Open Innovation as a Strategy to Build an efficient Ecosystem for Startups

BENLAGHA Mohamed Reda *

Digitalization and Economic Forecasting Laboratory in Algeria,

University of Algiers 3- Algeria

red.benlagha@gmail.com

AIT SAID FOUZI

Digitalization and Economic Forecasting Laboratory in Algeria,

University of Algiers 3- Algeria

Fo_ai13@yahoo.fr

Received: 25/04/2024 Accepted: .29/05/2024 Published:27/06/2024

Abstract:

In the current era, the rapid emergence of innovative products with shortened life cycles necessitates that startup organizations adopt strategies that are responsive to their changing environment. Therefore, an open innovation strategy becomes essential for startups, enabling them to leverage available innovation sources in their external environment to develop new products.

This study aims to shed light on open innovation as a strategy for building an effective ecosystem for startup organizations. The study concludes that open innovation serves as a theoretical model for managing modern innovative activities in the era of knowledge dissemination.

Keywords: Open Innovation Strategies; Ecosystems; Startups; Algeria**.**

Jel Classification Codes:M13, O36, Q57.

*Correspondingauthor.

1. Introduction:

Startups are key drivers of economic growth and one of the key foundations for ensuring sustainable development. The increasing interest in these institutions has become remarkable in countries around the world, regardless of their level of economic development, as it has established the conviction that startups should be encouraged and used as a tool to achieve economic and social goals, as they are the locomotive that drives any country's economy towards growth and prosperity.

In light of the current changes, the global reality is significantly moving towards consolidating the culture of entrepreneurship and supporting startups so that innovative entrepreneurs can embody their ideas by building an effective ecosystem for startups.

Silicon Valley in California has long been the known ecosystem for startups, but as the startup ecosystem idea spread, many cities became home to efficient ecosystems, including New York, London, and Paris.

For its part, Algeria, like other countries, seeks, through its new economic policy, to develop a strong and appropriate ecosystem, aimed at diversifying and strengthening the devices dedicated to supporting and establishing startups. This would strengthen the role of startups as a key driver of the transition from an economic system based mainly on rentierism to a model based on other productive sectors and the knowledge economy.

Changing business ecosystems impose a constant need for development and innovation, which has led startups to adapt by adopting dynamic organizational patterns based on interaction, participation, and anticipation of change. The innovation process is fostered through interaction and sharing between individuals, ideas, and the external environment. This has reinforced the trend towards open innovation, with the aim of increasing openness in R&D.

1.1. Problematic:

The problem to be studied can be formulated as follows:**How does open innovation contribute to the evolution of the startup ecosystem in Algeria and enhance its effectiveness?**

1.2. Hypotheses of the study:

Through the aforementioned main question, the hypotheses of the study were developed according to the following elements:

- The term "ecosystem" is used to convey the idea that startups are the product of the interplay of interdependent elements in a system that includes multiple actors that can be stakeholders;
- Startups use an open innovation strategy in order to gain knowledge and experience to develop new products at low costs in a short time.

1.3. Aim of the study:

Startups are a powerful driver of open innovation processes. The purpose of this paper is to represent the first step in building a map of the latest knowledge of the emerging enterprise phenomenon in the context of open innovation. By selecting and analyzing relevant literature, this study aims to deepen our knowledge and understanding of the topic and provide directions for future research.

1.4. Importance of the Study:

The Algerian system has attached great importance to startups by building a healthy and sustainable ecosystem. Therefore, it is necessary to combine the efforts of everyone, including researchers and academics, to study and analyze the ecosystem in order to assess the situation and propose everything that benefits this system. Studying the topic of startups is very important and necessary, especially since Algeria is still in its first stage, where any study in this field can be utilized.

1.5. Study Approach:

In this study, we will rely on the deductive approach with the use of characterization tools to understand all concepts related to startups and innovative ecosystems. In addition, we will use the inductive approach with statistical tools to study the evolution of the key pillars in the startup ecosystem, as well as extrapolate some legal texts related to them.

2. Startups:

The entrepreneurial spirit is the most important development in the history of modern business, whether in developed or developing countries, where entrepreneurs form a special environment in the new economy, creating our world in which their companies based on the elements of innovation and uniqueness play an important role in reviving the local and even global economy. This type of institution that creates innovative products and services that open foreign markets and create new jobs is known in our Arab world as startups.

2.1. Startups Concept

The topic of startups has seen growing interest, though researchers and lawmakers do not agree on a unified definition. Beginning immediately after World War II, with the emergence of venture capital firms (Capital-risque), the term "Start-up," meaning a startup, came into widespread use. The English dictionary defined it as: "A small project just started," where the word "Start-up" consists of two parts, "Start" which refers to the idea of starting, and "Up" which refers to the idea of strong growth. According to the French dictionary (Larousse), they are: "Innovative young institutions in the modern technology sector" (Boudiaf and Zubair, 2020, p. 90).

According to Paul Graham, a startup is "an organization designed to grow quickly, and just because it's newly established doesn't mean it's a startup. It is also not necessary to work in technology, obtain funding from

venture capital firms, or seek to exit the market. The only essential element is growth" (Baaouini, March 10, 2022).

