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INNOVATION PRACTICES AND OBSTACLES IN THE ALGERIAN SMALL AND MEDIUM ENTERPRISES

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ABSTRACT: *This study aims to identify the innovation practices and obstacles in a sample of small and medium enterprises at the province of "Batna", Algeria. The researcher has distributed 88 questionnaires to the individuals of the study's sample: managers and their assistants, heads of departments. Eighty-two (82) questionnaires were restored, and after sorting them, it was observed that they are all valid for analysis. The researcher relied on the statistical software (SPSS) for data processing using percentages, arithmetic averages, standard deviations, one-way analysis of variance (one-way ANOVA) and simple regression. After a descriptive analysis of the study and testing hypotheses, and based on the obtained results, a set of recommendations were provided including:*

- *There is an important statistically significant effect of the dimensions of the supporting factors for innovation (the entrepreneur's personal characteristics, information technology, human resources management and financing source) in the innovation types (product and production process).*
- *There is a statistically significant positive relationship between innovation obstacles and the types of achieved innovation.*
- *The respondents' perceptions of the innovation outputs level moderately available.*
- *There is a low correlation between chronological age, the number of the products of the enterprises under study and the types of innovation, while the correlation was high with the industrial sector.*

KEYWORDS: Innovation, product, production process, Algerian small and medium enterprises.

INTRODUCTION

Today's society is characterized by human knowledge flow, the diversity of intellectual, scientific, cultural and social achievements, and the growing technological innovations and ambitions. But, between the extent of the information systems availability in the various aspects of human activity, where the features of this age are determined by the ability of its members to use the knowledge and its intellectual assets and modern technological methods, and the extent of their ability to absorb and use all of the information and knowledge. Therefore, the cognitive outcome of a society has become the force that leads its present and ensures its future. The most powerful nation owns more knowledge, thinkers and innovators who add to the knowledge everything new.

One of the important reflections of these changes is the intense competition among enterprises for the adoption of new competitive advantages as well as the quality, flexibility and appropriate cost. These elements that are very important for any organization are no longer sufficient because of the large number of producers as well as the information revolution that has contributed a lot

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to offer new products or develop production processes contribute to support the organization's competitiveness. Therefore, innovation is today a critical factor in the ability of business organizations to remain, and a driving force for growth, as the improvement of the products offered to the market, the launch of new products, the development of new processes or the improvement of the existing ones have become a strategy adopted by these organizations seeking to invest them and benefit from their returns.

Based on the nature of the new economy depending on the spread of knowledge and intellectual products and the speed of their obsolescence and extinction, the importance of innovation increases, and innovative thought is recognized as the basis of this innovation, i.e., there is a radical transformation of the goods economies into the economics of ideas.

In this economic context, and beginning from the eighties of the nineteenth century, increasing importance has been given to small and medium enterprises that became the focus in the developed and developing countries alike, as contributing to the national economic growth and creating jobs. Therefore, the developed countries have enacted legislations aimed at enabling small and medium enterprises to access to credit, technical support, tax incentives and markets.
However, small and medium projects operating in developing countries face serious challenges because of the regional and international developments, and the commercial great competition recently witnessed by domestic and international markets. Small and medium enterprises stands on the threshold of a new age, because trends and events with inevitable deep impact on life quality follow each other very quickly, and the modern technology, especially information technology, has become involved in various industrial areas, bringing with it changes in production management and commercial practice. Moreover, the international export market structure is witnessing radical changes after the agreement of the World Trade Organization. Regional economic blocs are gaining more power and more impact on the patterns in which international trade flows and opens new horizons although they raise new concerns. Thus, change is the rule rather than the exception. Many enterprises, especially small and medium industrial enterprises, face some difficulties in adapting to new situations.

In Algeria, the centralism and mono-administrative management had dominated economic life since independence; the State has focused, for three decades of economic construction, on major enterprises in line with the manufacturer industries policy and growth poles that tried to shortcut the distance towards the industrial and economic progress. Small and medium enterprises were marginalized and considered for a long time as a secondary sector. However, the difficult economic conditions experienced in the seventies obliged it to revise the followed policy by adopting a series of reforms that were inevitable to enter into the market economy and integrate into the global economy dynamics.

Today, all economic and social data adopt and confirm that the Algerian economy at the current stage needs to follow clever policy, methods and ideas to benefit from the integration and global economic and commercial link on a wider scale. Small and medium enterprises are no longer a simple idea but they are more than reality; they are the experience of many States believing that the survival of these enterprises is linked to meeting challenges and facing difficulties.

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Study's Problem and main Questions:
The study's problem is confined to the attempt to identify innovation practices and obstacles in a sample of small and medium industrial enterprises in Algeria, specifically in the province of Batna, and their impact on innovation outputs consisting in the types (product and production process). In addition to the attempt to know the effects of the properties of the enterprises under study on these outputs.Thus, the main question can be formulated as follows: What is the reality of innovation practices in small and medium industrial enterprises in Algeria? What are the most prominent obstacles to achieving that aim? Other sub-questions are formulated as follows:
-To what extent innovation practices consisting in (entrepreneur's personality, information technology, human resources management, financing sources) are available in the enterprises under study?
-What are the main obstacles limiting innovation in the study's sample?
-What is the level of the achieved innovation output (innovation of product and production process)?

Study's Importance:
The importance of this research lies in the theme it addresses. It deals with one of the most important recent economic topics traded between economic researchers and thinkers in various developed or developing countries, especially at the present time which is characterized by radical changes pose many challenges and opportunities, and have had a clear impact on the importance and status of small and medium enterprises in the economic and social life where Algeria is not immune from these changes.

Study's Objectives:
The objectives of this study can be summarized as follows:
- Enriching the theoretical knowledge through a review of the most important writing on the concept of innovation and the related issues.
- Identifying the views of managers and heads of departments in small and medium enterprises under study about the most important innovation practices consisting in (entrepreneur's personality, information technology, human resources management, financing sources).
- Identifying the views of managers and heads of departments in small and medium enterprises under study about the most important obstacles limiting their innovation.
- Identifying the level of achieved innovation outputs (innovation of product and production process) in the enterprises under study.
- Revealing the nature of the relationship between innovation practices and obstacles, on the one hand, and the types of achieved innovation, on the other hand, according to the heads of departments in these enterprises.
- Putting the necessary proposals to strengthen the position of innovation in small and medium enterprises in Algeria.

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Study's Hypotheses:

The hypotheses of this study can be formulated as follows:

-There is a statistically significant positive relationship between innovation practices in the enterprises under study consisting in (entrepreneur's personality, information technology, human resources management, financing) and the types of innovation (product and production process).

-There is a statistically significant positive relationship between innovation obstacles in the enterprises under study and the types of innovation (product and production process).

-There is a statistically significant positive relationship between the characteristics of the enterprises under study (chronological age, sector, number of products) and the types of the achieved innovation.

STUDY'S THEORETICAL FRAMEWORK:

The Definition of Small and Medium Enterprises Adopted in Algeria:

Finding a unified definition of small and medium enterprises is not easy because the identification of this concept differs from a country to another depending on the trends, potentials, economic and social conditions, economic growth degree, and the nature of economic activities with their various sections…

We note here that we will only give the definition of small and medium enterprises adopted in Algeria without other countries as a commitment to the limits of this study. The guiding law number 01-18 issued on December 12th, 2001 by the Ministry of SMEs, concerning the upgrading of small and medium enterprises has defined the concept of small and medium enterprises, which sets up the definition set by the European Union and. This definition is based on three standards: the number of employees, annual turnover and the annual achieved proceeds.

