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Innovation in business as seen from different economic theories

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Abstract:

In a world of universal competition, "globalization", innovation has become vital for companies and economies which are currently characterized by a fierce competition and an increasingly demanding clientele. Thanks to innovation, companies and, consequently, territories can improve their productivity, profitability and economic growth. This paper contributes to the understanding of the determinants of innovation behaviour of companies consider the basic theories of innovation.
It is referring to the different economic approaches and theories of innovation. We present, firstly, the Schumpeterian theory which recognizes the role of the entrepreneur and market structures on the determinants of innovation; secondly, we move on to the discussion of the endogenisation of growth resources and the positive relationship between innovation, technical progress and economic growth; and we end up with the presentation of the evolutionary theory which emphasises the processual character based on learning, the trail dependency and the accumulation of knowledge which determine the factors of innovation.

Keywords: Innovation, Firm, Schumpeter, Innovation economy
JEL Classification: O30
Paper type: Theoretical Research

1. Introduction :

Innovation is the dominant factor in national economic growth and trade specialization (OECD, 2005). All companies are now aware that innovation is a key element of their survival, growth and development (Acs and Audretsch, 1990), and it is also an essential factor that allows them to gain market share, increase revenues, reduce costs and increase profitability (Wamba and al., 2017).

El Bouanani and Ait Lemqeddem (2021) identify two types of positive impact on economic growth. On the one hand, a positive impact on the economy taking into account that the countries which have invested in the promotion of innovation and R&D have been able to achieve a strong and sustainable level of growth. On the other hand, there is an impact on the performance of the company and the strengthening of its competitiveness taking into consideration that innovation within the company seems to be the right remedy to cope with the rapidly changing and increasingly competitive markets.

In order to innovate, the company must have certain characteristics that can stimulate and influence the implementation of innovations. The probability of innovation is determined by the internal and external characteristics and competences of the company (R&D, size, sectors of activity, belonging to a group, ...) (Sadgui, 2014).

Although the analysis of the determinants of innovation is a hard and complex task, it benefits from a rich and abundant literature. However, in developing countries, this theme does not attract enough attention, especially for the axis related to strategic management (Benamar and Cheriet, 2012).

Our research is part of this field of research which questions the determinants of innovation within the Moroccan company, and precisely at the level of the region of Fez-Meknes, in order to contribute to fill the lack of research on innovation at the level of the concerned region. Our issue is the following: "what are the determinants of innovation in Moroccan companies - the case of the Fes Meknes region? Within this framework, we asked ourselves two research questions: the first is what are the reasons that influence the decision of companies to innovate or not; the second is what are the characteristics and skills of the company that influence its ability to innovate?

As a matter of fact, there are not many articles on innovation theories. Few focus on the basic theories of innovation in business. This paper contributes to the literature on basic theories of innovation, which have identified the factors that prompt firms to build technological or non-technological innovative behavior.

The first illustrated empirical works emphasize, first, the essential role of the entrepreneur-innovator (Schumpeterian theory), then the endogenization of technical progress (endogenous growth theory) and finally the processual character of innovation based on learning and knowledge accumulation.

Thus, the first part of this paper examines the Schumpeterian theory, especially “The Theory of the firm and the entrepreneur”, the theory of innovation, which emphasizes the notion of “clusters and innovation cycles”, and, finally, the famous theory of “creative destruction”. The second part of this paper analyzes innovation using "the endogenous growth theory" while taking into consideration "Romer's model", which identifies the four "factors of growth", and introducing the notion of "Horizontal and vertical differentiation ”. As for the third and final part of the paper, we present the main axes of the "Evolutionary analysis of innovation" which deals with the micro-economic, macro-economic and mess-economic dimensions of innovation thanks to its procedural character that promotes economic growth and technological dynamics.

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2. Innovation According to Schumpeter

Joseph Schumpeter established several important concepts related to innovation, which many economists and researchers have subsequently used as a basis for their theories. The use of the Schumpeterian theory of innovation seems to us essential in any study related to innovation. We believe that the Schumpeterian theory of innovation is of great interest and presents a necessary and fundamental passage for our microeconomic study of the innovation process.

We will first discuss his theory of the entrepreneur and the firm, which is closely interwoven with his theory of innovation, which will be developed in a second stage.

Schumpeter considers that innovation is a primordial process to set the economy in motion through consumption (manufacture of new products) or through production (new method of production) and the pilot of this movement is the entrepreneur.

Joseph Schumpeter is one of the eminent economists who analysed the theme of innovation and technical progress. He introduced several important concepts related to this theme, which a lot of economists have subsequently used as a basis for their theories. For Schumpeter, innovation is the motor of economic growth. It is the source of development and of all technical and technological progress (e.g. electrification and motorisation, the two major innovations of the late 1890s to 1929).

Schumpeter is based on an optimistic vision founded on the positive contributions of technical progress and that, contrary to the classical authors who considered that growth is subject to the law of diminishing returns. In his conception, innovation is a primordial process for setting the economy in motion through consumption (manufacture of new products) or through production (new production method) and the pilot of this movement is the entrepreneur.

2.1. Schumpeter's Definition of Innovation

In his book "Theory of Economic Evolution, 1911", Schumpeter defined innovation as the execution of new combinations of means of production. This is done through the five following cases : first of all the manufacture of a new good, i.e. one that is not yet familiar to the circle of consumers, or of a new quality of a good ; secondly, the introduction of a new method of production, i.e. practically unknown to the branch of industry concerned ; it needs not to be based on a new scientific discovery and can also be a new commercial process for a commodity; thirdly, the opening of a new market, i.e. a market where the relevant branch of the industry of the country concerned has not yet been introduced, whether or not this market existed before; Fourthly, the conquest of a new source of raw materials or semi-processed products; again, it does not matter whether this source has to be created or whether it existed previously, was not considered or was considered inaccessible, and Fifthly the achievement of a new organisation, such as the creation of a monopoly situation (e.g. trustification) or the sudden appearance of a monopoly.

