

**Algerian startup ecosystem in the digital era: a SWOT based analysis****النظام البيئي الجزائري للمؤسسات الناشئة في العصر الرقمي: تحليل قائم على مصفوفة SWOT****Ahlem BOUGOUFFA<sup>1</sup>**<sup>1</sup> university of Constantine2, Innovation and financial engineering laboratory- Constantine (Algeria), ahlem.bougouffa@univ-constantine2.dz**Received:** 18/08/2024**Accepted:** 30/09/2024**Published:** 30/09/2024**Abstract:**

This research paper examines the Algerian startup ecosystem in the context of digital transformation, employing a SWOT analysis framework. Drawing on a comprehensive review of literature, government reports, policy documents, and economic indicators, we assess the current state of Algeria's startup landscape. Our findings reveal significant opportunities stemming from a young, tech-savvy population and recent governmental support initiatives. However, the ecosystem faces challenges including regulatory instability, limited access to finance, and brain drain. The study identifies key areas for strategic intervention, including enhancing regulatory frameworks, fostering international collaborations, and addressing skill gaps.

**Keywords:** Ecosystem, Startups, Digital Transformation, SWOT analysis, Algeria.**JEL Classification Codes :** Q57, L26, O33, M10, N17**ملخص:**

تهدف هذه الورقة البحثية إلى تشخيص وضع النظام البيئي للشركات الناشئة في الجزائر في عصر التحول الرقمي، باستخدام تحليل قائم على مصفوفة SWOT. استناداً إلى مراجعة شاملة للأدبيات والوثائق والمؤشرات الاقتصادية تم تقييم الوضع الراهن للشركات الناشئة في الجزائر. تكشف نتائج البحث عن وجود فرص كبيرة لتطور النظام البيئي الجزائري للشركات الناشئة نظراً لوجود شريحة سكانية شابة ملمة بالتكنولوجيا ومبادرات حكومية حديثة للدعم. ومع ذلك، يواجه النظام البيئي تحديات تشمل عدم استقرار الإطار التنظيمي، ومحدودية الوصول إلى التمويل، وهجرة الأدمغة. تحدد الدراسة المجالات الرئيسية للتدخل الاستراتيجي، بما في ذلك تعزيز الأطر التنظيمية، وتعزيز التعاون الدولي، ومعالجة فجوات المهارات. تساهم هذه الدراسة في تعميق الفهم الشامل لتطوير النظم البيئية للشركات الناشئة في الاقتصادات الناشئة وتقديم خارطة طريق للتحول الاقتصادي الرقمي في الجزائر.

**كلمات مفتاحية:** نظام بيئي، شركات ناشئة، تحول رقمي، تحليل سوات، الجزائر**تصنيفات JEL :** Q57, L26, O33, M10, N17

### INTRODUCTION:

In the rapidly evolving global economy, startups have emerged as crucial drivers of innovation, economic growth, and digital transformation. These companies are characterized by their innovative value propositions, targeting niche markets through novel business models (Ries, 2011; Blank & Dorf, 2020). The inherent novelty and instability associated with their innovation processes, particularly in the technological domain, distinguish startups from other economic entities (Christensen, 2013). While this uncertainty presents a high risk of failure, it also offers the potential for significant growth and future cash flows (Gompers & Lerner, 2001). The success of startups is heavily dependent on the support they receive to navigate the critical "Valley of Death" phase (Auerswald & Branscomb, 2003). This support is optimally provided within a comprehensive startup ecosystem that fosters innovation and effective entrepreneurial activity. Such ecosystems facilitate the design of competitive business models aligned with local market needs and global market opportunities (Isenberg, 2011; Spigel, 2017).

Startup ecosystems are complex networks of interconnected actors, including individuals and entities, who share a vision for investment and innovation (Feld & Hathaway, 2020). These ecosystems provide the necessary conditions for nurturing innovative ideas, developing them into viable products or services, and supporting their entry into markets. The complexity of these systems, as emphasized by Brad Feld, founder of TECHSTARS, lies in the intricate relationships and knowledge-sharing networks that develop over time (Feld, 2012).

In Algeria, the establishment of a new ministry in early 2020 marked a significant shift in governmental approach towards startups. This initiative reflects a clear political will to engage with the international startup landscape and leverage the experiences of global leaders in the digital economy. The ministry's focus on enhancing the startup ecosystem in Algeria is built on three fundamental pillars: legislative framework, financing mechanisms, and support structures (Ministry of Startups and Knowledge Economy, 2020). However, a comparative analysis with successful international experiences suggests that additional pillars may be necessary for a robust ecosystem.

Despite the growing body of literature on startup ecosystems globally (e.g., Spigel & Harrison, 2018; Stam, 2015), there is a notable lack of comprehensive analyses specific to the Algerian context. This research gap limits our understanding of the unique challenges and opportunities within the Algerian startup ecosystem, particularly in the context of digital transformation.

To address this gap, our study aims to conduct a systematic SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of the Algerian startup ecosystem. By doing so, we seek to answer the following research question:

**What lessons can be drawn from the Algerian startup ecosystem SWOT analysis in the context of digital transformation for policymakers, entrepreneurs and investors seeking to support its growth and development?**

This study contributes to the existing literature in several ways. First, it provides a comprehensive assessment of the Algerian startup ecosystem, offering insights into its current state and potential. Second, it applies the SWOT framework in a novel context, demonstrating its utility for analyzing emerging startup ecosystems in developing economies. Finally, it aims

to bridge the gap between academic research and practical policymaking by offering actionable recommendations for various stakeholders.

### **1- Startups ecosystem in a digital era: an overview**

In the contemporary landscape of economic development and innovation, startup ecosystems have emerged as key drivers of digital transformation and economic growth (Smith and others, 2020). Understanding the dynamics of these ecosystems is essential for nations seeking to harness the potential of digital technologies and foster entrepreneurial activities. This literature review section explores the significance of startup ecosystems in the context of digital transformation, drawing insights from a range of studies.

