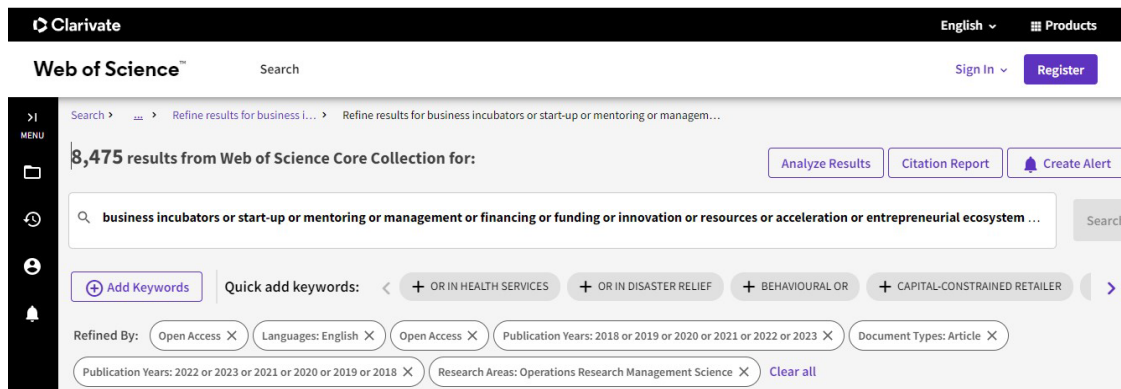


Figure no. 1. Web of Science scientific publications database filtering results

Source: print screen Web of Science

In Table No. 1, the evolution of the number of scholarly articles is presented, highlighting the significant increase in the interest of specialists in studying the role of business incubators in the entrepreneurial system since 2020. Rapid developments in the field of incubators, including financial support, mentoring and access to business networks, have created new opportunities for supporting start-ups and entrepreneurs. The rapid growth in the number of specialized publications related to business incubators is justified by the importance attributed to them in the development and success of new businesses. The table below shows the number of publications by year of publication.

Table no.1 Results of filtering the Web of Science database of scientific publications, distribution by 2018 - 2023

Anul publicării	Nr. publicațiilor
2023	1553
2022	1767
2021	1785
2020	1320
2019	1103
2018	947

Source: own processing based on data from Web of Science

4. Results of bibliometric research

To process the data we used the VOSviewer software, entered the filtered database according to the criteria presented above and obtained Network Visualization, Overlay visualization, Item density visualization and Density visualization cluster. Network Visualization provides an overview of the keywords in the analyzed database, thus facilitating an objective evaluation of scientific data. In this research, six distinct clusters were identified. These clusters represent groups of words clustered around common themes or topics (Figure no. 2). The clusters are also differentiated by color.

In the figure below we observe six different clusters, the first cluster is red, the second green, the third dark blue, the fourth yellow, the fifth purple and the sixth light blue. In the first cluster the largest nodes are represented by the keywords: entrepreneurship, start-ups, impact, business incubators and education. In the second cluster we notice: business incubators, knowledge, start-ups and technology transfer. In the third cluster we observe the following words with a higher frequency of occurrence: innovation, management, business model and framework.

The fourth cluster contains the following significant nodes: entrepreneurs, networks, entrepreneurial ecosystem and accelerators. The fifth cluster highlights: performance, methodology, creation and quality, and the sixth cluster highlights the following key concepts: growth, business incubator and competitive advantage.