Thus, small and medium enterprises in Algeria are defined as those enterprises employing from one to 250 workers and whose turnover should not exceed 2 billion Algerian dinars, or whose annual gross proceeds should not exceed 500 million Algerian dinars. They respect autonomy standards. Table number (1) shows the concept of small and medium enterprises according to the adopted standards.

Table number (1): The concept of small and medium enterprises

Standard / Size	Micro	Small	Medium
Number of workers	1-9	10-49	50-250
Annual turnover	Less than 20 million DZD	Less than 200 million DZD	From 200 million DZD to 02 billion DZD
Annual gross proceeds	Less than 10 million DZD	Less than 100 million DZD	From 100 to 500 million DZD

Source: Made according to the articles 5, 6 and 7 of the guiding law of the promotion of small and medium enterprises number 18-01 issued on 12/12/2001, corresponding to 27 / Ramadan / 1422 hegira, Official Journal, issue 77, dated on 15/12 / 2001.

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Development of Algerian Small and Medium Enterprises

The majority of small and medium enterprises in Algeria are private. From the year 2000, the number of these enterprises has become very important by facilitating the proceedings of creation, as well as the spread of the entrepreneurial spirit among young people especially university graduates. This increase is more than double, as all available statistics indicate that more than half of small and medium enterprises were created between 2001-2007 after the issuance of the guiding law of small and medium enterprises in 2001.

Referring to the table number (2) below, we note that the number of small and medium enterprises at the end of the year 2012 knew a remarkable development by creating 687386 enterprises compared to 261853 enterprises in 2002, contrary to public enterprises that recorded a decrease of 217 during the first decade of the third millennium as a result of the privatization of troubled enterprises. As for traditional handicraft enterprises, they have recorded an increase higher than 71523 in 2002 to 162080 enterprises in 2009, but they have fluctuated until 2012.

Table number (2): Evolution of the number of small, medium and traditional handicraft enterprises (2003-2012)

Enterprise's nature	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Private E.	207 949	225 449	245 842	269 806	293 946	392 013	455 398	618 515	511 856	532 702
Public E.	788	778	874	739	666	626	591	557	572	561
Traditional handicraft activity	79 850	86 732	96 072	106 222	116 347	126 887	169 080	135 623	146 881	154 123
Total	288 587	312 959	342 788	376 767	410 959	519 526	625 069	754 695	659 309	687 386

Source: Made according to the Ministry of Small and Medium Enterprises publications.

In order to enhance the competitiveness of these enterprises and face the establishment of a free zone of free trade with the European Union in the year 2017, the government has put mechanisms in order to facilitate the establishment of small and medium enterprises such as: Loan Guarantee Fund (LGF), Investment Loans Guarantee Fund (ILGF SMEs), and supported this procedures by crating the National Agency for the Development of Small and Medium Enterprises (NAD SMEs). It should also be noted that it is difficult to accurately determine the true number of small and medium enterprises for the existence of a formal and informal sector (parallel sector) where informal activities are particularly focused on the same sectors as the small and medium enterprises.

Definition of Innovation:

The term "innovation" is attributed to the Austrian economist Joseph Schumpeter since 1912, who is the first theorist of innovation. He defines it as "the result arising from the establishment of a method or a new style of production, as well as the change in all of the product's components or the method of its design"(Schumpeter, 1935). Peter Drucker defined it as "the change in the

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output of resources, and the change in value and satisfaction resulting from the resources used by the consumer" (Peter Drucker, translated by Abdelfattah, 1988).

These two definitions demonstrate that innovation is a change in the previous situation of the enterprise by introducing renovations, new products or method of production. There is also a huge number of definitions for innovation, but they vary according to the addressed topic and the given meaning in accordance with the desired specific objectives of analysis, which led researchers to say that the definition of Schumpeter is the best one in the economy and in management as well.

Economists have unanimously agreed to provide a unified definition states that "innovation is linked to modern creativity carries an economic value, in other words, it can be understood by the process of raising the knowledge possessed by the community; it can be in the form of improvements (additions) pertain to all goods, services and existing methods of production. Thus, it directly affects our standard of living". (Duieux, 2000).

The contemplative look at innovation essence according to the previous definitions helps to determine the comprehensive concept that focuses on the following points:

- Organizational behavior;
- Adoption and use of new applicable ideas and methods;
- Contribution to achieving the organization's various objectives;
- Granting competitiveness to the organization.

Elements and Types of Innovation:

The elements and components of innovation are briefly the following:

- Exact interaction with the problem, and feeling it based on the logics of a realistic look away from mirage, with clear vision and accurate identification.
- Flexibility in absorbing the aspects surrounding the problem and touching the various features.
- Abundance and diversity of ideas, avoidance of imitation and untrusted adaptation, and taking care of enrichment, renewal and showing personal distinctive character.

Innovation types are continuously increasing, from production technologies to new products, to regulation methods and the various elements affecting the functioning of the enterprise. Thus, Schumpeter has identified five forms of innovation (Peters, 2002):

- Production of a new product;
- Integration of a new method of production;
- Achievement of a new regulation (such as monopoly);
- Use of a new source of raw materials;
- Opening a new input (new market).

In addition to these forms that represent the five types, there is innovation in the management of human resources, in trade policy...

Based on this difference, a reference to the types of innovation in this research has been selected in terms of:

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Innovation nature:
The determination of the types of innovation on this basis leads to distinguish between four basic types: innovation in the product (it concerns the determinants or components of the product itself), innovation in the production art methods (it concerns the production methods and device), marketing innovation (it concerns the development of new ways of products marketing), and regulatory innovation (it concerns the integration and change of management procedures and methods). Each one of these types responds to specific characteristics and objectives (Marchesnay and Fourcade, 1996):

a- Innovation in the product: It means the introduction of a new or improved product (good or service) to the market compared to its basic characteristics, technical features or all non-physical components, in addition to the expected use or ease of consumption (Boyer and Didier, 1998). Thus, preference can be made between three types of innovation in product; innovations related to the functional composition of the product, innovations change the technological composition and innovations change the characteristics of the product offer, with the possibility of interference among these innovations, i.e., functional composition innovations of the product can require technological composition change innovations.

b- Innovation in the production art methods: It is the introduction of a new or improved production method in the organization, the provision of services or the delivery of products, which leads to improve product quality or reduce the cost of production and distribution (European Commission, Oslo Manual, 1997, 28). Thus, innovation in the production method includes changes in raw materials, the technical style of production in terms of technical and economic aspects or in production equipment; their objective is to facilitate and collect lower costs in order to maintain or strengthen the organization's competitiveness often by increasing the amount of outputs (final products).

c-Marketing innovation: It means to put new ideas into actual application in the marketing practices; it could focus on the product, whether a good or service, price, promotion, distribution or on all of these elements at the same time, in other words, marketing innovation is oriented to the marketing mix elements combined together (Atallah Sarhan, 2005). Marketing innovation aims to increase the organization's sales, and introduce the trademark to gain customer confidence and achieve his loyalty, as he is the reason for the existence of the organization (European Commission, 1997).

d- Regulatory innovation: It concerns the integration and change of management procedures and methods. This type is a non-physical innovation that aims to transform and reorganize management ways and methods, and the knowledge gained in order to make the organization's and individuals' behavior more positive and effective (Oukil, 1999, 5). Regulatory innovation is interested in developing modern management systems and making transformations in the distribution of activities between individuals and in the combination of functions within the organization; this may require non-physical investments in training by employing qualified individuals in communication in order to strengthen the principle competencies in the organization, as well as innovations in management where managers often find difficulties to apply their method of work. According to specialists in quality, 85% of the problems that occur

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in organizations result from mismanagement. Thus, the improvements taking place in this function could produce a very important added value for organizations (HEC, 2005, 100).

