The Sankalpa: International Journal of Management Decisions
ISSN: 2454-7425
Volume 12, Issue 2 (July - December 2026)

Open Innovation: An Approach to Strengthening the Competitiveness of Startups in the Contemporary Digital Environment

Serrar Zahra
Ziane Achour University of Djelfa, Algeria
E-mail: z.serrar@univ-djelfa.dz
Serrar Kheira
Ziane Achour University of Djelfa, Algeria
E-mail: k.serrar@univ-djelfa.dz

Received: 22/02/2026 Accepted:13/05/2026. Published: 17/08/2026

Abstract:

This study aims to explore the role of open innovation in supporting the competitiveness of startups, highlighting the importance of using modern technologies and tapping into external knowledge sources to improve performance and enhance innovation capacity. It also sheds light on how open innovation helps startups cope with the challenges posed by the fast-changing digital environment. The study finds that open innovation is a strategic approach to boosting startup competitiveness by leveraging new technologies, applying them in the market, and speeding up product and service development. Additionally, it promotes knowledge sharing, strengthens interactions between academia and industry, and accelerates technology development and deployment.

Keywords: Open innovation, startups, organizational performance, technology

Introduction:

The contemporary business landscape necessitates a continuous emphasis on development and innovation. This imperative has compelled organizations to adopt agile and efficient organizational frameworks that prioritize innovation, positioning it as a crucial component of a globalized and competitive marketplace. The process of innovation relies significantly on the investment in harnessing the potential of individuals and their inherent intellectual capabilities to enhance the generation of products (goods and services), processes, and business models. Recent theoretical advancements indicate that the innovation process is substantially augmented within the context of organizational structures and social environments through the facilitation of interactions and collaborations among individuals, concepts, and the external milieu. This evolving paradigm has catalyzed a shift towards open innovation, which aligns with the principles of the knowledge era and stands in stark contrast to the secrecy and individualistic research tendencies characteristic of traditional organizations. Such traditional methodologies are increasingly becoming obsolete as they struggle to adapt to the key forces driving greater openness, particularly in the realm of inter-organizational collaboration in research and development.

In response to the growing demand for the development of new products and services designed through collaborative innovation, organizations have encountered new challenges that have compelled them to reconsider traditional, technology-driven models of innovation. Consequently, they have increasingly turned to open innovation as a strategic approach capable of providing more effective solutions to the complexities of today's business environment.

Against this backdrop, leveraging external networks has become a genuine strategic imperative for identifying and engaging reliable partners, generating novel ideas, commercializing innovative products, and benefiting from the learning opportunities that arise through the integration of external knowledge, skills, and resources. These emerging managerial approaches encompass a wide range of collaborative practices, including co-development, co-innovation, co-creation, strategic partnerships, and other forms of inter-organizational collaboration.

Research Problem

In light of the foregoing discussion, this study seeks to address the following research question:**To what extent does open innovation contribute to enhancing the competitiveness of startups in the contemporary digital environment?**

Research Objectives

This study aims to:

- Clarify the fundamental concepts related to startups.
- Examine the approaches and models of open innovation.
- Analyze the contribution of open innovation to enhancing the competitiveness of startups.

Study Structure: The study is divided into two main parts:

Part One: The Conceptual Framework of the Study Variables

Part Two: The Role of Open Innovation in Strengthening the Competitiveness of Emerging Enterprises

Part One: The Conceptual Framework of the Study Variables

In our era, technology has become more diverse and complex, leading to increased costs for technological development and shorter product lifecycles. This, in turn, has contributed to higher innovation costs. Furthermore, the sources of knowledge necessary for innovation have shifted, moving beyond internal organizational knowledge to include diverse external sources. This has facilitated continuous innovation, prompting organizations to transition from a closed to an open innovation model.

