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From Scientific Research to Entrepreneurship: The Role of University Business Incubators in Creating Startups - A Case Study of M'Sila University -

من البحث العلمي إلى ريادة الأعمال: دور حاضنات الأعمال الجامعية في إنشاء الشركات الناشئة - دراسة حالة جامعة المسيلة -

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Abstract :
The current study examines the role of university business incubators in transforming scientific research outputs into entrepreneurial startups, with a particular focus on the experience of the University of M’sila Business Incubator. The findings highlight the strategic role of university incubators in fostering economic development by creating investment and employment opportunities for students, researchers and faculty members. Furthermore, the University Incubators Program fosters an environment conducive to innovation and entrepreneurship, utilising contemporary technologies across pivotal and future-oriented sectors.In doing so, it equips young graduates with entrepreneurial skills through five key stages: learning from successful practices, identifying entrepreneurial opportunities, moulding personal capacities and talents, evaluating potential business competitors, and implementing innovative ideas and projects.

Key words: Business Incubators, University Incubators, Start-ups, Scientific Research, University of M’sila.

JEL classificationcodes:M13 ,O31

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1. Introduction :

The topic of start-ups has received increasing attention in many countries, given the vital role these enterprises play in driving economic development, expanding the production base, and strengthening the institutional fabric, as well as their contribution to creating new job opportunities and enhancing the competitiveness of the national economy (Hisrich, Peters, & Shepherd, 2017; Blank & Dorf, 2012). However, these enterprises often face structural and functional obstacles that limit their effectiveness and ability to continue. The most prominent of these obstacles relate to marketing, technical, financial, and administrative aspects (Grimaldi&Grandi, 2005; Bruneel et al., 2012).

Based on the practical understanding of these challenges, academic trends and economic policies have emerged that emphasise the need for state intervention to create a supportive environment for the growth of start-ups, by providing support mechanisms and intermediary institutions that contribute to reducing high failure rates. In such a context, business incubators have emerged as innovative mechanisms for nurturing and supporting start-ups from their early stages of development and growth. They assist in converting entrepreneurial ideas into established businesses by furnishing a range of services, including training, consulting, mentoring, and building relationships with investors and markets (Hackett &Dilts, 2004; Mian, 1996).

Such incubators support the entrepreneurial ideas of students and researchers, evaluate their economic feasibility, and transform them into value-added projects that can be integrated into the local market (Etzkowitz, 2002; Rothaermel &Thursby, 2005). They also contribute to planting a culture of entrepreneurship within universities by encouraging students to innovate and achieve economic independence.Based on that, this research paper seeks to answer the following main question:

Do university business incubators play a role in transforming scientific research outcomes into emerging enterprises that contribute to economic development?

To answer this question, this research paper addresses:
- Business incubators;
- University business incubators;
- Startups;
- The role of university business incubators in supporting startups;
- The contribution of the University of M'sila Business Incubator in supporting and supporting startups.

2. Business Incubators:

2.1 The Concept of Business Incubators:

2.1.2 The Origins of Business Incubators:

The concept of incubators is inspired by the concept of a medical nursery, which is typically reserved for newborns who are not yet able to meet the demands of everyday life. At this critical stage, the newborn is placed in a medical nursery, where they receive the necessary care and attention to ensure their survival and continuity until they reach a level of readiness that enables them to integrate into the typical environment. In their early stages, Emerging entrepreneurial projects require special care, appropriate conditions, and technical, administrative, and financial support to help them overcome their fragile stage and launch steadily into the market (Al-Azzam & Musa, 2010, p. 142).

The concept of business incubators was first conceived in the United States, where the first business incubator dates back to 1959 in New York City. At that time, a family converted the headquarters of their defunct company into a centre that allowed entrepreneurs to rent small offices, while providing them with consulting and support. The experiment was a huge success, leading to the establishment of numerous business incubators that have contributed to the graduation of thousands of small and medium-sized enterprises (SMEs), thus becoming a model for promoting entrepreneurship and innovation. In Europe, EU countries adopted this experiment in the mid-1980s (1986), with incubators becoming widespread as a tool to support a knowledge- and technology-based economy (Al-Zarkush&Talal, 2017, p. 13).

Incubators thus emerge as a viable mechanism capable of reducing risks by providing training, guidance, and consulting services, as well as connecting entrepreneurs with investors and markets. For this purpose, incubators have become an integral part of development plans in many developing and developed countries alike, as they are viewed quite positively as a device for economic transformation (Phan, Siegel, & Wright, 2005).

