



**INNOVATION, STRATEGIC MANAGEMENT AND ECONOMICS:
HOW DOES ECONOMIC THEORY EXPLAIN INNOVATION WITHIN
ENTERPRISES?**

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Abstract

Strategic management establishes an operational link between the enterprise's overall strategy and more specific aspects of management, such as human resources management (HRM). In a way, the strategic vision is an extension of the systemic vision, which included various elements but did not integrate them from the outset into the enterprise's overall strategy nor establish an operational link between these aspects. The present text will shed light on one of the dimensions of the strategy of the enterprise, that is, its innovation strategy. We will reveal the contribution of the economic vision of innovation to the understanding of one area of strategic management, that is, innovation strategy and innovation management within the enterprise. We draw mainly on the work of the economist Joseph Schumpeter as well as the more recent contributions of the evolutionary economists who, in our view, work in the tradition of Schumpeter's vision of the entrepreneur-innovator and appear to be most relevant when returning to the roots of strategic management. Moreover, the contributions of these authors appear to be most useful for legitimizing the strategic management of human resources in a context of innovation since they put forward a vision of innovation as a process. They also take into account collective learning and other aspects that establish a stronger connection between human resources management and innovation management. This justifies the strategic management of human resources, which then becomes linked (or operationalized) to the enterprise's overall strategy, particularly as regards innovation.

I. Introduction: the strategic vision and innovation

Strategic management establishes an operational link between the enterprise's overall strategy and more precise aspects of management, such as human resources management (HRM). The systemic vision has emerged over the years as a vision that integrates all of the factors that are relevant to decision-making and management within the enterprise. However, while the systemic vision describes all of these elements as being part of a "system," it does not explain or even connect the organic links between, on the one hand, decisions taken from the top about the choice of markets, products, technological and organizational innovation and, on the other hand, those made regarding the efficient use of resources (financial, material and human) (Bélanger *et al.* 1988: 12). Thus, in a way, the strategic vision is an extension of the systemic vision, which included various elements but did not integrate them from the outset into the enterprise's overall strategy and, especially, did not establish an operational link between them. However, the literature on strategic management, and in particular on the strategic management of human resources, does not appear to have explained the theoretical foundations that underpin such a vision, at least as regards the connection between strategic HRM and the overall innovation strategy of the enterprise.

We believe that the contributions of the economist Joseph Schumpeter and the evolutionary economists help to strengthen the theoretical bases of the theme within strategic management that can be referred to as strategic HRM. The first aim of this text is to shed light on one of the dimensions of enterprise strategy, namely innovation strategy. Thus, we present what we consider to be the major contribution of the economic vision of innovation to the understanding of one area of strategic management,



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that is, innovation strategy and innovation management within the enterprise. We will mainly draw on the writings of the economist Joseph Schumpeter, which seem to be the most relevant to the topic, as well as the more recent contributions of the evolutionary economists who, in our view, fit into the tradition of Schumpeter's vision of the entrepreneur-innovator. These two sources appear to be most useful for returning to the roots of the strategic management of innovation and human resources, at least from the perspective of economic theories.

Moreover, the contributions of these authors seem to be the most useful for legitimizing the strategic management of human resources in a context of innovation since they put forward a vision of innovation as *process*. They also take into account collective learning and other aspects, establishing a stronger connection between human resources management and innovation management. This justifies the strategic management of human resources, which then becomes linked (or operationalized) to the enterprise's overall strategy, particularly as regards innovation.

To examine the economic vision of innovation and the contribution of economics to the understanding of the innovation strategy of enterprises, we therefore chose a particular approach. In fact, we decided to use two particular approaches, on the one hand because they seemed to be more relevant to strategic analysis, and on the other hand, because they are currently creating the most interest from the point of view of developments in the discipline of economics. We therefore decided to examine the contributions of Schumpeter's and the evolutionary economists' visions of innovation. These theories are also interesting because they make a useful contribution to the multidisciplinary study (economics and management) of innovation.

Finally, it should be noted that while certain orthodox economists may perhaps doubt the relevance of the evolutionary approach to innovation, all economists would agree that Joseph Schumpeter has made an important contribution to the analysis of innovation. We will first examine the Schumpeterian vision, followed by the evolutionary vision.

2. Schumpeter: the importance of the entrepreneur and innovation

The main interest of Schumpeter's work as it relates to the enterprise and innovation is precisely that Schumpeter makes way for a true strategy for the enterprise and the entrepreneur, a strategy centered on innovation. While orthodox economic theory views the enterprise and its action as the result of the inanimate forces of supply and demand, and innovation as a "black box," an invisible process during which inputs are simply transformed into outputs, Schumpeter offers economists and managers a more strategic vision of innovation and the role of the entrepreneur. In this section on Schumpeter, we set out his vision of the entrepreneur-innovator and his more general vision of innovation.

Although these two themes are somewhat intertwined in his writings, we preferred to consider each one separately here, especially since they seem to have been somewhat overlooked in the theoretical foundations of strategic management. In our view,



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however, they constitute highly relevant theoretical bases. Once these theories have been presented, we will examine some of the criticisms of Schumpeter's work. Finally, we will underline the contributions by Schumpeter that seem relevant to a strategic vision, while pointing out some criticisms.

2.1. Schumpeterian theory of dynamics

We should first point out that two main concepts are at the centre of the analyses presented by Schumpeter. The first is the concept of the circular flow and the second, that of development. From the perspective of the circular flow, agents intervening in production make do with using pre-existing combinations of factors; they are merely "operators" in the Schumpeterian sense of the term because they do not share in any profit. According to this vision, the producer has no guiding role in the economy and thus does not play a *strategic* role. Rather, it is the consumer who plays the strategic role that directs production. The second concept, development (or dynamics), calls for the implementation of innovations, new combinations, which pull the economy out of the circular flow to which it would be limited in the former case (Marty, 1955: 78). Thus, innovation is central to Schumpeter's vision and his conception of the enterprise's strategy.

It is obviously the second concept that is of interest to us here. First, it should be underlined that Schumpeter only recognizes purely economic elements in order to break out of the circular flow: "to go from the circular flow to development requires a new combination of productive factors" (Perroux, 1965: 76) (translation). Thus, in terms of its form, development is defined as "movement, the pace of which is *discontinuous* and roots *economic*, away from a state of equilibrium,¹ or more briefly, as the spontaneous, discontinuous change in the channel of the circular flow" (Perroux, 1965: 76). (translation)

Development results from the carrying out of "new combinations," which covers the following five cases (ibid.):

1. "the introduction of a new good
2. the introduction of a new method of production;
3. the opening of a new market;
4. the conquest of a new source of supply of raw materials;
5. the carrying out of a new organization
(for example, the creation of a monopoly position)."