Chapter One: Theoretical Foundations of Open Innovation:

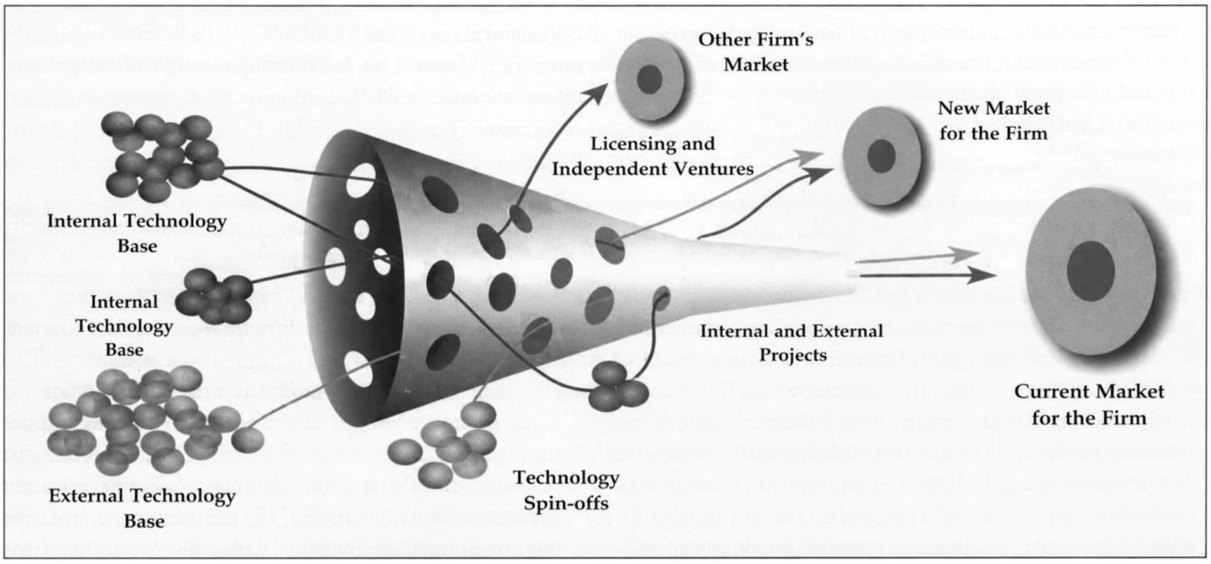
1- The Concept of Open Innovation:

Academically, the concept of open innovation first appeared in 2003, introduced by Henry Chesbrough. He defined it as: "An innovation model that assumes an organization can or should use both external ideas and knowledge alongside internal ones, allowing it to advance its own technologies and thus expand into markets[1]." Chesbrough and Bogers defined it in 2014

[1]**Ben Hadid, Asma.***The Role of Open Innovation in Activating Marketing Innovation in Economic Enterprises: A Case Study.* Doctoral Dissertation submitted for the degree of Doctor of Philosophy (PhD) in Economic,

as "a distributed innovation process based on purposefully managed knowledge flows across organizational boundaries, using financial and non-financial mechanisms in line with the organization's business model[2]."
Accordingly, open innovation can be defined as a type of innovation that utilizes external resources and knowledge alongside its internal resources, in accordance with the requirements of contemporary technology.

Figure (1): The Open Innovation Model



Source: NajmAboudNajm, Leadership and Innovation Management, 1st ed., Dar Al Safaa for Publishing and Distribution, Amman, Jordan, 2012, p. 385

This diagram illustrates the concept of open innovation, an innovation management model that encourages companies to utilize both internal and external ideas and expertise.

2- Dimensions of Open Innovation:

According to Chesbrough, Vanhaverbeke, and West, the open innovation model is based on two main dimensions[3]:

Outbound Open Innovation: In this model, the organization establishes relationships with external sources to leverage and market its technology. According to Linus Dahlandera, this dimension reflects the organization's efforts to sell its ideas in the market by organizing

Commercial and Management Sciences, Department of Commercial Sciences, Specialization in Industrial Marketing, University of Ghardaia, Ghardaïa, Algeria, 2024–2025, p. 11.