In this vein, it can be forwarded that incubators are not merely physical spaces; instead, they are an institutional and structural framework that nurtures emerging projects during the initial "birth" period, until they gain the ability and viability to survive in the market and compete effeciently.

2.1.2 Definition of Business Incubators:

The term "incubator" originates from the concept of nurturing, referring to supplying a shielded and fitting environment for the development of

vulnerable entities in their initial stages. This concept has been borrowed from the economic field to describe mechanisms for supporting and nurturing small and emerging enterprises, providing appropriate spaces to help them overcome the critical startup phase. These incubators are typically managed by industry specialists, governmental and private organisations, and sometimes by universities, which develop business incubation programs as part of their policies supporting innovation and entrepreneurship.There are many definitions of business incubators. They are defined as:"An integrated package of services, facilities, support mechanisms, and advisory services provided by an existing institution with experience and connections, for a specified period of time, to those wishing to establish a small enterprise, to alleviate the burdens of the startup phase" (Zouda&Boukfa, 2014, p. 59).

This system is managed by a specialised administration that provides all types of technical, administrative, financial, and marketing support, ensuringincreased chances of success for small projects and overcoming difficulties that may lead to their failure or inability to fulfil their obligations.The 2003 Arab Human Development Report described business incubators as:"A new type of arrangement that sustains the innovative and visionary activities of small and medium-sized enterprises, or creative developers full of entrepreneurial spirit who lack the necessary capabilities to developand market their innovative research and technologies" (Murad & Moussaoui, 2017, p. 174).Based on these diverse definitions, business incubators not only provide suitable workspaces equipped with the necessary capabilities to incubate startups, but also include technical, administrative, marketing, and financial support services.

2.2 The Importance of Business Incubators:

Business incubators are among the most prominent mechanisms supporting entrepreneurship and startups. Their importance stems from their multiple objectives, which can be viewed from two basic levels: the micro level, related to the incubated institutions themselves, and the macro level, related to the economy and society in general (Ezz El-Din Abdel Raouf& Tamar Tawfiq, 2017, p. 75):

Firstly: Their importance at the Micro-Level:

The significance of incubators at the startup level arises from their capacity to furnish a shielding umbrella during the early stages of the startup lifecycle, when they are most vulnerable to failure and risk. Such importance can be detailed as follows:

- Reducing startup costs and associated risks: Incubators help alleviate the financial and administrative burdens facing startups (Zedtwitz, 2003).
- Accelerating growth and development: Incubators significantly diminish the time required for startups to grow and raise by providing training, mentoring (Hackett &Dilts, 2004).
- Avoiding mistakes and reducing duplication of efforts: Thanks to the accumulated experience of incubator management, entrepreneurs are guided to avoid common mistakes and adopt best practices, leading to reduced costs and improved efficiency (Mian, 2011).
- Improving success rates and encouraging innovation: They contribute to developing unique ideas and transforming them into marketable products and services, increasing startups' chances of survival in the market (Bruneel et al., 2012).

Secondly: Their importance at the macro-level:

The importance of incubators extends beyond the individual company to encompass society and the national economy, as they play a pivotal role in promoting economic and social development through:

- Increasing the number of companies: This directly reflects on stimulating the local economy and enhancing its dynamism (Aernoudt, 2004).
- Creating job opportunities and promoting sustainable development: Startups play a crucial role in generating employment, particularly for young people and recent graduates.
- Attracting investments and institutions from other regions: This contributes to a balanced regional redistribution of economic activities within the country.
- Raising individual and societal income levels: Thanks to the growth of small and medium-sized enterprises and their integration into the market.
- Supporting enterprises linked to local demand: By directing investments towards sectors needed by the domestic economy.
- Empowering inexperienced groups: By providing a practical learning environment that encourages entrepreneurship, even for those lacking complete management and administration skills.
- Marketing the results of scientific research: University incubators are an effective mechanism for linking the outputs of universities and scientific research centres to the market (Etzkowitz, 2002).

- Spreading a culture of entrepreneurship: By motivating individuals to innovate and be self-reliant in establishing private projects.
- Directing investments towards technology and the environment (Phan, Siegel, & Wright, 2005).

