

TACIT KNOWLEDGE IN THE ALGERIAN INDUSTRIAL SMES: ELEMENTS OF LOCATION AND CAPITAL TO MOBILIZE FOR INNOVATION

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Abstract *With the emergence of the evolutionary approach, tacit knowledge gained greater significance as a new internal resource of competitiveness of companies. This paper, through the research undertaken on industrial SME in Algeria, attempts to highlight the continuous loss of knowledge capital. Thus, it exposes the three elements on which tacit knowledge has been developed: professional experience, learning through practice and routines. It also suggests the need for adopting a new model of growth likely to exploit remaining tacit knowledge accumulated over the last years to adapt with the oil revenue issues in which the Algerian industrial SME is encrusted.*

Keywords: *Algerian Industrial SME, Tacit Knowledge, Professional Experience, Learning Through Practice, Routines*

INTRODUCTION

Tacit knowledge according to (Polanyi, 1966; Nelson and Winter, 1982; Lundvall and Johnson, 1994; Jensen et al., 2007) is held as a strategic resource of innovation for the companies. This tacit knowledge as a concept seems not yet well-defined in the bulk of literature (Ambrosini & Bowman, 2001; Rao, 1994; Jensen, 1993). In this respect, empirical research on the Algerian industrial SMEs has revealed the significance of three elements of location of this primordial resource: *professional experience, learning through practice and routines*. The Algerian industrial SME which is witnessing a continuous loss of knowledge capital lives since long times ago under the system of the oil income, and on which the state subsidies rely as well to assure its survival. This is a situation which in fact harms to its competitiveness (Djefflat, 2004). These state subsidies which result in colossal investments in equipment placed Algeria among the countries which know the lowest technological capacities in the African continent (Lundvall and Lema, 2015). Djefflat (2008) asserts that in spite of the long lasting story with products import of high technology, Algerian industrial SME could not shift from a statute of company consuming technologies to that of a productive enterprise of technologies. The export of high-tech products did not exceed 1% in 1992 and was at zero (0%) in 2015 (World Bank 2017). Some emerging countries not having the necessary raw-material resources knew how to make use of

their inheriting knowledge to carry out remarkable rates such in terms of exporting high-technology products as Malaysia 44% in 2012, South Korea 26% in 2012 and Brazil 12% in 2015 (World Bank 2017). The industrial base which Algeria relies on remains weak and non-exploitable. The growing of a sector of solid SME with a very little experience in the field of research and development (R&D) and innovation constitutes a major issue for Algeria. A lack of *know-to-how* in Nonaka and Takeuchi's way (1995) is clearly noticed in all branches of activity of industrial SME. The limiting knowledge production to research and development (R & D) lacks a significant role of the knowledge produced by the company (Foray, 2009; Smith, 2001; Laestadius, 1995). This lack can be only the tacit knowledge which is distinguished from the explicit knowledge (Johnson et al., 2002; Cavusgil, Calantone, & Zhao, 2003). This implicit knowledge is viewed as invaluable and vital resource for the competitiveness of the companies and the creation of the wealth (Howells, 1996; Black & Boal, 1994; Goranzon, 1993; Goranzon and Florin, 1990).

The tacit knowledge boosted by Polanyi's original work was expanded to the macro-economic level by the proponents of the systemic vision of the technical change (Nelson and Winter, 1982; Lundvall, 1996; Johnson et al., 2002) and then, recovered at the micro-economic level by the unavoidable model of Nonaka and Takeuchi. This concept is largely called up within the evolutionary approach framework (Helfat, 1994). The history of tacit knowledge development, in fact,

exists within the Algerian industrial SME but unfortunately, this resource is not really exploited to trigger an endogenous dynamic in those companies. Consequently, our reflection can be framed into two fundamental questions: What are the elements of location of tacit knowledge displayed by Algerian industrial SME? Does tacit knowledge constitute a crucial asset (capital) for innovation in Algerian industrial SME? Following a standard approach, this paper layout is as follows: The first section exposes the Algerian context of industrial SME *vis-à-vis* the resource knowledge while clearing the three elements of location of tacit knowledge. This latter which define our conceptual framework will be developed in the second section. A third section shows the need to exploit the tacit capital in Algerian industrial SME. Finally, the conclusion suggests the need to codify the remaining tacit knowledge in Algerian industrial SMEs while proposing to carry out in-depth comparative research between Algeria and other countries that have adopted the same initial model on how to mobilize this type of knowledge.