It is precisely the creation of this new combination which characterizes the "enterprise," in the Schumpeterian sense, and the specific function of the entrepreneur. Thus, the entire economic dynamic results from this fundamental event which, for Schumpeter, is the realization of the very role of the entrepreneur, that is, putting together new combinations of productive factors. Thus, as Perroux notes, "when we have understood

¹ Perroux's emphasis.



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the author's idea perfectly, all the events of "development" derive from the new combination" (1965:77). (translation)

2.2. Schumpeter's theory of the entrepreneur

We will now examine the Schumpeterian vision of the entrepreneur (whom he puts at the centre of this dynamic), which we see as being relevant to strategic management.

Of course, "the enterprise and the entrepreneur are unanimously considered to be the essential springs of the production mechanism, trade and distribution in a market-based economy...the underlying driving force of the modern capitalist economy...", writes Perroux (1965: 81). (translation) "The predominant action of the entrepreneur in the evolution of capitalism does not stem only from the fact that he uses new production methods, but more from the fact that his role in relation to the consumer – unlike that of the producer of the craft period – is active and not passive. The entrepreneur increasingly manages and creates the tastes and needs of the consumer. These tastes and needs, in the last stage of the evolution of the market economy, *are an element of production that is more determined than determinant*² (Perroux, 1965: 81). (translation)

However, Perroux goes on to ask: "What exactly are the enterprise and the entrepreneur?" (ibid.). In this regard, according to Perroux, "despite obvious advances, none of the main theoretical responses has won unanimous support" (ibid.). (translation) By following the path laid out by Perroux and Demaria, we will see how Schumpeter answers this question. Perroux has developed the answer along three main lines, that is, the vision of the enterprise as an institution, as a set of functions and, finally, the strictly Schumpeterian vision of the enterprise as an "essential function."

2.2.1. The enterprise as institution

Perroux points out that the enterprise can first be considered as an institution, "that is, as a stable and organized set of elements and relations formed with a view to carrying out the work of production." (translation) From this perspective, the concept of the enterprise obviously applies to any economic system. However, by applying it thus to any system, the common characteristics of "enterprises" become nothing more than "a residue that is so insignificant that one wonders if this does not actually hinder explanation and comprehension rather than facilitating it" (Perroux, 1965: 82). (translation)

It was in response to this type of criticism that economists, based on the fundamental positions of the German Historical School, came to define the enterprise within the boundaries of the capitalist economic system. From this second perspective, we are confronted with a problem that is opposite to the first one: in this case, the continuities inherent to the development of economic life are no longer explained. Thus, in this context, the enterprise is no longer a purely economic notion, but is understood as an

² This latter part in italics is taken from a text by Demaria, Giovanni (1929). Studi sull'attività dell'imprenditore moderno. *Rivista internazionale scienze sociali e discipline ausiliarie*. p. 42.



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element of a technical, legal, economic and social whole: "It is an institution that can only be understood amidst other institutions" (ibid.).

Perroux states that consideration of all these historical simultaneous elements leads us to the following master definition:

"The enterprise is a production organization in which the prices of various factors productive factors are combined, brought by agents who are distinct from the owner of the enterprise, with a view to selling a good or services on the market, to obtain, through the difference between two prices (cost price and selling price), the greatest possible profit"³ (Ibid.). (translation)

2.2.2. The enterprise as a complex set of functions

This second level of analysis is also relevant to bringing the Schumpeterian vision of the enterprise closer to the strategic vision of the enterprise and innovation. Perroux (1965: 84) first points out that the main functions of the enterprise are as follows: "the coordination of productive factors, their combination in determined proportions, the physical execution of such a combination by a permanent organization and, finally, the adaptation of the supply of the product obtained to demand." (translation)

To this list can be added the functions of the entrepreneur in administering the enterprise, as well as his social functions. Finally, it should be pointed out that the functions listed "can be carried out by a single or by several physical economic agents." (translation)

Many economists before Schumpeter adopted visions similar to this and, influenced by the tangible transformations of the environment as well as the analytical advances made, economists gradually clarified their theoretical views (ibid.). Thus, Locke defined "merchant;" the classical economists drew a portrait of the "master," that is, the provider of work, bringing out the dependence between the worker and the provider of work. Subsequently, the classical English economists, mainly Ricardo and his successors, up to Mill, presented the holding of capital and the exercise of the role of entrepreneur as two inseparable dimensions (Perroux, 1965: 85).

³ From "Sociétés d'économie mixte et système capitaliste." *Revue d'économie politique*. 1933. p. 1279.



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Later in France, Say emphasized the task of organizing as the essential function of the entrepreneur. Then, over the years, economic development led economists to become interested in the corporation. The appearance of the latter intensified the division between capital on the one hand, and organization and management on the other. Thus, as Perroux (1965: 86) notes, "while the development of capitalism defined the problem, it also gave it more depth and complexity." (translation)

Finally, the stage was reached where it was no longer necessary to acknowledge or deny that the essential task of the entrepreneur is to organize the enterprise. According to Perroux (1965:87), this is the point at which it must be determined "whether one of the above distinguished tasks merits the specific title of entrepreneur and if yes, to what exactly the title should apply." (translation) This is where Schumpeter comes into play. Indeed, Schumpeter considers the enterprise "neither as a legal-economic institution, nor as a complex organization which carries out a set of functions, but as an essential⁴ function of economic dynamics" (ibid.)(translation)

2.2.3. Schumpeter: the enterprise as "essential function"

Schumpeter derives his vision of the entrepreneur or business leader from the notion of "Führerschaft" which refers to the fact that "in all areas of social activity, the leader has a specific role" (Perroux, 1965: 87). The aptitudes of this leader essentially amount to initiative and will. This notion was transposed to the economic field by Schumpeter, thus deriving the notion of enterprise and entrepreneur. "The enterprise is the act of carrying out the new combinations of productive factors, and the entrepreneur is the agent whose function it is to carry them out" (Perroux, 1965 : 88). (translation) Thus, the concept of carrying out new combinations covers the following five cases:

1. "The introduction of a new good, that is one with which consumers, the clientele concerned, are not yet familiar (I).
2. The introduction of a new method of production, that is, one not yet tested in the branch of manufacture concerned (II).
3. The opening of a new market. Here we will introduce a restriction similar to the preceding ones. It is enough that it be a market into which the particular branch of manufacture has not previously entered, whether or not this market has existed before. (III).
4. The conquest of a new source of supply of raw materials, again using the word "new" in the same sense, that is, regardless of whether this source already exists. (IV).
5. The carrying out of the new organization of any industry, like the creation of a monopoly position, for example through trustification of an industry which had hitherto functioned under the system of free competition (V)."
(Perroux, 1965: 88) (translation)



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Thus, for Schumpeter, the entrepreneur is not the inventor who makes a discovery but rather the innovator, that is, the one who will introduce this discovery into the enterprise, industry, and economy – the one who is, strictly speaking, responsible for the innovation. From this perspective, “the specific function of the entrepreneur is thus to *overcome a resistance*⁵” (ibid.). (translation) Various types of resistance can be identified. (ibid. and Marty, 1955: 80).