In "Business cycles, 1989" Schumpeter defines innovation as the establishment of a new production function. Such as the creation of a new product, the establishment of a new form of organisation and the opening of new markets:

> *"Therefore, we will simply define innovation as the setting up of a new production function. This covers the case of a new commodity, as well as that of a new form of organization such as a merger, of the opening up of new markets, and so on"*

Schumpeter considers that innovation is a primordial process to set the economy in motion through consumption (manufacture of new products) or through production (new production method) and the pilot of this movement is the entrepreneur.

In Schumpeter's view, invention is different from innovation as long as the latter is an exploitation and commercialization of the invention. If the product that is the object of the invention is not commercialised, it will not be considered as an innovation. In other words, the invention can be developed to the stage of innovation, knowing that the innovation is not always an invention. In the words of Rahmouni and Yildizoglu (2011), "Schumpeter distinguishes innovation from invention, in the sense that its validation by the market and its actual use induce economic and social change in a radical or gradual way".

2.2. The Importance of Innovation According to Schumpeter

For Josef Schumpeter, innovation is the engine of economic growth. It is the source of development and of all technical and technological progress (e.g. electrification and motorisation, the two major innovations of the late 1890s to 1929). Schumpeter's vision is optimistic, based on the positive contributions of technical progress, in contrast to the classical authors who considered that growth is subject to the law of diminishing returns.

Innovations promote increased production and investment, which creates new jobs, inspires imitators and generates growth. They directly or indirectly lead to investment, which tends to increase with the emergence of new industries (Potier, 2015).

The importance of innovation depends on its nature; it can result in the appearance of a profit thanks to the creation of new diversified and efficient products allowing the population to become richer, the emergence of a new production organisation favouring productivity gains or economies of scale, the opening of a new market stimulating the appearance of a temporary monopoly, the use of a new source of material and finally the introduction of a new production method or a new industrial process allowing the efficiency of the productive combination to be improved and consequently prices to be reduced.

Potier notes that all the new processes save capital and labour and do not lead to a reduction in investment possibilities or a slowdown in production growth. Schumpeter (1934) believed that new products introduced to the market are subject to strong competition which allows firms to have relatively high profits. However, an innovation involves risk-taking as the profits made from implementing the innovation may be rapidly eroded by imitation and increased competition over time (Wamba and al., 2017).

2.3. The Theory of the Firm and the entrepreneur

Schumpeter's early empirical work focuses particularly on the notion of the entrepreneur-innovator, a theory that we believe is relevant to the strategic analysis of innovation within the firm. In Schumpeter's (1911) terms, the firm is "the execution of new combinations and also its achievements in operations, etc., and 'entrepreneurs' are those economic agents whose function is to execute new combinations and who are the active element ". Schumpeter also defines the entrepreneur as 'a successful entrepreneur, with a profit at the end of the day, which in Schumpeter's view is nothing other than the social reward for this double success' (Deblock 2012). In his introduction, Perroux (1935) notes that "the firm and the entrepreneur are unanimously regarded as the fundamental springs of the mechanism of production, exchange and distribution in a market-based economy".

Schumpeter does not see the entrepreneur as the inventor of a discovery but rather the innovator who will add value to the invention by introducing it into the firm, industry and the economy in general. In other words, he is the adventurous innovator who implements new discoveries and operationalises them in the production process in order to manufacture and create future products that will distinguish them from others in a context of competition that is neither pure nor perfect. This is because the innovation, of which he is the bearer, enables him to position himself in a temporary monopoly situation (notion of monopolistic profit), to set a selling price higher than the marginal cost (thanks to this monopoly situation), to reduce production costs and consequently to obtain surplus profits (Tremblay, 2003).

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Gislain (2012) notes that the Schumpeterian entrepreneur is an exceptional, creative and innovative individual. He provides a logical function to move from a static to a dynamic state. He is responsible for the movements and change of economic circuits. The process of change is exogenous, emanating from the action of the entrepreneur, who, according to Gislain, appears in a perfectly organised economic world, disrupts it by reorganising production and will disappear while contributions in the advance of humanity. It is neither the lure of gain nor calculation that guides him, but rather the taste for enterprise, the ambition for power, his superior capacities to see the world differently, to lead as well" (Deblock, 2012).

This being said, "The entrepreneur can only be a superior being, a genius, a sort of superman detached from all material interests, at once sufficiently above the petty calculations of shopkeepers to create, but also sufficiently pragmatic to know that there are only successful inventions that the market will accept.

Schumpeter does not see the entrepreneur as the inventor of a discovery but rather the innovator who will add value to the invention by introducing it into the firm, industry and the economy in general. In other words, he is the adventurous innovator who implements new discoveries and operationalises them in the production process in order to manufacture and create future products that will distinguish them from others in a context of competition that is neither pure nor perfect. This is because the innovation that he brings about enables him to position himself in a temporary monopoly situation (notion of monopolistic profit), to set a selling price that is higher than the marginal cost (thanks to this monopoly situation), to reduce production costs and consequently to obtain surplus profits (Tremblay, 2003).