#### **1-1 The Role of Startup Ecosystems in Digital Transformation**

Digital transformation is the strategic implementation of advanced technologies like AI, data analytics, cloud computing, and IOT to fundamentally enhance business processes, operations, and customer experiences. This shift towards a technology-centric, data-driven approach is essential for businesses to remain competitive in the digital age (Khalid & Naumova, 2021).

To delve deep, startups are characterized by their innovative ideas, rapid growth potential, and a focus on scalability (Yildirim & Tuncalp, 2023) play a crucial role in digital transformation by introducing disruptive technologies and business models (Smith and others, 2020). These newly established, often technology-driven entities operate in dynamic and uncertain environments.

Accordingly, an innovation ecosystem is a dynamic network of various entities, including startups, established companies, universities, government agencies, and support organizations. This interconnected system fosters collaboration, knowledge exchange, and innovation, creating an environment conducive to startup sustainability and talent circulation. (Jesemann, 2020).

In this context, (Caseau, 2022) proposes a lean approach to digital transformation, emphasizing customer-centric approach, co-creation of digital services with users, development of exponential information systems, and building software "micro-factories" for service platforms. These elements are crucial for startups navigating the digital landscape and for established companies seeking to innovate.

Additionally, the advent of Industry 4.0 technologies has accelerated this transformation. Yildirim and Tuncalp (2023) emphasize the essential role of university-based innovation ecosystems in linking science and technology universities with industrial firms, including startups and enterprises. This connection is crucial in the context of Industry 4.0, where the integration of advanced technologies such as artificial intelligence, Internet of Things, and big data analytics is reshaping traditional business models.

#### **1-2 The role of startups in fostering innovation and economic growth**

Startups are increasingly recognized as key drivers of innovation and economic growth in the digital era. Jesemann (2020) argues that startups are important engines for innovation, particularly in regions transitioning from traditional industry-driven economies. The author emphasizes that startups can only thrive when embedded in well-functioning startup ecosystems.

Rocha and others (2019) investigate how collaborations with startups can influence digital innovation in Brazilian manufacturers. Their study reveals that partnerships between startups and established companies, universities, and government agencies characterize the intense use of open innovation practices. This collaborative approach enables startups to contribute significantly to the digitalization of traditional industries.

Kaur and others (2023) discuss the transformation of the Indian economy through technology-led initiatives. They highlight government programs such as Startup India, Digital India, and Make in India, which have placed breakthrough technological innovations at the center stage of economic development. This case demonstrates how startups can be leveraged as a tool for national economic transformation in the digital age.

### **1-3 Key components of successful startup ecosystems**

The literature identifies several critical components that contribute to the success of startup ecosystems in the digital era.

1. **Supportive Policy Framework:** Font-Cot and others (2023) emphasize the importance of local government policies in creating and nurturing startup ecosystems. This includes initiatives such as co-working areas, accelerators, and open data policies.

2. **University-Industry Collaboration:** Yildirim and Tuncalp (2023) highlight the crucial role of university-based innovation ecosystems in linking academic research with industrial applications, particularly in the context of Industry 4.0 technologies.

3. **Access to Funding:** Gutmann and others (2019) discuss the rise of corporate accelerators as a means of providing both financial and strategic support to startups. They note that these programs offer benefits such as product development assistance, sales acceleration, and skill development for participating startups.

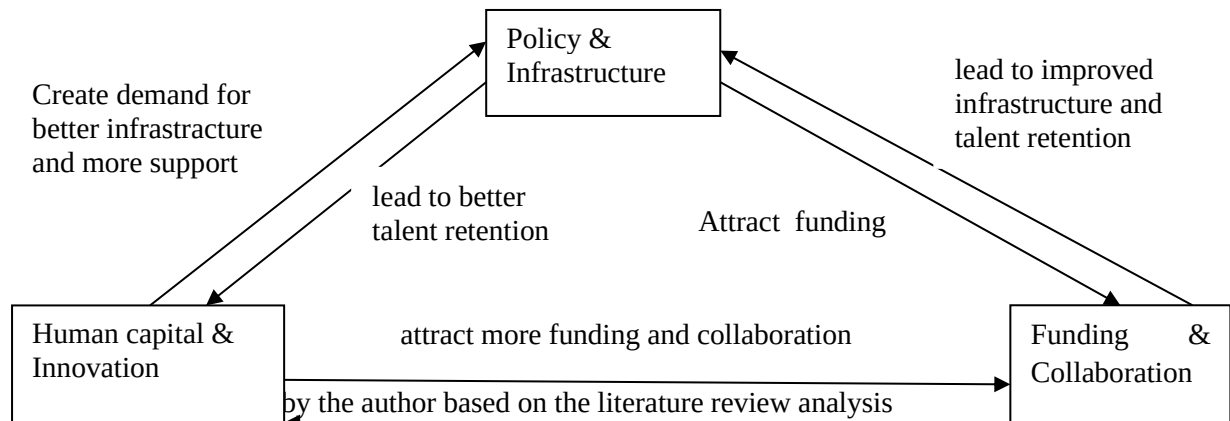
4. **Technological Infrastructure:** Silva & Sehnem (2022) emphasize the integration of Industry 4.0 technologies with circular economy principles in startup ecosystems. They identify digitization, traceability, software as a service, and shared platforms as key technological elements supporting innovative startup ecosystems.

5. **Culture of Innovation:** Hornberger and others (2022) discuss the role of strategic corporate accelerators in overcoming obstacles of corporate-startup engagement. They highlight the importance of creating a culture that bridges the gap between established corporations and agile startups.

6. **Talent Development:** Nguyen and others (2022) stress the importance of developing high-quality human resources, particularly in emerging fields like Fintech. They suggest that education and skill development are crucial for nurturing a successful startup ecosystem.

From this perspective, we can create three groups that represent different aspects of the ecosystem: policy and infrastructure; human capital and innovation culture; funding and collaboration

**Diagram (01): interconnection between startup ecosystem components**



In conclusion, the literature review reveals that startup ecosystems in the digital era are characterized by a complex interplay of these elements collectively contributing to the ecosystem's ability to foster innovation, drive economic growth, and navigate the challenges of digital transformation.