First, obstacles of an objective nature should be isolated, those linked to the nature of the innovation process and to the fact that time and habit have created an “economic automatism that the entrepreneur must break” (ibid.). (translation) Then the entrepreneur must overcome obstacles of a subjective nature, that is, he must make an effort to “escape from the habitual.” (translation) Finally, and these are the types of resistance of more interest to us, forms of social resistance must also be overcome. Marty (1955: 92) indicates that this last set of resistances can be analyzed according to three aspects: resistance from consumers, resistance from other firms and finally, resistance from occupational groups.

Nevertheless, it is the notion of the enterprise and the entrepreneur-innovator that allows Schumpeter to construct theoretically his whole vision of “development” as opposed to “circular flow,” which is merely identical reproduction, automatism and habit. However, a number of characteristics distinguish the Schumpeterian entrepreneur from others. Following the example of Marty (1955), we will examine the following three aspects: the entrepreneur’s function, the underlying motivation for his conduct, and the specificity of his function.

2.2.4. The function of the entrepreneur

As regards function, it is the following characteristic that really defines the Schumpeterian entrepreneur: “he is the only promoter of innovation” (Marty, 1965, 79). (translation) According to Schumpeter, the economic life “is directed by human decisions and not by principles, by entrepreneurs and not by engineers or abstract social classes” (ibid.).(translation) In this respect, Schumpeter’s theory is fundamentally different from both neo-classical theory and Marx’s evolutionism, for example.

Schumpeter’s theory can also be distinguished from the traditional vision of economics in which the entrepreneur is an operator, an autonomous producer. According to Schumpeter, “as it is the carrying out of new combinations that constitutes the entrepreneur, it is not necessary that he should be permanently connected with an individual firm” (Marty, 1955: 79).

⁵ Here the emphasis is ours.



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Thus, according to Schumpeter, it is the specificity of the function and its real exercise that earn the individual the title of entrepreneur: "everyone is an entrepreneur only when he actually carries out new combinations, and loses that character as soon as he has built up his business, when he settles down to running it as other people run theirs,"⁶ that is, as a simple "businessman" using pre-existing combinations of factors.

2.2.5. The motivation of the entrepreneur

According to Schumpeter (1935: 358), "the typical entrepreneur does not ask himself if each effort on his part guarantees him a sufficient surplus of pleasure; hedonistic satisfaction from his acts is of little concern; he creates tirelessly because he can do nothing else." (translation) The Schumpeterian vision can thus be distinguished from the vision of the rational, hedonistic entrepreneur of classical economics. Indeed, Schumpeter maintained that, hedonistically, the entrepreneur is "driven by a set of irrational motives, including the following three main ones: the desire to found a private kingdom; the will to conquer and the desire for victory in which economic action becomes akin to sport; and, finally, the joy of creating, of getting things done, of exercising one's energy and ingenuity. Only the first motive is directly related to the institution of private property" (Perroux, 1965: 93). (translation)

Thus, it can be seen that Schumpeter introduces psychological dimensions into this explanation of the "activism" of entrepreneurs. According to Perroux (1965: 94), this gives the vision of Schumpeter "more precision and greater theoretical impact" than that of Marshall who, from 1907 onwards, began to develop a similar conception of the entrepreneur. Perroux adds: "This theory of the entrepreneur and the enterprise cannot be faulted for lacking originality or the power of suggestion. This pure expression of economics is an ode to the modern enterprise."(translation)

2.2.6. Innovation: the specific function of the entrepreneur

The specific function of the Schumpeterian entrepreneur is to innovate and in doing so, to overcome a whole set of resistances, which were referred to earlier. It should be pointed out that this entrepreneur is not the one who assumes the risks; contrary to what has been said by many modern theorists, the Schumpeterian entrepreneur is not a "risk-taker" (Marty, 1955: 80), and it is precisely on this point that many criticisms are levelled at Schumpeter. In fact, for both Marty and Perroux, as for many others, without a doubt, the most serious deficiency of Schumpeter's model is that it does not include a risk-taking agent.

Although Schumpeter distinguishes between the entrepreneur and the operator (who is content to intervene in the context of the "circular flow," the boundaries between them are not always clear. Thus Schumpeter (1935: 553) states: "The appearance of one or more entrepreneurs makes it easier and thus gives rise to the appearance of different and still more numerous entrepreneurs." (translation) However, Marty (1955:81) asks, "to what point is the classical entrepreneur maintained? Are certain imitators entrepreneurs?" (translation)

⁶ Ibid. p. 336, cited in Marty, 1955: 79.



Marty (ibid.) also wonders what becomes of the operator in a dynamic context:

"Is he eliminated by the entrepreneur? Even when the entrepreneur is given credit, the carrying out of innovation requires the co-ordination of productive factors, that is, of the enterprise's property. How can this be reconciled with the statement by Schumpeter that the function of the entrepreneur is independent from the holding of any capital?" (translation)

Schumpeter responded to the criticisms made in this regard in his book "Business Cycles":⁷

"Nobody ever is an entrepreneur all the time, and nobody can ever be only an entrepreneur. This follows from the nature of the function, which must always be combined with, and lead to, others. A man who carries out a "new combination" will unavoidably have to perform current nonentrepreneurial work in the course of doing so."

Although Schumpeter responded to his critics, Marty considers (ibid.) that "Schumpeter, in his response, renounces one of the aims of his theory – to bring out an essentially pure function." (translation) In fact, the function of the entrepreneur-innovator thus combines with other functions, in particular, administrative ones. In any case, all of this seems highly relevant to the analysis of strategic management.

2.3. Theory of innovation

Although, as we have seen, Schumpeter's theories of the entrepreneur and of innovation are tightly intertwined, certain elements of his specific perspective on innovation should be brought out since this is of particular relevance to strategic analysis. Thus, we will examine innovation as a specific process, one that is distinct from the combinations commonly carried out in the production process.

Once again, we should refer to the two concepts that Schumpeter considers to be fundamental to economic life – circular flow and dynamics. In fact, although production is nothing other than a particular combination of productive forces, defined as coefficients of production or functions of production linking input and output, innovation must, in the context of this definition, show certain distinctive features.