Innovation degree: We can distinguish in the types of innovation based on its degree between partial or weak innovation and powerful or radical innovation. However, it is not used as a base to differentiate between the types of innovation, but as a complement to the first type that focuses on the preliminary nature of innovation. From the foregoing analysis, we can say that innovation is not limited to the occurrence of technological innovations, but there are multiple types can occur. It includes the creation of huge technological development for the first time, the development of a simple technology, the development of goods or new services or the development of production processes and activities within the organization. In general, any new development, improvement or evolution happens within the organization, in any part, function, activity, operation or any organizational level is an innovation.

Innovation Practices in Small and Medium Enterprises

Innovation activity is a complex phenomenon, which means that there are many factors interfere in its formation and evolution. However, the degree of complexity is increased by the fact that these factors may be effective in the formation and stimulation of innovation activity in certain circumstances, and ineffective in other circumstances. They may also be effective in solving problems facing individuals or enterprises and ineffective in reaching new uncommon things. However, the many studies that have examined the analysis of innovative behavior in small and medium enterprises have contributed to determine many of the supporting factors for innovation the most important of which are determined as follows:

Importance of entrepreneur: Schumpeter thinks that the entrepreneur is a composition of a new structure, or break of the routine work in production, by exploiting creativity, or often a previously unknown technological possibility. He contributes to approximate the enterprise to the consumer, and achieves profits to be reinvested, which prompts it to grow (Tremblay, 2003). Studies that followed Schumpeter's study link the entrepreneur to innovative role: "The entrepreneur is the one who creates and manages the enterprise, his primary objective is maximizing profit and achieving growth, he is characterized by innovative behavior, he draws his objectives in accordance with the strategic management" (Ibid).

The most important auxiliary characteristics of the entrepreneur can be summarized as follows (Wetterwulghe, 1998): leader, autonomy, innovations, director of results, flexible, need to achieve objectives, self-confidence, use of intellectual resources, ability of analysis, willingness to communicate, are the most important characteristics. Two models of the entrepreneur can be distinguished: professional and compatible entrepreneur. (Ibid).

Consequently, the study of innovation in small and medium enterprises cannot be done without taking into account the entrepreneur, his objectives, vision and style of leadership, as the success of these enterprises depends on specific required characteristics, and the failure of some of them reflects the need to train and develop his knowledge to become more capable to maintain its continuity and growth.

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Information Technology:
Information technology plays a major and important role in helping the enterprise to collect, store, organize, analyze and address the administrative and technical information. It also helps to reduce the time and effort required by the process of analysis, processing and distribution process, in addition to finding practical technical solutions to the problems facing the enterprise, as effectiveness and efficiency require major time and effort resulting in in additional costs on the burden of the enterprise. Through better use of information technology, time and effort expended can be reduced, which leads to reducing costs and improving the efficiency and effectiveness of the enterprise.

Information technology fundamentally affects the growth of enterprises, especially when information technology of the enterprise is accompanied to the introduction of regulatory and administrative changes. It has been shown that the productivity rate is as high as possible among the enterprises that invest in information technology and in the distribution of management and organization together, and that the investment in Informatics without being accompanied by a redistribution and improvement of the administration and management does not lead to a significant increase in productivity. So, the maximum benefit from the information technology is achieved when accompanied by investment in new strategies and new structures and businesses. Among the most important helpful information technologies, we mention the following:

- Expert Systems;
- Wired and wireless communication systems;
- Internet and e-mail systems;
- Decision-making support Systems;
- Common database systems.

Human Resources Management:
Under the age of knowledge and compete based on cognitive and innovative abilities, the role of human resources management has increased to interest in human element as source of innovation and creativity, and basis of the success of small, medium or big projects. Therefore, this management gives sustainable competitive advantages to the enterprise through its effective planning with open perception of human resources, good and adequate staffing, training and development appropriate to the workforces.

Business organizations try to find intellectual capital by employing and using various mechanisms, methods and ways that contribute to finding human resources with innovative and intellectual abilities shared at work to find its clear way to the products and services offered by the organization to customers. Thus, the maximum benefit through the transfer of knowledge into tangible results in all aspects of the organization's work and products is done.

In the contemporary business environment in which competition is intense, and resources on different forms are few , small and medium enterprises are required to use various mechanisms, methods and ways that contribute to finding human resources have the innovative and intellectual

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capabilities shared during the work to find its clear way to the products and services provided by the organization to customers. Thus, the maximum benefit from the following practices is done:

Empowerment: Ettorre defines empowerment as "giving workers the ability and autonomy in decision-making and the ability to act as partners in the work with a focus on lower administrative levels" (Al-Hararcha and Al-Hiti, 2006). Consequently, empowerment is to grant discretion to workers, autonomy at work, spirit of initiative and participation in opinion. Therefore, many of the researchers have confirmed that these meanings embodied in the concept of empowerment in the organization contribute to enhance innovation, because if the individual feels controlling the initiative, and being able to do his tasks, he will use his mental abilities even more to achieve innovations.

Training: With respect to the capacity of small and medium enterprises to find qualified human resources keep pace with the development and change in the internal and external environment of these enterprises in order to increase competitiveness on the individual and collective scale, training is necessary in these enterprises. It requires carefully choosing the training programs, both in terms of form and content according to the organization's objectives and trends, as well as the nature of the participants in these programs.

Training is an essential building block in the innovation process; it increases the efficiency and effectiveness of workers. Robbins sees that innovative enterprises are those that focus on staff training in order to develop their abilities for the interest of individuals and enterprises alike. In a study conducted by (Calver et al., 1998) it was found that workers' capacities to innovate can be developed through training, especially among individuals with a willingness to learn and continuous training, as great opportunities come only to wiling minds.

Learning is the larger framework of training processes in the organization, because training takes into account the desire to learn, the ability to learn, and that the subject of learning is purposeful, in addition to the reward of the new behavior resulting from the training process provided that this reward be linked to satisfying the trainee's needs.
The organizations that spend large sums on training expect the following benefits:

- Increasing competitiveness through continuous improvement by performance;
- Positive results for the worker, which is positively reflected on the organization, such as keeping up with the evolution of knowledge and applications, improving behavior and enhancing loyalty;
- Improving the process of building an organizational culture through standardizing customs and enhancing positive values;
- Addressing the weaknesses of performance in various fields.