[2]**Mebarkia, Razika.***The Role of Market Orientation in Promoting Open Innovation: A Field Study of Electronics Manufacturing Enterprises in the Provinces of Sétif and Bordj BouArréridj.* PhD Dissertation in Commercial Sciences, Ferhat Abbas University Sétif 1, Sétif, Algeria, 2023–2024, p. 99.

[3]Mezner, Nesrine, and BerhalAbdelwahab. "*Open Innovation: A New Approach to Marketing University Outputs—A Review of Leading International Experiences*." Forum Journal for Economic Studies and Research, Vol. 7, No. 2 (2023), pp. 343–344.

activities such as selling innovation projects, establishing joint ventures to market technology, and providing scientific and technical services to other organizations.

Inbound Open Innovation: In this dimension, the organization seeks external sources to enhance its knowledge and drive innovation. This can be done by utilizing external information and knowledge sources, such as customers, suppliers, and competitors, alongside its internal capabilities to conduct more research and development activities. It can also be achieved by organizing activities such as purchasing licenses, acquiring joint ventures, securing R&D contracts, funding research, and purchasing technical and scientific services, among others.

3- Advantages and Disadvantages of Open Innovation:

Open innovation offers several advantages and disadvantages for companies. Its most prominent advantages are as follows[4]:

- Reduced R&D costs and improved development productivity;
- Feedback that allows for the incorporation of customer opinions at an early stage of the development process;
- Production of accurate research targeted at the market and customers;
- Opening the door to collaboration between internal and external innovations;
- Viral marketing potential.

Implementing open innovation is associated with a number of risks and disadvantages, including:

- The possibility of disclosing information not intended for sharing; • The risk of the host company losing its competitive advantage as a result of intellectual property disclosure;
- The potential loss of control over innovation and how stakeholders influence the project;
- The possibility of developing methods to identify and properly integrate external innovation;
- Re-engineering external innovation strategies to maximize returns.

Chapter Two: Basic Concepts of Startups:

Startups are among the most important manifestations of innovative business models in the contemporary economy. In light of rapid technological and economic changes, these companies embody the spirit of initiative and creativity, making the study of their concept and the theoretical framework that governs them extremely important.

1-The Concept of Startups:

Definitions of startups have varied to this day, including the following:

According to the Cambridge English Dictionary, the term "startup" is composed of two parts: "start," meaning the idea of launching, and "up," meaning the idea of strong growth. This means that the word implies a small project that has just begun[5].

[4]**Bouhadid, Leila.***"Open Innovation Approaches and Models and the Factors Contributing to Their Success in the Context of Technological Change*.**" *Al-Mi'yar Journal*, Vol. 16, No. 2 (December 2025), p. 610.
[5]**Belmabarki, Marwa.***The Impact of Modern Technology on Startups through the Use of Artificial Intelligence Techniques (Artificial Neural Networks).* PhD Dissertation in Economics, Specialization in Applied Quantitative Economics for Development, University of Algiers 3, Algiers, Algeria, 2025–2026, p. 3.

It is also defined as "a newly established and innovative company in its sector of activity, marketing methods, or development approach[6]."

Researchers focus on linking the concept of startups to the elements of creativity and innovation. A startup is defined as a temporary company that grows rapidly. Its founder aims to introduce a new and innovative product or service to create new markets under conditions of high risk and uncertainty. These companies are often based on innovation and technology[7]. From the above, startups can be defined as those organizations that possess a new idea or innovation, utilize modern technology, and strive for creativity and rapid growth amidst high risks.

2- Characteristics of Startups:

Startups are distinguished from other organizations by several characteristics, the most important of which can be summarized as follows[8]:

• Newly established: According to Algerian law, startups are young organizations whose age does not exceed eight years, calculated directly from the date they first receive the startup label.