2.3 Types of Business Incubators:

The literature has witnessed a myriad of classifications of business incubators. This variation is due to the multiple objectives and roles for which these incubators were established. Howerver we may distinguish two main basic classifications are standard in this field (Murad Ismail et al., 2017, p. 120):

- **First: Classification by Generation:**

<u>- First-generation incubators (basic technical incubators):</u>
They focus mainly on knowledge-based enterprises, where the technology component exceeds the cost of raw materials and labour. Examples include startups in the fields of computers and information technology.
<u>- Second-generation incubators (with a basic production base):</u>

They include agricultural, industrial, food, handicraft, and mechanical industries. These incubators rely on the support of research centres and technical schools and are managed in coordination with local authorities, professional associations, and chambers of commerce and industry.

<u>- Third-generation incubators (renewal centres):</u>

They go beyond basic support to provide specialised services such as advanced technical consulting and professional training courses. These incubators are an extension of the evolution of the incubator role, focusing on enhancing the competitiveness of startups.

- **Second: Classification by scope and function:**

- <u>Regional incubators</u>:
They target a specific geographic area to exploit its local resources and enhance its economic development.
<u>- International incubators</u>:
They concentrate on attracting foreign capital and transferring technology, enabling startups to raise quality and achieve competitiveness in global markets through export.
<u>- Industrial incubators:</u>

Established within major industrial zones, they connect startups with existing factories, creating networks of mutual benefit and ensuring industrial integration.

- Sector-specific incubators:

They focus on a specific activity or sector (such as software, engineering industries, inventions, etc.) and are typically managed by specialised experts.

- Technological incubators:

They aim to raise the technological level of incubated companies by providing modern devices and equipment, while helping transition research results from the laboratory innovation stage to commercialisation.

- Research incubators:

They are affiliated with universities and scientific research centres, they focus on supporting the ideas of researchers and faculty members and transforming them into viable economic projects.

3. University Business Incubators:

3.1 Definition of University Business Incubators

University incubators have emerged as a strategic turning point linking the academic role of universities and their functions in serving society and the economy. They form a bridge between theoretical knowledge and scientific innovation on the one hand, and entrepreneurship and practical application on the other hand.

University business incubators have been defined in several ways, including:"Autonomous institutions with a legal entity that provide a package of services and facilities to small investors who initiate small businesses, to provide them with an initial boost that helps them overcome the burdens of the start-up phase (for a year or two, for example)" (Al-Masajidi et al., 2020, p. 136). It is also viewed as:"A unit or centre that provides support and guidance services, encourages the establishment of new businesses based on technology and innovation, and helps entrepreneurs succeed without doing the work for them" (Al-Masjedi et al., 2020, p. 136).

Other studies have conceptualised it as spaces equipped by the university for students, faculty, and departmental institutions to practice their creativity and innovation and establish their small projects. These spaces include classrooms, science and computer laboratories, or other facilities equipped for this purpose (Ramadan &Ziani, 2022, p. 735).From the above, it can be said that university incubators represent an integrated system of facilities, programs, and activities that combine academic and economic aspects to enable students, researchers, and entrepreneurs to transform their ideas into viable entrepreneurial

projects. This enhances the university's position as a key player in sustainable development and the dissemination of a culture of innovation and entrepreneurship.

3.2 The Importance of University Business Incubators:

University incubators have become a key instrument in economic and knowledge development policies, operating in a hybrid manner that significantly contributes to linking academic knowledge with the realities of the market and society. Their importance is evident in several dimensions:

- Enhancing communication between the university and the business environment: by linking universities with research and training centres, marketing inventions to investors, and encouraging graduate students and researchers to invest their competencies in economic development (Ballama&Krush, 2020, p. 205).
- Building university competitiveness: The status of contemporary universities is measured by their ability to produce new methods and generate practical innovation in various fields of work. Incubators contribute to supplying the market with skilled, income-generating human resources, which enhances the attraction of foreign and local investment.
- Consolidating the relationship with local and regional industry: by enriching the academic environment with marketable scientific and technical outputs, thus enhancing economic development and raising the technical level of local industry.
- Transforming research into productive projects is achieved by linking scientific research institutions with the production and service sectors, enabling the transformation of research results into marketable products and creating new job opportunities.

3.3 Objectives of University Business Incubators:

University incubators aim to nurture creative and innovative individuals, enabling them to transform their ideas from mere laboratory prototypes into value-added economic projects. Their most important objectives can be summarised as follows:

- ▽ Contributing to self-development: by enabling students and graduates to hone their academic and practical skills.
- ▽ Incubating creative ideas, particularly those presented by young people and recent graduates.