According to Patrick Fridenson, a startup is defined by its innovative entrepreneurial idea, not by the age, size, or sector in which it operates. Accordingly, there are four basic conditions that a startup must meet: it needs huge funding, a new market in which risks are difficult to assess, the use of modern technology, and potentially strong growth (Ben Taiba, 2022, p. 194).

According to Eric Ries's definition, a startup is defined as a human enterprise designed to create a new product or service under conditions of uncertainty (Eric, 2011, p. 37). Steve Blank sees it as a temporary organization looking for a profitable, replicable and scalable business model (Steven & Bob, 2012, p. 9) that can be applied to new products and markets over and over again to achieve sustainable growth, with the ability to generate dramatically increased returns through applied additional resources (Lund & Nielsen, 2018, p. 4). It is this definition that is usually adopted by researchers and entrepreneurs.

According to Algerian law, a startup is every business that obtains the startup mark and needs to meet a set of the following conditions (People's Democratic Republic of Algeria, Executive Decree No. 20-254 dated 15/09/2020, establishing the National Committee for Granting the "Startup" Mark):

- To achieve high growth provided that the number of its workers does not exceed 250.
- The sum of its assets and its annual turnover shall not exceed the limit determined by law.
- It should not have been established more than eight years ago.
- The business model of the organization should be based on innovative products, services or ideas.
- Its capital shall be owned by at least 50% by natural persons, investment funds, or other institutions that have the "Startup" mark.
- The organization should propose an innovation in its products, services, business model, or organization model.

These conditions reflect the legal definition of a startup in Algeria and the requirements necessary to obtain recognition as a startup.

After fulfilling these conditions, the National Committee grants a "startup" mark to the organization for a period of four years, renewable once. The National Committee is also entitled to award the "Innovative Project" label to innovative entrepreneurs who have not yet established an institution, for a period of two years, renewable twice.

2.2. Advantages of Startups:

Startups have unique characteristics that distinguish them from other institutions, and can be summarized as follows (Husseini and Sadiqi, 2021, p. 73):

- A startup is generally considered to be a temporary establishment because it does not aim to remain in a nascent state throughout its life. Rather, it is only an early stage, as defined by the Business Dictionary. The main goal of the entrepreneur is to get out of this stage and reach maturity and stability.
- Startups play a vital role in the innovation process, aiming to introduce new products or services that were not available in existing markets, or improve those available in ways that exceed expectations as seen by the founders (De lazzari, 2017, p. 16). Startups seek to increase value both for customers and for producers by innovating in unique and innovative ways.
- Because of their small size and limited experience, startups are oriented towards dealing with the unknown, making them more vulnerable to challenges that require experience and rapid response, especially in their early stages. This requires a high level of flexibility to adapt to these challenges and ensure their continuity.
- In his famous essay on growth, Paul Graham described growth as the primary characteristic that distinguishes a startup from other organizations. He noted that a startup is designed for rapid growth (Graham, 2012).
- An enterprise that requires low costs: Startups require low costs compared to the profits they make, and these profits are often made quickly and suddenly. Examples include companies such as Amazon, Google and Microsoft (Ben Taiba, 2022, p. 195).
- Uncertainty: Working under conditions of extreme uncertainty means working under ambiguity where innovation is in a non-existent or unsaturated market, making it difficult to conduct market research due to a lack of information. Startups find themselves faced with ambiguity and uncertainty, and although uncertainty is not limited to startups, it is more pronounced for them. However, entrepreneurs can plan to minimize the risk of uncertainty even under unforeseen and unpredictable circumstances.

Based on the previous definitions and the features inferred, it can be said that a startup is a temporary institution, aiming to grow quickly, and introduce a new and innovative product or service, under conditions of uncertainty and high risk. It is adaptable and flexible, and seeks huge revenues if successful, but may face significant challenges in a business environment characterized by uncertainty and rapid changes.

2.3. Theimportance of Startups:

Startups are one of the main factors in the global economy in general, and in the national economy in particular, due to their prominent impact on some economic indicators. The importance of startups is highlighted in the following (Ben Taiba, 2022, p. 5):

- **Increasing productivity and maintaining competitiveness:** Startups have played a pivotal role in the last decades of the twentieth century and in recent years, using modern production tools, means and techniques, reducing costs and raising the quality of products. Adopting cutting-edge technological strategies has helped them gain a strong competitive advantage (Sebti, 2009, p. 13).

- **Providing real job opportunities and reducing unemployment levels:** Providing real job opportunities and reducing unemployment levels: Startups are an important factor in providing job opportunities for members of society, as their rapid growth provides employment opportunities, and this contributes to reducing unemployment rates, especially for people with the appropriate qualifications and competencies.
- **Making a positive impact in society**: Startups play a role in promoting creativity in society, as they can change existing societal values and contribute to the development of consumer culture and encourage consumer acceptance of change.
- **Open new markets**: Startups offer new products that change the global economy, often innovating new technologies that create new opportunities for trade. Thanks to the immense value it creates, it fosters competition and pushes the economy forward.
- **Promote R&D**: Startups contribute significantly to R&D, developing new products at a lower cost compared to large enterprises, and using high technology and knowledge-based services in this context (Pierre, 2001, p. 66).
- **Contribute to economic development:** Startups contribute to solving economic issues through their research and the dissemination of positive values such as initiative, creativity and innovation. They also produce innovative goods and services, promoting product diversification and contributing to economic growth.
- **Resilience and rapid response:** Thanks to their flexibility and adaptability, startups are able to provide effective solutions to the production cost problems faced by large companies, as well as solutions to the great challenges faced by countries and societies.

