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Title :

Orientation entrepreneuriale, innovation et performance des entreprises. Cas des PME Algerian

Entrepreneurial orientation, innovation and enterprise performance. Case of Algerian SMEs

Presented by: **Ms FAHIMA BENAMRAOUI**
Under supervision of**: Ms. Wafaa BERBAR BERRACHED**

JURY MEMBERS

Full name	Scientific rank	The University	Position
Wassila TABET AOUEL	Professor	University of Tlemcen	**President**
Wafaa BERBAR BERRACHED	Professor	University of Tlemcen	**Supervisor**
Shouhila GHOMARI	Professor	University of Tlemcen	**Examiner**
Mouhamed KERBOUCHE	Professor	University of Mascara	**Examiner**
Ishaq HACINI	Professor	University of Mascara	**Examiner**
Sofian MESSALT	Lecturer professor A	University of Setif 1	**Examiner**

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General introduction

« Innovation and creativity distinguish between a leader and a follower. »

Steve jobs

« Innovation is the defining means of entrepreneurship. it is what provides resources with the new ability to create wealth. »

Peter Drucker

General Introduction

In the past three decades, innovation has come to be associated with societal advancement, technological advancement, and commercial success. Innovation today encompasses more than simply the "development of something new"; it also serves as a magic bullet for various issues. Instead of being a strictly scientific notion, "innovation" is widely employed by legislators, marketing experts, advertising specialists, and management consultants as a metaphor, political pledge, slogan, or buzzword. All branches of science have recently caught the "desire for innovation" bug. Recently, even biologists have identified animal behaviour traits indicative of innovation, and experts are looking for medications to encourage people's creativity.[1]
However, innovations and innovators—along with inventions and inventors—have not always been welcomed by society and have long been despised. Innovators were viewed up until the 18th century as shady explorers and social outlaws. As a result, innovation was once regarded as any departure from social, cultural, or religious standards. Until the nineteenth century, invention was not a topic of scientific research. Therefore this was particularly obvious. In the middle of the nineteenth century, implicit innovation began to make its way into scientific investigation. Early in the 20th century, the first theories of innovation appeared. The idea of innovation has been widespread across several scientific domains since the second half of the 20th century. The time between the 1960s and the 1990s is appropriately referred to as the "golden age" of innovation research.[2]

However, over the past ten years, the concept of innovation has gradually moved away from authoritative scientific definitions and toward management cliches, catchphrases, and buzzwords. The demands of globalization have complicated the innovation process and increased the uncertainty of its possible results. These demands have reduced companies' competitive advantages based primarily on cost reduction and control of production chains around standardized products, as well as on rapidly changing production technologies and sophisticated consumer demands.

Several theoretical and empirical reflections and studies on innovation have been conducted to achieve this goal. Though other economists have occasionally discussed the topic of innovation, many ideas are credited to J. Schumpeter. The evolutionists, who define innovation as a complex interactive process based on their pioneering work, contrast the orthodox theory, which describes the linear and sequential model of innovation, with his presentation of innovation or "the

[1] Greely H. et al., «Towards Responsible Use of Enhancing Cognitive Drugs by the Healthy», Vol. 456, 11 December 2008, p 702–705

new combination" as a significant source of economic growth. Despite this, he remains one of the primary references in innovation and economic dynamics 2. New studies have also been on institutionalist theories, innovative environments, and learning. According to Porter, innovation is a reaction to adapting to a competitive environment; in his opinion, "competition is central to firm success or failure."It sanctioned a firm's activities contributing to its results, such as innovation.[1] The innovation process is generally seen as creating new possibilities rather than a straightforward technical application of a scientific approach to address a problem; then, several members of the authors have proposed an economic analysis of this process. Innovation was seen as a byproduct of technical advancement, giving the operation an exogenous and linear character. In this view, R&D was the only source of innovation. But in the 1940s, innovation took on a new meaning, with the firm emerging as the centre of invention and the businessperson acting as the genuine catalyst.[2]

The competitive environment of today dramatically depends on innovation. Because numerous challenges cannot be solved using outdated techniques, business executives must constantly seek out novel ways to innovate. The adage "adapt or die" is one that we've all heard, and it holds for businesses as well in the contemporary world. Consider how rapidly technology has advanced over the past ten years. As a result of this rapid development, companies have had to adapt and grow more than before.

You can decide to continue on your current course, increasing gradually as you enhance your existing products and business methods, even if it will be a slow process. Instead, you might decide to expand your company through mergers or acquisitions, which is a quicker but more expensive strategy. Another option is to adapt by completely reimagining your company strategy, product, or both. This method can result in a business's rapid growth and enable you to scale it up extremely quickly.

Even if the failure rate of new goods continues to be very high, innovation appears to be the only option the company has to survive the J. Schumpeter-theorized process of creative destruction. As a result, we concur with **Freeman & Soete** that, despite the dangers, "**not to innovate is to perish**." Innovation has two primary advantages:

1. The possibility of generating a monopoly rent temporarily protects the company from a price war.

[1] Porter.M, Competitive advantage, «how to get ahead of your competitors and maintain your lead», DUNOD edition, Paris 1999, P11

[2] Wafa Berrached, «Analysis of the key determinants that stimulate innovation in SMEs, Case of Algerian companies», PhD thesis, marketing, Faculty of Economics, Management and Commercial Sciences, Abu Bakr Belkaid University, Tlemcen,2015, p 2

2. The ability to influence the sector's future by setting the pace for innovation.

Globalization creates possibilities and pressures domestic businesses in developing economies to innovate and strengthen their competitive position. This is due to the opening of borders to trade and international investment. Many of these demands and chances are driven by heightened competition from and connections with overseas businesses. The global innovation landscape has seen significant changes in recent decades due to the worldwide spread of information and technology. But if nations fostered more welcoming investment conditions, those shifts might be considerably more significant.

A new era of knowledge and information that directly influences the economic, social, cultural, and political activities of all parts of the world, including Africa, has been brought about by the information revolution and the unprecedented increase in the diffusion of knowledge. Governments have acknowledged the potential contribution of information and communication technologies to socioeconomic growth worldwide. Many countries, especially those in the developed world and some emerging countries, are implementing plans and policies to transform their economies into information and knowledge-based economies.

Innovation expands into a wider field and transcends the technical foundation developed in labs. It is accomplished by the mastery of knowledge based on multiple forms of learning (scientific, technological, and organizational), both inside and outside the enterprise. Many authors consistently affirm that various forms of experimental and applied R&D are increasingly being implemented in emerging nations that are realizing the interest and necessity to adopt a culture of innovation.[1]

Whether you run a little firm or a giant organization, the problem is the same: "Innovate or go out of business." To create products and services that can be sold, businesses must innovate more than before. Companies are revising their innovation strategies and procedures to address these new difficulties. The OECD concluded that technological advancement and innovation were responsible for about half of the growth seen in the majority of nations throughout the 1990s. Compared to the 1980s, their influence was significantly more substantial.[2]

[1] Amidon. D.M, «innovation and knowledge management», organization edition, 2000, P104

[2] Vaterlaus.S et al, «in collaboration with BAK Basel Economics», Schoder Thomas & al «Innovation and the influence of regulations», Plaut Economics, Olten/ Basel September 2007, P02

SMEs (small and medium-sized organizations), influential groups, regions, governments, public and private agencies, businesses, individuals, and so forth are increasingly required to innovate.
Innovations include new and enhanced goods, new manufacturing techniques, and organizational structures. They have the application of technology to new domains, the identification of new sources, and the creation of fresh markets.
Due to the decreasing product lifespans and the tough and unpredictably competitive environment, businesses must innovate. Whether incrementally or fundamentally, failure to innovate entails a refusal to adjust to rising customer expectations and accept the norms of the new global economic environment. As a result, governments at all levels—national, regional, and international are introducing more incentives and initiatives to promote innovation and remove roadblocks to its growth.
Innovation is not a recent phenomenon in Algeria because the public enterprise has had a space for the R&D function inside its structure since the 1970s. Some companies started attempting to integrate innovation into their development processes in the middle of the 1980s.
Realizing that innovation and technology determine competitiveness, a group of public and private companies established the Regional Economic Observatory of the East (REOE) in 1994. The National Computer Systems Company also simultaneously established a technological monitoring structure (NCSC). According to various authors, what is notable is the nearly ubiquitous incapacity to translate research into development.[1]

SMEs play a crucial role in the economies of many nations. They frequently act as the catalyst for the creation of new jobs. As a result, the government established a five-year development plan for Algeria from 2010 to 2014 with a total budget of 21.214 billion dinars. This plan identifies the resurrection of industrial output, assistance for SMEs, and job creation as its key priorities. The project aimed to increase Algeria's economic potential and production capabilities. In light of this, innovation—which is viewed as a potent source of competitiveness—is essential to SMEs' survival, expansion, and development. Every firm must be innovative to avoid being outperformed by rivals and failing.

Innovation theories concur that in today's knowledge-based economy, innovation is a process that requires "research and development. "Research and development, which is a process that starts with existing information and ends with new, inventive knowledge, is the first lever of innovation.

The necessity of business formation and entrepreneurial boosters is crucial for the development dynamic of former post-communist developing nations like

[1] Djeflat A, «Research and development and technological mastery in the Maghreb: the sources of the blockage», Cahier du CREAD N° 29, 1st quarter 1992, P 73-88

Algeria. To transfer policies to a market economy, the entrepreneur is vital. They carry out a range of socioeconomic tasks, such as fostering innovation, boosting competition, and educating social inequality, all of which are essential for the market economy to run smoothly.[1]

After the government reforms over 20 years ago, entrepreneurship was born in Algeria. A drastic shift in 1990 brought the nation's attention to a new organization whose goal was to promote and advance the entrepreneurial spirit. Entrepreneurial activity has also expanded in terms of firm formation and opening the public sector to private ventures. Algeria subsequently created its first investment legislation in 1993.

Newly established organizations like the National Agency for the Valorization of Research and Technological Development Results (NAVRTDR) could not meet the economy's demand for innovation due to the lack of scientific production and research within universities and research centres. The policy for small and medium-sized firms (SMEs), which aims to provide favourable conditions for their establishment and expansion, is one of the foundations of this approach.

There are prerequisites that a business must meet to qualify as an innovative institution, but factors also contribute to creating these businesses. Other companies who wish to succeed and implement the innovation approach, or boost their innovative capacity, can study and use it. The appropriate government bodies may also consider these factors if they wish to create new policies or implement previously enacted ones that will improve the state's creativity.

Innovation activity determines an organization's capacity to beat its rivals and hold onto its position in local, regional, and global markets. To do this, innovation allows a firm to combat challenges by turning them into opportunities and preserving and boosting its competitiveness.[2]

Unquestionably, innovation is essential to the economy, as shown by the growing understanding of the variables affecting innovation activity at the corporate and national levels.

However, not all companies innovate, and not all nations have efficient institutions for innovation.

Innovation is distinguished by its collective characteristics; it involves numerous individuals actively contributing to its development.

As a result, all organizational, institutional, and geographic components of innovation activities will be covered in the list of innovation determinants.

SMEs are one of the main foundations of development in any nation globally and are essential drivers of economic development and future planning.

[1]Amina Leghima, Hassiba Djema, «SMEs and innovation in Algeria: limitations and perspectives», L'Harmattan, N° 20, 2014, p 74

[2] Soparnot R., and Stevens E., «Innovation Management», DUNOD edition, Paris, 2007, P 45

In light of this, our study strives to highlight the key factors influencing innovation and how they impact business growth.
For this, the following issue is of interest:

What are the determinants of innovation that have the most impact on the development of the enterprise?

To answer our problem, we formulated the following hypotheses; the validation of these hypotheses will naturally depend on the analysis made after that and on a survey of a sample of Algerian SME companies.

H1: The use of financial resources in research and development has an impact on the innovation process

Several authors have emphasised that the financial capacity of companies is a critical component of their ability to innovate, so it is an essential determinant of innovation in the enterprise. Funding in the research and development process plays a fundamental role in technological change and innovation .(Henny A. Romijn &Manuel Albaladejo, 2002; Boukhalfa Benamar &Foued Cheriet 2012; Olfa Hajjem Zaier.2017; H. Hall and Josh Lerner. 2012; UNCTAD secretariat 2018; Perez-Alaniz, M., Lenihan, H., Doran, J., & Hewitt-Dundas, N 2022; Dilek Demirhan, Özgür Babacan 2016; Balaban Mladenka, Župljanin Slobodan 2016; Woo-Seok Jang, Woojin Chang 2008).

H2: An entrepreneur oriented towards R&D increases the potential for innovation

Many authors believe that the entrepreneur is a crucial and pivotal point in innovation. His attitude towards research and development activities can positively affect innovation because research and development are essential. Innovation—innovationncheipactkh et al. 2006; Olga B. et al., 2008; Norrin Halilem et Etienne St-Jean 2011; Djeflat A. 2012; Szabo K. Zsuzsanna, and Emilia Herman 2012; Hajam Abid Bashir and Ali Akhtar, in 2016; Rodica Crudu 2019).

H3: Adopting an innovative strategy in research and development in the enterprise has a significant impact on innovation

several authors also confirm that the company must devote a specific budget to R&D. because the investment in R&D activities carried out by companies is a key contributor to many types of innovation. Increased research and development generate technologically innovative products, enabling companies to achieve competitive advantages and gain market shares, eventually leading to economic development. (Mita Bhattacharya 2002; Gabsi, Foued &AL 2008; Leon A.G. Oerlemans &AL 2001, Caroline HUSTLER 2004; Henny Romijn &Manuel Albaladejo 2001; Walid Hadhri &AL 2016, Walid Sharara 2018).

H4: The adoption of partnership by the institution has a significant impact on its ability to innovate

Being part of a network helps the organisation to innovate. These collaborative networks are essential for small and medium-sized businesses with limited resources as they help them overcome the gap in resources, skills and knowledge. As a result, a company's ability to collaborate with the outside world is a critical factor in its rate of innovation.

(Gabsi,Foued &AL 2008 ; Caroline HUSSLER 2004 ; Walid Hadhri &AL 2016 ; Ananya Mukherjee Reed & Darryl Reed 2008; UNIDO 2004; Randall W. Eberts &George A. Erickcek 2002; Jong et Brouwer, 1999; Galende et al. 2003).

H5: The presence of the institution in a scientific environment surrounded by prepared technological elements contributes to the innovation process

According to EBRD Transition Report ,2005, the business environment is an essential determinant of company behaviour. Together with other factors such as restructuring activities (innovation) and competition .Because policies for innovation also rely on a sound business environment that encourages investment in technology and knowledge-based capital, which enables innovative firms to experiment with new ideas, technologies and business models. (Mita Bhattacharya 2002, Leon A.G. Oerlemans &AL 2001 ; Caroline HUSSLER 2004 ; Henny Romijn & Manuel Albaladejo 2001 ; Jeroen P.J. de Jong &R. G. M. Kemp 2001 ; Rifat Kamasak 2015 ; Fatiha Fort &AL 2005).

H6: The determinants of innovation mentioned earlier contribute significantly to the development of the enterprise

Small and medium enterprises, tiny and medium enterprises, seek to develop through the essential element, which is innovation. Innovation has determinants that the institution adopts to reach its goal: development. The most important are financial resources, entrepreneurs, policy, research and development, partnership, and the surrounding environment. (Jan Fagerberg & Martin Srholec 2010; Boubaa Abdel Wahab2012; Sadiq Lashehab& AL 2017; Fatiha Fort & AL 2005; Patrick Flood.2005).

The hypotheses we have developed provide tentative responses to the abovementioned study problems. The validity of these hypotheses will assess these hypotheses' veracity will be determined by the subsequent analysis and the survey we conduct with a sample of Algerian businesses.

Our work structure is mainly divided into three chapters, two theoretical chapters and one practical chapter. The first chapter is entitled: Concepts about the institution, innovation and development. Contains four sections. The first, in which we talked about concepts about the enterprise in general; the second section about the reality of small and medium enterprises in Algeria; the third

touched on the element of innovation in small and medium enterprises; and finally, the fourth section is about development.

The second chapter is entitled: Determinants of innovation in small and medium enterprises. It is also divided into four sections. The first section concerns Algeria's national innovation system and scientific research and development strategy. The second section touched upon the determinants of innovation in the enterprise (organisational, institutional and geographical). The third section is about the determinants of development, and finally, the fourth section is the analytical section for choosing the determinants to be studied in the applied chapter.

In the last chapter, the primary innovation factors in Algerian enterprises will be empirically tested, as well as their impact on development.

Through this research, we hope to learn more about the factors influencing Algerian innovation practices.

Chapter 1: The theoretical aspect of enterprise, innovation and development

Section 1: Concepts of enterprise

I. The definition of enterprise
II. The objectives of the enterprise
III. The characteristics and the categories of the enterprise
IV. The functions of the enterprise
V. Small and medium enterprise

Section 2: The reality of SMEs in Algeria

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Section 3: innovation and the SMEs

I. Defenition of innovation
II. The importance and characteristics of innovation
III. Classification of innovation
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I. Definition and History of the concept of development
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Chapter one The theoretical aspect of enterprise, innovation and development

Introduction

The world's most important economic sector, particularly in industrialised nations, which has received considerable attention because of its significant effects on the economy, is the SME sector.

Like other nations, Algeria has worked since its independence to advance the growth cycle and attain balanced, all-encompassing development appropriate for its resources. In the 1990s, concurrent with the economic reform program, there was a shift in perspectives and an increase in interest in the small- and medium-sized business sector.

This sector is where the legal and political rules are established, which were seen as the fundamental building blocks for the advancement of this type of institution. It is also where the general contours of a development strategy focused primarily on the growth and promotion of this sector are drawn.

The fundamental component of innovation, which has gained attention in many nations, is among the most crucial to the growth and survival of small and medium-sized businesses. Innovation has emerged as a management necessity for both large and small firms. Because of this, a successful business must be creative, inventive, and have a culture of the invention to maintain its position in the market in the face of competition and ongoing technological advancement. This will assure business continuity and growth.

In this chapter, we will attempt to cover the key ideas and concepts about small and medium-sized businesses in general and Algeria in particular, as well as a key aspect and innovation in this industry. Finally, we will talk about development in general and how it relates to SMEs in Algeria.

Section one: Concepts of enterprise

Economic enterprises are the central axis of every economy, which works during their various functions to achieve multiple economic and social goals. In this part, we will mention the most important concepts about it.

1. The definition of enterprise

The definitions of economic thinkers about the enterprise have varied over time and according to the directions and entrances adopted by each.

And these are some definitions:

- M. Trichy defines "the enterprise as the unit in which it collects and coordinates the human and material elements of economic activity".[1]
- François Peroux defines it as follows: The enterprise is an organisation that brings together people with diverse competencies and uses Capital and capacity to produce goods that can be sold at a higher price than its cost.[2]
- The enterprise is all forms of economic organisation with financially independent. Its goal is to provide production for marketing. It is an organisation equipped with how to distribute tasks and responsibilities are; It can be defined as an economic unit in which the necessary human and material resources collect for economic production.[3]

And it is also: an independent Socio-economic zone, where there are decisions about the composition of human, financial, material, and media means To create added value according.[4]

The Corporation is a separate legal body with resources in both money and people whose activity is based on production. However, given the advancement of enterprise theory and management theories, the definitions are not all-inclusive. We conclude from the definitions above that the enterprise contains the following elements:[5]

- **Material resources**: the means used in the production process of machines, buildings, and raw materials;
- **Human resources**: those resources represented in the muscular and intellectual energies of the workers of the institution;
- **Decision centre**: It is in charge of managing the productive activity of the institution;

[1] Nasser Dadi Adoun, «Enterprise economy», General Mohammedia House, Algeria, 1st edition, 1988, p9

[2] Nasser dadi adoum,IBID, p10

[3] Lecteur: «Algerian economic public enterprise», Faculty of Economics and commercial science and Management Sciences, Algiers University, p 45

[4] Abdel Razak Ben Habib, «Economics and Administration of the Foundation», Dar Mohammedia General, Algeria, 1998, p24

[5] Ibrahim Bakhti, «the role of the Internet and its applications in the institution», PhD thesis, Faculty of Economics and commercial science and Management Sciences, University of Algiers, 2002, p16

• **Coordination** is the enterprise's activity resulting from work done to convert raw materials into physical goods and provide services to individuals or groups.

2. The objectives of the enterprise

Economic enterprises seek to achieve several objectives according to the owners and the nature of their activity. These are some primary goals:[1]

- **Economic objectives**
  - ✓ **Make a profit**: The enterprise seeks to achieve this objective to keep its position for its continuation, significantly if they are growing. Or maintain their level of activity because of the increasing rise in prices of means of production as a result of technological development, and also it aims for profit to its obligations towards others.
  - ✓ **Achieving the needs and requirements of the community**: When an enterprise sells its goods or services to cover production and distribution costs, it will meet the needs of consumers in the community.
- **Social objectives**
  - ✓ **Ensure an acceptable level of wages**: Laborers are an essential element of an enterprise, but their wages range from high to low depending on the nature of the enterprises and the nature of the economic system, and the Standard of living.
  - ✓ **Provide insurance and Entertainment for workers:**
    - Providing insurance against work accidents;
    - Providing health insurance;
    - Providing retirement insurance;
    - Allocation of functional or ordinary housing;
    - Provide public facilities such as restaurants;
    - Provide Entertainment for workers and their children, such as clubs, theatres, and libraries;
    - Organizing trips and camps.

In addition:[2]

- **Cultural and sports objectives**
  - ✓ Training of beginners and old workers to keep abreast of production and marketing developments;
  - ✓ Allocate time for sports and allows workers to practice sports activities to increase their vitality and activity;
  - ✓ Make good relations and harmony between workers.

[1] Fadhila Zouaoui, «Lectures on the management of institutions», Marketing Management, Faculty of Economic, Commercial and Management Sciences, Boumerdes University, 20018, p 4-5

[2] Yassin Atallah, Faculty of Economics and Management Sciences, Enterprise economy, University of Farhat Abbas-Setif, https://cte.univ-setif.dz/, 12/10/2019, 15:51

- **Technological objectives**
  - ✓ Use R&D functions;
  - ✓ Improving production methods to increase productivity;
  - ✓ Support the country's existing policy in coordination between different parties like Scientific research institutions, universities, and economic institutions.

3. The characteristics and the categories of the enterprise

3.1 The characteristics of the enterprise

The enterprise has characteristics whether in the productive, legal, or regulatory fields it is represented in: [1]

- The institution has an independent legal personality;
- The Foundation is a centre for economic decision-making, and it has production capacity;
- Clearly define objectives and policies, programs and working methods
- A fundamental economic unit in society.
- In addition : [2]
- The continuation of the business with sufficient cash ensures its ability to survive;
- Acclimatization with the Political conditions and taking care of employment for
- providing financial resources to continue its operas, and it gets these resources through revenue and loans;
- Acclimatization with the surrounding environment.

3.2 The categories of the enterprise

The enterprise is classified according to several criteria, the most important of which are:[3]

- **Legal Standard**: classified into
  - ✓ **Individual enterprises**: are enterprises owned by one person, and this type has several advantages:
    - The owner of the enterprise is the first and last responsible for the results of its work;
    - It is the owner alone who manages, organises, and manages the institution.

      It also has several disadvantages mentioning them:
    - Lack of Capital;

[1] Ahlem Mkhabi, «Assess the enterprise from the bank's point of view », master degree thesis, Faculty of Economics and Management Sciences, Enterprise economy, university of Constantine, 2007, p 13

[2] Hayel Al Razi, «Characteristics of the economic institution», financial economics, https://mawdoo3.com/, 12/10/2019, 20:11

[3] Amer Habiba, «The role of economic institutions in achieving sustainable development Under the global economic blocs», PH. D thesis, Management, Faculty of Economics and Management Sciences, University of Mssila, 2017, p13-14

- The difficulty of getting loans from financial institutions;
- The owner's liability is unlimited; he is responsible for all debts of the enterprise.

✓ **Companies** are owned by two or more persons, each committed to providing a share of money and work. They can be divided into:

1. **Company persons**: Solidarity companies, limited partnership companies, and limited liability companies. This type has several advantages:

- Ease of configuration It requires only several partners;
- Increase the capacity of the enterprise because of the solidarity of the company;
- Facilitates access to loans.

It also has several disadvantages mentioning them:

- Unlimited liability of partners;
- The loss of a partner puts the future of the company in jeopardy.

2. **Money companies:** recommending shares companies it advantages:

- Shareholders' responsibility is limited by the value of their shares and bonds;
- Access to loans is easier and faster;
- Enterprise life is more stable.

Its disadvantages:

- Subject to strict government control;
- Lack of adequate attention to the affairs of its non-shareholders.

- **ctionSize Standard:** enterprises are classified according to this type:

✓ **Small and medium enterprises**: and it has less than 250 workers and has been divided into:

- Micro enterprises from 1 to 9 workers;
- Small enterprises from 10 to 49 workers;
- Medium enterprises from 50 to 250.

✓ Large enterprise: It employs more than 500 workers and has a significant role in the capitalist economy for what it offers both at the international level and the international market level.

- **Economic Standard:** Classified into

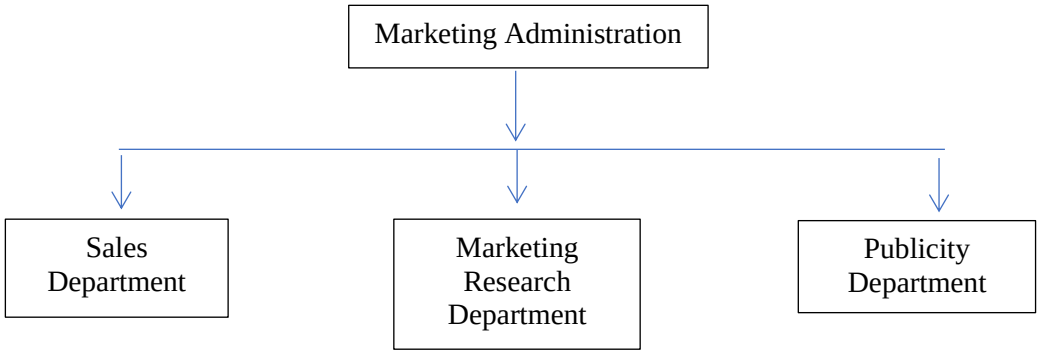
✓ Industrial enterprise;
✓ Agricultural enterprise;
✓ Commercial enterprise ;
✓ Financial enterprise ;
✓ Service enterprise.

4. The functions of the enterprise

With the expansion and significant development witnessed by economic enterprise and as well as research in the field of management of the enterprise, there have been several suggestions about the functions of the enterprise, which are represented in the:[1]

- **Marketing function**: to assess consumer needs to direct them to research and development activities to produce the required goods in order Tose goods for surplus or profit. The following figure shows the affiliates of the marketing function.

Figure 1: Marketing function



Source: by the researcher

- **Publicity**: Its purpose is to introduce the market to the enterprise's products.
- **Market Research**: Targeted to search for marketing opportunities, Studying consumers' needs and desires towards the demand.
- **Selling**: This is the goal of the productive process and means of profit or surplus; the sales channels, standards, and structures are different according to the product's quality and the enterprise's conditions.

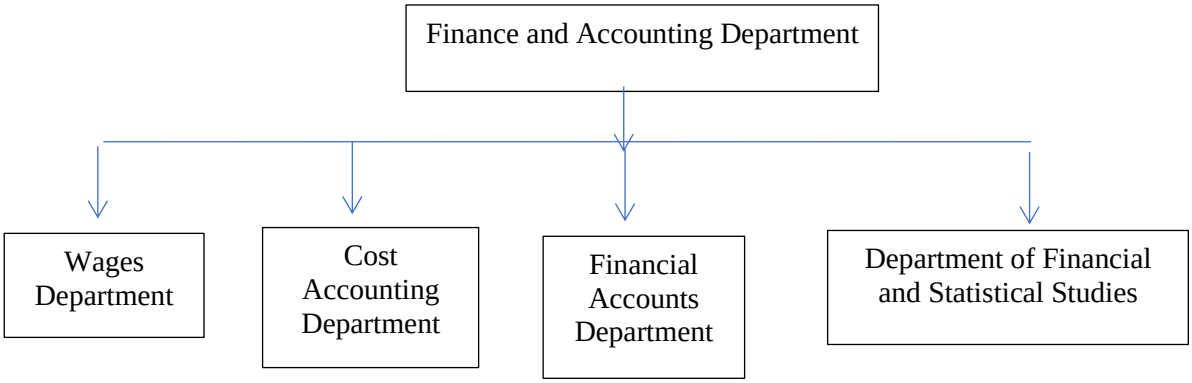
- **Finance and Accounting fun**

  Each enterprise has a function to provide resources to fund its regular and emergency needs. It became imperative that the enterprise gives the utmost importance to this function and puts it in the hands of experts who improve investment, planning, and accounting techniques.

Figure No. (2) shows the four most essential departments covered by the Finance and Accounting Department:

[1] Omar Ben Jima, «The role of SMEs in alleviating unemployment», master degree, Faculty of Economics and Management Sciences, University of Tlemcen, 2011, p12-15

Figure 2: Finance and Accounting function



Source: by the researcher

- **Financial and Statistical Studies**: Provide information and conduct the necessary financial and analytical studies to take decisions.
- **Financial Accounts**: This means the control of operations and business accounts.
- **Cost Accounting:** Costs are classified and analysed to determine interim costs and account for the final price of all products or services.

- **HR function**

The most important living component of a business is its people.

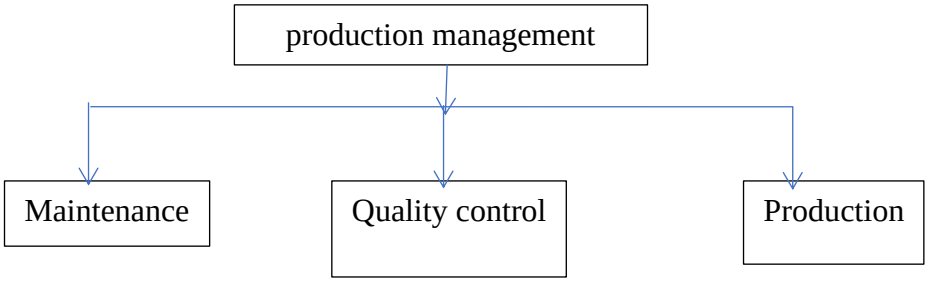
To verify the legitimacy of workers and rehabilitation, it is required to carry out the following functions:

- **The use**: Take care of the matters of employment and promotion and discipline and the graduation of positions and compensation
- **Training**: Its goal is to provide the opportunity for each worker to acquire knowledge and skill.
- **Security**: To ensure that the working environment is safe.

- **Production function**

This guarantees that imports are converted into exports to generate revenue. It is commonly known that the product is now exposed to cutting-edge technology and methods across all disciplines. This function is shown in the following figure:

Figure 3: The production function



Source: by the researcher

- **Supply function**

Due to the size of the market and the level of competition, the supply of raw materials has grown to be one of the most important tasks in the business; it has a direct impact on cost, pricing, product quality, and sales volume.

- **Management function**

Each enterprise has administration, including decision functions, oversight coordination, and representation at home and abroad. The management function shall be in the institution, unit, or department.

5. Small and medium enterprise

5.1 Definition of the SME

Economists are divided on the concept and definition of small and medium-sized businesses.

No single definition of a small business can be applied to all projects, in all regions, and under all conditions.

This is because determining whether an enterprise is small, medium, or large is based on a variety of rules and standards, as well as the conditions under which the institution operates and the environment in which it operates, as well as its development of society and its customs and traditions.

5.1.1 Definition of small and medium enterprises by some countries

- **Algeria's definition of small and medium enterprises**

Small and medium enterprises appeared in Algeria and grew in the period in which the country was characterised by economic openness. This type of institution has been seen as a means of combating poverty, absorbing unemployment in particular, and contributing to economic and social development in general.

Algerian law defines small and medium enterprises as follows: [1]

Law number 02-17 of January 11, 2017, includes the SME's Guideline law:

- ✓ **Article 1**: This law aims to define SMEs and identify support measures and their assigned mechanisms for creating and developing subjects' inabilities.
- ✓ **Article 2**: The law defines the following general objectives:

-The revival of economic growth improves the environment of small and medium enterprises;

-Encourage the establishment of small and medium enterprises, especially innovative ones, and maintain their sustainability;

-Improving the competitiveness of SMEs and their export capacity;

-Promote the culture of the contractor.

[1] The people the Democratic Republic of Algeria, Official newspaper, Second issue on January 11, 2017, p 5

- ✓ **Article 5: Definition of small and medium enterprises:**

The definition of a small and medium-sized enterprise, whatever its legal nature, is the institution of production of goods and/or services:

-Used from 1 to 250 people

-The entire annual turnover does not surpass 1 billion Algerian dinars, nor does it exceed 4 billion Algerian dzd.

-Includes the criteria for independence

Table 1. Algeria's definition of the s

Enterprise	SMEs
Number of Workers	≥ 1 ≤ 250
Annual business number	4 ≥ b dzd
Annual Outcome	1≥ b dzd

Source: Prepared by the researcher

- **Japanese definition of small and medium enterprises**

Japan's classification of SMEs in all sectors is based on two criteria: total investment, capital, and several workers, but the degree of application of these two criteria differs from one sector to another. This is as follows:[1]

- ✓ **Manufacturing**: metallurgical and transport services: number of workers does not exceed 300 workers and total investments less than 300 million yen;
- ✓ **Services sector**: The number of workers does not exceed 100 workers, and total investments are less than 50 million ye,
- ✓ **Wholesale trade**: The number of workers does not exceed 100 workers and the total investment of 100 million yen,
- ✓ **Retail trade**: the number of workers does not exceed 50 workers, and the total investment of 50 million yen.

- **The British definition of small and medium enterprises**

The United Kingdom defines small and medium enterprises using a set of standards:[2]

- ✓ The annual sales volume of the enterprise does not exceed 1.4 million pounds sterling,

[1] Hiba About Abdullah, «SME financing problems, membership note for the main in economics», faculty of economic, progressive and management science, ALGERIA university 3, 2009, p 30

[2]Mabrouk Ramadan, «The role of small and medium enterprises in economic development in Algeria », letter to the master of economics, faculty of economic and commercial sciences and management, university of Algiers 3, 2011, p11

- ✓ The amount of funds invested does not exceed £ 0.8 million Up to 7 million pounds sterling,
- ✓ The number of employees in the enterprise should be less than 50 workers per week,
- ✓ The market share of the enterprise should be limited,
- ✓ The project should be run by its owners to ensure its independence from any economic blocs.

- **The US definition of small and medium enterprises**

The Small Enterprises Act of 1953 introduced the concept of a small and medium enterprise, which represents an independently owned and managed enterprise where it doesn't control the field of work in which it is active.
The concept of small and medium-sized enterprise has been defined in more detail depending on the criterion of sales volume and number of staff.[1]

- **The china definition of small and medium enterprises**

Temporary guidelines published in 2003 are used to categorise China's small and medium-sized businesses by the Small and Medium Enterprises Promotion Law. This law establishes the standards for dividing institutions into small and medium-sized ones. These values have taken the role of the previous principles, which were replaced by supplementary standards in 1992 and policies in 1988.[2]

- **Southeast Asian Countries' definition of small and medium enterprises**

Southeast Asian countries depend on their definition of SMEs, based on a recent study, Where the researchers HIEMENZ and BRUCH made a classification that depends mainly on the employment criterion. This classification has become generally recognised in these countries.
This classification is as follows:[3]

- ✓ From 1 to 9 workers: Craft family business;
- ✓ From 10 to 49 workers: a small enterprise;
- ✓ From 50 to 99 workers: medium enterprise;
- ✓ From 100 workers or more: a large enterprise.

- **Egyptian definition of small and medium enterprises**

SMEs are described as "any organisations or facilities with producing, commercial, or service-providing economic activity, with a minimum capital of 50,000 EGP, a maximum capital of 1,000,000 EGP, and a maximum of 50 employees" in Egypt's Small Enterprise Law (No. 141, 2004). Around 98% of Egypt's industrial facilities are represented by these projects, which also employ

[1] Youssef Frisch, «Small and Medium Enterprises Financing Policies in Algeria», PhD thesis, specializing in management sciences, University of Algiers, unpublished, 2005, p 17
[2] Law of The Republic of China on Promotion of SME (Order of The President No. 69), China, June 29, 2002
[3] Safwat Abdel and Salam Awad Allah, «The Economics of Small Industries and Their Role in Achieving Development», Arab Renaissance House, Egypt, 1953, p 12

47% of the labour force in this industry. With that, it is evident that SMEs have the potential to contribute significantly to the overall growth of the Egyptian economy.[1]

- **Tunisian definition of small and medium enterprises**

The definition is :[2]

- ✓ Small and medium enterprises industry and service sectors have those with a total investment of less than 3 million dzd (about2.1millionU.S.$);
- ✓ SMEs are businesses that are run directly by their owners, who are personally and directly assume financial, technical, and moral responsibilities;
- ✓ Any business employing between 10and 100workers belongs to the group of SMEs.This definition is not pronounced and does not appear in any official document.

5.1.2 Definition of some international organisations

- **The European Union's Definition of Small and Medium Enterprises**

In the EU, small and medium-sized businesses make up 99% of all businesses (SMEs). The SME designation is essential for funding access and EU support programmes created specifically for these companies. The following primary elements determine whether an organisation is an SME[3]

- ✓ Staff headcount ;
- ✓ Turnover or balance sheet total.

Table2: Defenition of the SMEs according to the European Union

Company Category	Staff headcount	Turnover	or	Balance sheet total
Medium-sized	< 250	≤ € 50 m		≤ € 43 m
Small	< 50	≤ € 10 m		≤ € 10 m
Micro	< 10	≤ € 2 m		≤ € 2 m

Source: Prepared by the researcher

These restrictions only cover certain business figures. It may be necessary to include employee headcount, turnover, and balance sheet information from a company that is a part of a bigger group.

- **The ILO's definition of the small and Medium Enterprises**

Small and medium enterprises are units that produce and distribute goods and services:[4]

[1] Yahya Mokhtar, «Small and Medium Enterprises in Egypt: Current State and Challenges», the Egyptian centre of public studies,p 2

[2] Faysal Mansouri, «challenges in accessing finance for growth-oriented small and micro-entrepreneurs in Tunisia», 5th meeting of the mena-OECD working group on SME policy, entrepreneurship and human capital development 22-23 February, Casablanca, morrocoy, 2011

[3] What is an SME? http://ec.europa.eu ,consulted on 23/02/2018, 13 :36

[4] SMEs, www.elbassair.net, consulted on 23/02/2018, 14:05

- ✓ often composed of independent producers who do their work in urban areas of developing countries;
- ✓ some depend on work within the family;
- ✓ Some Leases workers and artisans;
- ✓ some work with fixed capital;
- ✓ Depends on the low return.

Usually earn irregular income and provide unstable jobs. This definition added that it is an informal sector that is often not registered with government agencies or official statistics.

- **United Nations Industrial Development Organization**

Small and medium businesses in developing nations are any organisations with fewer than 90 employees, according to the United Nations Industrial Development Organization (UNIDO). If an SME in a developed nation employs fewer than 500 people.[1]

Table3. Definition of Unidofor small and medium enterprises

Criterion	SMEs
Administration and management	Owner- entrepreneur, function related to personality
Organisational communication	Highly personified relations
Competitive position	Uncertain and undefined competitive position
Relation with customers	Unstable temporary
Production	Labour, intensive
R+D	Intuitive following the market
Financing	Self-financing of the owner and his /her family
Personnel and division of work	No highly qualified employees with university education, no specialisation

Source: Prepared by the researcher

5.2 Characteristicstics, types, and categories of the SME

5.2.1 The Characteristics of the SME

We wanted to point out the most essential characteristics that belong to the majority of SME Through what was pointed out by boof **Bilili** and **Raymond:**[2]

- **Environmental characteristic:** Uncertainty in facing the surrounding environment and Weakness in the face of partners;
- **Structural characteristic:** Simple structure and resource poverty;

[1] Abdul Razzaq Hamidi, Abdul Kader owainan, « The role of small and medium enterprises in reducing the unemployment crisis - concerning some international experiences », the international forum: the government's strategy for eliminating unemployment and achieving sustainable development organized by Mohammed boudin university business and management sciences, 16/11/2011

[2] House Fadhila, « Strategic business management in small and medium enterprises », to the master's degree of economics, management, University of Algeria 3, 2004, p 57

- **Decisive characteristic:** decision in the Short-term;
- **Psychological characteristics.**
- The concept of these institutions is usually associated with flexibility, market proximity, speed reaction, and speed Change of orientation.

5.2.2 The types of the SMEs

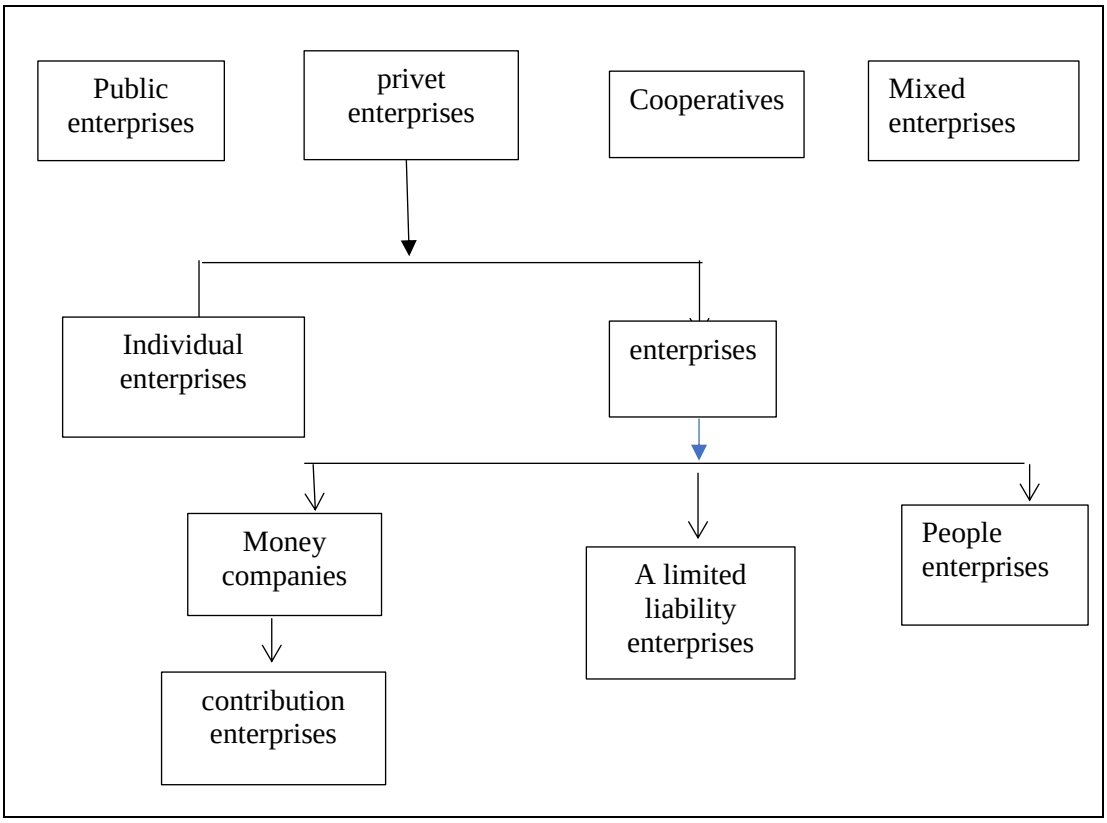
Restricting SMEs to one type is not possible because there is a big difference between them due to the different criteria of division:[1]

- **Nature of orientation:** it means the way it was created and how they are going. According to this, we find two types of SMEs:
  - ✓ **The Family enterprises:** The most important advantages of this type are:
    - Long-term personal and organisational goals;
    - Planning for financial development;
    - Culture of family members;
    - Sensitivity level against risk.
  - ✓ **Traditional enterprise:** it is engaged in traditional and craft industries.
  - ✓ **Developed and semi-devolving enterprise**
- **Nature of products:** There are consumer goods, intermediate goods, and processing goods, so we find these types:
  - ✓ **Consumer goods production enterprises:**
    - Processed food products;
    - Agricultural products;
    - Wood products.
  - ✓ **Intermediary production enterprises:** Provide raw or semi-finished products Used by other enterprises in production processes.
  - ✓ **Processing goods production enterprises**

Legal structure: The legal structure of SMEs varies. Every country has a law governing SMEs based on the country's current system and legal regulations. The figure below depicts the organisational structure of SMEs under Algerian law:

[1] Boulahjel Samir, «Strategic Business Management Analysis in SME», master ‘s degree in management, Algeria University, 2009, p 39-41

Figure4: The types of SMEs according to the Algerian law



Source: by the researcher

5.3 The importance and the role of the SME

5.3.1 The importance of the SME

SMEs are essential, and we can find them in these points:[1]

- ✓ Understand the potential abilities of individuals, especially those with competencies and skills;
- ✓ Creating regional balance because this kind of enterprise is easy to set up in isolated areas;
- ✓ Support economic activity and Create integration because SMEs are active in different fields. Agriculture services which make the national eco money more balanced;
- ✓ It helps the social stability of many people by creating jobs.
- ✓ Support large enterprises in their activities by what is known as handling;
- ✓ Is direct meeting with the consumer makes it easy to get and satisfy his basic needs;
- ✓ Innovation and creativity.
- ✓ The SME Contributes to environmental protection because much of it depends on out-put and large industrial enterprises' trach;

[1] Khababa Abdullah, «Small and medium enterprises- Mechanisms for achieving sustainable development», Faculty of Economics, Management and Commercial Sciences, Mssila university, New collecting Publishing House, Egypt, 2003, p 35

- ✓ The value that creativity gives to the economy helps the country's economic and social development.

5.3.2 The role of the SME

The role of SMEs is as follows:[1]

- **Contribution to GDP and create added value:** These enterprises affect three directions:
- ✓ Give goods and services to the final consumer or intermediary, increasing the state's national income;
- ✓ Achieving high productivity rates for the factors of production that it uses Compared with general government jobs;
- ✓ Contribute to the reduction of wastefulness at the national level.
- **Filing savings:** They are productive units and investment centres working on filling the individual savings to run it inside the national economy.
- **Absorption of unemployment:** Employ workers who cannot be employed at the level of large enterprises because they don't have the Educational Qualifications and Competencies.
- **Provide particular goods and services:** there extraordinary demands that large enterprises cannot meet because it depends on the activities with large production or the market of goods is tight, so it leaves the mission of meeting them to the SME.
- **Provides large enterprises' needs:** SMEs help large enterprises in some activities of marketing, distribution, maintenance, and industry of spare parts; therefore, large enterprises focus on the main activities, which leads to reduced costs.

5.4 The sources of funding of the SME and the obstacles faced by it

5.4.1 The sources of funding for the SME

All economic enterprises with different levels need appropriate funding, especially SMEs because their development has become a key to creating ate job chances and economic and social development. This is why it needs funding in its period of life. Also in Research and Training fields.

Funding sources can be limited to the personal savings of the owner of the enterprise in addition to other sources.

These sources are as follows:[2]

- **Central Bank:** it is the monetary power Witch supervises and of the banking system.
- **Commercial Bank:** its services give short and long-term loans, but this kind of Bank usually resorts to short-term loans and moves away from

[1] Moudaa Warda, «Mechanisms of financing SME », master's degree in Finance and money, Faculty of Economics, Management and Commercial Sciences, University of Biskra, 2016, p 44-45

[2] Laith Abdullah Al-Qahiwi, Bilal Mahmoud Al-Wadi, «Small and Medium-sized Entrepreneurship and its Role in the Development Process», ed 1, Al-Hamed Publishing and Distribution House, Amman, Jordan, 2011, p 65

long-term loans, so SMEs find it difficult to get funding from a commercial bank.

Many factors can explain the limited contribution of commercial banks in financing SME.:

- ✓ The high degree of risk;
- ✓ The inability of the SME to provide guarantees;
- ✓ Commercial banks are more interested in large projects.

- **Specialized lending enterprises:** Similar to banks, its services provide medium- and long-term lending facilities for various economic sectors according to conditions and a certain methodology, helping to promote economic development and allowing SMEs to participate in the national economy.

5.4.2 The obstacles facing the SME

Although support and encouragement to develop SMEs, there are many obstacles it's creating and setting, these obstacles are legal, financial and economic, and technological.

So there are internal and external obstacles: [1]

- **Administrative obstacles:** Obstacles related to the complexity of the procedures for their establishment. Represented in:

- ✓ Establishment of the institute at the notary because it takes a long time;
- ✓ Observance of the Commercial register;
- ✓ Submit a file to the Bank.

- **Funding obstacles:** are the first and most significant problem for SMEs because of the following:

- ✓ The stormy relationship between the SME and the Bank;
- ✓ Banks put great interest rates on SMEs.

And also we find : [2]

- **Marketing obstacles:** Most owners have no interest in studying the market because of a lack of marketing competencies and capabilities, lack of Experience and qualifications among employees, and not knowing the true meaning of marketing.

- **Informational problems:**

- ✓ Lack of information about resources and goods market;
- ✓ Lack of information about a lot of rules and decisions;
- ✓ Difficulty in accessing the information at the right time;
- ✓ Inelasticity with technological developments;
- ✓ The absence of Innovation because of the lack of information.

[1]Ahmed Rahmani, « The role of the SME on the overall development of the Algerian economy», Egyptian Library for Publishers and Distribution, 2011, p 73-75

[2]Salah Hassen, « Support and development the SME to Solv the problems of unemployment and poverty », Modern Book House, Algeria, 2013, p 10

- **Economic obstacles:** Economic activity downturn or recession on the enterprise activity

Section two: The reality of SMEs in Algeria

Because entrepreneurship was the answer to the country's economic dilemma, entrepreneurship has gained significant importance in Algeria since the country switched from the system of an orientated economy to a market economy.
Algeria implemented several legislative amendments to provide the proper legal framework for business owners' private ventures.
In addition, it produced a set of methods for growth through entrepreneurship.

1. The Historical and legislative development of the SME in Algeria

Knowing the most difficult phases that SMEs faced and the changes that the legal system underwent over time will help us illustrate the emphasis that the government placed on developing this area of the economy to illustrate the position of SMEs in the Algerian economy.
These stages are represented in the following:[1]

- **The first stage of 1963 - 1980**

The institutional sector remained marginalised during this period because it was given to the management Committees after its owners' leave, and It was integrated in **1967** into the national companies.

- ✓ In **1963** issuance of the first law on Investment to increase stability in the general environment after the independence, but it had a weak effect on the development of SMEs concerning national foreign capitalism even all the advantages and guarantees;
- ✓ Then, a clear decision was made to support an economy based on centralisation and public planning and focus on processing goods industries and intermediate products;
- ✓ In **1966** issuance ofa new law on Investment aimed to define a system interest in the privet national investment in case of economic development. this law includes the monopoly of the state on the active economic sectors and forcing a national investment committee adoption a special project according to selective standards;
- ✓ The provisions of the law were aimed at attracting investors who demanded accreditation, but its conditions were very complicated and led to the loss of credibility of the national investment committee, which stopped in 1981;
- ✓ 1963-1982 There was no clear policy towards the private sector. It had stopped because of the special political speech for socialist Algeria. This speech was characterised by exploitation (The National Charter 1967).

[1] Hiba Bou Abdullah, Op cit, p 124-129

That is why private enterprises were banned from growth, censored through taxes, and international trade was closed.

- **The second stage, 1980-1988**
  - ✓ **1982** Issuance of law number 21-08 represented that the private sector has been recognised as a complement to the public sector;
  - ✓ **1983** Establishing a Bureau to follow up and coordinate private investments and it was under the tutelage of the Ministry of Planning and urbanisation
  - ✓ **1988** Moving to the market economy, a new legislative framework for structural reforms has been put in.

Because entrepreneurship was the answer to the country's economic dilemma, entrepreneurship has gained significant importance in Algeria since the country switched from the system of an orientated economy to a market economy. Algeria implemented several legislative amendments to provide the proper legal framework for business owners' private ventures. In addition, it produced a set of methods for growth through entrepreneurship. The last two stages are as follows:[1]

- **The third stage of 1988-2001**
  - ✓ After the adverse oil shock of 1986 and the emergence of signs of the economic crisis, and the failure of the implemented reforms, The Algerian government has moved towards entering a market economy through the application of stabilisation and structural adjustment programs that aim to liberalise the market. By giving the private sector a more critical role, especially in the small and medium enterprises sector. Whereas investment Law No. 25 88 was issued on July 12 1988, as a powerful impetus for the development and growth of SMEs;
  - ✓ Starting in 1990, there was a set of reforms through the issuance of many laws that prepared the public sector for the privatisation of public enterprises and stimulated the private sector because it plays a significant role in light of the economic transformation. In 1990, the Currency and Loan Law for Freedom of Foreign Investment was applied to public and private institutions as well;
  - ✓ 1991 Creation of a ministry in charge of small and medium enterprises, then it was transformed into the Ministry of Small and Medium Enterprises Under Executive Decree N 211-94 of July 18 1994;
  - ✓ 1993 By Legislative Decree No. 12-93, issued on 05/10/1993, established the Investment Promotion and Support Agency (APSI) ;
  - ✓ 1995 Increasing investment in the form of small and medium enterprises by Order No. 95 - issued on August 22, 1995;

[1] Amina Moulay, «The reality of small and medium enterprises in Algeria»**,** Journal of Economic and Financial Research, University Center Nour Al-Bashir Al-Beidh, The first issue,2020, p 123-125

✓ 1997 Establishing the Investment Guarantee Fund of Small Enterprises Publicly funded to eliminate unemployment.

- **The fourth stage 2001- To this day**

Although the efforts made during the previous periods, especially those related to improving the regulatory framework and various support measures. However, economic indicators still indicated that Algeria was almost entirely dependent on the hydrocarbons sector. For this reason, the state decided on a PTO merger and strengthen medium enterprises.

✓ 2001 Issuance of order No. 03 01 of August 20 -2001, the establishment of the National Agency for Investment Development ANDI;
✓ Establishing the National Investment Council;
✓ Issuing the directive laws for the promotion of small and medium enterprises, which is Law No. 01-18 of December 12, 2001, where the issuance of this law was a real breakthrough for small and medium enterprises.