- Reducing brain drain: by providing job opportunities and alternative projects within the country.
- Marketing scientific and technical outputs: to enhance the benefits of university research outcomes.
- Contributing to building a knowledge-based society: based on innovation, creativity, and entrepreneurship.
- Creating job opportunities: by transforming research ideas into viable projects in the labour market.

4.1 Defining Start-ups :

Economic and management literature indicates that the term "startup" is usually associated with the idea of launching and rapid growth. In the English dictionary, a startup is defined as a small project that has just begun, with the first part "start" symbolising launching, while the second part "up" refers to accelerated growth. This concept first attained popularity after World War II, overlapping with the emergence of venture capital firms (Also Known as Capital-Risque), and subsequently became widely adopted with the expansion of innovative financing models (Boudiaf & Mohamed Zoubir, 2020, p. 90). In the French dictionary La Rousse, startups are defined as: "Innovative young enterprises in the new technology sector," that is, those that rely on advanced knowledge and technology as the primary input to economic activity.

The economist Eric Ries adds an operational definition, defining a startup as: "An enterprise that aims to develop and distribute a new product under a high degree of uncertainty" (Ben Wahid &Houhou, 2017, p. 61). While Puhtila expands the concept to define it as follows:"A startup is a new business venture that's designed to grow quickly. It addresses a market need by developing an innovative business model that can be easily replicated and scaled, often starting with minimal resources but aiming for a flexible, global presence (Bouadla& Ben TayebHedayat, 2020, p. 41).Based on these definitions, startups represent the institutional form of new entrepreneurial initiatives. They are based on innovation and operate in environments characterised by risk and uncertainty, with a constant pursuit of developing scalable products or services.

4.2 Characteristics of Start-Ups : By examining the previous definitions, the most important characteristics of start-ups can be identified (Belkhir&Bediyar, 2021, p. 26):

- ◊ Recent establishment: These are enterprises in their early stages of development.
- ◊ Rapid growth: They are characterised by their ability to expand at a pace that exceeds traditional enterprises.
- ◊ Operating in a high-risk environment: They operate in conditions of uncertainty and risk.
- ◊ Reliance on high technology is particularly prevalent in the fields of information and communication technology.
- ◊ Achieving high potential profits: as a result of innovation and occupying new market niches.
- ◊ Encouraging creativity and innovation as key drivers of activity.

4.3 Objectives of Start-Ups: Start-ups go beyond being small economic projects, aiming to perform broader social and economic functions (Belkhir&Bediyar, 2021, p. 26):

- Promoting individual and collective entrepreneurship: by creating new activities or reviving abandoned ones, such as revitalising traditional industries.
- Job creation: directly for entrepreneurs, or indirectly through the employment of additional workers.
- Localising economic activities in remote areas: making them a tool for leveraging local resources and enhancing regional integration.
- Creating varies linkages in the economic fabric: through reciprocal relationships with other institutions that share inputs or markets.
- Empowering entrepreneurs, especially those who lack financial and administrative resources, to transform their ideas into feasible projects.

4.4 The Start-up Life Cycle :

Start-ups go through a series of successive stages that reflect their development and growth, which can be summarised as follows (Djelti et al., 2016, p. 109):

- Creation Stage: The creation stage is where the idea is materialised. The entrepreneur progresses from a conceptual idea to a concrete plan and actionable steps. This includes

developing a product or service that addresses a specific market need.

- Starting up Stage: This is considered the riskiest stage, with a high failure rate of up to 70% within the first two years and 90% within five years. Enterprises often rely on self-financing, making the role of incubators pivotal in providing support.
- Growth Stage: The organisation seeks to expand its activities and improve its market position through innovation and creativity, especially in a highly competitive knowledge economy.
- Maturity stage: The organisation has reached market saturation and must adopt new differentiation strategies to maintain its position.
- Decline stage: Challenges begin to emerge, including an impaired ability to develop or safeguard intellectual property.
- Relaunch Stage (Change Strategy): This represents the turning point, as the organisation must adopt an innovation-based strategy to reposition itself and ensure continuity.

5. The Role of University Business Incubators in Supporting Start-ups:

5.1 The Relationship Between Scientific Research and Business Incubators

University business incubators serve as a vital link between academic knowledge and entrepreneurial innovation. They do not merely provide advisory or training services to start-ups, but also work to market the results of scientific research, transforming them from mere research papers or laboratory models into productive, marketable economic projects.