2.4. Startup Life Cycle

Looking at the definitions provided for startups, growth seems to be their main distinguishing feature. However, reality shows that the path of these institutions to success is not always easy. These institutions often face great challenges and go through difficult stages before they achieve the desired success. The life stages of a startup can be summarized as follows: (Ben Taiba, 2022, p. 196).

- **Reflection phase**: The project holder focuses on discovering and generating a potential idea and tries to understand whether the potential idea represents an innovation that can solve a meaningful problem or meet the consumer's need. During this phase, the project holder aims to understand whether there is an opportunity in the market, to start identifying resource needs and availability.
- **Design phase**: At this stage, the project holder focuses on the possibility of turning the idea into a business venture. It is crucial here to validate the market opportunity that can be defined as a "real moment" where potential clients show their interest in the potential idea. At the same time, the project holder begins to identify the necessary resources and look for initial investors (family, friends and angel investors).

- **Start-up phase**: The project holder starts a new project by assessing the feasibility of the project idea in the past. At this stage, the ambitious project holder is able to measure and determine the probability of success of the business idea and identify the necessary tangible and intangible resources. The startup phase consists of technological and commercial development, business planning, as well as looking for additional administrative, technical, and material resources.
- **Expansion Stage:** At this stage, the startup is a newly established institution that has been able to consolidate and expand the scope of works and achieve self-sustainability. At this stage, the contractor must develop new skills and capabilities, such as the ability to deal with a higher employee turnover rate, motivate and coordinate employees, communicate with new customers and suppliers, search for international markets and companies, as well as the ability to delegate increasing tasks and activities. In addition, the contractor must demonstrate multifaceted and complex competencies such as leadership, strategic guidance, and coordination capabilities.

2.5. Difference Between Startup and Classic Enterprise:

Being a startup is considered a temporary situation, as startups face several possibilities. A startup may fail and disappear due to not achieving a sustainable business model, or it may succeed and be absorbed or turn into a traditional classic enterprise. The transformation from a startup to a large entity expresses the moment when the decision about the future of the startup is made. Based on this, the main differences between a startup and a classic enterprise can be identified as follows: (Husain and Sadiqi, 2021, p. 75)

- The role of a classic enterprise and a startup enterprise can be similar in some respects, each going through stages of growth and stability, but the main difference lies in the way these stages occur. Startups go through an erratic series of progress and regressions in the growth phase, while classic enterprises move more orderly from the growth phase to maturity and then to the next phase of regression.
- Startups often offer their products to very large markets, while classic institutions usually target smaller markets.
- Despite the high risks associated with startups, investors tend to invest in them because of the potential for large returns if the project is successful, while investors prefer to invest their money in classic institutions that provide more stable returns.
- Funding sources vary between startups and classic institutions, with startups relying on angel investors and venture capital, while classic institutions receive funding from bank loans and government grants.

2.6. Obstacles to creating a startup:

These can be summarized as follows: (Husain and Sadiqi, 2021, p. 76):

- **Administrative hurdles:** Include bureaucracy in the establishment procedures, as it takes about a month to establish an institution in Algeria compared to 24 hours in the United States.

- **Marketing obstacles**: Startups suffer from a lack of capabilities, which hinders their efforts to develop and grow, and leads to the inability to follow up effectively. These shortfalls include financial capabilities, information necessary for research and investigation, and expertise. These deficiencies are the main reason behind the failure of startups in Algeria, where products or services are produced without knowing how to market and adapt them to suit customers.
- **Technical hurdles**: Startups depend on their team, and if a strong and homogeneous team is not assembled, they may have difficulties affording qualified workers. This can limit the ability to see and understand the different market and technical aspects required to develop a product or service appropriately to customer needs.
- **Funding bottlenecks**: Startups require significant funding to develop their ideas, including funding for market studies and product or service trials. Experimentation processes often require multiple iterations, requiring significant financial resources. After establishing an effective and successful business model, a startup needs additional funding to grow and develop. These financing challenges are one of the biggest challenges facing startups, according to reports from national forums.

In addition, startups can face legislative obstacles represented by the lack of a specific legal status, especially in the early stages before they achieve revenues. They may not have formal legal status, despite engaging in legally legitimate business activities. Startups may also be subject to other legislative challenges related to licenses and government regulations, which may affect their ability to grow and develop.

Furthermore, countries may direct focus and support to startups in the technology sector, leaving other sectors such as agriculture and medicine with insufficient focus. However, the reality shows the existence of successful startups in these different sectors, which face the same legislative and regulatory challenges.