⁷ This quote, taken from page 103 of this volume, was cited in Marty (1955: 87).



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Thus, as Marty (1955: 87) points out, in the circular flow, as defined by Schumpeter, “industries of the same sector have identical productive combinations and costs.” (translation) Then, according to Schumpeter,⁸ “whenever an economy or a sector of an economy adapts itself to a change in its data in the way that traditional theory describes, whenever, that is, an economy reacts to an increase in population by simply adding new brains and hands to the working force in the existing employments...we may speak of the development of an *adaptive response*.” In this situation, the productive combination remains effectively unchanged; it is merely an adaptation.

2.3.1. Definition and specific nature of innovation

Conversely, innovation is characterized by “the carrying out of new productive functions” (Marty, 1955: 87) or, as Schumpeter puts it, “whenever the economy or an industry or some firms in an industry do something else, something that is outside of the range of existing practice, we may speak of a *creative response*.”⁹ However, Marty (ibid.) specifies that innovation could occur from within itself and not as a response to an event. He therefore states that, “if at a given moment, the same quantity of a good costs less than previously, we can be sure, if the cost of productive factors has not decreased, that there has been an innovation in the productive process” (ibid.). (translation) Price variation is thus a manifestation of innovation; however, it is apparently neither the purpose nor the strategic goal, at least this is what we infer.

However, since the definition of innovation as the application of new productive functions may cover quite a range of phenomena, we should specify what is meant by this. It is here that the following main categories of phenomena identified by Schumpeter as being innovations come into play:

“...the introduction of new products (which may even be considered as the standard case), technical changes in the production of a good that is already being consumed, the opening of new markets and a new source of supply, the Taylorization of work, improved distribution, the establishment of a new business organization such as chain stores, in brief, some way of doing things differently.”¹⁰ (translation)

⁸ Schumpeter, J. (1947). “The Creative Response in Economic History,” in *Journal of Economic History*. Nov., p. 150., cited in Marty (1955: 87).

⁹ Ibid., cited in Marty (1955: 87).

¹⁰ Quote from *Business Cycles*, p. 84, cited in Marty (1955: 88).



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Moreover, the specific characteristics of innovation are defined as follows (Marty, 1955:88):

1. "it is unforeseeable: "the second kind of reactions is not gripped by our analytic machine...they cannot with any certainty be relied on to happen, or be predicted to happen, in any definite way in practice."¹¹ It can be understood ex post, but never ex ante;
2. it presumes the appearance of a new type of individual possessing special qualities;
3. it requires the creation of new firms;¹²
4. there is no linkage that can connect it to the situations that would have existed in its absence;
5. it is distinct from invention, and the innovator can be distinguished from the inventor." (translation)

It will have been noted more particularly here that innovation requires the creation of new firms. Indeed Schumpeter does not take into account innovation in existing enterprises; according to certain authors (Lange), he even wished to deliberately "ignore" this possibility. Indeed, it should be noted that Schumpeter's theory was developed during a historical period in which enterprises existed mainly in a competitive environment made up of many SMBs. Oligopolies and monopolies had not yet become as widespread a phenomenon as they would later, which may to a certain extent explain this "negligence" (whether intentional or not) on the part of Schumpeter. In an economy of monopolies and cartels, it must be recognized that large enterprises (even more than small ones) can also be a source of innovation. However, it may be said that, in this case, the innovation function must exist in a non-bureaucratized environment, one that is permissive as regards innovation. We will now conclude our analysis by examining Schumpeter's contributions as well as the criticisms that have been made of his work.

2.4. Contributions and criticisms

Throughout our presentation, we have referred to certain criticisms of Schumpeter's theory. Therefore, we will only deal here with those aspects that appear to be the most important from the perspective of the development of an economic vision that is complex and more realistic than the orthodox vision of innovation and thus better adapted to the strategic management of an actual enterprise.

¹¹ Schumpeter, J. (1927). The explanation of the Business Cycles. *Economica*., Dec. p. 292.

¹² *Business Cycles*. pp. 94-96.



2.4.1. Criticisms by authors

A first criticism, one which seems to be very important, is that Schumpeter does not analyze “the social conditioning of economic phenomena” (translation) and that he does not consider “institutions.” According to Marty (1955: 76), two authors in particular – Ammon and Perroux -- have criticized Schumpeter in this regard. Indeed, it may be said that the Schumpeterian vision sees only a simple combination of factors in the enterprise or production, leading to a specific product. According to Perroux, “in the most liberal and individualistic, the most atomic of economic societies, productive work is never accomplished through the simple and spontaneous combination of pure exchanges.”¹³ (translation)

In this regard, the three concepts of enterprise mentioned above should be recalled, that is, the enterprise as an institution, as a set of functions and, the Schumpeterian vision – the enterprise as an “essential” function centred on innovation.

It is true that Schumpeter does not focus much on developing the theme of the power relationship that can exist in the enterprise – nor does he develop the theme of existing links between the operator, the entrepreneur-innovator and the workers who actually carry out the production or innovation. Perroux considers that the function of authority as well as the income associated with it should have been the subject of theoretical analyses because these elements must appear in any circular flow, “if such an analysis is not limited to outlining mechanical adjustments to the flow, but offers a simplified image of the relations between individuals living in society.”¹⁴ (translation)

Another criticism of Schumpeter’s theory concerns its scope of application and the fact that his vision is based on innovation in “new” enterprises while overlooking innovation within existing companies. It should also be recalled that some authors believe that the scope of his theory was restricted to competitive capitalism. While the first limitation may have been “ignored” by Schumpeter, the latter limitation was clearly acknowledged by the author. In fact, he indicates that “the innovations in competitive capitalism are personified by the establishment of new firms.” However, he adds “that all of this is different in a “trustified” or concentrated capitalism; in which case, innovation is not typically contained in new firms, but functions with large existing units in a way that is generally independent of individuals.”¹⁵ (translation)

¹³ Extract from Perroux. *Les trois analyses de l'évolution*. Isea. T. IV, No. 2, p. 281, cited in Marty (1955: 76).

¹⁴ Again, this is an extract from the article by Perroux, cited earlier in Marty (1955: 76), but on page 282.

¹⁵ Schumpeter, J. (1928). The Instability of Capitalism. *Economic Journal*. Sept., p. 384, cited in Marty (1955: 89)



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In light of these extracts, it seems more appropriate to consider that, although Schumpeter's work indeed fits within a historical period and is inspired by the realities of this era, it can nevertheless still be applied to other time periods. In fact, it may be that the function of innovation or enterprise (some would say "intrapreneurship" today) may be assumed within large organizations -- provided that they are not too highly bureaucratized and leave enough room for initiative on the part of managers.

