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START-UP AND PATENT DEGREES INITIATIVE IN ALGERIA: SUPPORTING BUSINESS INNOVATION AND CREATION AMONG UNIVERSITY STUDENTS

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Abstract

Government support policies today stake on the role of the university as a source of economic and social prosperity. The latest Algerian initiative to promote for star-up creation and innovation, namely in the fields of advanced technologies, put together the institutions of higher education, the Algerian start-up Fund, and the multiple research labs and business accelerators to give the students on the verge of finishing their studies, whether at the under-graduate (bachelor) level or the post-graduate (master and doctorate) level, the opportunity to start and found their own business start-up.

This study aims to evaluate the practices of creation of start-ups in the university through a practical study on the mechanisms followed by the University of Oran 2 in order to accompany the students of different specialties.

The creation of a business environment (training program, agreement with companies, workshops, competitions, financing...) from the university gives very satisfactory results, and the students get more and more involved in the business world.

Keywords: *start-up; innovation; university incubators; entrepreneurship; Algeria*

JEL Codes: *M13; L26; O34*

1. Introduction

Today, the university has gone beyond its traditional role as an institution of higher education, and it is considered as a source of economic development through the various mechanisms for promoting entrepreneurship among students.

In Algeria, the policy of higher education is more oriented towards the entrepreneurial university by implementing entrepreneurship teaching at the master's level. Moreover, every university campus holds amongst its structures a house of entrepreneurship and an incubator to support students' innovation and business creation. These efforts were even more materialized through the implementation of

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the 1275 project that guaranties governmental financial, technical, and social support for student-project leaders by offering a start-up/patent diploma. This degree is more than a mere document, it gives students access to specific training and provides a full-scale range of accompaniment services.

Although the principle of start-up diplomas is considered as an Algerian innovation, the initiative of university incubators and entrepreneurial orientation has existed long before. Universities started establishing themselves as major contributors to the economy by promoting for an entrepreneurial society which started at first trough entrepreneurship education (Belgoum, 2020). The field of entrepreneurship teaching began in the early 1970's in the university of Southern California in the United States of America by implementing graduate and master business and administration programs that have an entrepreneurship concentration, and expanded in the 20 years that followed to reach universities all over the States and Europe (Kuratko, 2005, p. 581). Nowadays, entrepreneurship education expands beyond the scope of business schools and expands to all the fields of higher education (Almeida, 2021). These programs aim to encourage start-up and small businesses creation amongst students.

In addition to education, universities have engaged in the activities of business incubation with the installment of UBI (University Business Incubators) to guide and help start-ups sustain their businesses. The presence of such institutions within the perimeters of the university campus provides a sustainable linkage between the field of scientific research and the economy by encouraging the creation of businesses, based on the products of public research.

Entrepreneurship in Algeria is growing and the government invests heavily in promoting the sector and encouraging young Algerians to invest more and more to be value creators and develop the country's economy, namely in the fields of advanced technologies. In this light, governmental support policies have emerged to increase young students' interest in start-ups. This paper aims to present one of the aspects of this support, which is the start-up and patent diplomas by taking as a case study the University of Oran 2.

2. University and start-up

Universities are at the center of economic policy in countries through their contribution to the formation of human capital, which is considered a main source of competitiveness.

According to Fukugawa (2013), in a knowledge-based economy, where knowledge is the most important input for economic growth, universities play three key roles in long-term economic growth:

First, they provide society with excellent human resources through education and make important contributions to economic growth.

Second, they conduct fundamental research that, while not directly related to any specific industrial use, can be applied and developed in different categories of technology, thereby contributing to long-term economic growth.

Third, they encourage innovation and entrepreneurship by acting as a source of external knowledge for incumbents, trying to innovate and supporting start-ups trying to commercialize university knowledge.

In this context, the creation of start-ups requires the acquisition of several competencies related to creative innovation, cost control and environmental control. A start-up stands out from a micro-enterprise by its innovative product/service, new in the market, with a scalable business model, with high potential of growth, based on the Customer Acquisition Cost (CAC), and its targets a very large market with a high-risk taking capacity to grow and study with the objective of becoming an empire, and in order to achieve this level, a start-up needs a specific ecosystem, whereby the university is the major actor (Baghli & Tabet Aoual, 2021, p. 138).

In addition, the university as an internal incubator accompanies students with entrepreneurial competencies in the learning phase and makes them discover their capacities and skills. The study of Zarefard and Eui Cho (2018) indicates that university students who self-reported higher entrepreneurial competencies have a higher degree of entrepreneurial self-efficacy and, as a result, more confidence in their capabilities, which leads to stronger innovative start-up intentions. Accordingly, those students who displayed more positive attitudes are more motivated and have a higher innovative start-up intention.