Contractor's Duties

The specific function of the entrepreneur is to innovate by overcoming a series of resistances (Perroux, 1935; P 68, 69). Perroux presents three types of resistance: 1) objective resistance which is related to the nature of the enterprise : "*When a new commercial or industrial combination is made, forecasts are less perfect, the margin of approximation is wider than when one does not leave the beaten track. Time and habit create an economic automatism that the entrepreneur must brea*. " (Perroux 1935; P68); 2) subjective resistance when the company must make an effort to break free from habit; 3) social resistance which means that the new combination created by the entrepreneur will find it difficult to be accepted by consumers, competitors and collaborators of the entrepreneur. According to Marty (1995) , quoted by Tremblay (2003), this last type of resistance concerns the resistance of consumers, the resistance of other companies and the resistance of professional groups.

Company according to Schumpeter:

For Schumpeter, the company is the execution of new combinations. According to the analysis of Perroux (1935), the firm in the Schumpeterian sense can be seen according to three considerations. First, the company is an organisation of production in which the prices of the various factors of production, contributed by agents distinct from the owner of the enterprise, are combined with a view to selling a good or services on the market, in order to obtain the greatest monetary gain by the difference between two prices (cost price and selling price)" (Perroux, 1935). Then, the company is considered to be as a set of functions performed by a given organisation. Perroux notes that the main functions of the company are "the coordination of the factors of production, their combination in determined proportions, the material execution of such a combination by a permanent organisation, and finally the adaptation of the supply of the product obtained to the demand. " (Perroux 1935). Finally, the company is highlighted as an essential function articulated around innovation and the innovative entrepreneur: the company is an essential function of the economic dynamic based on innovation and provided by the innovative entrepreneur.

2.4. Innovation Theory: Notions of Clusters and Innovation Cycles

Schumpeter developed a genuine theory of innovation in which he presented his analysis of the relationship between innovation and economic development. Schumpeter considers capitalism as a dynamic which is made up of long movements, cycles of growth and successive crises (El Bouanani and Ait Lemqeddem, 2021). He defines innovation as a process of creative destruction, which remains the engine of this dynamic (El Bouanani and Ait Lemqeddem, 2021).

2.4.1. Concept of Innovation Clusters

Schumpeter believes that innovations appear in clusters, i.e. following a major innovation, multiple innovations appear in swarms. Thus, each radical innovation (source of industrial revolution) is the bearer of numerous secondary innovations forming clusters of innovations (secondary or minor incremental innovations). In other words, the success of the innovating entrepreneur encourages other entrepreneurs to innovate. Major innovations are behind the triggering of economic expansion for many years (Fellrath and Froissart, 2000).

The arrival of innovations in clusters allows the economic circuit to evolve in a cyclical manner, thanks to the dynamics of innovation; we can say that economic cycles are those of innovations.

The arrival of innovations in clusters allows the economic circuit to evolve in a cyclical manner, while respecting two essential conditions. First, these innovations must create a real technological break with the usual production process. Secondly, the new industries must allow the diffusion of purchasing power in the economy and consequently the increase of demand. The major innovations are behind the disruption of market conditions. For Schumpeter and in the words of Deblock (2012) "innovation is an invention that has disrupted market conditions". Competitors will appear to benefit from the exploits of these innovations carried by an innovative entrepreneur, new investments will be mobilised and credits will be granted massively (in order to finance the innovations) thus leading to a situation of market saturation which will lead to depression (Fellrath and Froissart, 2000). We note that there is an alternation between periods of growth and depression induced or triggered by the theory of innovation clusters.

2.4.2. Cycle Theory « Business Cycle »

In his book "Business Cycle" Schumpeter interprets three cycles of innovation namely those of Juglars, Kitchins and Kondratieffs. According to Potier (2015), the Juglar cycle comprises on average three Kitchins and the Kondratieff cycle six Juglars, so the Kondratieff comprises eighteen Kitchins. This being said, on the Kondratieff cycle is grafted the Juglar cycle and on the latter the Kitchin cycle.

These cycles are linked to innovation. Indeed, major innovations are linked to Kondratieff cycles, minor innovations to Juglars cycles, whereas Kitchins are cycles in the form of adaptive fluctuations not linked to innovations (Schumpeter, 1942). Moreover, the growth phases of the Kondratieff cycles are explained by the succession of major innovation clusters that bring strong technical progress.

Schumpeter considers that the two cycles Kondratieff and Juglar are composed of four phases: prosperity, recession, depression and recovery. The alternation of phases is modulated by the dynamics of innovation.

According to Fellrath and Froissart (2000), Schumpeter attributes the existence of business cycles to the dynamics of innovation. We can say that business cycles are those of innovations, and that technical progress is the determining engine of growth.

During the boom phase, demand increases, production increases, competition intensifies, ensuring economic growth and development. Over time, however, the opportunities created

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are exhausted, demand falls, prices fall, competition increases and becomes increasingly fierce, leading to the "turning point of the cycle" or recession phase. During this period of recession, growth falters and the movement is reversed as the innovation shock gradually decreases in intensity (Tonglet, 2004). Consequently, the depression phase is triggered leading to the elimination of stocks, the settlement of debts and the generation of a new wave of innovations that will give rise to a new cycle (recovery phase) (Schumpeter, 1942). Schumpeter states that the recovery of the cycle is triggered by the emergence of new innovators in swarms or groups who will execute new combinations of factors of production allowing the appearance and diffusion of clusters of innovations (Tonglet, 2004).