TACIT KNOWLEDGE: EMPIRICAL EVIDENCE FROM THE ALGERIAN INDUSTRIAL SME

The literature review, in terms of empirical studies of tacit knowledge, still displays some remarkable lacuna. The evolutionary school has much focused in part of its literature on the role and importance that this type of knowledge can play. Although this resource exists, it remains unrecognizable in the Algerian industrial SME.

Research Methodology

This study is based on a combination of bibliographic research and field research pursued by one of the authors. Bibliographic research supported with a personal statistical analysis focused mainly on the general literature on SMEs in Algeria and mainly its bulletins published semi-annually by the Algerian Ministry of SMEs during 2007-2013. Its field of research was carried out between 2013 and 2016 and included a sample of fifteen (15) companies from different industries, Textile industry, Leather industry, Lumber industry, Building materials, Agro food industry, ISMME industry). In this context, accounting and financial balance sheets and activity reports were examined, conducting as well direct interviews with officials from different departments (more than 100 managers were interviewed).

Algerian Industrial SME: A Continuous Loss of Knowledge Capital

At this level, we will consider first the example of the two Scandinavian countries (Finland and Sweden) in addition

to Japan and Brazil. For Finland, tacit knowledge is seen as an important driver for consolidating a long-term innovation strategy in small technology firms (Vanharanta and Koskinen, 2002). In Sweden, as a first country which its economy is knowledge-based, the results of a Ramnas Anchor Chains case study revealed that this industry, thanks to the tacit knowledge of its unskilled labor, had become a very innovative and competitive branch in international markets since 1590 (Laestadius, 1995). Another empirical research carried out by the same author on 16 Swedish companies with low and medium technological content reveals that tacit knowledge is almost as decisive as R&D activity. In Japan, tacit knowledge represents about 80-90% of general knowledge (Nonaka and Takeuchi, 1995).

In contrast, in Algeria, since the beginning of the 1980s¹, the loss of knowledge heritage was initiated in Algerian industrial SME with the policy of organic and financial restructuring of the public enterprises. This policy transformed the large companies into medium-sized companies for self-financing and facilitating their management with an objective to correct the accumulated errors in the past, mainly engendered by the model “industries industrializing”. Let us note that the restructuring of the industrial sector, although it made it possible to acquire certain skills and competences in several industrial branches of activity, its new conception dispersed the human capacities. Therefore, because of the change of the staffs activities and because of an underestimation of the initiative capacity and men creativity (Djeflat, 2008), an important background of tacit knowledge accumulated over the last years was almost lost. Such an intricate situation weakened the potential of research and development. It also causes a considerable loss of intellectual capital marked by an important brain drain of competences having acquired remarkable knowledge, quite ready to be valued (Djeflat & Zghal, 2000). Similarly, planning as a system of organization of industrial development represented by the two five-year plans (1980-1984 and 1985-1989) revealed the insufficient spreading of knowledge acquired within the industrial system; and consequently; an under optimization of knowledge capital learned within the company. This system that is based on the hierarchy scale, in a unilateral direction (high-low) does not give any special attention to the ideas held by the subordinates, considering the economic decision that remains usually centralized. Such economic circumstances show that the knowledge acquired by the workers is unexploited by the head office (Nonaka and Takeuchi, 1995). Consequently, the control techniques of the production apparatus and marketing become obsolete and do not correspond to the unrestrained rate of innovation. This is mainly because the updated knowledge acquired at both the technological and organizational levels, and that is not really

¹ Decree 80-242 of the organic and financial reorganization of the national companies.

planned by the concerned officials (Djefflat, 2008). That is to say, trainings that should be carried out in this perspective are almost neglected. Such a discrediting that is not related to financial constraints, results from the low capacity to convert the hydrocarbons incomes into cognitive capital, while the rise of oil prices in the international market was the first determinant factor of the economic growth, during the last decade (Djefflat & Lundvall, 2016). As a matter of fact, the resources used and which are weak or almost used up, could not diversify the industrial activity and increase the incomes out of hydrocarbons. The exports in this sector remained marginal with only 2.4% of the total exports volume in 2012². Indeed, during the period (2001-2012),

the export rate recorded by the textile, leather, wood and building materials industries was almost at zero (0%). The export rate of the agro-food industry did not exceed (0.4%); as a result, imports of all these industries had very high rates: 88.8% in 2001; 88 per cent in 2006 and 83.9 per cent in 2012 (National Office of Statistics, 2014). A context which shows the low technological level and the weak content of knowledge in the different and current areas of activities. In fact, before the obligation to integrate the global economy, the brutal reality of commercial openings imposed in 1990, leads several public industrial companies to disappear in spite of the government subsidies (See tableau n°1), i.e., a situation which caused a tremendous loss of explicit knowledge and tacit knowledge.