Incentives: if small and medium enterprises want to compete with big ones on the staffing level, they have to be aware of the importance of incentives, as they are factors helping to provoke innovation among workers. Incentives are divided to material and moral ones. Material incentives are essential for workers to bring more innovation and development, and the non-financial incentives have a positive impact on workers for more tender and achievement, which drives the

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spirit of belonging and increases loyalty levels.Small and medium businesses may not have enough time for complex and long selection processes for workers, which requires to pay more interest to these aspects because the business success is linked to the ability of its management to the proper selection, training and motivation of these workers and their employment, and getting the best of their abilities and capacities (Bernouti, 2005).

From the foregoing review, we can say that workers represent today the most important resource; it is not enough that the enterprise has tangible resources such as money, buildings and lands, but intangible resources such as workers play an important role in achieving competitive advantages. They are today the intellectual capital in terms of skills, knowledge and ability to deal with information and achieve enterprise success.

Necessary Financial Resources to Finance Innovation Projects: Unlike to what is available in the field of marketing or enterprise organization, there is no structured theory on financing innovation in small and medium enterprises, which makes financing innovation projects characterized by high danger due to lack of security (Lachman, 1996). Innovation needs financial resources in line with its process, proceeding from covering research and development expenses (where danger is high) until the actual application in the market (where commercial danger is too high). The financial need at this late stage is 20 times the resources that have been invested in research and development. In this case, small and medium enterprises can, especially in cases of customer loyalty, ally with other enterprises (for costs and risks sharing) (Pierre and Mathieu). Small and medium enterprises remain, in general, characterized by limited financial resources, which requires the intervention of public bodies (governement) to consolidate and fund them, proceeding from the stage of innovation development, where the increasing need for financial liquidity, and resorting, in this stage, to different sources to gain funding for their project. The owners often rely on their own savings and money, then the savings of family and friends. If this money is not enough, the owners resort to other available official financing sources such as banks and other investors (Longenecker at al.,). Although the sources of financing for small and medium enterprises vary by country, but they can be viewed by addressing the sources of self-financing and the resort to external sources.

- **Self-financing of Innovation**: Through financial liquidity of the enterprise, especially available realized and undistributed profits that enable the enterprise to maintain its autonomy. There are also more technical solutions: resort to the financial market, search for partnership and risk capital.
- **External Sources**: Loans from financial institutions (banks ...) although it is difficult to access to them, in addition to leasing finance which knew a remarkable development in terms of dependence upon the beginning of the eighties as it provides positive aspects:

- Speed in approving the leasing financing;
- Its flexibility (small file);
- Total financing of the process, while the loan covers only a part.
- It allowed maintaining private capital and the ability of the enterprise to borrow.

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Innovation Obstacles: Since innovation is a form of change for the better, it marks some of the difficulties faced by the advocates of change. Raad Hacen Assarn, 2000) notes that the most important obstacles of innovation are the following:

-**Resistance and unwillingness to change by the administrative authorities**: It is called "administration inactivity", since it does not accept any change in the methods, systems and styles of work, production, regulations, instructions, procedures and adopted decisions, otherwise it considers it a departure from the ordinary and usual rule. This leads to serious problems and mistakes have a big impact on the life and future of the enterprise.

- **Literal commitment to laws, regulations and procedures:** Laws, regulations and procedures are means and not ends in themselves. Therefore, we find that the administrative control in some of the devices is limited to monitoring adherence to formalities without regard to their contribution to the achievement of the desired objectives.

- **Lack of self-confidence among some managers**: It may make them eager to follow a centralized method in management, so they monopolize the right to make decisions, and do not give little chance of any kind of participation by workers. Some of them may think that innovative individuals are a threat to them, which makes them try to influence workers to not attracting the interest to their abilities.

- **Bad organizational climate**: It is presented by the signs within the administrative system, the pattern of supervision, the foundations of promotion and assessment and stimulation systems. It is very strange that innovation exists in the unhealthy regulatory climate that frustrates and dwarfs human energies.

- **Lack of qualified administrative leadership**: The administrative leadership is a significant factor in the life of any enterprise, since it has the leading role in stimulating and directing workers and their collaborating to achieve the desired objectives. If there is no confidence between subordinates and administrative leadership, it is a negative and frustrating factor. For example, if subordinates think that the president is not objective in his assessment of performance, it is an indication that the qualifications of leadership are far from qualifying him to creativity and innovation.

- **Prevailing social values**: Innovation and creativity mean experimentation and thinking about unusual things, i.e., it may be in conflict with the prevailing social values, causing resistance to the advocates of change.

- **Economic circumstances**: Poverty in itself is not an obstacle for innovation, but it may lead to innovation as an attempt to compensation. Generally, it does not receive attention in the poor economic conditions affecting the administrative regulations levels because of the insufficiency of wages and material incentives.

- **Doubleness of adopted Standards**: One of the most important innovation incentives is that the staff believes that hard work is rewarded, and that laziness is punished; but it is observed in some enterprises that docility and submission qualifications are the conditions to access high positions, and in such atmosphere innovation becomes a disease resisted by all means.

(Assaf, 1995) adds other obstacles:

- Hegemony of traditional lawfulness over many administrative leaderships, highlighting lawfulness as the most important determinant to assess the staff's efficiency without considering its production efficiency and innovative abilities.
- Hegemony of the traditional view of profitability and the belief that the best input for more profit is to reduce costs, which has precluded the allocation of important budget for the

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purposes of scientific research and the care of innovators because it will increase costs and reduce profitability.

- Hegemony of leaders and managers who lack the necessary administrative knowledge and skill in most contemporary organizations in our communities.

In talking about the obstacles limiting innovation, it is necessary to focus on bureaucracy. (Hijane, 1999) confirms that it is the main obstacle to the process of innovation in the Saudi organization, because of the practices it devotes to limit it such as:

- Attachment to rules and procedures that becomes later part of the customary rituals in the organization, and permanent preoccupation with the means to the point where they become more important than the results or objectives themselves.
- Ignorance of the important objectives; every management seeks to achieve its own objectives.
- It does not interest to the impact of the regulatory environment, which restricts its ability to see the future, and it does not interest to informal human relations.
- It develops the process of information transmission from the highest to the lowest within specific limits and frameworks, passing through a series of administrative levels.
- Organizational structure is characterized by centralism that does not make man feel his value and right to act but feel weak, while senior management retains the eligibility of decision-making.

The study conducted by the Economic Commission for Western Asia on the small and medium enterprises ability to innovate in selected countries of the ESCWA region determined some basic obstacles as follows (Economic and Social Commission for Western Asia, 2002):

- Lack of financial resources and absence of proper financial planning;
- The difficulty of finding needed skilled workers, employees and qualified technicians who have the required technical knowledge.
- Scarcity of technical knowledge and means of research and development. For example, the industrial complex in Lebanon, which has the problem of the lack of qualified staff who can implement new ideas based on modern technology.
- Cultural factors as barriers to innovation. Any new culture for the company, is likely to face resistance from some managers in the central and lower departments;
- Poor communication between the different departments of the company, which causes administrative problems hampering innovation.
- The entrepreneur's hesitation to accept the risk involved in the introduction of change, as well as lack of time, as factors hampering innovation.