3. Startup Ecosystem:

Over the last fifteen years, the concept of ecosystems has become heavily popular in the management literature, and is a promising approach to research addressing strategy, innovation, and the role of leading institutions (De Vasconcelos Gomes, Facin, Salerno, & Ikenami, 2018; Granstrand& Holgersson, 2020). In a theoretical study, Scaringella& Radziwon categorized four types of ecosystems, namely: business ecosystems, innovative ecosystems, leading enterprise ecosystems, and knowledge ecosystems (Scaringella& Radziwon, 2018, p. 59). The literature has been characterized by the diversity of ecosystems associated with innovation and business, such as industry-specific ecosystems, cross-sector ecosystems, knowledge ecosystems and regional clusters, among others, demonstrating the diversity of ways and situations in which these ecosystems can evolve (Fasnacht, 2018, p. 131).

3.1. The concept of the startup ecosystem.

In the context of understanding the startup ecosystem, this system is usually defined as a set of complex networks of organizations that cooperate and compete with each other, leading to the formation of interactive and synergistic relationships that create shared value (Choi, Nam, & Kim, 2019, p. 142). This system helps organizations create more value than any individual organization can achieve alone (Adner, 2006, p. 5). Emerging organizations can achieve success by building a business ecosystem that encourages knowledge sharing, fosters the development of individuals, and deepens trust among system participants (Chesbrough, Kim, &Agogino, 2014, p. 144).

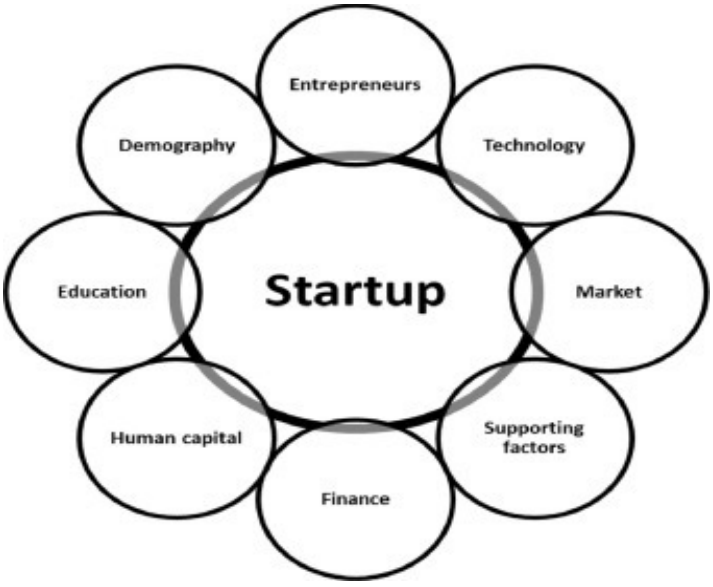
These concepts contribute to the development of a new approach to understanding inter-institutional relationships, shifting from a product focus to a system-wide focus, helping to comprehensively understand the phenomenon (Zhang & Liang, 2011, p. 158). The success of innovative organizations often depends on the interaction of other innovators in their environment, and to achieve returns on innovation, organizations seek to be leaders in the technology of their industry. However, success requires changes in the enterprise environment, and these changes require innovation from other parties in the ecosystem (Adner & Kapoor, 2010, p. 306).

The startup ecosystem is characterized by a defined community consisting of entrepreneurs and their startups, as well as diverse types of supporting institutions. This system is complex as a result of its diversity, and is characterized by its dynamism that adapts to changes in its composition (Cukier & Kon, 2018).

3.2. Components of the startup ecosystem:

According to Nirnaya Tripathi, they have analyzed the components of the startup ecosystem and represented them in the following form:

Figure 1: Components of the startup ecosystem.



Source: Tripathi, N., Seppänen, P., Boominathan, G., Oivo, M., &Liukkunen, K. (2019). Insights into startup ecosystems through exploration ofmulti-vocal literature. Information and Software Technology, 105, 56-77.

The components of the startup ecosystem can be identified by the following eight elements:

- **Entrepreneur:** A person who has the ability to organize and manage a business in a way that includes taking risks, and is motivated to achieve new accomplishments in society. This is the most important element of the startup ecosystem, as entrepreneurs have multiple entrepreneurial qualities such as entrepreneurial vigilance, risk-taking, and tribal knowledge, which enable them to establish and achieve business success in a competitive environment (Tripathi, Oivo, Liukkunen, & Markkula, 2019).
- **Technology:** Technology is an important aspect in the growth of startups, as most of them seek to develop their products using technology and software, which provide innovative and effective solutions to market challenges (Tripathi, Seppanen, Boominathan, Oivo, &Liukkunen, 2019).
- **Market:** The growth of startups depends on understanding the needs and requirements of the target market, whether it is local or global, and the sustainability of this growth is its ability to meet those needs effectively.
- **Universities:** Leading universities play an important role in developing startup ecosystems, and their contribution to shaping entrepreneurial environments such as Silicon Valley in America and others is a key part of supporting innovation and entrepreneurship (Cukier & Kon, 2018).
- **Human Capital:** Human capital is the set of skills and expertise that enable individuals to carry out tasks in an innovative way, make wise decisions, and is an indispensable part of the startup ecosystem (Salehi &Ghomez, 2019).
- **Support Factors:** These factors include a range of organizations and bodies that provide the necessary support to entrepreneurs, helping them overcome risks and achieve success (Makhnash&Khasef, 2021).
- **Demographics:** These elements are interested in studying the characteristics of the population such as density, distribution, age structure and quality, and play an important role in determining investment and innovation trends in startups (Al-Mahjoubi, 2017).
- **Finance:** Access to finance is critical to the success of startups, as they often need significant funding to take risks, develop their products, and scale (Makhnash&Khasef, 2021, p. 7).