² National Office of the statistics, collections statistics n°194/2015, serie E: Statistiques économiques n°84.

Table 1: The Mortality of Industrial SME in Algeria During the Period (2002-2016)

Industrial SME	2002	2008	2009	2010	2011	2012	Part (%) 2012	Part (%) 2015	2016
ISMME ¹	68	59	217	153	173	123	13,03	14,93	65
Building materials	38	72	201	90	79	83	8,80	10,86	1068
Chemistry, Plastics	17	23	78	24	35	33	3,50	2,26	15
Agro food industry	206	180	596	407	402	363	38,45	36,65	119
Textile industry	42	34	179	53	64	63	6,67	11,76	72
Leather industry	15	15	78	20	23	15	1,59	2,26	06
Lumber Industry	112	112	296	256	276	218	23,09	16,74	70
Diverse industries	20	25	76	44	61	46	4,87	4,52	46
Total	518	520	1721	1047	1113	944	100	100	1433

Source: set by the author on the basis of industry ministry's data for the small and medium-size company and the promotion of the investment³

³ Working Paper Ref. 55 / DGVSEES / 2016; Ref: 42 / DGVSEES / 2012, newsletters and statistical information to SMEs, n°. (12.14, 16.18, 31).

Social action plans of the SAP (Benissad, 1997), notably the framework of the “Bank/Company Act”, has also caused the dismissal of a significant number of employees holding an industrial savoir-faire acquired along their professional career (Djefflat, 2008). The privatization phenomenon⁴ incited the remaining industrial SME to reduce their workforce in terms of: voluntary leaving after negotiation; full pension; early retirement; reduction of workforce and sanctions. This phenomenon was not really encouraging and beneficial owing to the fact that these companies lost a significant portion of industrial experience accumulated by the workers (senior executives, engineers and technicians... etc.). Algerian industrial SME, therefore losing a significant number of their competences without ensuring continuity, still live in the same routine. Ultimately, at the organizational and managerial level as well as the technical one, the

established routines and thus, the accumulated experience of the remaining workforce is only a result of the learning capacity (Foray, 2009). A learning by doing, that is of a major importance, can produce technical progress (Arrow, 1962b). Finally, the case of Algerian industrial SME is quite interesting the fact that it could join together the three components (professional experience, learning by doing, and routine), and then redefine tacit knowledge as internal source of innovation; creation of incomes and competitiveness of company to put an end to the state subsidies.

TACIT KNOWLEDGE: ELEMENTS OF LOCATION

Based on a number of research studies published by Andersson and Djefflat in their compilation of papers entitled « *The Real Issues of the Middle East and the Arab Spring, addressing research, innovation and entrepreneurship* »

⁴ To appear at the beginning of the years 1980 and to supplement completely by the law n° 95/22 of August 26th, 1995.

(2013), reveals that whatever is the economics of the Middle East and the Arab countries, in particular the case of Algeria, tacit knowledge remains existing and untapped in their industrial SMEs. In this same perspective, the doctoral dissertation of (Datoussaid, 2015) argues the macro/microeconomic situation through the case of the fifteen (15) Algerian industrial SMEs surveyed; the fact that it has been able to combine the three components and redefine tacit knowledge and the internal source of innovation of non-hydrocarbon income generation to end state subsidies from oil revenues. This type of knowledge which is not often well-conceived by the supporters of classical and neoclassical thought is determined in the evolutionary tendency by the three elements (*professional, experience, learning through practice and routines*) which we shall try to discuss in this section:

Professional Experience: A Tacit Knowledge Basis

Experience, as a personal event to be lived, is likely to operate as a teaching act. The company like the individual has like a memory which safeguards any kind of knowledge resulting from the processes of such an institution. The notion of “*return to professional experience*”, on the one hand, consists in creating part of the memory, starting from the day to day experiences through various activities within the company (Rakoto, 2004), and on the other hand, to release a particular capacity to solve a given problem which depends essentially on the significant structure of the existing knowledge (Lyles and Schwenk, 1992; Schultz, 1970). There exist two types of knowledge in terms of *return to professional experience: explicit knowledge and tacit knowledge*. In this typology, explicit knowledge is defined as being easily written, coded to explain or understood (Sobol and Lei, 1994); as it is also specified by the easiness of articulation, re-use and transmission (Nonaka and Takeuchi, 1995). This kind of knowledge can be communicated by its owner to another person in form of symbols. Explicit knowledge can rather be easily transferred to another person in form of reusable documents (Winter, 1987), by using information technologies (Djeffat, 2004). In contrary, tacit knowledge is characterized by the difficulty of transmission; not only, they are specific to a context but their correspondence with professional experience make their disappearance possible, i.e., access becomes limited since the person is not available; for instance, after the resignation of certain workers or their departure to retirement. Therefore, *return to professional experience* becomes an essential process requiring a regulatory system to set up (Rakoto, 2004). Such a device requires at the same time human resources where man is at the heart of the system, and technical means to ensure management and exploitation of information flow. Hence,

professional experience is expressed in human actions in form of evaluations, attitudes, point of view, commitments, motivation and the like. Human experience is believed to be the basic of tacit knowledge (Polanyi, 1966; Nonaka and Takeuchi, 1995). To solve their problems, individuals are guided by a certain knowledge which they acquired through similar inspirational questions (Schultz, 1970). According to Foray (2009), this knowledge that is qualified as being experiential is rich, rational and offers to the workers important capacities of action in the conception of technological products. Tacit knowledge can effectively play a major role in the first stages of the process of innovation in the technological small companies (Koskinen and Vanharanta, 2002). The degree of tacit knowledge depends largely on the degree of *return to professional experience*. This is a report that Ambrosini and Bowman (2001), qualified as “*degree of tacitness*”, and that Polanyi, (1966, p.4) defines in its famous sentence: “*we know more than we can say*”.

Learning by Doing: Source of Production of Tacit Knowledge

Because of its tremendous significance, the concept of learning, Lundvall and Johnson (1994) named it the economy of development, economy of learning. Stiglitz, (2011) suggests that it would better to understand the importance of learning that is, in fact, at the heart of innovation (Lundvall, 1992). Such learning became very crucial because of the opportunities which it offers (Foray, 2009). It is characterized according to (Dosi et al., 1990; Coriat & Weinstrein, 1995) by many specificities because it is a process by which repetition and experimentation make of the tasks better performed and faster, and that new production opportunities are identified. Therewith, learning refers either to a product, i.e., something which has been learnt or to the process allowing obtaining this product. The former implies “*what did we learn?*” making reference to an accumulation of information in form of knowledge or competences; the latter is rather much concerned with “*how do we learn?*” which refers to the act of learning itself which can be either good or badly carried out. For instance, when we speak of “*drawing lessons from experience*”, these lessons are implicitly regarded as the result of a specific learning (Argyris & Schon, 2002). Learning products resulting from organizational investigation is an important basis of knowledge, not only of explicit knowledge, but also an experience which includes implicit knowledge not reported in handbooks. This tacit knowledge is very dependent to the context (Johannessen et al., 2001). According to (Hamel, 1991) difficulties of their transfer persist; but they are not considered as impossible to transfer (Nonaka and Takeuchi, 1995). Several types of learning are quite possible but in the economy of knowledge there remains only “*learning by doing*”. *Learning by doing*

depends essentially on specific organizational and individual factors (Arena & Lazaric, 2003; Jensen et al., 2007) since it covers a major importance which is at the origin of improvement of productivity (Foray, 2009; Arrow, 1962a; Spence, 1981). This is often weak individually but which can be very significant when it is considered cumulative.

It is a specific mode of production of knowledge which does not have a relationship with the knowledge acquired in laboratories (Jensen et al., 2007). According to (Foray, 2009; Solow, 1997) noted that broad fraction of growth of productivity has no relation with R&D. While tacit knowledge which occurs in the work place is one of the learning products, learning through practice differ from one company to another and from one activity to another. This difference gives much more importance to the tacit knowledge, not only due to its technical dimensions but also due to its cognitive ones (Nonaka and Takeuchi, 1995).