METHODOLOGY AND PROCEDURAL STEPS OF FIELD STUDY

This section describes the procedures of the field study that has conducted to achieve the objectives of this paper. It includes the identification of the study's population, sample, tool and methods adopted in the statistical treatment.

Study's community and Sample: The study's population consists of 22 small and medium-sized industrial enterprises operating at the province of "Batna", Algeria, and working in the following sectors: (food, electricity, building materials, furniture, plastics, pharmacology, paper). The

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questionnaire has been distributed to deliberate sample included senior management executives (general managers and their assistants, managers of all functional activities in the enterprises under study). This category was selected because they are the decision-makers in the formulation of strategies, policies and choice of the adopted management style, as well as to their knowledge of the administrative matters in the enterprise. Eighty-eight (88) questionnaires were distributed to the individuals of the study's sample and the response was 93.18%.

Data Collection Tool: In order to get the data and information from the individuals of the study's sample, it was necessary to design a specific questionnaire for this purpose, based on the study's hypotheses, dependent variables (types of innovation) and independent variable (innovation practices and obstacles).
This questionnaire consists of three parts as follows:

- **Part I**: Characteristics of the enterprises under study including (chronological age of the enterprises, industrial sector, number of products).
- **Part II**: Innovation practices in the enterprises under study including (entrepreneur's personality, information technology, human resources management, financing sources).
- Part III: Innovation obstacles (independent variable) including nine (9) paragraphs.
- Part IV: The types of innovation (dependent variable) including eight (8) paragraphs measuring innovation outputs through: - Product innovation in four (4) paragraphs; - production process innovation in four (4) paragraphs.

It should be noted that Likert scale was used in the study's tool where the grades (1, 2, 3, 4, 5) were awarded to (strongly agree, agree, undecided, disagree, strongly disagree) for the purposes of statistical analysis.

Test of the Study's Tool Validity and Reliability:
Validity test: To obtaining data from the study's sample, the researcher used the questionnaire, so it was necessary to test validity because of its importance to the success of the study, by presenting the scale to many specialist referees. Moreover, reliability was tested to check the degree of the scale's consistency using the Cronbach's Alpha coefficient. It was found that the scale's reliability is equal to 88%.

Data Analysis Methods:
The data were analyzed and processed by the software (SPSS. V. 17) using the following scales:

- Descriptive statistics scales (frequency, arithmetic averages and standard deviations) to indicate the sample's properties.
- Simple regression analysis and Pearson correlation coefficient to measure the relationship between the independent variable and the test (F- Test) used in testing hypotheses.
- One-way analysis of variance ONE-WAY ANOVA.

Characteristics of the Study's Sample:
Chronological age of the enterprises under study: The research's sample is distributed according to the chronological age of the enterprises under study as shown in the following table:

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Table number 3: Distribution of the enterprises under study according to chronological age

Variable		Frequency	Percentage
5 years	Chronological age	5	6.10%
5-10 years		23	28.00%
10-15 years		32	39%
More than 15 years		22	26.8%
Total		82	100%

Source: The results of the questionnaire analysis

It is clear that 39% of the respondents work in the enterprises between 10-15 years old, while 28% work in the enterprises between 5-10 years old, 26.8% work in the enterprises older than 15 years; finally 6.1% of the sample's individuals belong to relatively new enterprises of less than 5 years old.

Sector of the Enterprises under Study: The sample's individuals are distributed according to the sector of the enterprises under study as shown in table number (4).

Table number (4): Distribution of the sample's individuals according to the sector of the enterprises under study

Variable		Frequency	Percentage
Food	Sector	28	31.4%
Electricity		1	1.2%
Building materials		20	24.4%
Furniture		8	9.8%
Plastics		8	9.8%
Mechanics		12	14.6%
Pharmacology		1	1.2%
Paper		4	4.9%
Total		82	100%

Source: The results of the questionnaire analysis

It is clear that the biggest percentage 34.1% of respondents work in the food sector, followed by the percentage of those who belong to the building materials sector of 24.4%, while the percentage of those who work in the mechanics sector is 14.6%, those who work in the plastics and the furniture sector represent 9.8%, while the percentage of those who work in the paper sector is 4.9%, and the lowest percentage 1.2% of the sample's individuals belongs to the sectors: pharmacology and electricity.

The number of products (new and improved) in the enterprises under study:

The sample's individuals are distributed according to the number of products (new and improved) produced by the enterprises under study as shown in the following table:

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Table number (3): Distribution of the sample's individuals according to the number of products (new and improved)

Variable		Frequency	Percentage
Less than 5 products	Number of products (new and improved)	52	63.4%
5-10 products		10	12.2%
10-15 products		12	14.6%
More than 15 products		8	9.8%
Total		82	100%

Source: The results of the questionnaire analysis

It is clear that the majority of the respondents work in enterprises producing less than 5 products (63.4%), followed by 14.6% of the respondents work in enterprises produce between 10-15 product, while the percentage of those who belong to the enterprises produce between 5-10 products is 12.2%, respondents belonging to the enterprises produce more than 15 products represent 9.8%. We note that most of the declared products are improved, and in some cases, they may be slight improvements. The process of products counting included all of the product's ranges.

Innovation Practices in the enterprises under Study

Views of the sample's individuals about the paragraphs of the "Entrepreneur's personal characteristics" dimension:

To answer this question, we have relied on arithmetic averages, standard deviations, and the order of phrases as shown in this table:

Table number 5: Arithmetic averages and standard deviations of the paragraphs of the "Entrepreneur's personal characteristics" dimension:

Paragraph's number	Paragraph's wording	Arithmetic average	Standard deviation	Order *	Level
1	The entrepreneur has a clear perception of the enterprise's present and future	2.71	1.495	6	Average
2	The entrepreneur benefits from the mistakes of his business	2.87	1.513	5	Average
3	The entrepreneur interests to convert each idea into reality despite the risks resulting from it	3.09	1.533	4	Average
4	The entrepreneur prefers hard works rather than routine works	3.13	1.472	3	Average
5	The entrepreneur has the necessary skills to perform the work	3.26	1.506	2	Average
6	The entrepreneur has high self-esteem as well as confidence to others in the work performance	3.72	1.345	1	High
General arithmetic average		**3.13**	**0.466**	**Average**	

Source: The results of the questionnaire analysis

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The perceptions of the sample's individuals towards the paragraphs of the entrepreneur's personal characteristics dimension are averagely available with an arithmetic average of 3.13, and a standard deviation of 0.466. With respect to the paragraphs, the paragraph number 6, "The entrepreneur has high self-esteem as well as confidence to others in the work performance" ranked first with highly agreement and an arithmetic average of 3.72. It is followed in the second rank by the phrase number 5, " The entrepreneur has the necessary skills to perform the work" with moderate degree and an arithmetic average of 3.26, followed by the phrase number 4, " The entrepreneur prefers hard works rather than routine works" with an arithmetic average of 3.13, while the phrase number 1, " The entrepreneur has a clear perception of the enterprise's present and future" ranked sixth rank with a moderate degree and an arithmetic average of 2.71.