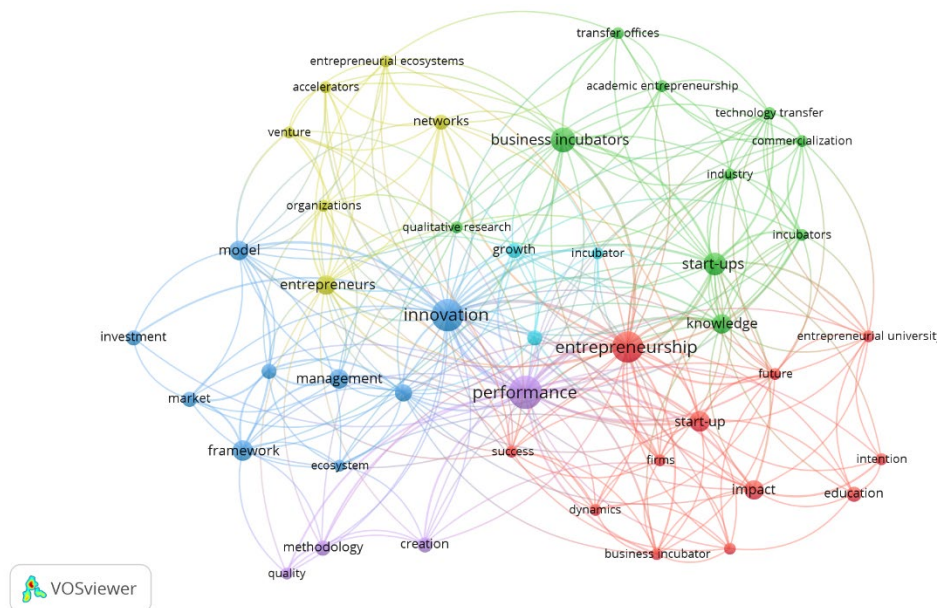


Figure no. 2

Source: output soft VOSviewer version 1.6.19

In figure no. 3 we presented the publication network overlay. The colors blue, green and yellow indicate the frequency of occurrence of keywords in the articles in the analyzed database. The blue color suggests a lower score, indicating a low number of keyword occurrences in the articles. Green color reflects a medium frequency of occurrences, while yellow is used to indicate a high frequency. Thus, we observe that researchers' interest in this topic has started to increase since 2020.

In addition, word nodes colored in dark blue, green and yellow signify the frequency of occurrence of those keywords in the articles in the analyzed database. Dark blue colored nodes indicate a low number of occurrences of the keywords in the articles, thus reflecting a low frequency. The green nodes indicate a medium

frequency of keyword occurrences, and the yellow nodes indicate a high frequency, showing that these keywords occur frequently in the articles in the database, all reported over the years studied.

We observe researchers' recent interest in the topic of business incubators associated with entrepreneurship and start-ups, but also with other management and business terms. The concept of technology transfer presented a lower research interest in 2018-2019, but since 2021 terms such as entrepreneurial ecosystem, innovation, networks and performance were often associated in the spatial articles, at which point the interest in business incubators started to increase.

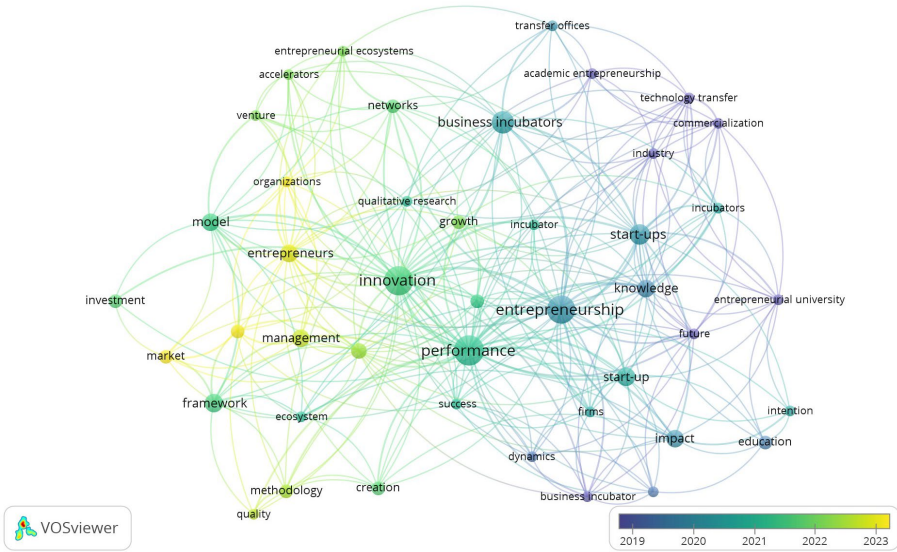


Figure no. 3. Overlay visualization
 Source: output soft VOSviewer version 1.6.19

Item density visualization is represented by three distinct colors: blue, green and yellow. In the figure below, it can be seen that the highest densities are associated with the terms: entrepreneurship, performance, innovation, business incubators and start-ups. The yellow nodes suggest a high concentration of articles around the respective concept, reflecting an increased interest of the authors in that research topic. Identifying yellow nodes can guide researchers in choosing future research directions, suggesting areas that are not only intensively studied but also have significant practical relevance.

As such, these yellow nodes are focal points of the publication network, indicating areas of greatest activity and interest from the scientific community. The yellow nodes not only indicate a high density of articles, but also highlight emerging topics or topics of highest interest in the scientific community. The high density around these yellow nodes also suggests high potential for innovative contributions and theoretical developments in these areas.