## 2- Methodology

This study employs a qualitative research approach, utilizing secondary data analysis to conduct a SWOT analysis of the Algerian startup ecosystem in the digital era. The research is grounded in an interpretive paradigm, acknowledging the complex nature of startup ecosystems (Creswell & Poth, 2018).

Data were collected from diverse secondary sources, including government reports, industry publications, academic literature, and online databases, aligning with methodologies used in similar ecosystem studies (Spigel & Harrison, 2018). The SWOT framework was constructed through an iterative process, examining internal factors (e.g., skilled workforce, funding access) and external factors (e.g., governmental policies, economic trends).

Content analysis was applied to systematically categorize and interpret the data, using both deductive and inductive coding strategies (Krippendorff, 2018). This approach facilitates a nuanced understanding of the factors shaping the Algerian startup ecosystem, providing an analysis grounded in local realities while leveraging the comprehensive overview afforded by secondary data analysis.

## 3- Results And Discussion

### 3-1 An overview of the Algerian startup ecosystem

The startup ecosystem in Algeria faces challenges and opportunities influenced by various factors such as the entrepreneurial environment, academic entrepreneurship, desertification impact on socio-economic systems. Research highlights the need for enriching the entrepreneurship process in Algeria to align with environmental and technological changes (sedkaoui, 2019). Based on the analysis presented in the literature review section, the components of ecosystems will be projected onto the current scenario of the startup ecosystem in Algeria in digital era.

## Algerian startup ecosystem in the digital era: a SWOT based analysis

**Table (01): components of Algerian startup ecosystem**

| Group                                | Components of ecosystem                                                                                                  | Status in Algeria                                                                                                                                                                                                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| policy and infrastructure            | <ul style="list-style-type: none"> <li>- Supportive Policy Framework;</li> <li>- Technological Infrastructure</li> </ul> | <ul style="list-style-type: none"> <li>- Moderate policy support with Startup Act 2020, but implementation challenges.</li> <li>- Developing technological infrastructure, improving but still behind global standards</li> </ul> |
| human capital and innovation culture | <ul style="list-style-type: none"> <li>- Talent Development;</li> <li>- Culture of Innovation-</li> </ul>                | <ul style="list-style-type: none"> <li>- Mixed talent development with strong technical education but brain drain issues</li> <li>- Growing culture of innovation, especially among youth</li> </ul>                              |
| funding and collaboration            | <ul style="list-style-type: none"> <li>- Access to Funding;</li> <li>- University-Industry Collaboration</li> </ul>      | <ul style="list-style-type: none"> <li>- Limited but improving access to funding, mostly seed stage</li> <li>- Limited university-industry collaboration, not yet widespread</li> </ul>                                           |

**Source:** designed by the author based on the literature review analysis

A well-designed policy framework significantly enhances the growth and sustainability of startup ecosystems by addressing critical challenges and fostering a supportive environment.

In reality, the components of the startup ecosystem do not operate in isolation from one another. As Spigel & Harrison (2018) argue, these ecosystems are not merely aggregations of discrete components but rather dynamic systems where each element influences and is influenced by others in a continuous feedback loop. This intricate interplay is evident in how policy frameworks shape and are shaped by the culture of innovation, which in turn affects talent development and retention (Stam, 2015). Furthermore, the accessibility of funding is inextricably linked to the robustness of university-industry collaborations and the overall technological infrastructure (Feld, 2012). Based on the above analysis, we will proceed to present the key components of the startup ecosystem in Algeria.

### **3-1-1 Tax advantages for startups and incubators in Algeria**

Algerian policy support towards the startup ecosystem was formalized with the 'Startup Act 2020'. This act provides a legal definition of startups and introduces various measures, including tax incentives and exemptions, which were further detailed in the Algerian Finance Act 2021 by the following:

✓ Companies with the **“Startup label”** are exempt from the tax on professional activity (TAP), the global income tax (IRG), or the corporate profit tax (IBS) for a period of four (4) years, starting from the date of obtaining the “Startup label”, with an additional one (1) year in case of renewal. Article 86 of the Finance Act 2021.

✓ Companies with the **“Incubator label”** are exempt from the tax on professional activity (TAP), the global income tax (IRG), or the corporate profit tax (IBS) for a period of two (2) years, starting from the date of obtaining the “incubator label”. Article 87 of the Finance Act 2021.

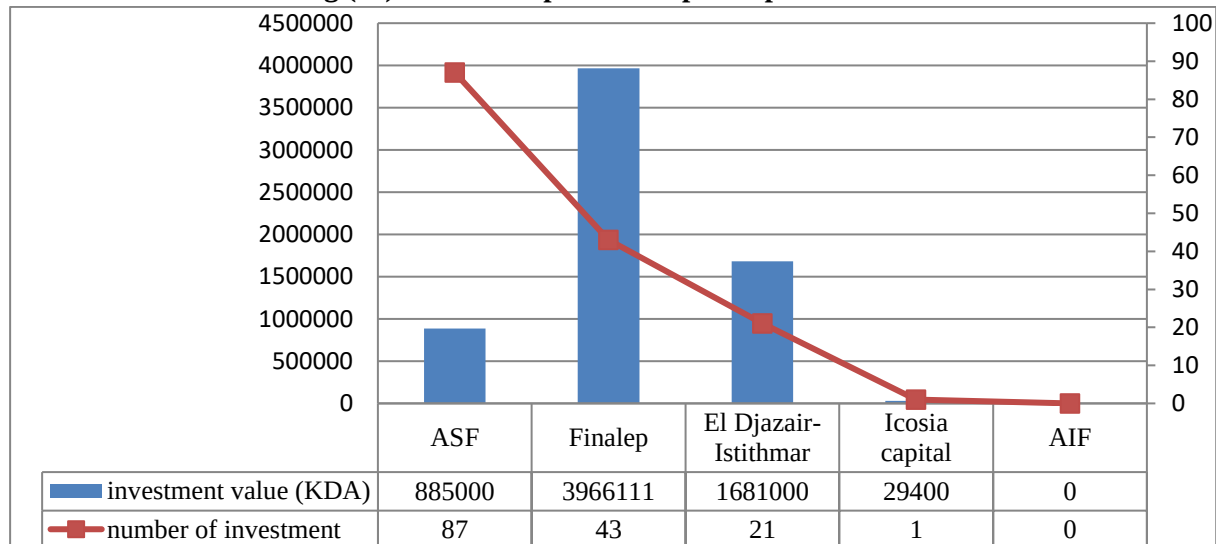
### **3-1-2 Funding policies for startups in Algeria**