Several factors determine the intention to create start-ups by students; according to a study of 375 Malaysian students, the results provide empirical evidence of the positive and significant effects of attitude, subjective norms, and perceived behavioral control on entrepreneurial intention and start-up preparation among university students in Malaysia (Al Mamun et al., 2017).

As a result of the adoption of digital transformation considered as a component that accelerates the creation of start-ups (Kyurova, 2022, p. 8), universities have a new challenge to achieve by updating programs and introducing measures to involve students in digital entrepreneurship, which is characterized by the degree of diffusion of digitization in the activities of the companies, the state of digital transformation from the point of view of the specific used tools and the impact of business digitalization on product innovation (Atanasova, 2022).

3. University incubator and start-up patents

In Algeria, all institutions of higher education have incubators to accelerate the process of creating start-ups. The university's incubator aims to develop the level of innovation through the number of patents registered by students each year.

The Algerian National Institute for Industrial Property announced the ranking of Algerian universities in terms of filing patents in 2022, with 210 patents, 6

trademarks and one industrial model, while the University of M'sila ranked first with 93 patents from a total of 20 universities, four research centers and two high schools.

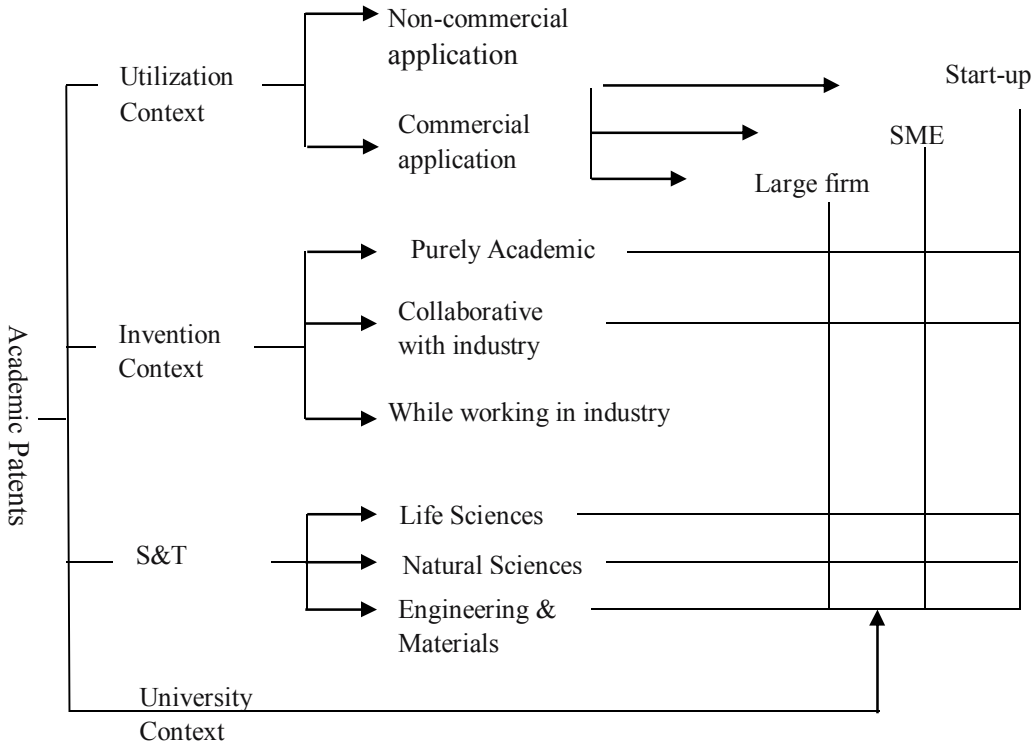
The results recorded by the Algerian National Institute of Industrial Property highlight the superiority of universities over research centers with regard to the innovation index and patent application, as the Research Center for the Development of Renewable Energies registered only 10 patents in 2022, and 11 patent applications were submitted by the Scientific and Technical Research Center for the Regions. While seven patents were registered by the Environmental Research Center, and two patents by the Scientific and Technical Research Center in physical and chemical analyses (INAPI, 2022).

In this context, there are three main categories of university-related patents (Meyer, 2006, p. 502):

• (Purely) Academic patents: All the inventors were working in a university at the time of the invention.

• Collaborative patents: One or more inventors were working in a university, while the others were employed in industry at the time of the invention.