2. The accompanying and direct support administrations in Algeria

Setting up a new institution has many risks because of the high failure rate. This failure can be on the establishment or the inability of the newly established institution to survive and continue

In the market. This led to an interest in accompaniment because it gives many services to entrepreneurs from the stage of the establishment until the first years of its life.

2.1 The accompanying administrations in Algeria

Because of the importance of the accompanying, we will try to make clear its definition and the difference in its administration in Algeria.[1]

2.1.1 The definition of the accompanying

is trying to recruit Structures, communication, and time to face multiple problems and try to adapt them to the culture and personality of the entrepreneur.

2.1.1.1 The accompanying administrations:

The services accompanying are done by many administrations. Some are publicly owned by the state, and others are privet represented by Offices of accountants experts, account governors, and others. But the incubators Come on the top because it is modern.

[1] Nadia Dabeh, «Studying the reality of entrepreneurship in Algeria and its prospects», master degree in management, Faculty of Economics, Management and Commercial Sciences, University of Algeria 3,2012, p 62-65

Represented in :

- **The Arboretums of the enterprises:**

It was established according to executive decree **03-78 of** February 25**, 2003.**[1] by the provisions of article 12 from the directive Law of SMEs, its activity is to support SMEs, still, its legal form is that it is a public enterprise with an industrial and commercial character and moral personality and financial independence put under the guardianship of the minister in charge of SMEs.

And it has many types: [2]

- ✓ **Incubators**: sponsors of the project in the services sector
- ✓ **Connecting workshop:** sponsors of projects in small industries and crafts professions.
- ✓ **Hostel enterprises:** sponsors are researching projects.

The functions of these arboretums are:

- Reception and accompanying the new start-ups and entrepreneurs for a particular duration;
- Provide shops for rent for entrepreneurs;
- Providing various services such as office equipment and means of media automated and also services such as electricity, gaze, and water;
- Giving counsel to entrepreneurs to follow up with them before and after the foundation of their businesses, in addition to providing legal, accounting, commercial, and financial advice and management principles during the maturity period of the business.

- **Facilitation centres:**

It was established according to executive decree number **03-78 of February** 25, **2003**, by the provisions of article **13** from the directive Law of SMEs .Its services are to create the enterprise and inform, support, and direct the entrepreneurs. It is with an administrative nature, moral personality, and financial independence put under the guardianship of the minister in charge of SMEs.

The functions of these centres are:

- ✓ Studying the files that are given by the entrepreneurs supervising vice them;
- ✓ Accompanying entrepreneurs in the field of training and management;
- ✓ Helping entrepreneurs in structuring their forms.

2.1.1.2 The direct support administrations in Algeria

In addition to the Ministry of Small and Medium Enterprises, an integrated group of government agencies and specialised enterprises was established to develop SMEs.

[1]The people's Democratic Republic of Algeria, Official newspaper, number13, Legislative Decree Issued on February, 25th, 2003, p13

[2] Nadia Dabeh, Op Cit, p67

Represented in: [1]

- **Investment Promotion and support agency (IPSA):** it was established according to executive decree number 93-12 issued on October 5, 1993.[2] And it is under the power of the head of government, including the administration of Investment. Its functions are:
  - ✓ Helping the investors to complete their investments, especially the regulated activities and respect their deadlines;
  - ✓ Giving all the legal documents about the Investment at the right time;
  - ✓ Evaluate and study the projects, then take the right decision, even accept or refuse them.
- **National agency to develop Investment (NADI):** it was established according to the investment law 01-03 of August 20, 2001.[3] And it is under the power of the head of government in the framework of coordinating the government's efforts supporting the investment projects, and giving all the legal documents about the Investment at the right time. Its functions are:
  - ✓ Create a fund to support Investment;
  - ✓ Freedom in the achievement of Investment and getting benefits from protection, guarantees, and incentives;
  - ✓ Equality between foreign and local investors.

In addition: [4]

- ✓ Apply a low rate in customs taxes for imported equipment;
- ✓ Exemption from VAT for goods and services;
- ✓ Exemption from payment of property transfer fees for all properties.

There are also: [5]

- **National agency to support youth employment (ANSEJ):** The agency was established in **1996** and started working in **1997**, it is public, and its role is to encourage unemployed youth who have an idea to establish an enterprise in. which those youth can get subventions which are as follow:
  - ✓ Various free help;
  - ✓ Fiscal privileges;
  - ✓ Financial Subsidies.

Its functions are:

- ✓ Provide a consultant;

[1] Fateh Jari, Abd laaziz Boukar, « Accompanying and supporting staff of small Algerian enterprises », Intervention at the National forum: Problematic of sustainability of SMEs in Algeria, Faculty of Economics, Management and Commercial Sciences, El-oud University, January 30th -31st 2018, p 5-6

[2] The people's Democratic Republic of Algeria, Official newspaper number 64 issued on 10/10/1993, Legislative Decree N:93-12, 05/10/1993, Investment develope, p10-3

[3] The people's Democratic Republic of Algeria, Official news-paper number 47 issued on 22/08/2001, Legislative Decree N:01-03, 20/08/2001, Investment develope, p 4-9

[4] Article 9 of the Order 01-03, Op cit, p 6-5

[5] Abdul Hakim Said, «National Forum on the Problem of Sustainability of SMEs in Algeria», Faculty of Economics, Management and Commercial Sciences, university of El-oud, December 6-7th, 2017, p 5-6

- ✓ Notifying youth of various subsidies provided by the National Fund for Supporting Youth Employment;
- ✓ Evaluate Continuous relationships with banks and financial enterprises.

From NASYE (ENSEJ) to The National Agency for Entrepreneurship Support and Development – NAESD- (ANADE)

As stated in Executive Decree No. 20-329 of November 22, 2020. Which amends and completes Executive Decree No. 96-296 of September 8, 1996, which includes the creation of the National Agency for Youth Employment Support and the definition of its fundamental law, and changes its name.[1]

In addition to its tasks defined in its statute, the agency is also charged with the following:[2]

- ✓ Implementation of every measure that would allow for the allocation of external resources allocated for financing youth activities;
- ✓ Preparing the national card for activities that young entrepreneurs can develop;
- ✓ Encouraging the creation and development of environmental systems based on investment opportunities available from various sectors;
- ✓ Ensuring the modernisation and standardisation of the process of establishing micro-enterprises, accompanying and following up;
- ✓ Preparing and developing economic intelligence tools according to a forward-looking approach, aiming for balanced and effective economic development.

- **The National Agency of micro-Credit management (ANGEM):** was established in 2004 according to executive decree number 04-14 of January 22th, 2004, relating to the organisation of the agency's missions. The agency started its work actually in the middle of 2005. It works to fight unemployment and gives micro-credit to fund small projects or participates with banks to fund big projects.

Its principal functions are :

- ✓ Micro-credit management according to legislation and the organisation;
- ✓ Support the beneficiaries and give them consulting and accompany them in the execution of their projects;
- ✓ Inform the beneficiaries about providing subsidies.

[1] The People's Democratic Republic of Algeria, Official newspaper number 70, Executive Decree No. 20-329 of November 22, 2020

[2] NAESD Agency officially becomes the «National Agency for Entrepreneurship Support and Development», Algerian news agency, https://cutt.us/JOv91, consulted on 16/04/2022, at 15:56

3. The role of entrepreneurship in Algeria

Research demonstrating how entrepreneurship contributes to the national economy's rapid growth rates and the improvement of community members' standards of life has led to an increase in interest in it in recent years.

Moreover, the advent of companies that emphasise innovation, growth, and sustainability

The following examples highlight the crucial significance that entrepreneurship plays:[1]

3.1 The economic role of the entrepreneurship

- ✓ Mobilize small individual savings;
- ✓ Growth of the local market;
- ✓ Facilitate access to goods;
- ✓ Export Development and access to hard currency;
- ✓ The formation of an industrial sector helps the national economy;
- ✓ Increase production efficiency and maximise the economic surplus;
- ✓ Diversification of the industrial structure;
- ✓ Support regional development.

3.2 The social role of the entrepreneurship

- ✓ Technological improvement;
- ✓ Increased employment;
- ✓ Income distribution fairly;
- ✓ Fighting poverty;
- ✓ Amelioration of the standard of living;
- ✓ Contribute to the elimination of unemployment;
- ✓ Encouraging young people to invest.

4. International cooperation to upgrade SME

Under the upgrade of the SME, Algeria has signed agreements between it and other countries and international enterprises under international cooperation where they will assist the SME sector, Either bilaterally or multilaterally.

This cooperation was as follows:[2]

4.1 Algerian - German cooperation

- ✓ Guidance and training project at a total cost of 3 million euros with a composition of 50 specialists and 250 guides in the SME sector;
- ✓ support and promotion SME project: 2.3 million euros.

4.2 Algerian-Canadian cooperation

- ✓ Developùent of the privet sector in Algeria and improve competition in the productive sector at a total cost: of 7.4 million dollars for two years.

[1] Printed titled: courses on entrepreneurship, Faculty of Economics, Management and Commercial Sciences, University of Blida 2, 2018, p 26-30

[2] Youcef Hamidi, «The future of Algerian SMEs in the context of globalization», PHD degree, Faculty of Economics, Management and Commercial Sciences, Economic Analysis Branch, university of alreria2, 2008, p101-103

4.3 Algerian- Italian cooperation(2002)

- ✓ Make relations between Algerian and Italian people in business;
- ✓ Establishment of a development centre of the SME in Algeria supported by Italy.

4.4 Austrian - Algerian cooperation

Agreement from the Algerian National Bank and the Austrian centre bank for credit for 30 million euros to fund imports by the SME and the economic dealers.

4.5 Islamic Development Bank

Established on December 16, 1973, and signed by 22 countries. It started working on October 15, 1975. Algeria deals with the Bank in the following fields:

- ✓ Open a finance line for the SME;
- ✓ Providing technical assistance to support information systems.

4.6 The world bank

- ✓ Raise the quality of financing for SMEs;
- ✓ Improve banking services such as leasing and factoring;
- ✓ Training in the field and starting a micro-finance enterprise.

4.7 French development agency

- ✓ Financing the public sector ;
- ✓ Financing the private sector with direct loans or giving guarantees;
- ✓ 1998 fit loan at a total of 15 million euros for the popular national loan to fund investments of SME;
- ✓ CAP received a second loan in 2002 totalling 40 million euros to extend some financial services, including factoring and leasing.

Section three: innovation and the SMEs

1. Definition of Innovation

Since innovation is one of the key components of a company's success, it is a topic of interest for many researchers. It also contributes significantly to the development of project ideas and is a field that boosts productivity and skills.

Each business employs its criteria of innovation to develop its operations and enhance performance.

What kind of innovation should be applied in production, scientific discoveries, project activity, the development of new high-tech items, service providing, and work execution is the most crucial concept for scientists and developers to comprehend. Innovation is the process of coming up with a novel concept and turning it into a brand-new good, method, or service that boosts employment, stimulates the economy as a whole, and generates pure profit for the innovative commercial company.

Innovation is never a one-time occurrence; rather, it is a protracted and cumulative process involving numerous organisational decision-making procedures, ranging from the conception of a new idea to its actualization. A

fresh concept is the notion of a brand-new consumer need or a brand-new method of production. It is produced through the process of accumulating information and combining it with an entrepreneurial vision that is constantly challenged.

The new idea is developed and commercialized through the implementation process into a new marketable product or a new process with attendant cost reduction and increased productivity.[1]

Twiss defines innovation as a process that incorporates economics, management, science, and technology. It aims to achieve uniqueness and encompasses all stages of an idea's development, including conception, production, exchange, and commercialization.[2]

The table below shows the various prominent parts included in the definition of Innovation, along with their justification.[3]

Table 4: a sampling of various definitions of innovation from the literature currently in circulation

Definition	Justification
novel combinations of already-existing resources	In the 1930s, Schumpeter understood the value of innovation.
the use of a new or greatly enhanced good, service, method, practice, or relationship	global standards for the proposed definition
Innovation is the development and use of novel ideas to produce new goods, services, and delivery systems that significantly enhance performance, effectiveness, or quality.	A widening of the definition
the effective implementation of novel concepts or those adapted from other fields or organisations.	The British government's concept of innovation
Developing and implementing wise ideas	Definition of the Australian National Audit Office (ANAO)
A continuous and dynamic process in which ideas are transformed into value	Value is a part of innovation according to this concept.

[1] Urabe, K, «Innovation and Management: International Comparison», New York: Walter De Gruyter,1988, p 3

[2] Twiss, B, Goodridge M., «Managing Technology for Competitive Advantage: Integrating Technological And Organisational Development: From Strategy To Action». Trans-Atlantic Publications, 1989, p 6

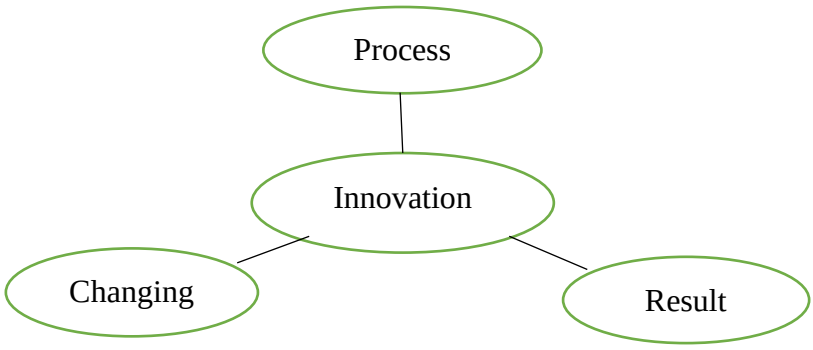
[3] S. P. Taylor, «What Is Innovation? A Study of the Definitions, Academic Models and Applicability of Innovation to an Example of Social Housing in England», Open Journal of Social Sciences, N5, University of Cumbria, Carlisle, England, 2017, p 131

the effective introduction of new services, goods, procedures, business models, and operating techniques	Business models and operational procedures are defined by the Economic and Social Research Council (ESRC).
the development (generation) and/or use (adaption) of novel concepts or behaviours	This term covers both actions and concepts.
the application of fresh components, such as new knowledge, to existing services. new leadership, new capabilities, and a new organisation	This definition emphasises the new features of the service.
Innovations significantly change and upset established practices and systems.	According to this definition, innovation has an impact on the environment.
The process of innovation is how fresh concepts are applied to benefit society.	This definition is concerned with how concepts are used in real-world situations.

Source: S. P. Taylor, Op cit p.131

The idea of "innovation" is generally complicated and nuanced. Even though his research has been the focus of numerous investigations, there is no commonly recognised definition of innovation in science. The phrase can be thought of from one of three perspectives. This classification is displayed in the figure below (Fig. 5)[1]

Figure 5. Approaches to the definition of Innovation

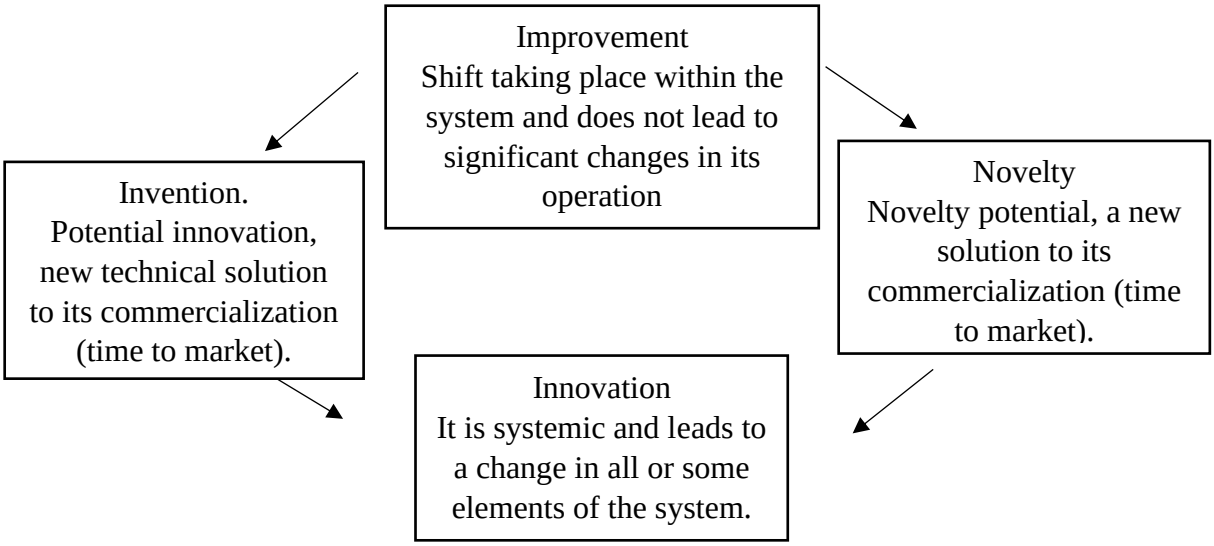


Source: Timur, kogabayev. Antanas, mazılıauskas, definition and classification of Innovation, holistic, vol 8, issue 1, 2017, p 62

Improvement, innovation, and, to a certain extent, the invention are all synonyms for "improved."The legislative practice should, however, be aware of the differences between these terminology as they are used in science.

[1] Timur kogabayev. Antanas mazılıauskas, « definition and classification of innovation», holistic, vol 8, issue 1, 2017, p 62

Figure 6. The concepts of "Improvement", "Novelty", “invention ", "innovation”



Source: Timur kogabayev. Antanas mazılıauskas, «The definition and classification of innovation», holistic vol 8, issue 1, 2017, p 62

2. The importance and characteristics of innovation

2.1 The importance of innovation

The importance of innovation is: [1]

- Innovation contributes to the development and the economy;
- Create new job opportunities;
- Creating markets with innovative products;
- Increase productivity;
- Contribute to raising the level of national wealth and its development;
- Achieving satisfaction and self-confidence among the innovator.

2.2 The Characteristics of innovation

innovation has many characteristics, which we cite:

- Innovation is a high-risk activity (risks of a financial, human, commercial and technological nature);
- Innovation is a phenomenon never ends;
- The experience that a company has about innovation, the value of R&D, marketing and advertising teams;[2]
- Innovation is a long process, sometimes 10 to 15 years, between the creation of a product idea and its appearance on the market; it is subject to many evolving factors;[3]
- Midler and Lenfle have added vital characteristics that are:

[1] Nour El-Dinn Bitat, sabre Bouzlifa, «Mechanisms to support and develop innovation and creativity as a tool for the sustainability of entrepreneurial projects», Business and Financial Economics, journal, 2017, p 180

[2] Diane Gabrielle Tremblay, «Innovation, management and economics: how does economic theory account for business innovation? », 2003, P 17

[3] Boly Vincent, «Innovation Engineering», Lavoisier edition, Paris, 2004, P 56

- An innovation project is unique;[1]
- An innovation project is characterised by an objective to be achieved, broken down in terms of deadlines, costs and performance of the developed offer;
- The innovation project requires the integration of many actors and experts, internal and external, into the organisation, who will each contribute to all or part of the future design. This organisation strongly opposes the Taylorian principles of work vision;[2]
- The innovation project is risky;[3]
- The innovation project is characterised by a progressive learning process, part of an irreversible time frame;[4]

3. Classification of innovation

There are various sorts of innovations depending on their level of application and the magnitude of the change that impacts the organization's structure and the economy as a whole.

3.1 Classification of innovation according to their degree of novelty

There are three types of innovation according to this criterion.[5]

3.1.1 Radical innovation:

Radical innovations also called breakthrough innovations, imply a total and irreversible break in the process. This type of innovation includes the use of new technology that develops a new market; radical innovations do not address an identified demand but instead create a request previously unrecognised by the consumer. This new demand is developing new industries with new competitors, enterprises, distribution channels, and new marketing activities.[6]

3.1.2 Incremental innovation:

This class can be defined as the new characteristics added or improved to a product, but also as the advantages or the improvements made to the technology already existing on the market.

Incremental innovations are important for two reasons:

- It is a strategy to increase the competitiveness of a company;
- It allows a company to support the monitoring of its business and also allows it to undertake new strategies when new opportunities arise in a market.

[1] Callon M., Latour B. « How to monitor innovation? key for socio-technical analysis », prospective and public health, 1985, P 70

[2] Bourbonnais R. & Usunier J.C, «Sales forecasting, theory and practice», Paris, Economica, 2007, P94

[3] Midler. C., «The car that didn't exist: project management and business transformation», Paris, Inter-Edition, 1993, P 67

[4] Tremblay D.G, «Social transformations and governance: Have we learned? Have we innovated? The case of multimedia in Montreal», Research Note 2003-21 of the Canada Research Chair on the socio-organizational issues of the knowledge economy, October 2003, P19

[5] Freeman C, «The New Context for Innovation», STI Review, OECD, Issue 15,1995, P 50-74

[6] Giget M, «Management of technological innovation and knowledge», PhD thesis in industrial systems, 2006, P12

3.1.3 Technological innovation:

The latter category concerns the entire economy rather than a specific business. It is the outcome of combining numerous radical breakthroughs to develop new goods and services while radically altering the nature of demand, cost structures, and conditions for competitiveness throughout the economic sector.[1]

3.2 Classification of innovations according to their field of application

The easiest way to categorise innovation, according to Loilier T and Tellier A (1999), is to mention its application field. The Oslo Manual's second edition lists a variety of potential innovations, including those that pertain to products, processes, organisations, and businesses:

3.2.1 Process innovation: is concerned with introducing new elements into an organisation's operations, such as input materials, task specifications, work and information flow mechanisms, and equipment used to produce a product or render a service.[2]

3.2.2 Product and service innovation is certainly the most well-known type of innovation, as it is associated with producing new or improved services or products.[3]

The other two types are:

3.2.3 Organizational innovation: An organisational innovation is the adoption of a novel structure in an organization's operations, working environment, or external interactions.

3.2.4 Marketing innovation: They entail employing fresh marketing strategies that significantly alter a product's look or packaging.[4]

4. Innovation Models

In addition, the original model used to describe the innovation process used a Science Push methodology, where innovation is initiated by scientific discovery and then proceeds through invention, engineering, and manufacturing activities before being commercialised.

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[1] Freeman C, Op.Cit. 1995, P 50-74.

[2] Afuah, A. « Responding to Structural Industry Changes: A Technological Evolution Perspective », Oxford University Press, USA, Vol.6, Issue 1,1998, p 183-202.

[3] Meriem Ben Miloud, « Design of an information system for the management of an innovation process in an SME / SMI », Master's degree, Department of Industrial Engineering, National Polytechnic School, 2011, p 10

[4] Dalila TRAKI, «Moussae BOUKRIF, Innovation and managerial development: The case of agrifood companies in Béjaia, Department of Economics», Annals of the University of Guelma, N °11, June 2015, Abderrahmane Mira University, Bejaia, 2015, p 8

Since the 1950s, 1960s, and 1970s, most analysts have believed that innovation is primarily linear and is therefore the primary driver of economic growth.[1]

Since the traditional or classical linear model of innovation does not account for the "interaction between the different elements of innovation, several other models have been proposed highlighting this complicity," as several authors have emphasised the role of scientific knowledge in the innovation process, this is the case, according to recent literature.

4.1 The linear science push model of innovation

To understand the relationship between science and technology—which begins with basic research in the interest of applied research, development, and dissemination—the linear model of innovation was developed as a prototype.

Between 1950 and 1960, the early models—created by the Austrian economist Joseph Schumpeter (1883–1955)—began to take shape. In this approach, policies governing research were based on technological developments that drove product development. This idea holds that science and technology are the sources of innovation. Without any room for feedback—that is, any contact between one stage and another—it grows in a one-dimensional flow.

the commercial application that represents the conclusion of research and development work. He sees invention as a linear process (a collection of necessary steps taken in order), not as a final product. Scientific discovery is the first step in this process, which then moves through numerous stages of invention, technological development, manufacture, and, in the end, the introduction of a new good or service.[2]

This form of operation implies a compartmentalized organisation, workforce specialisation, and service activities.

It is predicated on the notion that the steps in the innovation process are foreseeable and that the resources required may be anticipated beforehand.

The processes can vary in length and detail, but the process always starts with the invention, moves on to R&D, and always concludes with innovation.

R&D is still at the core of this procedure.[3]

Linear innovation models have backed up much criticism directed at the model’s linearity, and these models fail to take into account many of the feedback loops and processes that exist between the many "stages" of the process. Failures and inefficiencies at various stages may prompt a review of earlier phases, resulting in innovation.

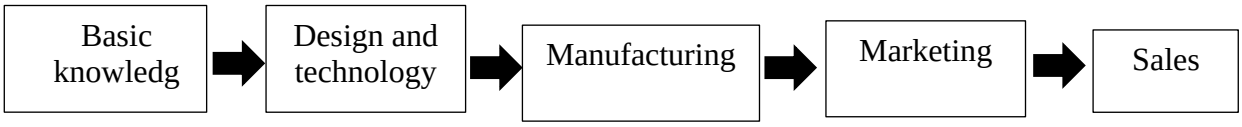
[1] Amghar Meryem, « Samal Chassagne, the theoretical foundations of innovation », administrative and economic research journal, n3, Tlemcen university, 2018, p 252

[2] wafaa Berrached, «Analysis of the key determinants that stimulate innovation in SMEs, Case of Algerian companies», PhD thesis, marketing, Faculty of Economics, Management and Commercial Sciences, Abu Bakr Belkaid University, Tlemcen,2014, p 46

[3] Jacques Perrin, «Designing industrial innovation», CNRS edition, Paris, 2001, P 111

The following components make up the form:

Figure 7. The linear model of innovation (science push)



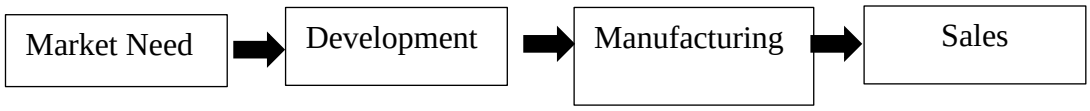
Source: Robles Cortes G., "Technological innovation and knowledge management: synergy between TRIZ theory and case-based reasoning". Application in process engineering and industrial systems, doctoral thesis in industrial systems, Toulouse, 2006, P 16

The science push model is concerned with research quality as a factor in how well businesses utilise it. It is predicated on the idea that companies will become swiftly and automatically appropriate and use high-quality research. Therefore, it won't be essential to establish linkages between researchers and businesses or for researchers to work to spread the outcomes of their research. The government's only responsibility in this situation is to provide financing for research. They were essentially constrained to acting as backers financially.

4.2 Demand-Pull Model

There have been a lot of papers written about the linear model of innovation. Although they may have been the most well-liked model for understanding technological advancement for decades, alternatives did exist. One such choice is the demand-pull model, which is frequently referred to as the exact opposite of the linear model. In the 1960s, people from all walks of life started to evaluate technological advancement from a demand perspective rather than a supply perspective. The idea holds that commercial demands, not scientific discoveries, are what drive technological growth. However, there isn't much discussion of the demand-pull theory in recent research. This model's emphasis is on market potential and customer demands, and it was created in the late 1960s and early 1970s. Its components are:

Figure 8. The Demand-Pull Model



Source: Benoît Godin, Joseph P. Lane, "Pushes and Pulls": The Hi(story) of the Demand-PullModel of Innovation, Project on the Intellectual History of Innovation Working Paper No. 13, Quebec, 2013, p 6

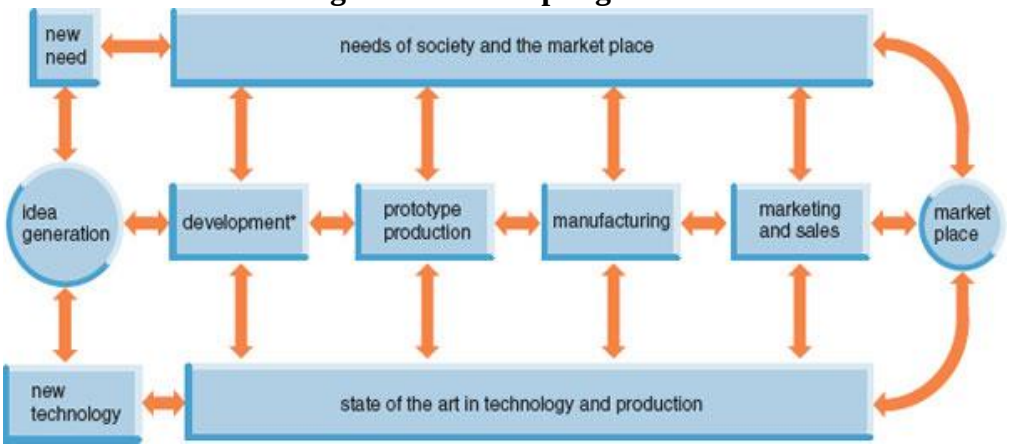
The linear model is simply one of several evolved hypotheses to explain why basic research comes first, then applied research, and finally development. Beginning in the 1960s, individuals from various sectors began to see innovation from a demand viewpoint rather than a supply perspective.
They concluded that, rather than being driven by offers, technological prospects, or scientific discoveries, attractive forces that seize opportunities arising from market requirements are the most crucial component in innovation.
This paradigm is predicated on the idea that since companies commission research to address their needs, it follows that the study will result in useful information that businesses will automatically use. This paradigm, like the first, contends that creating systems for connecting researchers and users or devoting funds to disseminating knowledge is unnecessary.

4.3 The coupling model

Some inventions appear to be more influenced by the market or technology than others, but most inventions combine commercial and technological factors in inventive ways. A scenario in which only the strongest survive can be used to compare the successful creation. Failure could occur from selecting the incorrect technology or from misinterpreting the market. If the emphasis is balanced between technological and commercial issues rather than being unduly one-dimensional, success is more likely.
But a significant obstacle to invention and innovation is that both the market and technology are evolving rapidly. Technically impossible things today might be feasible in a few years thanks to scientific developments, often in unrelated fields. Likewise, what is not currently marketable can someday be seen as a requirement by customers.
Even if the innovation process involves both technological and market aspects, any model of the process must show some signs of interaction and growing complexity. It must include a variety of connections and feedback loops between forward-thinking companies and the outside world, as well as between science, technology, and the market. Rothwell's coupling model is the one that first makes this complexity appear:[1]

[1]Roy Rothwell, « Developments towards the fifth-generation model of innovation », Technology Analysis & Strategic Management Journal, Vol.1, N4, 1993, p 73

Figure 9. The coupling model



Source: Roy Rothwell, Developments towards the fifth-generation model of innovation, Technology Analysis and Strategic Management Journal, Vol.1, N4, 1993, p 73

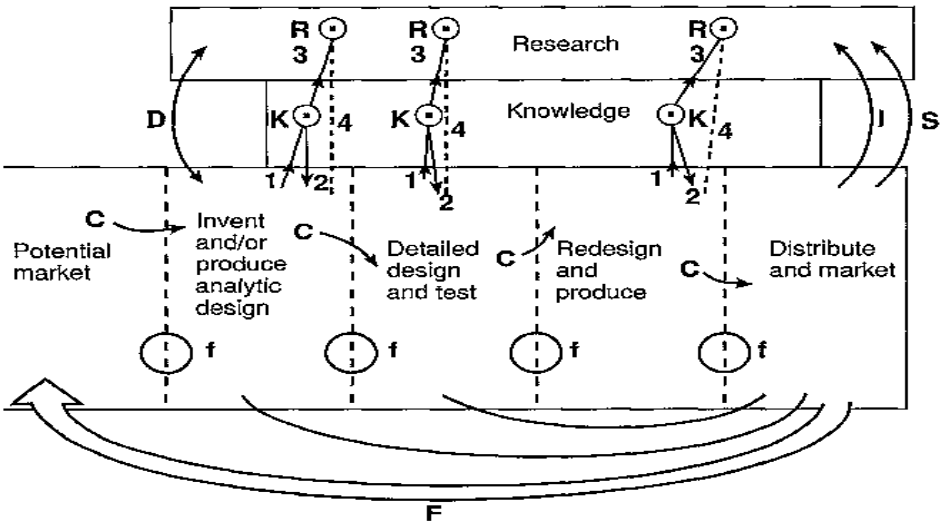
The connections between developing science and technology and shifting market conditions are intricate. The ability to connect technical advancements and commercial opportunities is a skill possessed by businesses and individuals working at these interfaces. It is frequently the domain of the entrepreneur and can be a creative process akin to the associative thinking involved in the original invention itself.

The significance of this alignment between technology and market needs is emphasised at every stage of the innovation process, from the original spark of inspiration through all of the research, design, and development work to the introduction of the new product or process onto the market.

4.4 The Kline and Rosenberg innovation model (fourth generation)

The chain-link concept, developed in 1986 by Kline and Rosenberg, is also known as "Chain Linked."The lack of a single primary line of activity in the invention process has destroyed it. The process starts with conception and moves on to development, production, and marketing. A series of linkages make up the second road. When R&D is combined with production and marketing, it is coordinated.

Figure 10. The Kline and Rosenberg innovation model



Source: Stephen J. Kline and Nathan Rosenberg, «An Overview of Innovation," in The Positive SUm Strategy: exploitation Technology for Economic Growth», editors. Ralph Landau and Nathan Rosenberg (Washington, D.C: National Academy Press, 1986, P 289.

Several innovative processes are shown in this model for innovation:

The primary innovation process (or innovation path), which consists of several design activities, is presented at the outset (from invention to production activity). The second sort of innovation process comprises feedback between related activities, which are marked by the letter F in the diagram, or feedback between unrelated activities of this same chain, which is denoted by the letter C. (designated by the letter f). The third sort of process focuses on the formalisation of connections between knowledge and research, namely, the disciplines of science and innovation (relations 1 and 2). (relation D). Finally, the last process is linked to technological innovations, which also contribute to the progress of scientific research (indicated by the letter I and S).

Several innovative processes are shown in this model for innovation: By establishing a connection between science and innovation, which enables the use of scientific knowledge for product development and, conversely, increasing knowledge through experience gained during development, this model seeks to emphasise the effects of the sequence between activities of the innovation process. It also aims to improve information flow and develop speed and flexibility.

4.5 The fifth-generation model

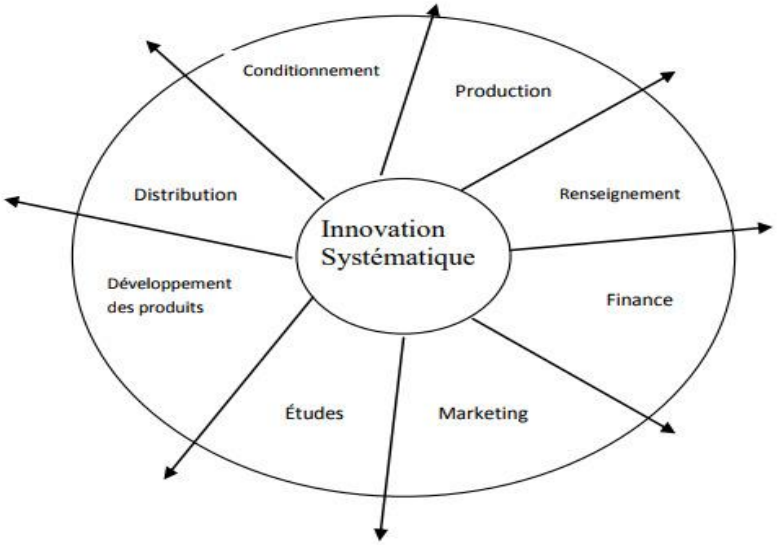
Some claim that in the early 1990s, a new paradigm of the innovation process began to emerge (Rothwell, 1994). This model, which used Rothwell's nomenclature, came to be known as the fifth-generation innovation process. The

main features of this approach, which calls for managers to react adaptably to deal with rising levels of risk and uncertainty, are illustrated in **Figure 11**.[1]

Fifth-generation systems integration and networking models emphasise that Innovation is a distributed networking process needing continual change to occur within and across organisations, building on the previous generation of innovation models.[2]

The fifth-generation models are characterised by the advent of I.C.T. technologies to quicken innovation processes and communications by networking systems to boost both development efficiency and speed-to-market through strategic alliances.

Figure 11. The fifth-generation model



Source: Arbaoui, K., «The Risks of Innovation in Business. Testing and analysis from a sample of Algerian companies», PhD thesis in commercial science, Option; Management, Faculty of Economics, Management Sciences and Sciencecommercial, Oran, 2013, p 56

4.6 Open Innovation Model (sixth generation)

Open Innovation is seen as a paradigm shift whereby competitive advantage can come from leveraging discoveries outside the boundaries of a single internal R&D unit (outbound open Innovation) and can equally benefit from relying solely on their internal paths to market by interacting with external organisations that may be better positioned to commercialise a given technology (outbound open innovation).

Name three fundamental procedures that can be distinguished in Open Innovation:[3]

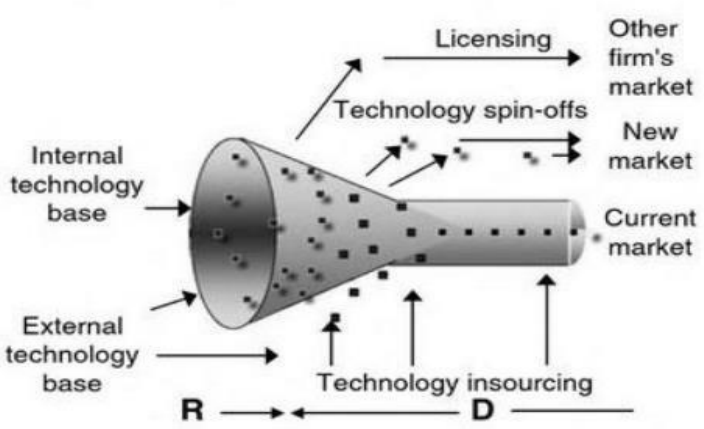
[1] Dodgson, M., Gann, D. and Salter, « A the Management of Technological Innovation: Strategy and Practice », Oxford University Press, Oxford, 2008, p 64

[2] Preez and L. Louw, « A framework for managing the innovation process, In PICMET Proceedings, CapeTown», South Africa, 2008, p 25

[3] Enkel, O. Gassmann and H. Chesbrough, «Open R&D and Open Innovation: exploring the phenomenon», R&D Management, vol. 39, no. 4, 2009, p 311-316,

- The outside-in process: which involves enhancing and extending an enterprise's knowledge base through the integration of suppliers, customers, and external knowledge sourcing;
- The inside-out process: which refers to securing commercial/revenue benefits by bringing ideas to market faster than internal Development via licensing I.P. and/or multiplying technology, joint ventures, and spin-offs;
- The linked process combines the outside-in process (to receive external knowledge) and the inside-out process (to co-create with partners through alliances, cooperation, and reciprocal joint ventures) (to bring ideas to market). The figure below shows the elements of this model: [1]

Figure 12. Open Innovation Model (sixth generation)



Source: Fasquelle, J., «watch in the innovation process", Watch and intelligence economy», Kamitis, Lyon, January 2017, p 08

An overview of the essential traits of several innovation framework models is shown in the table below. See for a thorough breakdown of the various innovation framework taxonomy generations.[2]

[1] Fasquelle, J., «watch in the innovation process", Watch and intelligence economy, Kamitis», Lyon, January 2017, p 8

[2] O'Raghallaigh, D. Sammon and C. Murphy, «A re-conceptualization of innovation models to support decision design», Journal of Decision Systems, vol. 20, no. 4, 2011, p 369

Table 5. Generations of Innovation Framework Models

Model	Generation	Characteristic	Strengths	Weaknesses
Technology Push	First	The simple linear sequential procedure with a focus on science and R&D	Simple Radical Innovation	lacking feedback lack of market focus there aren't any network exchanges. There are no modern conveniences.
Market Pull	Second	The process is straightforward and methodical, with a focus on marketing, and new R&D ideas are derived from the market.	Simple Incremental Innovation	lacking feedback technological research there aren't any network exchanges. There are no modern conveniences.
Coupling	Third	Recognizing the interactions and feedback loops between various components, with a focus on fusing R&D and marketing	Simple Radical and incremental Innovation Feedback between phases	Networked interactions have not yet taken place. There are no modern conveniences.
Interactive	Fourth	integration inside the company, the use of both push and pull approaches, and a focus on external connections	ctor networking Parallel phases	dependability increases with complexity there are no technological aids.
Network	Fifth	emphasises system integration, wide networking, knowledge acquisition, and external links	Pervasive Innovation Use of sophisticated technological instruments	dependability increases with the complexity

			Networking to pursue Innovation	
Open	Sixth	To advance the development of new technologies, internal and external concepts and internal and external approaches to the market might be merged.	It is possible to mix internal and external perspectives, like internal and external marketing strategies.	assumes the ability and willingness to network and collaborate External collaboration risks

Source: O'Raghallaigh, D. Sammon and C. Murphy, «A re-conceptualization of innovation models to support decision design», Journal of Decision Systems, vol. 20, no. 4, 2011, p 369

No one method works for all planning and implementation of a successful innovation process because innovation engagement and management are unique to each organisational setting. The education of firm-level innovation practice, however, is closely related to the rising body of general knowledge on modelling and innovation practice.

No method works for all planning and implementation of a successful innovation process because innovation engagement and management are unique to each organization. However, the overall understanding of modelling and innovation practice expanding and has a direct bearing on instructing firm-level innovation practice.

5. Innovation in enterprise

Innovation is a group of the interactions of many people and factors in the enterprise, not a single individual's inventive talent. In other words, Innovation is the result of cooperation with Others, i.e. teamwork within the enterprise.[1]

5.1 Stages of the innovation process

The innovation process contains the following five steps:[2]

- ✓ Advanced R&D, primary invention;
- ✓ Engineering and product design;
- ✓ Tooling and production engineering;
- ✓ Start of production (manufacturing);

[1] Parvin Gupta, « Administrative Creativity in the Twenty-First Century », translated by Ahmed Al Maghribi, Al-Fajr for Publishing and Distribution House, Cairo, Egypt, 2008, p 24

[2] Saville. A «Minning Machine Industry», Iron and Coal Trade Review, September 19, 1958, p 112

- ✓ Marketing launch.

The verification process can be detailed in the following essential stages:[1]

- **Ideation stage**: This stage depends on the internal resources of the enterprise represented in the capacities and self-knowledge of the enterprise's employees. They put forward their ideas about developing a new product or method. They discuss their proposed ideas and then choose the best ideas that can be developed.[2]
- Idea generation sources are classified into the following:
- ✓ **At the level of the environment**: The organisation can get new ideas That help it to develop its products through the external environment, which is represented by: [3]
  - Customers' suggestions and criticism of the products;
  - Suppliers'directives about raw materials and machines;
  - Competitors' products.
- ✓ **At the level of individuals:** The presence of motivated and innovative individuals in the enterprise contributes to its Development. People are the most critical component of a successful organisation. [4]
- ✓ **At the level of managers:** The manager is the main source of ideas in the enterprise because of his extensive relationships and knowledge of everything that revolves around it.[5]
- **Development stage:** This stage comes after the stage of collecting and categorising ideas. Then the ideas are matched with the goals of the institution and discussed to develop a prototype. During this stage, several aspects must be studied:[6]
- ✓ at the level of the environment;
- ✓ at the level of individuals;
- ✓ At the level of financial resources;
- ✓ At the organisational level;
- ✓ At the level of the manager.
- **Implementation stage:** Innovation presents the innovative idea and does not end there, but the innovative result is achieved only in the implementation stage.[7]

  The invention process has several stages, and each researcher has their own unique set of stages. The scientists concur that this process begins with the existence of a problem and concludes with the finding of a solution that

[1] Andrew Hargadon & Robert Sutton, «The Best H.B.R. Articles on Innovation», organization edition, 2003, p67

[2] Marie Camille Debourg & al, «Marketing practice», Berti edition, Algiers, 2004, p 166

[3] Florence Durieux, «Innovation management: an evolutionary approach», Vuibert edition, 2000, p 7

[4] Marc Giget, «The Strategic Dynamics of the Company», Dunod, PARIS, 1998, p 18

[5] Peter Drucker, Shaping the Future, Organizational Edition, Paris, 1998, p 267

[6] Pierre Romelaer, «Innovation and Management Constraints», Research Center pure and applied economics, University of Paris IX Dauphine, PARIS, 1998, p 2

[7]Zuhair Mansour, «An Introduction to the Curriculum of Creativity», Salasil for Printing and Publishing house, Kuwait,1985, p114

wasn't there before. While some of them consider it to have three steps, others are more interested in whether this solution was the result of a creative core thought or just a routine effort. both individually and collectively throughout the organisation.

5.2 Innovation Strategies

The different factors were affecting the enterprise, as well as the different opportunities and threats in the environment of its activities, In addition to its different capabilities and resources. All this led to the different strategies adopted.

The innovative organisation follows one of two strategies:[1]

5.2.1 Proactive Innovation Strategy

A leading firm adopts a proactive innovation strategy. To implement this approach, new items must be developed, released, and used to open up new markets. The capacity to foresee changes in the environment and spot new and possible market possibilities is crucial for developing this approach.

Enterprises follow this strategy to benefit from two main advantages: [2]

- The strategic advantage is the technological progress and precedence of the organisation, where the innovator is the first more able to control the technology developed or acquired and more able to add Improvement and Development. Also, the imitation of new products by competitors, in this case, takes considerable time, allowing them to take advantage of their advantages before they can do so.
- The second advantage is that innovative products are an important resource for distributors looking to maximise their profits. Therefore, they work to display their new products in the best markets and places and to attract customers. Especially if the profit margins are not restricted by the producing enterprise. Thus, the innovative enterprise brand gains more fame and free advertising compared to its competitors.[3]

Additionally, innovative products alter consumer behaviour by reviving old interests and changing habits. As a result, the innovative producer becomes their favourite and meets their needs, forcing the rival company to copy it to meet the demands of the new customers. This is because the market leader is the one who establishes new regulations and regulates consumer needs. In addition to the above, many other factors drive enterprise to adopt the

[1] Bert and Bellon «Innovation Creator» edition, Economica, Paris, 2002, p 48

[2] Delphine Manceau «do we have to be the first to innovate? (In) (The Art of Management) the Echos with PwC consulting a business of Pricewaterhouse Coopers», édit village Mondial Paris, 2001, p 29.

[3] Bilal Zouiwesh, « Innovation behaviour of small and medium enterprises - motives and determinants », PhD thesis, economic science, Faculty of Economics, Commercial and Management Sciences, Larbi Ben M'hidi University, Umm Al-Bawaqi, 2017, p53

proactive innovation strategy, and those factors are identified by **Hauser** and **Urban** as follow**:** [1]

- ✓ Searching for a high level of growth;
- ✓ The possibility of upgrading the Innovation to a patent;
- ✓ Prospects for the significant Development of profit margins;
- ✓ Availability of necessary resources;
- ✓ The inability of competitors to further improve and develop;
- ✓ Good control of distribution channels;
- ✓ The desire of the managers to enter emerging markets;
- ✓ Increase market share and diversify activity.

5.2.2 Reaction strategy

In this strategy, the enterprise works to reduce risks and avoid mistakes that are made by leading enterprises, and more importantly, it seeks to maintain its market position. That is by:

- ✓ Transferring the innovative ideas of the leading enterprises to new sectors that these did not go to;
- ✓ Add improvement and modifications and adapt the product to new categories according to new customers and markets;
- ✓ Simulating the innovative product with more effective features and functions.

  The enterprise that follows this strategy is working to benefit from the experience of the product for the first time by the customer and try to fix the errors in it, whether in terms of design or functionality. This requires the presence of:[2]
- ✓ skills, competencies and great marketing capabilities;
- ✓ effective information system;
- ✓ Great potential in technology control;
- ✓ The ability of production lines to simulate large products

So the organisation here depends on improvement innovation, which means making only improvements to innovative products.

5.3 Obstacles of innovation in the enterprise

at businesses, innovation can be challenging and occasionally feel like an uphill battle, but you still have to move forward in the face of ongoing digital disruption.

But the adoption of Innovation in the enterprise faces many obstacles which may affect its success, continuation and Development.

[1] Jan Marie, Françoise Dorey, «development and management of new products», publishes McGraw-Hill, 1983, p16

[2] Najm Aboud Najm, «Innovation Management (Concepts, Characteristics, and Modern Experiences) », Edition 1, Wael for Publishing and Distribution House, Amman, Jordan, 2003, p 32

And for the enterprise to activate Innovation, it must know those obstacles to be able to treat them. Thus, the field becomes open for individuals to engage in innovative behaviour.[1]
These obstacles are:

5.3.1 Administrative and organisational obstacles

The organisational factor has a significant impact on encouraging and developing innovative talents in the enterprise. But many obstacles limit its continuation, including:[2]

- ✓ Most enterprises are characterised by central management, which does not contribute to encouraging innovative talents and capabilities;
- ✓ The lack of clarity of objectives and the lack of involvement of all the management levels in decision-making;
- ✓ Absence of performance evaluation criteria;
- ✓ Lack of encouragement and motivation methods.
- ✓ All this leads to a decrease in the morale of workers and their lack of adherence to the collective spirit that contributes to encouraging Innovation.

5.3.2 Financial Obstacles

Cost-related factors and financial problems can lead to innovation barriers. A suitable financial environment may support the increase of productivity of firms and can simultaneously foster Innovation by facilitating technological Innovation and low-cost production. The reluctance of financing organisations to support Innovation could have a tremendous negative impact on innovation performance.[3]

5.3.3 Technical Obstacles

These technical factors are considered one of the obstacles that stand in the way of the innovative process:[4]

- ✓ Lack of information about new technology;
- ✓ The difficulty in finding technical competencies;
- ✓ Lack of experience among workers, especially with modern equipment.

[1] Abdel Halim Al-Faouri Refaat, «Organizational Creativity Department», Arab Administrative Development Organization, Cairo, Egypt, 2005, p 95
[2] Saud Muhammad Al-Nimr, «Administrative Creativity: Behavioral Management», The Arab Manager Magazine, No. 117, Cairo, 1992, p 68
[3] Betim RetkocerI and Rinor Kurteshi, «Barriers to innovation in services and manufacturing firms: The Case of Kosovo», holistic Vol 9, Issue 2, Faculty of Economics, University of Prishtina "Hasan Prishtina", Prishtina, Kosovo, 2018, p 76
[4] Bertrand Bellon, «creative innovation», Art edition Economica, PARIS, 2002, p 16

5.3.4 Cultural, social and economic

The development of an individual's capacity for innovation is hindered by the values, beliefs, attitudes, and traditions that are prevalent in society as well as by social constraints. Also, the economic and political conditions may not contribute to its Development.[1]

We can also add other obstacles that cause innovation failure in the enterprise and which must be addressed:[2]

- ✓ Lack of a shared vision, purpose and/or strategy;
- ✓ Short-term thinking/focus ;
- ✓ Lack of time, resources or staff;
- ✓ Lack of "spec time" to develop new ideas and opportunities;
- ✓ Lack of ownership by senior leaders;
- ✓ Lack of a systematic innovation process;
- ✓ Management incentives are not structured to reward Innovation;
- ✓ No creative thinking training ;
- ✓ Lack of skilful brainstorming facilitation.

5.4 Methods of confronting and reducing risks

These procedures are as follows:

- ✓ **Creativity Councils:** Holding innovation councils at the level of the various functions of the enterprise, organising them strategically and periodically while removing internal barriers and obstacles;
- ✓ **Growth opportunities and risks:** Since risk and innovation are closely intertwined, the organisation is focused on developing possibilities and anticipating dangers;
- ✓ **Establishment of search teams**: characterised by the participation of all teams in all functions;
- ✓ **External consultation**: through research centres, universities and experts;
- ✓ Unlocking External Creativity Networks: Getting Ideas from external partners;
- ✓ Supporting learning processes: developing innovative talent and ensuring continuous improvement.

5.5 The advantages of S.M.E.s in terms of Innovation

SMEs, on their part, have comparative advantages in terms of Innovation:

- ✓ The S.M.E. is less bureaucratic and adapts to the market and environmental changes more readily;
- ✓ S.M.E.s are the first to be able to integrate new and advanced technologies;

[1] Hussein Harem, «Management of Business Organizations: A Holistic Perspective», Second Edition, Al-Hamid Publishing house, Amman, Jordan, 2009, p 101

[2] The hidden barriers to Innovation – Key obstacles to Innovation, https://www.torbenrick.eu, 28/06/2021, 18:05

- ✓ Its internal communication system is direct and not very formalised
- ✓ Small-scale business often innovates as part of a pragmatic and non-systemic demand;
- ✓ Innovation experience for S.M.E. manager's curricula can be compared with skilled workers, who face the engineer's approach, which will be a big job;
- ✓ many S.M.E.s also seem to have benefited from the experience of researchers who have left the too-rigid shackles of big business;
- ✓ flexibility is also the main advantage of S.M.E.s in terms of Innovation, to which we must add the human aspect because this last dimension gives a culture more favourable to creativity and, therefore, to Innovation.

Section four: The Development

Development theories do not offer a thorough justification of what constitutes "development".For instance, the phrase "development" does not specifically relate to one viewpoint on social, political, or economic improvement. It is a general term for a range of techniques used to transform the socioeconomic and environmental landscape from its current to the desired state.

1. Definition and History of Development

1.1 Definition of Development

Depending on whom you ask, "growth" can signify different things and have different explanations.
For instance, the developmental needs of a population that is starving are different from those of a population that has access to appropriate nutrition.
Economic growth, which is defined as "annual increases in per-capita income or gross national product, regardless of its distribution and the degree of people's engagement in effective growth," is frequently used interchangeably with the term "development." Seers claimed in 1972 that "Development refers to setting up the circumstances necessary for someone's personality to develop.
Therefore, it must consider three interrelated factors when evaluating whether there has been a reduction in (1) poverty, (2) unemployment, and (3) inequality ".
According to Pearson, development necessitates "An improvement qualitative, quantitative or both - in the utilisation of available resources" (1992).
Furthermore, he asserts that "progress" does not refer to a particular perspective on social, political, or economic advancement.

Instead, it is a hybrid word for a variety of methods used to change the socioeconomic and environmental landscape from its existing to intended states. [1]

Development has become a pervasive concept as a means through which countries can confront underdevelopment. Different schools have different definitions of Development, and some want to relate it to a cultural, moral or civilised dimension. Despite these differences, Development is interrelated in many dimensions.