Venture capital is a crucial source of funding for high-growth startups. VC investors have better screening and monitoring capabilities than other investors. Accordingly, they provide firms with the financial resources necessary to realize their projects, and they press

entrepreneurs to work hard to transform their high-potential firms into profitable business. (Colombo & Grilli, 2009, p. 232)

In Algeria, venture capital firms are established by Law 06-11 of June 2006, as amended and supplemented. Pursuant to said law, these firms have as their objective participation in capital and any operation consisting of contributions in equity and quasi-equity to enterprises in the stages of creation, development, and transmission (COSOB, 2022, p. 51). Until the end of 2022, there exist 05 venture capital firms. Algerian Start-up Fund spa (ASF) is the only firm specialized in financing startups. Algerian VC firms' activities are represented as follow:

**Fig (01): venture capital firms participations until 2022**

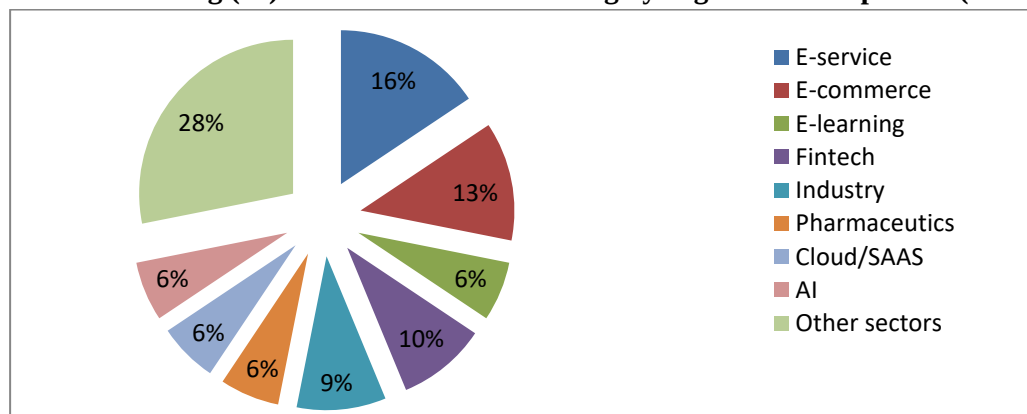


Source: (COSOB, 2022, p. 52)

The venture capital firm **Algerian Start-up Fund spa (ASF)** was established in September 2020 through the collaborative efforts of six public banks, with an initial share capital of 1.2 billion dinars. ASF's strategic objective is to provide comprehensive support and financing to startups throughout their developmental trajectory, from inception to maturity.

As shown above, in 2022, the ASF reported 87 equity participations, with a total investment of 885.000 KDA, that present 13,5% from the total value invested, compared to 48 participations in 2021, which amounted to 510.000 KDA. These equity stakes represent more than 74% of the fund's capital. (COSOB, 2022)

**Fig (02): business sectors financing by Algerian Startup Fund (2020-2022)**



Source: designed by the author based on (Morsli and others, 2023, p. 12)

ASF portfolio contain 32 startup during 2020-2022, there are 17 sector in the portfolio, the sector with the highest potential for startups is e-service with 16% (5 startups). Other sectors contain (BTP, Transport and logistics, Games and leisure, Electronic, Biotech, Marketing, Robotic, Greentech, and Geomatisation). ASF has adopted an investment diversification approach across a varied spectrum of sectors to distribute risks and exploit opportunities in domains with high growth potential.

Considering the importance of angel investors in playing the role of contractor alongside project owners, the **Casbah Business Angels (CBA)** appeared as the first independent network of business sponsors in Algeria, launched in 2012 as part of the "Economic Opportunities for Algerian Youth" program, which was born out of an initiative by the American-Algerian community in the United States of America. The network includes a group of entrepreneurs and saving investors interested in investing their time and money in emerging or established institutions in the market, and it is also a platform for networking where investors and contractors meet to exchange ideas, discuss investment opportunities, and provide guidance. Therefore, the sustainable goal of this community is that its members provide a solid base of experience and expertise in the business field, given that they are professional experts. (linkedin.com)

In recent year, crowdfunding has emerged as novel way for entrepreneurial ventures to secure funds without having to seek out venture capital or other traditional sources of venture investment. Crowdfunding refers to the efforts by entrepreneurial individuals and groups-cultural, social, and for-profit- to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries (Mollick, 2014, p. 2)

As of the year 2024, Algeria's first crowdfunding platform, **YINVESTI**, successfully connected 263 entrepreneurs with 2,532 investors to finance 49 projects across various sectors, including healthcare, technology, industry, and financial services (<https://yinvesti.dz/>)

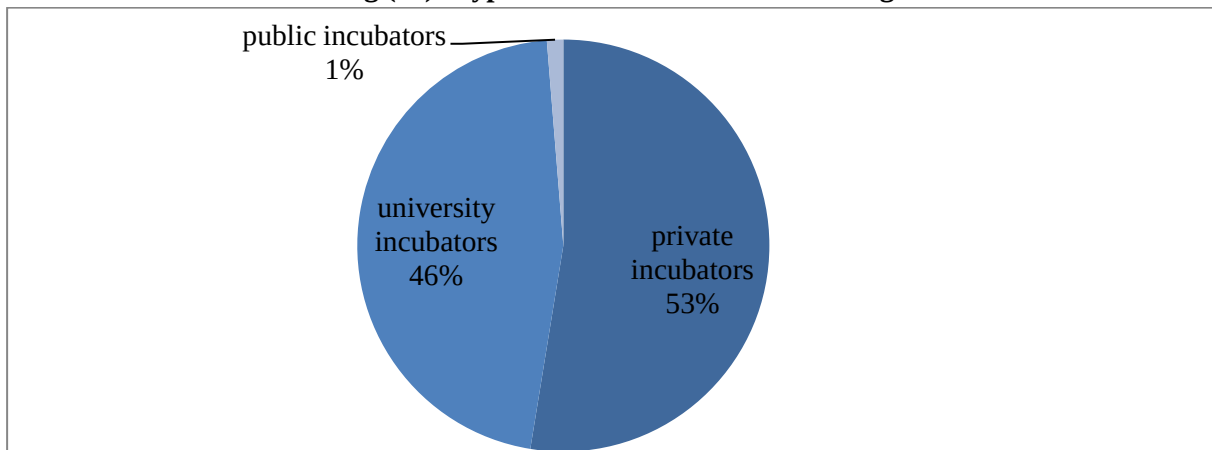
Additionally, a special room was created for startups at the Algiers Stock Exchange in order to stimulate them and provide new funding opportunities for startups. It can be a good initiative to encourage the royal path as a priority exit when the risk capital is transferred to its shares after the end of the investment period.