• Risk: Startups are built on a unique and innovative idea, making their implementation and success uncertain and fraught with risk. They face the choice of either evolving and transforming into successful organizations or closing down and incurring losses.

• Rapid growth: One of the defining characteristics of a startup is its potential for rapid growth and generating productivity far exceeding its operating costs.

• Reliance on technology: Startups are characterized by their heavy reliance on technology, primarily for developing their activities, especially electronic applications and platforms. • Temporary: Startups are also characterized as temporary, meaning they are in their initial phase and quickly transform into traditional or conventional businesses once the idea is transformed into a commercial enterprise, and again after eight years of operation.

• Creativity and Innovation: Creativity is one of the strategic pillars of startups. They attract talent and cultivate a culture of innovation within the organization, providing space and freedom for initiative and risk-taking for everyone to quickly develop innovative products, giving them a competitive edge.

• The Continuous Need for Funding: This is necessary to support the rapid growth of startups and address the high costs associated with this growth, particularly regarding research and development spending and the implementation of new innovations.

• Organizational Structure: Startups, especially in their early stages, typically have an informal and less hierarchical structure. This allows entrepreneurs to ensure flexibility and speed in the

---

[6]**Sultan, Karima.** "***The Role of Business Accelerators in Promoting Open Innovation: The Case of Algeria Venture***." *The Economic Researcher Journal*, Vol. 12, No. 2 (December 2024), p. 83.

[7]**Bouassida, Nour El Houda, and Souhimi, Faiza.** "***The Business Model and Its Role in Enhancing the Competitive Advantage of Startups in Algeria***." *Journal of Studies in Economics and Business Administration*, Vol. 8, No. 1 (June 2025), p. 236.

[8]**Farhi, Marwa Amina.***The Impact of Information and Communication Technology on Organizational Change Management in Startups: A Case Study of a Sample of Startups in Algeria.*PhD Dissertation in Management Sciences, Specialization in Human Resource Management, University of Boumerdès, Boumerdès, Algeria, 2025–2026, pp. 78–80 (adapted).

transfer of information needed at the beginning of their business's life cycle, especially during periods of change.

• Characteristics of Founders: Founders are characterized by high levels of innovation, education, a spirit of risk-taking, and intuition, even if they sometimes lack the necessary managerial skills.
• Significant Developmental and Innovative Capabilities.
• Ability to Solve Unforeseen Problems.
• Advanced communication technology.
• Rapid growth and scalability.
• Dynamic leadership and integrated teamwork.

3. The Importance of Startups

Startups constitute a fundamental pillar of economic and social development due to the innovative solutions they provide and their contribution to stimulating economic activity and creating added value. Their importance can be highlighted through the following aspects[9]:

- **Promoting scientific research:** By relying on knowledge-based and technology-driven services, startups encourage research institutions, particularly universities, to keep pace with the rapid changes occurring in their environment.
- **Creating employment opportunities:** Startups generate significant employment opportunities, particularly for young people, at a time when employment rates remain relatively low.
- **Developing individual capabilities:** Startups foster the development of individuals' skills and competencies, as they often employ highly capable personnel who are able to perform diverse and specialized roles within the organization.
- **Supporting local economic development:** They contribute to the development and diversification of the local economy while enhancing its overall competitiveness.
- **Driving the growth of large enterprises:** Startups serve as engines of economic growth by fostering innovation and providing opportunities for larger companies to expand and remain competitive. Consequently, their impact on economic development is difficult to overlook.

Part Two: The Role of Open Innovation in Strengthening the Competitiveness of Startups

Numerous studies have demonstrated the effectiveness of open innovation strategies, with particular emphasis on the impact of external knowledge sourcing, collaboration with third-party organizations, and the external commercialization of technology. Likewise, many scholars have regarded the business model as an analytical tool for assessing the extent to which organizations successfully implement the various practices and outcomes associated with the philosophy of open innovation.