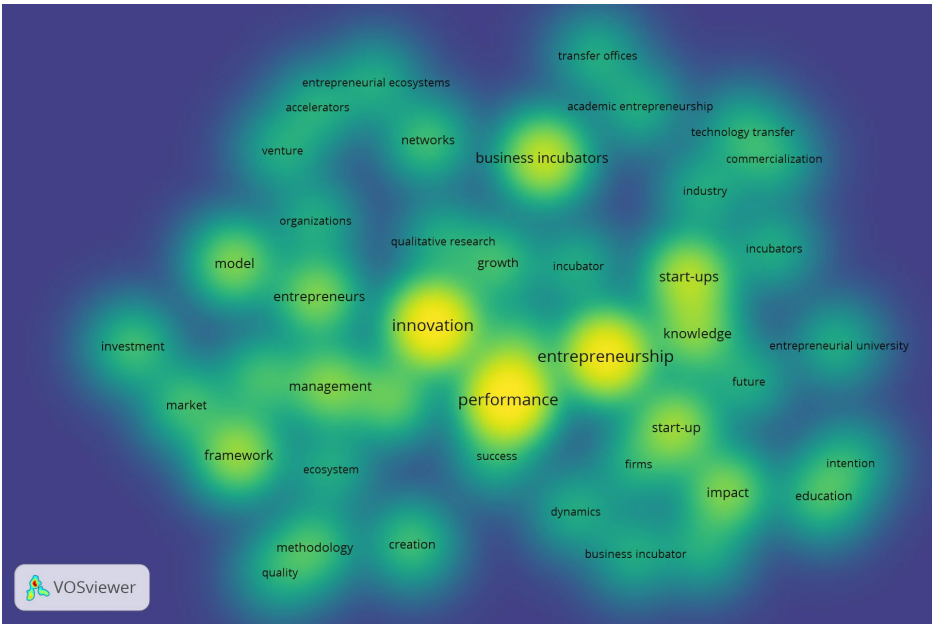


Figure no. 4. Item density visualization
 Source output soft VOSviewer version 1.6.19

Table no. 4. Cluster 3 (dark blue)

Keyword	Cluster	Links	Total link strength	Occurrences
case study	3	11	15	3
ecosystem		10	10	2
framework		12	16	6
innovation		37	63	14
investment		4	5	3
management		10	12	5
market		9	11	3
model		17	22	5
strategy		19	22	4

Source: own processing based on data from VOSviewer software version 1.6.19

In the third cluster (Table no. 4) we obtained the following keywords: case study, ecosystem, framework, innovation, investment, management, market, model, strategy. The strongest links were obtained: innovation, strategy and model. The strong connections between these words indicate the need for a developed and performing entrepreneurial ecosystem. Innovation enables the development of new products and services, strategy provides the direction and framework to guide these innovation efforts, ensuring that they are aligned with organizational goals, and the business model transforms innovations into viable commercial solutions, ensuring that the value created is captured and scalable. Arguably, these three concepts create a robust and interdependent framework that fosters growth, competitiveness and adaptability in an increasingly dynamic economic environment. In an ever-changing economy, detailed analysis, often through case studies, is needed. They provide a clear and objective analysis of specific situations, exemplifying the application of theory in practice.

Moreover, they allow the identification of success factors and challenges encountered in different contexts. From the articles studied, we observe the importance of innovation ecosystems. These can include academic institutions, government institutions, incubators, start-ups and investors. Innovation ecosystems interact and support each other to stimulate innovation, facilitating collaboration between different entities, creating synergies that accelerate the process of innovation and market development. Well-defined strategies can achieve clear directions and well-defined goals, guiding innovation efforts and ensuring alignment with the organizational vision.

They help organizations to remain competitive in the marketplace by anticipating and adapting to changes in the business environment. There is a need for a clear framework that provides the necessary structure for innovation processes, ensuring that all stakeholders have a common understanding and a clear set of objectives. Legislative and regulatory frameworks provide an enabling environment for innovation while protecting the interests of all stakeholders. We note the importance attached by researchers to topics such as management, investment, model and market in the context of business incubators. Effective management is needed for planning and executing innovation strategies, ensuring that resources are optimally utilized.

Moreover, management coordinates efforts and provides leadership, inspiring teams to innovate and collaborate effectively. Investment is essential for funding R&D, launching new products and growing start-ups. By taking risks in the hope of future rewards, innovation is stimulated, providing capital for new ideas. Today's market is so dynamic that it must cope with the adoption and diffusion of innovations, turning ideas into commercial successes.

The market provides the necessary demand for innovative products and essential feedback to improve them. Business and innovation models guide companies in developing and commercializing new products and services. They can be replicated and scaled, enabling companies to expand their operations and maximize their market impact. All these interconnections underline the importance of a holistic and integrated approach to stimulate innovation and economic development. Cluster 3 (dark blue) is shown in Figure no. 8.