4. Open innovation.

For a long period of the twentieth century, the closed innovation model worked well, and despite the advantages achieved by this model, its shortcomings began to appear on an internal entrance to research and development. The use of knowledge has become wider, as the idea of an institution being able to produce patents and achieve innovation based on its own capabilities is no longer possible and effective in light of intense competition and globalization that comes from all environments with constantly new models, methods and

rapid product development beyond the institution's ability to keep up with developing its own capabilities. Good ideas exist inside and outside the institution, and the market can be accessed through other institutions.

4.1. Open Innovation Concept

Previously, organizations, especially those operating in advanced technological sectors, were mainly focused on developing their new technologies internally and applying them in their products and services, following the traditional innovation model based on closed methods where interaction with the environment was very limited (Lichtenthaler, 2008, p. 148). In this context, organizations relied on a fundamental assumption that the organization itself controls and manages the innovation process (Elmquist, Fredberg, & Ollila, 2009, p. 327).

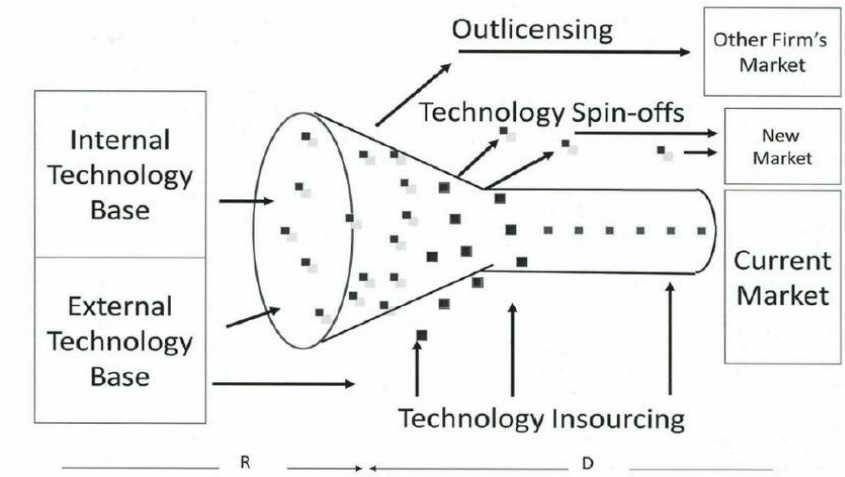
In closed models, institutions contracted the best researchers and employed IPR engineers in the field of technological innovation. They explored potential opportunities to apply technology and develop products and services within the organization with the aim of first entering and outperforming the market (Dittrich &Duysters, 2007, p. 513). The main goal of organizations at the time was to achieve a competitive advantage through the exclusive use of new technology compared to competitors (Lichtenthaler, 2011, p. 173).

In the early 1970s, innovation processes began to emerge in complexity as communication, learning, and social interaction became essential roles. Some emphasized the importance of communication and knowledge flow in innovation processes. Closed strategies changed over time due to many organizations in various industries outsourcing their technologies (Lichtenthaler, 2011, p. 173).

Nowadays, management research related to innovation has tended towards the inclusion of variables from the external environment such as users, manufacturers, and suppliers (Von Hippel, 1988, p. 6; 2017, p. 4).

In his 2003 book, Chesbrough formulated the open innovation model, which aims to use internal and external knowledge flows to accelerate internal innovation and expand the uses of innovation in external markets (Chesbrough, 2003; Chesbrough, Vanhaverbeke, & West, 2006). Under this model, enterprise boundaries become permeable, allowing for adaptation and integration with external parties such as customers, suppliers, partners, research institutes, universities, and competitors. The following figure illustrates.

Figure 2: Open Innovation Model



Source: Chesbrough, H. (2012). Open innovation: Where we've been and where we're going. Research-Technology Management, 55(4), 20-27. P23.

It is clear from the figure that in the open innovation model, the boundaries between the institution and its surrounding environment are more open by transforming the borders of the institution into a semi-permeable membrane where ideas and knowledge are allowed to move freely.

The open innovation model reflects strategic changes in organizations and organizational transformations that occur when innovation is distributed across a variety of participating entities. This co-distribution results from the creation of inter-institutional linkages, including diverse systems of relationships and modes of interaction. Under this model, collaboration becomes necessary and effective for exploring creative ideas and sharing other innovative initiatives and communities. Hence, open innovation is a challenge for management transformation as organizations must adapt to this cultural change and develop organizational capabilities to accommodate this new mode of innovation (Öberg & Alexander, 2019, p. 211; Elmquist & Ollila, 2011, p. 275).

Under the open innovation strategy, the benefits are exploited from ideas imported from outside the enterprise, which contributes to the export of intellectual capital and the realization of more added value. This presents a strong appeal for open innovation as a business strategy, as organizations can leverage a variety of resources, expertise, and knowledge that may not be available internally, thereby enhancing their competitiveness and innovation.