### **3-1-3 Business incubators and accelerators in Algeria**

According to Mustafa and others. (2024) these incubators enhance the entrepreneurial ecosystem by offering mentorship, networking opportunities, and access to funding, which are vital for the survival and growth of new ventures.

The increasing interest in establishing business incubators and accelerators in Algeria reflects a strong commitment from public policies to support innovation among startup enterprises. The “incubator label” applies to all structures supporting innovation and startups. With this label, incubators become eligible for state aid, particularly in the form of tax exemptions. ([www.startup.dz/pour-les-incubateurs/](http://www.startup.dz/pour-les-incubateurs/))

**Fig (03): Types of business incubators in Algeria**



**Source:** ([www.startup.dz/pour-les-incubateurs/](http://www.startup.dz/pour-les-incubateurs/))

University business incubators are considered as public ones, they seek to consolidate the concept of entrepreneurship among university youth, and they are responsible for the task of training and graduating students of emerging institutions who run their business independently, instead of waiting for the employment process. This is what the 1275 certificate – startup enterprise proposes.

The only public business incubator in fact was established with funding from SONATRACH as the first business accelerator in Algeria “**Algeria venture**”. It targets projects with a developed product and helps them grow within a maximum of 6 months.

Furthermore, the presence of intellectual protection institutions like the Algerian National Institute of Industrial Property (INAPI) and the National Office of Copyright and Related Rights (ONDA) helps protect the intellectual property of startups and enhance innovation culture.

Research indicates that effective public policies, tailored to the specific context of an entrepreneurial ecosystem, can facilitate the transition from startup to scaleup by enhancing talent availability, promoting networking opportunities, and reinforcing entrepreneurial culture. (Pardo-del-Val and others, 2024)

### 3-2 SWOT analysis of Algerian startup ecosystem

Algeria has not yet entered the classification of the best 100 ecosystems in the world. This is due to a set of challenges that startups face within the Algerian environment in order to enhance their position and role in the economy. (Saoud & Meddahi, 2023, p. 85)

In a SWOT analysis, the distinction between categories (Strengths, Weaknesses, Opportunities, and Threats) is determined by two key dimensions: internal vs. external factors, and positive vs. negative impacts. For the Algerian startup ecosystem, the SWOT matrix will classify them as follow:

**Table (02): SWOT matrix for Algerian startup ecosystem dimensions**

|                                                                                          | Positive                                                                | Negative                                                                                |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Internal factors:                                                                        | Strengths                                                               | Weaknesses                                                                              |
| Characteristics inherent to the system being analyzed—in this case, the Algerian startup | Continuous support from Government.<br><i>Favorable legal framework</i> | <i>Limited access to finance</i><br><i>Lack of basic business knowledge in startups</i> |

## Algerian startup ecosystem in the digital era: a SWOT based analysis

|                                                                                                                                                                  |                                                                                                                 |                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| ecosystem itself. These are aspects that the ecosystem has some degree of control over.                                                                          | <b><i>Entrepreneurial educational initiatives</i></b>                                                           |                                                                                                                                          |
| <b>External factors:</b>                                                                                                                                         | <b>Opportunities</b>                                                                                            | <b>Threats</b>                                                                                                                           |
| Originate from the broader environment surrounding the ecosystem. These are elements that the ecosystem cannot directly control but must respond to or leverage. | <b><i>Digital transformation potential<br/>Regulating the field of freelancing<br/>Global collaboration</i></b> | <b><i>Market Competition<br/>Regulatory Instability<br/>Global integration challenges.<br/>Infrastructure and Technological Gaps</i></b> |

Source: designed by the author

### 3-2-1 Strengths

**Firstly, continuous support from government.** Algeria's government has shown commitment to fostering startups through initiatives, legal frameworks, and financial support, promoting innovation and digital transformation.

In this context, policy frameworks play a critical role in shaping innovation ecosystems. For example but not limited to, Bhatt and others (2022) analyze the growth phenomenon of the technology startup ecosystem in India and the associated policy framework. Their research identifies various ecosystem constituents and offers policy recommendations to bridge existing gaps.

**Secondly, favorable legal framework.** The introduction of laws and executive decrees has created a more favorable regulatory environment for entrepreneurship in Algeria. Since 2020, the Algerian legislature has attempted to define the startup enterprise to distinguish it from other enterprises, as well as providing legal frameworks for other actors (incubators, accelerators,...) in order to contributing in framing its activities. The following presents these laws as extracted from the official journal of the Algerian Republic:

✓ **Startups Act:** Law No 19-14 of December 2019, included the Finance Law for the year 2020. The discussion about Startups Act which aimed to create a favorable environment for startups. The act is related to: legal definition of startups; tax incentives and exemptions; simplified administrative procedures and support fund.

✓ **Crowdfunding Act:** Article 45 of the Supplementary Finance Law for the year 2020. This article focuses on crowdfunding with equity financing, which results in a participation in the project's capital. Crowdfunding system in Algeria has been named "Participatory Financing Advisor" and tasked with creating and managing consultation platforms for participatory investment and investing public funds on the internet in participatory investment projects

✓ **Executive Decree No. 20-254 (September 2020) :** related to the establishment of the National Committee for granting the "**Startup Enterprise**" **Label**, "**Innovative Project**", "**Incubators**", **labels**, and determining its tasks, composition, and operation. This decree mentions the set of conditions under which the "Startup Enterprise" label is granted, in addition to its support measures. The same decree determined the creation, organization and functioning of the Algerian startup fund (ASF).