Figure 1. Categories of academic patents in relation to their contexts



Source: Meyer, 2006, p. 503

The incubator intervenes before the creation of the company under several forms, such as individualized coaching, training and transmission field experiences. The essential missions of an incubator can be summarized as the following points (Bekkal Brikci & Khedim, 2022):

• Bring a relational network.
• Save time.
• Provide advice in various areas.
• Provide training in entrepreneurship, management, marketing, management finance, accounting, intellectual property, business law.

An incubator is a company that helps new and start-up companies to develop, by providing services, such as management training or office space. Incubators can be sponsored and managed by different organizations (Spender et al., 2017).

4. The experience of creating start-ups at the University of Oran 2

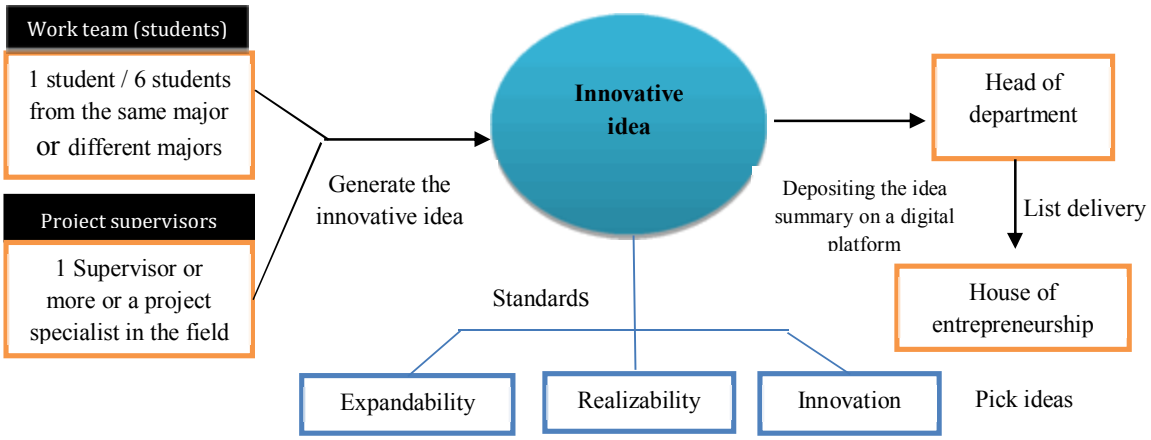
Oran University was founded in September 2014 by Executive Decree No. 14-261 (2014) which included the establishment of Oran University II and it emerged from the division of Oran University, which was established in 1967.

The University of Oran 2 is composed of 05 faculties and 01 Institute: Institute of Maintenance and Industrial Safety - Faculty of Earth and Universe Sciences- Faculty of Economics, Commerce and Management Sciences- Faculty of Law and Political Science- Faculty of Social Sciences- Faculty of Foreign Languages.

The University of Oran 2 has 26000 students, 593 administrative staff members and 957 teachers.

The experience of creating start-ups was launched this year by a process shown in the figure below.

Figure 2. Stages of registering a start-up idea at the university



Source: Metahri, 2022

4.1. The pedagogical aspect of the project

A graduation thesis project aims to obtain a university degree - a start-up - to create a generation of entrepreneurial students who have the ability and desire to move towards innovative entrepreneurship and create start-ups that create wealth and job positions, which is a profitable business, based on the foundations of innovation and technology, aiming to create a technical or digital solution for existing or stand-alone organizations.

A final thesis for obtaining a university degree - a start-up - includes a set of training programs in the field, intended to support registered students, the program focuses on the business model, the e-marketing, management, finance and accounting.

The number of students in a project is between 2 to 6 in the different specialties.

After a presentation in front of a jury, made up of a start-up project director, a representative of the incubator, and a representative of a socio-economic partner, the students receive an end-of-study diploma and another start-up diploma, which will enable them to participate in a national competition in order to benefit from funding by the Ministry of Higher Education and companies interested in the project area.

Table 1. Number of projects presented by students from the University of Oran2

Decision	FSS	FLPS	FFL	FECMS	FESU	IMIS	Total
Start-up	4	13	2	7	2	18	46
Patent					1	2	3
Exposed	9	10	5	3	1	19	47
Classical entrepreneurship	22	11	2	5	2	10	52
Total / Faculty	35	34	9	15	6	49	148

Source: compiled by the authors

- Faculty of Social Sciences.
- Faculty of Law and Political Science.
- Faculty of Foreign Languages.
- Faculty of Economics, Commerce and Management Sciences.
- Faculty of Earth and Universe Sciences.
- Institute of Maintenance and Industrial Safety.