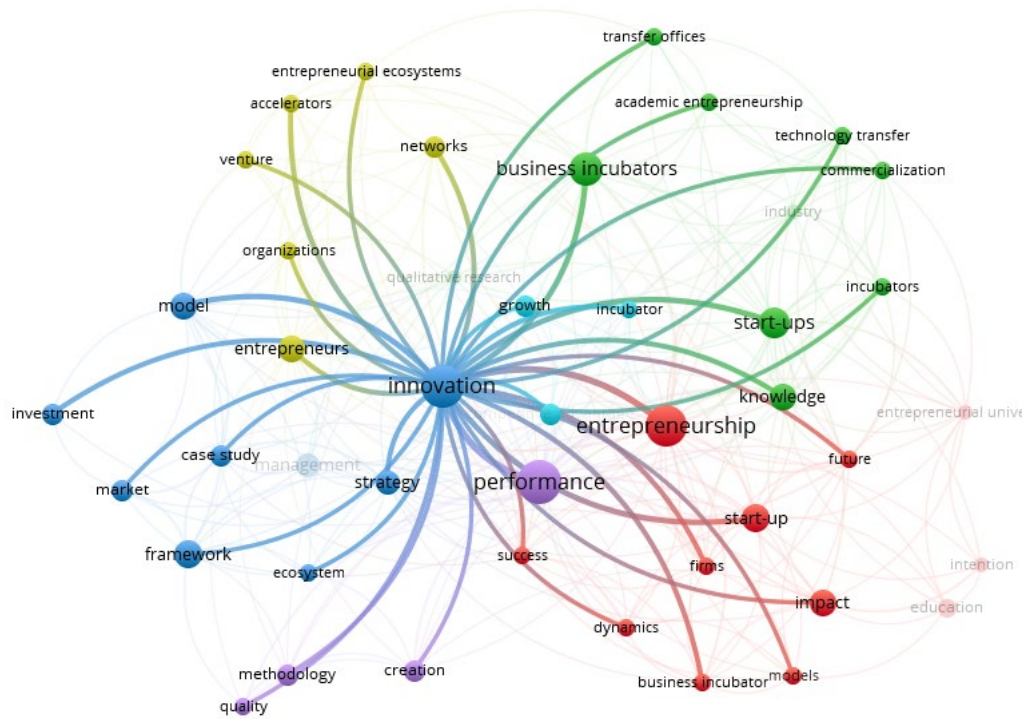


Figure no. 8. Cluster 3 (dark blue)

Source: output soft VOSviewer version 1.6.19

Table no. 5. Cluster 4 (yellow)

Keyword	Cluster	Links	Total link strength	Occurrences
accelerators	4	10	11	2
entrepreneurial ecosystems		11	12	2
entrepreneurs		19	24	5
networks		14	18	3
organizations		13	14	2
venture		9	11	2

Source: own processing based on data from VOSviewer software version 1.6.19

The fourth cluster (Table no. 5) contains the following keywords: accelerators, entrepreneurial ecosystems, entrepreneurs, networks, organizations, venture. We observe strong links between entrepreneurs, networks and organizations, which underlines the importance of an efficient and dynamic entrepreneurial ecosystem. Entrepreneurs are the main drivers of innovation and change, networks facilitate collaboration and access to resources, and organizations provide the necessary support for business growth and development.

Their strong interconnections highlight the importance of further developing these relationships to foster entrepreneurship and promote economic and social development. Business networks, entrepreneurial communities and networking platforms facilitate connecting entrepreneurs with investors, mentors, customers and other entrepreneurs. These connections are necessary for the exchange of ideas, collaboration and access to resources. Thus, through networking, entrepreneurs have access to valuable information, funding opportunities, mentoring and training programs to develop and scale their businesses.

Organizations, including incubators, accelerators, non-profit and governmental organizations, provide direct support to entrepreneurs through access to funding, mentoring, office space and technology infrastructure. Organizations as support and infrastructure for entrepreneurs play a critical role in educating and training entrepreneurs, offering training, workshops, and professional development programs that enhance their skills and knowledge. Moreover, the organizations provide mentoring and training programs, helping entrepreneurs to improve their management, marketing and financing skills, thus contributing to their long-term success. Networks enable entrepreneurs to collaborate so they can share resources, collaborate on joint projects and form strategic partnerships.

Through networks, entrepreneurs can access the knowledge and experience of other entrepreneurs and experts, and benefit from mentoring and practical advice to develop their business. Accelerators can provide intensive support and mitigate risks for start-ups, while entrepreneurial ecosystems provide a collaborative environment and diverse resources. Risk management is embedded in these structures, ensuring sustainability and resilience for entrepreneurs. Continuous and integrated support is needed to stimulate innovation and promote long-term entrepreneurial development.