Views of the sample's individuals about the paragraphs of the "Information technology" dimension:

To answer this question, we have relied on arithmetic averages, standard deviations, and the order of phrases as shown in this table:

Table number 6: Arithmetic averages and standard deviations of the paragraphs of the "Information technology" dimension:

Paragraph's number	Paragraph's wording	Arithmetic average	Standard deviation	Order *	Level
7	The enterprise has introduced radical changes to machineries and equipment.	2.23	1.443	2	Low
8	Maintenance of machinery and equipment are mainly dependent on the enterprise's workers	2.33	1.423	1	Low
9	The existence of an internal communications network (Intranet) has a significant impact on the achievement of innovation	2.01	1.128	4	Low
10	The existence an Internet site and e-mail leads to the achievement of innovation	2.06	1.180	3	Low
11	The enterprise uses information technology means and methods in decision-making	1.91	0.984	5	Low
General arithmetic average		**2.10**	**0.449**	**Low**	

Source: The results of the questionnaire analysis

The views of respondents about the information and communication technology dimension were low with an arithmetic average of 2.10 and a standard deviation of 0.449. the paragraph number 8 in the questionnaire " Maintenance of machinery and equipment are mainly dependent on the enterprise's workers," ranked first with low agreement and an arithmetic average of 2.33, followed in second rank by the paragraph number 7 "The enterprise has introduced radical changes to machineries and equipment " with an arithmetic average of 2.23. The lowest arithmetic average was obtained by the paragraph number 11 in the questionnaire "The enterprise uses information technology means and methods in decision-making" in the fifth rank with an arithmetic average of 1.91.

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Views of the sample's individuals about the paragraphs of the "Financing sources" dimension:

To answer this question, we have relied on arithmetic averages, standard deviations, and the order of phrases as shown in this table:

Table number 7: Arithmetic averages and standard deviations of the paragraphs of the "Financing sources" dimension:

Paragraph's number	Paragraph's wording	Arithmetic average	Standard deviation	Order *	Level
12	The enterprise finances its innovations based on self-financing	2.39	1.421	3	Low
13	The enterprise resorts to introduce a new partner to financially support it.	2.12	1.280	4	Low
14	The enterprise finances its innovations by obtaining loans from friends (based on personal relationships)	2.54	1.344	2	Low
15	The enterprise got bank loans to finance its innovations	2.99	1.478	1	Average
General arithmetic average		**2.51**	**1.293**	**Low**	

Source: The results of the questionnaire analysis

It is clear that the availability degree of the views of the study's sample about the financing source dimension is low with a general arithmetic average of 2.51 and a standard deviation of 1.293. The phrase number 15 " The enterprise got bank loans to finance its innovations" ranked first with a moderate degree and an arithmetic average of 2.99. while the agreement degree on the phrase " The enterprise finances its innovations by obtaining loans from friends (based on personal relationships)" is low with an arithmetic average of 2.54, followed by the phrase number 12 in the questionnaire "The enterprise finances its innovations based on self-financing" ranked third with an arithmetic average of 2.39. The phrase number 13 in the questionnaire "The enterprise resorts to introduce a new partner to financially support it" ranked fourth with an arithmetic average of 2.12.

Views of the sample's individuals about the paragraphs of the "Human resources" dimension:

To answer this question, we have relied on arithmetic averages, standard deviations, and the order of phrases as shown in this table:

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Table number 8: Arithmetic averages and standard deviations of the paragraphs of the "Human resources" dimension:

Paragraph's number	Paragraph's wording	Arithmetic average	Standard deviation	Order *	Level
16	The enterprise impulsively seeks to attract outstanding individuals and innovators	2.37	1.383	3	Low
17	The enterprise gives opportunities to the workers to participate in decision-making	4.17	1.255	1	High
18	The enterprise's workers can work away from rules and procedures	2.88	1.567	2	Average
19	The enterprise gives material and moral effective incentives for innovators	2.29	1.356	4	Low
20	The enterprise holds internal and external training courses in order to enhance innovation abilities.	2.20	1.365	5	Low
General arithmetic average		**2.78**	**0.337**	**Average**	

Source: Prepared by the researcher based on the (SPSS, V. 17) software outputs

It is clear that the availability degree of the respondents' perceptions about the human resources dimension is moderate with an arithmetic average of 2.782 and a standard deviation of 0.337. The paragraph number 17 in the questionnaire "The enterprise gives opportunities to the workers to participate in decision-making" ranked first with highly degree and an arithmetic average of 4.17. The phrase number 16 " The enterprise impulsively seeks to attract outstanding individuals and innovators" ranked third with low degree and an arithmetic average of 2.37, followed by the phrase number 19 " The enterprise gives material and moral effective incentives for innovators" with an arithmetic average of 2.29. The phrase number 20 " The enterprise holds internal and external training courses in order to enhance innovation abilities" ranked fifth with an arithmetic average of 2.20.

Level of Innovation Outputs (Product and Production Process) in the Enterprises under Study

To answer this question, we have relied on arithmetic averages, standard deviations, and the order of phrases as shown in this table:

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Table number 9: Arithmetic averages and standard deviations of the research sample individuals' answers about the level of achieved innovation types (product and production process)

Paragraph's number	Paragraph's wording	Arithmetic average	Standard deviation	Order *	Level
21	Our enterprises seek to provide not previously produced new products	2.77	1.526	6	Average
22	Our enterprises work to regularly provide new products to gain additional market share	2.94	1.628	3	Average
23	Our enterprises work to improve their products depending on market studies.	3.21	1.639	1	Average
24	The products of our enterprises are improved depending on the experience and skills available in the enterprises.	2.91	1.492	4	Average
25	Our enterprises work to design new processes in the light of the new product's requirements.	2.80	1.590	5	Average
26	Our enterprises design new processes for the production of new products.	2.77	1.582	6	Average
27	Our enterprises seek to improve production processes using computer	2.32	1.498	7	Low
28	Specialized Engineers participate to improve production processes in the enterprise	3.04	1.551	2	Average
General arithmetic average		**2.84**	**1.066**	**Average**	

Source: The results of the questionnaire analysis

The paragraph Number 23 in the questionnaire "Our enterprises work to improve their products depending on market studies" ranked first with moderate degree and an arithmetic average of 3.21, followed by the phrase 28 "Specialized Engineers participate to improve production processes in the enterprise" with an arithmetic average of 3.04. The phrase number 25 "Our enterprises work to design new processes in the light of the new product's requirements" ranked fifth with an arithmetic average of 2.80. As it is noted, the phrase number 27 "Our enterprises seek to improve production processes using computer" ranked seventh with low degree and an arithmetic average of 2.32. Overall, the research sample individuals see that the level of the innovation outputs is moderately available with a general arithmetic average of 2.84.

What are the Main Obstacles to Innovation in the Enterprises under Study?