✓ **Data Protection:** Law No 18-07 of June 2018 official journal n°34, relating to the protection of individuals in the processing of personal data, is crucial for startups dealing with

user data. This represents a significant act aimed at supporting the established approach concerning the protection of personal data. (www.gann.dz)

✓ **Business Accelerator:** Executive Decree N° 20-356: The first business accelerator in Algeria was created under the name "Foundation for the Promotion and Management of Structures Supporting Start-ups" and is abbreviated as "ALGERIA VENTURE". It operates as a public institution with industrial and commercial characteristics. The accelerator's primary functions include: (www.startup.dz)

1. Supporting the implementation of the national strategy for startup support structures across various sectors.
2. Developing and executing acceleration programs tailored to meet the needs of certified startups and innovative projects, providing ongoing support and monitoring.

✓ **The Algerian Bank** has implemented a supportive measure for startups and digital service exporters through Project System 2021-01. This initiative:

1. Grants licenses to digital service exporters operating online.
2. Extends to service exporters among startups and non-commercial professionals.
3. Allows these entities to freely manage all their export revenues held in foreign currency accounts.
4. Exempts them from mandatory banking localization requirements.

The primary aim of this policy is to streamline the process of exporting digital services and provide incentives for such activities. This measure represents a significant step in supporting Algeria's digital economy and startup ecosystem by reducing regulatory barriers and enhancing financial flexibility for digital service exporters.

**Thirdly, entrepreneurial educational initiatives.** In implementation of the agreement concluded between the Ministry of Knowledge Economy, Startups, and Micro-Enterprises and the Ministry of Higher Education and Scientific Research, "Ministerial Decision 1275" was formulated, which includes the "Certificate - Startup enterprise / Certificate - Patent". This initiative aims to support graduates in turning their ideas into startups, patents, and innovative projects.

### **3-2-2 Weakness**

**Firstly, limited access to finance.** The Algerian startup ecosystem faces significant challenges in accessing funding. This limitation represents a critical weakness in the ecosystem's development, particularly when compared to regional peers.

✓ Venture capital (VC) activity remains notably in an embryonic phase in Algeria. Until 2022, there are only 5 active venture capital firms, only the Algerian Startup fund (ASF) is specialized in startup financing with 13,5% (855000 KDA) from the total amount invested in the SCI market (COSOB, 2022, p. 52), a stark contrast to Morocco's 65 and Egypt's 80 of VC firms (Magnitt, 2023). This scarcity of VC firms is reflected in the total VC funding, which reached a mere \$11 million in Algeria in 2022, significantly lower than Egypt's \$517 million and Morocco's \$69 million for the same period (Magnitt, 2023).

✓ There's a need for more experienced investors, including **angel investors**, who can provide early-stage funding and mentorship to startups. The angel investor landscape is similarly underdeveloped. Algeria has only one formal business angel network, Casbah Business Angels, established in 2012, this pales in comparison to Morocco's ecosystem, which boasts over 10 active angel investor networks (ABAN, 2022). The limited presence of angel

investors restricts access to capital, mentorship and networking opportunities that are vital for early-stage startups.

✓ Additionally, Algeria's startups have limited participation in global **accelerator programs**, with only 3 startups reported to have participated in programs like Y Combinator or 500 Startups, compared to 15 from Morocco and 35 from Egypt (Crunchbase, 2023). This limited global engagement restricts access to international funding networks and expertise. We notice that business accelerators play a crucial role in providing necessary support like financing, marketing, and training for limited period to startups (typically 3 to 6 months), especially those based on new technological initiatives, to help them allocate resources for expansion and growth. (Fetni & Barhoum, 2022, p. 28).

✓ The absence of **corporate venture capital (CVC)** activity in Algeria, compared to the emergence of 3 active corporate venture arms in Morocco (Magnitt, 2023), further narrows the funding options available to startups.

Based on a study conducted by (Benlefki et al, 2024, p. 128) on a sample of 93 surveyed Algerian labeled startups, the findings regarding their initial source of funding revealed that 77.4% of startups in the sample opted for personal financing/love money\*. However 15,1% of startups received no funding, followed by venture capital financing at a percentage of 4,3% and by business angel at 3,2%. Certainly, these findings demonstrate the existence of a funding gap in the early stages of project development that has not yet been addressed through diversification of funding sources.

**Secondly, lack of basic business knowledge in startups.** Especially for recently graduated students who want to launch their own business are weak about basic knowledge: legal, financial and accounting knowledge. Financial knowledge when investors need a realistic business potential to make decisions on their investment. As for the legal knowledge they are entangled in many issues such as lack of consideration of the type of company when established no protection of intellectual property (hung & huong, 2018, p. 277).

Upon systematic observation and analysis of the educational interventions, including webinars and consultations provided to students designated as labeled innovative projects revealed a prevalent focus on securing financial support. However, this was often accompanied by a significant knowledge deficit regarding partnership fundamentals.

**Thirdly, training and mentoring gaps.** The training and mentoring market in the Algerian startup ecosystem is generally considered underdeveloped, which presents a significant weakness in the overall ecosystem. This underdevelopment can be attributed to several factors:

1. **Limited Experienced Mentors:** Algeria's startup ecosystem is relatively young, which means there's a shortage of experienced entrepreneurs who can serve as mentors. This lack of mentorship from those who have successfully navigated the startup journey in the Algerian context is a critical weakness. (Benredjem, 2023).