Through accelerator programs, start-ups have access to investors and funding, which reduces financial risk and allows them to focus on product development and market expansion. Accelerators provide mechanisms and strategies to manage risks, including access to mentoring, funding, support networks and expertise. Entrepreneurship inevitably involves a high level of risk, from market uncertainty and competition, to financial and operational challenges.

So we see the interconnections between accelerators, entrepreneurial ecosystems, entrepreneurs, entrepreneurs, networks, organizations and risks. Accelerators can support start-ups by facilitating access to resources and mentoring. Entrepreneurial ecosystems, by connecting diverse stakeholders, promote collaboration and innovation. Entrepreneurs benefit from support networks that provide access to knowledge and finance. Organizations help create an enabling environment for entrepreneurship, and risk management is essential for the long-term success of start-ups. All these elements form a strong ecosystem that fosters innovation and sustainable economic growth. Figure no. 9 shows cluster 4 (yellow).

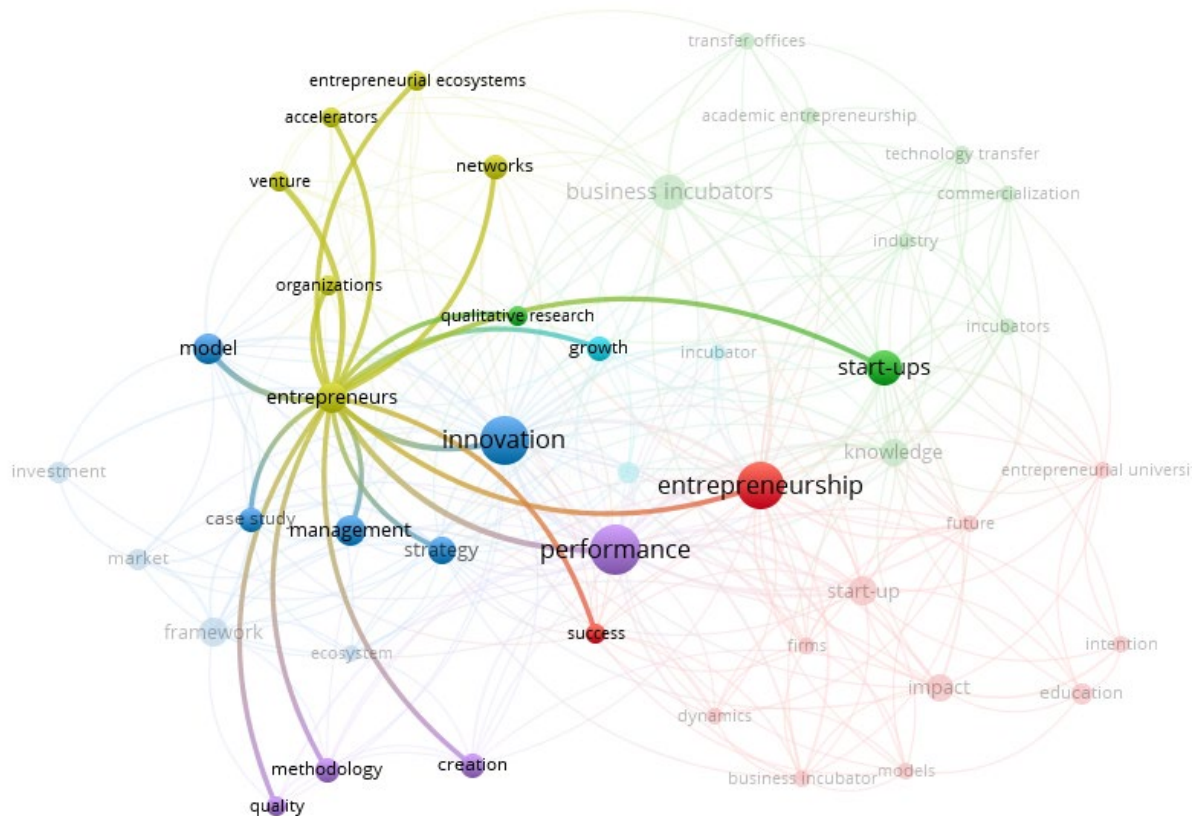


Figure no. 9. Cluster 4 (yellow)

Source: output soft VOSviewer version 1.6.19

Table no. 6. Cluster 5 (purple)

Keyword	Cluster	Links	Total link strength	Occurrences
creation	5	10	11	3
methodology		8	10	3
performance		36	66	15
quality		6	8	2

Source: own processing based on data from VOSviewer software version 1.6.19

Cluster five (Table no. 6) contains the following keywords: creation, methodology, performance, quality. In the entrepreneurial structure there is a need for creation, this process refers to the generation of new ideas, the development of innovative products and services and their launch on the market. Creation is necessary to maintain a dynamic and competitive entrepreneurial ecosystem. Creative activity is significantly enhanced by a commitment to quality, ensuring that new products and services are innovative and meet quality standards. In an entrepreneurial context, creation or creative activity includes not only the conceptualization of ideas but also their actual implementation. It involves turning visions into reality, contributing to market diversification and evolution.