Chapter One: The Contribution of Open Innovation to Strengthening Competitiveness

[9]**Dahmani, DjalalEddine.***The Role of the Governance System of the Formal Business Environment in Enhancing Startups: A Case Study of a Sample of Startups in Algeria.* PhD Dissertation in Management Sciences, Department of Management Sciences, Graduate School of Commerce, Algiers, Algeria, 2024–2025, p. 55.

According to Braun, open innovation operates at two interconnected levels in relation to the business model: the intra-organizational level and the inter-organizational level.

At the **intra-organizational level**, open innovation integrates the firm's innovation process with its business model. Existing research emphasizes the importance of various open innovation mechanisms in exploring and redesigning business models, making them more open and adaptable. A third stream of research combines business models with open innovation, advocating greater organizational openness. In this regard, Henry Chesbrough argues that a clear understanding of the business model enhances collaborative activities and facilitates the successful implementation of open innovation.

At the **inter-organizational level**, open innovation focuses on organizing innovation processes in relation to the firm's external environment. The literature adopting this perspective examines the various mechanisms through which open innovation can be embedded within business models from a network perspective, including inter-firm collaboration and its effects on the different stakeholders involved[10].

1-Startup practices when adopting an open innovation strategy:

This includes several aspects[11]:

• Outsourcing research and development and building alliances, as this enables the organization to leverage the expertise and knowledge of others to enhance its innovation capabilities.

• Increasing contracts with university departments and public and private research centers, which contributes to knowledge exchange and strengthens interaction between the academic and industrial sectors.

• Involving other organizations, customers, and suppliers in the innovation process through joint projects and strategic collaborations, which enhances exchange and interaction between different parties.

• Licensing intellectual property to and from other organizations, which contributes to accelerating technology development and dissemination.

• Engaging with small, highly specialized research organizations that serve as innovation hubs and can be effective partners in development and innovation processes.

• Increasing participation in technology transfer programs, which enhances opportunities to leverage new technologies and apply them in the market.

• Increasing contributions to other organizations through component acquisition or venture capital investment, which contributes to expanding influence and strengthening market presence.

---

[10]**Atlaoui, Zakaria.***Research and Development and Open Innovation Strategies as an Approach to Achieving the Competitiveness of Mobile Telecommunications Companies in Algeria (2008–2018).* PhD Dissertation in Commercial Sciences, Specialization in Business Operations Management, University of Algiers 3 (Ibrahim Sultan Cheibout Campus), Algiers, Algeria, 2021–2022, p. 98.

[11]BENLAGHA Mohamed Reda , AIT SAID FOUZI, *Open Innovation as a Strategy to Build an efficient Ecosystem for Startups,*«EL-ManhelEconomique, volume 07, Numéro 01, june2024,, Université El Oued , Algérie. p1263

These practices of adopting open innovation strategies are a fundamental part of the business strategy of participating organizations. They are not limited to simply applying open innovation techniques, but fall within a broader strategic framework that includes the company's strategic directions and objectives. Therefore, these practices require the design of different business models that adapt to the specific context and approach of the environment in which the organization operates. This means that the strategies adopted must be adaptable and designed to meet the organization's needs and circumstances, market developments, and the surrounding environment.

2-Open Innovation Management Mechanisms in Startups:

What does managing "open innovation" actually offer compared to the traditional closed innovation process? Companies that have adopted an open innovation strategy manage their innovation in a radically different way[12]:

- Continuous and regular communication with various external knowledge sources. These sources can include universities, public laboratories, startups, specialized small businesses, individual inventors, and databases of innovative products or patents.
- Flexible and proactive management of industrial property: Industrial property becomes a fundamental part of the innovation strategy because it facilitates the easy exchange of knowledge and technologies in markets.
- The possibility of engaging innovation intermediaries (Business Development Manager) to seek external resources and leverage their innovation capabilities;
- Establishing new performance indicators.
- The percentage of innovative projects generated outside the company, the time elapsed between project generation and market launch (compared to different channels such as internal, licensing, spin-offs, etc.), the percentage of patent utilization held by the company, etc.
- The central role of the business model in the innovation strategy.
- Business model alignment analysis allows for determining whether the development of an innovative project will be carried out internally or externally through a license or spin-off company.