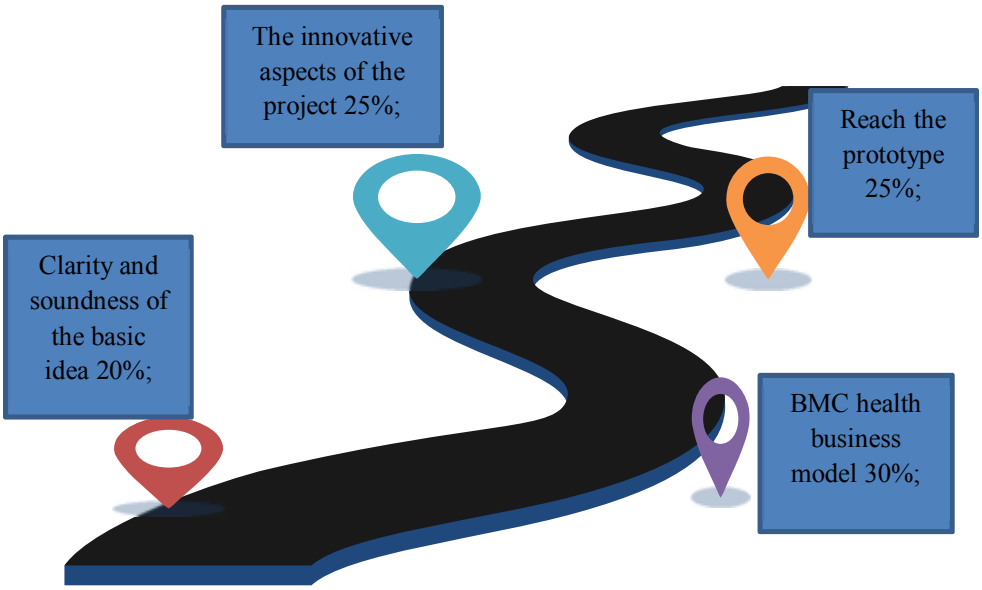
Table 2. Project areas

Project areas	FSS	FLPS	FFL	FECMS	FESU	IMIS	Total
Agriculture		2			1	5	8
Building and Architecture	1					2	3
Trade	1	1		1		3	6
Sewing	1						1

Data	1						1
Editing & Printing	2		1				3
Education	11	5	3	1		2	22
Job	1	3	1	1		1	7
Environment and energy	3	3		1		2	9
Food	2	1	1			1	5
Healthcare	10	2		1	1	4	18
Industry	1	1		2	2	2	8
Legislation Tech		7					7
Maintenance & Security		1				11	12
Services		5	2	6	1	7	21
Sport	1						1
Tourism		2		1	1	2	6
Transportation		1	1	1		7	10
Total / Faculty	35	34	9	15	6	49	148

Source: compiled by the authors

Figure 2. Evaluation Criteria



Source: Metahri, 2022

The ownership of the patent is distributed to the students involved in the certificate project – a start-up/ patent, among the students, members of the work team and the professors, supervising this work on the part of the inventors. As for the university, it is considered the moral owner of the patent because it is registered in its name (the university director can waive the commercial right patent for the inventors).

4.2. Awareness and training

- Expanded publication and marketing of the project on the social networking pages and websites of universities and business incubators.
- Organizing information days in universities in the presence of the actors in the project: students, supervisors and teachers.
- Preparing a program for training the trainers.
- Grant incentive privileges to trained professors to encourage their participation in the program.
- The use of experts from outside the university.
- Equipping the spaces of university business incubators and laboratories with the necessary equipment for student activity.

4.3. Relationship with the outside world

Signing cooperation and partnership agreements with institutions committed to attracting graduate students and concluding agreements with them.

Organizing visits to national and international exhibitions, especially industrial ones.

Establishing competitions and hackathons and providing incentives for accepted projects.

4.4. Patents

- Establishing technological and innovation support centers through concluding agreements between higher education institutions and the Algerian National Institute of Industrial Property.
- Facilitating procedures for registering innovative ideas at the level of incubators.

- The university ensures the mechanisms of paying the expenses and fees of intellectual and industrial property rights for researchers and students.

4.5. Funding mechanisms

Commitment of the Emerging Enterprises Fund and the National Agency for the Promotion and Development of Entrepreneurship to finance student projects.

4.6. Training programme

In order to prepare the defenses at the end of the academic year, the university in collaboration with the incubator has set a schedule of training sessions, taking into consideration the needs of project leaders.