In his book "Capitalism, Socialism and Democracy", Schumpeter describes this alternation of phases by "long-lasting fluctuations in economic activity". He then describes the evolution of cycles by saying that:

"Each of these oscillations involves an "industrial revolution" and then the assimilation of its effects. This process of industrial change imparts the fundamental impetus which sets the general tone of business: while these novelties are being set in motion, spending is easy and prosperity prevails - notwithstanding, of course, the negative phases of the shorter cycles superimposed on the fundamental upward trend - but, at the same time as these achievements are completed and their fruits begin to flow in, the outdated elements of the economic structure are removed and "depression" prevails. Thus there are prolonged periods of inflation and deflation in prices, interest rates, employment, and so on, all of which are parts of the mechanism of recurrent rejuvenation of the productive apparatus. »

We can then make a connection and say that the prosperity phase occurs following the arrival of clusters of innovations resulting from or provoked by a major invention and that the recession phase is due to the saturation of the market caused by the end of the growth generated by the innovation cluster which leads to the depression which represents a major evolutionary motivation which will allow to enter a new phase of recovery and so on and so forth the cycles continue on the basis of this model well explained by Schumpeter

Historically speaking, the major cycles analysed by Schumpeter, in his work Business Cycles, concerned "electricity used in transport, thermal engines with the beginnings of the automobile, and basic chemistry. The author also mentions organisational innovations, with the formation of the large American firms, the trusts ([1939], I, p. 385) (quoted by Potier, 2000). By extension, we note the role of digital technology, which we can characterise as a 'digital revolution'.

Schumpeter explains the growth phases of the Kondratieff cycles by the succession of major clusters of innovation that bring about strong technical progress. Thanks to this cluster phenomenon, investment increases, which has repercussions in production capacity, job creation and consequently on the granting of credit and the increase in interest rates.

The period from 1788 to 1816 was characterised by the emergence of the steam engine as a driving force, particularly in the textile industry, and was based on the system of production in the home or in craft workshops. This period experienced a depression between 1826 and 1830 according to Schumpeter. From 1848 to 1873 we see the development of the railways and the iron and steel industry. This phase experienced a depression between 1873-1878. The cycle between 1893-1940 was marked by the invention and development of the automobile, which gradually became established in the countries.

Schumpeter explains the depression observed during this period especially in the United States. We recall that in his work Business Cycle, Schumpeter analyses the Kondratiev cycles triggered successively in England, Germany and the United States since the end of the eighteenth century (Potier, 2015), and which was triggered in 1929 and ended in 1939. For Schumpeter this situation is due to the debt situation of companies and families and the influence of external factors (World War [I], changes in international trade, new tax policies, ...)

(Potier, 2015). After 1939 the recovery must take place, for Schumpeter, it must take place by itself:

"In all cases [...], the recovery was self-sustaining [...]. But that is not all: our analysis leads us to believe that recovery is only healthy if it is self-induced. For when a recovery is due merely to artificial stimuli, part of the work of the depression has not been done and it adds to a residue of badly digested disequilibrium a new disequilibrium of its own which must be liquidated in its turn, thus threatening business with another crisis to come. (Emphasis added by Schumpeter [1934a], p. 117) (Potier, 2015).

2.5. Creative destruction:

The recovery described by Schumpeter means the start of a cycle that will give rise to a new cluster or swarm of minor innovations introduced by imitators that will replace the old cluster of innovations. This leads us to the notion of creative destruction which explains cyclical evolution. Indeed, creative destruction allows the transition from crisis to recovery during a growth cycle by creating new breakthrough innovations and destroying old products and processes.

The theory of destruction makes it possible to explain and describe the mutations of firms thanks to technical progress which stimulates and generates the creation of new firms and the destruction of old ones. It is based on the principle that innovation is both a source of growth and a risk factor, since it represents a factor of creation, destruction and restructuring. Indeed, the new does not emanate from the old, but develops alongside it, competing with it until it destroys it. New discoveries destroy old innovations and drive out obsolete firms that have to disappear. We are talking here about economic fluctuations in the form of cycles.

In Schumpeter's terms, this is a cyclical process where each of these oscillations includes an "industrial revolution" and then the assimilation of its effects. "This process of industrial change provides the fundamental impetus that sets the general tone of business.

Morck, and Yeung (2001) represent innovation as the formation of a new shoot at the top of a stem that appears at the top of a plant and that the old, mature parts disappear to make room for the new shoot thus formed. Creative destruction is a notion highlighted by Schumpeter to explain and describe the mutations of firms thanks to technical progress which stimulates and generates the creation of new firms and the destruction of old ones.

In conclusion, for Schumpeter, innovations are a main source of wealth and employment creation through increased production and the stimulation of investment. For him, innovation does not only generate growth but also a cyclical evolution of the clusters stimulated by it, allowing for expansion, recession, depression and recovery phases.

3. The analysis of innovation according to the endogenous growth theory

The analysis of innovation from the perspective of endogenous growth theory represents a continuation of Schumpeterian thinking and is based on the endogenisation of the sources of growth. The economist Romer (1986) was the first to introduce this theory in his article entitled "*Increasing Returns and Long Run Growth", and* it was then developed mainly by the authors Robert, Lucas and Barro.

It is a model that was developed based on the endogenisation of the sources of growth, as opposed to Solow's exogenous growth model which based growth on technical progress, as a factor external to the firm, without explaining its origin. Solow explains that technical progress depends on technical variables that escape the economist and that it comes from outside the competitive sphere, in particular from public institutions (Guellec, 1992). Indeed, technology is a public good accessible to all agents, scientific prowess is not appropriated by the one who realizes it, consequently, private actors do not venture to invest in R&D as long

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as the profit is not remunerated, hence the exogenous character of technical progress explained by Solow.