The entrepreneurial environment requires a set of practices, procedures and standards used to guide the process of business creation and development. A well-defined methodology ensures that activities are

carried out in an organized and efficient way. Moreover, methodologies are essential for standardizing processes, which helps to maintain a consistent level of quality and performance. They provide a clear framework that facilitates monitoring and evaluation of progress.

Performance is the result of good resource management, clear strategy and effective execution and involves a continuous approach to improvement and adaptation to market changes. In the entrepreneurial ecosystem, performance is measured by indicators such as revenue growth, market expansion and customer satisfaction. In addition, quality is necessary for building a solid reputation and ensuring customer satisfaction. High quality drives customer satisfaction, which in turn drives loyalty and repeat purchases.

Using a specific methodology can provide the structure and direction needed to turn ideas into concrete products and services. High performance is also closely linked to quality standards. Well-established methodology contributes directly to operational performance by ensuring that processes are optimized and resources are used efficiently. A standardized methodology enables a clear assessment of performance, making it easier to monitor and adjust strategies to continuously improve results.

Creation is the beginning of innovation, guided by methodologies that provide the necessary structure and efficiency. High performance is the result of good methodological implementation and constant commitment to quality. Quality, in turn, is the foundation on which customer satisfaction and business reputation are based. Thus, all these keywords are factors with a direct influence on innovation, efficiency and excellence, which not only support continuous business development, but also promote sustainability and long-term success in the entrepreneurial ecosystem. Figure no. 10 shows cluster 5 (purple).

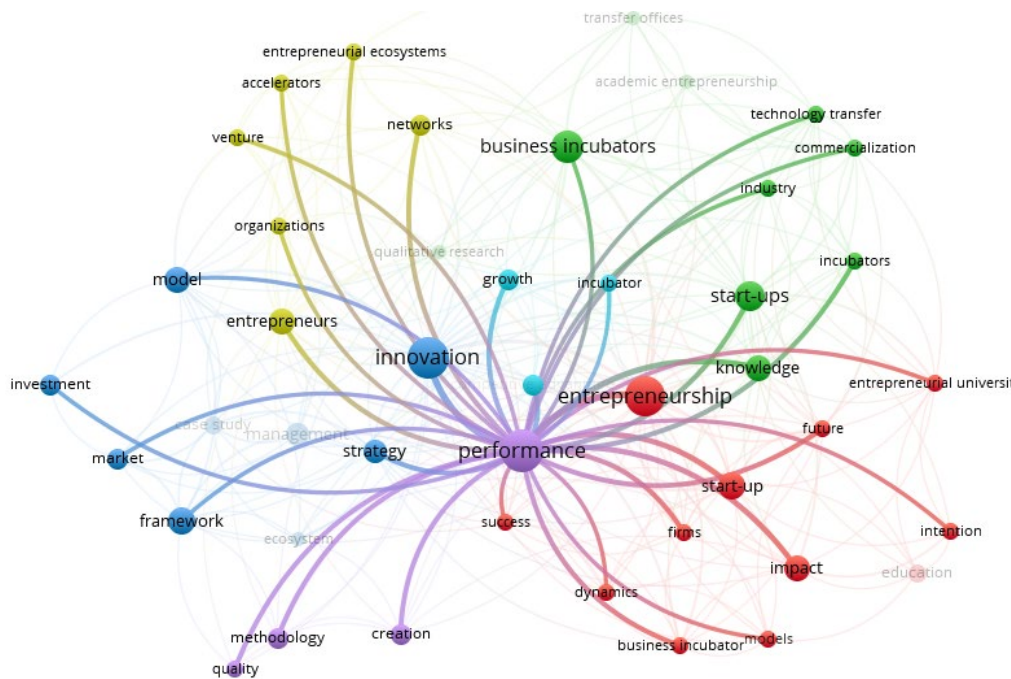


Figure no. 10. Cluster 5 (purple)
 Source: output soft VOSviewer version 1.6.19

Table no. 7. Cluster 6 (light blue)

Keyword	Cluster	Links	Total link strength	Occurrences
competitive advantage	6	10	12	3
growth		13	14	3
incubator		7	8	2

Source: own processing based on data from VOSviewer software version 1.6.19

In cluster six (Table no. 7) we observe the keywords: competitive advantage, growth, incubator. Business success is directly influenced by the ability to develop and exploit competitive advantages in a dynamic and competitive environment and by innovative ideas. Competitive advantage contributes to business development and consolidation, emphasizing the importance of an incubator in cultivating competitive advantage and stimulating sustainable growth. Competitive advantage refers to the unique factors that differentiate a business from the competition and give it a dominant position in the marketplace. These factors include innovation, superior quality, low costs, access to unique resources or the ability to respond quickly to market changes. In the entrepreneurial ecosystem, developing a strong competitive advantage is key to attracting customers, building market loyalty and ensuring sustainable growth.