Development is the process planned for the social and economic advancement of society, according to the 1955 United Nations definition. After that, they gave it a new definition in 1956: To enhance the economic, social, and cultural conditions of societies and make the greatest possible contribution to their advancement, individuals and the government can work together through the process of development.[2]

Marx defines Development as It's a revolutionary process involving comprehensive transformations in the social, economic, political, and legal structures and even lifestyles and cultural values. Thus, the more industrially developed country represents the special future of the less developed country.[3]

It is a comprehensive civilised process linked to the creation of new and developed situations, equally with all dimensions, without focusing on one aspect without the other.[4]

1.2 The Development and growth

Economists have been led to distinguish between Development and growth. According to Frangois PelToux, growth is a sustained increase over one or more extended periods dimensional indicator: for a nation, the net aggregate product in real terms. In real terms". On the other hand, "development is the combination of mental and social changes that make the nation able to grow, cumulatively and durably, its real global product".[5]

[1] Reem Abuiyada, « Traditional Development Theories have failed to Address the Needs of the majority of People at Grassroots Levels concerning G.A.D.», International Journal of Business and Social Science, Vol. 9 • No. 9, Dhofar University, Sultanate of Oman, September 2018, p 115

[2] Mohammed Shafiq, « Social Development: Studies in Development Issues and Community Problems», Modern University Office, Alexandria, p 13

[3] Salah Athamneh, «Comprehensive Development: Concepts and Models», Edition 1, Dar Al Ulama Institute, Jordan, 1997, p 2

[4] Mohammed Shafiq, Op cit, p :18

[5]Economic and social dictionary, Paris, Hatier, 1990, p 115

Table 6. Stages of Development of the concept of Development since the end of World War II

Stages	Period	Definition of Development
1	From the end of World War II to the middle of the twentieth century	development = economic growth
2	Mid-sixties to the seventies of the twentieth century	development = economic growth +fair distribution
3	Mid-seventies to mid-eighties	Comprehensive Development = attention to all economic and social aspects
4	From 1991 to the present day	human development = achievement of good quality of life and health
5	Since the Earth Summit in 1992	Sustainable development = economic growth + equitable distribution of economic growth + attention to all aspects of economic, social and environmental life.

Source: Othman Ghoneim, Magda Ahmed, Sustainable development: its Philosophy and Methods of Planning and Measurement, Al-Safaa for distribution and publishing house, Amman, 2007, p 282

1.3 History of the concept of Development

There are two directions in understanding the genesis of the concept of Development:

- The first refers to the idea of progress, the theory of historical Development, where Development is considered a phenomenon as old as the History of societies, On the pretext that there have always been Underdeveloped and developed countries, prosperous countries and others suffering from poverty, Writers who adopt this approach to the genesis of Development go back to the Neolithic Revolution.[1] Their support that Development has always existed except that the word was missing to say it.
- The second trend seeks an authentic account of the development of this phenomenon throughout its history, beginning with its conception. It alludes to this dual viewpoint that sees development as both a therapeutic necessity and having been made important by the realisation that there is underdevelopment.[2]

[1] Gilbert RIST, «Development: History of a Western Belief», the National Foundation of Political Sciences, Paris, 1996, p 52-80
[2] Jacques Freyssinet, «The concept of underdevelopment», Paris, Mouton, 1966, p 8

Although it is reasonable to assert that the phenomenon, when viewed through the lens of social change, has always occurred, it must be remembered that the idea of Development, as considered strictly, is still a relatively modern invention.

Indeed, the word "development" didn't start to occur in isolated works until the end of the 1950s. Both its conceptualisation and dissemination were expressly connected to the problem of underdevelopment. The Dictionary of Economic Sciences, produced in 1956 and 1958 under the guidance of Jean Romeuf, does not contain the word "development" in any economic sense. Then, when he used this phrase in his 1958 book Coexistence Pacific Ocean and the third chapter of his other book, Economics Twentieth Century (1961), with the title "The Concept of Development," Francois Perrault defined it.

The phrase "development" didn't start to catch on until the late 1970s.

Furthermore, it has just recently been included by lexicographers, and the association with underdevelopment remains. [1]

However, this very recent nature of the concept of 'development' does not exclude isolated cases of early use. But, in the Anglo-Saxon world, the term appears much earlier in its economic sense. It was also absent from the economic dictionary (A New Dictionary of economics) by Philips, A. S. Taylor (1966), as well as the 2nd edition of The McGraw-Hill Dictionary of Modern Economics of 1973.[2]

Moreover, as Latouche (1988) points out, the introduction of the term "development" into the economic literature and its transformation into a concept took place quietly.

Today, the strength of the discourse on the phenomenon gives the concept of developing a central place in the national and international policies of both the so-called "developed" and those considered "developing". "It is the whole of activities that are now undertaken in the name of Development. In the name of Development, anything goes, even if it means the sacrifice of entire generations.[3] The idea is documented in all languages, notwithstanding the ambiguity of the contents that have been attributed to it. This idea no longer faces opposition, and its truth cannot be contested because of the moral principles it upholds and the ideology it propagates.

2 Theories and dimensions of Development

2.1 Theories of Development

Many theories deal with the phenomenon of Development from different sides and reflect the views of its owners. And there are the most important theories that contributed to the emergence of modern development thought:

[1] Paul Bairoch, « Historique du terme développement ». Encyclopédie Économique, Paris,1990, p 133-175

[2] Paul Bairoch, Ibid, p 163

[3] Philipe Norel, « North-South : The Challenges of Development», Paris ‹1986 ‹p 13

2.1.1 Economic Theories

It includes many points of view, which are:

2.1.1.1 classic analysis

This theory is as follows:[1]

- **Adam Smith** took care of Economic Development, where his goal was to identify how economic growth occurs and what factors hinder it. He found that the division of labour is the most important for raising productivity, and it can only take its place on a large scale when workers can use specialised equipment and machinery. Adam Smith asserts that the national economy needs capitalist accumulation, but he thought constraints were halting the cumulative process of Development of natural resource scarcity.
- **However**, Malthus was against this view and saw population growth as one of the primary challenges to growth because the increase in productivity and, therefore, income will be reflected in a growing population that absorbs growth over the long term.
- **Ricardo** also considered that the process of Development is self-renewing, and he acknowledges that it will eventually reach a state of stagnation in all economies as a result of population growth and a decline of capital growth through the decreasing yield law, which is an obstacle to Development.

2.1.1.2 Neoclassical analysis

Neoclassical counterrevolution's approach suggests that market price and resource allocation usually produces better results than state intervention. Moreover, the liberalisation of national markets generates additional domestic and foreign investments that increase the rate of capital accumulation. In this context, the neoclassical growth model by **Solow**[2] Expanded the Harrod-Domar model, adding to the growth equation a second factor, labour, and inserting a third independent variable, technology. Solow's model shows diminishing returns to labour and capital separately and constant returns to both factors jointly. In this theoretical framework, technological progress is the residual factor that explains long-run economic growth.[3]

The process of development is ongoing, progressive, and incremental. Therefore, the addition of neoclassicism was represented in the interest in the study of intertwined relationships. And Technological advances are also eliminating recessionary pressures imposed by the scarcity of

[1] Mohamed Abdulaziz Ajaimiyeh, Mohamed Ali Al-Lithi, « Economic development: its concept theories and policies», University House, Alexandria, Egypt, 2004, p 39-73

[2] Solow RM, « A contribution to the theory of economic growth ». Q J Econ, 1956, p 65–94

[3] Mario Coccia, « Theories of Development », National Research Council of Italy, Torino, Chapter June 2019, p 4

natural resources, and that free competition is the most efficient way to support the development process.[1]

2.1.1.3 Rostow's Theory of Historical Stages

Rostow sees in his theory of the stages of growth that societies must pass several stages, one after the other, on their way to growth and progress. These stages in its sequence are[2] the Traditional society stage, preparing to start stage, starting stage, progression to maturity stage, and extensive consumption stage. Rostow sees that the state that is in the first and second stages is economically backward, but if it is in the third stage, then it is a middle country (it is neither fully developed nor underdeveloped). As for the aspects of its economic and social life in the fourth and fifth stages, it is a developed country with a different degree of progress.[3]

2.1.1.4 Keynesian analysis

- Keynes' analysis focused on facing unemployment, which will be a problem in the long term if the government does not play more influence in the national economy. He also identified the necessary conditions for economic growth, which are the ability to control the population, avoid civil wars, insist on scientific progress and the rate of capital accumulation.[4]

- The developmental model of "Harrod and Domar": According to the notion of the stage of growth, increasing savings and investment can boost economic growth rates. However, the theory of stages does not clarify the economic Development of poor nations because suggested drivers (e.g., physical capital) are necessary but not sufficient factors for supporting economic growth. High investments of physical capital in many developing nations have not generated historical paths of economic development because of a lack of other socioeconomic factors, such as an efficient higher education system and good economic governance.

  In contrast, following World War II, European nations increased their physical capital in an environment with sound institutions and highly skilled labour, leading to long-term economic prosperity.

[1] Medhat Al-Quraishi, « Economic Development: Theories, Policies and Topics», First Edition, Wael Publishing and Distribution House, Oman, Jordan, 2007, p 66-68
[2] Haddad Awad, « Spatial Aspects of Regional Development», Al-Andalus Publishing and Distribution House, Alexandria, Egypt, 1993, p 36
[3] Kamal Zemouri, Ayub Sakri, Samy Hamouda, « Development theories and their applications in developing countries with the monitoring of the Algerian experience during the period (1967-1919 Economic Papers magazine», Algeria' Volume 3, No. 2, December 2019, p 117
[4] Kamal Zemouri, Ayub Sakri, Samy Hamouda, Ipid

As a result, the nature of the link between income and expenditure on the one hand, and the additional production brought on by the initial investment on the other, determine the pace of economic growth.[1]

Accordingly, the rate of economic growth depends on the nature of the relationship between income and expenditure on the one hand and the additional production generated by the initial investment on the other hand.[2]

2.1.2 Socio-psychological theories

This group of theories is centred on the connection and relationship between economic development and growth and the behavioural and personal traits of people in any culture. The most well-known thinkers who back such notions discover:[3]

- **Summler** sees that modernisation is a result of differentiation in social structure, which emerges in important social sectors such are technology, agriculture and industry, and modernisation is the result of normal growth in society. As a result of this change, society will become like Western society in its composition, structure, and culture. Modernization leads to the spread of Western life because economic growth, political participation, the spread of the civilised environment and exposure to the media lead all societies to the same result, which is modernisation.
- McClelland believes that development results from individual and collective levels of achievement and creativity in any society. And that the more creative individuals there are, the more opportunities are available for progress and societal Development in the early childhood stages through guidance, psychological and social awareness and education.
- Heijn adds that economic growth improves by encouraging creative and reforming personalities, which leads to societal transformations from underdeveloped cases to more advanced instances based on science, knowledge and technology.

2.1.3 Theory of inclusive development

The concept that has long dominated the discussion of development holds that economic growth is the primary force behind socioeconomic development. But it's becoming more and more obvious that a population's welfare cannot be improved solely by economic growth. In a country-specific context, social,

[1] Mario Coccia, Opcit, p :3

[2] Hassan Khalaf Falih, « Development and Economic Planning », First Edition, Modern Book World for Publishing and Distribution, Irbid, Jordan, 2006, p 160

[3]Abdel Hafez Nael Al-Awamleh, « Development administration: Foundations», Theories, and Practical Applications, first edition, Zahran Publishing and Distribution House. Amman Jordan, 2010, p 45

economic, political, and environmental aspects dictate and shape the current development needs. Two challenges consequently arise when developing a conceptual understanding of inclusive development: first, the difference between growth and development; and second, the significance of the term inclusive.[1]

While defining and measuring economic growth through monetary measures is simpler, defining what constitutes "inclusive" development is far more debatable. Thus, a "flurry of contributions" addressing difficulties linked to conceptual and analytical complexities, measurement restrictions, and understanding of individual nation experiences have resulted from recent interest in inclusive development.

The literature claims that there is no accepted concept of inclusive development. However, it is accepted that the phrase refers to "progress along with equitable chances." It emphasises establishing opportunities and ensuring that everyone, not just the disadvantaged, can utilise them. When all members of society, regardless of their circumstances, equally engage in and contribute to the growing process, there is inclusive growth. In the same path, inclusive growth emphasises the need of making the greatest number of people, especially the poor, eligible for the economic opportunities brought about by growth.[2]

The distinct meaning of inclusive development and its core elements can be determined best by addressing the following tasks:[3]

- The first task is to assess where and how the concept of inclusive development fits in the development debate of the past decades;
- Understanding the fundamental distinction between growth and development, as well as how to distinguish inclusive development from both inclusive growth and other similar notions, is necessary for the second goal, which is to define inclusive development.
- The third task is to provide an elaborate analysis of the concept by drawing upon key dimensions (socio, political and environmental) of inclusive development.

2.2 Dimensions of Development

the term development reflects the need to integrate new dimensions in the development process, which should benefit the whole in many cases. These

[1] Ganesh Rauniyar, Ravi Kanbur, « Inclusive Growth and Inclusive Development: A Review and Synthesis of Asian Development Bank Literature», Asian Development Bank, Metro Manila, Philippines, 2009, p 3

[2] Ali Afzal, Zhuang Juzhong, « Inclusive Growth toward a Prosperous Asia: Policy Implications», Asian Development Bank, Manila, Philippines, July 2007, p 4

[3] Shanina van Gent, «Synthesis report: Beyond buzzwords: What is “Inclusive Development? », INCLUDE, ASC, Leiden, August 2017, p 7

expressions include an ideological dimension that suggests the objectives to be achieved and ways of achieving them.
These dimensions are :

2.2.1 Social development

The idea of social growth still largely relies on research through trial and error since there is no reliable theory in this area. To attain bigger results, human energy and activities are organised at higher levels through the process of social development. The process of development expands the possibilities and opportunities for utilising human potential. Social development is a cross-cutting approach to development that promotes policies and institutions in support of: [1]

- ✓ Greater inclusivity and equity in access to opportunities, resources, and services increased empowerment of underprivileged and marginalised groups to participate in social, economic, and political life and increased security to handle ongoing or unexpected risks, especially for underprivileged and marginalised groups and segments.

2.2.2 Cultural development

Cultural development means progressive change, according to which culture increases in quantity and quality, expands horizons and dimensions, and develops and increases it.[2] It can also be defined as the methodology that absorbs all the products of society to eventually transform them into intellectual and social activities. It is practised in society, and individuals interact with it in different ways. So, in the end, it is an essential element in updating their awareness of their social reality.
Cultural development embraces all the elements and dimensions of culture. For society, it is its economic and social development and must express the character of the interrelationships between man and society, and also the concept of cultural development discusses the participation of all members of society in cultural life through the relationship that exists between the cultural movement and education, upbringing works to consolidate values, religion, customs and traditions.[3]

[1] Georges Lemaitre, Andreas Schleicher, «social dimensions of economic development and productivity: inequality and social performance», United Nations Publication, Santiago, Chile, 1999, p 19
[2] Afaf Abdelalem Nasser, «Cultural Development and Cultural Change», Alexandria. University Knowledge House, 1995, p 62
[3] Zineb Zemmouri, «The concept of cultural development», Kasdi Merbah University, Ouargla, Algeria, N 14, 2014, p 149-150

2.2.3 Human Development

The United Nations Development Programme (PNI-D) introduced the idea of human development: Human development is more complicated than simply increasing or decreasing national GDP.

It aims to create a setting where people can realise their full potential and lead happy lives that are in line with their wants and interests. The citizens of a country are its true wealth. Therefore, the development's purpose is to increase the options available to each person so they can select the life that is best for them.

Thus, this idea goes well beyond the idea of economic expansion. This is an equally significant way to raise these costs.[1]

The concept of human development reflects a long-standing concern: to place man at the centre of the development process. This reminder takes its full value in a neoliberal context oil. Respect for the major macroeconomic balances remains the priority for the countries of the south.

2.2.4 Sustainable Development

The core tenet of the UN is sustainable development. Sustainable development is defined as "growth that satisfies present demands without sacrificing the potential of future generations to satisfy their own needs" in the Bruntland Commission Report from 1987. The four additional interwoven, rather than separate, elements of sustainable development are society, environment, culture, and economy. Sustainability is a paradigm for considering the future in which societal, economic, and environmental issues are balanced to reach a higher level of living.

For instance, a wealthy civilisation depends on a healthy ecosystem to give its residents access to resources, clean water, and food. [2]

What distinguishes sustainable development from sustainability, one would wonder?

Sustainable development refers to the various methods and routes to attain sustainability, which is frequently seen as a long-term objective (i.e., a more sustainable planet) (e.g.sustainable agriculture and forestry, sustainable production and consumption, good government, research and technology transfer, education and training, etc.).

2.2.5 The political development

Political development is a very mysterious concept for more than one reason. First, it is often confused with other concepts close to it. Or maybe some may see it as synonymous, such as political modernisation, political openness, political reform, political transition, and democracy. Secondly, it includes mysterious sub-concepts, in turn, political, ideological, moral and philosophical concepts that are not measurable and scientifically observable, such as justice,

[1] Bernard cont, « The concept of development», p 3

[2] UNESCO, « Sustainable development», https://rb.gy/uf5fyq, consulted on 08/04/2022, 12:30

equality, ability, etc. The third reason, which is the most ambiguous concept, is the multiplicity and different definitions of political development, sometimes partial, general and abstract at other times.
Political development can be defined as:[1]

- Political development is the model of relationships between people through political, economic and social governmental institutions;
- Political development is increased equality, the capacity of the political system and differentiation of political structures;
- Political development is the ability of the system to cope with its internal and external environment;
- Political development is the power of the ruling elite to achieve development;
- Establishing democracy is the process of political development.

2.2.6 Economic development

The process of creating riches from which the community benefits is known as economic development. more than merely a job-creation initiative. It is.
It's an investment in enhancing everyone's prosperity and standard of living as well as growing your economy. Economic progress might mean different things to different individuals. Economic development broadly speaking refers to anything a community undertakes to support and create a robust economy. The definition of economic development in terms that are more precise and noticeable to the general public, other professionals, and politicians is a goal that experts in the field are working harder than ever to achieve.
Economic development probably has as many definitions as there are practitioners. Below is CALED.'s definition as published in the Economic Development Handbook:[2]

- From the viewpoint of the general public, local economic development entails the distribution of scarce resources, such as land, labour, capital, and entrepreneurship, in a way that enhances business activity, employment, income distribution patterns, and fiscal stability.
- A method of consciously influencing normal economic growth by making it simpler or more alluring. Today, communities in California are paying attention to what they can do to promote fiscal stability and greater economic development.
- It is crucial to understand that community development is distinct from economic growth.

[1] Saleh Belhadj, «Political development: a look at concepts and theories», University of Algiers, p2

[2] California Association for Local Economic « Development (C.A.L.E.D.), What is Economic Development? » https://rb.gy/lgttdc, consulted on 08/04/2022, 13:20

- Community development is the process of making a community a better place to live and work.
- Simply put, economic development is the operation of generating income so that the community can benefit.
- There are just three methods utilised to boost regional economic growth.
- They are: Company Creation - promoting the development
  - ✓ of new firms; Business Retention and Expansion - boosting existing
  - ✓ enterprises; and Business Expansion
  - ✓ luring new business.

3 The reality of development in Algeria

Since gaining its independence, Algeria has undertaken several development plans, with varying degrees of implementation and success rates. They affected all public sectors as a result of the political will behind each plan.

3.1 Development Plans in Algeria (1967-2019)

The development plans in Algeria are divided into two stages:

3.1.1 Single-phase phase (1967-1989)

This phase included a set of plans, which are respectively as follows: (First triple plan 1967-1969), (First quadrant plan 1970-1973), (second quadrant plan 1974-1977), (First Five-Year Plan 1980-1984), (second Five-Year Plan 1985-1989).

3.1.1.1 First triple plan 1967-1969

Most important in this plan:

- Focus on the industry sector in the first place .Approximately 49% of the investment has been allocated to this sector, which reflects the overall direction of development in Algeria at this stage. Its main objective was to create a solid industrial base leading to a rapid start for other sectors. In contrast, other sectors, such as housing, education and social services, are weak compared to the industry. The Algerian government has implemented only 87% of this plan (470 million D.Z.D.), and the hydrocarbons and petrochemical industries are at the forefront of the sectors that have been implemented according to the plan's expectations, unlike other sectors that have known only a few achievements, namely housing, health and education. This indicates that the State paid attention to heavy base industries, postponing interest in social services until after achieving that goal, because of the

weak investment possibilities, and the State resorted to borrowing to implement urgent projects.[1]

«De Bernise » pointed out that Algeria's triple plan was aimed at:[2]

- Create as many new operating functions as possible within the limits of the general profitability of the enterprise;
- Satisfying basic consumer needs for manufactured materials;
- Expanding the local market for agricultural products;
- Building a complex capable of creating a heavy industry.

3.1.1.2 First quadrant plan 1970-1973

This program aspired to achieve annual growth of 9% and an investment volume estimated at 27 billion Dzd. The purpose of this plan was in line with the strategy of social and economic development, which focused its attention on the issue of eliminating unemployment and poor employment within the framework of an integrated plan for rapid manufacturing.[3] And this plan included the following:

- Large investments in manufacturing ;
- And converting non-ferrous materials to expand the mechanical and electrical industry;
- Develop the fertiliser industry that provides strategic products and develops the agricultural sector.

3.1.1.3 second quadrant plan 1974-1977

The general purpose of this plan is similar to the objectives of the previous plans, with more emphasis on raising production and distribution of development throughout the country. This scheme has given special attention to the industrial sector, whose achievements will be subject to achieving the ultimate goal, which is industrial integration on a larger scale to reach an increase in production as soon as possible and to provide jobs, and the volume of industrial investments within this scheme amounted to 43.2%, while the completion rate reached 60.7%, which is an acceptable rate.[4]

Since gaining its independence, Algeria has undertaken several development plans, with varying degrees of implementation and success rates. They affected all public sectors as a result of the political will behind each plan.[5]

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[1] Balkacem Naweser, « Development and Change in the Configuration of Social Values, field sociological study in a community in Setif, P.H.D. thesis in sociology», Faculty of Social and Human Sciences, University of Constantine, Algeria, 2011, p 170-171

[2] Hamid T.E.M.M.A.R., « Structure and model of development of Algeria », S.N.E.D. Algiers, 1974, p 228

[3] Ibid, p 174

[4] Jamal Al-Din Laouisat, « Industrial Development in Algeria, translated by Al-Siddiq Saadi », Publications Diwan. University, Algeria, 1986, p 39

[5] M.Ollivier, « Industry in the Development Strategy of Algeria in the North Africa Yearbook», Paris, 1982, p462.

3.1.1.4 First and second Five-Year Plan 1980-1984

The plans included the following:

The Fourth Conference's recommendations from January were incorporated in the first five-year plan as policy direction. According to this proposal, 400 billion Dzd would be invested in construction, agriculture, irrigation, health care, and vocational training.

It suggested specific, qualitative changes to the way the national economy is set up and runs. And the second five-year plan took care of the following:[1]

- Demographic growth was accompanied by the emergence of new social needs. This growth in social demand coincided with difficult global, local and economic conditions due to the drop in oil prices in the global market, which led to a shortfall in financing the projects included in the scheme;
- Strengthening the pace of the production system to achieve a big investment level and control external fiscal balances in pursuit of the principle of the independence of economic options and policies.

3.1.2 plurality stage (1989-2019)

This stage involved a series of development plans, respectively:[2]

3.1.2.1 Development in the 1990s

Since 1989, Algeria has adopted a series of measures. As following:

- ✓ Reform of the agricultural and industrial sectors;
- ✓ Price system reform;
- ✓ Withdrawal of the public treasury from the finance cycle;
- ✓ Graduation towards the elimination of State subsidies for certain foodstuffs.

3.1.2.2 development plan (2001-2004)

It was allocated 525 billion dinars, 129 billion for local development, and more than 90 billion for human development. The State relies on hydrocarbon revenues. The main achievements of development at this stage have been:

- ✓ Creating more than 1100,000 jobs ;
- ✓ Construction of approximately 600,000 dwellings and 256,000 in progress;
- ✓ Completion of 180 new vocational training institutions and centres ;
- ✓ average growth of 3.8% over the five years.

3.1.2.3 development plan (2005-2009)

The Algerian government distributed the supplementary program to support growth and development for 1908.5 billion Dzd to housing, higher education, national education, vocational training, public health, public water supply, youth, sports and culture.

[1] Amer Huni, « Reading in Development Plans in Algeria (1967-2014) », Development and Applied Economics journal, 4th Issue, Al-Masilah University, p 5-6

[2] Kamal Zemouri, Ayub Sakri, Samy Hamouda ; Op cit, p 181-184

3.1.2.4 development plan (2010-2014)

This plan has a total value of 21,214 billion D.Z.D., equivalent to $286 billion. To improve human development through achievement:

- Delivering 1 million homes to the natural gas network and electrifying 2200 rural dwellings;
- Improved drinking water supply through completion of 35 barrage and 25 water conversion systems and worked at all seawater desalination plants in progress;
- Completion of more than 5000 base facilities for youth and sports;
- Nearly 500 billion Dzd prepare the territory and the environment;
- Allocating 250 billion Dzd to advance the knowledge economy, aimed at supporting scientific research.

3.1.2.5 development plan (2015-2019)

The State allocated to the five-year development plan (2015-2019) 262 billion dollars .As a public investment program with priority given to improving the population's living conditions in the housing, education, health, water, electricity, and gas sectors. This plan sought to achieve the following objectives:

- Work to bring about strong growth in the gross local product;
- Diversifying the economy and developing exports outside hydrocarbons;
- Creating jobs;
- Promote and support knowledge-based economic activities and micro-enterprises;
- Improve business climate by simplifying procedures, providing property and loans;
- Attention to training and the quality of human resources;
- Promote local or foreign public-private partnerships.

3.2 The historical development of the enterprise in Algeria

The evolution of the economic institution we observe today did not happen naturally; rather, it is the product of numerous ongoing variables and adjustments to the economic and social systems. We focus on the most crucial stages here:[1]

- **Simple household production** at this stage:
- Man has always tried to satisfy his needs and desires by relying on agriculture, including land cultivation and grazing.
- They were kept inside of homes by families.
- The remaining needs were met through trades of goods for tools, clothing, or other items.

[1] Amish Samira, «Market Economy Lectures», Faculty of Economics and commercial science and Management Sciences, Mohammed Boudiaf University, Messila, 2016, p 3-4

- **Craft units stage**: With the continuous development of products, household activities expanded to some handicrafts, Carpentry, blacksmithing, tanning and others, so it makes there a possibility to group them in places to form literal units.
- **Domestic crafts system**: The appearance of the dealer's class and their work, dealing with craft SMEs and communicating with families Financing them with raw materials for production.
- **The automotive industry stage**: Called manufacture, and it is the stage of establishing factories and inserting the machine into production.
- **Intercontinental enterprises stage:** at this stage, the enterprise was formed with its modern face, and it is no longer working inside the State but exceeding the political border of the State and continent to expand its activity and meet the global demand and this is why it is called multinational.

4 S.M.E.s and economic development in Algeria

It can be said that the national economy has begun to transition from the economy of large-sized enterprises to medium and small enterprises, in line with the global transformation. Today it is moving from an economy oriented to one governed by market mechanisms to provide frameworks supporting qualitative and quantitative transformation for economic life and adapting to new developments.

4.1 Definition of the economic development

The concept of development has been used in economics to explain the process of bringing about a set of radical changes in society, to give that society the capacity for continuous self-development to improve individuals' quality of life, the meaning of increasing society's ability to respond for basic requirements and augmenting needs. And that is through the continued rationalization of the exploitation of available economic resources.

Economic development is defined as follows:

- Gebrald Meyer defined it:" Economic development is a process whereby real national income rises over some time.[1]
- Economic development is the advancement of society through the development of new production techniques, raising production levels through the development of human energies and skills, and building better organisations. Most important, however, is the rise in the amount of money amassed in society.[2]

[1] Boudiaf Yassine, «Economic development in Algeria between the present requirements and future vision», Chlef University, Algeria,2016, p 4

[2] Syed Mahmoud, «Economic Development in Mauritania in the light of the Syrian Experience», PhD thesis, Faculty of Economics and Trade, Damascus University,1988, p 64

4.2 The role of SMEs in economic development

SMEs play an important role in improving the level of economic activity and achieving economic development, as represented in the following:[1]

- **Contribution to subcontracting:** Subcontracting helps increase employment opportunities and accumulate wealth in society due to the high level of competition between small and medium enterprises. In addition to the advancement of technology and the intensification of international competition in light of globalisation. Economic firms are required to look after the most crucial production processes and get rid of unnecessary ones to improve productivity.
- **Participating in creativity, research and development:S.M.E** . enterprises are a source of creativity and innovation, and it surpasses large enterprises in terms of the number of innovations achieved. They are also placing these innovations on a commercial scale in markets.
- **Developing the competition:** The presence of SMEs is linked to a higher degree of competition in the market because it exists in large numbers and the same sector and for the same product, and thus match will be great at the level of costs, quality, and prices. Renewal and innovation.
- **Creating added value and attracting foreign investments:** By trading products, producing things, and offering services, SMEs help to provide value to a variety of economies. The difference between prospective cost, profit, and achieved income represents the added value that is produced. They are also viewed as a viable arena for luring international investments by offering a suitable environment, the required facilities, and investment-related laws.

Table 7. Evolution of value added by the legal sector (2014-2018)

Legal sector	2014		2015		2016		2017		2018	
	value	%	value	%	value	%	value	%	value	%
Share of Public in the VA	1187,93	13,9	1313,36	14,22	1414,65	14,23	1291,14	12,775	1362,21	12,51
Private share in the VA	7338,65	86,1	7924,51	85,78	8529,27	85,77	8815,62	87,225	9524,41	87,49
Total	**8526,58**	**100**	**9237,87**	**100**	**9943,92**	**100**	10106,8	**100**	10886,62	**100**

Source: The Department of Statistics, Ministry of Industry and Mines, S.M.E. Statistical Newsletters, 2020, p:28

[1]Hamida Rabeh, «Strategies and experiences to promote the role of small and medium enterprises in supporting growth and achieving sustainable development: A comparative study between the Algerian experience and the Chinese experience», PhD thesis, Strategic Business Administration for Sustainable Development, Doctoral School in Economics and Management Sciences, Farhat Abbas University, Setif, 2011, p 29-31

- **Achieving industrial integration and increasing the domestic product:** Collaboration between small and medium industries and large industries strengthens the industry as a whole and organises intermediate consumption and diversification of industrial production.
- **Supporting foreign trade:** SME enterprises play a significant role in supporting foreign exchange by filling part of domestic demand needs, thus providing a greater opportunity to export the large enterprises' production and contribute to bringing foreign currency.
- **Making the most of the local resources:** These organisations aid in optimising the use of regional resources. Instead of using the meagre savings that families and individuals have for immediate expenditure, they try to invest them.

4.3 Evaluation of SMEs in the last five years from 2016 to 2021 (the 1st semester of 2021).

The following are some statistics on the development of SMEs for the last five years, from 2016 to the final of 2021 (the first semester of 2021). Because during this period, the SME sector witnessed remarkable development and wide demand for investment in it. As for the previous period, it was mentioned in earlier research.

Table 8. Key figures

	2016	2017	2018	2019	2020	1st sem of 2021
Total population of S.M.E.s	1 022 621	1 074 503	1 141 863	1 193 339	1231043	1267220
SMEs created	108 538	73 314	63 531	57 642	43558	33758
Cessations of activities (privet S.M.E.s)	34 471	34 972	12 291	20550	17297	7103
Privet PMI	89 597	94930	99938	103 693	106049	108762
Publique SMEs	390	267	261	242	229	225
Employer	2 540 698	2 655 470	2 724 264	2 885 651	2989516	3083503
Importations	46 727	45 957	46 197	41934,12	34391.44	18779.75
Exportations	28 883	34 763	41 168	35 823,54	23796.60	16358.05

Source By the researcher depending on S.M.E. Statistical Newsletters of Ministry of Industry and Mines, 2016- 2021

Table 9. The global population of SMEs (numbers)

SMEs types		Number of SMEs					
		2016	**2017**	**2018**	**2019**	**2020**	**1 st sem of 2021**
1	**Privat SME's**						
	Moral people	575 906	609 344	643 493	671 267	689383	709 571
	Physical persons	446 325	464 892	498 109	521 829	541461	557 424
	Liberal professions	211 083	222 570	237 457	247759	252737	259 236
	Handicrafts	235 242	242 322	260 652	274 554	288724	298 188
	s/total 1	**1 022 231**	**1074236**	**1141602**	**1715409**	**1230844**	**1 266 995**
2	**Public SME's**						
	Moral people	390	267	261	243	229	225
	s/total 2	390	267	261	243	229	225
	Total	**1022621**	**1 074 503**	**1 141 863**	**1193339**	**1231073**	**1 267 220**

Source By the researcher depending on SME Statistical Newsletters of Ministry of Industry and Mines, 2016- 2021

Through the table, we note that the number of SMEs was constantly and noticeably increasing, as in 2016, their number was 1022621, bringing their number in 2021 to 1 267 220 enterprises, both private and public. The number of private businesses in 2016 was 1 022 231. Its population increased to 1266 995 in the first semester of 2021, which was split between moral and physical individuals, liberal professions, and crafts. In 2016, there were 390 public enterprises; in 2019, there were 225.

Table 10. The global population of SMEs (per cent)

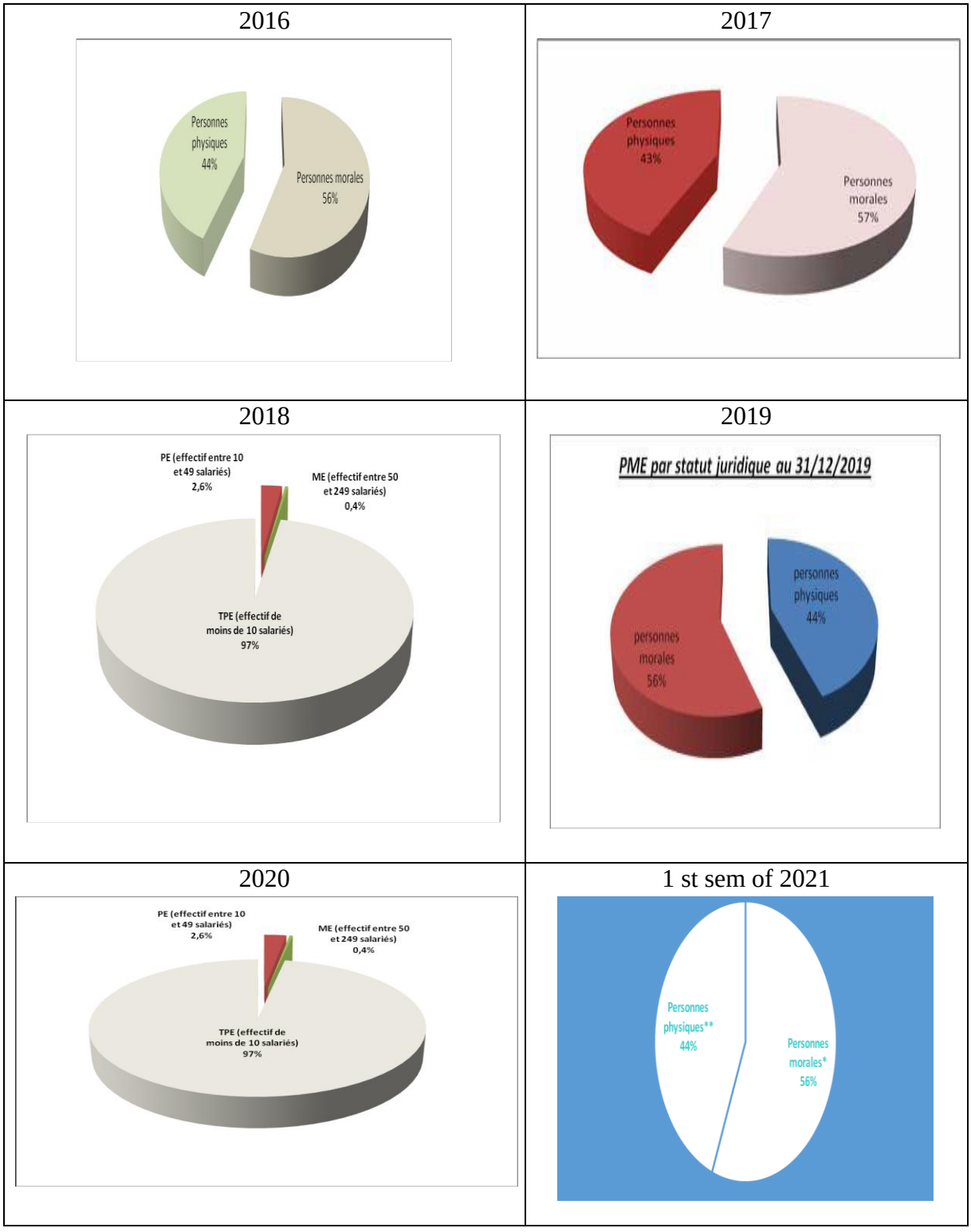
SMEs types		(%)					
		2016	**2017**	**2018**	**2019**	**2020**	**1 st sem of 2021**
1	**SMEs Types**						
	Moral people	56,32	56.71	56.35	56.25	56,00	55,99
	Physical persons	43,65	43.27	20.80	43.73	43,98	43,99
	Liberal professions	20,64	20.71	22.83	20.72	20,53	20,46
	Handicrafts	23,00	22.55	43.62	23.01	23,45	23,53
	s/total 1	**99,96**	-	-	-	**99,98**	**99,98**

2	**Public persons**						
	Moral people	0.04	0.02	0.02	0.02	0,02	0,02
	S/total 2	0.04	0.02	0.02	0.02	0,02	0,02
	Total	**100**	**100**	**100**	**100**	**100**	**100**

Source By the researcher depending on SME Statistical Newsletters of Ministry of Industry and Mines, 2016- 2021

More than 56% are legal companies, 390 of which are Public Economic Enterprises (EPE). The other activities are physically demanding for persons (43.6%), including 23% of artisanal activities and roughly 21% of liberal professions. With fewer than ten employees, Very Small VSE Companies made up 97% of all SME establishments in 2017, maintaining their strong economic dominance. Small Business PE comes second with 2.6% of the total population, and Average Enterprise ME comes last with 0.4%. Nonetheless, the total number of SMEs in 2018 was 1,141,863 entities, more than 56% of which were legal persons. Among these, there are 261 Public Economic Enterprises (EPE). The rest are made up of natural persons (43.62%), of which almost 21% are liberal professions, and 22.83% are craft activities. And in 2019, the overall population of SMEs stood at 1,193,339 entities, of which more than 56% are legal persons, among which there are 243 Public Economic Enterprises (EPE). The remainder (43.73%) consists of natural humans, including 21% from liberal professions and 23% from craft activities. At the end of 2020, the overall population of SMEs amounts to 1 231 073 entities, of which more than 56% are made up of legal entities, among which there are 229 Economic Public Enterprises (EPE). Natural humans (43.98%) make up the remaining portion, of which 23.45% are engaged in craft activities. And in the first semester of 2021, the overall population of SMEs amounts to 1 267 220, of which 56% are made up of legal entities, among which there are 225 Public Economic Enterprises (EPE). The remaining group is made up of natural persons (44%), of whom 23.53% are engaged in crafts and 20.46% work in liberal professions.

Figure 13: Breakdown of SMEs by legal status (2016-2021)



Source By the researcher depending on SME Statistical Newsletters of Ministry of Industry and Mines, 2016- 2021

Table 11. The concentration of private SMEs (legal persons) by region

Region	Number of SMEs (Moral people)					
	2016	**2017**	**2018**	**2019**	**2020**	**1st sem of 2021**
North	400 615	424 659	447 817	830 438	856 779	493691
Highlands	125 696	133 177	141 465	262 340	270 736	156207
South	49 595	51 508	54 211	100 561	103 558	59673
General total	**575 906**	**609 344**	**643 493**	**1193 339**	**123 1073**	**709571**

Source By the researcher depending on SME Statistical Newsletters of Ministry of Industry and Mines, 2016- 2021

Table 12. The concentration rate of private SMEs (legal persons) by region

Region	Concentration rate (%)					
	2016	**2017**	**2018**	**2019**	**2020**	**1st sem of 2021**
North	69.56	69,69	69,59	70	69,60	69,58
Highlands	21.83	21,86	21,98	22	21,99	22,01
South	8.61	8,45	8,42	8	8,41	8,41
General total	**100**	**100**	**100**	**100**	**100**	**100**

Source By the researcher depending on SME Statistical Newsletters of Ministry of Industry and Mines, 2014- 2019

The nation. The Highlands region came in second with 125696 SMEs or 22.83%, and Southern Great South regions hosted 49595 SMEs or 8.61% of all SMEs. In 2017, the Northern region had 424659 SMEs, accounting for 69.69% of all SMEs in the nation. The Highlands region came in second with 133,177 SMEs, accounting for 21.86% of the total. The Southern regions, including the Great South, are home to 51,508 SMEs, accounting for 8.45% of the total. In the nation. The region was followed by the South and Great South regions, which are home to 54,211 SMEs and 8.42% of all SMEs, respectively. And as of 2019, the Northern area is home to 830438 SMEs or 70% of all small and medium enterprises in the nation. The Highlands region is next, with 262340 SMEs, accounting for 22% of all SMEs, and the Southern and Greater South regions are home to 100561 SMEs or 8% of the total. According to these findings, there were more small and medium-sized firms overall between 2016 and 2019. The country's small and medium-sized businesses. The Hauts-Plateaux region will come in second with 270,736 SMEs or 22%, and the South and Grand Sud regions will house 103,558 SMEs or 8.41% of all SMEs. However, the North area had 493 691 SMEs in the initial half of 2021 or 69.58% of all SMEs in the nation. The High Plateaux region came in second with 156 207 SMEs or 22%, and the South and Deep South regions had 59 673 SMEs or 8.41% of the total.

Table 13. Evolution of SMEs by activity sector (2016-2017)

Activity sector		Period				
		2016	**(%)**	**2017**	**(%)**	**Evolution**
1	Agriculture	6130	1.06	6599	1.08	7,65
2	Hydrocarbons, Energy, Mines and related serv	2767	0.48	2887	0.47	4,34
3	BTPH	174848	30.36	179303	29.43	2,55
4	Industries manufacturing	89597	15.56	94930	15.85	5,95
5	Services	302564	52.54	325625	53.44	7,62
	General total	**575906**	**100**	**609344**	**100**	**5,81**

Source: The Department of Statistics, Ministry of Industry and Mines, SME Statistical Newsletters, 2016- 2017

The growth of new businesses between 2016 and 2017 was concentrated in the agricultural and service sectors. In comparison to 89 597 entities on December 31, 2016, there were 94 930 industrial SMEs on December 31, 2017. This represents a rise of 5.95%, which is less than the overall growth rate of SME legal entities (5.81%).

Table 14. Evolution of SMEs (legal persons) by activity sector (2018-2019)

Activity sector		Period				
		2018	**(%)**	**2019**	**(%)**	**Evolution**
1	Agriculture	7168	0,63	7481	0.63	4.37
2	Hydrocarbons, Energy, Mine and related service	2985	0,26	3066	0.26	2.71
3	BTPH	185137	16,21	190170	16.06	2.72
4	Industries manufacturing	99938	8,75	103693	8.71	3.76
5	Services	585983	51,32	614375	51.43	4.85
6	Arts and crafts	260652	22,83	274554	22.90	5.33
	General total	**1141863**	**100**	**1193339**	**100**	**4.51**

Source: The Department of Statistics, Ministry of Industry and Mines, SME Statistical Newsletters, 2018- 2019

The sectors where business creation was strongest between the first two years, 2018 and 2019, remain that of services with 51.48%. There were 103693 industrial SMEs in 2019, compared to 99938 entities on December 31, 2018, with an evolution of 3.76%.

Table 15. Evolution of SMEs by activity sector (2020-2021)

Activity sector		Period				
		2020	**(%)**	**2021**	**(%)**	**Evolution**
1	Agriculture	7540	0,63	7909	0,62	4,9
2	Hydrocarbons, Energy, Mine and related service	3090	0,26	3199	0,25	3,5
3	BTPH	191454	15,83	197937	15,62	3,4
4	Industries Manufacturing	104598	8,65	108762	8,58	4,0
5	Services	622099	51,43	651225	51,39	4,7
6	Arts and crafts	280710	23,21	298188	23,53	6,2
	General total	1209491	**100**	1267220	**100**	4,8

Source: The Department of Statistics, Ministry of Industry and Mines, SME Statistical Newsletters, 2020- 2021

After the first half of 2021, the service sector continued to have the greatest rate of business creation (51.39%). The number of industrial SMEs increased by 4% from 104 598 entities toward the end of the first half of 2020 to 108 762 entities at the end of the same period in 2021.

Conclusion

Become crucial to their success, small and medium-sized businesses are in a strong position both locally and globally. Due to this, we covered a variety of ideas about the economic institution in general in this chapter, including definitions, significance, and functions. We also dealt with SMEs in terms of the various definitions given to them, as well as their goals and significance for economic growth. And the numerous ways they are funded. Finally, we discussed the challenges it encounters and how they restrict its expansion and progress.

It is defined by law and how this industry has evolved over the years. Following the state's promotion, support, and encouragement of participation in SMEs, we developed numerous supporting structures for those businesses.

Then we discussed the issue of innovation in SMEs initially provided, together with the definitions, significance, and features of the most crucial notions regarding innovation. In the end, we attempted to provide the most crucial elements of the innovative process in the organisation, such as strategies and stages, as well as a list of barriers to innovation in the enterprise and the most critical solutions to overcome these barriers.

Finally, we discussed a few aspects of development and how it relates to businesses.

Chapter 2: The determinants of innovation and development in the SMEs

Section 1: Innovation system and scientific R&D policy in Algeria

I. Definition of the innovation system
II. Algeria's national innovation system's effectiveness
III. The main innovation support measures in Algeria
IV. The importance of supporting innovation in SMEs
V. SRT development in Algeria

Section 2: The determinants of innovation

I. Institutional determinants of innovation
II. The organisational determinants of innovation
III. The geographical determinants of innovation
IV. Determinants of innovation related to the entrepreneur

Section 3: The determinants of development

I. Owner of SMEs as a factor for enterprise development
II. The growth dimensions of enterprise
III. External factors related to the environment

Section 4: The determinants of innovation most affecting the development of the SMEs

I. The most important determinant that contributes to innovation
II. Studies about the impact of previous determinants of innovation on the development of the enterprise
- ✓ The management of financial resources;
- ✓ The entrepreneur ;
- ✓ Research and development;
- ✓ Partnership;
- ✓ Environment.

Chapter tow The determinants of innovation and development in the SMEs

Introduction

SMEs worldwide play a key role in shaping the economy. They are a source of economic development and innovation in all industries and provide jobs for the citizens of the countries concerned. Reorganisation. Particularly following alterations to the internal and external environment, such as greater competition and the arrival of some industries, economic enterprises' interest in innovation rose. Although the innovative process within economic enterprises generally, and small and medium enterprises, in particular, necessitates the leader's attention, with the need to provide the necessary resources and make efforts and capabilities to achieve that, it also requires the creation of an appropriate ground and a conducive work environment that embraces innovative ideas and transforms them into products, services, and methods characterised by creativity, imagination, and ingenuity.
It is a prerequisite. To qualify as innovative, a corporation must fulfil several criteria. These businesses were unique due to a few factors, which may be studied and demonstrated for those who aspire to succeed and put a strategy in place to capitalise on them.

They are taken into account by the relevant government bodies when establishing new policies or evaluating those already in place. The crucial role of SME economic and industrial development processes has only recently been understood. It is viewed as a potent weapon for economic development on their terms by underdeveloped countries. The On the other hand, industrialised nations are mainly a significant addition to huge businesses and a source of job growth. Given these details, it is clear why there has been a renewed interest in the SME issue.

The dynamics of this phenomenon are being attempted to be explained by several economists, managers, psychologists, etc., through an ever-growing body of literature. This chapter will discuss development's determinants. The most critical innovation-related elements that impact the expansion of small and medium-sized firms were then covered.

Section one: Innovation system and scientific R&D policy in Algeria

1. Definition of the innovation system

The scientific research and technology policy decided upon at a higher level of guardian authority is one of the elements of the national innovation system. Because the State frequently exerts significant influence over both (military or civilian) guidance and the rate of technical innovation.[1]

Freeman emphasises national security in his definition. Networks of organisations from the public and private sectors that engage in activities and interactions to develop, import, adapt and apply new technologies are referred to as national innovation systems. This innovation system focuses on the social and political institutions that adopt new technologies. [2]

Lundvall defines the national innovation system as A system consisting of elements and relationships that interact in production, publication, and use in an economical manner
of new knowledge within the borders of the country.[3]

According to "**Mariati**," the national innovation system comprises many science and technology systems compounds. Additionally, there are interactions between remote the creation, distribution, and use of new information for economic, defence, or social purposes within national borders.[4]

2. Algeria's national innovation system's effectiveness

Algeria has provided important capabilities while creating the appropriate conditions for developing an innovation policy and making a bridge between universities and institutions by strengthening and financing research centres and creating poles of excellence in various fields. With the involvement of researchers and residents outside.

2.1 The place of the national innovation system in Algerian State politics

The national innovation system became a fundamental option for sustainable growth after the Algerian State opted to liberalise the economy. As a result, it sought to develop national scientific and technical capabilities that

[1] Executive Decree No. 92-22 of 13 January 1992, Official newspaper No. 5 of 22 January 1992

[2] J. NIOSI et al., «National systems of innovation: in search of a workable concept», in French economy Revue, volume 7, n°1, 1992, p 217.

[3] The Organisation for Economic Co-operation and Development (OECD), «National innovation systems», OECD publications service, Paris, France, 1997, P 10

[4] Muhammad Mariati, «9 Policies to Support, Care and encourage National Human Capabilities for Creativity and Innovation», Al-Eqtisadiah Magazine, Saudi Research and Publishing enterprise, 1/5/2009, http://www.Aleqt.com/2009/05/01/article_93729.html, consulted on: 17/03/2022

contribute to the advancement of technology and its use in various industrial domains—motivating scientists to innovate more in the process.
Three layers make up this system:[1]

- **Level one:** It is an executive authority represented by the Prime Minister, as he is the primary one responsible for implementing the policies of the State in various fields, including scientific research and technological development.
- **Level two:** The NIS includes executive authorities represented in ministries, and each ministry contains structures that undertake the process of scientific research and technological development directly or indirectly.
- **Level three:** Various structures engaged in scientific research and technological development, such as national agencies, research centres and units of higher education or other government sectors, and Research laboratories at the level of university structures or economic enterprises.

2.2 Skills and innovation in Algeria

Innovation within SMEs depends on enhancing existing skills and the availability of skills. For example, the majority of companies studied in the Bijaya region do not develop an incentive system that rewards innovative methods in the enterprise and does not have a formal system that values skills.

By contributing to the availability of skills, most research highlights the low level of generosity of the Algerian environment in terms of the technical and managerial skills required by small and medium-sized enterprises. Promoting innovation means making the ecosystem of innovation as interactive as possible. The following explains:[2]

- ✓ Identifying the social status and skills of researchers;
- ✓ Improving the working and living conditions of researchers;
- ✓ Provision of materials and equipment for the work of researchers;
- ✓ Reward for the best-published article;
- ✓ Encouraging internships in the enterprise, providing opportunities to develop practical experience and strengthen relationships;
- ✓ Strengthening international cooperation, allowing young researchers to train abroad to bring foreign expertise to Algeria.

[1] Report about Higher Education and Scientific Research in Algeria, «50 Years in the Service of Development 1962-2012», Ministry of Higher Education and Scientific Research, Algeria, 2012, p94
[2] yassine Mimouni, soufyane Bouguetaia, Ipid, p :5

3. The main innovation support measures in Algeria

There are several key measures to support innovation in Algeria, which aim to sustainably enhance companies' competitiveness by creating an appropriate framework for innovation. Among these main measures, we mention:

3.1 The Sidi Abdellah technology park or cyber park project

The technology business incubator is located in the information barn of Sidi Abdallah, 200 m² away from the intelligent building ciritech. It covers an area of 9800 m² and has sophisticated architecture. It consists of three floors, including the following:[1]

- ✓ A work area of 2150 m²;
- ✓ Two training rooms and two meeting rooms;
- ✓ Nine rooms for the incubated: 3 of them are for the projects before incubation, 3 of them are for the projects in the incubation stage, and 3 of them are for the projects after incubation;
- ✓ Creativity centres belonging to institutions with advanced technology, such as (IBS); (CISCO); (and MICROSOFT) give technology courses to develop their technologies.

The incubator aims to achieve a set of goals:

- ✓ encouraging and assisting in the launch of a cutting-edge business in the sphere of (ICT);
- ✓ Incubating Start-ups wanting to expand, innovate and develop;
- ✓ Offering training sessions to institutions in the specialisations related to (ICT);
- ✓ Enhancing the entrepreneurial spirit of start-ups and ensuring the success of projects to create new enterprises.

This type of Table N.33 and so of the previous studies that mentioned the determinants under study. We conclude that among the many determinants of innovation, these determinants, which will be the subject of our applied study, are among the most important innovative determinants that impact the institution’s development in particular, as well as economic and sustainable development in general .These determinants are related to each other within the enterprise.

First, we have financial resource determinants. An enterprise with substantial financial resources and well-managed internal and external resources has a greater chance of innovating and evolving than others. Financial resources allow for the introduction of new technologies and advanced machinery for their introduction into the process of production and innovation. Second. The entrepreneur is the main engine and the main wheel in the institution and has

[1] Fatima Al-Zahra Bara, Melody oum Al Khair, barken zahia, «Contribution of business incubators to the development of small and the medium enterprises -a case study technology incubator Sidi Abdullah», Annals of the University of Algiers 1, Issue 32, Part 4, December 2018, p 603-604

played an important role in its management from the day of its establishment. And he does everything he can to preserve its continuity and development. It always seeks to achieve development internally and externally for the institution, and innovation is among the most significant factors that support the enterprise's growth. Therefore, the innovative contractor, who has high skills and competencies, and the ability to innovate and be creative, significantly impact the enterprise's development.