A final criticism, which also relates to the scope of Schumpeter's theory, concerns the very definition of innovation or new combinations envisaged by Schumpeter in his analytical framework. This criticism has been made by two authors, Böhm-Bawerk and Kierstead. Böhm-Bawerk maintains that Schumpeter is wrong to limit his study to "new combinations which have not yet, on account of imitators, become part of the routine." ¹⁶ (translation)

Kierstead maintains that the concept of innovation (or new combinations) is too narrow, not as it is defined, but in the way it is used by Schumpeter:

*"For Schumpeter, profit is linked by definition to innovation; it is the profit that an entrepreneur can make by lowering his production costs to below those of his competitors...But in the model, the costs may only be lowered to below the competitive level by introducing some production technique that has not been used previously, in other words, through innovation. Thus, for Schumpeter, profits are only a dynamic phenomenon. They are only possible in a dynamic society, and this possibility motivates development. This implies that Schumpeter, despite his recognition of the fact that innovation can take the form of the introduction of a new good, in fact, still considers it to be a new and cheaper way to produce goods."*¹⁷ (translation)

We believe that Kierstead's interpretation of Schumpeter is incorrect and favour a different interpretation that allows for the view that "profit in the Schumpeterian sense can result from introducing a new good on the market." (translation) Moreover, according to Marty (ibid.), "Schumpeter mentions this explicitly, both in "Business Cycles," and in his "Theory of Economic Development." " (translation) This is actually the same as our own interpretation of Schumpeter, all the more so because for us, one of Schumpeter's main contributions is to have brought out the multiplicity of forms that innovation may take: process innovations, but also product innovation, organizational innovation, new markets, new materials, etc. This leads us to our analysis of the contributions and limitations of Schumpeter's work from the perspective of our own analysis.

¹⁶ Cited in Marty (1955: 90).

¹⁷ Kierstead (1949). *Theory of Economic Change*. Macmillan. p. 96, cited in Marty (1955: 91)



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In our view, the highlighting of the different possible forms that innovation can take, or the multiplicity of new combinations that can be carried out, is certainly one of Schumpeter's greatest contributions. This aspect is all the more interesting because economists have generally tended to limit themselves to process innovations or changes in production processes.

For us, Schumpeter's ability to take into account the different forms of innovation is a great analytical quality, all the more so because we believe that the relative importance of any of these forms may vary from sector to sector and from era to era. The meaning, scope and consequences of innovation can be radically different from these various perspectives and we believe that it is important to develop an economic theory of innovation that can encompass all of these phenomena.

A second and highly important contribution, particularly from the perspective of strategic management, is the fact that Schumpeter considers that the economic life society is directed by human decisions and not by principles, by entrepreneurs and not by engineers or abstract social classes. Here again is an important contribution, especially if this model is compared with the neo-classical model of the entrepreneur-engineer or accountant, who combines productive factors in a rather passive manner. We will come back to this contribution by Schumpeter in our conclusion in which we attempt to develop a model of strategic analysis of innovation and HRM.

A third element of Schumpeter's theory which is of great interest to us is his vision of the entrepreneur as "mediator." As Perroux explains (op.cit.), "Schumpeter's dynamic entrepreneur, who gambles on new structures, presents a challenge to the accountant," (translation) this accountant who characterizes the orthodox economic vision and who provides the basis for the micro-economic analysis of the enterprise in terms of management faculties. This is a highly interesting contribution from the point of view of strategic management since it presents a vision of the entrepreneur as "actor," innovator and strategist making management choices. It is on this basis that we propose to develop the analysis.

As for the criticisms of Schumpeter's work, we would simply like to point out that he perhaps puts too much emphasis on the price-costs theme, which dominates the *effects* of innovation, to which Schumpeter pays little attention, if it is not in terms of the "creative destruction" of enterprises. To a certain extent, the enterprise itself remains a "black box" in which factors are combined and in which, in our view, the human resources "factor" is rather neglected. Moreover, it is precisely in relation to this point that we will try to complete Schumpeter's construction, from the point of view of the strategic management of human resources in the context of innovation.



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Indeed, it seems that he rather neglects the dimension of “labour” and “human resources,” while this dimension has emerged as an increasingly important aspect in the analysis of technological change and innovation. Thus, we will attempt to give it a more important place in our own model. In fact, although Schumpeter made reference to a possible resistance from “occupational groups,” in our opinion, the linkage between human resources and innovation, or the mediations that can be carried out between these two aspects by enterprises/ entrepreneurs have not been sufficiently developed.

3. The evolutionary analysis of innovation

It should first be noted that the evolutionary analysis of innovation is not only centred on the more micro-economic dimension, on which we focus here. It also includes the macro-economic dimension, that is, essentially the contribution of innovation to economic growth, the process of the dissemination of innovation from one industry to another and so forth – which we will not examine in this text.¹⁸ We will focus instead on the micro-economic dimension of this theory, which appears to constitute a theoretical foundation that is relevant to strategic management.

3.1. Innovation as a process

One of the main characteristics of evolutionary analysis is that it views innovation as a *process*. Although this may seem trivial, orthodox economic analysis specifically ignored this aspect and viewed innovation and technological change more like a “black box” (*cf.* Rosenberg). In contrast, the evolutionary economists emphasize the very process of innovation, which they consider to be at the centre of the technological dynamic and global economic dynamic, particularly through its effect on the phenomena of growth and crises.

The evolutionary economists, particularly Christopher Freeman (1982), refer more specifically to the “coupling process.” They refer to a “process that gives impetus, receives impetus, and links up new technical ideas and markets” (Le Bas, 1995). (translation) For another evolutionary economist, Giovanni Dosi (1988), innovation is a process of problem-solving. Like Freeman, Dosi rejects the idea of perfect knowledge of technology, which comes out of the orthodox vision of “blueprints” or technological formulas. Both authors consider this notion to be as far removed from reality as the notion of equilibrium, which is not saying much.

The process of innovation is also situated within an organization, an enterprise, which brings the institutionalist analysis closer to the Schumpeterian vision. While in a previous period, innovation tended to be seen as the purview of craftspersons-designers, the evolutionary economists link innovation to the enterprise, which, since the late 19th century, has effectively been the primary place of creation and innovation.

For Schumpeter, small and medium-sized enterprises were at first the primary place of innovation, while over time, the concentration of capital led to the dominance of large

¹⁸ Besides the original works by the evolutionary economists, in particular Dosi (1988), and Nelson and Winter (1981), we draw more specifically on the synthesis by Le Bas (1995).