To answer this question, we have relied on arithmetic averages, standard deviations, and the order of phrases as shown in this table:

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Table number 10: Arithmetic averages and standard deviations of the research sample individuals' answers about the innovation obstacles dimension

Paragraph's number	Paragraph's wording	Arithmetic average	Standard deviation	Order *	Level
29	Lack of qualified human resources in the enterprise.	4.04	1.271	5	High
30	Research costs are high and obtaining external financing is difficult	4.22	1.122	2	Very high
31	Absence of information network.	4.21	1.097	3	Very high
32	Internal regulation hinders the transmission of ideas.	2.90	1.479	8	Average
33	Finding partners for cooperation is difficult	2.96	1.494	9	Average
34	Lack of incentives at the enterprise.	3.89	1.423	6	High
35	Resistance to change by workers.	3.05	1.473	7	Average
36	Ignorance of the identification of innovation opportunities.	4.11	1.207	4	High
37	Risks of imitation and weakness of legal protection.	4.38	0.951	1	Very high
Innovation obstacles as a whole		**3.75**	**1.212**	**High**	

Source: The results of the questionnaire analysis

It is clear that the respondents' views about the dimensions of innovation obstacles were high with a general arithmetic average of 3.75. The phrase number 37 "Risks of imitation and weakness of legal protection" ranked first as the most important obstacle to innovation with an arithmetic average of 4.38, which indicates a very high degree of unanimous agreement by the research sample individuals towards that paragraph despite the slight divergence in the responses, as indicated by the standard deviation of 0.951. the paragraph number 30 "Research costs are high and obtaining external financing is difficult" ranked second with an arithmetic average of 4.22, indicating a very high agreement by the sample individuals towards this paragraph, followed by the paragraph number 31 "Absence of information network" which ranked third with an arithmetic average of 4.21. The paragraph number 35 "Resistance to change by workers" ranked seventh with an arithmetic average of 3.05, indicating a moderate agreement, followed by the paragraphs "Internal regulation hinders the transmission of ideas" and "Finding partners for cooperation is difficult" which ranked eighth and ninth with arithmetic averages of 2.90 and 2.96 respectively.

Test of Hypotheses

The first major hypothesis:

There is a statistically significant positive relationship between innovation practices (entrepreneur's characteristics, information technology, human resources, financing source) and the level of innovation types (product and production process).

The first sub-hypothesis:

There is a statistically significant positive relationship between the entrepreneur's personal characteristics and innovation types.

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To determine the degree of the relationship between the entrepreneur's personal characteristics and innovation types, it will be used the one-way analysis of variance as shown in this table:

Table number 11: analysis of variance of the influence model between the entrepreneur's characteristics and innovation types

Source	Freedom degrees	Total of squares	Average of squares	Calculated F value	Level of F significance
Regression	1	84.235	84.235	852.217	0.000*
Error	80	7.235	0.099		
Total	81	92.143			

Correlation coefficient (R) = 0.956 * Significance level ($\alpha \leq 0.05$).
Determination coefficient (R^2) = 0.914.
Source: The results of the questionnaire analysis.

According to the analysis of variance, the model is significant depending on the calculated F value (F = 852.217) at a significance level $\alpha \leq 0.05$ and two freedom degrees (1, 80). This confirms our acceptance of the first sub-hypothesis: "There is a statistically significant positive relationship between the manager's personal characteristics and innovation types". The relationship is very high between the two variables because the value of the correlation coefficient R = 0.956 and the determination coefficient R^2 = 0.914, a value that indicates the independent variable ability (the entrepreneur's personal characteristics) to explain 91.4% of the differences in the dependent variable (types of innovation) and nearly 8% of changes depend on uncontrolled random variables not included in the model.

The second sub-hypothesis:
There is a statistically significant positive relationship between information technology and innovation types.
To determine the degree of the relationship between information technology and innovation types, it will be used the one-way analysis of variance as shown in this table:

Table number 12: Results of the analysis of variance of the influence model between information technology and innovation types

Source	Freedom degrees	Total of squares	Average of squares	Calculated F value	Level of F significance
Regression	1	10.830	10.830	10.655	*0.002
Error	80	81.313	1.016		
Total	81	92.143			

Correlation coefficient (R) = 0.343 * Significance level ($\alpha \leq 0.05$).
Determination coefficient (R^2) = 0.118.
Source: The results of the questionnaire analysis.

According to the analysis of variance, the model is significant depending on the calculated F value (F = 10.655) at a significance level $\alpha \leq 0.05$ or less and two freedom degrees (1, 80). This

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confirms our acceptance of the alternative hypothesis: "There is a statistically significant positive relationship between information technology and innovation types".
The relationship is moderate between the two variables because the value of the correlation coefficient R = 0.343 and the determination coefficient R^2 = 0.118, which indicates the independent variable ability (information technology) to explain 11.8% of the differences in the dependent variable (types of innovation) and nearly 88.2% of changes depend on uncontrolled random variables not included in the model.

The third sub-hypothesis:
There is a statistically significant positive relationship between financing source and innovation types. To determine the degree of the relationship between financing source and innovation types, it will be used the one-way analysis of variance as shown in this table:

Table number 13: Results of the analysis of variance of the influence model between financing source and innovation types

Source	Freedom degrees	Total of squares	Average of squares	Calculated F value	Level of F significance
Regression	1	66.344	66.344	205.735	*0.000
Error	80	25.798	0.322		
Total	81	92.143			

Correlation coefficient (R) = 0.848 * Significance level ($\alpha \leq 0.05$).
Determination coefficient (R^2) = 0.720.
Source: The results of the questionnaire analysis.

According to the analysis of variance, the model is significant depending on the calculated F value (F = 205.735) at a significance level $\alpha \leq 0.05$ or less and two freedom degrees (1, 80). This confirms our acceptance of the alternative hypothesis: "There is a statistically significant positive relationship between financing source and innovation types (product and production process)".
The relationship is very high between the two variables because the value of the correlation coefficient R = 0.848 and the determination coefficient R^2 = 0.720, which indicates the independent variable ability (financing source) to explain 72.2% of the differences in the dependent variable (types of innovation) and nearly 27.8% of changes depend on uncontrolled random variables not included in the model.

The fourth sub-hypothesis:
There is a statistically significant positive relationship between human resources and innovation types (product and production process).
To determine the degree of the relationship between human resources and innovation types, it will be used the one-way analysis of variance as shown in this table:

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Table number 14: Results of the analysis of variance of the influence model between human resources and innovation types

Source	Freedom degrees	Total of squares	Average of squares	Calculated F value	Level of F significance
Regression	1	38.007	38.007	56.165	*0.000
Error	80	54.136	0.677		
Total	81	92.143			

Correlation coefficient (R) = 0.641 * Significance level ($\alpha \leq 0.05$).
Determination coefficient (R^2) = 0.412.
Source: Made by the researcher according to the questionnaire analysis results.

According to the analysis of variance, the model is significant depending on the calculated F value (F = 56.165) at a significance level $\alpha \leq 0.05$ or less and two freedom degrees (1, 80). This confirms our acceptance of the alternative hypothesis: "There is a statistically significant positive relationship between human resources and innovation types".
The relationship is high between the two variables because the correlation coefficient R = 0.641 and the determination coefficient R^2 = 0.412, which indicates the independent variable ability (human resources) to explain 41.2% of the differences in the dependent variable (types of innovation) and nearly 58.8% of changes depend on uncontrolled random variables not included in the model.

The second major hypothesis:
There is a statistically significant positive relationship between the characteristics of the enterprises under study (chronological age, sector, number of improved and new products) and innovation types.