Third The research and development function is one of the most important functions within an enterprise. As a determinant of innovation within, it also significantly impacts its evolution. Using an advanced information system to access information and create new products or develop existing ones depends on capacity building and catalytic, proactive and strategic activities. Finally, the human resource determinant. Where there is no doubt that enterprises consider their employees' capabilities when measuring their business's success level, we found that the KPI for measuring innovation-enabled growth across all departments revolves around customer experience and satisfaction. And that institutions realise the importance of the contribution of their employees, as employee productivity comes in second place as the leading indicator for measuring development. Then the partnership because in the specific case of SMEs with limited resources, these collaborative networks are of great importance as they allow them to bridge their resource, skills and knowledge gap. Similarly, Landry and Amara found that the presence of collaborative relationships between enterprises and government research centres, universities, and colleges considerably helps the development of radical innovations in a study on the effect of information sources on the level of originality in an invention. Finally, we have the environment. Because it plays an important role in the enterprise. Because of the more frequent contacts created with local universities, SMEs working in an industry or geographical area with leading suppliers in technological domains and those located in science parks have an edge in their innovation strategy.

of production and innovation activities is considered a pole of economic growth and a factor of industrial restructuring at the heart of the development strategies implemented in recent years. In this context, and following the model of emerging countries, the project to establish a technology park (Technopol) in Sidi Abdallah was launched by an association between the State of Algiers, the Ministry of Post, new information and Communications Technology, Small and medium businesses and handicrafts. The goal is to create an innovation zone with enterprise hotels, business centres, a research centre, and a communications park. Especially a headquarters for the national

promotion and development of technology parks. The cost was about 100 million euros in 2001.[1]

The Sidi Abdellah technology park is structured around three sections: [2]

- An information and research section that aims to:
  - ✓ Establishment of an Information Technology Institute (ITI);
  - ✓ Center for Information Technology Research (CITR) with the integration of sectoral institutions such as the Institute of Communications (ITO);
  - ✓ Center for the Study and Research of Communications (CSRT).
- An enterprise section:
  - ✓ Innovative enterprise;
  - ✓ Start-ups, after their incubation phases and accompaniment, stay for a while before directing them to other more crowded places;
  - ✓ For high-tech product and service companies, an Internet Service Provider platform (ISP).
- An incubation and support section:
  - ✓ Implementation of a system that allows the promotion of incubation and innovation agencies considered as a priority axis;
  - ✓ Incubators;
  - ✓ Seed funds ;
  - ✓ Venture capital institutions (public and private);
  - ✓ Partnerships and alliances.

This cyber park also has a significant impact on the growth of SMEs, which benefits the following:

- ✓ The incubator has an adequate and attractive infrastructure to receive a large number of projects. However, the number of accepted projects is small compared to the number of projects that can be absorbed;
- ✓ Lack of interest in the mental image of the incubator in front of young entrepreneurs has a negative effect on the development of good projects;
- ✓ Lack of sources of funding due to bureaucratic procedures in the Algerian banking sector affecting communication and the granting process;
- ✓ The incubator provides administrative and marketing advisory services but does not live up to the required level;
- ✓ The incubator offers training programs in terms of human resources development, but it lacks specialised techniques that give training more effectiveness;

[1]Amina, «report (Euro-Mediterranean network of investment promotion agencies) », the intelligent Mediterranean, innovation, technological centres and investment attraction, ANIMA note and document n°9, April 2005, P35

[2] Amina Aissat Leghnima, «the difficult promotion of innovative SMEs in Algeria», notebooks of LAB. RII, University of Littoral Cote d'Opale, N°279, February 2014, p14

- ✓ Lack of experience and skill to help small businesses participate in local and international exhibitions and market their products;
- ✓ The contribution of technological incubators to economic growth remains small, and this is confirmed by the low success rates of new projects.

The Sidi Abdellah Cyberpark is part of a government strategy activation of competitiveness poles. The role of the latter is to generate ideas. Research centres and laboratories quickly transform them into products manufactured by these enterprises. To encourage the development of this synergy, the public authorities' contribution is materialised through financial aid and tax exemptions for the elements of this pole.[1]

Concretely, it can be seen that the Sidi Abdellah technopolis project is a component of a convoluted industrial strategy by comparing the experiences of Tunisia and Morocco. On the one hand, the financial budget was set up during the economic recovery period (2001–2004), reflecting the lack of a defined medium- and long-term focus. However, the technology is incorporated into the new city's growth strategy to support other activities (professional training, medical and pharmaceutical research). Add to this barrier the division of responsibilities between the public authorities and Table N.33 and so of the previous studies that mentioned the determinants under study. We conclude that among the many determinants of innovation, these determinants, which will be the subject of our applied study, are among the most important innovative determinants that impact the institution's development in particular, as well as economic and sustainable development in general .These determinants are related to each other within the enterprise.

First, we have financial resource determinants. An enterprise with substantial financial resources and well-managed internal and external resources has a greater chance of innovating and evolving than others. Financial resources allow for the introduction of new technologies and advanced machinery for their introduction into the process of production and innovation. Second. The entrepreneur is the main engine and the main wheel in the institution and has played an important role in its management from the day of its establishment. And he does everything he can to preserve its continuity and development. It always seeks to achieve development internally and externally for the institution, and innovation is among the most significant factors that support the enterprise's growth. Therefore, the innovative contractor, who has high skills and competencies, and the ability to innovate and be creative, significantly impact the enterprise's development.

[1] Sahraoui Lamouri, «The dynamic of accumulation of technological capabilities in Algeria: Case of chemical and pharmaceuticals», PhD thesis in economics, University of Pau and the Pays de l'Adour, 2014, p 193

Third The research and development function is one of the most important functions within an enterprise. As a determinant of innovation within, it also significantly impacts its evolution. Using an advanced information system to access information and create new products or develop existing ones depends on capacity building and catalytic, proactive and strategic activities. Finally, the human resource determinant. Where there is no doubt that enterprises consider their employees' capabilities when measuring their business's success level, we found that the KPI for measuring innovation-enabled growth across all departments revolves around customer experience and satisfaction. And that institutions realise the importance of the contribution of their employees, as employee productivity comes in second place as the leading indicator for measuring development. Then the partnership because in the specific case of SMEs with limited resources, these collaborative networks are of great importance as they allow them to bridge their resource, skills and knowledge gap. Similarly, Landry and Amara found that the presence of collaborative relationships between enterprises and government research centres, universities, and colleges considerably helps the development of radical innovations in a study on the effect of information sources on the level of originality in an invention. Finally, we have the environment. Because it plays an important role in the enterprise. Because of the more frequent contacts created with local universities, SMEs working in an industry or geographical area with leading suppliers in technological domains and those located in science parks have an edge in their innovation strategy.
in charge of the site's management.[1]

3.2 The SME Support Programme

As part of policy innovation, the Algerian public authorities have put in place a programme to assist and support technological innovation, which consists of encouraging companies to engage in innovation and development and the application of new technologies. Instruments of government policy that favour innovation in Algeria are tax incentives, direct financial aid and support services for technological development.[2]

- Aid for innovation
  - ✓ Tax credits;
  - ✓ Financial aid;
- Relays and support structures

[1] Mezouaghi M, «The emergence of technopoles in the Maghreb countries: factors of industrial integration of ICT or institutional mimicry? Colloquium» Mediterranean Economy Arab World. Sousse 20-21 December 2002, p 14

[2] Houria ould moussa-ouchalal, «access to technology, innovation and practices research and development in the community Algerian public industrialist», PhD on economics, faculty of economics, commercial and management sciences, Mouloud mammeri university of Tizi ouzou, 2016, p 158-159

- ✓ The ACCI, or Algerian Chamber of Industry and Commerce;
- ✓ The Local Algerian Chamber of Investment Promotion (LACIP);
- ✓ Research Center for Technical and Scientific Information (RCSTI).

3.3 The national agency for the valorisation of research results and technological development

Concretely, it can be seen that the Sidi Abdellah technopolis project is a component of a convoluted industrial strategy by comparing the experiences of Tunisia and Morocco. On the one hand, the financial budget was set up during the economic recovery period (2001–2004), which reflects the lack of a clearly defined medium- and long-term focus.

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in charge of the site's management. A board of directors representing holding companies, small and medium-sized businesses, and the Chambers of Agriculture, Commerce, and Industry oversees Table N.33 and so of the previous studies that mentioned the determinants under study. We conclude that among the many determinants of innovation, these determinants, which will be the subject of our applied study, are among the most important innovative determinants that impact the institution’s development in particular, as well as economic and sustainable development in general .These determinants are related to each other within the enterprise.

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It is a government organisation with a commercial and industrial focus under the minister in charge of research supervision. Trans Its goal is to carry out the country's technical development policy by transforming and valuing search results citation in the exploitation of research results;

- ✓ Promoting and supporting each technology development and Inclusion of innovative work;
- ✓ Developing cooperation and exchange, especially towards small and medium-sized enterprises;
- ✓ Assisting inventors in patent protection.

The Law of August 1998 represents a considerable departure from Algeria's earlier scientific and technological planning methods and an actual turning point. The following were the characteristics of the time preceding Law No. 98-11 of August 22, 19981, which was a five-year planning and guidance law for scientific research and technical development:[1]

- ✓ The illegibility of the search system;
- ✓ Institutional and organisational instability ;
- ✓ The inadequacy of research programmes with economic and social development objectives.

[1]Ait Atman Foudil, «test analysing the determinants of innovation in the Algerian economy: Case of the agri-food sector of Béjaia», PHD on Economic Dynamics, Local Development and Territories, faculty of economics, commercial and management sciences, Abderrahmane Mira university, Bejaia, 2011, p 113

Law No. 98-11 on Scientific Research and Technological Development called for the construction of an institutional research building capable of ensuring the stability of the institutions to address the discontinuity that has characterised the perception and role of research in Algeria as well as the actions taken by the succeeding institutions at the head of research.
Mission sustainability, goal coherence, and the mobilisation of human talent and material and financial resources.
We note that the discourse of the State is far from consistent with reality. Despite the significant flight of Algerian scientists, no action was taken to stop them from fleeing. Another point that constitutes a substantial handicap in the research system. This also shows the need for an actual policy on the promotion of research and, therefore, innovation. Already since 1996, Algeria was still far from the standard of 1% of GNP intended for research.[1]

3.4 The Algerian National Institute of Industrial Property (ANIIP)

It is an industrial and commercial public enterprise. Since it has a civil identity and financial independence, the Ministry of Industry is entrusted with watching it. It came into being in 1963. Within the parameters of current laws and regulations, the Institute carries out the national policy on industrial property, focusing particularly on protectingtors' moral rights.
Regarding invention and scientific investigation, its duties are:[2]

- ✓ Protection of industrial property rights,
- ✓ Stimulating and supporting creative and innovative capacity,
- ✓ Facilitating access to technical information found in patent documents.

It can also conduct surveys of companies to identify innovations that may be taking place. Intellectual property statistics in Algeria (2011-2020):[3]

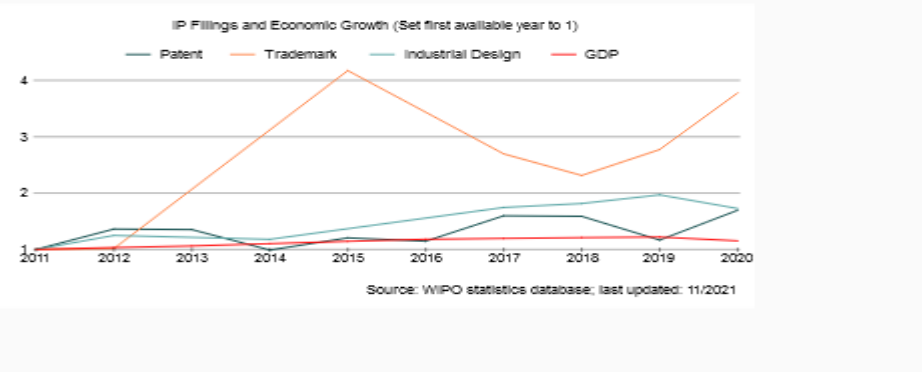
[1] Berrached wafaa, «Analysis of the key determinants that stimulate innovation in SMEs. phd letter on marketing», university of Aboubakr Belkaid, Tlemcen, 2015, p 201
[2] Executive Decree 98-68, dated 21 Fiffrey 1998, published in the Official newspaper No. 11 of 1 March 1998
[3] WIPO, Intellectual property statistics in Algeria, https://cutt.us/rHMk2, consulted on 5 January 2022

Table 16. Economy and IP Filings (Resident + International, Including Regional)

Year	Patent	Trademark (class count)	Industrial Design (design count)	GDP (Constant 2017 US$)
2011	102	3.577	699	406.14
2012	139	3,634	873	419.95
2013	138			431.71
2014	101		825	448.12
2015	123	14,929		464.70
2016	117			479.57
2017	163	9,644	1,220	485.80
2018	162	8,274	1,269	491.63
2019	119	9,919	1,376	495.56
2020	173	13,513	1,207	468.40

Source: WIPO, Intellectual property statistics in Algeria, https://cutt.us/rHMk2 consulted on January 5, 2022,

Figure 14: IP Filings (Resident + Abroad, Including Regional) and Economy



Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022,

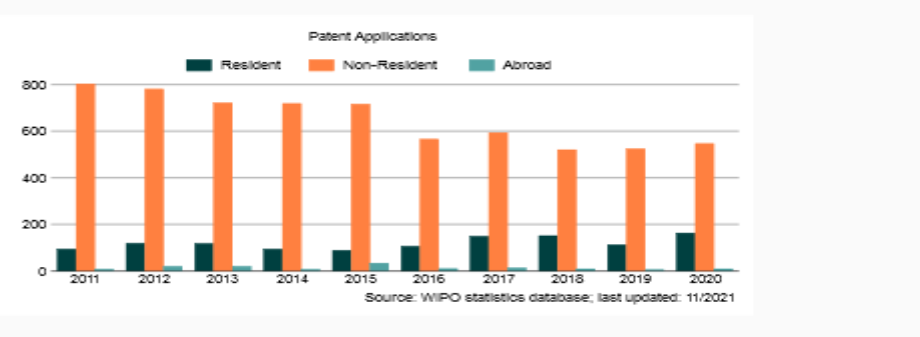
We can see from the above table and figure that there was an increase in Algerian intellectual property filings from 2011 to 2020. In terms of patents, there has been gradual growth, with 102 patents submitted in 2011 and 173 in 2020. Regarding trademark filings, 3577 were made in 2011 and 13 513 in 2020, a huge rise. Additionally, the number of industrial designs filed has increased from 699 in 2011 to 1,207 in 2020.

Table 17: Patent Applications

Year	Resident	Non-Resident	Abroad
2011	94	803	8
2012	119	781	20
2013	118	722	20
2014	94	719	7
2015	89	716	34
2016	106	566	11
2017	149	594	14
2018	152	521	10
2019	113	525	6
2020	163	547	10

Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

Figure 15: Patent Applications



Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ consulted on January 5, 2022

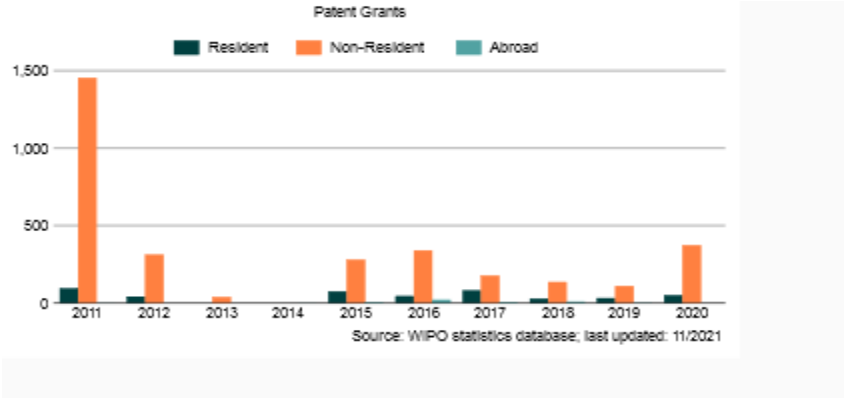
Table No. 17 and Figure No. 15 represent patent applications by Algeria in the period between 2011-2020, which were divided into three categories: There are citizens of the country, non-citizens, and foreigners. There was a modest rise in the number of patent applications for citizens; in 2011, 94 applications were filed, and in 2020, 163 were. The number of patent applications filed by non-residents has declined from 803 in 2011 to 547 in 2020. Last but not least, the number of patent applications filed abroad changed from eight in 2011 to 34 in 2015 and then 10 in 2020.

Table 18: Patents granted

Year	Resident	Non-Resident	Abroad
2011	93	1453	1
2012	41	311	
2013		37	
2014			1
2015	74	279	5
2016	44	339	20
2017	80	176	5
2018	27	135	8
2019	31	109	3
2020	49	372	

Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

Figure16: Patents granted



Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

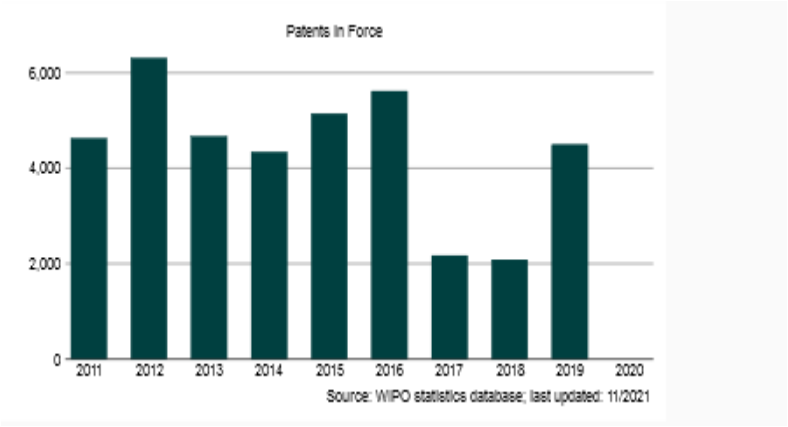
Table No. 18 and Figure No. 16 represent patenting for Algeria from 2011 to 2020 .It is also divided into three categories: residents, non-residents and abroad. For the first category of residents, 93 patents were granted in 2011, and the number decreased to 41 in 2012. In 2015, the number increased to 74 and reached 80 in 2017, falling to 49 in 2020. For the non-resident category, 1,453 patents were granted in 2011, after which the number began to decrease to 372 in 2020. The number of patents issued in a category outside of the country is on the fingers; in 2011, one patent was awarded, and from there, the grant climbed significantly to 20 in 2016, fell, and finally, in 2019, just three patents were granted.

Table 19: Patents in force

Year	Patents in Force
2011	4.625
2012	6,308
2013	4,666
2014	4,340
2015	5,145
2016	5,618
2017	2,171
2018	2,084
2019	4,496
2020	

Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

Figure 17: Patents in force



Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

We note through table No. 19 and figure No. 17 relating to patents applicable to Algeria between 2011 and 2020. The number of secret patents fluctuated during this period, with 4,625 in 2011 and rising to 6,308 in 2012. Then it increased to 5,145 in 2015 and then decreased to 2,171 in 2018. Then the number increased to 4,496.

Table 20: Number of Classes Specified in Trademark Applications

Year	Resident	Non-Resident	Abroad
2011	3.456	7.605	121
2012	3,477	7,171	157
2013			235
2014			654
2015	14,483	11,968	446
2016			808
2017	8,104	9,586	1,540
2018	7,082	8,753	1,192
2019	9,589	9,161	330
2020	12,350	7,765	1,163

Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

Table No. 20 is related to the number of items associated with the Number of Classes Specified in Trademark Applications for Algeria during 2011-2020. It is also divided into three categories: residents, non-residents and abroad. For the category of residents, the number of specified items was 3456 in 2011, and it began to rise until it reached 12350 in 2020. As for the category of non-residents, the number was 7605 in 2011, then it grew to 11,968 in 2015, and then it decreased again to reach 7765 in 2020. Finally, the number of Classes Specified in the trademark for a group abroad from 121 in 2011. Then it started to rise until it reached 1163 in 2020.

Table 21: Number of Classes Specified in Trademark Registrations

Year	Resident	Non-Resident	Abroad
2011	1.894	8.148	19
2012	2,251	9,265	54
2013			303
2014	351	4,759	1,834
2015	3,335	7,891	424
2016			235
2017	5,651	12,934	449
2018	4,034	10,246	1,394
2019	4,271	15,223	782
2020	7,916	9,818	538

Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

Table No. 21 relates to the number of classes specified in Algeria's trademark registrations in 2011-2020. And according to three categories: residents, non-residents and abroad. For the resident category, there were 1894 registered courses in 2011, followed by a rise to 5651 in 2017, a drop to 4271 in 2019, and an increase to 7916 in 2020. There were 8,148 classes for non-residents in 2011, 12,934 in 2017, 15,223 in 2019, and 9,818 in 2020, respectively. Last but not least, the category "abroad," which had 19 categories registered in 2011 and 2014, surged to 1,834 in 2014, declined to 235 in 2016, increased to 1,394 in 2018, and then decreased to 538 in 2020.

Table 22: Number of Designs in Industrial Design Applications

Year	Resident	Non-Resident	Abroad
2011	699	104	
2012	873	194	
2013			
2014	825	95	
2015			
2016			1
2017	1,181	152	39
2018	1,033	385	236
2019	1,358	324	18
2020	1,207	265	

Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

Table 23: Number of Designs in Industrial Design Registrations

Year	Resident	Non-Resident	Abroad
2011	95	53	
2012	391	102	4
2013			
2014	115	6	2
2015			
2016			
2017			37
2018	432	188	239
2019			1
2020	646	217	25

Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

The number of designs in Algerian industrial design applications from 2011 to 2020 is shown in Table 22. based on the three categories of locals, visitors, and foreigners. For the first one, there were 95 designs in 2011, increasing to 391 in 2012, dropping to 115 in 2014, and then going unrecorded until 2018, when there were 432 registered, growing to 646 in 2020. Regarding non-residents, 35 items were recorded in 2011, 102 in 2012, and just 6 designs were registered in total in 2014. Following that, no more plans were reported until 2018, when 188 registered designs were, followed by 217 in 2020.

Table 24: Applications via WIPO-Administered Treaties

Year	PCT System	Madrid System	Hague System
2011	4	10	
2012	4	14	
2013	8	1	
2014	7		
2015	8	11	
2016	13	3	
2017	12	20	
2018	16	31	
2019	9	7	
2020	14	15	

Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

Table No. 24 represents Algeria's patent applications through the institutes administered by WIP from 2011 to 2020. There are three institutes: the patent convention system (PCT), the Madrid System and the Hague system. The latter has not been claimed for any patent. As for the PCT system, four patents were applied for in 2011, then the number of applications increased to 13 in 2016 and then decreased to 9 in 2019 and then increased to 14 in 2020 applications .As for the Madrid system, ten patents were applied for in 2011, then 14 in 2012, dropping to one in 2013. Until 2015, 11 applications were registered, rising to 20 in 2017, then 31 in 2018, falling to 7 in 2019 and then rising again to 15 in 2020.

Table 25: PCT National Phase Entry (Direct and via Regional Office)

Year	Resident	Non-Resident	Abroad
2011		766	2
2012		738	16
2013		676	1
2014		701	3
2015		696	29
2016		535	
2017		574	3
2018		497	4
2019		503	
2020		541	1

Source: WIPO, Intellectual property statistics in Algeria, https://2u.pw/9IUuQ, consulted on January 5, 2022

The table PCT National Phase Entry according to three categories: residents, non-residents and abroad. For the first category, there were no patent has been registered. The second category, 766, was recorded in 2011 and then witnessed an increase and decrease until the number reached 541 in 2020. As for the type abroad, the country registered 2 in 2011. Then the number increased to 16 in 2012, then 1 in 2013, and then rose to 29 in 2015 to drop the number back to 1 in 2020.

4. The importance of supporting innovation in SMEs

SMEs suffer from several obstacles related to organisational aspects and performance in management. Because the management process often takes a traditional form that aims primarily to achieve profit and expansion in the market in exchange for limited spending on ways to develop the enterprise's performance and its Table N.33 and so of the previous studies that mentioned the determinants under study. We conclude that among the many determinants of innovation, these determinants, which will be the subject of our applied study, are among the most important innovative determinants that impact the institution’s development in particular, as well as economic and sustainable development in general .These determinants are related to each other within the enterprise.

First, we have financial resource determinants. An enterprise with substantial financial resources and well-managed internal and external resources has a greater chance of innovating and evolving than others. Financial resources allow for the introduction of new technologies and advanced machinery for their introduction into the process of production and innovation. Second. The entrepreneur is the main engine and the main wheel in the institution and has

played an important role in its management from the day of its establishment. And he does everything he can to preserve its continuity and development. It always seeks to achieve development internally and externally for the institution, and innovation is among the most significant factors that support the enterprise's growth. Therefore, the innovative contractor, who has high skills and competencies, and the ability to innovate and be creative, significantly impact the enterprise's development.

Third The research and development function is one of the most important functions within an enterprise. As a determinant of innovation within, it also significantly impacts its evolution. Using an advanced information system to access information and create new products or develop existing ones depends on capacity building and catalytic, proactive and strategic activities. Finally, the human resource determinant. Where there is no doubt that enterprises consider their employees' capabilities when measuring their business's success level, we found that the KPI for measuring innovation-enabled growth across all departments revolves around customer experience and satisfaction. And that institutions realise the importance of the contribution of their employees, as employee productivity comes in second place as the leading indicator for measuring development. Then the partnership because in the specific case of SMEs with limited resources, these collaborative networks are of great importance as they allow them to bridge their resource, skills and knowledge gap. Similarly, Landry and Amara found that the presence of collaborative relationships between enterprises and government research centres, universities, and colleges considerably helps the development of radical innovations in a study on the effect of information sources on the level of originality in an invention. Finally, we have the environment. Because it plays an important role in the enterprise. Because of the more frequent contacts created with local universities, SMEs working in an industry or geographical area with leading suppliers in technological domains and those located in science parks have an edge in their innovation strategy.

in the first place and research and development in the second place.

Small and medium enterprises always find themselves in the shadow of many transformations, facing the risk of stopping the activity or leaving the market.

They are compelled to adopt an organisational change concept and adjust to advancements in creativity and innovation to take advantage of chances and alternatives, or they must hire foreign professionals for the same goal.

The success of an enterprise in general and the continuity of its activity do not depend only on the maximisation of profits and investment gains. Enterprises often build development strategies so that it works to know the nature of the transformations taking place in their surroundings. And the specificity of the

environment in which it is active. In this context, it becomes necessary to take care of creation and innovation to improve performance in the enterprise.[1]

4.1 Innovative performance in Algeria

(WIPO). The World Intellectual Property Organization, a specialised UN agency, Cornell University, INSEAD and together publish the Global Innovation Index (GII). [2] It allows decision-makers at the level of economic institutions and innovation policy-makers, implementers and others to monitor the effectiveness of their strategies, evaluate them, and correct deviations.[3]

- **Some statistics on Algeria's ranking by the global innovation index (2017-2021)**

These statistics are:[4]

The table below displays Algeria's rankings for the years 2017 through 2019.

It should be noted that the GII model and data accessibility affect how the GII ranks compare from year to year. Algeria's 2019 GII ranking's confidence interval range is 109–118.

Table 26: Algeria's Rankings(2017 – 2019)

GII	Innovation Inputs		Innovation Outputs
2019	113	100	118
2018	110	100	116
2017	108	105	117

source: The global innovation index, 2019, p :1

- Algeria performs in Innovation Inputs better than Outputs;
- In 2019, Algeria ranked 100th in Innovation Inputs, the same as 2018 and better compared to 2017;
- As for Innovation Outputs, Algeria ranks 118th. This position is worse than in 2018 and compared to 2017.
- In 2019, Algeria ranked 34th among the 34 upper-middle-income economies,
- In 2019, Algeria ranked 18th among the 19 economies in Northern Africa and Western Asia.

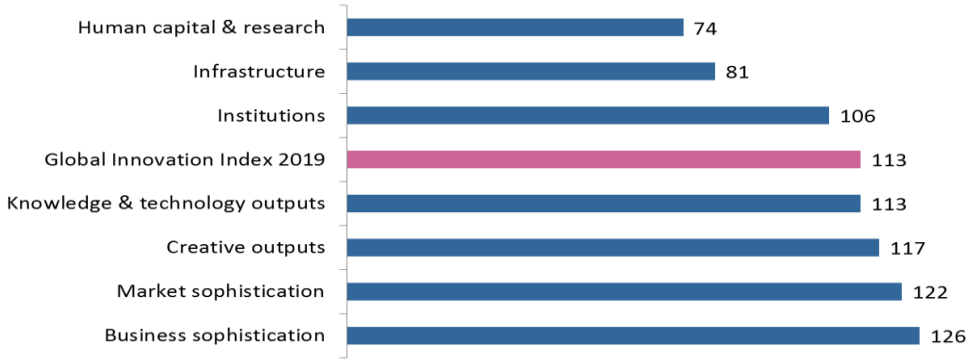
[1] Safi Abdel Qader, « The contribution of innovation to the development and promotion of emerging enterprises», the manager journal, University of Algiers 3, Volume 8, No. 1, 2021, p286

[2] The global innovation index, 2019, p 9

[3] Waleed sharara, Opcit, p 204

[4] The global innovation index, Algeria, 2021, p 1

figure 18: The seven GII pillar ranks for Algeria (2019)



source: The global innovation index, 2019, p:5

- Algeria performs the best in Human capital & research, and its weakest performance is in Business.

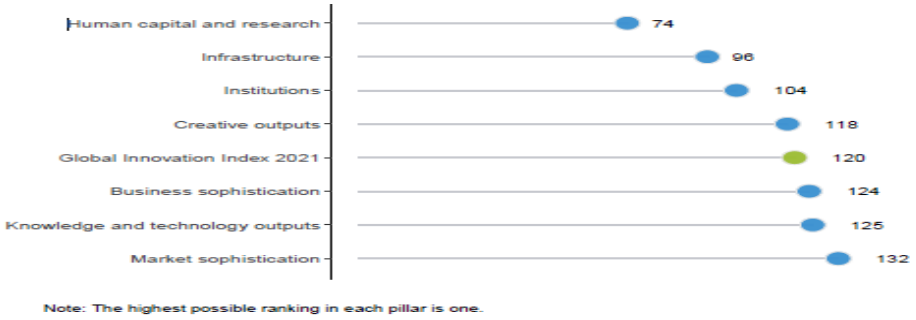
Table 27: Algeria's Rankings(2019 – 2021)

GII	Innovation Inputs		Innovation Outputs
2021	120	109	128
2020	121	111	126
2019	113	100	118

source: The global innovation index, Algeria, 2021, p :1

- Algeria performed better in innovation inputs than innovation outputs in 2021;
- In 2021, Algeria ranks 109th in innovation inputs, higher than in 2020 but lower than in 2019;
- As for innovation outputs, Algeria ranks 128th. This position is lower than in both 2020 and 2019.
- In 2021, Algeria ranked 29th among the 34 lower-middle-income group Economies ;
- In 2021, Algeria ranks 18th among the 19 economies in Northern Africa and Western Asia.

Figure 19: The seven GII pillar ranks for Algeria (2021)



source: The global innovation index, 2021, p:5

Algeria performs best in Human capital and research, and its weakest performance is in Market sophistication.

Table 28: Innovation strengths and weaknesses in Algeria (2021)

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
2.2	Tertiary education	31	2.3.3	Global corporate R&D investors, top 3, mn US$	41
2.2.1	Tertiary enrolment, % gross	59	2.3.4	QS university ranking, top 3	74
2.2.2	Graduates in science and engineering, %	8	3.1.4	E-participation	131
2.3.1	Researchers, FTE/mn pop.	54	4.1.1	Ease of getting credit	129
2.3.2	Gross expenditure on R&D, % GDP	62	4.2.1	Ease of protecting minority investors	130
3.2	General infrastructure	50	4.2.2	Market capitalization, % GDP	75
3.2.3	Gross capital formation, % GDP	10	5.2.3	GERD financed by abroad, % GDP	101
3.3.1	GDP/unit of energy use	64	5.2.5	Patent families/bn PPP$ GDP	100
4.3.3	Domestic market scale, bn PPP$	42	6.3.3	High-tech exports, % total trade	129
5.2.2	State of cluster development and depth	57	7.1.2	Global brand value, top 5,000, % GDP	80
5.3.2	High-tech imports, % total trade	49			
7.1.3	Industrial designs by origin/bn PPP$ GDP	40			

source: The global innovation index, 2021, p:6

4.2 The situation of Algerian SMEs with innovation

Innovative SMEs are generally located in 5-10% of the fastest-growing enterprises and most OECD countries. These enterprises create more jobs than big ones. It should also be noted that these enterprises, generally high-tech companies, have research and development activities. And they are located mainly in knowledge-intensive sectors and regions characterised by intense economical activity and high corporate concentration, generally integrated into formal or informal networks.

The term "innovative SMEs" refers to SMEs that take a considered approach to manufacturing new products, improving their current outcomes or adjusting their management processes (production, marketing and regulation...) to significantly increase their operations' effectiveness.

Algerian SMEs were marginalised until the end of the 1980s in favour of the large dimension. It has evolved in a very unfavourable environment and focused on routine treatment activities with low value-added and technological intensity. SMEs have not only recently started to receive special attention from public

authorities due to the advent of economic reforms to liberalise the economy in the early 1990s.

The SME sector also benefited from a program to increase industrial competitiveness and develop technical support and industry advisory services. The aim is to stimulate innovation in these companies.[1]

5. Scientific research and technological development in Algeria

Algeria aspires to increase its capacity for technological advancement and scientific research. This is done by constructing its scientific research system to meet challenges and impediments, particularly the issue of academic integration, without creating delays.

5.1 The status of higher education in Algeria

After the 1980s, as the number of universities, university centres, higher institutes, schools, and structures rose, the higher education sector in Algeria experienced enormous expansion. Additionally, there are more students than before.

Algeria has needed to put in a tremendous effort for 50 years to meet new demands. It was necessary to create, expand, and widen a high education and scientific research system that would span the entire national territory and all scientific specialities. Most of the goals established in 1962, given the situation at the time, have been satisfied in most of their numeric criteria. According to several indicators and estimates made today, it is generally reached in terms of quality in terms of the number of universities

Algeria has had three universities since its independence in 1962: the Universities of Algiers, Constantine, and Oran. Today, fifty years later, the national territory of Algeria is covered by 106 higher education institutions scattered throughout 48 states. There are 50 universities, 13 university centres, 20 National High Schools, 10 higher education institutions, 11 teacher preparation high schools, and 2 university annexes.

5.1.1 In terms of the number of students

The number of Algerian students in 1961 at the University of Algiers, Oran and Constantine was 1317. Less than ten years later, the number is 9.5 times higher. In 2011, there were 1,200,000 students. In less than 50 years of independence, students have doubled to 1,000 times.[2]

- There are some statistics about the increase in the number of students between 196-2018 in the

[1] Yassine Mimouni, « Bouguetaia soufyane, skills and innovation in Algeria: a case study on innovative SMEs in the ICT sector», development and applied economics journal, university of Mssila, issue, p4

[2] Report on higher « education and scientific research in Algeria: 50 years in the service of development 1962-2012», Ministry of Higher Education and Scientific Research, Algeria, p 32

Algerien universities:[1]

Table 29: The development of the number of Algerian university students from 1962 to 2018

Years / students	1962 1963	1969 1970	1979 1980	1989 1990	1999 2000	2009 2010	2010 2011	2017 2018
Graduation students	2725	12243	57445	181350	407995	1034313	1077945	/
Post-graduate students	156	317	3965	13967	20846	58975	60617	/
Total	2881	12560	61410	195317	428814	1093288	1138562	10730000

Source: Smati Hatem, Guendouze Mahmoud, Statistics on the University of Algeria 1962-2018, Menara Journal of Sociology Studies, Volume 1, Issue 2, p:8

Minister Hajjar presented during his participation in the international symposium on higher education in Paris that it was moved from 3 students per 10,000 inhabitants to about 400 students per 10,000 inhabitants in 2018/2017 to reach 1730,000 students in the same year. This number is going to rise. And it is expected to reach 3.5 million in 2030. The Minister stressed that this increase in the number of universisults from a democratisation policy and free higher education. He also said that 80% of students benefit from scholarships and about 50% live in university districts.[2]

Table 30: Student rate Student by sex

yers / sex	1972	1992	2002	2011	2018
registered males	77%	61%	50%	41%	35%
registered females	23%	39%	50%	59%	65%

Source: Smati Hatem, Guendouze Mahmoud, Statistics on the University of Algeria 1962-2018, Menara Journal of Sociology Studies, Volume 1, Issue 2, p 8

Through the table, we note the evolution of the percentage of students in terms of sex. In 1972, the rate of female students was only 23%, and males were 77%. This is due to the lack of higher education institutions and the lack of jobs and females going to work. In 2018, the percentage increased to 65% females and 35 % males. This is explained by the country's need for the feminist element to

[1] Hatem Smati, Mahmoud Guendouze, « Statistics on the University of Algeria 1962-2018, Menarat Journal of Sociology Studies», Volume 1, Issue 2, 2019, p 8-9

[2] Ilhem Bouthelghi, « 2 million students at Algerian universities in 2019», official Al Shorouk newspaper, 26 /5/ 2018, https://bit.ly/3tIjf6m, consulted on 28/03/2022

contribute to social and economic development as well as women's intrusion into work in all fields.

5.1.2 In terms of the development of the number of teachers and their ranks

The Algerian University has experienced a development in the number and rank of professors for the 50 years after independence. Between 1962 and 2018, the number of instructors and their ranks changed, as shown in the following table:

Table 31: The number and rank of teachers between 1962-2018

Years / Levels	1962 1963	1969 1970	1979 1980	1989 1990	1999 2000	2009 2010	2010 2011	2017 2018
Teachers of higher education	66	80	257	537	950	2847	3186	/
lecturer professor	13	112	463	905	16112	/	/	/
lecturer professor A	/	/	/	/	/	4562	4817	/
lecturer professor B	/	/	/	/	/	2352	2835	/
lecturer	/	/	/	1958	6632	/	/	/
Assistant Professor	74	167	2494	6839	6275	/	/	/
Assistant Professor A	/	/	/	/	/	15517	16681	/
Assistant Professor B	/	/	/	/	/	11844	12101	/
Assistant	145	483	4283	4261	1991	539	520	/
Total	**298**	**842**	**7497**	**14536**	**17460**	**37688**	**40140**	**60.000**

Source: Smati Hatem, Guendouze Mahmoud, Statistics on the University of Algeria 1962-2018, Menara Journal of Sociology Studies, Volume 1, Issue 2, p:10

The table shows us that in 1962 there were 298 professors in all existing grades, most foreign professors. Because no teachers formed after independence, the authorities appealed to professors from Arab countries and even from the European states. In 2011, the total number of teachers at all levels was more

than 40,000, and in the 2017-2018 academic year, there were 60,000 professors at the university, where the percentage of female professors represented 47%.[1]

5.1.4 In terms of research bodies in Algeria

The scientific research bodies in Algeria have gone through several stages. The Research Council was established immediately after independence in 1963, But it didn't stay much and was resolved in 1966. Then the scientific research bodies follow their guardian's bodies. Where the President of the republic and the prime Minister deliberated on guardianship between 1982 and 1991. Then the Ministry of Education between 1992 and 1994. When a designated ministry for research was established in 2000, replacing the Ministry of Higher Education and Scientific Research, the Ministry of Higher Education thereafter took over the supervision and operation of these Table N.33 and so of the previous studies that mentioned the determinants under study. We conclude that among the many determinants of innovation, these determinants, which will be the subject of our applied study, are among the most important innovative determinants that impact the institution’s development in particular, as well as economic and sustainable development in general .These determinants are related to each other within the enterprise.

First, we have financial resource determinants. An enterprise with substantial financial resources and well-managed internal and external resources has a greater chance of innovating and evolving than others. Financial resources allow for the introduction of new technologies and advanced machinery for their introduction into the process of production and innovation. Second. The entrepreneur is the main engine and the main wheel in the institution and has played an important role in its management from the day of its establishment. And he does everything he can to preserve its continuity and development. It always seeks to achieve development internally and externally for the institution, and innovation is among the most significant factors that support the enterprise’s growth. Therefore, the innovative contractor, who has high skills and competencies, and the ability to innovate and be creative, significantly impact the enterprise’s development.

Third The research and development function is one of the most important functions within an enterprise. As a determinant of innovation within, it also significantly impacts its evolution. Using an advanced information system to access information and create new products or develop existing ones depends on capacity building and catalytic, proactive and strategic activities. Finally, the human resource determinant. Where there is no doubt that enterprises consider their employees' capabilities when measuring their business's success level, we found that the KPI for measuring innovation-enabled growth across all

[1] Rabah Turki, « Origins of Education», Edition 2, University Publications Bureau, Algeria, 1999, p 213

departments revolves around customer experience and satisfaction. And that institutions realise the importance of the contribution of their employees, as employee productivity comes in second place as the leading indicator for measuring development. Then the partnership because in the specific case of SMEs with limited resources, these collaborative networks are of great importance as they allow them to bridge their resource, skills and knowledge gap. Similarly, Landry and Amara found that the presence of collaborative relationships between enterprises and government research centres, universities, and colleges considerably helps the development of radical innovations in a study on the effect of information sources on the level of originality in an invention. Finally, we have the environment. Because it plays an important role in the enterprise. Because of the more frequent contacts created with local universities, SMEs working in an industry or geographical area with leading suppliers in technological domains and those located in science parks have an edge in their innovation strategy.

. Afterwards, in 2008, the General Directorate of Scientific Research and Technological Development was created. The stages of scientific research Table N.33 and so of the previous studies that mentioned the determinants under study. We conclude that among the many determinants of innovation, these determinants, which will be the subject of our applied study, are among the most important innovative determinants that impact the institution's development in particular, as well as economic and sustainable development in general .These determinants are related to each other within the enterprise.

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s have undergone are displayed in the following table.

Table 32: The development of research bodies in Algeria

Bodies	Created	Guardian	Resolved
Research Council	1963	/	1968
Organization of Scientific Cooperation	1968		1971
Interim Council for Scientific Research	1971		1973
National Organization for Scientific Research	1973	MES	1983
Renewable Energy Commission	1982	President of the Republic	1986
Commission for Scientific and Technical Research	1984	prime Minister	1986
High Commission for Scientific Research	1986	President of the Republic	1990
Delegated Ministry of Research and Technology	1990	prime Minister	1991
Delegated Ministry of Research and Technology	1991	the prime Minister	1991
State Secretariat for Research	1991	Ministry of Universities	1992

State Secretariat	1992	Ministry of National Education	1993
Delegate Ministry for Universities and Research	1993	Ministry of National Education	1994
delegated ministry for research was established, stemming from the Ministry of Higher Education	2000	Ministry of Higher Education and Scientific Research	To this day
Office of the General Director of Scientific and Technological Development	2008	Ministry of Higher Education and Scientific Research	To this day

Source: Smati Hatem, Guendouze Mahmoud, Statistics on the University of Algeria 1962-2018, Menara Journal of Sociology Studies, Volume 1, Issue 2, p12

5.2 Law No. 98/11's national policy for technological advancement and scientific research

The National Research and Technological Development Policy is primarily shaped by the 1998 Directive Act on Scientific Research and Technological Development.

The following points serve as a summary of this Act's primary goals: [1]

- Strengthening the country's scientific and technological foundations;
- Identify and collect the necessary means for scientific research and technological development;
- Rehabilitation of the research function in institutions of higher education and research and encouragement to value its results;
- Strengthening State funding for scientific research and technological development activities;

5.2.1 Bodies responsible for scientific research and technological development

To strengthen the scientific research and technological development sector, scientific bodies have been established from independence to the present day. Includes:

- **Intersectoral committees:** To promote, program, and evaluate scientific and technical research. Its functions are:[2]
  - ✓ Studying and proposing research and development programs;

[1] The People's Democratic Republic of Algeria, Official newspaper, No. 62 of 24 October 1998, p 4

[2] The People's Democratic Republic of Algeria, Official newspaper, Executive Decree No. 92-22 of 12 January 1992, No. 5 of 22 January 1992

Table N.33 and so of the previous studies that mentioned the determinants under study. We conclude that among the many determinants of innovation, these determinants, which will be the subject of our applied study, are among the most important innovative determinants that impact the institution's development in particular, as well as economic and sustainable development in general .These determinants are related to each other within the enterprise.

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- ✓ of consultation between the department, research bodies and economic institutions directly ;
- ✓ Giving preference to collaborative and interdisciplinary research ;
- ✓ Study and propose procedures for investing research results.

- **At the level of each ministerial department, there are permanent sectorial committees for technical development** and scientific research.
- It is in charge of modernising the sector's technological and scientific research and development efforts.
- Within the context of national policy framework science research, it coordinates and assesses actions related to intersectoral research and technology development. [1]
- **Scientific Research and Technological Development** Directorate-General:
- Article 14 of Act No. 98-11 specifies the responsibilities of this Directorate, which collaborates with other sectors to carry out the National Scientific Research and Technological Development Policy. [2]
  - ✓ Implementation of the Regulations of the Law on Programming ;
  - ✓ Evaluation and institutional organisation;
  - ✓ human resource development ;
  - ✓ university research ;
  - ✓ Technological and engineering development;
  - ✓ Scientific and technical media;
  - ✓ Scientific cooperation;
  - ✓ Evaluation of scientific research results;
  - ✓ Coordinating scientific and technological research activities collectively with other sectors.
- **Algerian Academy of Sciences and Technologies**: It is a national body of a scientific and technological nature. It lasts forever and stands alone. High-calibre domestic and international experts in science and technology are included. Additionally, this academy works closely with the President of the Republic to accomplish the following:[3]
  - Contribution to the promotion of science and technologies and their applications;
  - Contribution to the development of science and technology education;
  - Promoting the development of scientific and technical culture by

[1] The People's Democratic Republic of Algeria, Official newspaper, Executive Decree No. 99-243 of 31 October 1999, No. 77 of 03 November 1999

[2] The People's Democratic Republic of Algeria, Official newspaper, Act No. 98-11 of 22 October 1998, No. 62 of 24 October 1998

[3] The People's Democratic Republic of Algeria, Official newspaper, Presidential Decree No. 15-85 of 10 March 2015, No. 14 of 25 March 2001

bringing science and technology closer to society;
- Promoting scientific and technological life and supporting the production of knowledge.

- **National Council for Scientific and Technical Research:** The Prime Minister's advisory body. It outlines the primary objectives of the National Policy for Scientific Research and Technological Development, coordinates the process of putting those objectives into practice, and evaluates how well those objectives were implemented.
- Where the following is replaced: [1]
  - ✓ Identification of significant options for scientific and technical research;
  - ✓ Approval of the general directions of the National Scheme of Scientific and Technical Research;
  - ✓ Estimate the results of the work carried out within the framework of the national scheme for scientific and technical research
  - ✓ setting the general directions of the national scientific and technical energy conservation policy, evaluating and developing it.

To strengthen the powers of bodies responsible for scientific research and technological development, in mid-2000, Algeria established a delegate ministry for scientific research. Its main objective is to prepare and implement a national policy for scientific research and technological development. And also: [2]

- ✓ Preparation and implementation of 27 national research programmes ;
- ✓ Establishment of 21 sectoral committees out of 27 relevant ministerial departments;
- ✓ Accreditation of 639 research laboratories inside higher education institutions;
- ✓ Establishment of 18 research centres within the framework of public institutions of a scientific and technological nature;
- ✓ Create four search units;
- ✓ Establishment of the National Agency for the Evaluation of Research Results.

5.2.2 Algeria's higher education challenges

Higher education faces several challenges in general, including:[3]

[1] The People's Democratic Republic of Algeria, Official newspaper, Executive Decree No. 92-23 of 13 January 1992, No. 5 of 22 January 1992

[2] Report on Scientific Research in Independent Algeria, Directorate General of Scientific Research and Technological Development, Algiers, p13

[3] Nadia Boudiaf, Ben Zamoush Makhloufi, « Higher Education and Scientific Research in the Light of the Information Revolution and Communication Technology», National Forum on Computer and Information Technology in Higher Education, University of Ouargla, March 5/6 2014, p 606

- The growing demand for higher education;
- Quantitative composition at the expense of qualitative design;
- The usefulness of scientific research has decreased as a result of university research being conducted primarily to earn degrees rather than for actual practical application;
- Migration of competencies and not staying in Algeria to contribute to supervision and training;
- Increasing unemployment rates among university graduates.

5.2.3 Reasons for the weakness of scientific research in Algeria

Higher education is the main source in the formation of scientific research capabilities and competencies. Therefore, weak higher education results in weakness in research and development. The most important reasons for the weakness are:[1]

- A low number of researchers compared to developed countries;
- Weak scientific and institutional structure;
- Lack of profitability of researchers;
- Migration of the Arab brains to developed countries;
- Lack of a comprehensive strategy to address these problems;
- Weakness and lack of funding for the scientific research sector;
- Lack of scientific production, publishing, patents and innovations.

Section two: The determinants of innovation

The environment of the enterprise is the primary determinant of the existence and direction of innovative activity. This depends on the resources it provides and the technology available as well as the institution's knowledge and competencies.

SMEs depend on the accumulation of knowledge that they obtain during their years of activity.[2]

1. Institutional determinants of innovation

Today, it's essential to consider how institutions are becoming increasingly important for economic progress.[3] As regards the institutional approach to technical change, the coordination of the behaviours of the agents and the economic activities, and the emergence of rules and routines are not thinkable without institutions consubstantial with economic life. Indeed, the innovation capacity of companies and the incentives to innovate are linked to a wide range

[1] Smati hatem, Guendouze Mahmoud, Op Cit, p 12
[2] David Mowery, « The practice of technoloy policy, in P. Stoneman, Handbook of the Economics of Innovation and Technological Change», Blackwell Handbooks in economics, Oxford, 1995, p 30
[3] Wafaa berbar, Opcit, p 104

of factors of national scopes, such as the legislative system and the macroeconomic framework (intellectual property rights and patent law, corporate governance, financial system, customs duties, competition...). These factors are both physical and human, individual and collective, and belong to both private and public spheres. The innovation depends on the scientific capacity of the actors and the institutions. But also the technological power of the actors is important.

The institutional determinants are made up of elements that belong to the environment of the enterprise in which it is inserted. The enterprise evolves in an increasingly complex environment composed of multiple constraints and opportunities and is permanently inserted in a network of partners.[1] In general, the corporation is impacted by the institutional environment's dynamics and any interactions it may have with local or national institutions and many other organisations.

Additionally, the combination of technological advancements and economic structures determines macroeconomic dynamism. [2]

1.1 The quality of the scientific and technical system

Scientific knowledge and technical skills are essential to support points for business innovation. In most countries, they reside in public sector scientific and technological institutions that strive to enrich them. This scientific and technical pole brings together both public and private research laboratories dealing with basic and applied research, higher education, partly linked to research organisations, and general and specialised training. For Freeman (1992), this system includes all scientific and technical institutions such as « University laboratories, internal research facilities in significant industrial sectors, national standards-setting organisations, national research libraries, a network of learned societies of scientists and engineers, and scientific and technical publications are all fueled by a growing pool of skilled workers produced by the educational system and by a strict technical training programme for a variety of qualifications».[3]

According to the OECD, the Olso Manual identifies the national science and technology base by the following elements:[4]

- ✓ The specialised technical training system;
- ✓ The university system ;
- ✓ The basic research support system: basic scientific research is sometimes seen as having few direct benefits for business innovation. However,

[1] Bellon B, Opcit, Page 49

[2] Amable B., « Innovation systems In Encyclopaedia of innovation», edited by Mustar Ph. and Penan H., Edition ECONOMICA, 2003, page 355

[3] Amable B., Barré R. and Boyer R. « Innovation systems in the era of globalisation», Economica edition, 1997, P112

[4] Foudil Ait Atmane, Op cit, p 69

these indirect benefits can be significant. Scientific investigation often requires the development of extremely complex and highly sensitive equipment. Thus, many areas of basic research offer fertile ground for the training of skilled scientists interested in technological issues, whose experience can often be effectively channelled into industrial problems;

- ✓ R&D activities relevant to public goods: funding institutions and programmes usually focused on areas such as health, environment and defence;
- ✓ Strategic R&D activities: funding institutions and programmes that focus directly on "pre-competitive R&D" or generic technologies;
- ✓ Support for innovation that cannot be owned: institutions and funding programmes that focus directly on research in areas where it is difficult for individual companies to sufficiently capture the benefits of their internal research.

Uzunidis prefers to speak of university reservoirs, reporting that the OECD emphasises that the innovation policies of the major industrial countries favour the financing of research carried out under the supervision and command of companies and reform their university systems to make them competitive to improve the supply of scientific and technical services to companies, favour the mobility of researchers and their involvement in the enterprises.[1]

1.2 Quality of the education and training system

After mentioning the science and technology system, it is important to remember that there are other areas to consider, notably education and training. Technical sciences are also evolving rapidly in industrial societies, so the equipment involved in production requires new knowledge. Training systems, whether educational, in the field of teaching, or 'vocational'. When they are concerned, the world of work and/or business is more than ever subject to significant pressure to evaluate their performance and improve their management.

The analysis of educational systems enables us to recognise the advantages and disadvantages of various systems by comprehending how they operate, how their processes work, and how their consequences are felt.

Why a straightforward transfer of a specific provision that appears to operate elsewhere is not a guarantee of outcomes is explained by the fact that the various components interact and are contextualised.

Sometimes learning about other systems can give one a new perspective on their educational system.

Additionally, it might be enlightening to carefully research how other nations resolve issues to which they wish to offer parts of a solution.

[1] Dimitri Uzunidis., « Innovation and the contemporary economy», Editions De Boeck, 2004, p130

The author Caroli defines the notion of a training system based on four elements: the way the school system is organised, the way firms provide training, the propensity to pay for training and finally, the degree of institutionalisation of training.[1]

The European Commission has emphasised that the EU member states' education and training systems must be modified for them to implement a strict innovation policy since the early 1990s.

The Commission's suggestions comprise: [2]

- ✓ Sufficient integration of technology into the learning of science subjects;
- ✓ Encourage a teaching method that leaves room for personal research, experimentation and discovery, the acquisition of cross-disciplinary skills (project and teamwork, communication), as well as training in the new conditions of production in companies (understanding a market, a demand, etc.);
- ✓ Rapidly integrating hybrid areas of knowledge corresponding to the new professions into training courses;
- ✓ Labour mobility: innovation is nourished by exchanges, confrontations, interactions and mixtures. The circulation of ideas and the mobility of people are important for creating and disseminating novelty, in particular between the worlds of research, university and business.