4.2. Types of open innovation:

The main goal of adopting open innovation is that ideas and inventions cannot bring value to the institution unless they are transformed into real products and services. Keeping ideas confidential is important, but more importantly is the ability to exploit those ideas. Open innovation is divided into two main types:

- **Inbound Innovation:** Through it, the institution seeks to establish relationships with external sources to sell and exploit the technologies it maintains. This process is suitable for institutions that seek to exploit and sell their ideas in the market. These practices include: Joint venture activities with external partners, establishing joint businesses, granting intellectual property licensing and selling patents, granting grants to non-profit

entities, and spin-off or separation of part of the institution to form another institution (Enkel, Gassmann, & Chesbrough, 2009, p. 312).

- **Outbound Innovation:** Instead of relying solely on internal efforts to innovate and market orientation, this strategy allows the organization to explore business opportunities through cooperation with external institutions. An organization can make profits by marketing ideas, selling intellectual property, or participating in technology development. This approach is beneficial to the organization as it allows it to scale innovation and enhance opportunities for growth and development. Too much emphasis on IP protection can narrow visibility and reduce the ability to absorb and benefit from external innovations (DAHLANDER & GANN, 2010, p. 704).

There are institutions that adopt one of the two strategies and there are those that adopt both strategies in order to reduce risks. What should be noted is that the business model is the one that determines the framework in which the institution works in terms of choosing projects and rejecting others.

5. The practices of startups when adopting an open innovation strategy:

This includes several aspects: (Petroni, Venturini &Verbano, 2012, p. 148) (Ghezzi, Cortimiglia& Frank, 2015, p. 574):

- Outsourcing of R&D and alliances, as this strategy allows the organization to leverage external expertise and knowledge to enhance its innovation capabilities (Chesbrough H., 2003).
- Increasing contracts with university departments and public and private research centers, which contributes to the exchange of knowledge and enhances interaction between the academic and industrial sectors (Bigliardi, Ivo Dormio& Galati, 2012).
- Involving other organizations, customers and suppliers in the innovation process through joint projects and strategic cooperation, which enhances exchange and interaction between different parties.
- Licensing intellectual property to and from other organizations, which contributes to accelerating the development and spread of technology.
- Recourse to small, highly specialized research organizations that are considered an innovation center and can be an effective partner in development and innovation processes. (Dodgson, Gann & Salter, 2006) (Chesbrough, Vanhaverbeke & West, Open innovation: Researching a new paradigm, 2006)
- Increasing participation in technology transfer programs, which enhances opportunities to benefit from new technologies and their application in the market.
- Increasing contribution to other organizations through acquisition of components or venture capital investment, which contributes to expanding the scope of influence and enhancing market presence (Richter, Jackson & Schildhauer, 2018).

These practices of adopting open innovation strategies are an integral part of the business strategy of the organizations involved (Ghezzi, Cortimiglia& Frank, 2015, p. 574). They are not limited to applying open innovation techniques, but fall within a broader strategic framework that includes the company's guidelines and strategic objectives. Thus, these practices require the design of different business models, adapted to and tailored to the particular context and ecosystem of the organization. This means that the strategies followed must be adaptable and tailored to the needs and conditions of the organization, market developments and the surrounding environment.

6. CONCLUSION

The Algerian government aims to develop an effective institutional framework to promote diversity and strengthen the infrastructure supporting startups. This aims to transform Algeria's economy from one reliant mainly on natural resources to a knowledge-based model leveraging other productive sectors. By providing necessary infrastructure and technical/financial support to startups, the government seeks to reinforce their role as a key driver of economic transformation.

Organizational thinking has evolved due to global economic developments and late 20th century transformations that accompanied open development within institutions and the search for external progress. This contributed to distributed knowledge for innovation across multiple organizations resulting from innovation's growing complexity.

Innovation no longer requires just internal interaction but cooperation even between competitors to strengthen competitive positioning in an era of heightened international competition and shrinking geographical market barriers. This necessitates abandoning traditional practices and adopting new approaches to address present challenges and prepare for the future.

A number of proposals can be developed to adopt an open innovation strategy for building an appropriate ecosystem encouraging startup creation:

- ✓ Collaborate across business units and departments;
- ✓ Foster a culture of cooperation;
- ✓ Establish strategic alliances for joint research projects within the field;
- ✓ Partner with external research institutes on joint projects;
- ✓ Build strong relational networks for research center access;
- ✓ Streamline regulations governing third-party financing relationships;
- ✓ Activate internal R&D to qualify for external relationships;

- ✓ View intellectual property as tradable/interchangeable rather than just protective;
- ✓ Leverage patents and intellectual property in the public domain.