The nature of this relationship lies in transforming university research—particularly in the fields of applied sciences and technology—into innovative products and services that contribute to economic development. Accordingly, university incubators become a strategic device for creating added value through:

- Incubating the creative ideas of students and researchers and providing the necessary support to transform them into investment projects.
- Creating a conducive environment for experimentation and application by linking university laboratories with market requirements.

- Creating new job opportunities by investing in the technology resulting from scientific research.
- Bridging the gap between the university and the economy by encouraging partnerships between researchers, entrepreneurs, and investors.

These practical functions are translated through integrated mechanisms, the most important of which are:

⇔ Incubating innovative companies and providing research and development capabilities within the university.
⇔ Providing greater opportunities for success and development of emerging companies based on science and high technology.
⇔ Preparing emerging companies to enter the market and profitable business fields through training and guidance.
⇔ Encouraging field studies to establish a data bank for innovative companies, contributing to the development of national wealth through consultations between the incubator, university research centres, and relevant economic sectors.
⇔ Facilitating the integration of university graduates into the economic fabric by encouraging them to establish their own companies and providing them with the necessary competitive capabilities.

5.2 University Business Incubator Services for Startups:

University business incubators are specialised service institutions that work to create a conducive environment for startups to succeed by providing an integrated package of services and facilities, which can be summarised as follows (Al-Masjedi et al., 2020, pp. 143–144):

∗ Infrastructure and Facilities: Providing appropriate facilities, including laboratories, technical equipment, equipped offices, and basic communication tools, ensuring projects are launched in a supportive environment.
∗ Technical and Specialised Services: Providing programs for cooperation and coordination between incubators and technology transfer agencies, in addition to employing experts and academics to support entrepreneurs with technical and scientific advice.
∗ Access to Technology and Funding: Enabling startups to benefit from the results of university research and research centres, with

the possibility of involving universities in project ownership in exchange for intellectual property rights and patents.

- Legal Services: Supplying legal support related to establishing and registering companies, and protecting intellectual property rights and patents.
- Administrative and training services: Providing specialised consulting, administrative and marketing training, and human resource development, in addition to financial and technical support services.
- Technological and communication services: Enabling institutions to benefit from the communications and information technology networks provided by the university.

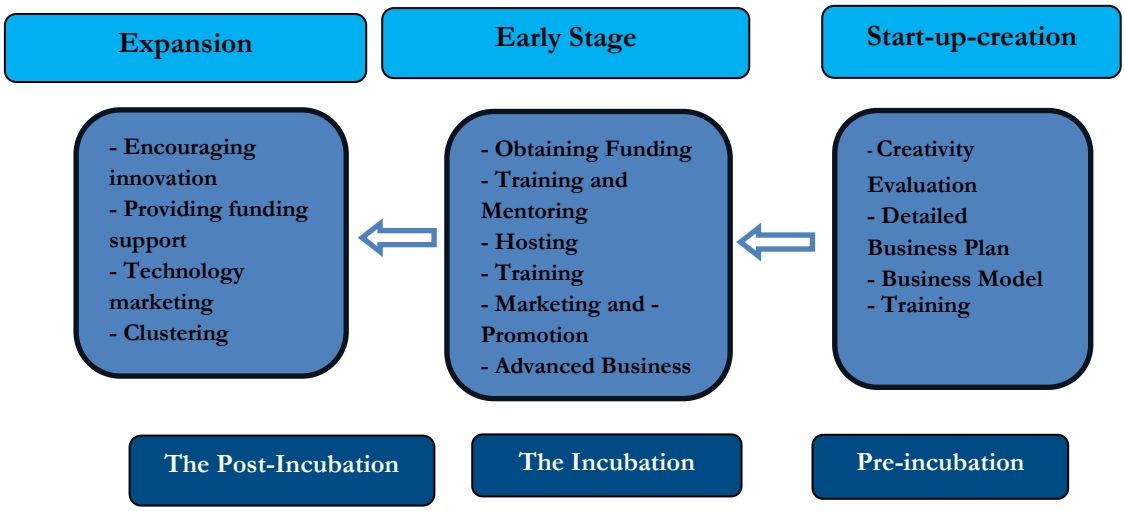
Accordingly, university business incubators, in their various forms and classifications, are not limited to being technical or financial support centres; instead, they are creative systems that work to develop ideas and transform them into established institutions. They also encourage and support innovators and inventors by providing knowledge, research, design, and development services.