The first sub-hypothesis:
There is a statistically significant positive relationship between the chronological age of the enterprises under study and innovation types.
To test this hypothesis, the researcher used the simple regression analysis to find the relationship between the chronological age of the enterprises under study and innovation types, as shown in the following table:

Table number 15: Results of the simple regression analysis of the relationship between the chronological age of the enterprises under study and innovation types

Statement	Correlation (R)	Determination coefficient (R^2)	Calculated F	Regression coefficient β	Significance level Sig*
Chronological age	0.052	0.003	0.215	3.023	0.644

Source: The results of the questionnaire analysis.

The results in the table show that there is a low correlation between the chronological age of the enterprises under study and innovation types, as the correlation coefficient R = 0.052, the

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determination coefficient R^2 = 0.003, and the calculated F value = 0.215 which is lower than its tabulated value.

The second sub-hypothesis:
There is a statistically significant positive relationship between the sector of the enterprises under study and innovation types.
To test this hypothesis, the researcher used the simple regression analysis to find the relationship between the sector of the enterprises under study and innovation types, as shown in the following table:

Table number 16: Results of the simple regression analysis of the relationship between the sector of the enterprises under study and innovation types

Statement	Correlation (R)	Determination coefficient (R^2)	Calculated F	Regression coefficient β	Significance level Sig*
Sector	0.879	0.772	270.950	1.381	0.000

Source: The results of the questionnaire analysis.

The results in the table show that there is a high correlation between the industrial sector and innovation types, as the correlation coefficient R = 0.879, indicating a very high relationship, the determination coefficient R^2 = 0.772, indicating that the industrial sector of the enterprises under study explains 77.2% of the changes in the innovation level. The calculated F value = 270.950 confirms that this relationship is significant, and it is significant at the level $\alpha \leq 0.05$.

The third sub-hypothesis:
There is a statistically significant positive relationship between the number of products produced by the enterprises under study and innovation types.
To test this hypothesis, the researcher used the simple regression analysis to find the relationship between the number of products produced by the enterprises under study and innovation types, as shown in the following table:

Table number 17: Results of the simple regression analysis of the relationship between the number of products of the enterprises under study and innovation types

Statement	Correlation (R)	Determination coefficient (R^2)	Calculated F	Regression coefficient β	Significance level Sig*
Number of products	0.066	0.004	0.355	2.729	0.553

Source: The results of the questionnaire analysis.

According to this table, there is no clear relationship between the number of products and the innovation types; the correlation coefficient R = 0.066, equivalent to 6.6% indicating a low correlation, while the determination coefficient R^2 = 0.004, which means that 0.4% of the

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changes in the level of innovation depend on the industrial sector, as well as the calculated F value = 0.355 at the level of significance 0.553.

RESULTS

We deduce at the end of our study a set of results, the most important of which are:

- Statistical results indicate that the sample's individuals' views about the entrepreneur's personal characteristics dimension are moderately available; that the entrepreneur has characteristics enable him to adopt new ideas and transform them into reality despite the risk. However, it appears that the application of this is not enough on the ground, as the image carried by the entrepreneur for the present and the future of the enterprise is not clear.
- The research sample's individuals think that the use of information technology tools is lowly available, which may be explained by the disparity in the use of technology in the enterprises under study, depending on the nature of their work and sector. Pharmaceutical enterprises use advanced technology compared to mechanical or furniture enterprises…that still use traditional methods and technology.
- In spite of the role that the government is looking to attribute for small and medium enterprises, given their importance, the enterprises under study did not benefit from governmental subsidies, not only for innovation but also for all investments made by them. The role of public bodies is still far from participating in the development of small and medium enterprises despite the many projects in recent years.
- The enterprises under study face many difficulties once resorting to innovation, the most important of which are imitation risks and weak legal protection for products (illegal competition), as well as high costs of search, financial difficulties, lack of information, lack of knowledge to identify innovation opportunities and other obstacles limiting innovation practices.
- The study sample's individuals think that the enterprises under study give workers the opportunity to participate in decision-making. However, the interest of the administration to attract outstanding people and innovators, and provide incentives and training courses are lowly available.
- It is supposed that the experience of the enterprise has a positive effect on its ability to introduce new products and continuously improve processes in the light of its previous experience and accumulated expertise. With regard to the research sample, the statistical results show that there is a low correlation between the chronological age of the enterprises under study and innovation types, which leads us to accept the null hypothesis "There is no statistically significant positive relationship between the chronological age of the enterprises under study and innovation types".
- Many of the studies that have been conducted on innovation in the western environment indicate the impact of the sector in which the industrial enterprise works on innovation types (product and production process). In the light of the results of this statistical analysis, it is clear that there is a high relationship between the industrial sector and innovation types, which leads us to accept the sub-hypothesis: "There is a statistically significant positive relationship between the sector of the enterprises under study and innovation types".
- It seems logical that there is a relationship between the number of products in the industrial enterprise and its ability to bring diverse innovation. It is expected to increase the

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enterprise's ability and working frameworks to improve various aspects of these products and introduce new products in markets, which enhances the enterprise's ability to innovation. In light of the results of this statistical analysis, it is clear that there is a low correlation, which leads us to accept the null hypothesis: "There is no statistically significant positive relationship between the number of products produced by the enterprises under study and innovation types".

RECOMMENDATIONS

The recommendations of the study can be summarized as follows:

- It is necessary to direct more interest and special care by governments to small and medium enterprises, and involve private sector in that, to be a real locomotive of economic growth in view of the many characteristics qualifying them.
- The development of innovation and the accompaniment of its process is at the core of the support that the government has to offer for small and medium enterprises given their limited resources.
- The first home market advantage acquired by small and medium enterprises to meet the needs and desires of customers is a significant ability to succeed in this business, because it embodies an administration with innovative pioneering spirit. Therefore, it seems logical to motivate entrepreneurs to shift from traditional management to strategic management. The concept of innovation must be established and instilled in the enterprises' strategies and perceptions.
- More diversification of the products variety or addition of new verities whenever possible, as the opportunity to improve and provide new ideas will be greater, which leads to providing various innovations.
- The creation of a department specialized in innovation in each enterprise in order to consolidate and develop innovative works and ideas, and the creation of a site specializes in innovation on the Internet in order to provide the enterprise with scientific subjects and studies in related topics.
- Giving priority to the subject of innovation in higher and school education in order to contribute to the broader mainstreaming of innovation themes and to enhancing innovators.
- The Rehabilitation of the banking sector and financial system and the activation of its role in financing economic activity through improving its services by reducing interest rates on loans, establishing specialized financial institutions present new financial products (lease method, risk capital companies).
- In the contemporary business environment in which competition is intensive and different forms of resources are rare, small and medium enterprises are required to make highly diverse human resources, and real knowledge management that develop tools and systems to find innovative ideas and disseminate them among workers; the greater the value and importance of tacit knowledge among human resource to be added to the balance of explicit knowledge embodied by information and documented experiences, the greater it gives the enterprise a sustainable competitive advantage.
- The focus on the importance of communication between the various levels of management and the external environment as a basis for the exchange of experience and

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knowledge, with the need to take advantage of the information technology applications and modern communication techniques.

- Small and medium enterprises can be more innovative and compete even large companies. Therefore, it became necessary to carry out more studies on innovation obstacles facing them and work to remove or mitigate them, so they innovate more in order to ensure their stability.
- The benefit from the experiences of other countries regarding the model of small and medium enterprises in the innovation process leadership as the experience of Italy (Industrial clusters).

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