❖ **RECOMMENDATIONS**

Here are some recommendations for the development and promotion of startups in Algeria:

- Cultivate an open and collaborative startup ecosystem by facilitating partnerships, knowledge sharing, and resource exchange between startups, universities, research centers, corporations, investors, and government entities.
- Streamline bureaucratic procedures and regulations to make it easier and faster to establish and operate startups, reducing administrative barriers to entry.
- Expand access to diverse startup funding sources such as venture capital, angel investors, crowdfunding platforms, and government-backed funds/grants.
- Integrate entrepreneurship education across all levels, from primary schools to universities, nurturing an entrepreneurial mindset and essential skills.
- Develop specialized startup support infrastructure like tech parks, incubators, accelerators, co-working spaces, prototyping labs, and mentorship programs.
- Implement startup-friendly policies such as tax incentives, subsidies, intellectual property protection frameworks to stimulate innovation and growth.
- Launch nationwide campaigns to raise awareness about the economic impact of startups and promote a culture that celebrates entrepreneurship.
- Facilitate global market access for startups through international accelerators, trade missions, startup visas, and partnerships with foreign investors/companies.
- Establish public-private partnerships to provide comprehensive support covering investment, R&D, commercialization, scaling, and internationalization.
- Foster sector-focused startup development in strategic industries like agriculture, healthcare, energy, etc. beyond just technology startups.
- Implement robust data collection and analysis to continuously evaluate and improve the startup ecosystem based on evidence and performance metrics.
- Promote startup success stories and role models that can inspire and motivate aspiring entrepreneurs, especially from underrepresented groups.
- Encourage corporate engagement programs where large companies mentor, invest in, or acquire promising startups as a pathway to innovation.

- Establish digital platforms and online resources serving as one-stop hubs for startup information, tools, networking and knowledge sharing.

7. List of References

- **In Arabic**

1. الجمهورية الجزائرية الديمقراطية الشعبية. ( ). المرسوم التنفيذي رقم 21-422 المؤرخ في 2021/11/04، المعدل والمتمم للمرسوم التنفيذي رقم 20-254 المؤرخ في 2020/09/15 . الجريدة الرسمية الجزائرية(84).
2. الجمهورية الجزائرية الديمقراطية الشعبية. (.). المرسوم التنفيذي رقم 20-254 المؤرخ في 2020/09/15، المتضمن إنشاء لجنة الوطنية لمنح علامة "مؤسسة ناشئة". الجريدة الرسمية الجزائرية(55).
3. خالد المحجوبي. (2017). السكان والتغيرات الديمغرافية وأثرها على المتغيرات الاقتصادية الكلية في الاقتصاد الليبي (دراسة تحليلية). مجلة المالية والأسواق، 04(01)، 88-112.
4. علاء الدين بوضياف، و محمد زبير. (2020). دور حاضنات الأعمال التكنولوجية في دعم المؤسسات الناشئة بالجزائر. مجلة شعاع للدراسات الاقتصادية، 04(01)، 86-99.
5. ليلى بعوني. (10 مارس 2022). آليات دعم ومرافقة المؤسسات الناشئة في الجزائر. الملتقى الوطني: المؤسسات الناشئة فاعل أساسي للتنمية المستدامة. الجزائر: المنظم من طرف فرقة البحث التكويني الجامعي المرفق العمومي والتنمية المستدامة، جامعة الجزائر1 بن يوسف بن خدة، كلية الحقوق.
6. محمد سبتي. (2009). فعالية رأس المال المخاطر في تمويل المشاريع الناشئة (مذكرة ماجستير في العلوم التسيير، تخصص إدارة مالية). جامعة منتوري، قسنطينة.
7. محمد لمين علون، و وسيلة السبتي. (2019). مزايا، معيقات تطبيق الابتكار المفتوح في منظمات الأعمال. مجلة الاقتصاد الدولي والعولمة، 02(02)، 145-163.
8. مهدية بن طيبة. (2022). حاضنات العمال التكنولوجية ودورها في دعم وترقية المؤسسات الناشئة Startups -تجربة ماليزيا نموذجا-. مجلة الإبداع، 12(01)، 191-205.
9. نصيرة صالحي، و شعيب قماز. (2019). مساعي بناء راس المال البشري في الجزائر وفق المخططات التنموية الاقتصادية (2001-2019). المجلة الجزائرية للأمن والتنمية، 08(02)، 104-118.
10. ياسمينة مخناش، و جمال الدين خاسف. (2021). النظم البيئية المبتكرة للمؤسسات الناشئة: تسليط الضوء على مساعي الجزائر لبناء نظام بيئي خاص بالمؤسسات الناشئة (2003-2020). مجلة اقتصاديات الأعمال والتجارة، 06(02)، 29-42.
11. يوسف حسين، و إسماعيل صديقي. (2021). دراسة ميدانية لواقع إنشاء المؤسسات الناشئة في الجزائر، حوليات جامعة بشار في العلوم الاقتصادية. 08(01)، 68-89.