3-Open Innovation Models:

Open innovation models include[13]:

Knowledge Transfer Partnerships: In the UK, Knowledge Transfer Partnerships (KTPs) serve as a funding mechanism designed to foster collaborations between companies and knowledge-based partners. A KTP involves a joint initiative among a knowledge-based partner, such as a research institution, a company partner, and one or more recently qualified individuals, like graduates. Upon completion of a KTP project, all three stakeholders are required to compile a final report that outlines the KTP initiative and details how it contributed to achieving the project's innovation objectives.

[12]Allaouat, M. F. *"Managing Open Innovation through Networks."* Journal of Commercial Sciences, p. 115.
[13]Bouhadid, Leila. *Op. cit.*, pp. 612–613.

Product Platform: This model involves developing and delivering a partially completed product to provide a framework or toolkit for stakeholders to access, customize, and utilize. The goal is for stakeholders to extend the functionality of the platform product while increasing the overall value for all stakeholders. Common examples of product platforms are readily available frameworks such as a Software Development Kit (SDK) or Application Programming Interface (API). This approach is common in markets with strong network effects, where the demand for the framework's implementing product (e.g., a mobile app or web application) increases as more developers are drawn to using the platform's toolkit. High system scalability often leads to increased management complexity and quality assurance.

Competitions of ideas: This model involves implementing a system that encourages competition among stakeholders by rewarding successful proposals. This allows companies to access a greater number of innovative ideas at lower costs while providing deeper insight into the needs of their customers and stakeholders.

Customer Engagement: While this technique is primarily geared towards the end of the product development cycle, it involves serious interaction with customers. Company teams work to understand their experiences, feelings, motivations, and challenges in detail, integrating customer input and allowing them to actively participate in the design process and product management cycle to create products and services that uniquely meet their needs.

Collaborative Product Design and Development: Similar to a product platform, the company integrates its stakeholders into product development. This differs from a platform in that, in addition to providing a framework within which stakeholders develop, the host company still controls the final products developed in collaboration with stakeholders. This approach gives companies greater control by ensuring the right product is developed as quickly as possible while reducing the overall development cost. Innovation networks, similar to idea competitions, foster a network of contributors to the design process by offering incentives. The difference lies in the fact that this network is used to develop solutions to specific problems within the development process, rather than entirely new products.

The Austrian Ludwig Boltzmann Institute (LBU) launched a project called "Tell Us," which addresses mental health issues. The term "open innovation" was used to guide collaborative research questions in Austria. The institute also launched the first Open Innovation in Science Lab, teaching twenty selected scientists the concept of open innovation over a year. The LBU reported on the lab, participants, instructors, and news related to open innovation in science on Facebook.

Conclusion

In light of the rapid advancements in information and communication technologies, globalization, and the knowledge-based economy, open innovation has become one of the most important modern approaches that organizations rely on to enhance their capacity for innovation and achieve a sustainable competitive advantage. This expansion has broadened the horizons of research and development and strengthened cooperation between institutions, universities, research centers, and external partners, enabling the efficient exchange and utilization of knowledge and expertise. Furthermore, the success of organizations, especially startups, now hinges on their ability to access external knowledge sources, develop effective collaborative networks, and possess the necessary resources and skills to absorb, adapt, and transform this knowledge into innovative products or services that contribute to enhancing their competitiveness and sustainability in the evolving digital business environment.

Study Findings:

-Open innovation is considered a theoretical model for managing modern innovative activities within the context of widespread knowledge dissemination and the increasing use of information and communication technologies .