5.3 Stages of Incubation of Startups by University Business Incubators:

The incubation process goes through three basic stages, with the development of ideas and ending with the startup's graduation and independence (Sayed Mohamed Ali, 2020, p. 7):

- Pre-incubation stage: It concentrates on crystallising and developing entrepreneurial ideas, formulating business plans, and conducting economic feasibility studies. This stage includes the preparation of patent files, training in entrepreneurship, and personal guidance..
- The Incubation Stage: Typically lasts about three years, during which projects receive administrative, technical, and financial support. The key objective is to ensure that the project evolves financially and technically and staying feasible after leaving the incubator.
- The Post-Incubation Stage: It initiates after the startup has matured, when it graduates from the incubator and operates independently in the market. The area of support here focuses on enhancing sustainability, expanding networks and facilitating access to international markets. The previous stages can be summarized as follows:

Figure 1: Stages of incubating start-ups



Source: BoualchaourCherifa**, *The Role of Business Incubators in Supporting and Developing Startups: A Case Study of Algeria***, Al-Bishara Economic Journal, Issue 02, Volume 04, 2018, p. 425**.**

6.1 Definition of the University of M'sila Business Incubator :

The University of Mohamed Boudiaf-M'sila Business Incubator was established pursuant to Ministerial Decree No. 182 of May 27, 2019. It is the first national-level university business incubator, establishing a pioneering model that has been followed by other universities, such as those in Blida, Ouargla, and Guelma, among others. The incubator is administratively under the supervision of the National Agency for the Valorisation of Research and Technological Development Results (ANVREDET), affiliated with the General Directorate of Scientific Research and Technological Development (DGRSDT) of the Ministry of Higher Education and Scientific Research.

Its management is overseen by an incubator director appointed by the university administration, whose file is submitted for approval by the national agency. This director has the authority to form a project selection committee, comprising a group of specialised university professors, responsible for selecting entrepreneurial ideas and supporting young entrepreneurs. The incubator management also oversees the formation of a board of directors comprising the incubator director, the university's vice-chancellor for external relations, representatives from ANVREDET, the Directorate of Industry and Mines, the National Employment Agency, and representatives from the university's partner economic institutions.

6.2 Structures of the University of M'sila Business Incubator :

The incubator is part of the common interests of the Ministry of Higher Education and Scientific Research. It is structurally linked to the General Directorate of Scientific Research and Technological Development (DGRSDT). The National Agency for the Valorisation of Research Results and Technological Development (ANVREDET) has been entrusted with its management and equipment. Its organisational structure consists of two primary levels:

- Business Management Engineering Branch: Specialises in monitoring the administrative, managerial, and commercial aspects of start-ups.
- Scientific Equipment Maintenance and Security Branch: Concerned with securing laboratories and equipment and ensuring their readiness to serve incubated projects.

6.3 Student and Graduate Programs:

The University of M'sila Incubator offers several specialised programs for students, graduates, and research professors. The most important of these are:

- The Student Ambassador Program: It aims to select outstanding students and researchers with a strong entrepreneurial spirit to serve as "ambassadors" for the incubator within the university community. These ambassadors undertake awareness-raising and educational tasks in the fields of innovation, invention, startup creation, and business plan development. The student ambassador is eligible for incubation if they have an innovative and feasible idea.
- The Discover Program: It aims at ambitious students who wish to establish their own start-ups. It includes training courses in various fields, such as start-up creation, business plan development, market research, digital marketing, programming, and innovative application development. The best entrepreneurial ideas are selected by the Project Accreditation Committee and are granted incubation for a period not exceeding 24 months.
- The D-Start Program: It is designed for projects that have already materialised or are already entering the competitive market. It offers also targeted training courses to address practical challenges, such as management issues, market penetration, and developing innovative solutions. It offers

technical and legal support, free offices, administrative guidance, and specialised marketing consulting.

* Incubated Students and Researchers: The University of M'sila currently hosts 52 projects, including 20 prototype projects and 32 ideas under development. With five start-ups now graduating from the incubator, its pioneering role in supporting innovation and transforming research ideas into tangible economic projects is clear.