Table 3. Training programme

January 2023
Selecting the titles of the graduation projects, based on a summary that will be presented to a specialized committee that includes a trainer from the incubator or the entrepreneurial house, the supervisor, the assistant supervisor...
February 2023
- A training course on generating entrepreneurial ideas. - A training course on the art of communication and negotiation. - A training course on preparing a business plan. - Preparing the technical and economic sheet for a start-up project. - A course in digital marketing. - A course in economic intelligence.
March 2023
- Preparing the prototype for the project. - Collecting the information needed to complete the technical and economic sheet of the project (pro-format invoice). - A support session on how to register a project on the startup.dz platform.
April 2023
- A training session on how to create a start-up (Legal and administrative procedures). - A training session on how to protect industrial and intellectual property.
May 2023
A period of obtaining brand label innovative project. Preparing the pitch deck for the start-up projects.

Source: compiled by the authors

5. Conclusion

The experience of the support of the Algerian university in the process of creating start-ups is recent, but it is very interesting because it involves several actors: teachers, students, companies, support governmental and private funding organizations. The program offered to project leaders a very rich variety of training and accompaniment. It gives them the opportunity to launch a start-up, as soon as they finish their studies, provided with technological, financial, and intellectual support by means of this new university education policy. Moreover, even if the submitted projects fail to win the sustainability race, students will end up with a degree enclosing different aspects of the training program. The competencies and qualifications gathered through the process of start-up creation will present a competitive advantage for the students in the job market. At the same time, the purpose is far beyond. The preliminary data gathered from the subscribed projects indicate a high level of entrepreneurial spirit that needs to be nurtured namely, in the fields of social sciences that were at first excluded and then exceeded all expectations.

REFERENCES

Al Mamun, A., Binti Che Nawi, N., Muhammad Mohiuddi, M., Binti Shamsudin, F. & Ali Fazal, S. (2017). Entrepreneurial intention and startup preparation: A study among business students in Malaysia. *Journal of Education for Business*, 9(2), 296-314. doi:10.1080/08832323.2017.1365682

Almeida, F. (2021). Systematic review on academic entrepreneurship indicators. *Entrepreneurship*, 9(2), 7-22. doi:10.37708/ep.swu.v9i2.1

Atanasova, A. (2022). Characteristics of digital entrepreneurship. *Entrepreneurship*, 10(2), 7-21. doi:10.37708/ep.swu.v10i2.1

Baghli, A. & Tabet Aoual, W. (2021). Business angels as component of the Algerian entrepreneurial ecosystem, scope of issues and realities. *Review MECAS*, 17(01), 137-144.

Bekkal Brikci, D. & Khedim, A. (2022). Le rôle de l'incubateur dans l'accompagnement des Start-up en Algérie: cas de l'incubateur de Tlemcen. *Al-Bashaer Economic Journal*, 8(2), 878-889.

Belgoum, F. (2020). Entrepreneurship Education In Algeria: between the perspectives of the University and the accompanying partners. *Advanced Research In Economics and Business Strategy Journal*, 1(1), 15-22.

Executive Decree No 14-261 (2014, September 28). Creaton of University of Oran 2. *OFFICIAL JOURNAL OF THE ALGERIAN REPUBLIC*, 84-85.

Fukugawa, N. (2013). Heterogeneity among science parks with incubatorsas intermediaries of research collaborations between startups and universities in Japan. *International Journal of Technology Transfer and Commercialisation*, 12(4), 231-261. https://doi.org/10.1504/IJTTC.2013.071355

INAPI. (2022). Brevets d'inventions. Retrieved from http://e-services.inapi.org/SITE/

Kuratko, D. (2005). The Emergence of Entrepreneurship Education: Development, Trends and Challenges. *Entrepreneurship Theory and Practice*, 29(5), 577–597. doi:https://doi.org/10.1111/j.1540-6520.2005.00099.x

Kyurova, A. (2022). The digital transformation and its impact on small and medium-sized enterprises. *Entrepreneurship*, 10(1), 7-18. doi:10.37708/ep.swu.v10i1.1

Metahri, D. (2022). How to create and save an innovative idea. *Workshop.* University of Oran 2.

Meyer, M. (2006). Academic Inventiveness and Entrepreneurship: On the Importance of Start-up Companies in Commercializing Academic Patents. *Journal of Technology Transfer*, 31(4), 501-510. https://doi.org/10.1007/s10961-006-0010-z

Spender, J.C., Corvello, V., Grimaldi, M. & Rippa, P. (2017). Startups and open innovation: a review of the literature. *European Journal of Innovation*, 20(1), 4-30. doi:10.1108/EJIM-12-2015-0131

Zarefard, M. & Eui Cho, S. (2018). Entrepreneurs' managerial competencies and innovative start-up intentions in university students:. *International Journal of Entrepreneurship*, 22(2).