These endogenous growth models formalise the notion of Schumpeterian innovation (Morck and Yeung, 2001). In the words of Encoaua and al., (2004), and still in Schumpeter's conception of the types of innovations: products, processes, work organisation, etc.: '*to each type of innovation corresponds an adapted endogenous growth model (varieties, quality scales, etc.)*'.

3.1. Romer's model

Romer's reasoning is based on three postulates which, according to Abraham-Frois and Malgrange (2001), are as follows: firstly, technical progress favours the accumulation of capital allowing for the improvement of productivity and therefore growth. Secondly, technical progress is the result of the R&D activity carried out by firms in response to market signals. Thirdly, the reuse of an innovation for a second time does not require an additional cost given the investment made at the time of its introduction (a non rival public good).

By analogy with Solow, technical progress is a non-rival public good. Nevertheless, Romer considers it to be particularly exclusive since protection by intellectual property rights gives the producer of knowledge partial protection over his innovation (Guellec, 1992). As for the public character, we note that the production of knowledge benefits from learning economies since, on the one hand, each researcher will contribute to the increase in productivity of other researchers, and, on the other hand, the knowledge will be exploited simultaneously and at a lower cost by third parties. Thus, the innovator who uses the previous knowledge will only finance the incremental part of the knowledge he produces. This is why, by integrating knowledge among its production factors, the production function will present increasing returns (Encaoua and al., 2004).

To this character of 'public good' is added to the character of 'cumulative good' which characterises the driving role of technical progress and innovation in the acceleration of economic growth (Fellrath and Froissart, 2000). Cumulativeness represents the stock of homogeneous knowledge where each new knowledge discovered builds on the old discoveries thus promoting the growth of the stock of knowledge. Cumulativeness explains why the growth of an economy does not follow the usual law of diminishing returns, leading to constant per capita income in the long run (Encaoua and al., 2004).

To sum up, Romer explains technical progress as a source of growth in a paid economic activity. In the framework of his theory, technical progress is considered as a stock of homogeneous internal knowledge, unlike Solow who defines it as an exogenous variable. This stock of internal knowledge is the source of a rich and modeled technical growth and evolution (Fellrath and Froissart, 2000).

(Fellrath and Froissart, 2000) explain that for Romer, growth depends on the one hand, on the parameters of the idea production function conditioned upstream by the increase in the number of researchers. On the other hand, it depends on the population rate growth.

In contrast, Solow's model considers that the rate of growth depends on an unsophisticated technical progress which neglects the role played by researchers and private agents who produce new ideas and new products and therefore knowledge, and who, moreover, respond to market signals (Guellec, 1992).

In his model, Romer distinguishes three situations. The first is the case of pure and perfect competition which will result in a new final capital good. The second is the case where R&D actors themselves invent new ideas; research stimulates and promotes faster growth. And the third is the case of imperfect (monopolistic) competition, which is a necessary condition for turning new ideas into a capital good; it is of great importance as it provides a link between the two other market situations (Fellrath and Froissart, 2000). Under monopolistic

competition, the innovator will be able to recover his initial research investment and generate a temporary rent until imitators sneak in (Encaoua and al., 2004).

In sum, Romer's model shows that growth is closely linked to technical progress, which is itself enhanced by the population of researchers who stimulate R&D activity and consequently the speed of growth.

3.2. The main factors of growth

The authors of the endogenous growth theory identify four main factors of growth; namely technological capital, human capital, public capital and physical capital (Fellrath and Froissart, 2000).

Technology capital:

This factor refers to technical progress and innovation which are reintegrated into the heart of growth like the other traditional endogenous factors of production (capital, labour, natural resources). Innovation and technical progress are activities that increase the stock of knowledge thanks to the new knowledge produced by the agents of the innovative firm.

Companies invest in R&D to produce and market new product and process innovations (Encaoua and al, 2004). These innovations (generally product or process innovations) enable the firm to distinguish itself from its rivals, to acquire a competitive advantage that pushes it to excel and develop. Through competition, firms are invited to a race for innovation that will benefit not only the firm but all rival firms. As a result, the entire economy will be pushed towards innovation and thus growth.

This finding differs from one country to another. In fact, innovation allows companies in advanced industrial countries to build strong and persistent innovation trajectories structured by the dynamic and persistent relationship between R&D and innovation (Le Bas et Molou 2020). However, in developing countries, where companies operate in a context characterized by a modest infrastructure and a slow economic growth, the relationship between R&D and innovation is, unfortunately, not verified (Le Bas and Molou 2020) .

Human capital:

This factor brings together all the knowledge, training, skills and know-how of the firm's human resources that make them more productive, more innovative and inventors. The stock of human capital causes social externalities that promote the development and acquisition of innovations (Lucas 1988, Romer 1990) cited in (Rahmouni and Yildizoglu, 2011).

State action acts indirectly on human capital, in fact, the state devotes resources to finance research, education and training which are transformed into intangible assets (human capital) which are reflected in the production capacity (Encaoua et al., 2004).

Public capital:

This factor refers to the action of the state in increasing the rate of growth. Improving public infrastructure will facilitate the flow of goods, services, information, people and ultimately access to finance.

In addition, public action also concerns the establishment of operating rights and market regulation (intellectual property, customs duties, etc.), education and knowledge, health, defence and security and connectivity networks that strengthen human and cultural capital.

Access to public infrastructure (road network, rail network, internet network, etc.) creates a positive externality allowing internal economies among private agents and favouring returns to scale (Guellec, 1992). In other words, public infrastructure has a major effect on the increase in the productivity of private agents, and consequently their return-on-investment flares up (Guellec, 1992).