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enterprises and their R&D departments. The evolutionary economists, in contrast, maintained that these two settings (SMBs and large enterprises) do not necessarily follow each other but can, on the contrary, co-exist. This seems to correspond to the current reality in which, depending on the industry and the maturity of the industry concerned, SMBs or large enterprises may dominate the innovation process.

Dosi (1988) has suggested, moreover, that these two systems of innovation (traditional or routine) may very well be explained by the particular stages of an industry. For example, Dosi notes that in the emerging stage of an industry, innovation tends to proceed by trial and error; entrepreneurs take risks, new technologies appear and the latter give rise to the creation of new enterprises. In the maturity phase, which is generally characterized by an oligopolistic organization of the market, technological changes and innovation in general constitute competitive tools. Innovation and technological creation become endogenous to the enterprise and more general economic mechanisms.

Thus, we are faced with two Schumpeterian models of the innovative enterprise, two models of the innovation process. In the case of SMBs, what seems to apply more accurately is the model of the inventor, or creative genius, where innovation takes place in a context of great uncertainty. In the case of large enterprises, on the other hand, innovation tends to be a routine process, carried out more systematically in an R&D department.

In the evolutionary analysis, innovation is also seen as a *social* process, which is related to both technologies or technical systems as well as product markets, the labour market and the economy. Since the process of technological innovation is connected to these sets of *social facts* (LeBas, 1995), it is risky, though not entirely so.

3.2. Innovation as a learning process

Another fundamental characteristic of the evolutionary vision is perhaps the very aspect for which the evolutionary analysis is best known, that is, the fact that innovation is considered as a learning or cognitive process. Very many evolutionary economists (Dosi, Freeman, Nelson and Winter, etc.) have thus examined innovation as a cognitive process and it is this aspect of their work that has been most successful and has been referred to in many subsequent studies.¹⁹ This vision refers to the idea that an organization that innovates makes adjustments and evolves. Learning is seen as a cognitive process and thus irreversible and “path dependent,” that is, dependent on its past evolutionary path.²⁰ In other words, history counts!

¹⁹ See, for example, the texts by Villavicencio, Ruffier, Tremblay and Rolland, in Tremblay, D.-G. (ed.) *Innovation, technologie et qualification; multidimension et complexité du phénomène de l'innovation*. À paraître en 1996, aux Presses de l'université du Québec. Collection de l'Association d'économie politique.

²⁰ On this notion, see the introduction written by the author in Tremblay, D.-G. (ed.) (1995). *Concertation et performance économique. vers de nouveaux modèles ?* Québec: Presses de l'université du Québec. Collection de l'Association d'économie politique.



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As Rosenberg (1982) and others have noted, the forms of learning may vary : learning within the enterprise and without, learning by using or learning by sharing. Thus, the technological trajectories of a firm or an industry result from learning that occurs in the firm or the industry (Pavitt, 1984, 1989; Le Bas, 1995).

This learning process allows firms to choose the best strategies, in fact, those that they consider to be the most satisfactory in terms of their goals. Here again, it should be noted that this is quite different from the orthodox vision which is based on optimization. The evolutionary economists consider that optimization requires highly complex calculations which would not be within the scope of human knowledge and therefore they reject this vision of the enterprise in favour of a more realistic vision according to which enterprises seek to achieve “satisfactory” rather than “optimal” goals (Coriat and Weinstein, 1995; Le Bas, 1995). Moreover, other economists who have studied information, in particular Herbert Simon (1955), have emphasized that entrepreneurs tend to maintain the practices they find satisfactory, or established routines, unless they feel threatened by external shocks, due precisely to problems in obtaining relevant information and the high costs of processing this information.

Thus, the innovation process basically involves learning, knowledge, know-how, abilities and aptitudes (Winter, 1987). This learning and knowledge are not all formal and explicit, but may just as well be implicit and informal, which can be clearly seen in the Japanese model of the firm.

3.3. Innovation as a complex interactive process

Finally, innovation is seen as a complex interactive process. In contrast to the linear, sequential model of orthodox theory, that is, the “scientific push” thesis, according to which scientific discoveries naturally flow towards the market and are spontaneously adopted, evolutionary economists emphasize the effects of “loops” and feedback on the complex, interactive flows and transfers of information within the firm. Kline and Rosenberg (1986) thus put forward a “chain-linked model,” which takes into account the loops and feedback between the functions of product design, manufacturing, marketing, etc.

This model shows the close interactions between scientific research and other aspects of innovation. For example, R&D engineers work closely with production workers and marketing staff. In this model, emphasis is put on the important role of the actors, who learn within the context of the innovation process and who co-operate and participate in this process. Moreover, these actors act within the scope of a firm’s given environment and this environment must be seen as intervening in the innovation process, and not as an external fact, as it is portrayed in the orthodox vision. Here again, the model of the Japanese firm comes to mind.²¹

In the Japanese organization, there are close links between R&D, engineering and manufacturing, and these links are reflected not only in important exchanges of

²¹ Tremblay and Rolland (1996a).



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information, but also through staff exchanges and a degree of inter-group mobility. In the Japanese firm (J firm), the organization of work and the co-ordination of activities tend to have a horizontal structure while in the American model of the firm, hierarchy prevails. Indeed, in the A firm (American), learning is concentrated at the top of the hierarchy, information is centralized, the structure of information circulation is essentially vertical and there is no mechanism aimed at motivating employees at the bottom of the hierarchy to share information and co-operate (Tremblay and Rolland, 1996, 1996a).

In the Japanese organization, information can be processed more quickly and thus the firm can react more effectively to external shocks, specifically through innovation, which is stimulated by a decentralized organization of production and exchanges. The process of information circulation and innovation in which Japanese workers collaborate basically relies on the skills, learning and knowledge of the latter, their capacities for information processing having been developed by the Japanese organization. In this regard, it should be noted that many evolutionary economists, including Dosi, maintain that differences in the performance of various firms can be explained precisely by the diversity of skills brought together and developed by these firms.

Human resources management (HRM) methods can either stimulate or hamper the dissemination of information and innovation within the enterprise (as it can between enterprises). Thus, in the J model, HRM policy discourages researchers and engineers from leaving the firm, which slows down the dissemination of information and knowledge outside the firm. On the other hand, the limited external circulation of information encourages the internal circulation of information and innovation. (Tremblay and Rolland, 1996, 1996a)

While we will not analyze the Japanese firm in depth here – since it is not the primary goal of this text – the case of the J firm provides a good illustration of the evolutionary vision of innovation.