-Adopting an open business model contributes to a positive impact on organizational innovation performance. Outbound, inbound, and mixed open innovation activities positively influence competitive performance, and open innovation ecosystems positively impact the open business model. Dynamic capabilities positively modify the relationship between the open business model and competitive performance.

-Open innovation practices and applications require several management approaches, particularly in adopting open business models and open ecosystems, in addition to acquiring dynamic capabilities. These collectively contribute to improving organizational competitive performance.

-Open innovation also enhances the market presence of emerging organizations by diversifying their products and services and keeping pace with the demands of the rapidly evolving digital environment.

References

Ben Hadid, Asma. The Role of Open Innovation in Enhancing Marketing Innovation in Economic Enterprises: A Case Study. PhD Dissertation in Economic, Commercial and Management Sciences, Department of Commercial Sciences, Specialization in Industrial Marketing, University of Ghardaia, Ghardaïa, Algeria, 2024–2025.

Mebarkia, Razika. The Role of Market Orientation in Promoting Open Innovation: An Empirical Study of Electronics Manufacturing Enterprises in the Provinces of Sétif and Bordj BouArréridj.PhD Dissertation in Commercial Sciences, Ferhat Abbas University Sétif 1, Sétif, Algeria, 2023–2024.

Mezner, Nesrine, and BerhalAbdelwahab. "Open Innovation as a New Approach to Marketing University Outputs: A Review of Leading International Experiences." Forum Journal for Economic Studies and Research, Vol. 7, No. 2, 2023.

Bouhadid, Leila. "Open Innovation Approaches and Models: Success Factors in the Era of Technological Change." Al-Mi'yar Journal, Vol. 16, No. 2, December 2025.

Belmabarki, Marwa. The Impact of Modern Technology on Startups through the Use of Artificial Intelligence Techniques (Artificial Neural Networks). PhD Dissertation in Economics, Specialization in Applied Quantitative Economics for Development, University of Algiers 3, Algiers, Algeria, 2025–2026.

Sultan, Karima. "The Role of Business Accelerators in Promoting Open Innovation: The Case of Algeria Venture."The Economic Researcher Journal, Vol. 12, No. 2, December 2024.

Bouassida, Nour El Houda, and Souhimi, Faiza. "The Business Model and Its Role in Enhancing the Competitive Advantage of Startups in Algeria." Journal of Studies in Economics and Business Administration, Vol. 8, No. 1, June 2025.

Farhi, Marwa Amina. The Impact of Information and Communication Technology on Organizational Change Management in Startups: A Case Study of a Sample of Startups in Algeria. PhD Dissertation in Management Sciences, Specialization in Human Resource Management, M'HamedBougara University of Boumerdès, Boumerdès, Algeria, 2025–2026.

Dahmani, DjalalEddine. The Role of Formal Business Environment Governance in Enhancing Startups: A Case Study of a Sample of Startups in Algeria. PhD Dissertation, Department of Management Sciences, Graduate School of Commerce, Algiers, Algeria, 2024–2025.

Touahriya, Walid. The Role of Digital Innovation in Promoting Startups in Algeria. PhD Dissertation in Management Sciences, Specialization in Organization and Digital Transformation, Abdallah Morsli University Center of Tipaza, Tipaza, Algeria, 2025–2026.

Atlaoui, Zakaria. Research and Development and Open Innovation Strategies as an Approach to Achieving the Competitiveness of Mobile Telecommunications Companies in Algeria (2008–2018). PhD Dissertation in Commercial Sciences, Specialization in Business Operations Management, University of Algiers 3 (Ibrahim Sultan Cheibout Campus), Algiers, Algeria, 2021–2022.

Benlagha, Mohamed Reda, and Ait Said, Fouzi. "Open Innovation as a Strategy to Build an Efficient Ecosystem for Startups."El-ManhelEconomique, Vol. 7, No. 1, June 2024. Universityof El Oued, Algeria.

Allaouat, M. F. "The Management of Open Innovation through Networks." Journal of Commercial Sciences.