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Physical capital:

A factor that designates the firm's strategy for integrating technological capital. Indeed, in order to be adopted by the firm and the market, an invention must follow and respect an implementation process adapted and established in advance by the firm. The presence of increasing returns to scale favours the increase of physical capital and consequently drives growth. In sum, the behaviour of agents, physical capital, education, R&D and many other factors mentioned above have persistent effects on the rate of growth and output (Guellec, 1992).

3.3. Horizontal and Vertical Differentiation

Romer introduced the theme of horizontal innovations as opposed to vertical innovations. Indeed, the former are related to the increase in the quantity (volume) and diversity of goods, and the latter to the improvement of the quality of goods and satisfaction (Fellrath and Froissart, 2000).

The differentiation of innovations according to this model induces several forms of innovation (lowering costs, creating new products, improving quality, etc.), and makes it possible to trace two slightly different growth trajectories; either growth by increasing quality or a growth trajectory by addition (Fellrath and Froissart, 2000).

According to Encaoua and al., (2004), vertical differentiation leads to the mechanism of creative destruction proposed by Schumpeter, as a new product will meet needs better than the previous one. Fell rath and Froissart (2000) explain that the new product destroys the old one because of its better quality/price ratio which will generate an increase in utility.

Product innovation, or horizontal innovation, is distinguished by innovation in consumer goods which, on the one hand, allows all individuals to reach an optimum of variety as the number of varieties increases and, on the other hand, improves satisfaction following the increase in the number of goods; and innovation in production goods which allows each producer to have access to the appropriate equipment at the right time and in relation to a precise need, thus allowing the diversification of production tools and consequently the increase in productivity (Fellrath and Froissart, 2000).

The notion of horizontal and vertical differentiation allowed authors Aghion and Howitt (1998) to create a model inspired by Schumpeter's model where "*growth is generated by a random sequence of product quality improving innovations (called vertical innovations) which are themselves the result of (risky) research activities*" (quoted by Frois and Malgrange, 2001).

In sum, all these features of the endogenous growth theory explain the positive relationship between technical progress and economic growth. These theories consider technical progress as the engine of growth

4. Evolutionary analysis of innovation.

The evolutionary analysis of innovation deals with the micro-economic dimension as well as the macro-economic dimension (Tremblay, 2003). In addition to these two dimensions, and starting from the spatial analysis which takes into consideration the local conditions which act in favor of innovation, the latter also can be analysed under the meso-economic dimension through the concept of innovative environments or learning regions (Fort and al., 2005).

Evolutionary analysis of innovation emphasises the processual nature of innovation (Nelson and Winter, 1982). Most research on innovation is based explicitly or implicitly on a representation of innovation as a process (Fort and al., 2005). Tremblay (2003) argues that evolutionists see innovation as a process and consider it to be the engine of economic growth and technological dynamics.

Indeed, first of all, in his evolutionary analysis, Le Bas (1995) characterises innovation as an uncertain and not totally random 'social process'. In the context of its conception, the firm resorts to choices and trade-offs within the framework of social facts which are identified for it, such as product and labour markets, existing technologies and the economy in general. Secondly, innovation is seen as a "complex interactive process" in which, on the one hand, innovations are difficult to adopt by the firm and the market, and on the other hand, the information transfer flows are complex and influenced by looping, feedback and interaction effects within the firm (Tremblay, 2003).

In this framework, Kline and Rosenberg (1986), proposed a chain-linked interactive innovation model called the "chain-link" model as opposed to the linear model which some call the technology-push or science-push model, and which was most widely used before the notion of the innovation system appeared. The linear system considers that the prowess of R&D is easily and spontaneously adopted by the firm and flows naturally to the market.

This interactionist approach to innovation, seen under the Kline and Rosenberg model, also known as 'chain linkage', highlights the interactions between R&D and the other dimensions of innovation, in particular the internal actors and the firm's external environment, as well as the state of the loops and feedback between the product design, manufacturing and marketing functions (Tremblay, 2003).

Furthermore, Dosi (1988) considers innovation as a "process of problem solving". In his article, he states that "over the past 20 years, various analyses have been made of the process of innovation ... In very general terms, technological innovation involves the solution of problems" (Dosi, 1988). In other words, the process of problem solving is dependent on the R&D activity that will lead to scientific discoveries that the general algorithm is neither able to generate nor to discover solutions in a simple and automatic way (Dosi, 1988). For his part, Dosi sees innovation as proceeding by trial and error as firms take risks, attempt to develop new solutions, and adopt new technologies (Tremblay, 2003). These new technical solutions to problems are conditioned not only by the use of previously generated scientific discoveries and knowledge, but also by the specific and uncodified abilities of the inventors (Dosi, 1988).

Finally, innovation is also seen as 'a learning process' or 'a cognitive process', and this is the primary aspect for which evolutionary analysis is recognised (Tremblay, 2003). Fort and al., (2005) describe it as a collective learning process that brings into interaction various partners located inside or outside the firm.

This learning process is essentially conditioned by certain learning modalities identified in the literature. These include the learning by using (Rosenberg 1982; cited by Fort and al., 2005); the learning by doing (Lundvall 1992; cited in Fort and al., 2005); the learning through interaction (Lundvall 1992; cited by Fort and al., 2005) ; the learning by sharing (Tremblay, 2003); the internal learning (Tremblay, 2003); the external learning (Tremblay, 2003); the exploratory learning (March 1991; cited in Rahmouni &Yildizoglu, 2011): which consists of the discovery of solutions adapted to the problems encountered by taking strong risks and allowing the firm to extend the range of its skills; and finally, the exploitative learning (March 1991; cited in Rahmouni &Yildizoglu, 2011): which consists of refining the selected technical solution which will allow the firm to strengthen its existing knowledge and skills.