**4. Conclusion: toward a Strategic “multidimensional” model
of the analysis of innovation**

Before presenting the “multidimensional” strategic model that we would like to propose based on our review of the various economic theories of innovation, and more particularly Schumpeter’s theory, we will first summarize the contributions and limitations of these theories. This will allow us to demonstrate how Schumpeter’s vision opens the way to a strategic vision of innovation and HRM and how it differs from that offered by orthodox economic theory.

4.1. Summary of the contributions and deficiencies of the theories studied

We will present three main characteristics of the neo-classical theory of innovation, with which we will contrast a more complex vision inspired by Schumpeterian and evolutionary theses.

4.1.1. The definition of technology

These theories can first be distinguished from each other by their definition of technology. According to neo-classical theory, the meaning of technology is limited basically to a new production process which is completely finished and takes the form of durable capital goods. In contrast, in Schumpeter’s vision, this “first hypothesis” of the neo-classical model is removed. In fact, technology takes on a much broader meaning than simple process innovations.

Thus, the first and fundamental contribution from the point of view of our own research is without question Schumpeter’s theory of innovation, and especially the opening created through his identification of different forms of innovation, more specifically, product innovation and organizational innovation. As was already mentioned, and as we will demonstrate below, this aspect appears to constitute an important contribution to the economic theory of innovation, one that has unfortunately been rather neglected in subsequent works by economists. In fact, as Stoneman (1987: 84) and Eliasson (1987: 109-110) note, in economic theory, innovation is usually understood in the narrow sense of process innovation, that is, the innovation of the technical production process. While the “product innovation” dimension seems to be considered increasingly important by certain researchers working on the third sector in particular, it has generally been neglected in economic theory (Eliasson, 1987: 109; Bertrand et Noyelle, 1987; Tremblay, 1986).

It is from this perspective that we are preserving Schumpeter’s proposition -- that is, that there is a multiplicity of forms of innovation, or possible “new combinations” -- in our own vision and our eventual model of the innovation process. Drawing on the works of Schumpeter, the evolutionary economists also propose a broader vision of innovation.



4.1.2. The importance of “milieu” or context in the innovation process

The second element that differentiates orthodox theory from the “less orthodox” theories that we have examined in this text is the importance attributed to the environment, context or “milieu.”²² Thus, we found that the milieu or context in which innovation is disseminated is not seen as important in the neo-classical analysis. Indeed, the latter theory pays little attention to the very process of innovation, but more to its causes and results, results that are themselves defined rather narrowly, as we will see further below.

In any case, it remains that the neo-classical vision is based on a “given” economic structure which must adjust to the innovation process. The characteristics of the milieu are not considered as elements that can influence the outcome or results of the process. Rather this process and the elements that influence its course are seen as a sort of “black box.”

In contrast, the evolutionary economists pay particular attention to this milieu or institutional context. Thus, we can do away with this second “implicit hypothesis” of the neo-classical model, whereby the institutional context and the milieu in which innovation is disseminated have no effect on the outcome of the process, since they are simply not taken into account in the analysis. Evolutionary economists situate innovation in the firm but do not isolate it from its environment.

As regards the possible “reactions” of the milieu, it should also be recalled that Schumpeter included in his analysis a vision in which “resistance” can emerge. Although we have criticized the lack of attention paid to possible resistance from “occupational groups,” and the almost exclusive emphasis on the consumer, this is nevertheless an important dimension. The identification of the possible forms of resistance to innovation should thus be included in any theoretical model of the innovation process.

If we add to this element the fact that Schumpeter considers economic life to be directed *by human decisions* and not by principles, by *entrepreneurs* and not by engineers or abstract social classes, this gives additional support to a more *evolutionary*, more *open* vision of the innovation process, a vision in which the actors (the entrepreneur, those who “resist” innovation, etc.) can influence the process itself and its outcome. It should also be recalled that Schumpeter saw the entrepreneur as a “mediator,” which is, in our view, another very interesting aspect of his construction. This more open vision of innovation is thus closer to the model that we would like to propose.

For their part, the evolutionary economists treat innovation as a social process, a learning process and a complex interactive process. All of this also puts emphasis on the mediations, loops and feedback that occur in the enterprise, and on the active role of the entrepreneur, but also of the workers. In fact, the contribution of the evolutionary

²² Once again, we are using terminology drawn from Bartoli (1986) and Perroux, to which we will return in more detail below.



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economists consists more particularly in bringing out the role of production workers and of the enterprise. This leads us to a third element that can be used to distinguish neo-classical theory from the theories that were subsequently presented – that is, the vision of the “results,” consequences or outcome of the innovation process.

4.1.3. The consequences or outcome of innovation

Since neo-classical theory basically limits the outcome of innovation to the innovation of process, it is not surprising to note that it therefore refers to a “new” production process. In other words, according to this theory, change brought about through innovation (of the process) amounts to a capacity to renew production as a function of the new technique. In our view, this is a somewhat deterministic vision of technological change, or of innovation, all the more so if we consider that this model does not give any place to the possible role of the milieu or the institutional context.

Just as the first two fundamental “hypotheses” of the neo-classical approach to innovation have been removed, the third may also be removed, based on the writings of Schumpeterian and evolutionary economists. Indeed, if the active role of the entrepreneur is acknowledged, including his role of “mediator,” as well as the possible resistance of certain groups, the possible tensions between the institutional context and innovation, and of course the multiplicity of forms of innovation, it must also be acknowledged that the result of innovation cannot be limited to a new production process, that is, to a renewed productive capacity. It must therefore be recognized that the process and the “contextual dynamics” of this process deserve more attention than they have been given by orthodox economists. This would be more akin to the evolutionary economists’ vision.

4.2. Toward a “multidimensional” model

Thus, there are three main deficiencies in the orthodox economic model of innovation, which seems somewhat restrictive or insufficiently developed in specific relation to the *process* of innovation. To fill in these gaps, we examined the theoretical proposals of Schumpeter and the evolutionary economists, and we believe that this has led us to a model that is both strategic and multidimensional. In fact, these authors have enabled us to construct a model that integrates institutional dimensions, a multiplicity of forms of innovation, as well as a role for the actors in the innovation process, that is, the possibility of implementing strategies.

To pursue this further, we drew on the labour economics literature in order to add a “human resources” dimension to our analysis. Thus, based principally on the writings of Bartoli (1986) and Perroux (1974), we attempted to complete and refine the model developed up to this point using “theories of innovation” while adding to them the “human resources” dimension, which seems to have the potential to make an essential contribution to strategic analysis. In fact, we wish to broaden the theory to process innovation, as well as product innovation, but especially to introduce the strategic dimension of human resources, which is somewhat neglected in the models presented above, with the exception perhaps of the evolutionary vision.