At the heart of competitive advantage is innovation and adaptability. Start-ups that succeed in introducing new technologies, products or business models capable of responding to emerging market needs will have a significant advantage. Start-ups that develop innovative technological solutions can offer products with unique functionalities, thereby reducing costs and improving the customer experience. One of the core objectives of a business is growth and this can be accelerated by exploiting competitive advantage.

Sustainable growth involves not only market and turnover expansion, but also the internal development of capabilities and resources to support this expansion in the long term. The growth of a business can be stimulated by scaling strategies that allow the company to increase its production capacity, explore new markets and expand its distribution network. Business incubators play an important role in supporting start-ups and new enterprises, providing them with the resources and support they need to develop their competitive advantages and accelerate growth. An effective incubator provides access to mentoring, funding, business networks and infrastructure, facilitating rapid and sustainable business development.

The competitive advantage allows expansion into new markets and diversification of the product or service portfolio. Moreover, business incubators provide an environment for experimentation and development, helping entrepreneurs to refine their products, improve processes and build competent teams. Competitive advantage, growth and business incubators are interconnected in a complex way, each contributing to business development and success in an entrepreneurial ecosystem. Competitive advantage is the foundation on which success is built, growth is the engine that fuels sustainable development, and incubators are the enablers of this process, providing the support and resources needed to turn innovative ideas into successful businesses. Figure no. 11 shows cluster 6 (light blue).