2. **Inadequate Practical Business Education:** While Algeria has a strong technical education system, there's a gap in practical business education. Many universities focus on

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\*Personal financing corresponds to the entrepreneur's personal financial contribution. Love money financing refers to funds collected from family, friends, acquaintance or others.

theoretical knowledge rather than applied entrepreneurship skills, leaving graduates ill-prepared for the realities of running a startup. (Mebtoul, 2022)

**3. Lack of Structured Mentoring Programs:** There's a scarcity of well-structured, long-term mentoring programs. Most mentoring activities are ad-hoc or short-term, which doesn't provide the consistent support needed for startup growth. (Lachabi & Hafsi, 2023)

The Algerian startup ecosystem still young and many entrepreneurs may lack the experience and mentorship needed to succeed. The increasing number of incubators, accelerators, and startup events is promising, but there's a need for more structured, high-quality mentorship programs and better integration of practical entrepreneurship education in formal academic settings.

### 3-2-3 Opportunities

*Firstly, digital transformation potential*, the E-Algeria strategy faced implementation challenges. The COVID-19 pandemic in late 2019 acted as a catalyst for widespread digitization. In response, the government established the Ministry of Digitization and Statistics. From 2021, the government focused on: Providing universal access to ICT, developing innovative services and digital content, strengthening ICT capabilities, improving e-government and the digital ecosystem, developing digital trust. (khalfallah & bendjelloul, 2023, pp. 782, 783)

**Table (03): Algerian startup opportunities in digital sectors**

| Digital Sector                            | Key Metric                                           | Value                                                                  | Algerian Startup Opportunities                                                                     |
|-------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Internet &amp; Mobile Connectivity</b> | Internet Penetration Rate (2021)                     | 70.6% with 31.1 million internet users                                 | Growing digital infrastructure, providing a foundation for startup innovation in digital services. |
|                                           | Mobile Connections (% of the total population, 2021) | 45.56 million, equivalent to 103.3%                                    |                                                                                                    |
| <b>E-commerce</b>                         | Market Size (2023)                                   | \$2.63B with an expected annual growth rate (CAGR 2023-2027) of 13.18% | Digital payments, logistics, and online retail platforms.                                          |
| <b>Digital Financial Services</b>         | Unbanked Population (2021)                           | 57.2%                                                                  | Fintech startups to innovate in areas such as mobile banking and digital wallets.                  |
| <b>Government Digital Initiatives</b>     | Digitalization Budget (2021)                         | \$284M (40 billion dinars)                                             | Startups in e-government and civic technology sectors.                                             |
| <b>Smartphone Adoption</b>                | Penetration Rate (2022)                              | 75%                                                                    | Opportunities for mobile-first startup solutions across various sectors.                           |
| <b>Digital Skills</b>                     | Network Readiness Index Rank (2022)                  | 80th/132                                                               | Digital education and skills training.                                                             |
| <b>AI &amp; Big Data</b>                  | Regional CAGR (2022-2027)                            | 28.8%                                                                  | Innovate in AI and data analytics applications across various industries.                          |

## Algerian startup ecosystem in the digital era: a SWOT based analysis

|                               |                                        |                                                                       |                                                                                       |
|-------------------------------|----------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Cybersecurity</b>          | Regional Market Size (2030 projection) | \$19.79B                                                              | Specializing in cybersecurity solutions                                               |
| <b>Digital Health</b>         | Regional CAGR (2021-2028)              | 14.8%                                                                 | innovate in telemedicine, health information systems, and digital health applications |
| <b>Smart City Initiatives</b> | Number of Major Projects               | 2+ (grow from US\$7.174 billion in 2022 to US\$19.79 billion by 2030) | IoT, urban mobility, and smart infrastructure solutions.                              |

**Source:** (Kemp, 2022); (Statista, 2023); (Research, 2022); (Bank, 2021); (GSMA, 2023); (Institute, 2022); (Group, 2021)

This analysis underscores the significant opportunities presented by digital transformation for the Algerian startup ecosystem. In this context, the government aimed for complete digitization by 2023, focusing on tax and property sectors. A two-phase strategy was developed: Digital Algeria I (2022-2025): Equipping Algeria digitally and Digital Algeria II (2026-2030): Positioning Algeria as a regional digital hub (khalfallah & bendjelloul, 2023, p. 783). Therefore, the data above indicates strong potential across various sectors, including e-commerce, fintech, digital health, and AI applications. However, it's important to note that realizing these opportunities will require continued investment in digital infrastructure (international connectivity, fiber optic, mobile networks 4G, 5G), skills development, and supportive regulatory frameworks.

**Secondly, regulating the field of freelancing.** In a positive step towards enhancing entrepreneurship in Algeria, on December 19, 2022, it was legislated the law No. 22-23 in Official Algerian Journal N 85 concerning "**Freelancer**" which defines the rules and conditions applicable to the practice of freelancer activity.

In clarification to the Minister about the importance of this legal text on the Algerian News Agency website, this framework would reduce the number of qualified individuals who operate in the informal market without social security coverage, and therefore contribute to their integration into the formal economy. This would be achieved by regulating new economic activities that have emerged with the rise of the knowledge economy and digital media, such as website development, mobile applications, transportation application drivers, e-commerce, graphic design, and social media management platforms. This would reduce the burden on start-up companies by enabling them to rely on independent contractors and the shared use of human resources among different companies.

It is worth noting that the rise of freelancing positively impacts the startup ecosystem by: Providing access to niche skills; Improving software development and innovation; Enhancing talent matchmaking through platforms and Promoting entrepreneurial activity. (Gupta, 2020)

The availability of freelance independent contractors promotes entrepreneurial activity, with a 10% rise in the freelance workforce leading to about a 1% increase in entrepreneurial activity, indicating the importance of a flexible workforce in fostering an entrepreneurial economy. (Burke, 2020, p. 41)

**Thirdly, global collaboration**, the opening of the startup ecosystem to international partnerships and knowledge exchange can bring expertise and investments from around the world. So, global collaboration can: (GENOME, 2023); (UNCTAD, 2023)

- ✓ Facilitate knowledge transfer from more mature startup ecosystems to Algeria. This includes best practices in entrepreneurship, innovation methodologies, and technical skills.

- ✓ Increased Funding Opportunities, attract foreign investment and venture capital, addressing one of the key challenges in the Algerian ecosystem.

- ✓ Open doors to international markets for Algerian startups, helping them scale beyond national borders.