6.4 M'Sila University Business Incubator Partnership Agreements with Start-up Supporting Bodies :

Since its establishment, the University of Mohamed Boudiaf-M'Sila Business Incubator has worked to build a network of partnerships and cooperation agreements with various institutional and economic actors, aiming to enhance its capacity to support innovation and entrepreneurship. The University of M'sila Business Incubator has signed a number of partnership and cooperation agreements with several institutions, including:

* Agreement with the National Agency for the Valorisation of Research and Technological Development Results (ANVREDET): which was signed on 26 September 2019. It includes the agency's commitment to equipping and managing the incubator and hosting researchers and entrepreneurs to incubate their ideas and projects
* Agreement with the Directorate of Industry and Mines in M'Sila: signed on May 30, 2019, with the aim to strengthen cooperation between the university and the industrial sector and facilitate the linking of scientific research with local industrial and production needs.
* Agreement with Sarl Vision-In Tek: signed om November 9, 2020. The company is committed to manufacturing electromagnetic devices and equipment. The agreement focused on industrial maintenance and training executives in public and private companies.
* Agreement with Maghreb Pipe: It included the transfer of technology and business management skills between the university and the company. It aimed primarily at promoting relations between the university and the industrial sector, and promote innovation in the metallurgical industry.

- Agreement with MEI for industrial equipment maintenance: signed on September 26, 2019. It provided support for innovators and students hosted within the incubator, as well as maintenance and technical training services. Agreement with Qanaa Food Industries: signed on July 17, 2019. It included:
  - Equipping the incubator with office equipment.
  - Organising training courses in the food industry.
- Agreement with Hadna Environment and Recycling Foundation - M'Sila: signed on July 17, 2019. It focused on supporting innovators and incubated entrepreneurs, with a focus on environmental issues and recycling.
- Agreement with HadnaHalib Foundation - Algeria: It included multiple objectives:
  - Integrating university graduates into small and medium-sized enterprises.
  - Transferring technology and business management skills between the two parties.

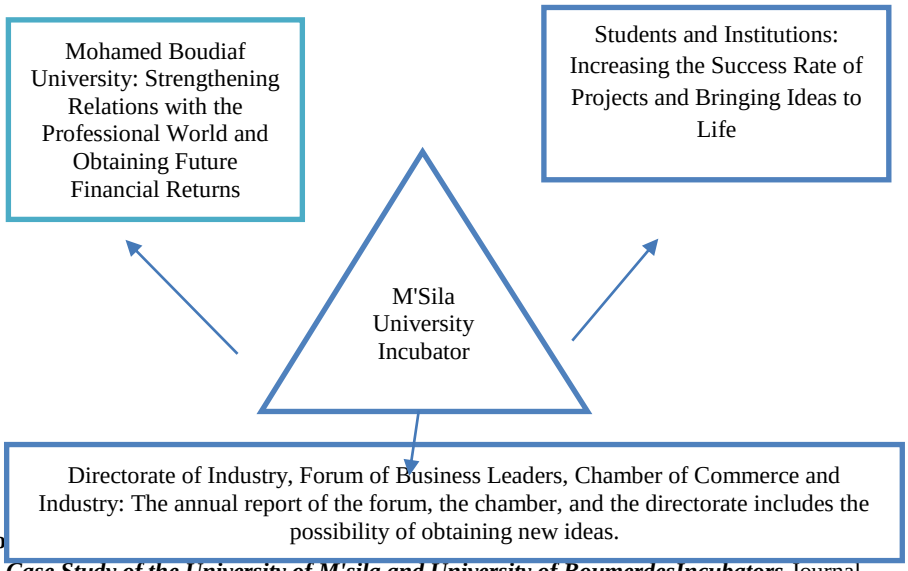
6.5 The University of M'sila Incubator's Relationship with Stakeholders: These agreements demonstrate that the University of M'sila Business Incubator is not merely an administrative structure affiliated with the university, but rather an effective link between:

- Academic institutions (laboratories, professors, student researchers).
- Economic and production institutions (industrial, food, and environmental companies).
- National bodies (ANVREDET, Directorates of Industry and Employment).

Thus, the incubator's relationship with stakeholders is embodied in a three-dimensional partnership:

- Academic dimension: Employing the results of scientific research.
- Economic dimension: Supporting start-ups and connecting them to the market.
- Development dimension: Contributing to local and national development by creating added value and new jobs.

Figure No. 02: The relationship of the University of M'sila incubator with the stakeholders



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A Case Study of the University of M'sila and University of BoumerdesIncubators,Journal of Economics, Management, and Business, Vo14, Issue 1, 2021, p. 119.