1.3 Enterprise-university partnership and valorisation policy

The enterprise and the university have specific structures that pursue different but complementary objectives. While the former aims to produce goods and services to make a profit, it also provides work and generates wealth through the added value it incorporates in its assets. The university, on the other hand, is a public educational institution. Its primary function is to develop knowledge through teaching and research, but it also fulfils a public service mission. This difference in objectives does not exclude the establishment of a necessary collaboration in various forms between the two entities. Such cooperation has developed very rapidly in developed countries through the establishment of joint projects between the two types of institutions.

It is certain that the success of an enterprise, whatever its size, is often linked to its innovation and its differentiation from competitors, whether in the field of products, services or processes.[3] It can only find solutions to these challenges in a dynamic partnership with a university research unit to which it can contribute a lot.

[1] Amable B, Opcit, p114
[2] Foudil Ait Atmane, Opcit, p 71
[3] Nicolas, F and Krieger, L, « Innovation: key to development», ed. Masson, Paris, 1995, p 125.

The enterprise provides a priori with a better knowledge of the needs of the current markets and possible future projections. It also gives the possibility of better orienting education and training to improve student-business contacts and thus facilitate their recruitment. It also offers valuable resources in terms of equipment and financial means, which sometimes remain untapped. Finally, it has professionals who have acquired specific know-how and skills.

As for the universities, which have accumulated appreciable scientific know-how, they normally wish to develop and invest in this research on a practical level(5), targeting the technological, economic or human problems inherent in Algerian society. The university can provide the enterprise with considerable support. This support can take the form of the establishment of competent research staff, a rigorous and multidisciplinary approach and, above all, an opening up to international research through the various inter-university cooperation agreements.[1]

1.4 The role of the financial system

Innovation in any sector of the economy requires financial investment. Financial investments are necessary to gain additional profit, increase the organisation's efficiency, and obtain social and economic impact. At the same time, dependency has been empirically established: the more success an entrepreneur expects in the future, the more costs an entrepreneur must be ready for now. However, the problem of choosing the subject of an entrepreneur's financial investment is not limited to the maximum amount of the investment. Studies have shown that investing in innovations is the most effective, as an entrepreneur has the opportunity to earn profits from a super monopoly. The high potential for innovation effectiveness ensures the demand for innovation by entrepreneurs, providing a market for scientific, technical, organisational, economic and social innovation.

Any kind of innovation requires a large investment spending, most of which is in research and development and the fixed capital required directly in operations and new goods. And the least visible investment is in spending on training operations, the previous tests to start putting the products on the market, and the disturbances in the production process. There are also investments for the new product, market research before the product launch process, operations of promotion after the product is launched, building distribution channels, after-sales services, and setting prices that sometimes require building sales in the early stages of the product launch.[2]

[1] Filali Boumediene, « Innovation and business-university partnership in Algeria, what reconciliation? », The Public Sector Innovation Review, N. 10(2), section 6, 2005, P 2

[2] Raad Hassan Al-Srn, « How to Create an Innovation Environment in Organisations? Managing Creativity and Innovation», part 2, Al-Rida Publishing house, Damascus, Syria, 2001, p 2

The public authorities in many developed countries have introduced a range of support measures to encourage companies to innovate. These are indirect measures that take the form of the tax treatment of expenditure linked to the innovation process. There are also direct measures, which are numerous and complex. Direct public aid concerns the national procedures put in place by the various ministries or the aid provided to companies through the creation of organisations or agencies responsible for supporting innovation projects. It is noted that public support for innovation is often not sufficient to complete the projects initiated, which forces companies to seek external resources that can meet their needs. Nevertheless, external financing of innovation is challenging to access and carries great risks. We can summarise The external sources of financing for innovation in two main formulas: debt and venture capital.[1]

The financing of small and medium-sized businesses is generally hampered by a dearth of resources for this industry.

Poor structuring results from this, and because these businesses have fewer borrowing options, they have fewer investment alternatives. The family nature of most small and medium enterprises and the desire to keep watch The corporate strategy negatively impact the openness of capital to external investors as the risk of the capital retreat will be exorbitant for the owners of institutions and harmful to their growth.[2]

The lack of private capital and the reluctance of business owners to open up capital to new shareholders reduces the ability of the enterprise to fund innovation, not only in the production and development stage but also in the exploitation and growth of activity resulting from innovation. So if the new activity resulting from innovation is represented as the creation of a new enterprise, then the financing needs to increase with the expansion of the activity.[3]

1.5 Other areas of public support for innovation

In addition to the public support mentioned above, we can add other implications of the state, which is an "actor of evolution ", that are more important and decisive for innovation activities.[4]

Public intervention concerns infrastructure, the education system and legislation, in particular, that on the protection of innovation. Technological change is characterised by numerous imperfections or inefficiencies:

[1] Wafaa berbar, Opcit, p 108

[2] B.belletante et al., « Economic diversity and financing methods for SMEs», LHarmattan, Brussels, 2001, in N. LEVRATTO, « SMEs: definition, economic and political role public », de boeck, Brussels, 2009, p102

[3] A. DJEFLAT, & al, « innovation in the Maghreb challenges & perspectives», the 3rd international Conference, Sfax, April 1998 ", Ibn Khaldoun Editions, Tlemcen, 2000, p 252

[4] Rochet C., « Innovation is a matter of State, driving reform in the face of the third industrial revolution», PhD thesis in management sciences, 2005, P 37

economies of scale, externalities, incomplete markets, asymmetric information… This gives the public authorities the right and, above all, the duty to intervene.[1]

In the neoclassical view, when the market fails to deliver the outcomes that the community considers desirable, there is potential room for public intervention. The state's task in such a framework is to ensure that investment in research is commensurate with the social return on this activity, i.e. more than the level achieved in the decentralised equilibrium based on private return. The state has a wide range of tools at its disposal for this purpose:[2]

- ✓ To invest itself in a public research system;
- ✓ Encourage firms to invest by increasing the private return (subsidies, tax benefits, etc.);
- ✓ Attempt to limit market imperfections (competition policy, patent legislation, regulation of financial markets);
- ✓ The rules that ensure the protection and dissemination of innovation (intellectual and industrial property rights, standards) must be used to the full;
- ✓ Make sure it utilises the laws of protection to the fullest extent possible: patent applications are a true indicator of the pace of technological change (costs associated with obtaining and maintaining patents);
- ✓ Compliance with standards, certification and quality systems: all innovation is developed and implemented within the framework conditions created by regulations, standards, certification and quality systems. The very design of a product will be influenced by the existence or non-existence of standards: precise descriptive standards limiting the possible options or performance standards imposing objectives to be achieved.

2. The organisational determinants of innovation

The organisational climate, with its key factors, is a necessity for innovation at the level of the innovative individual, Which may appear to face organisational obstacles in organisations that adopt a bureaucratic or mechanical style.[3] Innovation is a rigorous process, a discipline at the crossroads of several disciplines (strategy, marketing, design, R&D) supported by particular values and characteristics (constant monitoring, ability to decentralise one "s point of view, a fusion of analytical and creative capacities, fusion of conceptualisation and realisation qualities, ability to take risks, knowing how to accept and manage failure.

[1] Wafaa berbar, Opcit, p 109
[2] Foudil Ait Atmane, Opcit, p 75
[3] Najm Aboud Najm, « Leadership and Innovation Management», I1, Safa Publishing and Distribution House, Jordan, 2012, p 259-260

Chapter tow The determinants of innovation and development in the SMEs

The importance of innovation management is that it includes all administrative processes to activate innovation and creativity in institutions. It is tools and mechanisms that allow an enterprise to leverage its innovative capacity by promoting research activities and developing technical knowledge and technological methods used in institutions. In addition, Technological vigilance is essential.

Any organisation, including the marketing department, can generate new product or service ideas. Sharing and interacting with information while running smoothly are common characteristics of innovative businesses. Innovations don't necessarily come from the R&D division. The R&D department is not the sole factor that affects innovation within the organisation. However, several internal firm factors are significant in innovation efforts.

2.1 Strategic approach and innovation

Strategy is a long-term plan to reach a goal and is a necessary skill to achieve success in war, politics, business, industry, or sports. It is also the intelligent use of resources through a specific business system to achieve a goal.

The allocation of resources inherent in the strategic approach requires a quantified approach (precise evaluation of resources) and the existence of choices regarding the enterprise's areas of activity.

The innovation strategy means that the enterprise uses specific means to achieve long-term objectives (sustainable competitiveness) by marketing new products, improving existing products and, in some high-tech sectors, possibly bringing about technological revolutions (e.g. IT, biotechnology, etc.). The strategic approach aims to ensure the survival and development of the enterprise, its objectives, market share, profits and, in general, the satisfaction of its various needs and partners over a sufficiently long period.[1] In line with the enterprise's strategy, the management of technology and innovation consists of putting in place resources (financial, human, etc.),

processes (project management, research planning, etc.) and routines (monitoring, marketing studies, quality, etc.) to channel the energies of inventors, engineers and the enterprise's staff to build and develop a technological heritage (by purchase, training, etc.).) and routines (monitoring, marketing studies, quality, etc.) to channel the energies of inventors, engineers and enterprise personnel to build and develop a technological heritage (by purchase, partnership or internal effort) from which By distributing the innovation to a market that has been discovered or formed, new products and services can be developed to obtain a competitive edge and develop a sustainably profitable firm. [2]

[1] Bellon.B, « Creative innovation», Economica edition, 2002, P77
[2] Foudil Ait Atmane, Opcit, p 53

Innovation management today consists not only of bringing each innovation project to a successful conclusion but also of "defining the enterprise's areas of innovation, bringing innovative ideas to fruition, building up (upstream of projects to launch new products and implement new processes) the technological and marketing resources that will feed them, selecting the projects to be launched, and supervising their situation".[1]

Innovation management covers :[2]

- ✓ The selection of relevant innovations (financially and technically accessible);
- ✓ Management of the skills and resources (internal and external) required by the project;
- ✓ Consideration of social and organisational impacts (inertia and opposition);
- ✓ Promoting innovation (encouraging the management of ideas and supporting the development of projects).

The management of innovation takes forms according to the particular context of the enterprise and implements different ways of making employees aware of the employees to the importance of innovation, encouraging them to express their ideas, to express their ideas, share their observations on the behaviour of customers, suppliers or competitors and, above all, to push middle and upper management to value these contributions, to respond quickly to suggestions, either to put them under consideration or to explain why they are not taken up, to value the innovators.

2.1.1 Management of technology

Technology is the enterprise's heritage, the stock of knowledge that forms the basis of the enterprise's products and processes. It also concerns design and production activity in response to market needs. The management of technology demonstrates the need for integrated management of technology based on the enterprise's ability to detect and integrate exogenous techniques, manage its skills in harmony with its strategy, increase its learning, capitalisation and knowledge management capacities, and develop its know-how beyond its field of activity.

It includes, in effect :[3]

- ✓ The technology portfolio represents the balance sheet of the technological capital held by the enterprise;
- ✓ Management and optimisation of the technology;

[1] Roman.F, « The management of innovation: modelling test from a systemic perspective», doctoral thesis in management, central school of arts and manufactures, central school Paris, November 2003, P172

[2] Millier P., « Structuring the field of technology and innovation management», European Entrepreneurial learning N° 2003/08, January 2004, p 25

[3] Millier P, Ipid, p:24

- ✓ Observation, identification and evaluation of alternative technologies for a given need through monitoring;
- ✓ Choosing the most relevant technologies to gain a competitive advantage,
- ✓ Access to the skills of the chosen technologies;
- ✓ Further improvement of obsolete technologies;
- ✓ Management of R&D activities.

2.1.2 The management of R&D

Research and development (R&D) activities are presented in the literature as the most traditional determinants of the innovative capacity of firms. Indeed, investment in R&D is the main mechanism for developing technological skills. These competencies are based on a learning process based on the technical resources and effort of the firm's research units. Thus, competencies do not only have a cognitive dimension. They also have a technological dimension.

Enterprises engaged in R&D are more likely than other firms to be product and process innovators. Thus, they conclude that learning through intramural R&D has a considerable impact on innovation. Indeed, the internal effort undertaken by the R&D teams is aimed at processing and producing appropriate reactions to two types of information:[1]

- ✓ The first type includes the technical information that the enterprise can acquire from its environment, thanks to the acquisition of new equipment and new information and communication technologies. The effort of the R&D teams, in this case, consists of transforming this information into new knowledge, the dissemination of which within the enterprise results in new technological skills that stimulate its capacity for innovation.
- ✓ The second type of information is related to the various problems that the enterprise may encounter, such as technical failures in production methods, the need for a differentiation strategy to confront the competition, etc.

The effort of the teams then consists in finding solutions to these problems, and these solutions are likely to generate product and process innovation. As a result, R&D activities and investments have a significant and positive impact on innovation.

The management of R&D includes:[2]

- ✓ Programming, R&D planning;
- ✓ Optimising R&D funding;

[1] Olfa hajjem zaier, « determinants of innovation dynamics: an analysis of analysis of the complementarity between technological and organisational skills», PhD thesis in cotutelle, economics and finance. University Nice Sophia Antipolis, french, 2015, p 50

[2] Millier P, Ipid, p:24

- ✓ Evaluation of the work and its proper use;
- ✓ The organisation of resources between central research centres and decentralised teams;
- ✓ The management of R&D human resources (reward systems, promotion, careers of R&D personnel, etc.);
- ✓ Animation (stimulating creativity) and training of researchers.

2.2 Enterprise structure and innovation

The sociological theory of the functioning of companies tends to move from the idea of a system to that of a process. This evolution corresponds to the growing importance of the question of the transformation of work procedures, organisational rules and the relationship to the market. If it was indeed stability that characterised the Taylorian and bureaucratic order, today, it is much more mobility and uncertainty for most companies. Therefore, the analysis of the functioning of companies cannot be reduced to their organisational capacity, which consists of programming, standardising and coordinating tasks. It must also take into account its capacity for innovation, which consists of developing new combinations between the various resources available to the enterprise to react to new constraints or opportunities.

These two logics are largely complementary: an enterprise must be able to organise and innovate at the same time. The problem is that these two logics are contradictory: the aim of the organisation is basically to reduce the uncertainties of the production process, whereas innovation takes advantage of the uncertainties to transform the order of things. It is well known that 'flexible' organisations respond best to opportunities. The incomplete, vague nature of their organisational rules enables them to limit the influence of internal rigidity factors.[1]

Organisational challenge change is an intellectual development in the business world that should be adopted by organisations to be creative and competitive. Convinced that organisational change is the new environment for creativity, innovation and innovation. Because of the importance of innovation and its relevance to the evolution of an organisation, organisational change is the key to success. The organisational change was thus seen as one of the most important new concepts that added value to the organisation's orientation. It became one of the pillars of its strategic programs. SMEs are an appropriate means of development because of their large and inexpensive investment incentives, flexibility and ability to change rapidly, as well as the ability to innovate and develop. It is also able to expand the dynamism of economic

[1] Jean-Michel Saussois, « State of knowledge organisations», Human Sciences Editions, Auxerre Cedex, 2016, p 281

activity in countries, especially those that have adopted it to achieve development leaps.[1]

Enterprises with simple structures usually have to adopt niche or marketing differentiation strategies. The focus on a market segment compensates for the disadvantages associated with small size. On the other hand, the strong centralisation associated with simple structures is a brake on innovation. Due to the high specialisation of tasks and the high standardisation of products and processes, the mechanistic bureaucratic structure is totally in harmony with a strategy of cost domination. On the other hand, the rigidity of this structural form makes a strategy based on innovation completely irrational. The divisional structure, which is particularly suitable for the diversification strategy, is often deprived of the minimum flexibility to implement a strategy of differentiation through innovation.

2.3 Training and apprenticeship (learning)

Each innovation implies changes in the organisation and quality of work: it requires adaptability, exchanges with new operators, and creativity which is not available in the skill set gathered in the past. These skills can only be acquired through training, which concerns both the agents responsible for innovation and all employees: managers, supervisors and all workers and employees. It is crucial to stress that the primary goal of learning and training in the workplace is to develop the variety of abilities necessary for creativity.

According to Bellon, any organisation that wants to develop the capabilities it requires must create a training plan.

The latter must be specified in terms of the abilities needed by the business for innovation, and a process of distributing the training's goals and putting its methods into action must then be started. [2]

Learning is the process by which knowledge and skills are acquired. There are several forms of learning that we can classify into seven processes that differ in their mode of acquisition but are combined, which are:[3]

- ✓ Learning through study in schools, universities and the science and technology education system;
- ✓ Research-based learning in technical research centres and own laboratories;
- ✓ Learning through trial and error experience: it is the result of a business project, the memory of past mistakes in the management of other projects;

[1] Shisha Nawal, « The impact of organisational change on innovation in small and medium enterprises», The New Economic journal, Issue 17, Volume 2, 2017, p 234

[2] Koenig G, «Organisational learning: identification of places », French management review, January-February, 2007, p 111

[3] Bellon B, Opcit, P59

- ✓ Learning by doing, which takes place through the acquisition of machines, processes, licences and the transfer of knowledge by copying and cooperation of external technicians;
- ✓ Learning for practice that takes place on the production floor;
- ✓ Learning through project evaluation ;
- ✓ Learning through interaction or cooperation: this is learning through working together.

The dilemma for any enterprise is to make the most of its existing resources and, at the same time, renew itself. Exploiting means managing the enterprise's core business and using known knowledge to renew product ranges. It is, therefore, a question of optimising the existing, of being efficient without risk, based on the rational analysis of data from previous products.

The notion of exploration and exploitation has been widely used in studies on organisational learning, strategic renewal and technological innovation. March (1991) introduced the two concepts as follows: 'exploration includes things captured by terms such as search, variation, risk-taking, experimentation, flexibility, discovery, and innovation.[1]

For March also, exploitation refers to the accumulation of experience. When a management practice is repeated regularly, actors pay particular attention to the results obtained.[2]

Single-loop and double-loop learning are defined by Argyris and Schon. Single-loop learning is based on the logic of experience accumulation, and it works by repeating and analysing action plans that the organisation permits to be perfected. In the case of double-loop learning, action methods, paradigms, and guiding principles are modified, i.e., the modalities and beginnings of the action are reinterpreted and rebuilt, allowing for the testing of novel practices.[3]

2.4 Human resources management

The investment in human lemurs and the real investment is the basis for every economic process and the first supporter for achieving strategic goals, and administrative innovation is the production of new ideas that are beyond the ordinary, provided that they are ideas. If an employee comes up with a new way to cut costs or boost production, this is innovation. For the individual to innovate for his creation, the initiation must provide an environment that accepts innovations of all kinds. To be creative in the workplace, the management and or team must believe that their employees can innovate and solve problems, as

[1] Ying li, wim vanhaverbeke and Wilfred Schoenmaker, « exploration and exploitation in innovation: reframing the interpretation» creativity and innovation management journal, volume 17, number 2,2008, p 107

[2] March. J, « Exploration and Exploitation », in organisation learning, Organisation Science, Vol 1, N°2, 1991, P 73

[3] Argyris. C and Schon. D.A, «Organisational learning: theory, method and practice», Brussels, De Boeck université, 1996, P 91

well as overcome the numerous counterproductive restrictions that stifle employee creativity.[1]

Innovation in an enterprise is like a living organism. It needs the right climate to continue and thrive. And This climate depends on the work culture and the extent of their care, care and support. And through its dealings with employees at the individual and collective levels, the Human resources department stands out as the best-qualified department to shape and enhance this culture. However, it also confronts significant difficulties because many businesses have not yet recognised the significance of the role that work culture (or the human resources team) plays in the innovation process.

The employee's productivity depends on providing an appropriate work environment and team culture within this environment. However, work culture is the lowest common measure in order of importance to innovation growth. Here, the human resources division has a fantastic opportunity to play a significant role in fostering an innovative culture because it is one of those sectors.

And also motivation plays the role of power to devote effort to a high level of performance. The effort is not limited to muscle but touches on the intellectual effort to move the drive towards voluntary achievement, and the sense of the viability of the work required and the sense of the viability of the work required and even make some critical decisions. Therefore the role of stimulus as a way of activating human resources within SMEs is By triggering the motivation of those with knowledge and skills to state what creative ideas they have in store. And it's known as the underlying knowledge, which is a large field of internal and strategic resources which achieve performance results and improvements and a sustainable competitive advantage.[2]

2.5 Scientific information and monitoring systems

Information is also regarded as a necessary component of a learning organisation, as it is required for the implementation of innovative activities.

"An organised set of resources: hardware, software, personnel, data, procedures… They facilitate the acquisition, processing, storage, and communication of information in organisations," according to Remix.[3]

Information systems (IS) are often linked to technological innovations. As such, the media regularly present the latest innovations related to information and communication technologies (ICT). Today, IS has three distinct components: a

[1] Khadija Touati, Adalah Al-Ajal, « Innovation in the Human Resource Charts», International Forum on Innovation, Evaluating Human Revenues, Innovation and the Business Economy in the Arab Maghreb Countries: Stakes and Views, Faculty of Economic, Commercial and Management Sciences, Abdelhamid Ben Badis University Mostaganem, 2015, p 3

[2] Manal Talat Mahmood, « Fundamentals of Development and Society», Modern University Office, Alexandria, 2001, p 306

[3] Remix. R, « Information systems and organisation management», Vuilbert edition, Paris, 2004, P 75

technological component, an informational component and a managerial component. The evolution of an organisation will often be inseparable from the evolution of its IS, which places us in the context of managerial innovation.[1]
the relationship between the information system (hereafter IS), innovation and value creation is far from being mastered or even systematically established. Of course, no one would dispute the considerable importance of information systems in organisations.[2]

The most important source of information about an enterprise is naturally the enterprise itself. Information sources can be internal or external. The internal sources are composed of the enterprise's files providing information on the activity of its various departments and the statistics it has been able to produce to analyse fluctuations from one period to another (on sales, work accidents and schedules). External sources consist of information and data from partners, employees, national and international institutions and information professionals from whom the enterprise may have purchased.[3]

In the expression "Strategic monitoring - Collective Intelligence", the word "strategic" is used to indicate that the mission of Strategic monitoring is to provide decision-makers with useful information in this type of situation. Such information is referred to as strategic information, which can be of strategic importance to the enterprise. And it is not just a question of providing information to the director in charge of the enterprise's strategy but to all those who will use it to make decisions about the enterprise's future.
Companies should therefore obtain information that helps not to predict but to anticipate, to put themselves in a position to reduce the risk of nasty surprises. A more dynamic environment should increase the capture of anticipatory information. Strategic monitoring aims to capture anticipatory information to inform managers about possible changes in the target environment.[4]
Technology monitoring is an element that encourages enterprise innovation. The following methods will be used to research rivals and new technologies: Market research, information from government agencies, attendance at industrial and scientific conferences and events, documentary research, and partnership with research centres are all examples of market research.

[1] Annabelle Jaouen, Frédéric Le Roy, « Innovations in information systems management», Collection: Management Sup, Publisher: Dunod, 2013, p 286
[2] Claude Rochet, « Information system "innovation & value creation», cigref research, December 2007, p 11
[3] Gérard Tchouassi, « Information needs in companies», Congolese Management journal, ICES Editions, Number 24, 2017, p64
[4] Hamida Ayachi, « The adequacy between the information system and the strategic watch in an activity of construction of meaning», Management & Avenir, Edition: Management Perspective journal, n° 12, 2007, p 15

2.6 Enterprise culture and innovation

Behind every innovation is a vision and certainly also corporate culture. For innovation to become a reality and succeed, intellectual and managerial processes enable a good idea to become a solid project. The culture of entrepreneurship certainly involves a real capacity to collaborate. This is called open innovation when innovation is no longer the prerogative of the lone hero but the business of all, the result of large-scale collaboration.

Several authors have described an enterprise's culture as an organisational characteristic that strongly encourages innovation and enables the unification of behaviours and the alignment of them with common goals. When a v creates a culture that encourages employees to take the initiative, it generates fresh ideas.[1]

Two aspects structure the definition of enterprise culture. Firstly, it is considered as describable content specific to the enterprise, which distinguishes it from others. Secondly, it is a way of describing the organisation, a grid for reading this particular human society.[2] Companies, like other human communities, have a distinct culture that is said to be the outcome of a dynamic that includes several aspects, such as the nature of the enterprise's activity, its history, the personality of its leader, and so on. Innovation, which is the act of generating and developing new products and services, is essential at this level and one of the corporate culture's "pivots," around which its different manifestations may be organised.[3] Thus, the study of enterprise culture constitutes a significant But it's crucial to keep in mind that corporate culture and creativity have a complicated relationship. . In this sense, culture is based on symbols related to the past, while innovation is a break with this past and tradition, considered basic elements of culture.[4]

The importance of corporate culture is to encourage an entrepreneurial spirit among enterprise members and to foster a long-term vision and strategic action focused on developing the quality of goods and services. And the cultural values of the enterprise are among the elements that encourage entrepreneurship, but also the pursuit of entrepreneurial opportunities. Birkinshaw (2003) goes so far as to develop a conceptual model of organisational entrepreneurship, in which corporate culture is seen as one of the fundamental elements fostering an intrapreneurial spirit.

[1] Assala KH. & Tounes A., « cultural influences on the managerial behaviour of Algerian entrepreneurs», 5th international congress of the academy of entrepreneurship, Sherbrooke – Canada – October 2007, p56

[2] Maurice Thévenet, « enterprise Culture », Editions PUF, Paris, France, 2015, p 127

[3] Saida Rave-Habhab, « Place of corporate culture in an innovation process in high-tech SMEs: a case study by inter-site comparison», Management et Avenir, Management Perspective, Ed, n°50, 2011, p 78-104

[4] Greet Hofstede, Micheal Minkov, « Cultures and organisations: Our mental programming » PEARSON, 3rd edition, Paris, 2010, p 634

The authors propose a typology of four cultures, namely: **the hierarchical** (or bureaucratic) culture, characterised by rigidity, a focus on control and efficiency, and a conservative management style with little or no room for innovative initiatives. Companies with strongly market-focused operations, based primarily on transactions with external stakeholders, are said to have a **market culture** which is oriented toward rational decision-making, planning, and structuring of objectives and production activities. Consistency, team spirit, and support are important to **the group culture** (or clan culture). It is also distinguished by a friendly culture in the workplace, as well as collaboration among employees and liberty in making certain decisions. **The adhocracy culture** (entrepreneurial) is a culture of adaptability to change, risk-taking, innovation and organisational creativity.[1]

Overall, both the work on the idea of innovation and the work on the notion of entrepreneurial orientation or intrapreneurship emphasise the relevance of business culture in the creation and development of an innovation dynamic within the organisation. We performed a survey of SMEs based on these factors and utilised just confirmatory logic to determine the extent to which corporate culture can affect the innovation logic within SMEs.

2.7 Appropriation of innovation and absorptive capacity

The ability of a firm to employ an outside-produced innovation internally is known as the appropriation of innovation. To take these advances, it is not enough for the corporation to purchase a new machine, obtain a patent, etc. Appropriation, on the other hand, necessitates the incorporation of the external element into the enterprise as well as the learned attitudes, habits, and behaviour. Appropriation is determined by the enterprise's culture and practices of innovation management.[2]

« The reference to the concept of absorptive capacity emphasises the fact that a firm will be more or less able to exploit technological opportunities in its environment depending on its knowledge base and the learning process that takes place within it ». The ability of an enterprise to use external knowledge is a factor of its ability to innovate; this ability is referred to as "capacity to innovate." "Absorption capacity" of the enterprise Furthermore, Cohen and Levinthal (1989, 1990) demonstrated that in an enterprise ", The ability to leverage external knowledge is a key driver of an enterprise's ability to innovate.

Cohen and Levinthal (1990) mentioned a variety of antecedents that influence CAPA at the organisational level, including routines, management practices and

[1] Fatima-Zahra Achour, Imane Zemzami, «Corporate culture and innovation: Case of SMEs in the Gharb region Chrarda Beni Hssen», Moroccan review of research on management and marketing, N 9, 2014, p 5

[2] Foudil Ait Atmane, Opcit, p :62

individual absorption capacities. Later, Kim (1998) discussed the knowledge processes of a start-up trying to move from imitation to innovation.[1]
Indeed, an enterprise's ability to use external knowledge is largely determined by its basic general or technical abilities, current scientific and technological understanding, and ability to communicate within the enterprise. This corpus of knowledge enables people to recognise the value of new information, integrate it, and apply it to cutting-edge industrial projects.

2.8 Pathways to external innovation

Although establishing an R&D function within a firm provides for the development of new ideas and know-how, it is not the only way to gain access to technology and innovation. Various actors throughout the world can provide the enterprise with significant chances for innovation, provided it knows how to seize them. Complementary assets are frequently required for innovation, and there are a variety of ways to obtain them:

2.8.1 Access to technology

Although there are numerous classifications of ways to access technology, we used the most traditional approach, as defined by Loitier T. and Tellier A., which includes five non-exclusive options.[2]

- ✓ **Internal R&D**

  Internal R&D means using GeneChip Products for (a) internal research, testing, validation, or training at Gene Logic, (b) product or service development, including use for generating data for inclusion in Databases to be offered for license or sale, and (c) research projects involving collaboration with one or more customers or other third parties.[3]

- ✓ **The sub-contracting**

  sub-contracting is a contract between two companies. The enterprise that initiates the contract is called the principal, while the second enterprise is called the subcontractor. The purpose of the contract is for the principal to give all or part of the work it has been asked to do to the sub-contracting enterprise. Sub-contracting allows an enterprise to bid for certain public contracts without having all the required skills. For confidentiality reasons,

[1] Lamiae Benhayoun-Sadafiyine, «The absorptive capacity of SMEs integrated with collaborative innovation networks: evaluation through a maturity grid», PhD Thesis on Management Sciences, University of Grenoble-Alpes, 2017, p 134
[2] Thomas Loilier, Albéric Tellier, «Innovation management», Management and society editions, 1999, p 69
[3] PaulaAnzola-Román, CristinaBayona-SáezTeresaGarcía-Marco, «Organisational innovation, internal R&D and externally sourced innovation practices: Effects on technological innovation outcomes», Journal of Business Research, Volume 91, 2018, p132

it is sometimes forbidden to subcontract work.[1] And this path is highly developed in countries such as Japan and the United States.

- ✓ **Acquisition of shareholdings and control**

The acquisition of shareholdings in the capital of an enterprise is the fact of subscribing to or buying securities issued by it to become a shareholder. The acquisition of shareholdings is also known as "venture capital". The objective of the investor is to participate financially in the development of innovative companies and to realise a capital gain when the shares are sold.

- ✓ **Cooperation agreements**

They entail collaborating on research and development with one or more enterprises. These agreements can come in a variety of shapes and sizes. For starters, they may involve rivals (horizontal collaboration) or enterprises with customer-supplier connections (vertical cooperation). Furthermore, they do not always imply the creation of communal entities but may simply entail the exchange of licenses with the addition of employees. The proliferation of this sort of partnership is a widely documented current trend, and the most common explanations for these new types of communal creativity are the rapid rise in R&D expenses and the importance of failure risks.[2]

2.8.2 Strategic alliances and innovation networks

The strategic alliance is now the cornerstone of competitiveness in globalised markets, and all business leaders must understand its mechanisms and know how to manage it skillfully. Indeed, alliances, while offering advantages, are also characterised by risks that are no less important for the allied companies. An alliance offers, for example, opportunities to access, acquire or exchange knowledge and skills. However, they also generate relational risks associated with opportunistic behaviour. It is impossible to exclude the risk of opportunistic behaviour, especially in the case of innovative industrial projects.[3]

- ✓ **Strategic alliances**

A fundamental factor that has transformed the economic landscape in recent years is the rise of strategic alliances. They are described as "associations of numerous rival or potentially rival businesses that opt to carry out a certain project or activity by coordinating the appropriate abilities,

[1] Sub-contracting, «The National Institute for Statistics and Economic Studies», https://www.insee.fr/fr/accueil, consulted on 22/04/2022
[2] Loilier T. et Tellier A., Opcit, P94.
[3] Marie Perez, «managing alliances around innovative projects: a real options approach, management & future», management prospective ed, n 12, 2007, p 9

resources, and expertise, and resources rather than competing in the activity in question, merging, or transferring or acquiring activities."[1]

In general, the goal of forming an alliance with competitors and reaching an agreement with external partners is to acquire all of the technologies that make up the new product. The technology can be viewed as the alliance's "currency of exchange" or as the alliance's ultimate goal.[2]

When technology becomes the goal of the alliance, the logic of the partnership changes dramatically: the goal is no longer complementarity but the additivity of the enterprise‘s assets, which will enable the formation of new technology (the pre-competitive alliance limited to R&D) or the complete development of a new product (the post-competitive alliance) (industrial collaboration, which then concerns the entire innovation process, from research to marketing). This sort of partnership aims to share the costs and risks of an innovation initiative while also achieving critical mass.

- ✓ **Innovation networks**

The emergence of this new form of innovative activity organisation, as well as the proliferation of R&D agreements, has contributed to the relativisation of arguments in favour of internalisation, which has been portrayed as the best guarantee of appropriation of the benefits of innovation rather than the exception.

These assets are the technical, financial, and commercial resources required for the invention's creation and/or dissemination. To gain them, the inventive enterprise will need to incorporate 'business skills (e.g., competitors who have mastered important technologies),' managerial resources' (in marketing, sales, and other areas), and 'technical resources' into its project (e.g. technical expertise). (for example, competitors who have mastered key technologies), "managerial resources" (in marketing, law, finance, and other fields), "institutional facilitators," pilot customers, distributors, and so on, to establish a true innovation "community."[3]

All network actors have one thing in common: they're all engaging in a completed process: innovation dissemination. Even though networks can bring together a wide range of participants and exhibit several configurations, they are organised around four generic poles:[4]

- ✓ Research institutes, universities, and corporate laboratories are examples of scientific poles that develop knowledge, publish scientific articles, and train workers;

[1] Campus Dunod, «Strategy, general enterprise policy», Dunod edition, Paris, 1997, P 214
[2] Loilier T. et Tellier A., Opcit, P 79
[3] Thomas loilier, «Albéric Tellier, the configuration of innovation networks: an approach by the proximity of actors», journal of regional & urban economics, 2001, p 560
[4] Foudil Ait Atmane, Opcit, p 86

- ✓ A technical-industrial pole that develops artefacts, projects, prototypes, and patents.
- ✓ A 'technical-industrial' centre that develops artefacts, projects, prototypes, and patents;
- ✓ A market pole which corresponds to the universe of users, resellers, and distributors;
- ✓ A political pole corresponding to the public entities that issue norms, rules of use, and security that can favour innovation adoption.

A network is made up of multiple poles that are linked together. The visible elements of the enterprise are the clusters. They can come in a variety of organisational shapes and sizes.

Bureaucratic (orders, shared standards, processes), economic (material and monetary transactions), operational (collaboration, collaborative decision-making, resource sharing in action), cultural (shared values, similar interests), and informational connections are all possible (access to sources of information, exchange, sharing of information).

3. The geographical determinants of innovation

"The most significant reason to look again at economic geography is the intellectual and empirical laboratory it affords,"[1]. Geographers have long considered the importance of spatial proximity for innovation, but apart from a few precursors such as Marshall, this is a relatively recent development in economics.[2] Although late, this introduction of space into the analysis of the dynamics of innovation has given rise to abundant literature, crossing currents of thought and confirming Ponsard's formula. "Spatial analysis does not bring refinements in detail: it changes everything".[3]

A fairly extensive body of theory has accompanied them since the end of the 1980s that tries to characterise the various forms of local growth through innovation: district, techno pole, scientific park, innovative environment, high-tech cluster... These approaches share a common vision: they believe that innovation has a strong spatial dimension and that firms benefit from co-locating in the same space, but they continue to emphasise the importance of geographical proximity, which is the primary reason why firms cluster at the regional or local level.

We want to emphasise the importance of localised production and innovation systems in the growth of innovation activities in this section. We further

[1] Krugman P, quoted by caroline hustler, «spaces externalities of knowledge and innovation: theoretical and empirical», PhD thesis; economics, faculty of economics and management of Strasbourg, Louis Pasteur University, 2004, p11

[2] Malecki, E.J, «The R&D location of the firm and creative regions: a survey», Technovation, Volume 6, Issue 3, Amsterdam, August 1987, p 205-222

[3] caroline hustler, « spaces externalities of knowledge and innovation: theoretical and empirical», PhD thesis in economics, faculty of economics and management of Strasbourg, Louis Pasteur University, 2004, p 22

emphasise the determining role of proximity on innovation, demonstrating that externalities favourable to know-how diffusion emerge as a result of proximity and a spatial regrouping of companies.

3.1 The role of localised production and innovation systems in driving innovation activities

The process of transforming industrial systems is commonly referred to as innovation. Large- corporations, on the other hand, are no longer seen as the sole agents of innovation.

SMEs, particularly localised systems of SMEs (industrial districts, technopolis, localised industrial systems, technical districts, etc.), can drive innovation processes with or without the involvement of large corporations. The area, as well as the local ties that make it up, can play an active role in promoting innovation and economic development.

The basis of the concept of specific advantages associated with a territory, understood as the result of local processes of pre-production and innovation, is a fundamental question left open by Arthur [1988] and not satisfactorily resolved by the developments resulting from the problems in terms of districts. As a result, a theoretical analysis must be constructed that conceptualises the terrain.

A localised system of production and innovation (LSPI) can be defined as a set of interacting elements in innovation processes and the implementation of structural change. Knowing such an industrial dynamic, i.e., knowledge of a territory's unique capacity to develop distinct technological resources necessitates a comprehensive understanding of the status of the notions of innovation and technology. The analysis of the economic processes at work in an SLPI has led to a focus on making the technology construction process endogenous. Innovation is seen as a process of trial and error, a cumulative process of small or large changes to processes or products.[1]

The regional innovation system refers to spatial concentrations of firms and public and semi-public organisations (universities, research institutes, technology transfer and liaison agencies, business associations, government bodies, etc.) that produce innovation based on interactions and collective learning through common institutional practices. According to this perspective, the regional innovation system is intimately linked to the knowledge economy and the new conception of innovation as the result of a social and territorialised product, stimulated not only by locally anchored resources but also by the social and cultural context in which it evolves.

[1] Monsieur Michel Quéré, Monsieur Christian Longhi, «Production and innovation systems and territorial dynamics», Economic review, volume 44, n°4, 1993, p 719

3.1.1 The innovative environment

In the literature, the concept of "environment" already has several converging definitions. Although it does refer to the quality of innovation in a territory, it must be emphasised that the innovative environment has different content from the concepts of an industrial park, technology park, science park, and technopole that have been widely applied, with much publicity and resources, in recent years. About these concepts generated by research on the spatial conditions for innovation, the first typical characteristic of the environment is its globality since it incorporates not only the enterprises but also the population, the workers, the multiple organisations and the multiple social and cultural dimensions.[1]

The writers Aydalot and Maillet, working for GREMI (European Research Group on Innovative Environments), stressed geography as a source of creativity, coining the phrase "innovative environments." Indeed, "innovation emerges in particular from the development of a know-how and a technical culture historically constructed thanks to an internal dynamic distinctive to the territory," according to the territorial logic.[2]

The components of the innovative environment are presented as follows:[3]

- ✓ A geographical area with no boundaries and a sense of oneness and homogeneity expressed in identifiable and specific behaviours as well as a technical culture;
- ✓ A group of actors, including businesses, research and development centres, and local governments... Autonomy in decision-making is required;
- ✓ Intangible (know-how and knowledge), tangible (enterprises and infrastructure), and institutional (various forms of local government and organisations with organisational skills);
- ✓ A logic of interaction: the actors must be in a relationship of interdependence based on a balance between cooperation and competition;
- ✓ Learning logic is the ability of actors to change their behaviour in response to environmental changes.

3.1.2 The industrial district

The concept of the industrial district is today considered an indispensable reference in industrial enterprise. The English economist Alfred Marshall is

[1] Marc-Urbain Proulx, «Innovative environments: concept and application», International PME Journal, Volume 7, Number 1, 1994, p 69
[2] Aydalot P. Maillat, « Innovative environments in Europe ». Paris, GREMI, 2004, P 173
[3] Wafaa berbar, Opcit, p :112

credited with the origin of this concept, which first appeared in the 1890 publication of his book "Principles of Economics." [1]

As a socio-territorial entity characterised by the cohabitation of a community of people and a population of businesses in a specific geographic area, Becattini defined the industrial district. [2]

A large number of agglomerations in the field made it difficult for researchers to designate the district. Pyke and Sengenberger, for example, defined it as a geographically delimited productive system distinguished by the presence of several enterprises active in different phases and diverse methods in the manufacture of a homogenous good in their book "industrial districts and inter-firm cooperation in Italy."

"If we synthesise the results of work on districts, we obtain a standard description which combines the following features: a territory organised around a small town, specialisation in the manufacture of a specific product requiring the use of locally accumulated know-how, the agglomeration of numerous specialised SMEs linked together by competitive and cooperative networks," many authors who have dealt with the concept of industrial districts state.[3]

3.1.3 Innovation networks or clusters

Through the coordination they generate between actors, networks play a critical role in the economic system. Those linked to innovation, also known as technical-economic networks, are defined as "the organisation of heterogeneous contacts that occur between players engaged in the development of certified knowledge and those seeking competitive advantages on economic markets." The network represents a method of economic agent organisation that manages interdependencies, which are particularly important in the process of technological change.[4]

There are two sorts of innovation networks. To begin, there are the widely researched innovation networks in industrial economics, which refer to strategic agreements and are frequently the activity of huge multinational corporations. The fundamental feature of these collaborations is that they are focused on tackling a very particular problem that is recognised at the outset. As a result, they are monofunctional networks. The second network, whose goal is less clear since there is too much ambiguity about technical

[1] Nada El Khatir, «The industrial district: A literature review», European Scientific Journal, Vol.16, No.19, July 2020, p 367

[2] Becattini, G, W.Sengenberger, « Industrial district and inter-firm cooperation in Italy», Geneva, IILS, 1992, p. 37

[3] Dumas J.C., «Industrial districts: concept and history», XIV International Economic History Congress, Helsinki, Session 28, 2006, p 56

[4] Amable B., Barré R. Op cit, P101

feasibility, the product that will eventually be marketed, manufacturing procedures, and so on.[1]

3.2 Impact of forms of proximity on the dynamics of innovation

Geographical proximity favours the efficiency of coordination actions and interactions between companies. According to Zimmermann J.B. (2002), the geographical proximity of partners has a "bilateral" impact: a small distance between two companies facilitates exchanges and makes them more regular. When a collection of enterprises collaborates on a project, each enterprise becomes reliant on the others and will be much more responsive if it is located near the other partners. This geographical effect has three beneficial outcomes: lower transportation costs, more interactions, and the benefit of technological complementarities.[2]

The traditional definition of proximity includes proximity, contiguity, resemblance, and a small distance between two points. More broadly, the existence of a sufficient degree of resemblance of one or more of their properties is expressed by the closeness between elements of a set. Nelson R. and Winter S. were the first to coin the term "proximity" in 1982. This notion serves as an analytical tool for highlighting both unique firm trajectories and inter-firm combinations.[3]

The notion of proximity is widely used today, both in industrial economics and in the economics of innovation. But the polysemy of the term, as well as the variety and extent of its applications ("economies of proximity"), implies a reasoned use of it. The proximity considered a priori is linked to the existence of localised externalities that produce spatial agglomeration effects and territorial dynamics.[4]

The author Boschma suggests five categories of proximity: cognitive, organisational, social, institutional, and geographical, all of which might help to foster and improve connections between knowledge-producing institutions and the formation of common knowledge." The more proximity between players ((in whatever form), the more they interact, the more they learn to innovate," says the same author. This means that the closer actors are, the better their interactions are, and the more they learn to innovate.

Five dimensions of proximity are presented below:

- ✓ Cognitive proximity;
- ✓ Organisational proximity;
- ✓ Social proximity;

[1] Huriot J.M, Pasteur J., «Proximity and distances in spatial economic theory», economic edition, 1998, P142

[2] Khaled Bouabdallah, Angélique Tholoniat, «Competitiveness and proximity networks: the emergence of a new proximity dynamic?», 5th Proximity Days.Bordeaux.28-30, Jun 2006, p 2

[3] Huriot J.M, Perreur J., Opcit, P117

[4]Corinne Tanguy. Dimitri Uzunidis, «Innovative Milieu and Innovative Entrepreneurship:The Power of Proximities and Networks», ISTE OpenScience, London, UK, 2016, p 4

- ✓ Institutional proximity;
- ✓ Geographical proximity.

3.2 Knowledge externality and polarization of innovation activities

Economic activities have a very substantial spatial polarisation, which is one of its most striking characteristics. Innovation is no exception, and it is much more concentrated than other forms of production. As a result, the majority of inventions are concentrated in a few countries, regions within these countries, and urban centres within these regions. For example, in the United States, innovation is predominantly concentrated along the coasts of California, New York, and New Jersey. In Europe, only three countries account for half of the research effort: Germany, France, and the United Kingdom.

Knowledge is a non-excludable good in the sense that, unlike a private good, it is difficult to limit its diffusion and use. There is a considerable danger of knowledge loss or spillover as a result. Indeed, because the information is non-appropriable, knowledge-creating enterprises produce external effects that can be freely employed by actors who are not affiliated with the originating enterprise. These are known as knowledge externalities. Furthermore, due to its endless nature, knowledge is unrivalled. Knowledge is a non-excludable good in the sense that, unlike a private good, it is difficult to limit its diffusion and use. There is a considerable danger of knowledge loss or spillover as a result. [1] Indeed, because the information is non-appropriable, knowledge-creating enterprises produce external effects that can be freely employed by actors who are not affiliated with the originating enterprise. These are known as knowledge externalities. Furthermore, due to its endless nature, knowledge is unrivalled. The interest and centrality of externalities increase as soon as we consider the role of knowledge in the innovation process. Indeed, knowledge production is no longer considered an isolated and impromptu phenomenon but a cumulative and progressive process.[2]

4. Determinants of innovation related to the entrepreneur

All types of enterprise leaders must be inventive. Have motivational management tasks where employees can develop and innovate to manage and attract innovative persons to enterprises.

Most innovative managers are change agents or imaginative leaders, but they must be able to generate and express new ideas and plans. They must continue to look for new ideas, organise activities into teams, and determine accreditation in successful cases.

[1] Foray D, «The knowledge economy», Discovery, coll. Landmark, Paris, 2000, p 124

[2] Emilie-Pauline Gallié, «Cooperation as a vector of knowledge externalities», Paris Dauphine University, Industrial Economics Seminar, 2014, p 2

When it comes to small enterprises, Naja Aboud Najm feels that one of the factors that makes them more innovative is that they are run by a project manager or contractor with an entrepreneurial spirit and the capacity to evaluate the surroundings and find opportunities in them. An entrepreneur is a term that is associated with enterprises. It may also be defined as someone who recognises and exploits opportunities that others do not.

In the same context, José Saint Pierre believes that one of the factors affecting innovation is an open entrepreneur who supports the sharing of responsibilities because, in his opinion, small and medium businesses are frequently seen as extensions of the entrepreneur, which can lead to strong interaction and even identity ambiguity. As a result, it's only natural to recognise that the entrepreneur is a critical component of innovation in small and medium-sized businesses and that it can be a factor of success but also a factor of failure if he's not interested in new projects and resistant to change. In these instances, competent users are not enough if the contractor is not "committed" to the innovation's success. He might be interested in this because he wants to encourage people to take chances by setting an important example for sustaining a "creative" and "innovative-friendly" environment.

Early studies of the influence of leaders on enterprise innovation have frequently focused on personality traits, values and beliefs, experience and knowledge, etc. In one of the studies - the study by **Hage** and **Dewar**. He found that high values among enterprise leaders were predictive of high levels of innovation.[1]

The innovative person, in general, according to the approach of **Gruber** and **Davies**, can be considered a system consisting of three interacting subsystems:

Knowledge and skills specific to a particular field, the presence of a feeling related to the profession of the creator, and the availability of feelings towards certain projects .There is also a fourth element that is also complementary to the creative process, which is the environment or the social and natural world in which the individual lives.[2]

Section three: The determinants of development

Which is essential for anyone hoping to succeed as an entrepreneur. Value creation and its expansion provide the most concise yet comprehensive idea description. Each business sets out to grow and provide more value to customers to elevate its status and increase its profitability. To achieve such a goal, business process management is detrimental.

[1] Nigel King, Neil Anderson, «Managing Innovation and Change Activities: A Critical Guide to Organizations, Arabization of Mahmoud Hassan Hosni», Dar Al-Marikh Publishing House, Riyadh, 2002, p 198

[2] Ibid, p 108

Chapter tow The determinants of innovation and development in the SMEs

Development because it is more concerned with the enterprise than the individual. Because it can take a while to register a business in some places, it might be challenging to make this distinction. Whether an enterprise is more than the sum of its parts—or, to put it another way—whether it is long-term viable, whether the entrepreneur who founded it becomes greater than the enterprise. Several determinants are considered among the factors for the development of the institution, which are:

1. Owner of SMEs as a factor for enterprise development

They are the characteristics that are available to the owner of the enterprise. They are the characteristics which have a reflection on the ability of the owner of the enterprise to manage the development path of the small enterprise and average, in addition to the variables that indicate the development-related stimulus of the owner enterprise.

1.1 General training

enterprise development may reflect the problem-solving skills and access to networks associated with the entrepreneur's general education. Training variables can be Gender, age, school level, influence on networking, and experience.

1.2 The extent of the development stimulus

Attitudinal indicators and incentives for entrepreneur development.

1.2.1 Entrepreneurial resolve

The entrepreneur's resolve determines the will to take risks and be effective and also indicates a commitment to development, The willingness of the owner of the enterprise to take risks, can also determine his will to collect the various resources necessary for the development of the enterprise.

1.2.2 The desire for independence

The owner of the establishment thinks that he has strong internal control over his destiny. Emprise, as well as the conviction of the desire to be the owner of the enterprise, encourages more motivation for development.

The founders of high-performing companies have an intense desire for independence. The desire to be one's boss stimulates the development motivation of micro-enterprise owner-managers.[1]

[1] Evangelia Papadaki, Bassima Chami, «The Determinants of Business Growth in Canada», 17 July 2000, p 9

1.3 Competencies in Management

The entrepreneur's management capacity can be an important factor in the development of the enterprise. It may come from parents who were entrepreneurs themselves, from experience in salaried work in the same field or from previous management experience. The owner-manager may also acquire this know-how from professional advisors, from a network of suppliers, customers or business associations from, or the participation of partners.[1]

1.3.1 Knowledge of the sector

Empirical evidence suggests that sector knowledge can have a significant impact on an enterprise's success, both in terms of survival and development. A study of successful start-ups concludes that they were generally founded by a founder with industry experience. It is assumed that industry knowledge, ranging from tacit knowledge of products, processes, and technologies to the investment of human capital in relationships with specific customers, suppliers, or stakeholders, will reduce the effects of the 'novelty handicap' affecting new entrepreneurs and thus increase their ability to obtain financing, promote sales, or engage in other types of collaboration.[2]

1.3.2 General enterprise management: previous experience

Previous business experience, one would think, would have a positive impact on a small business's future performance. The entrepreneur will have the opportunity to network with creditors, suppliers, and customers. The experience may have also increased their motivation and ability to ensure their enterprise's profitability and growth. Previous management experience in other enterprises appears to have a positive impact on business performance.[3]

1.3.3 Use of advisors

Through the use of professional advisors such as lawyers, bankers, and accountants, as well as suppliers, customers, and business associations, small business owners can gain experience, access to information networks, and encouragement. Furthermore, small business owners who build relationships with customers, suppliers, and trade associations are more likely to form formal alliances and partnerships. Partnerships and alliances,

[1] Ibid, p 15

[2] Said Lahouari, «Determinants of the growth of small and medium enterprises», a theoretical and applied study, Master's thesis, Faculty of Economics, Management Sciences, and Sciences, Boumerdes University, 2007, p 12

[3] Teach, RD, coll., «Frontiers of Entrepreneurship Research», Wellesley (MA), Babson College, 1968, p 546-562.

according to economic theories, are required to share risks and costs, as well as to open new markets and develop new products, services, and processes. Several studies on the different sources of professional advice have produced questionable results. Some studies suggest that the use of external professional accountants and advisors has a positive impact on success and performance.[1]

1.3.4 Partnerships

The presence of partners who can assist the owner-manager in development management can have a positive impact. Development can have a positive impact. They can contribute resources and skills, as well as increase credibility with potential funders and other stakeholders. The provision of capital, functional expertise and extensive management experience are all advantages of having partners. Additionally, the enterprise might gain from the partners' shared moral support and the fact that it is no longer reliant on the initiative and wisdom of a single entrepreneur. [2]

2. The growth dimensions of enterprise

Because development is associated with a certain instability of the enterprise and the disorder caused by change, it can only be ensured under conditions of organisational commitment and flexibility. Similarly, the presence of qualified and motivated human resources should facilitate the development of the enterprise.

2.1 Characteristics of the enterprise

Size has received the most attention from researchers among the firm characteristics that impact development due to its importance in determining appropriate national economic policies. Many researchers have discovered a negative relationship between height and development, while some studies in a wide range of contexts have discovered a positive relationship or no relationship at all. While it is unclear which way size influences development, it can be assumed that size impacts development.[3]

The various studies on development involve populations of enterprises of very different sizes. The contradictions in the authors' conclusions could result from differences in age within the populations studied. Indeed, the studies that have examined the link between the age of enterprises and their development almost unanimously show a negative link. Young enterprises

[1] O'Neil, H.M. and J. Duker, «Survival and failure in small business», Journal of Small Business Management, No. 24, 1986, p 30-37

[2] Perren, L., «Factors in the growth of micro-entreprises : Part 1, Developing a Framework », Journal of Small Business and Enterprise Development, no 6, 2000, p. 363-389

[3] Delmar, F. Measuring growth: «methodological considerations and empirical results» in Entrepreneurship and SME research: on its way to the next millennium», Royaume-Uni: Ashgate, 1997, p 199-216

are, therefore, more likely to grow significantly than older firms or adopt different development trajectories. It is, therefore, possible that age, rather than size, has a significant influence on development.