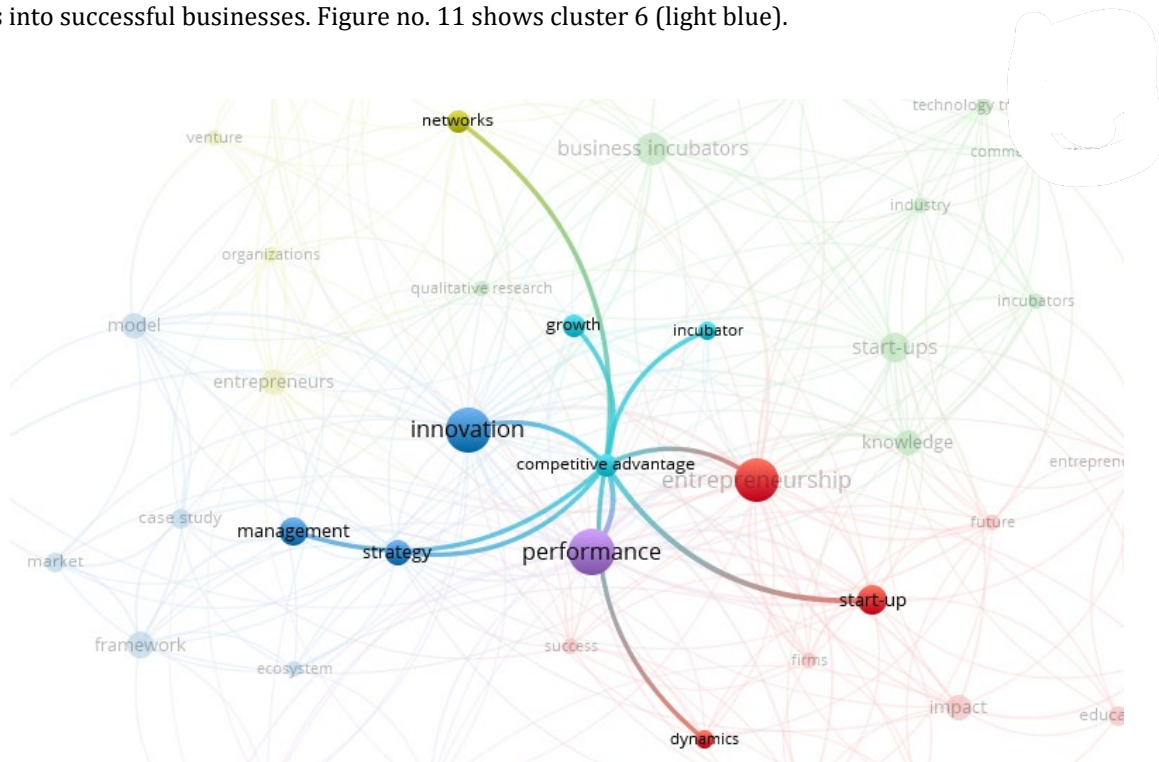


Figure 11. Cluster 6 (light blue)
 Source: output soft VOSviewer version 1.6.19

5. Conclusions

Business incubators directly influence the development and sustenance of the entrepreneurial ecosystem, contributing significantly to the success of start-ups as they offer a complex combination of mentoring, management, funding and resources, all of which are necessary to effectively manage the challenges faced by new entrepreneurs. To avoid making mistakes when setting up and running a business, entrepreneurs need advice from experienced individuals or entities (Guzmán-Cuevas, Cáceres-Carrasco & Soriano, 2009). Milliken (1987) argues that individuals face uncertainty because they know they lack the information they need to run their businesses.

Mentoring provided in business incubators is essential to guide start-ups in the early stages of development. Business management training can help an entrepreneur to manage the resources and capabilities of the enterprise (Ribeiro-Soriano & Roig Dobón, 2009) and apply them effectively while detecting business opportunities. Elmuti, Khoury, and Omran (2012) argue that entrepreneurs need to develop personal attributes (creativity, initiative, autonomy, self-confidence and leadership), technical skills (oral and written communication and organization) and business management skills (planning and decision-making). In

business incubators entrepreneurs are provided with valuable advice on growth strategies, identifying market opportunities and avoiding common mistakes.

Entrepreneurs can benefit not only from management skills training, but also from refining business strategies, helping to increase efficiency and optimize internal processes. Moreover, funding becomes an extremely important pillar in incubators. Accessible finance enables collaboration with various investors, venture capital funds and other financial entities to provide start-ups with access to the resources they need to develop and expand their business.

Incubators also provide access to advanced technological resources, modern workspaces and research and development facilities, all vital for innovation and increased competitiveness. Business incubators are a valuable resource for new entrepreneurs. Shahzad et al. (2012) stated that incubators are vital for the growth and development of entrepreneurship as they provide assistance to new entrepreneurs (Al-Mubaraki & Busler, 2010). These services and functions offered by business incubators include a shared space with technical equipment, managerial support, networking, access to knowledge and financial capital that encourages entrepreneurs through initial financial support.

Innovation is stimulated in business incubators because they can create an environment for experimentation and development of new technologies and solutions. Innovation can be represented through accelerator programs that support start-ups in turning innovative ideas into quality products and services. Through coaching sessions, intensive training and networking, incubators accelerate business development, reducing time to market and maximizing growth potential. Contributing to the formation of a dynamic entrepreneurial ecosystem is another important aspect of business incubators, facilitating meetings and collaborations between start-ups, mentors, investors and other support entities. Incubators therefore create strong support networks.

Support networks enable access to new business opportunities and resources, encouraging the exchange of ideas and cross-sector collaboration, which enhances innovation and regional economic development. Start-ups are supported in the development and implementation of effective go-to-market strategies by giving them access to market analysis, case studies and marketing and sales expertise. This enables entrepreneurs to capitalize on growth opportunities, establish market positioning and develop sustainable expansion strategies. Business incubators contribute both to individual start-ups' success and to regional economic stimulation and development, creating new jobs and diversifying the local economy.

In a digital age with an increasingly dynamic economy, business incubators need to be flexible and adaptable to respond quickly to new trends and technologies, continuously improve the programs and services they offer, and collaborate with other support structures and educational institutions. Business incubators involve developing new partnerships, investing in modern infrastructure and technologies, and adjusting support strategies to meet the emerging needs of entrepreneurs. Thus, business incubators contribute significantly to creating a healthy and dynamic entrepreneurial ecosystem, ready to face future challenges and seize future opportunities.

The role of business incubators in stimulating innovation, economic growth and the development of a strong entrepreneurial culture is very important. Business incubators facilitate collaboration and the exchange of ideas between start-ups and experts from different fields. They not only stimulate innovation, but also facilitate access to new business opportunities and external markets. Active networking within the incubator can open new distribution channels and facilitate strategic partnerships, essential for accelerated business growth.

To cope with a fast-changing market, start-ups and new businesses need to develop a distinct competitive advantage, implement effective growth strategies and access the resources and networks offered by incubators. Through competitive advantage, start-ups and new businesses are able to differentiate themselves in the marketplace, expand their operations and ensure long-term sustainable growth. Business incubators, through their ongoing support and by creating an environment conducive to innovation and growth, become critical in stimulating and sustaining this dynamic, ensuring that entrepreneurs can successfully manage the challenges and opportunities in the business world.

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