6.6 Conditions for Membership in the University of M'sila Business Incubator:

The University of M'sila Business Incubator is open to students, researchers, and institutions wishing to develop innovative projects. Applicants wishing to benefit from its services must submit an application file that includes:

- ⇒ A detailed description of the project idea;
- ⇒ A definition of the technological field associated with the project.
- ⇒ A study of the potential market;
- ⇒ A demonstration of the originality and innovation of the idea;
- ⇒ A determination of the number of project team members;
- ⇒ A clarification of the idea's maturity level (from initial idea to prototype);
- ⇒ A determination of potential partner economic sectors.

6.7 Project Selection Criteria:

After receiving applications for participation, the incubator classifies projects according to two basic levels:

Mature projects: These are granted offices within the incubator and benefit from direct support.

Emerging (*initial*) projects: These are included in development programs through specialised training in entrepreneurship and management.

6.8 Forms of Support and Accompaniment :

- ⇒ The provision of project support at the University of M'sila Incubator is conducted through the M'sila Group, which consists of a series of complementary processes and stages:
- ⇒ The first stage: involves examining and evaluating the idea, followed by psychological and technical preparation for the project owner to realise it.
- ⇒ The second stage: Projects are selected and allocated to offices. Start-ups are developed through a training program. An economic feasibility study and a socio-demographic feasibility study are also conducted during this stage.
- ⇒ The third stage: During this stage, the economic partners meet with the idea owner (Chamber of Industry, banking agencies, youth employment agency, etc.).
- ⇒ The fourth stage Four: A tripartite agreement is signed between the university, the project owner, and the supporting financial agencies, and a percentage of return is agreed upon.
- ⇒ The fifth stage: which involves Providing Project support during the implementation and start-up phases, as well as participating in the review process.

6.9 Results of the University of M'sila Business Incubator's Support and Accompanying Support:

Despite its recent inception (less than three years since its establishment), the University of M'sila Business Incubator has achieved significant results. It currently hosts 54 startup projects (15 of which are ideas under development, and 39 are prototypes), in addition to graduating five startups that have benefited from its services. These include:

- ⇒ Hadna Solar (Renewable Energy).
- ⇒ A Natural Skincare Products Manufacturing Company.
- ⇒ Hadna Environment and Recycling Company.
- ⇒ Qanaa Food Industries Company.
- ⇒ Sarl Vision Intek (Engineering and Technical Services in Industry and Remote Control).

7. Conclusion:

Through this study on the role of university business incubators in transforming scientific research outputs into startups, and presenting the University of M'sila's incubator experience, a set of fundamental findings was reached:

- Business incubators play a pivotal role in supporting national economies through services directed to startups at various stages of their development.
- Startups are among the best modern mechanisms for supporting the national economy, thanks to their flexibility, innovative ideas, and ability to survive and expand.
- University incubators contribute to harnessing the results of scientific research and innovations and transforming them into viable economic projects.
- The University of M'sila focuses on university students and researchers, as they represent a human resource capable of harnessing modern technology in innovative projects.
- The University of M'sila incubator is a pioneering model at the national level, thanks to its efforts to encourage creativity and transform student ideas into actual economic projects.
- The fields of incubated projects vary between artificial intelligence, innovative applications, industrial technology, renewable energy, and remote control.
- The University of M'sila has entered into a series of partnership agreements with economic institutions and supporting bodies, thereby enhancing its capacity to align university projects with the social and economic milieu.

7.2 Recommendations:

The findings of this research provide a set of practical recommendations for the enhancement of the role of university business incubators in supporting innovation and entrepreneurship, we mention them as follows:

- Developing education and scientific research programs: By increasing government spending on research and development (R&D) and connecting universities and research centres with their economic environment, ensuring that scientific research outputs are directed toward practical applications with economic and social impact.

- Enhancing the role of university incubators in reducing unemployment: Greater efforts should be made to enable graduates to establish their own start-ups.
- Expanding the establishment of university incubators: By expanding them across the nation's universities, they become part of the basic infrastructure to support innovation and technology transfer.
- Consolidating a culture of entrepreneurship and creativity: By encouraging students to develop their entrepreneurial projects and adopt their innovative ideas within the university.
- Periodic monitoring and evaluation of university incubators: Through regular monitoring and evaluation mechanisms that identify shortcomings and deviations and work to continuously correct them, ensuring improved quality of services provided to start-ups.
- Enhancing international cooperation: By creating partnerships with leading foreign business incubators, this allows for the exchange of expertise, the transfer of global best practices, and the development of competencies responsible for managing national incubators.

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