2.2 Human resources

SMEs are known to be "organic" enterprises that can adapt quickly to different situations, provided that their resources and enterprise allow it. Because rapid development forces the enterprise to constantly reorganise itself, it must rely on qualified, competent and motivated human resources interested in participating in its development.

Small and medium-sized enterprise development, like innovation, is a collective phenomenon that cannot be achieved without an appropriate environment. The importance of the enterprise's employees is becoming more widely recognised. Continuous and customised training will improve their skill levels, and a profit-oriented or ownership-based remuneration scheme will ensure the retention of the most qualified employees. The OECD (2002) emphasises that continuous training of all employees is a critical practice for the enterprises' success. Furthermore, high-development enterprises engage and motivate their employees by disseminating information to as many employees as possible and involving employees in decision-making.[1]

2.3 Sources of finance

It is noticeable that the enterprises that know high development are the ones that depend on self-financing for their development path as a result of their historical profitability or as a result of the extent of their development.[2]

2.4 Enterprise Adaptation and Flexibility Strategy

development requires SMEs to be relatively flexible and to have the capacity to adapt quickly to the turbulence that growth brings. Development. Conditions for growth include the importance of innovation and partnerships, especially with rich sources of information.

2.4.1 R-D and innovation

The development of an enterprise is almost linked to its ability to innovate. Several studies show that innovation stimulates growth by possessing a distinctive product or a distinctive advantage. Roper (1999) found that the sales development of small enterprises that introduced a new or modified product to the market is much faster than those that introduced a new or modified product to the market. Introducing a new or modified product to

[1] OCDE,« High growth SMEs and employment», 2002, p 17
[2] Evangelia Papadaki , Bassima Chami, Op cit, p 20

the market is much faster than that of non-innovative non-innovating firms. Other studies find that R&D intensity is positively associated with development.[1]

An enterprise's development is linked to its innovation potential. Several studies show that innovation stimulates the development of an enterprise as a result of having a product or characteristic distinct from other competition.[2]

2.4.2 Partnerships

In high-development enterprises, alliances and partnerships play a key role (OECD, 2002). These collaborations can be used to complement the enterprise's resources or to obtain resources or obtain strategic information and thus reduce uncertainty in their development.

Small enterprises can join forces with external partners to compensate for the lack of resources due to their small size. Partnerships with educational institutions and research centres, according to Julien (2000), stimulate development. This expansion will be accelerated if the collaboration is formalised through alliances, joint ventures, or research consortia. External advisors can also assist companies in solving various problems (OECD, 2002), compensating for certain managerial deficiencies on the manager's part, or compensating for lack of information. Several studies have found that SMEs that use external public advisors grow faster than those that do not.[3]

2.4.3 Searching for information

Enterprise development can be facilitated for those who can grasp new situations by collecting relevant information. This information can come from a variety of sources but must be analysed and passed on to the members of the enterprise to be transformed into opportunities or to reduce uncertainty.

2.4.3.1 Search for commercial information

According to these studies, companies that have a strong market orientation and communicate with their customers regularly are more likely to develop. The most important partnership is that formed by high-development companies with their customers and, to a lesser extent, with their suppliers. Collaborations with customers and suppliers can help the enterprise gain a

[1] Pierre André Julien, high-growth SMEs: «explanatory factors, the congress of the international association of strategic management Montpellier», 24-26 May 2000, p 7

[2] Frank Janssen, Josée St-Pierre, «influence of market and customer base served on SME growth factors», Canadian Council of Small Business, Régina, Canada, 2004, p 10

[3] Chrisman, J.J. and W.E. McMullan, «A preliminary assessment of outsider assistance as a knowledge resource: the longer-term impact of new venture counselling», Entrepreneurship Theory and Practice, 2000, p 37-53.

better understanding of the market, on the one hand, increase the enterprise's ability to properly satisfy them on the other, and finally reduce commercial uncertainty.[1]

2.4.3.2 Competitive and strategic information research

To sustain significant growth over several years, companies need to be continually aware of the reactions of potential competitors. Knowledgeable" companies recognise the need to be kept up-to-date and flexible to adjust quickly to new information. In this sense, networking with other enterprises will also likely stimulate development.[2]

2.4.4 Adoption of e-commerce technology

E-commerce has the potential to improve and strengthen customer relationships, corporate image, information and knowledge sharing, large enterprise competitiveness, and access to international markets. However, the expected impact varies depending on the evolution of e-commerce technologies. A limited basic Internet connection enables businesses to communicate, exchange information, and establish business links efficiently and cost-effectively. The ability to market products and services over the Internet, exchange information with suppliers and customers and conduct transactions is the most important advantage of e-commerce.[3]

3. External factors related to the environment

Among the components of the environment in which the enterprise operates in general and the development rate of the sector, in particular, is an environment variable that impacts the development of small and medium enterprises.

In light of the personal goals of the owner of the enterprise, he can develop his enterprise in a distant or neighbouring market or on focused or diversified clients.

3.1 Market development

In a local market and an environment characterised by relatively low uncertainty, the firm can develop and achieve development desirably, according to the objectives defined by the path. Small and medium enterprises that operate solely in the local market achieve growth through a strategy of approach, and they primarily operate in a market where there is a

[1] Janssen frank, josée st-Pierre, & al. l, «growth factors of manufacturing SMEs in local or international markets, institute for research on SMEs», department of management sciences, university of Quebec, p 6-7

[2] Donckels, R. et J. Lambrechts, «Networks and small business growth: an explanatory model», Small Business Economics, 7, 1995, p 273-289

[3] Janssen, Frank, «The interchangeability of criteria for conceptualisation of growth: an empirical study», Institute of Administration and Management, Catholic University of Leuven, 2004, p 8

characteristic of non-existence and where customer needs are close to reality, and we can observe a low level of innovation, as well as a low level of use in response to new business applications, under these conditions. Selling in international markets has several challenges that businesses operating in domestic markets do not face. As a result, they are generating export development, which represents a significant qualitative development for SMEs, taking into account a variety of market procedures and structures.

3.2 Customer development

Some managers prefer to take care big customers for Some managers prefer to take care of big customers for growth, and others prefer to reduce the risk of relying on a certain segment of customers by diversifying their customers, to maintain their autonomy in their decisions and strategic choices. And others prefer to reduce the risk of relying on a certain segment of customers by diversifying their customers, to maintain their autonomy in their decisions and strategic choices.[1]

- ✓ Focused clients, a situation of client concentration is a serious and undeniable factor that places the institution in a position of dependency on clients;
- ✓ Diversified clients, as opposed to small and medium enterprises that are dependent (not independent), we have small and medium enterprises that have diverse clients, which then have to organise themselves to work in a complex environment where there is a high degree of uncertainty.

Section four: the determinants of innovation most affecting the development of the enterprise

1. The most important determinant that contributes to innovation

In this part, the most critical determinants we have chosen that contribute to innovation in the enterprise will be studied through previous studies that touched on these determinants. By using a Summary table (number of points awarded)

[1] Pierre André julien, Op cit, p :15

Table 33: Summary table

Author	ENT	H.R	F.R	R&D	SI	TIC	CUL	PAR	T.E	SIZE	COM	Env	Ma	EXP
Mita Bhattacharya 2002				10						8		9		6
Gabsi,Foued & AL 2008	10			10				9	7	9			6	
Leon A.G. Oerlemans & AL 2001			10	10								9		
Caroline HUSSLER 2004				10				9				8		
Henny Romijn& Manuel Albaladejo 2001	10		9	10	7							8		
Walid Hadhri & AL 2016				10		8		9		7				6
Nabil KHOURI 2001			10			8			7	9				
Wafaa, BERBAR & Abderrezzak, BENHABIB 2015	10	8	9	9				8			7			
Walid Sharara 2018	10	9			7			9			8			
David Wan & AL 2005			10	10			7							
Jeroen P.J. de Jong & R. G. M. Kemp 2001	9										8	10	7	
Rifat Kamasak 2015	10						6					9		
Eliane Olga Kompaore 2008	9		10	10				8						

Fatiha Fort & AL 2005	9		10							9		8		
Boukhalfa Benamar &Foued Cheriet 2012	10		9	9						8		8		
Olfa Hajjem Zaier 2017			10	10				9						
Barbara Bigliardi & Alberto Ivo Dormio		8	9					10					7	
Bouzid Ines 2011	9	10	10							8	8			
Bilal Zuyouch 2017			10	9	7			9			6	8		
Jean Claude Boldrini 2013	10	9	9											
MELBOUCI Leïla 2007	10		10	9										
malal ahmed & Zalmat Muhammed 2019	10		10							9				
Léonard Nkouka Safoulanitou et al. 2013	10					7					8			
Vega Jurado et al. 2008		9	10	8				9			7		6	
TOTAL	**136**	53	**155**	**134**	21	23	13	**89**	14	67	52	**77**	26	12

Source: by the researcher

ENT: entrepreneur, **H.R**: human resource, **FR**: financial resources, **R&D**: research and development, **SI**: information system, **ICT**: information and communication technology, **CUL**: culture, **PAR**: partnership, **Env**: environment, **SIZ**: size, **COM**: Competition

E.T: Education and training, **Mar**: market, **EXP**: Export

According to 24 studies presented in the previous table, the following results can be summarised:

- ✓ Financial resources
- ✓ Entrepreneur
- ✓ Research and development
- ✓ Partnership
- ✓ Environment

These determinants will study their impact on the development of Algerian small and medium enterprises.
Both contractor and financial resources will be combined with research and development.

Table 34: The relationship between R&D and both financial resources and the entrepreneur

Enterpreneur ⇒ R&D	- Bencheikh et al. 2006 **(+)** - Olga B. et al., 2008 **(+)** - Norrin Halilem et Etienne St Jean 2011 **(+)** - Djeflat A. 2012 **(+)**
financial resources ⇒ R&D	- Henny A. Romijn & Manuel Albaladejo, 2002 **(+)** - Boukhalfa Benamar &Foued Cheriet 2012 **(+)** - Olfa Hajjem Zaier.2017 **(+)** - H. Hall and Josh Lerner. 2012 **(+)**

Source: by the researcher

2. Studies about the impact of previous determinants of innovation on the development of the enterprise

We discussed the elements that determine innovation and development at the start of the chapter. However, each effect has been explained separately inside the enterprise. There are a variety of determinants, ranging from organisational to managerial to geographic.

In this part, we will explain the determinants of innovation that have the most effect on the development of an enterprise by looking at some previous studies of these determinants in general or in individual terms and its result. The entrepreneur, financial resources, R&D, partnerships, and technological environment are some drivers.

A. The management of financial resources

Every enterprise has various business units that help it function and grow. Of all these departments, finance probably exists even before an enterprise has started working. The finance people decide if a venture is viable and how it can earn revenue to sustain itself. For such an important department, it is essential to have excellent management.

- **first study**

A note about (Science, technology and innovation for enterprise development) in the trade and Development Board Investment, Enterprise and Development Commission Tenth session by the United Nations Conference on Trade and Development in 2018. To encourage the formation of more innovative and technologically advanced businesses and, eventually, to increase productivity across all economic sectors, this paper proposes some features of policies targeting STI capabilities at the firm level for the Commission's consideration.

The note looks explicitly at the primary policy tools employed to address the financial constraints faced by innovative entrepreneurs, the policies and practices to promote networking and clusters of innovative firms, and the policy actions required to take advantage of the opportunities for innovative entrepreneurship created by the emerging digital economy.

The goal of public financial support for STI has been expanded to include the investment of infrastructure and mechanisms, such as networks and clusters or public-private partnerships for early-stage funding. More recently, financing has become increasingly innovative, with the appearance of new funding mechanisms and the development of what is commonly referred to as the fintech sector.[1] Several new approaches to financing STI correspond to priority areas identified in the 2030 Agenda for Sustainable Development.3 Impact investment, green funds, socially responsible investing, multi-stage financing and crowdfunding, among others, can make important contributions to the development financing of the innovation needed to meet the Sustainable Development Goals.

- **Second study**

An Irish study about (Financial resources for research and innovation in small and more significant firms: Is it a case of the more you have, the more you do?) by Mauricio Perez-Alaniz, Helena Lenihan, Justin Doran & Nola Hewitt-Dundas in 2022. This study analyses how firms' internal financial resources impact their engagement in scientific research, development, and five innovation activities. they investigated how firm-size

moderates the impact of firms' internal financial resources on scientific research, development, and innovation. Their approach provides novel insights regarding whether more money leads to more research and innovation. The analysis of the study used a novel unbalanced panel dataset of 1,446 firms in Ireland over the period 2008–2016. their research refines

[1] United Nations Conference on Trade and Development, Science, «technology and innovation for enterprise development», trade and Development Board Investment, Enterprise and Development Commission Tenth session, 2018, p 3

innovation theory by reconciling contrasting views regarding the importance of financial resources for research and innovation and offers novel insights for informing related public policy interventions. This is the first study to provide a detailed analysis of the impact of enterprises' internal financial resources on their research and innovation (R&I) activities. As a result of this study, we find :

- ✓ on average, across the period 2008 to 2016, firms that engaged in most of the seven R&I activities had significantly higher levels of internal financial resources when compared to firms that did not engage in these activities ($p < 0.05$);
- ✓ shows that younger firms and firms that engaged more in cooperation with clients, suppliers, and public knowledge providers, also engaged more in R&I ($p < 0.05$)
- ✓ firms that declared using external financial resources for R&I from outside of Ireland generally engaged less in R&I ($p < 0.05$), but this was not the case for firms using external financial resources from Ireland, where no differences were found;
- ✓ As Montresor and Vezzani (2022) reported, firms may invest in other R&D-related activities, such as branding, reputation building, and training. This may explain why firms that used external financial resources from abroad engaged less in R&D activities.

- **Third study**

Turkish study about (The role of financing in innovation ecosystems: a panel data analysis) by Dilek DEMIRHAN and Özgür BABACAN in 2016. The availability of financial resources is argued to be a vital factor in fostering innovation. Based on this argument, this study aims to explore the effects of financing opportunities on various elements of national innovation ecosystems. Data from 115 countries between 2010 and 2014 are used for this purpose obtained from the World Economic Forum (WEF) Global Competitiveness Index database. The study's conclusions indicate that funding alternatives significantly impact businesses' R&D expenditures and university-industry partnerships.

However, the study's conclusions show that access to money has no impact on an individual's aptitude for innovation.

b. The entrepreneur

The enterprise leader, the entrepreneur, seeks out and implements ideas to promote economic progress. Entrepreneurship is one of the most crucial factors in a nation's economic progress.

The entrepreneur functions as a trigger head to ignite economic activity by making business decisions. And there are some studies. These are some

studies that dealt with the determinant of the innovative entrepreneur and its role in economic development:

- **first study**

A Romanian study in 2012 about (Innovative Entrepreneurship for Economic Development in the EU) by **Szabo K. Zsuzsanna** and **Emilia Herman.** This study dealt with a short review of the literature on the importance and role of innovation and entrepreneurs in economic growth and development. It aimed to analyse the relationship between innovative entrepreneurship and economic development in the EU. To reach our objectives, the methodology used was mainly the statistical one. They used the SPSS software package for the statistical data processing and interpreting innovative entrepreneurship expressed by SMEs introducing product or process innovations. According to (the innovation union scoreboard) EU, 2012. based on their average innovation performance, represented by the Summary Innovation Index composite indicator that summarises the implementation of research and innovation systems at the country level using, the EU Member States are grouped into four performance groups: (innovation leaders, innovation followers, moderate innovators, and modest innovators). And they got the following results:

- ✓ Innovative performance is a factor on which economic development is based;
- ✓ A direct and substantial relationship was identified between Summary Innovation Index (SII) and GDP/capita;
- ✓ Thus, gaps between countries in terms of economic development can be explained by the disparities in innovative performance;
- ✓ The countries that belong to the innovation leaders group, mainly countries in North-Western Europe, have a slightly higher quality of their innovation systems than GDP per capita levels, which is similar to GDP per capita recorded by most of the countries that belong to the innovation followers group.

- **Second study**

Indian study (The Role of Innovative Entrepreneurship in Economic Development: A Study of G20 Countries) by Hajam Abid Bashir and Ali Akhtar in 2016Investigating the relationship between creative entrepreneurship and economic growth and its importance for the G20 member countries' economic development is the aim of this study. Innovation and entrepreneurship in economic development are discussed. The study's primary sources of data are secondary sources.

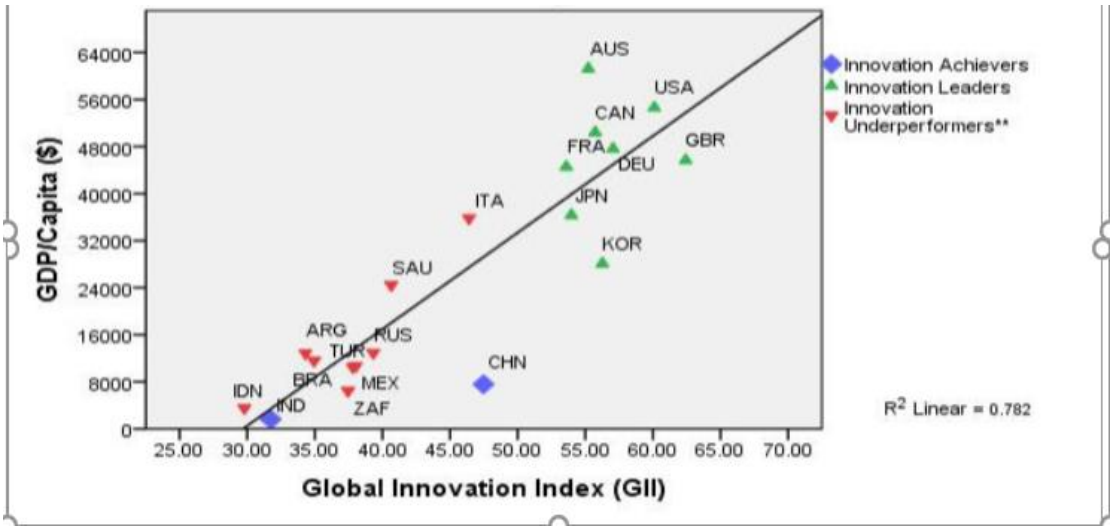
Utilising SPSS software, data analysis and interpretation are done.

The Global Innovation Index (GII) measures innovation performance, while the GDP (gross domestic product) per capita of G20 member countries measures economic development. Pearson's correlation coefficient examines the linear relationship between these two variables.

Three performance

- ✓ categories exist in the top 25 "innovation leaders" with GII ratings of at least 50;
- ✓ "Innovation achievers" perform 10% higher than their peers for their level of GDP;
- ✓ "Innovation underperformers" are the economies which performed 10% less than their peers for their level of GDP. (innovation underperformers" since they underperformed to only that extent where they couldn't fit in any criteria of GII groupings.

Figure 20: Correlation between innovation performance and economic development



Source: Hajam Abid Bashir and Ali Akhtar, The Role of Innovative Entrepreneurship in Economic Development: A Study of G20 Countries, Management Studies and Economic Systems (MSES), 2016, p96

Figure 7 shows a direct and strong relationship between Global Innovation Index and GDP/per capita. There is a positive correlation with Pearson's correlation coefficient = **+0.782**. Therefore, the gaps between economic developments can be explained by the variance in innovative performance.

And the results of this study showed that:

- ✓ Economic development largely depends on innovation, especially on the innovation capacity of enterprises;
- ✓ The analysis shows that entrepreneurship and innovation, individually and altogether, have a positive relationship with economic growth in general;

- ✓ The motives of the entrepreneurs in efficiency-driven and those who are in transition from efficiency to innovation-driven economies;
- ✓ Economies with necessity-driven entrepreneurship should adopt policies that educate entrepreneurs about innovative entrepreneurship's powerful economic potential to impact the economic development of their respective nations, assist them in building organised businesses through expert consultation and funding, and reward entrepreneurs for implementing new ideas to facilitate a shift from necessity-driven entrepreneurship to i-entrepreneurship;
- ✓ SMEs are essential for economic growth;
- ✓ Countries with SMEs adopting innovative entrepreneurship can contribute more to economic growth and development;
- ✓ To promote entrepreneurship generally and develop policies that boost creative activities within established growing businesses, economic growth must be increased through innovative entrepreneurship.

- **Third study**

A study from the Republic of Moldova in 2019 by Rodica Crudu named (The contribution of inventive enterprise to the economic growth of EU member nations) aims to analyse (The role of innovative entrepreneurship in EU member countries' economic development). To ensure that the study model adequately accounts for new, young, and innovative businesses as elements of innovative entrepreneurship and predictors of economic growth rates, it was put to the test.

Regression model analysis was employed as the study methodology, while Stata and SPSS software tools were used for the statistical data analysis and processing. The result of this study was :

- ✓ Entrepreneurs' motivation is consistent with the development level of the economy;
- ✓ Innovative entrepreneurs (measured by the TEA innovation level) are more present in countries with a higher development level and incomes motivated to become entrepreneurs as they see an improvement opportunity.

Schumpeter's "entrepreneur" definition has a functional character and concerns only functions and activities related to innovation. At the same time, the entrepreneur may be a person who is not the owner of capital. Schumpeter's definition of an "entrepreneur" allows banks (and the banking system) to introduce innovations into the economy, which is relevant to the current discussion on entrepreneurship and the growth of capitalism.

That is why we currently find the term (the Schumpeterian entrepreneur), because the entrepreneur, according to Schumpeter, is before all creative and

innovative: (The entrepreneur is the mainstay of economic development) according to the theory of development.
The innovative contractor, as a determinant of innovation, primarily impacts the enterprise's progress and development.

3. Research and development

The traditional analysis of innovation has focused on the Schumpeterian hypothesis of a positive link between market power and innovation. This often includes an implicitly linear view of the innovation process, with R&D as a necessary first step. The innovation determinant that has received the most attention from researchers in research and development (R&D).

- **first study**

Study about (The Role of Research in Economic Development), by Okokpujie I. P, Fayomi O.S.I. and Leramo R. O in 2018. This study showed the Impact of Research on Economic Development in respect:[1]

- **Establishment of Research**

✓ The study supported the idea of endogenous development. The study found that spending on education and research by the general public and family units are key supports for the development and improving the nature of work;
✓ A higher reliance proportion of young and more established individuals antagonistically influenced the Korean development rate;
✓ Change of
✓ political, social and social establishments were prescribed to accomplish long-run management monetarily
✓ development rate.

- **New Inventions**

✓ The Research and development uses might be considered as an interest in innovations, and the information base can then be changed into more effective creation techniques for accessible assets.
✓ Should the more elevated amount of research and development consumption succeed, a more significant amount of development rates may be expected.

- **Increase Gross National Profit**

✓ The investigation proposed a change in ability base, an extension of instruction and preparation, and an advancement of research for better monetary outcomes. Fundamental instruction is critical for human asset improvement ;

[1] Okokpujie I.P, Fayomi O.S.I. and Leramo R. O, «The Role of Research in Economic Development», IOP Conference Series: Materials Science and Engineering, 2018, p 6

- ✓ was additionally recommended to quicken the labour fare to diminish neediness and enhance macroeconomic pointers.

- **Impact on the Country's Human Capital**

- ✓ Quote analysed the impacts of information capital and innovation overflow on territorial financial development in China;
- ✓ The outcomes demonstrated that Research, capital and innovation import contribute altogether to monetary development in China;
- ✓ The flexibility of research to economic development was as substantial as innovation, demonstrating the same commitment to the financial development of China.

- **second study**

A study from Pepperdine University in California (The Impact of Research and Development on Economic Growth and Productivity in the US States) by Luisa Blanco, Ji Gu, and James Praeger in 2013. This study aimed to show the impact of R&D on TFP and the levels of human capital in the US. The sample includes data from 50 states and the District of Colombia between 1963 and 2007.

After knowing the relationship between investment in research and development capital and productivity, the study reached the following conclusions:

- ✓ R&D performed within a state has a positive, significant effect on the share of Gross Domestic Product (SGDP) through TFP in the long run;
- ✓ The finding of a positive impact of R&D on SGDP is robust to the inclusion or exclusion of other-state R&D, to allowing the elasticity to change over time, and to the lag length chosen for R&D;
- ✓ R&D does not seem to have significant short-run impacts on productivity, whether the R&D is performed. This highlights the long-run nature of the link between R&D investment and growth in a state's economy;
- ✓ Variation in the R&D elasticities across the sample. The evidence indicates that the own-elasticity of R&D increased, albeit only slightly, between 1963-1992 and 1993-2007.

- **Third study**

Algerian study about (The role of research and development in developing the competitiveness of enterprises) by Mounirra Dridi and Selma Laroche in 2019. By defining the competitiveness of enterprises, this study sought to highlight the significance of research and development in enhancing the skills capacity of businesses .The concept of research and development was highlighted by highlighting its importance and outputs to determine the

impact of research and development outputs on the institution's competitiveness. The study concluded that:

- ✓ The research and development process is a critical factor in increasing the competitiveness of the enterprise;
- ✓ The importance of R&D in improving the quality of a product, completely renewing it, or reducing its costs, allows an enterprise to increase its share in internal markets;
- ✓ R&D influences the competitiveness of an enterprise by influencing the competitiveness indicators and competitive forces faced by the enterprise through;
- ✓ Innovation and continuous development, adapted to the needs and desires of consumers, enables an enterprise to maintain its market position and remain in the market while maintaining customer satisfaction.

- **fourth study**

A German study by Steffen Kinkel, Gunter Lay and Jürgen Wengel about (Innovation: More than Research and Development) in 2005. Its findings of research, development and innovation are as follows:

- ✓ Data from the Manufacturing Performance Survey 2003 (cf. box on p. 12) again confirms this correlation: On average, companies manufacturing piece goods invest about 6 per cent of their turnover in R&D;
- ✓ companies with a poor R&D quota of less than 2 per cent barely set any growth impulses;
- ✓ Companies highly engaged in R&D were, therefore, able to realise employment growth above average;
- ✓ Innovation strategies focussing on R&D are generating economic growth;
- ✓ However, the innovation initiative of the Federal Government also made it clear that innovation can be more than developing new products. Innovation advantages facilitating growth can also be accomplished through innovative manufacturing processes or new business models.

Table N.33 and so of the previous studies that mentioned the determinants under study. We conclude that among the many determinants of innovation, these determinants, which will be the subject of our applied study, are among the most important innovative determinants that impact the institution’s development in particular, as well as economic and sustainable development in general .These determinants are related to each other within the enterprise.

First, we have financial resource determinants. An enterprise with substantial financial resources and well-managed internal and external resources has a greater chance of innovating and evolving than others. Financial resources allow for the introduction of new technologies and advanced machinery for their introduction into the process of production and innovation. Second. The

entrepreneur is the main engine and the main wheel in the institution and has played an important role in its management from the day of its establishment. And he does everything he can to preserve its continuity and development. It always seeks to achieve development internally and externally for the institution, and innovation is among the most significant factors that support the enterprise's growth. Therefore, the innovative contractor, who has high skills and competencies, and the ability to innovate and be creative, significantly impact the enterprise's development.

Third The research and development function is one of the most important functions within an enterprise. As a determinant of innovation within, it also significantly impacts its evolution. Using an advanced information system to access information and create new products or develop existing ones depends on capacity building and catalytic, proactive and strategic activities. Finally, the human resource determinant. Where there is no doubt that enterprises consider their employees' capabilities when measuring their business's success level, we found that the KPI for measuring innovation-enabled growth across all departments revolves around customer experience and satisfaction. And that institutions realise the importance of the contribution of their employees, as employee productivity comes in second place as the leading indicator for measuring development. Then the partnership because in the specific case of SMEs with limited resources, these collaborative networks are of great importance as they allow them to bridge their resource, skills and knowledge gap. Similarly, Landry and Amara found that the presence of collaborative relationships between enterprises and government research centres, universities, and colleges considerably helps the development of radical innovations in a study on the effect of information sources on the level of originality in an invention. Finally, we have the environment. Because it plays an important role in the enterprise. Because of the more frequent contacts created with local universities, SMEs working in an industry or geographical area with leading suppliers in technological domains and those located in science parks have an edge in their innovation strategy.

Conclusion

Process in the business and gain a long-lasting competitive advantage. This innovation process not only completes each project successfully but also identifies areas for innovation within the business, encourages the development of innovative ideas, creates technological and marketing resources to support them, chooses priority projects, and manages their implementation. This will support its development and continuation.

Economic enterprise in general and small and medium-sized enterprises in particular. The manager must also supply the required resources and exert effort. However, certain factors that made these institutions unique can be studied and presented to other institutions that want to succeed and adopt a plan to take advantage of them.

Obstacles. Making sure his business is competitive and sustainable is his top concern. They consequently doubt the development approach to foster growth throughout the long and medium term. And discussed the many strategies that encourage innovation there. We examine the various enterprise-level innovation determinants in the second section.

The aspect of development and its many sorts and determinants were then covered in the third segment. Finally, to support the determinants of the study, which will be covered in the application chapter, we evaluated some of the earlier studies that looked at the most significant drivers of innovation that impact organisational development.

Chapter 3: Application to the Algerian SME

Section one: Research methodology

I. Formulation of hypotheses and the study model
II. The Choice of Quantitative Approach
III. study tool (The structure of the questionnaire)
IV. Reliability and Validity of the Scale Used
V. Statistical processing

Section two: Study data analysis

I. Presentation of the sample study
II. Descriptive analysis of the study variables

Section three: Discussion of the results

I. Hypothesis Testing
II. Discussion of the Survey Results

Chapter 3: Application to the Algerian SME's

Introduction

This chapter aims to introduce the conceptual framework, and it is desired that both the conceptual framework and the research technique be discussed here. These primarily come into focus while reviewing the literature covered in the first two chapters of the thesis. We will outline our research methods in the first section of this chapter before returning to the factors whose associations we will investigate further.

To achieve this, we begin with a review of the literature before offering hypotheses about the factors that influence SME innovation, as well as a presentation on data collection and sample characteristics.

As a result of the fact that at this point, we are unable to address the entire community of small and medium-sized businesses due to their size and ongoing growth from year to year, as well as the fact that none of these enterprises is interested in the topic of our research, to test the effect of the determinants of innovation on the growth of the small and medium-sized business in Algeria, we resorted to conducting a field study, limited only to those that have.

Chapter 3: Application to the Algerian SME's

Section one: Research methodology

The main theoretical and empirical knowledge of innovation has been synthesized and developed in the context of SMEs. This allowed the establishment of relationships between determinants of innovation and determinants of development in SMEs. As a result of these chapters, hypotheses regarding various factors have been developed.

This section discusses the research methodology used to test the hypotheses. More specifically, it presents the research strategy, the method of data collection, the study population, the characteristics of the chosen sample, the description of the variables related to the different concepts of the research model, and the techniques used for data processing. It should also be noted that the survey was based on questionnaires.

1. Formulation of hypotheses and the study model

In general, the literature review on the determinants of innovation that most affect the development of the organization highlighted a set of main elements that can be summarized in the following hypotheses:

H1: The use of financial resources in research and development has an impact on the innovation process

H2: An entrepreneur oriented towards R&D increases the potential for innovation

H3: Adopting an innovative strategy in research and development in the enterprise has a significant impact on innovation

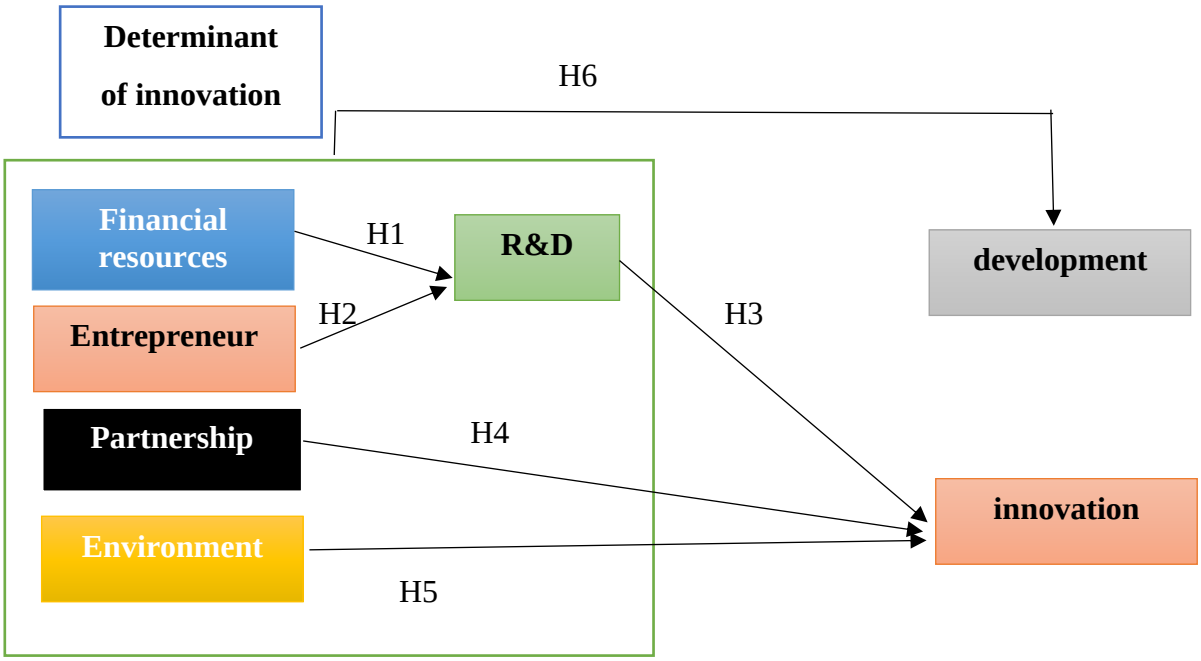
H4: The adoption of partnership by the institution has a significant impact on its ability to innovate

H5: The presence of the institution in a scientific environment surrounded by prepared technological elements contributes to the innovation process

H5: The determinants of innovation mentioned earlier contribute significantly to the development of the enterprise.

To address these assumptions, we propose the following conceptual model:

Figure 21: study model



Source: prepared by the student

This model, which is consistent with the synthesis of our understanding of the state of theoretical and empirical knowledge of the innovation process in the context of SMEs, summarises the dimensions that will be explored in this study on the determinants of innovation that have an impact on enterprise development. The variable selection was calculated from a study combining previous studies in different countries, 24. We emphasize the innovation determinants that impact an organization's evolution through these studies and then allocate 10 points to the first variable that the study's authors consider relevant. We continued to rank ourselves in descending order on the 10 to 1 scale (see Table 33). We then proceeded to aggregate the scores obtained. We took the first five based on the literature review, which considers that the most important variables, according to most authors, are: Financial resources, entrepreneurs, research and development, partnership, and environment. The innovation system and the determinants of innovation in small and medium-sized enterprises can be thought of as variables that contribute to the innovation process and also have an impact on the development of Algerian small and medium-sized enterprises, as stated in the first and second chapters on the realities of small and medium-sized firms in Algeria.

Now that the conceptual framework and research hypotheses have been defined, we can move on to the choice of the methodological approach that will guide this research and provide relevant answers to the questions raised.

2. The Choice of Quantitative Approach

The choice of the research method from among the quantitative and qualitative mixed methods is very important. It is closely related to the purpose of the study, its objectives and questions. The researchers (**Leedy & Ormrod, 2011**) describe the research methodology with the comprehensive steps that the researcher uses when initiating research work. [1]

Several academics have described quantitative research. One of them was a researcher (Cohen, 1980) aware that the study involved experimental techniques and data for social research empirical claim is a description of "what is" in the real world as opposed to "what should be." The researcher (Creswell, 1994) also presented a brief definition of quantitative research as a type of research that "**explains phenomena through numerical data that are analyzed using methods based on mathematics (especially statistics**)".[2]

In other words, the main goal of quantitative research is to measure social reality. Quantitative researchers see the world as an easily recognizable reality since their studies and/or queries focus on amounts in various phenomena. Therefore, thorough evidence is crucial in the data collection and analysis processes. By analyzing the correlation between variables, quantitative research seeks to test unbiased theories. These variables can also be measured since statistical techniques can be used to examine numerical data.[3]

2.1 Conduct the survey

A sample of 100 national small and medium-sized businesses engaged in a variety of national or international business activities and industries was the target of our survey.

We utilized a crucial pole to accomplish this .The 53rd Algiers International Fair, which took place from June 13 to June 17, 2022, in the Exhibition Palace in Algiers, attracted around 698 national and international enterprises from about 20 different nations. With 187 multinational enterprises from 20 different nations participating, this show is one of the biggest economic occasions on the African continent. The 35 exhibitors in the energy, construction, agriculture, foodstuffs, water resources, environment, aviation industry, and education sectors represented the most significant United States of America, who was the guest of honour.

In addition to Cuba, as well as some European countries such as France and Germany. And Asian countries such as Iran, Turkey, Indonesia, Pakistan, and Bangladesh. African countries, including Senegal, Mali, Cameroon, and Mozambique. As for the Arab countries, it was with the participation of Egypt, Tunisia, Palestine, Syria, and the Sahrawi Arab Democratic Republic.

In addition to foreign enterprises, 530 Algerian exhibitors will participate in the event, distributed among 147 public enterprises and 383 private enterprises. The participating national enterprise belongs to the electronic and electrical industries and electrical household appliances (42 enterprises), food industries (68 enterprises), services (66

[1]Apuke, O. D, «Quantitative research methods: A synopsis approach», Kuwait Chapter of Arabian Journal of Business and Management Review, 2017, p 40-47

[2] Sukamolson.S, «Fundamentals of quantitative research», Language Institute Chulalongkorn University, 2007,p2

[3] Sukamolson, Opcit, p4

enterprises), Chemical and petrochemical industries (87 enterprises), mechanical enterprises (68 enterprises), manufactured industries (35 enterprises), traditional industries (100 enterprises), and construction and public works (45 enterprises), in addition to 19 foreign corporations active in Algeria.
The Ministry of National Defense participated for the first time in this exhibition with 19 enterprises, representing production units of an economic nature in the sectors of mechanical industry, textiles, and shipbuilding.

3. study tool (The structure of the questionnaire)
3.1 presentation of the questionnaire

For our research, we adopted the questionnaire as a tool for the study, as it enables the collection of primary data, which is well suited for quantitative research because it facilitates sample processing and statistical relationships or comparisons digitally.[4]
Following various studies, it is important to keep in mind that there are several restrictions on research in the organizational setting and that the corporate environment is less likely than individual customers to respond to questionnaires. The policy of the business and the degree of confidentiality of the themes that were explored do, explain the reluctance of the businesses to cooperate with inquiries.
Greer et al. identify the different factors that increase the response rate to questionnaires.[5]

Table 35: Factors for increasing the return rate of questionnaires

Factors	Importance moyenne sur un total de 100 points
Content of the questionnaire	26.52
Organization carrying out the study	17.97
Pre-paid return envelope	15.20
Privacy, the sensitivity of issues	9.68
Using a letter of introduction	7.89
Incentive to respond	6.80
Time of day the questionnaire is received	6.23
Time to respond	5.01
Follow-up	1.98
Pre-notification	1.69
Other (length, simplicity of questions...)	1.03

Source: Greer et al., Optic

[4] R.A Thietart, «Research methods in management», Dunod, Paris, 1999, p226
[5] Gherra Sandrine, «Integration of sustainable development in the corporate strategy: An explanation by the theory of resources and skills and the stakeholder approach, the case of the consumer products sector», PhD thesis, University of Aix Marseille II, 2010, p290

3.2 The structure of the questionnaire

Relying on the study model, we formulated a questionnaire. To assess the apparent validity of the questionnaire, a group of arbitrators was consulted from members of the panel Teaching specialists in economic sciences and statistics in Algerian universities (Annex No. 02) to express their opinion and suggestions regarding it, which were taken into consideration. There are a certain number of rules to respect concerning the structure of the questionnaire.

The questionnaire sent (Annex 2) contains mostly questions in the form of 5-point scales. Some additional questions (open-ended and closed-ended) are designed to gather information about the respondent.

The questionnaire contains various questions, including Closed, Multiple Choice, and Likert Scales.[6] It is intended for corporate managers.

The questionnaire consists of eight axes:

The first: is an introductory axis entitled (Introduction of the institution). It also includes a general inquiry about the institution and its director, allowing us to confirm that the institution complies with the SME's requirements, qualifies for inclusion in the research sample, and was processed and analyzed.

The second: Contains 11 paragraphs, through which the dependent variable was highlighted, which is the innovation that exists in the enterprise.

The third: Contains four questions and 11 paragraphs about the financial resources of the institution, and the purpose of this is to know its financial position.

The fourth: Contains 21 paragraphs about the entrepreneur and its relationship to innovation, as well as the extent of its contribution to the research and development process.

The fifth: Includes 15 paragraphs about the research and development process to see how this process contributes to innovation.

The sixth: Includes 20 paragraphs about the partnership, the aim of which is to know the partnership methods carried out by the institution in contributing to the innovation process.

The seventh: Contains nine paragraphs about the enterprise environment, the purpose of which is to identify the enterprise environment from several aspects and the extent of its contribution to the innovation process.

The eighth: This axis contains eight paragraphs, which is the study of the impact between innovation through the previous determinants and the development of the institution.

We summarized the variables of our study as well as the items used for each variable in the following table:

[6] D. Reguieg-Issad, «The Principles of Marketing», El Adib edition house, 2006, P31

Table 36: Patent Applications

Variables	Number of Items
Innovation	11
Financial resources	7
Entrepreneur	21
R&D	14
Partnership	20
environment	9
development	8

Source: Prepared by the student

The interviewees must complete all of the questions before turning to the next page to avoid leaving any out. Through this strategy, we were able to collect 100 complete questionnaires, which equates to a return rate of 28.57%.

Table 37: Results of the data collection process

Results of the data collection	
Questionnaires sent out	350
Usable questionnaires	100 That is a return rate of 28.57%.

Source: Prepared by the student

As we mentioned above, the international fair in Algiers was where we selected our sample. This last one is regarded as one of the ideal meeting points for a variety of business types, industry sectors, size ranges, and most importantly a variety of businesses operating at the national level.

3.3 Types of Questions and Scales Used

3.3.1 Likert scale

The Likert scale is one of the most popular and often used tools for evaluating attitudes in the behavioural sciences.

This scale is based on writing a collection of assertions or things that cover every aspect of a particular phenomenon or notion.

Where the degree of the questioner's approval or disagreement can be gauged by offering the questioner a variety of options ranging from highly agree to not agree at all. [7]

Among the advantages of questionnaires based on the Likert scale:[8]

- Information can be collected relatively quickly and from large numbers of respondents;
- It can provide high credibility estimates;
- Interpretations made from the data it provides can be validated by a variety of means;

[7] Salem bin Saeed Al Nasser Al-Qahtani, Ahmed bin Salem Al-Amiri, Muaddi bin Muhammad Al Madhab. «Research Methodology in Behavioral Sciences with Applications on SPSS», Faculty of Management, King Saud University, Obeikan Publishing, 5th Edition, 2020, p. 203

[8] Tomoko Nemoto , David Beglar. «Developing Likert-Scale Questionnaires», in N. Sonda & A. Krause (Eds.), JALT2013 Conference Proceedings. Tokyo: JALT, 2014, p2

- The data you provide can be compared and combined with qualitative data collection techniques such as open questions and interviews.

3.3.2 Types of questions

Each questionnaire contains a specific type of question or different types. Our questionnaire contains the following types:[9]

3.3.2.1 The Demographic question: It is a set of complementary questions and is often not essential in the questionnaire unless the research topic is related to any of them. These questions are a question about (gender, age, educational qualification, place of residence, monthly income, job etc.). The aim is to distribute the research sample according to these characteristics to find a complete picture of the sample.

3.3.2.2 The Dichotomous questions: In which the answer is only one of two options (yes or no), (agree or disagree), (willing or unwilling), (I would like to or not), and so on.

3.3.2.3 Attitude statement: It is the most widespread and used where the respondent gives a degree of agreement to each of the questionnaire statements such as (agree - agree - neutral - disagree - completely disagree) or (agree - neutral - disagree) according to a three-way or five-factor design.

3.3.2.4 Open-ended question: Unstructured questions are open-ended questions that the respondent can answer in his own words. As it enables the respondents to express their general attitudes and opinions. This type of question has a less distorting effect on the answers compared to structured questions. Where the respondents can express themselves freely, and thus these questions are useful in the case of exploratory studies.

4. Reliability and Validity of the Scale Used

4.1 Validity of the Scale Used

The validity index consists of two aspects: internal honesty and external honesty, where internal validity refers to the degree of evaluation of the measures used (independent variables) for the intended conclusions (dependent variables).[10]

The validity of the internal consistency of the questionnaire was verified by calculating the Pearson correlation coefficient between the scores of each of the seven axes paragraphs. And the total score for the axis to which the paragraph belongs, and between the score of each axis and the total score of the questionnaire, using the spss statistical program.

[9] Mohamed El Sayed; «How to prepare a questionnaire in a scientifically correct way», Arab researcher, https://bit.ly/3ebUmuJ; 1/12/2019; consulted on 04/10/2022

[10] Dohee Kim. «Consumer Choice of Hotel Experiences: The Effects of Cognitive, Affective, and Sensory Attributes», Doctor of Philosophy in Hospitality and Tourism Management, Virginia Polytechnic Institute, Blacksburg, Virginia, 2011, p111

Table 38: The results of the correlation coefficients between the score of each paragraph and the total score for the innovation axis

Innovation axis paragraphs	correlation coefficient (Pearson Correlation)	Indication value (Sig.)
1	0.544**	0.000
2	0.43**	0.000
3	0.568**	0.000
4	0.293**	0.003
5	0.600**	0.000
6	0.514**	0.000
7	0.495**	0.000
8	0.443**	0.000
9	0.597**	0.000
10	0.520**	0.000
11	0.475**	0.000

**: correlation is significant at the 0.01
*: correlation is significant at the 0.05

Source: Prepared by the student based on the output of SPSS

From the results of table No. 38 above, we note that all Pearson correlation coefficients between the paragraphs of the innovation axis and the total score for this axis are statistically significant at the level of significance **0.01.** Where the minimum correlation coefficients were **0.293**, and the maximum was **0.600**.

Accordingly, all the paragraphs of the innovation axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the innovation axis.

Table 39: The results of the correlation coefficients between the score of each paragraph and the total score for the finance resource axis

Innovation axis paragraphs	correlation coefficient (Pearson Correlation)	Indication value (Sig.)
1	0.179	0.075
2	0.344**	0.000
3	0.648**	0.000
4	0.302**	0.002
5	0.467**	0.000
6	0.197*	0.000
7	0.514**	0.000

**: correlation is significant at the 0.01
*: correlation is significant at the 0.05

Source: Prepared by the student based on the output of SPSS

From the results of Table No. 39 above, we note that all Pearson correlation coefficients between the paragraphs of the innovation axis and the total score for this axis are statistically significant at the level of significance **0.01**, And one paragraph is significant at the **0.05** level of significance. Where the minimum correlation coefficients were **0.197** and the maximum was **0.648**.

Accordingly, all the paragraphs of the innovation axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the innovation axis.

Table 40: The results of the correlation coefficients between the score of each paragraph and the total score for the entrepreneur axis

Innovation axis paragraphs	correlation coefficient (Pearson Correlation)	Indication value (Sig.)
1	0.384**	0.000
2	0.387**	0.000
3	0.417**	0.000
4	0.522**	0.000
5	0.480**	0.000
6	0.516**	0.000
7	0.596**	0.000
8	0.367**	0.000
9	0.601**	0.000
10	0.446**	0.000
11	0.391**	0.000
12	0.584**	0.000
13	0.486**	0.000
14	0.619**	0.000
15	0.418**	0.000
16	0.551**	0.000
17	0.416**	0.000
18	0.535**	0.000
19	0.589**	0.000
20	0.527**	0.000
21	0.559**	0.000

**: correlation is significant at the 0.01
*: correlation is significant at the 0.05

Source: Prepared by the student based on the output of SPSS

From the results of Table No. 40 above, we note that all Pearson correlation coefficients between the paragraphs of the innovation axis and the total score for this axis are statistically significant at the level of significance **0.01.** Where the minimum correlation coefficients were **0.367** and the maximum was **0.619**.
Accordingly, all the paragraphs of the innovation axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the innovation axis.

Table 41: The results of the correlation coefficients between the score of each paragraph and the total score for the R&D axis

Innovation axis paragraphs	correlation coefficient (Pearson Correlation)	Indication value (Sig.)
1	0.670**	0.000
2	0.599**	0.000
3	0.683**	0.000
4	0.673**	0.000
5	0.764**	0.000
6	0.765**	0.000
7	0.532**	0.000
8	0.584**	0.00
9	0.539**	0.000
10	0.411**	0.000
11	0.290**	0.003
12	0.565**	0.000
13	0.654**	0.000
14	0.562**	0.000

**: correlation is significant at the 0.01
*: correlation is significant at the 0.05

Source: Prepared by the student based on the output of SPSS

From the results of Table No. 41 above, we note that all Pearson correlation coefficients between the paragraphs of the innovation axis and the total score for this axis are

statistically significant at the level of significance **0.01.** Where the minimum correlation coefficients were **0.290** and the maximum was **0.765**.
Accordingly, all the paragraphs of the innovation axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the innovation axis.

Table 42: The results of the correlation coefficients between the score of each paragraph and the total score for the partnership axis

Innovation axis paragraphs	correlation coefficient (Pearson Correlation)	Indication value (Sig.)	Innovation axis paragraphs	correlation coefficient (Pearson Correlation)	Indication value (Sig.)
1	0.525**	0.000	**11**	0.494**	0.000
2	0.470**	0.000	**12**	0.486**	0.000
3	0.604**	0.000	**13**	0.537**	0.000
4	0.512**	0.000	**14**	0.574**	0.000
5	0.662**	0.000	**15**	0.385**	0.000
6	0.481**	0.000	**16**	0.711**	0.000
7	0.393**	0.000	**17**	0.562**	0.000
8	0.467**	0.000	**18**	0.586**	0.000
9	0.477**	0.000	**19**	0.648**	0.000
10	0.425**	0.000	**20**	0.626**	0.000

**: correlation is significant at the 0.01
*: correlation is significant at the 0.05

Source: Prepared by the student based on the output of SPSS

From the results of Table No. 42 above, we note that all Pearson correlation coefficients between the paragraphs of the innovation axis and the total score for this axis are statistically significant at the level of significance **0.01.** Where the minimum correlation coefficients were **0.385** and the maximum was **0.711**.
Accordingly, all the paragraphs of the innovation axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the innovation axis.

Table 43: The results of the correlation coefficients between the score of each paragraph and the total score for the environment axis

Innovation axis paragraphs	correlation coefficient (Pearson Correlation)	Indication value (Sig.)
1	0.291**	0.003
2	0.644**	0.000
3	0.468**	0.000
4	0.666**	0.002
5	0.557**	0.000
6	0.471**	0.000
7	0.562**	0.000
8	0.541**	0.000
9	0.586**	0.00

**: correlation is significant at the 0.01
*: correlation is significant at the 0.05

Source: Prepared by the student based on the output of SPSS

From the results of Table No. 43 above, we note that all Pearson correlation coefficients between the paragraphs of the innovation axis and the total score for this axis are statistically significant at the level of significance 0.01. Where the minimum correlation coefficients were **0.291**, and the maximum was **0.644**. Accordingly, all the paragraphs of the innovation axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the innovation axis.

Table 44: The results of the correlation coefficients between the score of each paragraph and the total score for the development axis

Innovation axis paragraphs	correlation coefficient (Pearson Correlation)	Indication value (Sig.)
1	0.776**	0.000
2	0.768**	0.000
3	0.849**	0.000
4	0.828**	0.002
5	0.786**	0.000
6	0.737**	0.000
7	0.763**	0.000
8	0.762**	0.000

**: correlation is significant at the 0.01
*: correlation is significant at the 0.05

Source: Prepared by the student based on the output of SPSS

From the results of Table No. 44 above, we note that all Pearson correlation coefficients between the paragraphs of the innovation axis and the total score for this axis are statistically significant at the level of significance **0.01.** Where the minimum correlation coefficients were **0.762** and the maximum was **0.849**.

Accordingly, all the paragraphs of the innovation axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the innovation axis.

Table 45: Correlation coefficients between the score of each axis and the total score of the questionnaire

The axis	correlation coefficient (Pearson Correlation)	Indication value (Sig.)
Innovation	0.408**	0.000
Financial resource	0.390**	0.000
Entrepreneur	0.802**	0.000
R&D	0.774**	0.002
Partnership	0.728**	0.000
Environment	0.421**	0.000
development	0.720**	0.000

**: correlation is significant at the 0.01
*: correlation is significant at the 0.05

Source: Prepared by the student based on the output of SPSS

From the results of Table No. 45 above, we note that all Pearson correlation coefficients between the axes and the total score of the questionnaire are statistically significant at the 0.01 level of significance.
Where the minimum correlation coefficients were **0.390** and the maximum was **0.802**.
Accordingly, most of the axes are internally consistent with the total score of the questionnaire, sincerity of consistency internal questionnaire.

4.2 Reliability Analysis Cronbach's Alpha

According to researcher Haire and colleagues (Hair et al., 2002), applied research and studies are susceptible to two different types of inaccuracy. The first is the "in the preview error," which is addressed by using statistical theory to increase the research sample's representation for it to accurately reflect the research community.
The second kind of error is referred to as a measurement error since it has to do with the height of the measurement and causes inaccurate data to be obtained that cannot be trusted to produce the desired study results. Given the significance of this kind of inaccuracy and the detrimental effects, it has on applied research findings, particularly given the prevalence of multi-component scales in studies. Tools are made available to academics and researchers so they can use reliability or consistency to reduce this inaccuracy.[11]

[11]Fateh Mojahedi, «study of the impact of trends towards the country of origin of the product and its brand on the Algerian consumer's assessment of local and foreign products - a survey of electronic products and beverages-, Ph.D. thesis in management», Faculty of Economic, Commercial and Management Sciences, University of Algiers 3, 2010, p156

Stability means the degree of stability that an individual obtains on a scale that measures a particular trait, Whereas, if the scale is applied to a person more than once, he records the same results each time.[12]

The researcher (**Al-Nabhan**) also confirms that: (**it gives the minimum estimated value of the tool's degree of stability coefficient, which is the most appropriate method in survey research, such as questionnaires, measures of attitudes, or measures of personality, and in the case of achievement tests**).[13]

To measure the stability of the study tool, the researcher relied on Cronbach's alpha coefficient. And table (46) shows Cronbach's alpha coefficients for all study variables.