Thus, the skills and knowledge acquired by a firm depend on the different learning processes carried out during its existence. Moreover, the technological trajectories of a sector are the result of the learning that takes place within the sector (Le Bas, 1995).

4.1. Learning capacity

However, in order to improve its knowledge, the firm must have a certain learning capacity encouraged by its internal and external skills (Fort and al., 2005). Le Bas (1995) explains that the firm's learning capacity does not only depend on the firm's ability to integrate external

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knowledge internally, but also on its ability to process this knowledge to produce other knowledge.

Four factors are in essence considered as pillars that define learning capability: the first is the construction and management of the firm's internal relationships and competences (Nelson and Winter 1982; Dosi and al., 1990; Le Bas 1995; Fort and al., 2005); the second is the development of external relationships in order to further improve the firm's external competences (Le Bas, 1995; Tremblay, 2003; Fort and al, 2005; Rahmouni and Yildiyoglu, 2011); the third is the ability to absorb and transform the knowledge of others as a means of developing one's own knowledge (Le Bas, 1995); and the fourth, and not least, is the firm's internal ability to produce knowledge based on internal technologies that contain tacit and specific knowledge (Dosi, 1988).

In short, the firm's learning capacity is maintained thanks to the firm's internal skills and relations and those it maintains with its external environment, particularly the actors holding tacit or explicit information and knowledge (Fort and al., 2005). In essence, the knowledge acquired by the firm depends on its ability to rely on its own skills on the one hand and to integrate various sources of knowledge on the other (Rahmouni and Yeldizoglu, 2011).

4.2. Knowledge Accumulation Dynamics and Path Dependency

The relationship of the firm with its internal and external environment affects its learning process and consequently its technological development and innovation process (Rahmouni and Yildizoglu, 2011). Tremblay (2003) describes the learning process as a cognitive process, irreversible and dependent on its past evolutionary path; indeed, "*a step taken conditions the next step*" (Rahmouni and Yildizoglu, 2011). We therefore speak of the phenomenon of 'path dependence' which conditions the firm's technological choice and development, thus circumscribing the innovation paths. Innovation is then the result of the experience accumulated by the firm thanks to its learning capacity and through the different forms or modalities of learning.

Innovation is rooted in the firm's routine activities and its portfolio of experience (Rahmouni and Yildizoglu, 2011), therefore, path dependence in the readiness to innovate results from the innovations produced by the firm through its prior learning and accumulated experience. Fort and al., (2005), explain that path dependence constitutes a lock-in phenomenon that irreversibly steers the innovation process in desired and chosen directions while others are abandoned and discarded.

Finally, Debuisson and Torre (1998) (quoted by Fort et al. 2005), characterise innovation as a 'process of creation and recreation of technology', which, by analogy with what we have just described, brings together actors from within and outside the firm, allowing for the creation of new knowledge, new products and services, new processes and new forms of organisation, in a general way, technological, service or organisational innovations (Fort and al., 2005)

Moreover, in the course of this process of technology creation and recreation, these created innovations can fall into oblivion and the products become obsolete and the technologies obsolete (Fort and al., 2005). This is in perfect harmony with Schumpeter's early view that it was SMEs that constituted the primary pool of innovation, yet the concentration of capital would have led to the dominance of large R&D-oriented firms over the years of growth. In contrast, the evolutionary approach foresees the coexistence of these two innovation pools in the same period without necessarily being successive in time (Tremblay, 2003). Thus, these two Schumpeterian and evolutionary approaches place innovation at the heart of the main mission of large or small and medium-sized firms. A fortiori, SMEs favour the highly uncertain innovation model driven by the inventor-creator innovator, whereas large

companies adopt a routine and systemic innovation process carried out in their R&D department (Tremblay, 2003).

Evolutionary authors see innovation as a social process, a complex interactive process, a problem-solving process, a learning process and finally a process of technology creation and recreation.

5. Conclusions :

Our paper presents an overview of the different theories of innovation that we consider to be the basis of knowledge related to innovation. Starting with the presentation of the Schumpeterian theory of the entrepreneur and innovation (cluster theory, business cycle theory, theory of creative destruction) and moving on to the introduction of the endogenous growth theory and finally to the evolutionary analysis of innovation.

Indeed, we presented the "Schumpeter 1" vision which underlines the essential role of the entrepreneur to innovate and execute new combinations and then the "Schumpeter II" vision which describes business cycles, the role of market structures on the determinants of innovation and the discussion of the innovation performance of the large monopoly firm. We subsequently evoked the theory of endogenous growth which constitutes a continuity of Schumpeterian thought given that it considers, on the one hand, that growth is closely linked to technical progress favored by the population of researchers which stimulates R&D activity. On the other hand, emphasizes the role of competition in the production of good. Finally, we presented the evolutionary theory of innovation which emphasizes the processual nature of innovation which is based on several variables, in particular R&D, the firm's learning capacity, environment of the firm, size of the firm, etc.

For our own part, we believe that the contributions of these theories, analyzed in this paper, enables us to highlight the importance of innovation within the company and the territories as well as its impact on economies in general. In addition, we believe that the contributions of the founders of these theories seem more legitimate, especially pertaining to making innovation a strategic choice which companies must adopt while developing their strategies and plans of development.