Routines: Pillar of Tacit Knowledge

Routines are viewed to be the pivot of the evolutionary approach (Arena & Lazaric, 2003). They are defined according to (Dubuisson, 1998) as appropriate solutions in current situations identical to the problems previously encountered. Accordingly, routines constitute an important base of knowledge realized in forms, rules, procedures, conventions and operations around the organizations that are built (Levitt and March, 1998). This notion which was marginalized for a long period of time regained surface in the evolutionary representation because routines in question constitute traces of knowledge inserted within the existence of the rational of the company (Dosi et al., 1988). This knowledge structuring the routines includes a large component of tacit knowledge that is set on the learning mechanism (Nelson and Winter, 1982). Those routines which themselves result from a set of learning, and which then consolidate tacit knowledge has become mechanisms of government and control (Coriat & Dosi, 1998). Such a knowledge which is stored as regular and predictable behavioral patterns makes the transfer routines unpredictable by virtue. In fact, the ideas embedded in the routines open interesting prospects towards the innovation because this phenomenon is often the result of a new idea (Nelson and Winter, 1982). Then, the capacity of renewing the routines in a company would become essential in a perspective centered on innovation. Considering implicit knowledge as the heart of comparative advantage of the firms (Perraton, and Tarrant, 2007), the routines also constitute the basis of competitive capacities in a particular activity within a company. Teece, (1988) summarizes the external perceptions concerning the nature of these competences in the following way: “*These people are good as regards*” Such competences have particularly an important tacit dimension which makes

imitation by other companies difficult but not impossible (Nonaka and Takeuchi, 1995).

TACIT KNOWLEDGE: A CAPITAL TO MOBILIZE FOR INNOVATION IN ALGERIAN INDUSTRIAL SME

At this stage, we consider the case of Latin America and that of the Scandinavian countries where it was found that these countries such as Brazil, Denmark and Norway managed to mobilize their background knowledge (Djefflat & Lundvall, 2016). For Brazil, Dantas’ PhD thesis (2006) on Petrobras⁵ argues that revenues from natural resources are considered to be the engine of cognitive learning rather than as a curse. Denmark, thanks to its natural resource revenues, has been able to boost its agro-industrial exports. Norway, through its ability to transform hydrocarbon revenues into cognitive capital, was able to establish a diversified industry as well. Concerning the case of Algeria, the industrial production of SMEs witnesses significant deficits; as an example, during 2001-2012, the exported amount of the textile industry remains null (0%) compared to the imported amount that was at 1.6%; however, the steel, mechanical and electrical industries exportations were at 0.1% in contrast to a remarkable growth in terms of imports that reached 49%. Similarly, the agro-food industry importation which achieved 11,1% was quite higher than the exported value that was at 0,4% (National Office of Statistics, 2014). Actually, these amounts of import show the importance of industrial SMEs in the Algerian economic fabric; an immense local demand for industrial products was guaranteed by the hydrocarbon revenues. This shows an inability to convert oil and gas rent into *know-how*. In 2016, Algeria had a currency stock of 13,86 billion US dollars against 6,28 billion US dollars in Brazil and 1,37 billion US dollars in Denmark, and finally 2,02 billion US dollars in Norway (Word Bank, 2017).

In this regard, Algerian industrial SME are exposed to “*a pressure of more or less intense transformation*” (Lundvall and Lema, 2015). The establishment of this type of SME which are deprived of experience in R&D and innovation poses a serious issue for the Algerian economy which knew a very important change because of the shift from an administered economy to a market one during the 90’s. This sector in Algeria is relatively so much weak in terms of industrial performance, suffering from high obsolescence at the level of human and material means (Djefflat, 2008); a situation which favored, in fact, the growth of the products coming from the exterior markets. Within this outlook, Algerian industrial SME cope with a crisis of deep competitiveness; they therefore accumulated a delay as far as

⁵ Since 2014, Petrobras was among the biggest 15 hydrocarbon companies in the world.