Table 46: The results of testing the stability of the study instrument using Cronbach's alpha test

The axis	number of paragraphs	Alpha coefficient of stability
Innovation	11	0.799
Financial resource	7	0.775
Entrepreneur	21	0.831
R&D	14	0.808
Partnership	20	0.871
Environment	9	0.778
development	8	0.907
The overall stability of the questionnaire	**92**	**0.919**

Source: Prepared by the student based on the output of SPSS

It is clear from Table No. 46 above that the general stability coefficient of the study axes is high **0.919**, For the total paragraphs of questionnaire 92. While the stability of the axes ranged between 0.675 at least and 0.907 at the maximum. This indicates that the questionnaire enjoys a high degree of reliability, as we have adopted a score of 0.60 as a minimum.

5. Statistical Tools and Methods of Statistical Analysis

To enter the questionnaire data, the statistical package for social sciences (IBM SPSS Statistics 26) was used. In order to achieve the main objective of the current study and test its hypotheses in order to contribute to answering its main problem, the collected data were analyzed using the following statistical methods:

- Measuring the stability of the scale used by using Cronbach's Alpha.

[12] Ben Zeroual Fatiha, «Generous Animals, Legalization of the Work Content Questionnaire by Robert Karzak in the Field of Education», Journal of Human Sciences, Oum Bouaghi University, 2016, p229

[13] Ben Safi Abdel Rahman, «An evaluation study of methods for estimating the validity and reliability of data collection tools in the doctoral theses of Psychology and Education Sciences at the University of Algiers 2», PhD thesis in Psychology, Faculty of Social Sciences, Abdelhamid Ben Badis University, Oran, 2016, p. 42

- Verify the validity of the scale used by calculating the correlation coefficients (Pearson) between the degrees of each paragraph of the study and the total degree of the axis to which the paragraph belongs, the degree of each axe of the study and the total degree of the questionnaire.
- Some descriptive statistics methods: Frequency, percentages, arithmetic mean, standard deviation and weighted mean to calculate the frequencies of sample vocabulary answers.
- Pearson's simple correlation coefficient (r) was calculated to measure the relationship between the independent and dependent variables.
- Simple linear regression analysis to test the effect of independent variables (financial resources, contractor, research and development, partnership, environment) on the dependent variable development and the mediating variable innovation.
- Multiple linear regression analysis, in which the variables (financial resources, contractor, research and development, partnership, environment) were considered as explanatory variables and the development and innovation variable as dependent variables. This is done by using the coefficient of determination (R^2).
- ANOVA to test the statistical significance of the regression model.
- Multilinearity test using the model's variance inflation factor (VIF).

Section two: Study data analysis

1. Presentation of the sample study

1.1 study population and sample

"The statistician population of the study is defined as a group of individuals or elements that focus on a particular study, in other words, it is all the elements to which the research problem is related".[14]

Our study community is represented in small and medium enterprises, and the latter is rather large, and it is in continuous development for another year, due to its large size, it is difficult to understand. In addition, not all of these enterprises are interested in the subject of our research. Thus to test the various of these forces affecting the Small and medium enterprises in Algeria, and as we mentioned previously, we resorted to conducting a field study, limited only to those that participated in the 53rd edition of the Algiers International Fair on 13-17 June 2022.
The following items can also be specified:

- **Preview item**: Small and medium enterprises participating in the 53rd Algerian International Exhibition, which was held on 13-17 June 2022.

[14] Metwally Al-Naqeeb, «Skills of searching for information when preparing research in the digital environment», 1st edition, Egyptian Lebanese House, Cairo, 2008, p. 106

- **Geographical range**: The student moved to the exhibition venue, where the questionnaires were distributed to the sample personally and then collected after being answered by the owners of the enterprises.
- **time range**: The period for distributing the questionnaires was during two consecutive days of the exhibition period
- **Sample volume**: 350 questionnaires were distributed and only 100 questionnaires were answered. So our sample size is 100.

1.2 Descriptive Analysis of the Sample

The study, as we mentioned above, included a group of Algerian small and medium enterprises participating in the Algerian International Fair. Through this element, we will discuss the data collected by the questionnaire about the sample of the study, which includes information about enterprises and others about their managers.
Before starting our hypothesis analysis, we present the general characteristics of our sample.

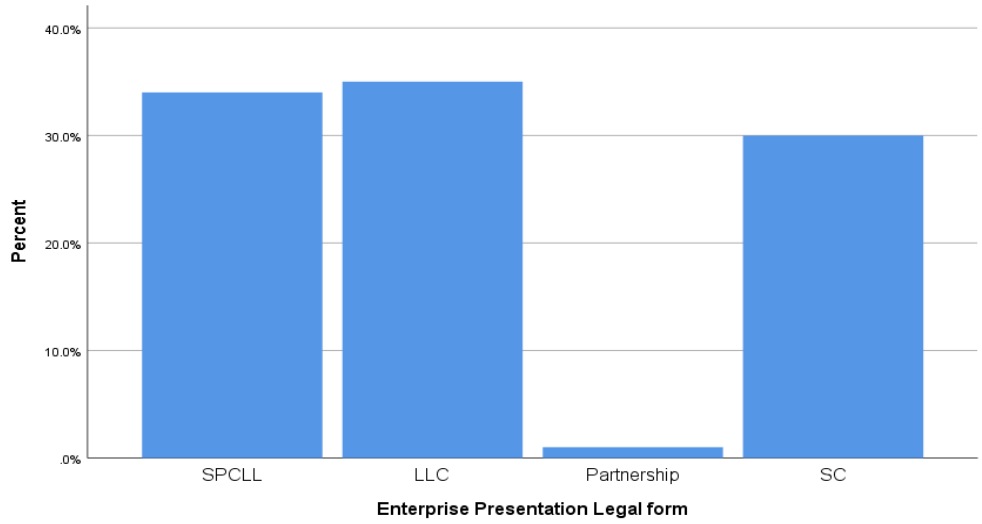
1.1.1 Legal form:

Table 47: Legal form

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	SPCLL	34	34.0	34.0	34.0
	LLC	35	35.0	35.0	69.0
	Partnership	1	1.0	1.0	70.0
	SC	30	30.0	30.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of SPSS (N = 100)

Figure 22: legal form



Source: Prepared by the student based on the output of SPSS (N = 100)

1.1.2 Legal status

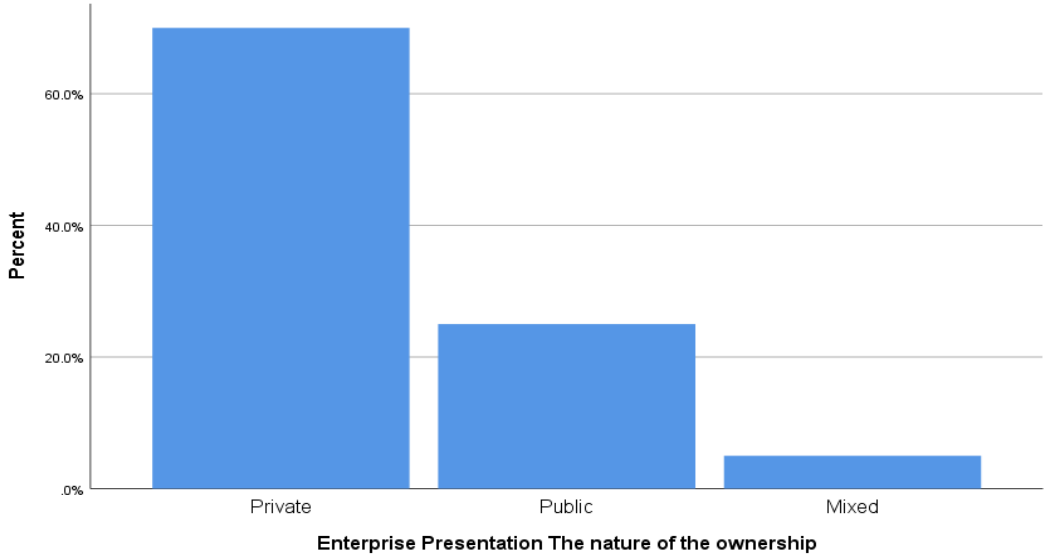
Table 48: Legal status

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Private	70	70.0	70.0	70.0
	Public	25	25.0	25.0	95.0
	Mixed	5	5.0	5.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of SPSS (N = 100)

the private sector constitutes nearly **70%** of ours. This choice is not arbitrary, it is rather dependent on the ease of access to companies, their availability and welcome as well as the dynamism felt by these companies. The following diagram illustrates the results obtained.

Figure 23: legal status



Source: Prepared by the student based on the output of SPSS (N = 100)

1.1.3 Annual turnover

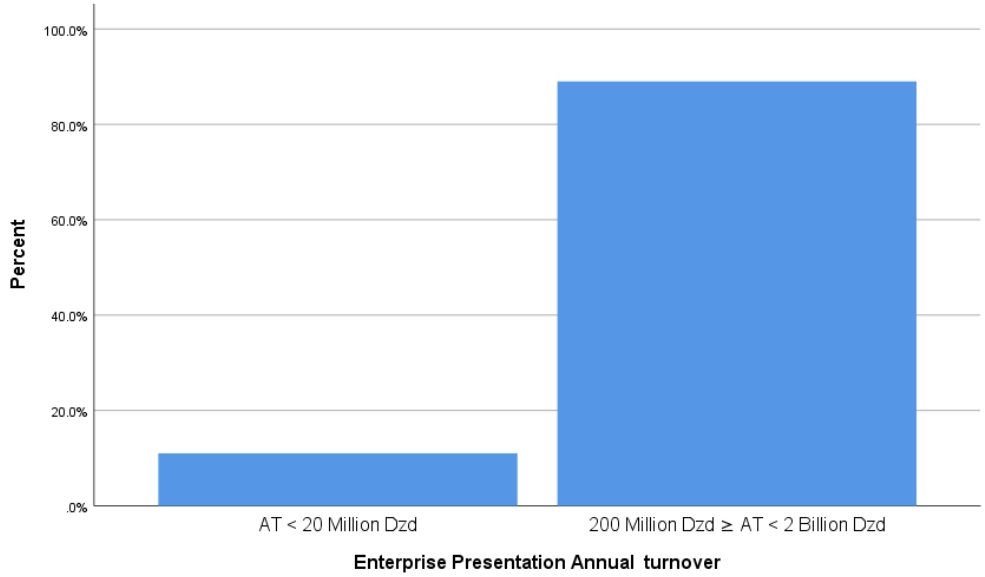
Table 49: Annual turnover

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	AT < 20 Million Dzd	11	11.0	11.0	11.0
	200 Million Dzd ≥ AT < 2 Billion Dzd	89	89.0	89.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of spss (N = 100)

Regarding the annual capital, **89%** per cent of the capital was recorded, which ranges between 200 Million Dzd ≥ AT < 2 Billion Dzd.

Figure 24: Annual turnover



Source: Prepared by the student based on the output of SPSS (N = 100)

1.1.4 Enterprise size by workers

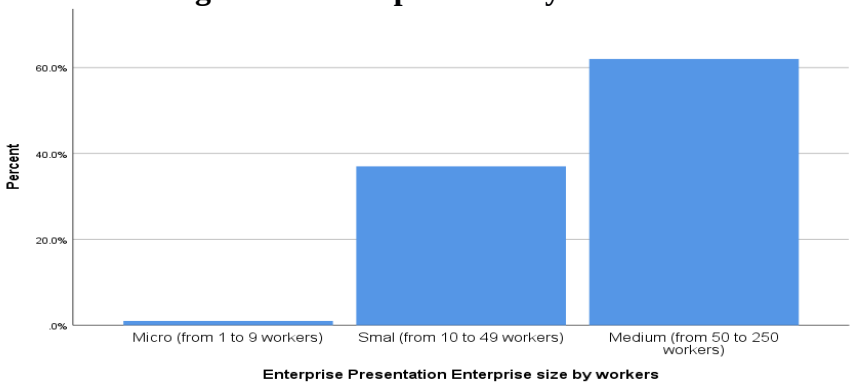
Table 50: Enterprise size by workers

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Micro (from 1 to 9 workers)	1	1.0	1.0	1.0
	Small (from 10 to 49 workers)	37	37.0	37.0	38.0
	Medium (from 50 to 250 workers)	62	62.0	62.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of SPSS (N = 100)

Table No. 50 regarding the size of the enterprise by several workers. We note a record **62%** per cent for the number of workers between **50** to **250**.

Figure 25: Enterprise size by workers



Source: Prepared by the student based on the output of SPSS (N = 100)

1.1.5 Market level

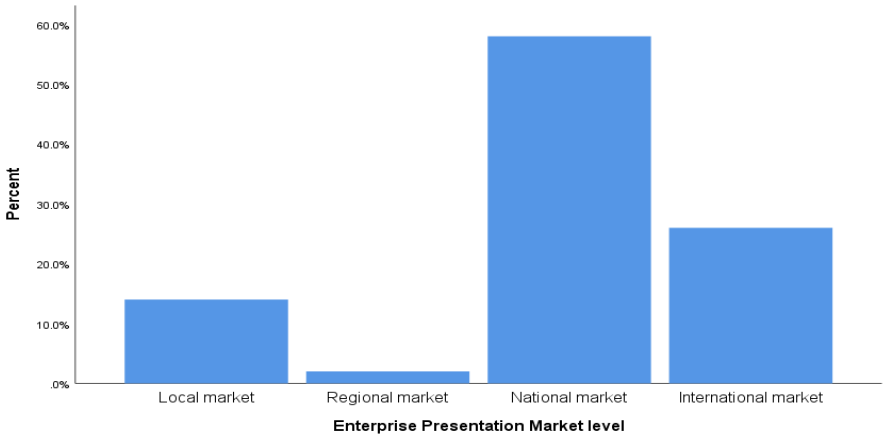
Table 51: Market level

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Local market	14	14.0	14.0	14.0
	Regional market	2	2.0	2.0	16.0
	National market	58	58.0	58.0	74.0
	International market	26	26.0	26.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of spss (N = 100)

for the market level. We note that **58%** of the total enterprises carry out their activities at the national level. As for the international market, it was **26%**.

Figure 26: Market level



Source: Prepared by the student based on the output of SPSS (N = 100)

1.1.6 Activity type

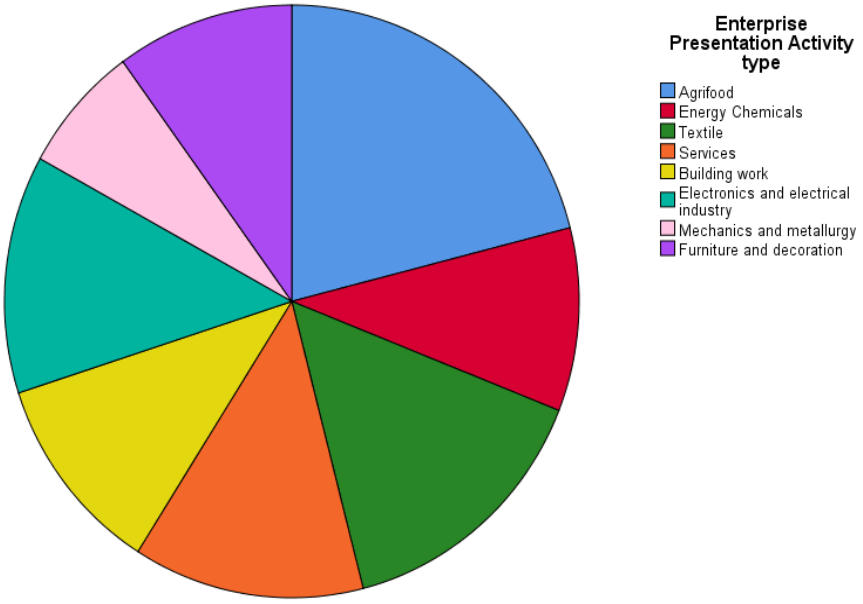
Table 52: Activity type

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Agrifood	21	21.0	21.0	21.0
	Energy Chemicals	10	10.0	10.0	31.0
	Textile	15	15.0	15.0	46.0
	Services	13	13.0	13.0	59.0
	Building work	11	11.0	11.0	70.0
	Electronics and electrical industry	13	13.0	13.0	83.0
	Mechanics and metallurgy	7	7.0	7.0	90.0
	Furniture and decoration	10	10.0	10.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of SPSS (N = 100)

We note that according to the results obtained, the percentages are similar, as **21%** percentage was recorded for the food sector, **15%** for the textile sector, **13%** for the services sector, as well as the electronics and electricity industry, **11%** for the construction sector, and the lowest percentage is **7%** for the mining sector. The following chart shows these rates.

Figure 27: Activity type



Source: Prepared by the student based on the output of SPSS (N = 100)

1.1.7 Cross-tabulated activity types * Legal form

Table 53: Cross-tabulated activity types * Legal form

		Enterprise Presentation Legal form				
		SPCLL	LLC	Partnership	SC	Total
Enterprise Presentation Activity type	Agrifood	6	6	1	8	21
	Energy Chemicals	3	1	0	6	10
	Textile	6	6	0	3	15
	Services	4	5	0	4	13
	Building work	3	5	0	3	11
	Electronics and electrical industry	5	4	0	4	13
	Mechanics and metallurgy	3	3	0	1	7
	Furniture and decoration	4	5	0	1	10
Total		34	35	1	30	100

Source: Prepared by the student based on the output of SPSS (N = 100)

Through the table, we note that the distribution of enterprises in terms of legal form over the type of activity was in close numbers. For SPLL, **6** enterprises were registered in each of the Agrifood and textile sectors, **5** enterprises in the electronics and electrical industry and **4** enterprises in each of the services and decoration sectors. Finally, **3** enterprises in the energy chemicals, mechanics, mining and construction sectors.

For LLS, **6** enterprises were registered in each of food agriculture and textile, **5** enterprises in each of services, construction and decoration, and **4** establishments in the Electronics and electrical industry.

As for SC, **21** enterprises in Agrifood, **15** enterprises in textiles, and **13** enterprises in each of the services and electronics and electrical industries have been registered.

1.1.8 Cross-tabulated activity types * Legal status

Table 54: Cross-tabulated activity types * Legal status

		Enterprise Presentation The nature of the ownership			
		Private	Public	Mixed	Total
Enterprise Presentation Activity type	Agrifood	14	6	1	21
	Energy Chemicals	4	5	1	10
	Textile	12	2	1	15
	Services	8	5	0	13
	Building work	7	4	0	11
	Electronics and electrical industry	10	1	2	13
	Mechanics and metallurgy	6	1	0	7
	Furniture and decoration	9	1	0	10
Total		70	25	5	100

Source: Prepared by the student based on the output of SPSS (N = 100)

Table No. 52 represents the distribution of enterprises in terms of legal status and the type of activity they carry out. As for the private establishments, **14** enterprises were registered in each energy chemicals and Agrifood, **12** enterprises in services and **10** enterprises in Electronics and electrical industries.

As for the public sector, **6** enterprises were registered in food agriculture, and **5** enterprises in all energy chemicals and services. and **4** enterprises in construction.

1.2 Respondent presentation:

Concerning the presentation of the respondents, the questions related to each of the following were answered:

1.2.1 Sex

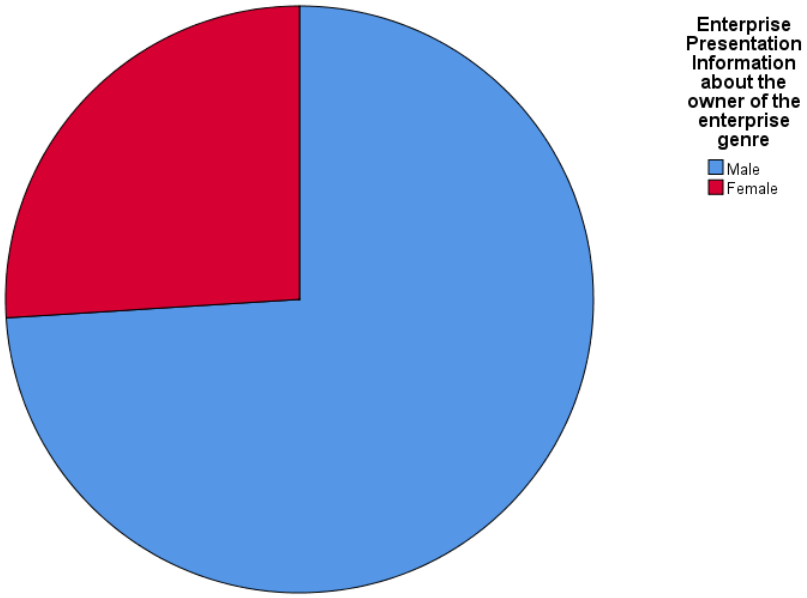
Table 55: Distribution of entrepreneurs by gender

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Male	74	74.0	74.0	74.0
	Female	26	26.0	26.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of SPSS (N = 100)

Through the table, we note that the contractors interviewed, most of them were males, where their percentage was **74%**, while the percentage of females was **26%.**

Figure 28: Distribution of entrepreneurs by gender



Source: Prepared by the student based on the output of SPSS (N = 100)

1.2.2 Age

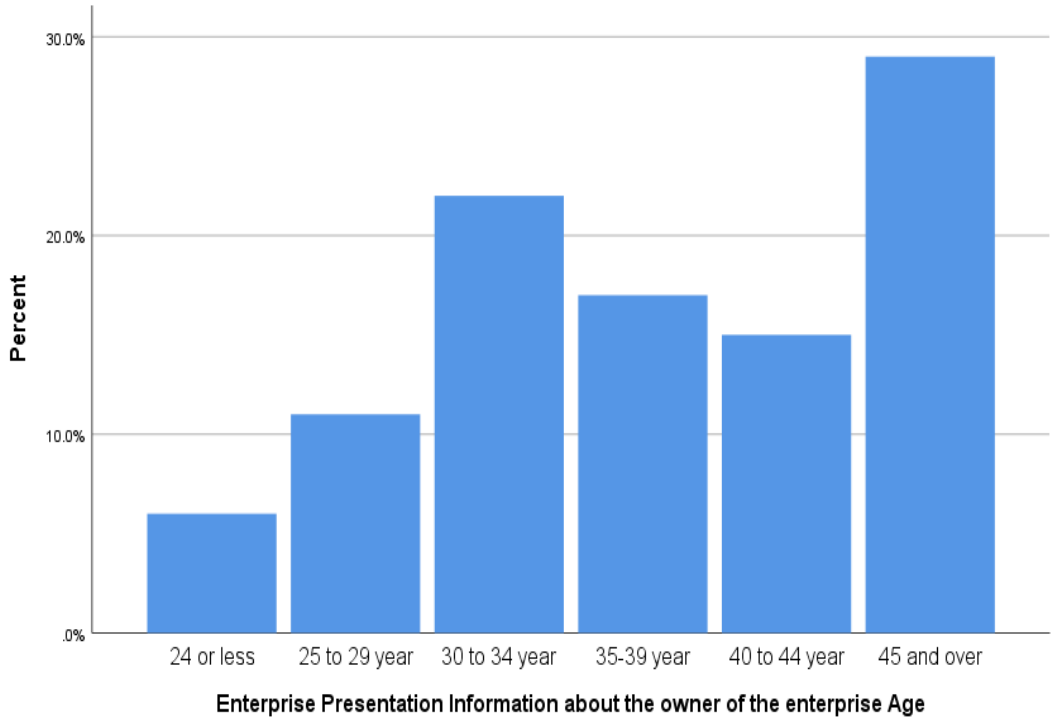
Table 56: Distribution of entrepreneurs by age

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	24 or less	6	6.0	6.0	6.0
	25 to 29 year	11	11.0	11.0	17.0
	30 to 34 year	22	22.0	22.0	39.0
	35-39 year	17	17.0	17.0	56.0
	40 to 44 year	15	15.0	15.0	71.0
	45 and over	29	29.0	29.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of SPSS (N = 100)

The table represents the distribution of entrepreneurs by age. Where the age group **45** years and above recorded a percentage of **29%**, the group between **30-40** years had a percentage of **22%**, the age group between 35-39 years recorded a percentage of **17%**, and the percentage of **15%** of the share of the age group between **40-44** years.

Figure 29: Distribution of entrepreneurs by age



Source: Prepared by the student based on the output of SPSS (N = 100)

1.1.1 Education level

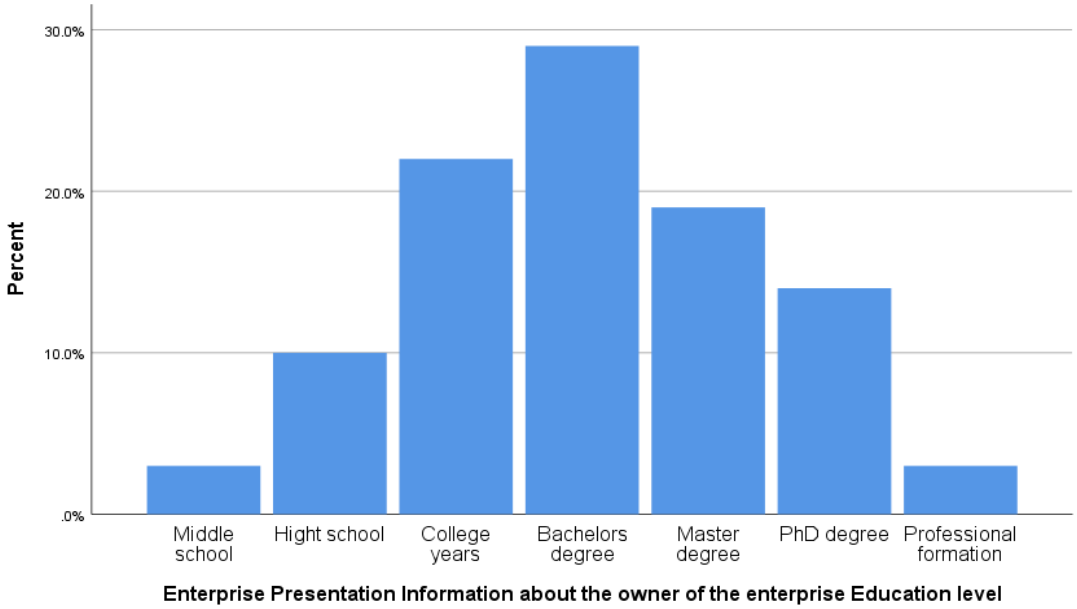
Table 57: Distribution of entrepreneurs by education level

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Middle school	3	3.0	3.0	3.0
	High school	10	10.0	10.0	13.0
	College years	22	22.0	22.0	35.0
	Bachelors degree	29	29.0	29.0	64.0
	Master degree	19	19.0	19.0	83.0
	PhD degree	14	14.0	14.0	97.0
	Professional Formation	3	3.0	3.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of SPSS (N = 100)

Table No. 56 represents the distribution of contractors in terms of educational level. Whereas **26%** of those with a bachelor's degree were registered, and **22%** of those who had years of study at the university. As for those who obtained a master's degree, the percentage was **19%**, and for those who obtained a doctorate, the percentage was **14%**.

Figure 29: Distribution of entrepreneurs by education level



Source: Prepared by the student based on the output of SPSS (N = 100)

Table 58: Cross-tabulated age * education level

		Age about education level						
		24 or less	25 to 29 year	30 to 34 year	35-39 year	40 to 44 year	45 and over	Total
Age-Educ	Middle school	0	0	2	0	1	0	3
	High school	0	0	1	1	6	2	10
	College years	0	3	4	7	3	5	22
	Bachelors degree	4	1	9	3	4	8	29
	Master degree	2	6	3	3	0	5	19
	PhD degree	0	1	2	2	1	8	14
	Professional Formation	0	0	1	1	0	1	3
Total		6	11	22	17	15	29	100

Source: Prepared by the student based on the output of SPSS (N = 100)

Through the table, we note that the distribution of age groups by academic level was close and distributed over several levels, while the age group 30-34 was 9% at the university level.

1.1.2 Training

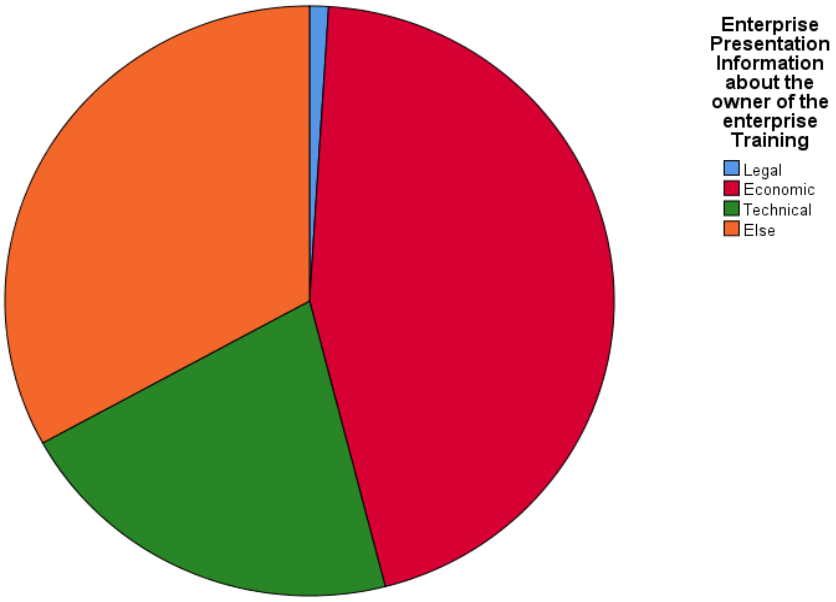
Table 59: Distribution of entrepreneurs by training

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Legal	1	1.0	1.0	1.0
	Economic	45	45.0	45.0	46.0
	Technical	21	21.0	21.0	67.0
	Else	33	33.0	33.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of SPSS (N = 100)

Table No. 57 shows the distribution of contractors in terms of the training they underwent. We note from the results that the percentage of economic formation was **45%**, while the percentage of technical training was **21%**, and the percentage of **33%** was for the answer to the formation of another kind.

Figure 30: Distribution of entrepreneurs by training



Source: Prepared by the student based on the output of SPSS (N = 100)

1.1.3 Experience

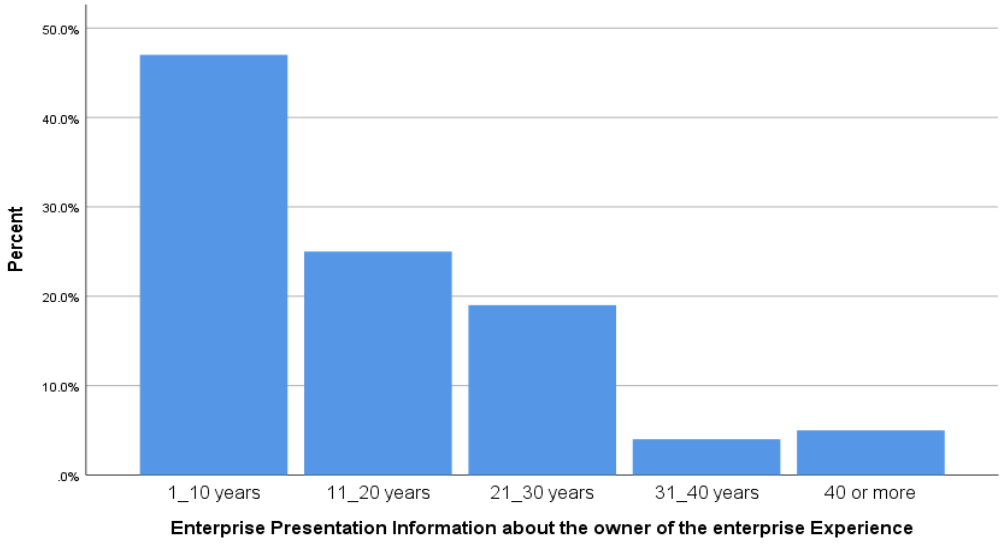
Table 60: Distribution of entrepreneurs by experience

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	1_10 years	47	47.0	47.0	47.0
	11_20 years	25	25.0	25.0	72.0
	21_30 years	19	19.0	19.0	91.0
	31_40 years	4	4.0	4.0	95.0
	40 or more	5	5.0	5.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the student based on the output of SPSS (N = 100)

Table 59 represents the distribution of experience possessed by the contractor. Where it was **47%** for the period of news between **1-10** years, and **25%** for the period ranging between 11-20 years. The percentage was **19%** for the duration of experience between **21-30** years.

Figure 31: Distribution of entrepreneurs by experience



Source: Prepared by the student based on the output of SPSS (N = 100)

2. Descriptive analysis of the study variables

In this element, we will discuss the responses of the respondents of the study sample, towards the paragraphs of each of the study variables.

Table 61: 5-piont likert scale

Likert scale	interval	difference	description	level
1	1.00-1.97	0.79	Strongly disagree	low
2	1.80-2.59	0.79	Disagree	
3	2.60-3.39	0.79	Neutral	medium
4	3.40-4.19	0.79	Agree	high
5	4.20-5.00	0.80	Strongly agree	

Interval (Length of the period) = (max - min) / 5
Interval (Length of period) = (5-1)/5= 0.8

Table 62: Arithmetic averages and standard deviations of the responses of the study sample individuals on the items of the innovation variable

paragraph number	innovation	Mean	Std. Deviation	Rank	level
1	The enterprise introduced a new product (good or service) to the market	**4.02**	**0.864**	**6**	**high**
2	The enterprise has introduced a significantly improved product (good or service) to the market	**4.03**	**0.822**	**5**	**high**
3	The enterprise has introduced at least a new process, for example: in production/distribution/maintenance / supply/accounting / IT	**3.87**	**0.971**	**7**	**High**
4	The enterprise has significantly improved a process (method) of its operations, at least for example: in production/distribution/maintenance / supply/accounting / IT	**4.22**	**0.596**	**3**	**high**
5	The enterprise has introduced new business practices to facilitate procedures: Supply Chain Management / Business	**3.67**	**1.064**	**8**	**high**

	Reengineering / Management Knowledge, production processing/quality management				
6	The enterprise has developed new ways of organizing responsibilities and making decisions	**3.50**	**0.882**	**10**	**high**
7	The enterprise has introduced new methods and methods for organizing foreign relations	**3.63**	**0.971**	**9**	**High**
8	Improved product quality	**4.27**	**0.584**	**2**	**high**
9	Launching new products	**4.14**	**0.697**		
10	Technical performance	**4.29**	**0.769**	**1**	
11	Entering new markets	**4.10**	**0.870**	**11**	
Weighted mean		**4.23**			**high**
Std. Deviation			**0.71**		

Source: Prepared by the student based on the output of SPSS

2.1 Dependent variable (development)

Table 63: Arithmetic averages and standard deviations of the responses of the study sample individuals on the items of the development variable

paragraph number	Development	Mean	Std. Deviation	Rank	level
1	Innovation has a direct relationship with the development of the enterprise	**4.29**	**0.70**	**2**	**high**
2	The more innovations the enterprise increases, the more it develops	**4.36**	**0.70**	**1**	**high**
3	The greater the financial resources of the enterprise directed to innovation, the leads to its development	**4.27**	**0.69**	**3**	**High**
4	The greater the use of financial resources in research and development, the greater the development of the enterprise	**4.15**	**0.73**	**7**	**high**
5	The more innovative the entrepreneur is, the more it	**4.27**	**0.64**	**4**	**high**

	affects the growth and development of the enterprise				
6	The more the entrepreneur is active in research and development within the enterprise, the more this contributes to its development	**4.23**	**0.64**	**6**	**high**
7	The more the partnership with external parties for innovation, the more this contributes to its development	**4.07**	**0.93**	**8**	**High**
8	The enterprise is located in an innovative environment that increases its innovation and contributes to its development	**4.26**	**0.77**	**5**	**high**
Weighted mean		**4.23**			**high**
Std. Deviation			**0.71**		

Source: Prepared by the student based on the output of SPSS

It is clear from Table No. 63 that the arithmetic averages of the development axis ranged between (**4.07** and **4.37**), Where the variable obtained a weighted average of (**4.23**), and a standard deviation (of **0.70**), which is from the high level. Paragraph No. (**02**) had the highest mean of (**4.36**) and a standard deviation of (**0.704**). It is within the high level, as the paragraph stipulates the following:(**The more innovations the enterprise increases, the more it develops**). On the other hand, paragraph (**7**) came in the last order with an arithmetic mean of (**4.07**) and a standard deviation (**0.935**), and it falls within the high level as well, as the paragraph stipulates the following:(**The more the partnership with external parties for innovation, the more this contributes to its development**). This indicates a high disease development in small and medium enterprises, according to the answers of their managers.

2.2 independent variables

Table 64: Arithmetic averages and standard deviations of the responses of the study sample individuals on the items of financial resources variable

paragraph number	Financial resource	Mean	Std. Deviation	Rank	level
1	Lack of financial resources is a barrier to innovation	**4.26**	**0.74**	**2**	**high**
2	The greater the financial capacity of anenterprise, the greater the opportunity to innovate	**4.39**	**0.76**	**1**	**high**
3	R&D investment is a critical component of many sorts of innovation	**2.10**	**0.93**	**7**	**low**
4	The financial capacity of an institution depends on its size	**3.73**	**0.93**	**4**	**high**
5	The enterprise can innovate without the need for large financial resources	**3.61**	**1.49**	**6**	**high**
6	To carry out research and development, the necessary financial resources must be available	**3.75**	**1.10**	**3**	**high**
7	Research and development can be carried out without the need for large financial resources	**3.67**	**1.45**	**5**	**high**
Weighted mean		**3.17**			**medium**
Std. Deviation			**0.40**		

Source: Prepared by the student based on the output of SPSS

Table No. 64 that the arithmetic averages of the development axis ranged between (**2.10** and **4.39**), Where the variable obtained a weighted average of (**3.17**), and a standard deviation (of **0.40**), which is from the medium level. Paragraph No. (**02**) had the highest mean of (**4.39**) and a standard deviation of (**0.76**). It is within the high level, as the paragraph stipulates the following:(**The greater the financial capacity of anenterprise, the greater the opportunity to innovate**). On the other hand, paragraph (**3**) came in the last order with an arithmetic mean of (**2.10**) and a standard deviation (**0.93**), and it falls within the low level as well, as the paragraph stipulates the following:(**R&D investment**

is a critical component of many sorts of innovation). This indicates that the contribution of financial resources to innovation through research and development in small and medium enterprises was average, according to the answers of their managers. This explains the lack of financial capabilities of Algerian small and medium enterprises

Table 65: Arithmetic averages and standard deviations of the responses of the study sample individuals on the items of the Entrepreneur variable

paragraph number	Development	Mean	Std. Deviation	Rank	level
1	Innovator	**4.08**	**1.05**	**5**	**high**
2	Collaborator	**4.28**	**0.65**	**3**	**high**
3	Skilled	**4.37**	**0.63**	**2**	**high**
4	Cultured	**4.38**	**0.69**	**1**	**high**
5	Opportunistic	**3.89**	**1.05**	**12**	**high**
6	Risk-taker	**3.46**	**1.37**	**18**	**high**
7	Social	**3.77**	**1.17**	**14**	**high**
8	Motivated	**3.12**	**1.38**	**21**	**medium**
9	The entrepreneur develops a strategy in the field of innovation, that is, the organization researches Systematically about innovation	**3.35**	**1.25**	**19**	**high**
10	The entrepreneur tends to take risks, especially in terms of innovation	**3.35**	**1.03**	**20**	**high**
11	Entrepreneurs trust his ability to innovate	**4.00**	**0.72**	**10**	**high**
12	The entrepreneur constantly monitors and analyzes the internal and external environment for innovative activity	**3.87**	**0.87**	**13**	**high**
13	The entrepreneur possesses the intellectual capabilities	**4.07**	**0.75**	**6**	**high**

	necessary to manage innovation				
14	The entrepreneur contributes to motivating employees to participate in training programs.	**4.14**	**0.75**	**4**	**high**
15	Research and development needs a qualified entrepreneur	**4.06**	**0.87**	**7**	**high**
16	The innovative entrepreneur always urges his employees to research and develop	**4.00**	**0.84**	**8**	**high**
17	the entrepreneur focuses more on technical development than research in research and development (R&D) activities	**3.52**	**0.93**	**17**	**high**
18	The entrepreneur improves companies' ability to identify and absorb outside knowledge through research and development	**4.00**	**0.86**	**9**	**high**
19	The intensity of research and development is through the formation of the number of employees participating in these activities from a qualified entrepreneur	**3.74**	**0.89**	**15**	**high**
20	The accumulated experience and knowledge of the entrepreneur are enhanced in research and development activities	**3.75**	**0.77**	**16**	**high**
21	The R&D-oriented entrepreneur is more innovative	**3.90**	**0.89**	**11**	**high**
Weighted mean		**3.84**			**high**
Std. Deviation			**0.46**		

Source: Prepared by the student based on the output of SPSS

Table No. 65 that the arithmetic averages of the development axis ranged between (**3.12** and **4.38**), Where the variable obtained a weighted average of (**3.84**), and a standard deviation (of **0.46**), which is from the high level. Paragraph No. (**04**) had the highest mean of (**4.38**) and a standard deviation of (**0.39**). It is within the high level, as the paragraph stipulates the following:(**cultured**). On the other hand, paragraph (**8**) came in the last order with an arithmetic mean of (**3.12**) and a standard deviation (**1.38**), and it falls within the medium level as well, as the paragraph stipulates the following:(**Motivated**). This indicates that the contractor's relationship with research and development was high in small and medium enterprises, according to the answers of their managers. This explains the importance of the contractor in the innovation process through research and development.

Table 66: Arithmetic averages and standard deviations of the responses of the study sample individuals on the items of the Research and development Variable

paragraph number	R&D	Mean	Std. Deviation	Rank	level
1	The presence of research and development activities makes it possible to create an atmosphere for the enterprises to be more flexible to adapt to any change in market conditions	**4.03**	**0.93**	**6**	**high**
2	Entreprises with an effective R&D program are more likely to innovate	**3.85**	**0.809**	**11**	**high**
3	R&D activities generate innovations in the enterprise	**4.01**	**0.643**	**8**	**High**
4	Research and development contribute to theinnovation and marketing of new ideas	**4.08**	**0.646**	**4**	**High**
5	The research and development process aims to develop existing and new core competencies through innovation	**3.99**	**0.77**	**9**	**High**
6	The research and development process aims to enhance existing and new products through innovation	**4.04**	**0.66**	**5**	**High**

7	The research and development process aims to develop existing and new business processes through innovation	**3.96**	**0.87**	**10**	**High**
8	R&D is one of the cornerstones of innovation	**4.01**	**0.89**	**7**	**High**
9	Creating value through strategic research and development	**3.54**	**0.82**	**13**	**high**
10	The research and development process is more effective if it is carried out within the institution	**3.40**	**1.03**	**14**	**High**
11	The research and development process is more effective if it is carried out in cooperation with parties outside the institution	**3.62**	**0.90**	**12**	**high**
12	Improve production processes	**4.19**	**0.61**	**3**	**high**
13	Marketing new products	**4.19**	**0.80**	**2**	**High**
14	Increasing the enterprise's profits	**4.22**	**0.71**	**1**	**high**
Weighted mean		**3.93**			**high**
Std. Deviation			**0.46**		

Source: Prepared by the student based on the output of SPSS

Table No. 66 that the arithmetic averages of the development axis ranged between (**3.40** and **4.22**), Where the variable obtained a weighted average of (**3.93**), and a standard deviation (of **0.46**), which is from the high level. Paragraph No. (**14**) had the highest mean of (**4.22**) and a standard deviation of (**0.71**). It is within the high level, as the paragraph stipulates the following:(**Increasing the enterprise's profits**). On the other hand, paragraph (**10**) came in the last order with an arithmetic mean of (**3.40**) and a standard deviation of (**1.03**), and it falls within the high level as well, as the paragraph stipulates the following:(**The research and development process is more effective if it is carried out within the institution**). This indicates that the relationship between research and development in small and medium enterprises was high, according to the answers of their managers. This explains the importance of research and development in the innovation process

Table 67: Arithmetic averages and standard deviations of the responses of the study sample individuals on the items of partnership variable

paragraph number	Partnership	Mean	Std. Deviation	Rank	level
1	The enterprise cooperated with its suppliers and contributes to the innovation process	**3.29**	**1.12**	**7**	**Medium**
2	The enterprise cooperates with its customers because they are considered the first source of innovation	**3.36**	**1.14**	**6**	**medium**
3	The enterprise cooperated with its competitors in various innovative activities	**2.62**	**1.12**	**20**	**medium**
4	The enterprise cooperated with private bodies in various innovative activities	**3.18**	**1.116**	**10**	**medium**
5	The enterprise cooperated with government agencies	**2.81**	**1.23**	**18**	**medium**
6	Collaboration with other enterprises in the same sector facilitates access to innovation	**3.51**	**1.07**	**3**	**high**
7	Cooperating with other local or foreign enterprises in the same industry helps the enterprise to innovate	**3.80**	**0.94**	**1**	**high**
8	Universities and colleges are considered the main partner for innovation	**3.43**	**1.10**	**4**	**high**
9	Agreement	**2.92**	**1.03**	**16**	**medium**
10	Research consortium	**3.00**	**1.10**	**14**	**medium**
11	Partnership research project	**2.91**	**1.04**	**17**	**medium**
12	Service provision	**3.55**	**0.95**	**2**	**high**
13	Supervision of trainees	**3.21**	**1.14**	**9**	**medium**
14	Supervision of PhD students	**3.08**	**1.13**	**13**	**medium**
15	Innovation project	**3.39**	**1.05**	**5**	**medium**
16	A need for complementarity	**3.00**	**1.43**	**15**	**medium**
17	Access to technology	**3.11**	**1.31**	**11**	**medium**
18	A need for exchange	**3.27**	**1.17**	**8**	**medium**

19	Cost and Risk-sharing	**2.76**	**1.27**	**19**	**medium**
20	The need for stability	**3.10**	**1.22**	**12**	**medium**
Weighted mean		**3.16**			**medium**
Std. Deviation			**0.61**		

Source: Prepared by the student based on the output of SPSS

Table No. 67 that the arithmetic averages of the development axis ranged between (**2.62** and **3.80**), Where the variable obtained a weighted average of (**3.16**), and a standard deviation (of **0.61**), which is from the medium level. Paragraph No. (**7**) had the highest mean of (**3.80**) and a standard deviation of (**0.94**). It is within the high level, as the paragraph stipulates the following:(**Cooperating with other local or foreign enterprises in the same industry helps the enterprise to innovate**). On the other hand, paragraph (**3**) came in the last order with an arithmetic mean of (**2.62**) and a standard deviation (**1.12**), and it falls within the medium level as well, as the paragraph stipulates the following**:(The enterprise cooperated with its competitors in various innovative activities**). This indicates that the partnership in small and medium enterprises was moderate, according to the answers of their managers. This explains the lack of partnerships between small and medium enterprises and other bodies that contribute to the innovation process.

Table 68: Arithmetic averages and standard deviations of the responses of the study sample individuals on the items of the Environment Variable

paragraph number	Financial resource	Mean	Std. Deviation	Rank	level
1	There are environmental factors that affect how well ideas turn out, such as process, technology, and space	**3.69**	**0.99**	**5**	**high**
2	Innovation and knowledge capital are highly concentrated in a minority of urban areas	**2.92**	**1.38**		**medium**
3	Being in an innovative environment promotes innovation	**4.00**	**0.88**	**1**	**high**
4	Implicit knowledge and experiences that are concentrated in a particular place and have low mobility help	**3.64**	**0.89**	**6**	**high**

	an organization innovate				
5	When innovators are located close to the organization that facilitates knowledge sharing	**3.60**	**0.93**	**8**	**high**
6	The presence of your enterprise in a technological environment contributes greatly to the innovation process	**3.98**	**0.75**	**2**	**high**
7	A shorter geographical distance between participants in the innovation process reduces the cost of knowledge and information exchange and speeds up communication between them	**3.73**	**0.86**	**4**	**high**
8	The geographical proximity between science, technology, industry, and finance contributes to the emergence of innovations	**3.92**	**0.95**	**3**	**high**
9	Interactions are organized through the participation of private actors in innovation and public enterprises	**3.62**	**0.90**	**7**	**high**
Weighted mean		**3.67**			**high**
Std. Deviation			**0.51**		

Source: Prepared by the student based on the output of SPSS

Table No. 68 that the arithmetic averages of the development axis ranged between (**3.60** and **4.00**), Where the variable obtained a weighted average of (**3.67**), and a standard deviation (of **0.51**), which is from the high level. Paragraph No. (**3**) had the highest mean of (**4.00**) and a standard deviation of (**0.88**. It is within the high level, as the paragraph stipulates the following: (**Being in an innovative environment promotes innovation**). On the other hand, paragraph (**5**) came in the last order with an arithmetic mean of (**3.60**) and a standard deviation (**0.93** and it falls within the medium level as well, as the paragraph stipulates the following**:(When innovators are located close to the organization that facilitates knowledge sharing**). This indicates that the surroundings of small and medium enterprises were high, according to the answers of their managers.

This explains that the organization's environment contributes significantly to the innovation process through its contact with several elements.

2.3 Testing the Relationships between Study Variables

a- Test readiness and validity of data for regression analyses

Before applying regression analysis to test the hypotheses of the study, some tests were performed to ensure that the data fit the assumptions of the regression analysis, as follows: Regarding the assumption that there should be no high correlation (multi-colinearity) between the independent variables, The researcher calculated the variance inflation factor (**VIF**), and And the allowable var tolerance test, for each of the independent variables.

Table 69: The results of the (VIF) test to verify the phenomenon of multiple linear interferences between independent variables

independent variables	VIF	Tolerance
Financial resources	1.090	0.918
R&D	1.857	0.538
Entrepreneur	1.681	0.595
partnership	1.522	0.657
environment	1.849	0.541

Source: Prepared by the student based on the output of SPSS

Table No. 69, which includes both the (**VIF**) and the tolerance for each of the independent variables, shows that the value of (**VIF**) was less than 5 and ranged between (**1.090-1.857**), and we note that the value of the permissible variance for all independent variables was greater than (**0.05**) and ranges between (**0.538-0.918**). So people can say that there is no real problem related to the existence of a high correlation between the independent variables

b- The relationship between financial resources, entrepreneurs and research and development

- **Correlation between financial resources, entrepreneur and R&D**

Table 70: Correlation between financial resources, entrepreneur and R&D

Variables	correlation r	Statistical significance P value
Financial resources	0.198*	0.048
Entrepreneur	0.507**	0.000

Source: Prepared by the student based on the output of SPSS

Table No. 70 shows a correlation coefficient between the research and development variable and both financial resources and the contractor. Where the two relations were positive. The relationship between research and development and the contractor was a strong direct relationship with a correlation coefficient (**0.507**),** which is statistically significant at a significant level of **0.01**. As for the relationship between research and development and financial resources, it is a positive but weak relationship with a correlation coefficient (**0.19**8*) with statistical significance at a significant level of **0.05**.

- **Regression between financial resources, entrepreneur and R&D**

Table 71: The results of the multiple regression between financial resources, entrepreneur and R&D

Variables		R	R^2	F ANOVA	Sig. ANOVA	Bita B	t	t.Sig	VIF
R&D	Financial resources	0.556	0.309	21.665	0.000	0.365	2.706	0.008	1.004
	Entrepreneur					0.349	6.151	0.000	1.004

Source: Prepared by the student based on the output of SPSS

To know the relationship between research and development and both the contractor variable and financial resources, we used the Multiple linear regression coefficients as shown in Table No. 71. In which the variables of the financial resources and entrepreneur were considered as the explanatory variables and the research and development as the dependent variable, The results of the regression model showed that the regression model is significant through the value of (**F**) of **(21.566**) in terms of (**0.000**) less than the level of significance (**0.001**). The results show that the independent variables explain **30.9%** of the variance in research and development, given the coefficient of limitation ($\mathbf{R^2}$). The value of beta (**B**), which shows the relationship between research and development and financial resources, came with a value of (**0.365**) with statistical significance (**0.008**), meaning that the level of financial resources improved by a unit that increased the level of research and development by (**0.365**). Also, the value of Beta (**B**) for the contractor variable came with a value of (**0.349**) with statistical significance, as we can deduce that through the value of **(t**) and the associated significance (**0.000**). That is, whenever the level of the contractor improves by one unit, the level of research and development

improves by (**0.349**). The table also shows the rate of the multilinearity test, where the result revealed that the variance inflation factor (**VIF**) was estimated at (**1.004**), less than (**3**), which indicates that there is no problem of linear multiplicity between the model variables. So the regression equation can be written as follows:

Research and development (expected) = **17.680** + (**0.229** x financial resources) + (**0.520** x Entrepreneur)

c- The relationship between the independent variable (financial resources, entrepreneur) and innovation

- **Correlation between the independent variable (financial resources, entrepreneur) and innovation**

Table 72: Correlation between the independent variable (financial resources, entrepreneur) and innovation

Variables	correlation r	Statistical significance P value
Financial resources	0.034	0.540
Entrepreneur	0.298*	0.003

Source: Prepared by the student based on the output of SPSS

Table No. 72 shows a correlation coefficient between the innovation variable and both financial resources and the entrepreneur. Where the two relations were positive. The relationship between innovation and the F.R was a medium direct relationship with a correlation coefficient (**0.034*),** which is statistically significant at a significant level of **0.05**. As for the relationship between innovation and entrepreneurship, it is also a positive and medium relationship with a correlation coefficient (**0.29**8*) with statistical significance at a significant level of **0.05**.