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Thus, the productive capacity of the enterprise would be renewed just as much, or even more, through the contribution of human resources than through that of new technologies. At least, this is what is suggested by the evolutionary theories as well as our own research on innovation (Tremblay, 1989, 1992, 1995) and on the Japanese firm (Tremblay and Rolland, 1997, 1996).

It is only by taking into account this context of the enterprise, but also the broader institutional context, that innovation can be understood and analyzed as one of the vectors (the other being human resources management) of the reorganization of the employment system of a given organization. Thus, the signals transmitted by the different elements that we have brought together under the title of "contextual dynamics"²³ play a fundamental role in the development, rhythm and forms of process innovation as well as product or organizational innovation. It should also be recognized, as the evolutionary economists suggest, that the innovation process is not one-to-one (innovation-> employment "impact"), but brings into play multiple elements, mediations and feedback effects, finally leading to a "result" in terms of process and product innovation and a redesigning of the employment system.

The evolutionary economists and Schumpeter have enabled us to bring out the complexity of these combined mediations and effects of different variables in the form of a "multidimensional" model (Tremblay, 1989, 1992, 1995). To conclude the presentation of our economic vision of the innovation process, we present this model briefly in the following paragraphs.

Two diagrams will be used to briefly present this model. Diagram 1 shows the main elements of the "contextual dynamic" of the innovation process. It should be recalled that the main purpose of our proposed interpretation in terms of "contextual dynamics" is to underline the fact that the milieu in which the innovation is disseminated has an effect on the course and the very process of innovation. As Bartoli (1986) and Perroux (1974) indicate, the importance of the theory of the milieu of dissemination is that it filters, distorts, amplifies, slows down, activates, etc. innovation. Thus the process must truly be envisaged as a dynamic, with the constant effective action of exogenous variables and factors, that is, what the neo-classical economists call "data".



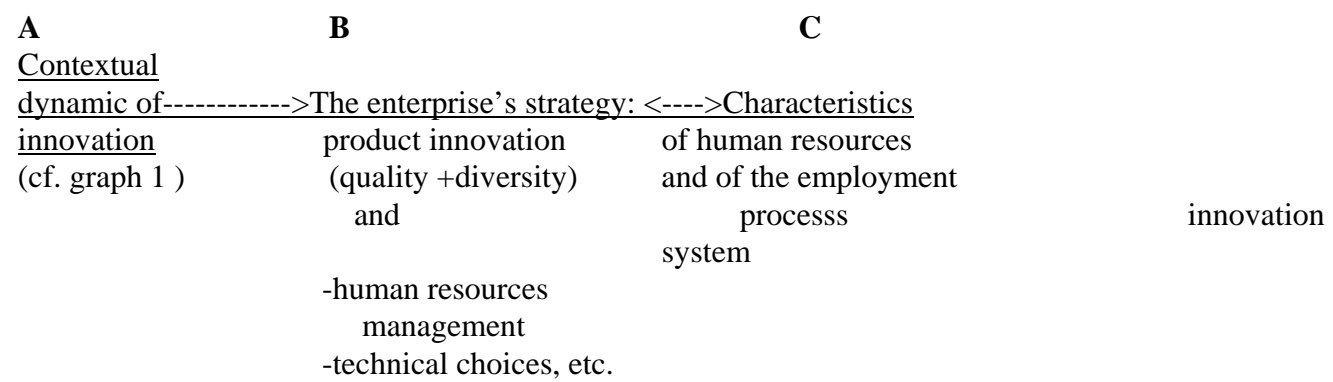
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Diagram 1. Contextual dynamic of innovation

Labour market
 Product market
 Public policies
 Technology (set of possibilities) _____>>Innovation (process and product)
 Globalization
 Forms of competition
 Behaviour of enterprises and households

If we wish to include in this model another element of the institutional dimension, "human resources," we must broaden our analytical scope. The following diagram presents our vision of the strategic process of innovation, and more particularly the tensions and mediations that may be associated with it, particularly through the integration of the active role (as innovator and mediator) of enterprises, which therefore play a truly strategic role.

Diagram 2. The Innovation Process



Source: Tremblay (1989, 1992, 1995).



Let us add a few elements on "modules" A, B and C:

A-Module A represents the contextual dynamic of innovation, including globalization, labour market policies, development of the product market, public policies, competition, technology and the behaviour of firms and households-consumers. We believe that the strategies of enterprises, including innovation, the topic of this text, are defined in this general context.

B- Module B is where the strategic vision of the enterprise emerges. It is the place where mediation and compromise between A and C occur and where the tensions between A and C are eventually expressed. The strategic management of human resources will thus be the product of mediation and the search for compromise, which will be translated in the overall strategy of the enterprise and in its specific strategies concerning both human resources and technical choices. We see the strategy affecting human resources as it is illustrated in Bartoli's (1986: 43) diagram, that is, including choices and feedback effects related to work organization, occupational training, external and internal mobility, remuneration of workers, as well as communication and collaboration. In Bartoli's model, all these elements may constitute "nodes of tension," that is, the tensions are expressed in the exercise of these diverse functions by the enterprise.

C-Module C represents the characteristics of the system of employment and human resources. These should be seen both as constraints (or assets, as the case may be) influencing the decisions made or strategies chosen by the enterprise – both in terms of human resources management methods and technical choices – and as a "result" of these same strategies, which are regularly redesigned, taking into account the development of the dynamic of the milieu in which the enterprise operates.

Thus, we retain only Module B, that is, the one representing the enterprise's strategy and the place where the tensions between modules A and C are expressed. These tensions occur between the forces of the contextual dynamic of innovation and the characteristics of the employment and labour system that exist within it. This is where mediations occur and where an overall coherence may eventually be established.

To conclude, it should be underlined that heterodox economic developments (in particular, those of Schumpeter and the evolutionary economists) provide the basis for constructing an economic vision of the innovation process that is both more strategic than the standard model, but also more complex and, to a large extent, more multidisciplinary -- and, as a result of all of this, more realistic.

With regard to the strategic management model as such, it can perhaps be said that we link the enterprise's strategy to quite a wide range of factors (those listed in Diagram 1), while several models of strategic management, and of strategic human resources management in particular, are more limited. This is true of the models proposed by Fombrun, Tichy et Devanna (presented in Bélanger *et al*, 1988: 16) or even the model developed by de Beer (presented in Bélanger *et al*, 1988: 17 and Tremblay and Rolland,



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1998). Of course, this text does not represent a final conclusion but rather the beginning of a reflection on the various visions of innovation, from the point of view of the economics and management disciplines.

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