In addition, the examination of these three basic theories of innovation within the framework of this paper will make it possible to, first, strengthen the existing theoretical bases and, second, provide us as well as other researchers with a rich reference to analyze other theories of innovation, including diffusion theory, resource theory, and eventually, the current theories which are the opposite of the Schumpeterian logic which are: 1) - the user driver innovation which consists of the involvement of experts and users at certain stages of the innovation process; 2) open innovation, which consists of the involvement of a large number of players, among companies, universities, public or private R&D organizations; 3) the value co-creation which aims to determine how customers and users can be actively involved in the design and personalized development of products, services and experiences (Benchrifa, 2021). The analysis of other theories of innovation will subsequently allow us to complete this work in order to be able to analyze innovation using old and new theories pertaining to this line of research.

To conclude, an empirical study pertaining to the various determinants discussed and examined in this paper was carried out on companies in the Fes-Meknes region, especially those operating in the industrial sector. The study is currently processing quantitative data collected from 200 companies in the studied region. Indeed, this could be the subject of a potential paper in order to test the theories examined in the context of a developing economy.

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References

(1) Abraham-Frois, G. & Malgrange, P. (2001), "Contributions à l'économie de l'innovation : présentation générale", Économie & prévision, n°150-151, p. 89-94
(2) Acs, Z. J. et Audretsch, D. B. (1990), " Innovation and Small Firms", Mass MIT Press, Cambridge
(3) Benamar B and Cheriet F. (2012), "Determinants of innovation in emerging firms in Algeria", Innovations, n°39, p 125 – 144
(4) Benchrifa, H. (2021). Innovation, c'est quoi au juste?. International Journal of Accounting, Finance, Auditing, Management and Economics, 2(5), 538-551.
(5) Deblock C (2012), présentation du dossier : innovation et développement chez Schumpeter, revue interventions économique, N46
(6) Djoutsa Wamba, L., Nkakene Molou, L. & Hikkerova, L. (2017), "Innovation capacity: determinants and effect on the performance of large firms in Cameroon", Gestion 2000, volume 34, p.53-75
(7) Dosi D. (1988), " Sources, Procedures, and Microeconomic Effects of Innovation", Journal of Economic Literature, Vol. 26, No. 3, p. 1120-1171
(8) Dosi G, Teece D, Winter S. (1990), "The boundaries of firms: towards a theory of the coherence of the large firm", Revue d'économie industrielle, vol. 51, pp. 238-254,
(9) El Bouanani F et Ait Lemqeddem H. (2021), "Impact of innovation on economic growth theoretical reflection of the Nexis between the two concepts", International Journal of Accounting, Finance, Auditing, Management and Economics – IJAFAME, Volume 2, Issue 4
(10) Encaoua D, Foray D, Hatchuel A, Mairesse J., (2004), " Les enjeux économiques de l'innovation. Bilan du programme CNRS", Revue d'économie politique, vol 114, p. 133-168
(11) Fellrath F and Froissart N. (2000), "innovation and growth", Licence Analyse et Politiques Economiques, Bordeaux
(12) Fort, F., Rastoin, J.-L. & Temri, L. (2005), "Les déterminants de l'innovation dans les petites et moyennes entreprises agroalimentaires", Revue internationale P.M.E., vol 18, p. 47-72
~~(13)~~ Gislain JJ, (2012), « Les origines de l'entrepreneur schumpétérien », *Revue Interventions économiques* », N46
(14) Guellec D, (1992), "Croissance endogène : les principaux mécanismes ", In: Économie & prévision, n°106, 1992-5. Développements récents de la macro-économie. pp. 41-50;
(15) Le Bas C, Molou L.N, (2020), "The drivers of innovation in an African middle-income economy, a reassessment of innovation models", Technologie et Innovation, 2020, vol. 5, n° 3
(16) Le Bas C. (1995), "Economie de l'Innovation", ECONOMICA, Paris
(17) Morck R and Yeung B. (2001), "Economic Determinants of Innovation", Industry Canada Research Publications Program
(18) Nelson R R et Winter S. (1982), " An Evolutionary Theory of Economic Change" , The belknap press of harvard university press, England.
(19) Oslo Manual. (2005), "Guidelines for Collecting and Interpreting Innovation Data", 3rd edition, OECD, Paris.
(20) Perroux F. (1935), "Introduction to Theory of Economic Evolution. IN Théorie de l'évolution économique", Electronic edition, Québec

(21) Potier, J. (2015), "Joseph A. Schumpeter and the economic climate of the 1930s-1940s: Depression, stagnation or harbingers of the decline of capitalism? " , Economic Review, vol. 66, pp. 993-1019
(22) Rahmouni M. and Yildizoglu M. (2011), "Motivations and Determinants of Technological Innovation: An Overview of Modern Theories", Working Paper, n°2011-09
(23) Romer P.M., (1986), « Increasing Returns and Long-run Growth », *Journal of Political Eco*nomy, vol. 9, no 5
(24) Sadgui R. (2014), "Determinants of innovation and cooperation activities: An empirical analysis of Moroccan innovative firms", International Journal of Innovation and Applied Studies, vol. 9, no. 2, pp. 698-712
(25) Schumpeter J. (1911), "Theory of Economic Evolution", electronic edition, Quebec
(26) Schumpeter J. (1939), "Business Cycles", Electronic Edition, Quebec
(27) Schumpeter J. (1942), "Capitalism, Socialism and Democracy", Electronic Edition, Quebec
(28) Tonglet B. (2004), "Les cycles Kondratieff : une philosophie critique", Innovations, n°19, p. 9-36
(29) Tremblay D G. (2003), "Innovation, management and economics: how does economic theory account for innovation in the firm", research note 21 of the Canada Research Chair on Socio-Organizational Issues in the Knowledge Economy, Télé-université Université du Québec