- **Regression between the independent variable (financial resources, entrepreneur) and innovation**

Table 73: The results of the multiple regression between financial resources, entrepreneur and innovation

Variables		R	R^2	F ANOVA	Sig. ANOVA	Bita B	t	t.Sig	VIF
innova	F.R	0.302	0.309	4.865	0.010	0.058	0.630	0.059	1.090
	Entrep					0.143	3.100	0.003	1.857

Source: Prepared by the student based on the output of SPSS

To know the relationship between research and innovation and both the entrepreneur and financial resources variables, we used the Multiple linear regression coefficients as shown in Table No. 73. In which the variables of the financial resources and entrepreneur were considered as the explanatory variables and the innovation variable as the dependent variable, The results of the regression model showed that the regression model is significant through the value of (**F**) of **(4.865**) in terms of (**0.010**) in the level of

significance (**0.05**). The results show that the independent variables explain **30.9%** of the variance in research and development, given the coefficient of limitation ($\mathbf{R^2}$). The value of beta (**B**), which shows the relationship between innovation and financial resources, came with a value of (**0.058**) with statistical significance (**0.059**), meaning that the level of financial resources improved by a unit that increased the level of innovation by (**0.058**). Also, the value of Beta (**B**) for the entrepreneur variable came with a value of (**0.143**) with statistical significance, as we can deduce that through the value of **(t**) and the associated significance (**0.003**). That is, whenever the level of the entrepreneur improves by one unit, the level of research and development improves by (**0.143**). The table also shows the rate of the multilinearity test, where the result revealed that the variance inflation factor (**VIF**) was estimated at (**1.090** and **1.857**), less than (**3**), which indicates that there is no problem of linear multiplicity between the model variables. So the regression equation can be written as follows:

Innovation (expected) = **30.683** + (**0.051** x financial resources) + (**0.301** x Entrepreneur)

Section three: Results of Hypothesis Testing

1. Hypothesis Testing

This section includes a presentation of the results of the statistical analysis that was carried out to test the hypotheses of the study. In order to achieve this, given the nature of the study hypotheses, Pearson correlation coefficient (r) and (t-tests) were used, as well as simple regression with the use of analysis of variance (ANOVA) to test the statistical significance of the regression model, in addition to multiple regression.

- **The first hypothesis: The use of financial resources in research and development has an impact on the innovation process**

To test this hypothesis, The financial resources regression model was estimated over research and development, as it is clear from Table No. 74 that the correlation coefficient (**r**) between financial resources and research and development is weak with a value of **(0.198*)** with a statistical significance of this relationship at the level of significance (**0.05)** as indicated by the results of the table.
Based on the results of the regression analysis, the relationship between financial resources and research and development can be represented according to the following equation:

$$\mathbf{Y_{R\&D} = 47.083 + 0.315\ X_{financial\ resources}}$$

$\mathbf{Y_{R\&D}}$ = research and development
$\mathbf{X_{FR}}$ = financial resources

To verify the statistical significance of the resulting regression model, the results of the analysis of the (**F**) value of (**168.383**), while the value of (**t**) is estimated at (**1.999**) at a level of significance (**0.048**) smaller than the level of significance (**0.05**).
Thus, the model is statistically significant, and accordingly, the hypothesis that the use of financial resources in research and development has an impact on the innovation process was accepted.

Table 74: Summary of regression analysis and analysis of variance for the first hypothesis

Depen-variable	Indepen-variable	correlation coefficient r	R^2	indepen variable coefficient Beta B	stator a	ANOVA			
						F	F.sig	t	t.sig
R&D	**FR**	0.198*	0.039	0.315	47.083	162.388	0.048	1.999	0.04

Source: Prepared by the student based on the output of SPSS

As for the explanatory ability of the model, the results of the analysis show that the value ($\mathbf{R^2}$) of the relationships of this model amounted to (**0.039**) with an explanatory ratio equivalent to **3%**, and this means that financial resources explain the value of **3%** of the change in the total variance of research and development

- **The second hypothesis: An entrepreneur oriented towards R&D increases the potential for innovation**

To test this hypothesis, The entrepreneur regression model was estimated over research and development, as it is clear from Table No. 75 that the correlation coefficient (**r**) between entrepreneur and R&D is medium with a value of **(0.507**)** with a statistical significance of this relationship at the level of significance (**0.01)** as indicated by the results of the table.
Based on the results of the regression analysis, the relationship between the entrepreneur and R&D can be represented according to the following equation:

$$\mathbf{Y_{R\&D} = 27.719 + 0.340\ X_{ENTER}}$$

$\mathbf{Y_{R\&D}}$ = research and development
$\mathbf{X_{ENTER}}$ = entrepreneur

To verify the statistical significance of the resulting regression model, the results of the analysis of the (**F**) value of (**1066.685**), while the value of (**t**) is estimated at (**5.816**) at a level of significance (**0.000**) smaller than the level of significance (**0.001**).
Thus, the model is statistically significant, and accordingly, the hypothesis that an entrepreneur oriented towards R&D increases the innovation potential was accepted.

Table 75: Summary of regression analysis and analysis of variance for the second hypothesis

Depend variable	indepen variable	correlation coefficient r	R^2	indepen variable coeffici Beta B	stator a	ANOVA			
						F	F.sig	t	t.sig
R&D	**ENTER**	0.507**	0.257	0.340	27.719	1066.685	0.00	5.816	0.00

Source: Prepared by the student based on the output of SPSS

As for the explanatory ability of the model, the results of the analysis show that the value ($\mathbf{R^2}$) of the relationships of this model amounted to (**0.257**) with an explanatory ratio equivalent to **25%**, and this means that the entrepreneur explains the value of **25%** of the change in the total variance of research and development

- **The third hypothesis: Adopting an innovative strategy in research and development in the enterprise has a significant impact on innovation**

To test this hypothesis, an R&D regression model was estimated over innovation, As it is clear from Table No. 76 that the correlation coefficient (**r**) between R&D and innovation is weak with a value of **(0.203*)** with a statistical significance of this relationship at the level of significance (**0.05)** as indicated by the results of the table.
Based on the results of the regression analysis, the relationship between R&D and innovation can be represented according to the following equation:

$$\mathbf{Y_{INNOV} = 35.992 + 0.144\ X_{R\&D}}$$

Y_{INNOV} = innovation
$X_{R\&D}$ = research and development

To verify the statistical significance of the resulting regression model, the results of the analysis of the (**F**) value of (**86.416**), while the value of (**t**) is estimated at (**2.049**) at a level of significance (**0.043**) smaller than the level of significance (**0.05**).
Thus, the model is statistically significant, and accordingly, the hypothesis that adopting an innovative strategy in research and development in the enterprise has a significant impact on innovation was accepted.

Table 76: Summary of regression analysis and analysis of variance for the third hypothesis

Depend variable	indepen variable	correlation coefficient r	R^2	indepen variable coeffici Beta B	stator a	ANOVA			
						F	F.sig	t	t.sig
Innov	**R&D**	0.203*	0.041	0.144	35.792	86.416	0.043	2.049	0.43

Source: Prepared by the student based on the output of SPSS

As for the explanatory ability of the model, the results of the analysis show that the value ($\mathbf{R^2}$) of the relationships of this model amounted to (**0.041**) with an explanatory ratio equivalent to **4%**, and this means that R&D explain the value of **4%** of the change in the total variance of innovation.

- **The fourth hypothesis: The adoption of partnership by the institution has a significant impact on its ability to innovate**

To test this hypothesis, a partnership regression model was estimated over innovation, as it is clear from Table No. 77 that the correlation coefficient (**r**) between partnership and innovation is weak with a value of **(0.172),** and it is no statistical significance as indicated by the results of the table.
Based on the results of the regression analysis, the relationship between partnership and innovation can be represented according to the following equation:

Y_{INNOV} = 39.661 + 0.064 X_{PART}

Y_{INNOV} = innovation
X_{PART} = partnership

To verify the statistical significance of the resulting regression model, the results of the analysis of the (**F**) value of (**62.147**), while the value of (**t**) is estimated at (**1.727**) at a level of significance (**0.087**) bigger than the level of significance (**0.05**).
Thus, the model is not statistically significant, and accordingly, the hypothesis that the adoption of partnership by the institution has a significant impact on its ability to innovate was rejected.

Table 77: Summary of regression analysis and analysis of variance for the fourth hypothesis

depend variable	indepen variable	correlation coefficient r	R^2	indepen variable coeffici Beta B	stator a	ANOVA			
						F	F.sig	t	t.sig
Innov	**part**	0.172	0.030	0.061	39.661	62.147	0.087	1.727	0.087

Source: Prepared by the student based on the output of SPSS

As for the explanatory ability of the model, the results of the analysis show that the value ($\mathbf{R^2}$) of the relationships of this model amounted to (**0.030**) with an explanatory ratio equivalent to **3%**, and this means that partnership explains the value of **3%** of the change in the total variance of innovation.

- **The fifth hypothesis: The presence of the institution in a scientific environment surrounded by prepared technological elements contributes to the innovation process**

To test this hypothesis, an environment regression model was estimated over innovation, as it is clear from Table No. 78 that the correlation coefficient (**r**) between environment

and innovation is weak with a value of **(0.172),** and it is no statistical significance as indicated by the results of the table.
Based on the results of the regression analysis, the relationship between environment and innovation can be represented according to the following equation:

YINNOV = 40.567 + 0.093 XENVIR

YINNOV = innovation
XENVIR = environment

To verify the statistical significance of the resulting regression model, the results of the analysis of the (**F**) value of (**18.128**), while the value of (**t**) is estimated at (**0.923**) at a level of significance (**0.358**) bigger than the level of significance (**0.05**).
Thus, the model is not statistically significant, and accordingly, the hypothesis that the presence of the institution in a scientific environment surrounded by prepared technological elements contributes to the innovation process was rejected.

Table 78: Summary of regression analysis and analysis of variance for the fifth hypothesis

depend variable	indepen variable	Correla-coefficient r	R^2	indepen variable coeffici Beta B	stator a	ANOVA			
						F	F.sig	t	t.sig
Innov	**ENVIR**	0.172	0.009	0.093	39.661	18.128	0.358	0.923	0.087

Source: Prepared by the student based on the output of SPSS

As for the explanatory ability of the model, the results of the analysis show that the value ($\mathbf{R^2}$) of the relationships of this model amounted to (**0.009**) with an explanatory ratio equivalent to **0.9%**, and this means that the environment explains the value of **0.9%** of the change in the total variance of innovation.

- **The sixth hypothesis: The determinants of innovation mentioned earlier contribute significantly to the development of the enterprise**

The independent variables (partnership and environment) were excluded from the multiple linear regression model due to the weak effect of these variables on innovation, where their statistical significance was, respectively (**0.087** and **0.358**), which is greater than the level of significance (**0.05**).
To test this hypothesis, a determinant (financial resources, entrepreneur, R&D) regression model was estimated over development, The results of the table No. 79 were as follows:
- that the correlation coefficient (**r**) between financial resources and development is medium with a value of **(0.269*),** with a statistical significance of this relationship at the level of significance (**0.05)** as indicated by the results of the table.

- that the correlation coefficient (**r**) between entrepreneur and development is medium with a value of **(0.356**),** with a statistical significance of this relationship at the level of significance (**0.01)** as indicated by the results of the table.
- that the correlation coefficient (**r**) between R&D and development is medium with a value of **(0.301**),** with a statistical significance of this relationship at the level of significance (**0.05)** as indicated by the results of the table.

Based on the results of the regression analysis, the relationship between the determinant above and development can be represented according to the following equation:

$$\mathbf{Y_{devl} = 12.366 + 0.211\ X_1 + 0.096X_2 + 0.153\ X_3}$$

YDEVL = development
$\mathbf{X_1}$ = financial resources
$\mathbf{X_2}$ = entrepreneur
$\mathbf{X_3}$ = R&D

To verify the statistical significance of the resulting regression model the results of the analysis of the (**F**) value of (**123.495**), while the value of (**t**) is estimated at

- financial resources: (**t**) is (**1.955**) at a level of significance (**0.05**) equal to the level of significance (**0.05**).
- entrepreneur: (**t**) is (**1.858**) at a level of significance (**0.05**) equal to the level of significance (**0.05**).
- R&D: (**t**) is (**1.945**) at a level of significance (**0.05**) equal to the level of significance (**0.05**).

Thus, the model is statistically significant, and accordingly, the hypothesis that the determinants of innovation (financial resources, entrepreneur, R&D) contribute significantly to the development of the enterprise was accepted.

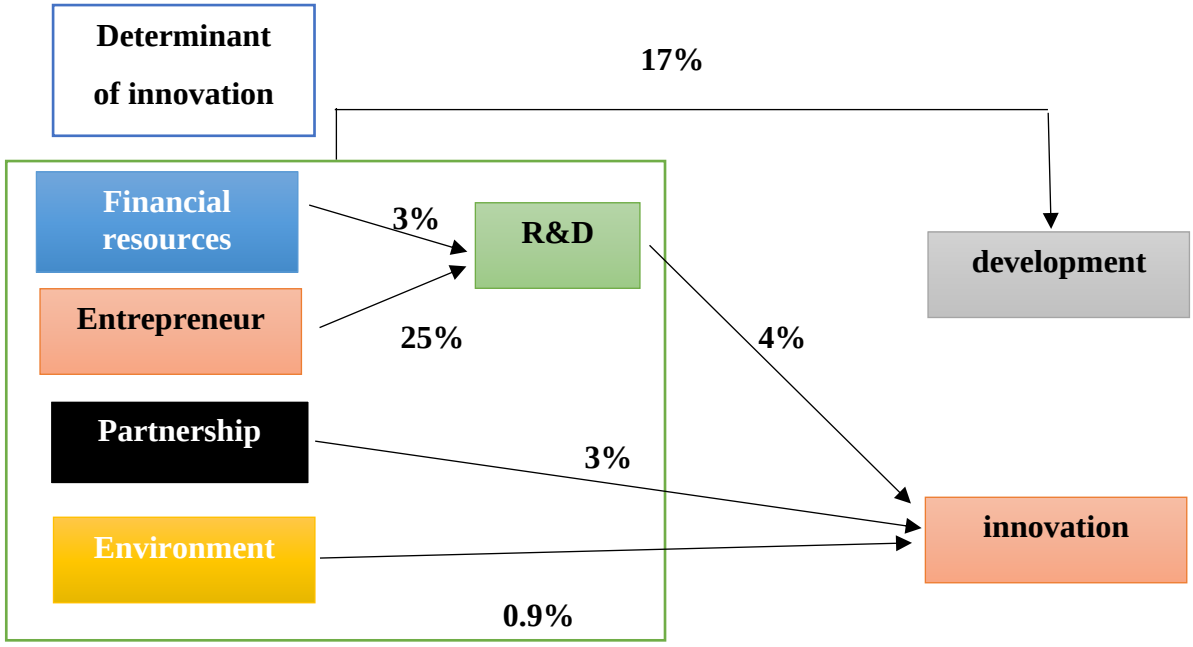
Table 79: Summary of regression analysis and analysis of variance for the sixth hypothesis

depend variable	indepen variable	Correlat-coefficient r	R^2	indepen variable coeffici Beta B	stator a	ANOVA			
						F	F.sig	t	t.sig
devl	F.R	0.269*	0.179	0.211	12.366	123.495	0.00	1.955	0.053
	ENTER	0.301**		0.096				1.945	0.055
	R&D	0.356**		0.153				1.858	0.053

F.R = financial resources ; **ENTER =** entrepreneur ; **R&D =** research and development
Source: Prepared by the student based on the output of SPSS

As for the explanatory ability of the model, the results of the analysis show that the value ($\mathbf{R^2}$) of the relationships of this model amounted to (**0.17**) with an explanatory ratio equivalent to **17%**, and this means that financial resources, entrepreneur and R&D explain the value of **17%** of the change in the total variance of development.

Figure 32: Study model test results



Source: Prepared by the student

Table 80: Hypotheses results

N⁰	Statement of the hypothesis	Confirmation
H1	The use of financial resources in research and development has an impact on the innovation process	confirmed
H2	An entrepreneur oriented towards R&D increases the potential for innovation	confirmed
H3	Adopting an innovative strategy in research and development in the enterprise has a significant impact on innovation	confirmed
H4	The adoption of partnerships by the institution has a significant impact on its ability to innovate	Denied
H5	The presence of the institution in a scientific environment surrounded by prepared technological elements contributes to the innovation process	denied
H6	The determinants of innovation mentioned earlier contribute significantly to the development of the enterprise	confirmed

Source: Prepared by the student

2. Discussion of the Survey Results

This part of the study aims to achieve the main objectives of the current study, and after we subjected the questionnaire to statistical analysis that includes the independent variables (financial resources, entrepreneur, research and development, partnership, environment) combined with the dependent variable, which is developed with the presence of an intermediate variable, which is Innovation in Algerian small and medium enterprises.

And we found the relationship between them and the impact of this relationship. Where we reached the following conclusions:

a- The level of interest of managers in innovation

- The results of the managers' interest in innovation within their enterprises showed that technical performance ranked first according to their answers.
- The technical performance ranked first because of its importance in the innovative process. Technical performance leads to creativity, which in turn generates new ideas, capabilities, ways of thinking and characteristics characterized by an innovative capacity.
- The reason for the entry of new markets to the last rank is due to the managers' focus on the markets in which they are currently active, obtaining large market shares and their development in them at present. Especially for small and medium enterprises, entering new markets in addition to the existing ones is considered a risk and contains many obstacles and difficulties.

b- Discuss the results of the impact of the determinants on innovation

It was found through the results of the study that the determinant of the entrepreneur tops the ranking in terms of impact on innovation through the process of research and development in small and medium enterprises. Followed by the research and development determinant and then the financial resources by exploiting them in the research and development process. Finally, both the partnership and environment determinants were due to the lack of impact on innovation in small and medium enterprises, according to the facilitators' answers.

- **Discussing the impact of the entrepreneur through research and development on the innovation process in small and medium enterprises**

we found from the results of the regression equation analysis that the higher the entrepreneur determinant by one unit, the greater the innovation determinant by (0.310). It was also found from the results of the analysis that the contractor through research and development explains its value (25%) of the change in the total variance of innovation in small and medium enterprises.

In general, we found from the results of the study that innovation by the entrepreneur through research and development is of great importance in small and medium enterprises, and this is confirmed by the weighted average of the contractor determinant estimated at (3.84) and indicates that it is "very important".

The conduct of research and innovation activity depends mainly on the human element represented by individuals capable of undertaking highly sensitive activities. They are always facing the unknown, and they seek to reveal it. Most studies confirm that the management of staff in research and development activities requires special and distinct flexibility positively compared to the rest of the various activities of the institution. The workers or employees in the research and development activity are distinguished by their specialized scientific and intellectual capabilities, so they are directly directed to the research and development activity.

The importance of the entrepreneur lies in the innovative process of the institution as the core element of the success of the institution because it is always looking for opportunities within the market by introducing products and marketing techniques to create resources that enhance productivity within the economy and create wealth (Drucker 1985), as it represents a factor of innovation. The contractor has a sense of vigilance (Kirzner, 1997) to discover opportunities, and the most characteristic of the contractor is that he is a "risk-taker" and contributes to the marketing of innovations that are considered risky. The entrepreneur can drive breakthroughs in technology or business and marketing methods (Baumol, 1968).

- **Discussing the impact of the R&D on the innovation process in small and medium enterprises**

We found from the results of the regression equation analysis that the higher the R&D determinant by one unit, the greater the innovation determinant by (0.144). It was also found from the results of the analysis that the research and development explain its value (4%) of the change in the total variance of innovation in small and medium enterprises.

In general, we found from the results of the study that innovation by research and development is of great importance in small and medium enterprises, and this is confirmed by the weighted average of the R&D determinant estimated at (3.93) and indicates that it is "very important".

The importance of the research and development process is that it is linked to innovation. Whenever these activities succeed, those in charge of the research and development process are praised. It has also been proven that research and development play a crucial role in the innovation processes of small and medium enterprises. Where it represents the first and basic resource for it (innovation) so that in every activity, the concerned persons (persons or enterprises) of all kinds and forms participate in the race towards research and development to create new products of high quality. The winner in this race creates his monopoly and becomes the exclusive manufacturer of the new product. It is also not possible to deny the role of innovation in the change in the economic path as well as the path of enterprises, and this is due to explicit efforts made through it (R&D).

Research, development and innovation activities are considered an organizational, productive, marketing and competitive strategy, the composition of which overlaps with a set of factors which work to motivate them and raise the status of the institution and enhance its position.

- Discussing the impact of financial resources through research and development on the innovation process in small and medium enterprises

We found from the results of the regression equation analysis that the higher the financial resources determinant by one unit, the greater the innovation determinant by (0.315). It was also found from the results of the analysis that financial resources explain the value (3%) of the change in the total variance of innovation in small and medium enterprises.

In general, we found from the results of the study that innovation by financial resources through research and development is important in small and medium enterprises, and this

is confirmed by the weighted average of the financial resources determinant estimated at (3.17) and indicates that it is "very important".

The interest of small and medium-sized enterprises has increased increasingly in the subject of research, development and innovation because of their great importance in their contribution to development and value creation, as this interest reflects the volume of expenditure and financial resources directed on research, development and innovation activities and the returns generated therefrom.

enterprises, when carrying out research and development, need significant funding because they involve long-term and high-cost human activity. Good funding contributes to providing a research environment conducive to innovation within the enterprises.

c- Discuss the results of the impact of the determinants of innovation on the development

After excluding both the partnership determinant and the environment determinant when using the multiple regression model for their weak impact on innovation, and their statistical significance was greater than the level of significance (0.05).

It was found through the results of the study that the determinant of research and development came in the first place, followed by the determinant of the entrepreneur and last, the determinant of financial resources.

- Discussing the impact of the determinants on the development of the small and medium enterprises

We found from the results of the regression equation analysis that the higher the R&D determinant by one unit, the greater the development by (0.151). and the higher the entrepreneur determinant by one unit, the greater the development by (0.096). and the higher the financial resources determinant by one unit, the greater the development by (0.211).

It was also found from the results of the analysis that the research and development, entrepreneur and financial resources explain the value (17%) of the change in the total variance of development in small and medium enterprises.

In general, we found from the results of the study that innovation by research and development, entrepreneurs and financial resources are of great importance in small and medium enterprises, and this is confirmed by the weighted average of the R&D determinant estimated at (3.93) and indicates that it is "very important". the weighted average of the entrepreneur determinant is estimated at (3.84) and indicates that it is "very important". And the weighted average of the financial resources determinant is estimated at (3.17) and indicates that it is "very important".

Conclusion

Using a thorough explanation of the research approach utilised to address the study's questions and confirm the veracity of its hypotheses, we first presented the methodological framework of the field study in this chapter.

The study tool's validity and reliability were examined first, and it was discovered to be highly reliable and internally consistent, which made the scale used a quality that enables the student to obtain reliable results. The study results were then presented and analysed using a variety of advanced statistical methods.

Then add the sample members. Finally, the focus is on achieving the study's main objectives, which are represented in measuring the impact of innovation determinants on the development of SMEs by analyzing information and testing the relationships between the study variables.

Then, several findings were drawn, the most notable of which was the contractor's influence on the institution's invention in the first place and the independent variable's (research and development) major contribution to the institution's development.

General conclusion

General conclusion

Enterprise continuously grows in environments where technological improvements and innovation are essential for ensuring a market niche. Because of this, many (if not all) nations struggle with developing a successful national innovation system, and many strategies and policies are being examined as a result. One element of the national innovation system is the enterprise, particularly the SME, which serves as the primary vector and environment for innovation.

Valorisation of resources in innovation essentially aids in building and retaining competitive advantages. In this sense, innovation is no longer the exception. It becomes the norm and is permanently a part of an enterprise's existence. Innovation is a related interactive process that involves multiple actors from different businesses and their contexts. Interactions occur inside distinct or less formal networks linked to alliance systems that distinguish between conceptions that drive innovation and exogenous development.

In addition, innovation appears to be a learning process where the enterprise's internal and external capabilities merge in interactions with its surroundings. Businesses' ability to innovate depends on two skills: first, the capacity to gather information through interactions with the environment, mainly through network insertion, and second, the ability to integrate and process that information through internal interactions to produce new knowledge. In small businesses, the leader's function appears to be predominant in developing these skills. Its learning capacity is determined by all its relationships with diverse partners and how it is integrated into networks. However, the business's unique organisational traits determine its potential for absorbing new information, which leads to innovations.

Innovation is now more than ever at the core of the business. The combination of numerous organisational and institutional elements, including the enterprise's strategy, management of its people resources, environment, culture, and the authorities' activities, results in the enterprise's capacity for innovation. In addition, the company's ability to maximise the interaction of the components above determines its capacity for innovation.

In 2017, Algeria's R&D spending accounted for less than 0.53% of the country's GDP. The private sector's lack of investment in research is the main factor contributing to this low percentage. In huge enterprises, innovation is mainly present. SME participation in research and innovation activities is, however, insufficient. According to the Global Innovation Index, Algeria ranked 110 with an innovation index of 23.87, and the Algerian National Institute of Industrial Property from 2011 to 2020 has registered more than 3000.

The lack of an innovation policy in Algerian businesses, which would enable the planning and coordination of innovation activities and the allocation of material, immaterial, human, and financial resources, is another problem with innovation. On the one hand, at the corporate level, factors like the absence of a programme for valuing competencies and

qualifications, the inadequacy of financial resources, the weakness of the interface, the inadequacy of organisational modes and communication-informational schemes, and finally, the cultural frameworks' inadequacy out of step with the spirit of innovation and creativity are to blame.

Inadequacies in the capacity for innovation are another trait shared by Algerian businesses, specifically SMEs.

The development of innovation projects in these businesses needs to be improved by several challenges. Small businesses generally have constrained financial resources. These businesses must overcome the barrier of access to outside funding to finance their R&D efforts or investments related to innovation. In Algeria, the banks do not provide small businesses with enough credit, and there is no market to provide risk capital.

The lack of knowledge about technological advancements is another barrier to the growth of innovation in small enterprises. Technology expertise and new information need to be improved, hindering innovation. Indeed, the Algerian SME's internal competencies, such as those of the researcher, technician, manufacturing agent, and marketer, are incredibly lacking.

As a result, it must be acknowledged that state authorities in Algeria must provide financial help for small and medium-sized businesses to upgrade their skill sets. For this, one can cite the implementation of policies.

For all these reasons, our research aimed to know the impact of innovation determinants on the development of small and medium enterprises and to identify the most important determinants within small and medium enterprises to carry out the innovation process. A review of the literature related to innovation in small and medium-sized enterprises and the literature related to the determinants of innovation and the development of small and medium enterprises. Five determinants were identified: financial resources, entrepreneur, research and development, partnership and the environment surrounding the enterprise.

Various analyses conducted on a sample of 100 SMEs revealed a certain number of the following interesting findings:

- Many small and medium-sized enterprises give an essential place to the entrepreneur as the initiator or the central point of the innovation process within the enterprise, especially small and medium-sized enterprises;

- The entrepreneur occupies the first place in the process of innovation in small and medium enterprises through his interaction in the process of research and development;

- Increasing the interest of small and medium enterprises in the research and development process, as they play an essential role in carrying out the innovation process;

- Increasing the interest of small and medium enterprises in research and development requires an increase in the volume of spending for this process;

- Financial resources are a significant driver in the innovation process. The greater the enterprise's financial resources, the greater it's chance of going towards innovation.

- Research and development had the most significant impact on the development of the enterprise through its significant contribution to the innovation process;

- The entrepreneur also has an impact on the development of the enterprise by exploiting his skills and competence in innovation within the enterprise;

- The more financial resources an enterprise uses for innovation, the greater its contribution and impact on its development.

An entrepreneur alone cannot implement the innovation process within the enterprise, but it is necessary to incorporate other determinants that positively impact innovation. According to our analysis, we also find that financial resources and R&D are determinants of innovation in SMEs. As for the partnership and the business environment, it had a feeble impact on the innovation process.

Small business enterprise field, the medium is in dire need of creativity and distinction to achieve competition. As no one Crucial elements in determining the future of any enterprise, which allows thousands of individuals to acquire The skills required for renewal, creativity and development, and the greater the interest in developing the process Creativity of the human element in terms of its content, methods, and evaluating its returns, The enterprise becomes more The ability to deal with the data of the changing environment in which you work.
As always, there are some restrictions on our research. The first relates to the results' representation and generalizability or external verification of the findings. In reality, we cannot generalise our findings to those interested in large businesses, generalising our study to small and medium-sized enterprises. Second, because the study was experimental, a greater sample size than anticipated was required for more thorough statistical testing and to enable more detailed analysis.

Despite these limitations, this research provides a better understanding of the impact of innovation determinants within SMEs on their development. It suggests that managers of small and medium enterprises should emphasise adopting more innovative strategies in cooperation with external actors to increase their capabilities. For this, it should be noted that the proposed model is still suitable for studying the impact of the determinants of innovation in small and medium enterprises on their development.

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ANNEXE

Annexe 1

A questionnaire on the determinants of innovation and their impact on the development of small and medium-sized enterprises, the case of Algerian enterprises

The University of Tlemcen is using this poll as part of the creation of a doctoral thesis in economics and management. It is designed for a sample of SMEs in Algeria. The data gathered will be kept private, and under no circumstances may it be used for anything other than scientific and educational research. I appreciate your cooperation in advance.

1. Enterprise Presentation

Name: ……
Address: ……
……..

The main activity: ……

Legal form :

SPCL ☐ LLC ☐ Partnersh ☐ SC ☐

The nature of the ownership:

private ☐

Public ☐

mixed ☐

Annual-turnover:

AT < 20 Million Dzd ☐

AT < 200 Million Dzd ☐

200 Million Dzd ≥ AT < 2 Billion Dzd ☐

Enterprise size by workers:

Micro (from 1 to 9 workers) ☐

Small (from 10 to 49 workers) ☐

Medium (from 50 to 250 workers) ☐

Market level

Local market ☐

Regional market ☐

National market ☐

International market ☐

Activity type:

Agrifood ☐ Materials for communities ☐

Energy Chemicals ☐ Textile ☐

Services ☐ Building de work ☐

Electronics and electrical industry ☐

Mechanics and metallurgy ☐

Furniture and decoration ☐

Annexe 1

Responder function: …… **Activity start date: / /**
……..
Phone: **Fax:** **E-mail:**
……

Information about the owner of the enterprise:

Sex: Male ☐ Female ☐

	24 or less	**25-29 year**	**30-34 year**	**35-39 year**	**40-44 year**	**45 and over**
Age						

	Primary	**Middle school**	**High school**	**College years**	**Bachelors degree**	**Master degree**	**PhD degree**	**Professional Formation**
Education level								

	legal	**economic**	**Technical**	**Else**
Training				

	1-10 years	**11-20 years**	**21-30 years**	**31- 40 years**	**40 or more**
Experience					

1. Innovation

Give your opinion on the following information:
1: strongly disagree **2**: disagree **3**: neutral **4**: Agreed **5**: completely agree

	What kind of innovation is there in your enterprise?	**1**	**2**	**3**	**4**	**5**
1 **2**	Product innovation: - The enterprise launches a new product (good or service) to the market - The enterprise has lunches a significantly improved product (good or service) to the market.					
3	process innovation - The enterprise has lunches at least a new process, for example, production/ distribution/ maintenance / supply / accounting / IT					

4	- The enterprise has significantly improved a process (method) of its operations, at least for example: in production / distribution / maintenance / supply / accounting / IT					
5 **6** **7**	organizational innovation - The enterprise has introduced new business practices to facilitate procedures: Supply Chain Management / Business Reengineering / Management Knowledge, production processing/quality management. - The enterprise has developed new ways of organizing responsibilities and making decisions. - The enterprise has introduced new methods and methods for organizing foreign relations.					
8 **9** **10** **11**	What are the results of the changes made? - Improved product quality - Launching new products - Technical performance - Entering new markets					

2. Financial resources

1: strongly disagree **2**: disagree **3**: neutral **4**: Agreed **5**: completely agree

What financial means do you usually use to finance your activities?

- Own funds Yes ☐ ☐ % No. ☐
- Borrowing Yes ☐ ☐ % No ☐
- Aides Yes ☐ ☐ % No ☐
- Capital-risque Yes ☐ ☐ % No ☐
- Other…….

Do you find any difficult to obtain funding? Yes ☐ No ☐

Do you set aside a percentage of turnover for innovation (product, process, ,organizational and commercial)?

Yes ☐ No ☐

If yes, how many? ☐ %

Annexe 1

	Contribution of financial resources to research and development	**1**	**2**	**3**	**4**	**5**
1	- The chance for innovation					
2	- increases with an enterprise's financial capacity					
	- .					
3	- Investment in R&D is essential to many different types of innovation.					
4	- The financial capacity of an institution depends on its size					
5	- The enterprise can innovate without the need for large financial resources					
6	- To carry out research and development, the necessary financial resources must be available					
7	- Research and development can be carried out without the need for large financial resources					

3. Entrepreneur

1: strongly disagree **2**: disagree **3**: neutral **4**: Agreed **5**: completely agree

	Characteristics of the Entrepreneur	**1**	**2**	**3**	**4**	**5**
1	- Innovator					
2	- Collaborator					
3	- Skilled					
4	- cultured					
5	- Opportunistic					
6	- Risk-taker					
7	- social					
8	- Motivated					
9	- The entrepreneur develops a strategy in the field of innovation. That is the organization researches Systematic innovation.					
10	- The entrepreneur tends to take risks, especially in terms of innovation					
11	- Entrepreneurs trust his ability to innovate					
12	- The entrepreneur constantly monitors and analyzes the internal and external environment for innovative activity.					
13	- The entrepreneur possesses the intellectual capabilities necessary to manage innovation.					
14	- The entrepreneur contributes to motivating employees to participate in training programs.					

Annexe 1

	The relationship between the entrepreneur and research and development					
15 **16** **17** **18** **19** **20** **21**	- Research and development needs a qualified entrepreneur - The innovative entrepreneur always urges his employees to research and develop - the entrepreneur focuses more on technical development than research in (R&D) - The entrepreneur improves companies' ability to identify and absorb outside knowledge through research and development - The intensity of R&D is through the formation of the number of workers participating in these activities from a qualified entrepreneur - The accumulated experience and knowledge of the entrepreneur are enhanced in R&D activities - The R&D-oriented entrepreneur is more innovative					

4. Research and development

1: disagree **2**: More or less agree **3**: neutral **4**: Agreed **5**: completely agree

	The relationship between research, development, and innovation	**1**	**2**	**3**	**4**	**5**
1 **2** **3** **4** **5** **6** **7** **8** **9**	- The presence of R&D activities makes it possible to create an atmosphere for enterprises to be more flexible to adapt to any change in market conditions. - Entreprises with an effective R&D program are more likely to innovate - R&D activities generate innovations in the enterprise - Research and development contribute to theinnovation and marketing of new ideas - The research and development process aims to develop new core competencies through innovation - The research and development process aims to enhance current and new products through innovation - The research and development process aims to develop current and new business processes through innovation - The basis of innovation in R&D - Value creation through strategic research and development - The research and development process is more effective if it is carried out within the institution					

10 **11**	- The research and development process is more effective if it is carried out in cooperation with parties outside the institution					
	What is the objective of the research and development you carry out?					
12 **13** **14**	- Improve production processes - Marketing new products - Increasing the enterprise's profits					

5. Partnership

1: disagree **2**: More or less agree **3**: neutral **4**: Agreed **5**: completely agree

	What do you think about cooperation	**1**	**2**	**3**	**4**	**5**
1 **2** **3** **4** **5** **6** **7** **8**	- The enterprise cooperated with its suppliers andcontributed to the innovation process. - The enterprise cooperates with its customers because they are considered the first source of innovation. - The enterprise cooperated with its competitors in various innovative activities. - The enterprise cooperated with private bodies in various innovative activities. - The enterprise cooperated with government agencies - Collaboration with other enterprises in the same sector facilitates access to innovation - Cooperating with other local or foreign enterprises in the same industry helps the enterprise to innovate - Universities and colleges are considered the main partner for innovation					
9 **10** **11** **12**	How does your enterprise collaborate with a university research laboratory? - Agreement - Research Consortium - Partnership research project - Service provision					
13 **14**	What were the different modalities of this collaboration? - Supervision of trainees - Supervision of PhD students					

15	- Innovation project					
16 **17** **18** **19** **20**	Objectives of your enterprise through the partnership are: - A need for complementarity - Access to technology - A need for an exchange - Cost and risk-sharing - The need for stability					

6. Environment

1: strongly disagree **2**: disagree **3**: neutral **4**: Agreed **5**: completely agree

	Do you think that?	**1**	**2**	**3**	**4**	**5**
1	- There are environmental factors that affect how well ideas turn out, such as process, technology, and space.					
2	- Innovation and knowledge capital are highly concentrated in a minority of urban areas.					
3	- Being in an innovative environment promotes innovation					
4	- Implicit knowledge and experiences that are concentrated in a particular place and have low mobility help an organization innovate					
5	- When innovators are located close to the organization that facilitates knowledge sharing					
6	- The presence of your enterprise in a technological environment contributes greatly to the innovation process					
7	- A shorter geographical distance between participants in the innovation process reduces the cost of knowledge and information exchange and speeds up communication between them					
8	- The geographical proximity between science, technology, industry, and finance contributes to the emergence of innovations					
9	- Interactions are organized through the participation of private actors in innovation and public enterprises					

Annexe 1

7. The development of the enterprise

1: strongly disagree **2**: disagree **3**: neutral **4**: Agreed **5**: completely agree

	In your opinion :	**1**	**2**	**3**	**4**	**5**
1	- Innovation has a direct relationship with the development of the enterprise.					
2	- The more innovations the enterprise increases, the more it develops					
3	- The greater the financial resources of the enterprise directed to innovation, the leads to its development					
4	- The greater the use of financial resources in R&D, the greater the development of the enterprise					
5	- The more innovative the entrepreneur is, the more it affects the growth and development of the enterprise					
6	- The more the entrepreneur is active in research and development within the enterprise, the more this contributes to its development					
7	- The more the partnership with external parties for innovation, the more this contributes to its development					
8	- The enterprise is located in an innovative environment that increases its innovation and contributes to its development					

I appreciate your coorperation

Annexe 2

Summary table (number of points awarded 10 for the best, 1 minimum)

Author	ENT	H.R	F.R	R&D	SI	TIC	CUL	PAR	T.E	SIZE	COM	Env	Ma	EXP
Mita Bhattacharya 2002				10						8		9		6
Gabsi,Foued & AL 2008	10			10				9	7	9			6	
Leon A.G. Oerlemans & AL 2001			10	10								9		
Caroline HUSSLER 2004				10				9				8		
Henny Romijn& Manuel Albaladejo 2001	10		9	10	7							8		
Walid Hadhri & AL 2016				10		8		9		7				6
Nabil KHOURI 2001			10			8			7	9				
Wafaa, BERBAR & Abderrezzak, BENHABIB 2015	10	8	9	9				8			7			
Walid Sharara 2018	10	9			7			9			8			
David Wan & AL 2005			10	10			7							
Jeroen P.J. de Jong & R. G. M. Kemp 2001	9										8	10	7	
Rifat Kamasak 2015	10						6					9		
Eliane Olga Kompaore 2008	9		10	10				8						
Fatiha Fort & AL 2005	9		10							9		8		
Boukhalfa Benamar &Foued Cheriet 2012	10		9	9						8		8		
Olfa Hajjem Zaier 2017			10	10				9						

Annexe 2

Barbara Bigliardi & Alberto Ivo Dormio		8	9					10					7	
Bouzid Ines 2011	9	10	10							8	8			
Bilal Zuyouch 2017			10	9	7			9			6	8		
Jean Claude Boldrini 2013	10	9	9											
MELBOUCI Leïla 2007	10		10	9										
malal ahmed & Zalmat Muhammed 2019	10		10							9				
Léonard Nkouka Safoulanitou et al. 2013	10					7					8			
Vega Jurado et al. 2008		9	10	8				9			7		6	
TOTAL	**136**	53	**155**	**134**	21	23	13	**89**	14	67	52	**77**	26	12

4.1 Results of Cronbach's Alpha analysis on the total sample

Case Processing Summary

		N	%
Cases	Valid	99	99.0
	Excluded	1	1.0
	Total	100	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.919	92

4.2 The validity of the internal consistency of the overall questionnaire

Correlations

		holistic survey	innov	F.R	ENTREP	PART	ENVIR	DEVL	R&D
holistic survey	Pearson Correlation	1	.408**	.390**	.802**	.774**	.728**	.421**	.762**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
	N	100	100	100	100	100	100	100	100
innov	Pearson Correlation	.408**	1	.258**	.298**	.172	.093	.063	.203*
	Sig. (2-tailed)	.000		.010	.003	.087	.358	.533	.043
	N	100	100	100	100	100	100	100	100
F.R	Pearson Correlation	.390**	.258**	1	.351**	.186	.192	.065	.262**
	Sig. (2-tailed)	.000	.010		.000	.064	.055	.521	.008
	N	100	100	100	100	100	100	100	100
ENTREP	Pearson Correlation	.802**	.298**	.351**	1	.447**	.567**	.301**	.507**
	Sig. (2-tailed)	.000	.003	.000		.000	.000	.002	.000
	N	100	100	100	100	100	100	100	100
PART	Pearson Correlation	.774**	.172	.186	.447**	1	.491**	.113	.512**
	Sig. (2-tailed)	.000	.087	.064	.000		.000	.263	.000
	N	100	100	100	100	100	100	100	100
ENVIR	Pearson Correlation	.728**	.093	.192	.567**	.491**	1	.378**	.576**
	Sig. (2-tailed)	.000	.358	.055	.000	.000		.000	.000
	N	100	100	100	100	100	100	100	100
DEVL	Pearson Correlation	.421**	.063	.065	.301**	.113	.378**	1	.356**
	Sig. (2-tailed)	.000	.533	.521	.002	.263	.000		.000
	N	100	100	100	100	100	100	100	100
R&D	Pearson Correlation	.762**	.203*	.262**	.507**	.512**	.576**	.356**	1
	Sig. (2-tailed)	.000	.043	.008	.000	.000	.000	.000	
	N	100	100	100	100	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.1 descriptive statistics

Innovation:

		1	2	3	4	5	6	7	8	9	10	11
N	Valid	100	100	100	100	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0	0	0	0	0
Mean		4.02	4.03	3.87	4.22	3.67	3.50	3.63	4.27	4.14	4.29	4.10
Median		4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00
Std. Deviation		.864	.822	.971	.596	1.064	.882	.971	.584	.697	.769	.870
Sum		402	403	387	422	367	350	363	427	414	429	410

Financial resources :

Statistics

		1	2	3	4	5	6	7
N	Valid	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0
Mean		4.26	4.39	2.10	3.73	3.61	3.75	3.67
Std. Deviation		.747	.764	.937	.930	1.490	1.104	1.457

Entrepreneur :

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
N	Valid	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Mean		4.08	4.28	4.37	4.38	3.89	3.46	3.77	3.12	3.35	3.35	4.00	3.87	4.07	4.14	4.06	4.00	3.52	3.59	3.74	3.75	3.90	
Median		4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
Std. Deviation		1.051	.653	.630	.693	1.053	1.374	1.179	1.387	1.250	1.038	.725	.872	.756	.752	.874	.841	.937	.866	.895	.770	.893	
Sum		408	428	437	438	389	346	377	312	335	335	400	387	407	414	406	400	352	359	374	375	390	

Annexe 2

R&D :

Statistics

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
N	Valid	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		4.03	3.85	4.01	4.08	3.99	4.04	3.96	4.01	3.54	3.40	3.62	4.19	4.19	4.22
Median		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Std. Deviation		.937	.809	.643	.646	.772	.665	.875	.893	.822	1.035	.908	.615	.800	.719
Sum		403	385	401	408	399	404	396	401	354	340	362	419	419	422

Partnership :

N	Valid	100	100	100	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Missing	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		3.29	3.36	2.62	3.18	2.81	3.51	3.80	3.43	2.92	3.00	2.91	3.55	3.21	3.08	3.39	3.00	3.11	3.27	2.76	3.10
Median		3.00	4.00	3.00	3.00	3.00	4.00	4.00	4.00	3.00	3.00	3.00	4.00	3.00	3.00	4.00	3.00	3.00	3.00	3.00	3.00
Std. Deviation		1.122	1.142	1.126	1.164	1.237	1.078	.943	1.103	1.032	1.101	1.045	.957	1.140	1.134	1.053	1.435	1.317	1.179	1.272	1.227
Sum		329	336	262	315	281	351	380	343	292	300	291	355	321	308	339	300	311	327	276	310

Environment :

		1	2	3	4	5	6	7	8	9
N	Valid	100	100	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0	0	0
Mean		3.69	2.92	4.00	3.64	3.60	3.98	3.73	3.92	3.62
Median		4.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Std. Deviation		.992	1.383	.888	.894	.932	.752	.863	.950	.908
Sum		369	292	400	364	360	398	373	392	362

Development :

		1	2	3	4	5	6	7	8
N	Valid	100	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0	0
Mean		4.29	4.36	4.27	4.15	4.27	4.23	4.07	4.26
Std. Deviation		.701	.704	.694	.730	.649	.649	.935	.774
Sum		429	436	427	415	427	423	407	426

4.4 Correlation and regression results between financial resources, entrepreneur and R&D

Descriptive Statistics

	Mean	Std. Deviation	N
RD	55.1300	6.48020	100
FR	25.5100	4.06636	100
ENTER	80.6900	9.66269	100

Correlations

		RD	FR	ENTER
RD	Pearson Correlation	1	.198*	.507**
	Sig. (2-tailed)		.048	.000
	N	100	100	100
FR	Pearson Correlation	.198*	1	-.059
	Sig. (2-tailed)	.048		.557
	N	100	100	100
ENTER	Pearson Correlation	.507**	-.059	1
	Sig. (2-tailed)	.000	.557	
	N	100	100	100

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Annexe 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. The error in the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.556[a]	.309	.295	5.44292	.309	21.665	2	97	.000

a. Predictors: (Constant), ENTER, FR

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1283.650	2	641.825	21.665	.000[b]
	Residual	2873.660	97	29.625		
	Total	4157.310	99			

a. Dependent Variable: RD

b. Predictors: (Constant), ENTER, FR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant	17.680	5.910		2.992	.004					
	FR	.365	.135	.229	2.706	.008	.198	.265	.228	.996	1.004
	ENTER	.349	.057	.520	6.151	.000	.507	.530	.519	.996	1.004

a. Dependent Variable: RD

4.5 Correlation and regression results between financial resources, entrepreneur and innovation

Correlations

		INNOV	FR	ENTER
Pearson Correlation	INNOV	1.000	.034	.298
	FR	.034	1.000	-.059
	ENTER	.298	-.059	1.000
Sig. (1-tailed)	INNOV	.	.370	.001
	FR	.370	.	.278
	ENTER	.001	.278	.
N	INNOV	100	100	100
	FR	100	100	100
	ENTER	100	100	100

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.302[a]	.091	.072	4.43916	.091	4.865	2	97	.010

a. Predictors: (Constant), ENTER, FR

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	191.749	2	95.874	4.865	.010[b]
	Residual	1911.491	97	19.706		
	Total	2103.240	99			

a. Dependent Variable: INNOV

b. Predictors: (Constant), ENTER, FR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	30.683	4.820		6.366	.000			
	FR	.058	.110	.051	.530	.597	.034	.054	.051
	ENTER	.143	.046	.301	3.100	.003	.298	.300	.300

a. Dependent Variable: INNOV

4.6 The results of the (VIF)

Coefficients[a]

Model		Collinearity Statistics: Tolerance	VIF
1	FR	.918	1.090
	RD	.538	1.857
	ENTER	.595	1.681
	PART	.657	1.522
	ENVIR	.541	1.849

a. Dependent Variable: DEVLO

4.7 Correlation and regression results between financial resources, and R&D

Correlations

		RD	FR
Pearson Correlation	RD	1.000	.198
	FR	.198	1.000
Sig. (1-tailed)	RD	.	.024
	FR	.024	.
N	RD	100	100
	FR	100	100

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.198[a]	.039	.029	6.38431	.039	3.996	1	98	.048	2.051

a. Predictors: (Constant), FR

b. Dependent Variable: RD

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	162.883	1	162.883	3.996	.048[b]
	Residual	3994.427	98	40.759		
	Total	4157.310	99			

a. Dependent Variable: RD

b. Predictors: (Constant), FR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	47.083	4.076		11.552	.000					
	FR	.315	.158	.198	1.999	.048	.198	.198	.198	1.000	1.000

a. Dependent Variable: RD

4.8 Correlation and regression results between entrepreneur, and R&D

Correlations

		RD	ENTER
Pearson Correlation	RD	1.000	.507
	ENTER	.507	1.000
Sig. (1-tailed)	RD	.	.000
	ENTER	.000	.
N	RD	100	100
	ENTER	100	100

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.507[a]	.257	.249	5.61578	.257	33.823	1	98	.000

a. Predictors: (Constant), ENTER

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1066.685	1	1066.685	33.823	.000[b]
	Residual	3090.625	98	31.537		
	Total	4157.310	99			

a. Dependent Variable: RD

b. Predictors: (Constant), ENTER

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Correlations Partial	Correlations Part	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	27.719	4.747		5.840	.000					
	ENTER	.340	.058	.507	5.816	.000	.507	.507	.507	1.000	1.000

a. Dependent Variable: RD

4.9 Correlation and regression results between R&D, and innovation

Correlations

		INNOV	RD
INNOV	Pearson Correlation	1	.203*
	Sig. (2-tailed)		.043
	N	100	100
RD	Pearson Correlation	.203*	1
	Sig. (2-tailed)	.043	
	N	100	100

*. Correlation is significant at the 0.05 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.203[a]	.041	.031	4.53650

a. Predictors: (Constant), RD

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	86.416	1	86.416	4.199	.043[b]
	Residual	2016.824	98	20.580		
	Total	2103.240	99			

a. Dependent Variable: INNOV

b. Predictors: (Constant), RD

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	35.792	3.905		9.165	.000
	RD	.144	.070	.203	2.049	.043

a. Dependent Variable: INNOV

4.10 Correlation and regression results between partnership, and innovation

Correlations

		INNOV	PART
INNOV	Pearson Correlation	1	.172
	Sig. (2-tailed)		.087
	N	100	100
PART	Pearson Correlation	.172	1
	Sig. (2-tailed)	.087	
	N	100	100

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.172[a]	.030	.020	4.56371

a. Predictors: (Constant), PART

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	62.147	1	62.147	2.984	.087[b]
	Residual	2041.093	98	20.827		
	Total	2103.240	99			

a. Dependent Variable: INNOV

b. Predictors: (Constant), PART

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	39.661	2.405		16.491	.000
	PART	.064	.037	.172	1.727	.087

a. Dependent Variable: INNOV

4.11 Correlation and regression results between environment, and innovation

Correlations

		INNOV	ENVIR
INNOV	Pearson Correlation	1	.093
	Sig. (2-tailed)		.358
	N	100	100
ENVIR	Pearson Correlation	.093	1
	Sig. (2-tailed)	.358	
	N	100	100

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.093[a]	.009	-.001	4.61266

a. Predictors: (Constant), ENVIR

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.128	1	18.128	.852	.358[b]
	Residual	2085.112	98	21.277		
	Total	2103.240	99			

a. Dependent Variable: INNOV

b. Predictors: (Constant), ENVIR

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	40.657	3.372		12.056	.000
	ENVIR	.093	.101	.093	.923	.358

a. Dependent Variable: INNOV

4.12 Correlation and regression results between (financial resources, entrepreneur and R&D) and innovation

Correlations

		DEVLO	FR	RD	ENTER
DEVLO	Pearson Correlation	1	.219*	.356**	.301**
	Sig. (2-tailed)		.029	.000	.002
	N	100	100	100	100
FR	Pearson Correlation	.219*	1	.198*	-.059
	Sig. (2-tailed)	.029		.048	.557
	N	100	100	100	100
RD	Pearson Correlation	.356**	.198*	1	.507**
	Sig. (2-tailed)	.000	.048		.000
	N	100	100	100	100
ENTER	Pearson Correlation	.301**	-.059	.507**	1
	Sig. (2-tailed)	.002	.557	.000	
	N	100	100	100	100

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.423[a]	.179	.154	4.20381	.179	6.988	3	96	.000

a. Predictors: (Constant), ENTER, FR, RD

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	370.486	3	123.495	6.988	.000[b]
	Residual	1696.514	96	17.672		
	Total	2067.000	99			

a. Dependent Variable: DEVLO

b. Predictors: (Constant), ENTER, FR, RD

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	12.366	4.770		2.592	.011					
FR	.211	.108	.188	1.955	.053	.219	.196	.181	.927	1.079
RD	.153	.078	.216	1.945	.055	.356	.195	.180	.691	1.447
ENTER	.096	.052	.203	1.858	.066	.301	.186	.172	.717	1.395

a. Dependent Variable: DEVLO

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Abstract

The ability to innovate has long been considered essential to the survival, expansion and development of Small and Medium-sized Enterprises (SMEs). The institution's development is essential and decisive in its survival and continuity. The relationship between the determinants that stimulate innovation within an organization and its development should be explained despite multiple studies' focus.

This research aims to understand the impact of the determinants that stimulate innovation (the subject of the study are financial resources, the entrepreneur, research and development, cooperation, and the organization's external environment) on the enterprise's development. We have developed a conceptual model that has been empirically tested using data from 100 Algerian small and medium enterprises. After conducting an exploratory analysis followed by a confirmatory analysis, we reached the following main findings: The characteristics of the entrepreneur have the most significant impact on the process of innovation within the organization, and all of R&D, financial resources and the entrepreneur have an impact on the development of SMEs in Algeria.

Keywords: Small and Medium Enterprises, innovation, determinants of innovation, development

الملخص

لطالما اعتبرت القدرة على الابتكار أمرًا ضروريًا لبقاء المؤسسات الصغيرة والمتوسطة وتوسيعها وتطويرها. وتطور المؤسسة يعتبر امرا مهما وحاسما في بقائها واستمرارها لذا يجب شرح العلاقة بين محددات الابتكار داخل المؤسسة وتطورها على الرغم من كونها محور دراسات متعددة.

الهدف من هذا البحث هو فهم تأثير محددات الابتكار (محل الدراسة وهي الموارد المالية، رائد الاعمال، البحث والتطوير، التعاون والبيئة الخارجية للمؤسسة) على تطور المؤسسات الصغيرة والمتوسطة. لقد قمنا بتطوير نموذج مفاهيمي تم اختباره تجريبياً باستخدام بيانات من 100 مؤسسة جزائرية صغيرة ومتوسطة. بعد إجراء تحليل استكشافي متبوعًا بتحليل تأكيدي، توصلنا إلى النتائج الأساسية التالية: خصائص رائد الأعمال له التأثير الاكبر على العملية الابتكار داخل المؤسسة وكل من البحث والطوير والموارد المالية ورائد الاعمال لها تأثير على تطور المؤسسات الصغيرة والمتوسطة في الجزائر.

الكلمات المفتاحية: المؤسسات الصغيرة والمتوسطة، الابتكار، محددات الابتكار، التطور