innovation is concerned. This delay is associated to a delay in learning, but there exists an intermediate level between non-learning and cognitive learning, notably behavioral learning. In this context, to learn from a crisis becomes rather an event than a process (Russet-red-Dufort, 2003). Crisis then is considered as an exceptional event in the existence of the company because it is carrying experience. The workers employees in the Algerian industrial SME benefited from this opportunity the fact that they have accumulated a certain experience resulted from the regime of routine. This regime is established under the pressure of the factors of the external environment of the company resulting from the existing economic system and the public authorities. Lambert and Quedraogo (2010), identified that the new recruits cannot involve the change. The routines put into practice by the company seem not only to be the outcome of previous heritage but also because of the adaptations of variables dictated by the environment. In this vein, Lundvall and Lema (2015) suggest that an acceleration of learning is necessary for any type of economic transformation. Routine uses as habit can only be translated by a learning capacity, a learning acquired through practice which is in fact at the basis of improvement of productivity (Foray, 2009). Hence, to start a new learning will allow the workers in particular and the companies in general, to go into another phase of routine which should be shorter. According to Dosi (1988), routines hand out the disadvantage of channeling the organizations' behaviors in an identified technological path, and of reducing the rank of perceived technological opportunities.

Each firm actually along with its own routines and its own knowledge base will allocate its tacit knowledge acquired differently in various activity branches to innovate in terms of either product or process. This implicit knowledge appears as a fragile heritage of the company; it circulates, worthiness, expires and can disappear as well. It is the case of a retirement, a posting or a dismissal. If nothing is designed to preserve this knowledge (tacit), the company will obviously loose part of its memory, of its *savoir-faire* and thus, experience (Koskinen and Vanharanta, 2002). Tacit knowledge is a practice oriented-action based on experience which depends on the work environment. It is not subjective but rather objective in its consequences, i.e., it can be tested, checked and empirically investigated (Johannessen et al., 2001). That means that the work carried out using tacit knowledge can be tested for its quality, durability and reduction of the production costs. Return to professional experience thus becomes, a crucial approach which consists in calling upon people who know and who will be able to transmit their knowledge in a comprehensible way to everyone. Yet, this transmission becomes limited as soon as the person is not available which means unreachable, or that it does not have the necessary tools to make this knowledge comprehensible. Moreover, when knowledge is shared

among various persons, it is critical to be able to gather the different parts, like pieces of a puzzle to attain a better global knowledge. In this economic situation, intervention of the public authorities plays a major role for the exploitation of the remaining tacit knowledge, accumulated over the past years hand over by the remaining workers. Consequently, the creation and transfer of this knowledge is often considered as a resource on which a company can build its competitive advantage (Pathirage et al., 2007). Diversification becomes thus one of the essential strategies of the Algerian industrial SME development. This strategy will allow to this latter (industrial SME) to continuously learn and have a durable growth of the incomes out of hydrocarbons, thanks mainly to innovation. The three elements of tacit knowledge exist and they are always present within the Algerian industrial SME: the routine system, the professional experience accumulated and the learning through practice can open interesting prospects. Actually, the tacit knowledge stored in one's mind staying within the organization could diversify the business portfolio of the companies. Thereby, the arrival of web-based recruited generation could also increase the stock of knowledge (Dudezert, 2013); on the one hand, through the transfer of previous knowledge to the new generation, and on the other hand, to create a collaborative learning between the two distinctive generations.

CONCLUSION

Thus, the main purpose of this paper is to reinforce our understanding about the exploitation of tacit knowledge accumulated over the years by the remaining workers who could trigger an endogenous dynamic in order to boost the Algerian industrial SMEs to innovate. Our assumption is not based on the amount of tacit knowledge held by those involved people, but rather on the fact of putting it into practice. Therefore, three elements of location of the tacit resource knowledge were identified in this paper, notably *professional experience*, *learning through practice* and *routine*. In the case of Algeria, promoting this type of knowledge seems to depend largely on the degree of conversion of the oil and gas revenues from the large company "Sonatrach" into cognitive capital. This transformation is believed to be quite necessary to resuscitate the Algerian industrial SME via the tacit knowledge channel. In this respect, the experience of the Scandinavian and Latin America countries like Sweden, Norway and Brazil respectively; countries that have been able to strengthen *learning through practice* mechanisms to fully exploit and develop their knowledge and their *how-to-know* in order to build a diversified industry financed by oil and gas revenues. In this context, it is proposed to carry out in-depth comparative researches between Algeria, Brazil, and Norway on how to mobilize their potential knowledge, i.e., tacit knowledge.

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(Footnotes)

- 1 ISMME : Steelmaking Industry, Metallurgical Industry, Mechanical and Electrical Industry.