- ✓ Accelerate technology transfer, helping Algerian startups adopt cutting-edge technologies

- ✓ Provide Algerian startups with world-class mentorship and resources by partnerships with global accelerators and incubators

### 3-2-4 Threats

**Firstly, Market Competition:** Startups face competition from both domestic and international companies. Global tech giants and well-funded international startups may enter the Algerian market, leveraging their advanced technologies and vast resources. (Autio and others, 2018)

In the same context, the increasing presence of global digital platforms (e.g., Amazon, Alibaba) could dominate e-commerce and related sectors, limiting opportunities for local startups. (Kenney & Zysman, 2016)

**Secondly, Regulatory Instability:** Frequent changes in regulations and ambiguities in certain legal areas for startups in Algeria's emerging ecosystem create an unpredictable environment, complicating startups' efforts to ensure compliance and maintain smooth operations (Djankov and others, 2002). Moreover, the inadequate protection of intellectual property rights presents an additional threat, potentially discouraging innovation and deterring investor confidence (Cumming and others, 2016). These regulatory uncertainties not only hinder the day-to-day operations of startups but also undermine the long-term growth and sustainability of the ecosystem by limiting incentives for innovation and investment

**Thirdly, global integration challenges.** Attracting global investors and mentors to Algeria remains a challenge, and there is a need for a clear mechanism to facilitate international best practices. In this context, skilled Algerians entrepreneurs may be drawn to opportunities in more established startup hubs, hindering the development of the domestic ecosystem.

**Fourthly, Infrastructure and Technological Gaps.** Irregular access to high-speed internet and digital technologies across the country may limit the potential market for digital startups ((ITU), 2020). Increasing global cybersecurity risks, coupled with potentially inadequate local cybersecurity infrastructure, may expose startups to data breaches and cyber-attacks. (Symantec, 2019)

By leveraging its strength and opportunities, the Algerian startup ecosystem can address its weaknesses and threats. This will allow it to thrive in the digital era and contribute to Algeria's economic development.

### 3-3 Enhancing Algeria's Startup Ecosystem: Policy recommendations for Stakeholders

The Algerian government has recognized the importance of fostering a vibrant startup ecosystem to drive economic growth and innovation. In this context, this paper proposes a set

of strategic recommendations for policymakers to consider in their efforts to strengthen the startup landscape in Algeria.

### a. **Leverage crowdfunding for early-stage financing**

Crowdfunding platforms have emerged as a dynamic approach to early-stage financing for startups. To harness the potential of crowdfunding, Algeria should consider to encourage the involvement of the Startup Funding Fund (FSVC) in facilitating crowdfunding campaigns. The FSVC's regulatory oversight under the Securities and Exchange Commission (COSOB) can ensure transparency and investor protection.

There is a need for robust investor's education and protection measures, Importance of building trust in online financial transactions (Agrawal and others, 2015)

### b. **Facilitate e-payment solutions and crowdfunding platforms**

To support the growth of e-commerce and fintech startups, the government should:

- ✓ Encourage collaboration between young entrepreneurs and government agencies to develop e-payment solutions and crowdfunding platforms.
- ✓ Establish a legal framework for fintech startups under the supervision of the Central Bank, they need for robust cybersecurity measure
- ✓ Foster partnerships between the Ministry of Startups and relevant stakeholders (tax authorities, customs services) to streamline regulatory processes.

### c. **Establish a legal framework for business angel networks**

Business angel networks play a crucial role in connecting startups with experienced investors and mentors. To promote their formation, Algeria should:

- ✓ Introduce legislation to formally recognize and regulate business angel networks.
- ✓ Provide incentives for potential business angels, such as successful entrepreneurs, former executives, accountants, and professionals with industry expertise. This includes tax relief on investments, capital gains and losses (write-offs and roll-overs). Such measures aim to boost both the number of angel investors and the total capital invested. (OECD, 2011, pp. 101, 102)
- ✓ Encourage the participation of professionals from diverse fields, such as doctors and lawyers, in angel investing, thereby fostering a more robust startup ecosystem and driving economic growth.

### d. **Activate corporate venture capital (CVC)**

Corporate venture capital offers a valuable source of funding for startups with strong growth potential. To promote CVC engagement, Algeria should:

- ✓ Encourage large corporations to establish CVC arms to invest in promising startups in their respective sectors.
- ✓ Facilitate knowledge sharing and collaboration between CVCs and startups to foster innovation and industry growth.

The proposed recommendations aim to address key aspects of startup ecosystem development, focusing on three main pillars: financing, regulatory frameworks, and corporate engagement.

#### 4- Conclusion:

The comprehensive SWOT analysis of Algeria's startup ecosystem has unveiled both significant potential and critical challenges. By recognizing the transformative power of startups and conducting this thorough examination, we have established a foundation for evidence-based policymaking aimed at fostering a robust entrepreneurial environment. Our findings underscore the need for a multi-faceted approach to ecosystem development, encompassing regulatory reform, financial innovation, and strategic collaborations.

The proposed recommendations- leveraging crowdfunding, facilitating e-payment solutions, establishing a legal framework for business angel networks, and activating corporate venture capital- represent a holistic strategy to address the ecosystem's current weaknesses while capitalizing on its strengths and opportunities. These initiatives, if implemented effectively, can catalyze a virtuous cycle of innovation and growth, unlocking the latent potential of Algeria's entrepreneurial talent and driving economic diversification.

However, the success of these initiatives hinges on sustained commitment and adaptive implementation. Policymakers must remain agile, continuously monitoring the ecosystem's evolution and adjusting strategies as needed. Furthermore, fostering a culture of entrepreneurship and risk-taking will be crucial in complementing these structural reforms. As Algeria navigates the challenges and opportunities of the digital era, a thriving startup ecosystem can serve as a powerful engine for sustainable economic growth and social progress.

In conclusion, this research provides a roadmap for transforming Algeria's startup landscape. The journey ahead requires collaboration among all stakeholders - government, private sector, academia, and civil society. With concerted effort and strategic vision, Algeria can harness its entrepreneurial spirit to build a resilient, innovative, and prosperous future, positioning itself as an emerging hub for innovation in North Africa and the Mediterranean region.

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