- **in Foreign Language**

12. Adner, R. (2006). Match your innovation strategy to your innovation ecosystem.. Harvard business review, 84(04), 98.
13. Adner, R., & Kapoor, R. (2010). Value creation in innovation ecosystems: How the structure of technological interdependence affects firm performance in new technology generations. Strategic management journal, 31(03), 306-333.
14. Bigliardi, B., Ivo Dormio, A., & Galati, F. (2012). The adoption of open innovation within the telecommunication industry. European Journal of Innovation Management, 15(01), 27-54.
15. Business Dictionary. (n.d.). Retrieved 12 13, 2020, from http://www.businessdictionary.com/definition/startup.html
16. Chesbrough, H. (2003). Open innovation: The new imperative for creating and profiting from technology. Boston: Harvard Business Press.
17. Chesbrough, H., Kim, S., & Agogino, A. (2014). Chez Panisse: Building an open innovation ecosystem. California management review,, 56(04), 144-171.
18. Chesbrough, H., Vanhaverbeke, W., & West, J. (2006). Open innovation: Researching a new paradigm. USA: Oxford University Press.
19. Choi, G., Nam, C., & Kim, S. (2019). The impacts of technology platform openness on application developers' intention to continuously use a platform: From an ecosystem perspective. Telecommunications Policy, 43(02), 140-153.
20. Cukier, D., & Kon, F. (2018). A maturity model for software startup ecosystems. Journal of Innovation and Entrepreneurship, 07(01), 1-32.
21. DAHLANDER, L., & GANN, D. (2010). How open is innovation? . Research policy, 39(06), 699-709.
22. De lazzari, M. (2017). "Sustainability-Inspired Business Startups (SiBS): An Exploratory Study of Early-Stage UK Companies from the Creative Industry" (thesis submitted for degree of Doctor of Philosophy). Faculty of Engineering and Physical, Uk: University of Surrey.
23. De Vasconcelos Gomes, L., Facin, A., Salerno, M., & Ikenami, R. (2018). Unpacking the innovation ecosystem construct: Evolution, gaps and trends. Technological Forecasting and Social Change, 136, 30-48.
24. Dittrich, K., & Duysters, G. (2007). Networking as a means to strategy change: the case of open innovation in mobile telephony. Journal of product innovation management, 24(06), 510-521.
25. Dodgson, M., Gann, D., & Salter, A. (2006). The role of technology in the shift towards open innovation: the case of Procter & Gamble. R&D Management,, 36(03), 333-346.
26. Elmquist, M., & Ollila, S. (2011). Managing open innovation: Exploring challenges at the interfaces of an open innovation arena. Creativity and Innovation Management, 20(04), 273-283.
27. Elmquist, M., Fredberg, T., & Ollila, S. (2009). Exploring the field of open innovation. European Journal of Innovation Management, 326-345.
28. Enkel, E., Gassmann, O., & Chesbrough, H. (2009). Open R&D and open innovation: exploring the phenomenon. R&d Management, 39(04), 311-316.
29. Eric, R. (2011). The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. New York: Crown Business.
30. Fasnacht, D. (2018). Open Innovation Ecosystems Creating New Value Constellations in the Financial Services (Second Edition). USA: Springer.

31. Ghezzi, A., Cortimiglia, M., & Frank, A. (2015). Strategy and business model design in dynamic telecommunications industries: A study on Italian mobile network operators. Technological Forecasting and Social Change, 90, 346-354.
32. Graham, P. (2012). paulgraham. Retrieved 12 25, 2022, from http://www.paulgraham.com/growth.html
33. Granstrand, O., & Holgersson, M. (2020). Innovation ecosystems: A conceptual review and a new definition. Technovation, 90(91), 102098.
34. Lichtenthaler, U. (2008). Open innovation in practice: an analysis of strategic approaches to technology transactions. IEEE Transactions on engineering management, 55(01), 148-157.
35. Lichtenthaler, U. (2009). Outbound open innovation and its effect on firm performance: examining environmental influences. R&d Management, 39(04), 317-330.
36. Lichtenthaler, U. (2011). The evolution of technology licensing management :identifying five strategic approaches. R&D Management, 41(02), 173-189.
37. Lund, M., & Nielsen, C. (2018). The Concept of Business Model Scalability. Journal of Business Models, 06(01), 1-18.
38. Öberg, C., & Alexander, A. (2019). The openness of open innovation in ecosystems–integrating innovation and management literature on knowledge linkages. Journal of Innovation & Knowledge, 04(04), 211-218.
39. Petroni, G., Venturini, K., & Verbano, C. (2012). Open innovation and new issues in R&D organization and personnel management. The International Journal of Human Resource Management, 23(01), 147-173.
40. Pierre, B. (2001). Capital Risque: Mode d'emploi (3éme edition). Paris: Ed organization.
41. Richter, N., Jackson, P., & Schildhauer, T. (2018). Outsourcing creativity: An abductive study of open innovation using corporate accelerators. Creativity and Innovation Management, 27(01), 69-78.
42. Scaringella, L., & Radziwon, A. (2018). Innovation, entrepreneurial, knowledge, and business ecosystems: Old wine in new bottles?. Technological Forecasting and Social Change, 136, 59-87.
43. Steven, B., & Bob, D. (2012). The Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company . Pescadero, California: K & S Ranch.
44. Tripathi, N., Oivo, M., Liukkunen, K., & Markkula, J. (2019). Startup ecosystem effect on minimum viable product development in software startups. Information and Software Technology,, 114, 77-91.
45. Tripathi, N., Seppanen, P., Boominathan, G., Oivo, M., & Liukkunen, K. (2019). Insights into startup ecosystems through exploration of multi-vocal literature. Information and Software Technology, 105, 56-77.
46. Von Hippel, E. (1988). The sources of innovation. New York: Oxford University.
47. Von Hippel, E. (2017). Free innovation London. England: MIT Press.
48. Zhang, J., & Liang, X. (2011). Business ecosystem strategies of mobile network operators in the 3G era: The case of China Mobile. Telecommunications policy, 35(02), 156-171.