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*“The Role of Networks for helping Firms and Countries to invent
New Competitive Strategies well adapted
to the World Knowledge Economy”*

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Abstract:

For the last 20 years, the world economy has evolved at great speed. Every good, capital asset, knowledge is mobile and induces more competition. Innovate in commodities is a complex process which requires more cooperation. For innovating in the Knowledge Economy, firms must create nowadays “win win situations” among individuals in creating networks. The networks are thus useful nowadays for firms to imagine new innovative strategies. The building of networks authorizes the interactions between the agents, the environment and the institutions. Thinking the interdependences of the agents and institutions are not new for the evolutionary theory (Veblen, 1925 and Common, 1945) but nowadays, the institutions must be more flexible than before for helping agents to adapt to the Knowledge Economy. On the basis of the role of meso networks, we propose to the firms and the countries exporting industrial goods on the world markets, a new long run specialization and a new short run competitiveness which will promote a greater efficiency and equity around the world. Within the innovative networks, we analyze the role of two different actors: the “economic leader” who has a long run analysis and the “go-between leader” who knows how to diffuse the “useful information” to the actors in helping them to innovate in new products, services, or processes.

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The role of networks for helping firms and countries to invent new Competitive Strategies well adapted to the World Knowledge Economy

For the last 20 years, the world economy has evolved at great speed. Every good, capital asset, knowledge is mobile and induces rising competition. Knowledge economy induces more cooperation with the Division of Cognitive Labor (DCL) process. Thinking about the interdependences between the individuals and the institutions is an old question for the evolutionary theory (Veblen, 1925, Common, 1945). Thinking about both the rising competition and cooperation is one of the challenges that the firms must face today, when innovating and selling on the world markets. Two opposite approaches have been recently proposed to firms for increasing their market shares on the world markets. The

“strategic approach of Economics”, insists on the increasing role of “competition” to win the actual “economic war” (Harbulot, 2014, Baumard, 2013). In this approach, building “knowledge networks” authorize to seize the “strategic knowledge”. On the other side, the “institutional approach of Economics”, stresses the endogenous characteristics of the “learning by sharing” process to reach an efficient level for individuals and collective organizations (Foray, 2000, Cohendet and al, 2000).

The paper argues that both of these opposite compartments must be mixed into dynamic networks, where the institutions are as important as the markets and where the demand policies are as useful as the supply policies to increase innovations in each country. In the first section, we analyze why it is so important to build “meso institutions” for thinking and acting in the new economy. In the second part, we propose new long run and short run strategies, based on dynamic networks, to firms and countries. In the last section, we study two new functions useful for managing individuals and organizations within the networks.

Division of Cognitive Labor and networks organization within firms

The globalization of all the countries and their entry into a knowledge economy induce a contradictory movement of “competition” and “cooperation” among individuals, firms and countries. Facing these two quantitative and qualitative changes of the world economy, both of the previous regulation mechanisms (the “invisible hand” of private markets and the “visible hand” of the national institutions of State-Nations) to allow the adaptation of firms to the new competition. The analyses of the interdependences between markets and institutions in the economic growth of each country have been studied for a long time in the evolutionary theory: Veblen, 1925, Polanyi (1944), and Hirschman (1970). In thinking dynamic interactions between the markets and the institutions, E Morin (1974) and A Koestler (1988) already show in systemic approaches how an “intermediary institution” could be more powerful than the “macro institution” of the State-Nations. The meso institutions, created by individuals within the firms or the countries, stabilize the behaviors of the individuals (by producing “regularities by disorder”) and also create innovation (by producing “complexity by disorder”) (Atlan, 1979), Brown and Duguid (1991) or Cohendet & al (2000) show how flexible the meso institutions (as the “communities of practice”) must be today to help the individuals adapt their strategies to the

Knowledge Economy. In a world “inclusive economy”, it is important to conceptualize the contradictory relationships between markets and institutions, supply and demand, internal and external environment. From a systemic analysis, the firms and the countries must be “open” to innovate and “constraint” by the “path dependency” to produce and sell. A traditional debate in economics proposes two opposite approaches to manage this evolution. On the one side, the “market approach”, based on the methodological individualism, focalizes on the “automatic go-back to the equilibrium”. On the other side, the “institutional approach”, based on the holistic approach, focalizes on the “co-evolution of markets and institutions” inside the “path dependency” of each firm or country (1).

To study more profoundly the consequences of the world change on the firms’ behaviors, our analysis stresses the utility of building networks by the individuals (**table 1**). This meso institution seems nowadays more efficient than the micro level of private firms or the macro institutions (which suffered of the decreasing power of State-Nations in international relationships). In the Knowledge economy, innovation becomes a “collective” process and the relationships among individuals become as important as each inventive component (Muldoon, 2013, Guilhon & Levet, 2003). The “Division of Cognitive Labor” (DLC) is so far away from the “International Division of Industrial Labor”, where big international firms chose to implant different activities -research, raw material, producing, selling- in different countries. With their high economic growth rate of during the 90’s and the 2000’s, the place of the New Industrialized Countries (N.I.C.) on the world markets have increased quantitatively (they now belong to G20 and G8) and qualitatively (they also enter into the Knowledge Economy). The most important “emerging countries” are today competing against advanced countries in goods and services with high technology. So in order to defining the new “sustainable competitive advantage specialization”, all the countries must analyze their specialization “on the whole value chain” (Porter, 1990, Aghion & al, 2005). For building their long run strategy, firms must use the interdependences that exist between supply, demand, cooperation, and competition. If these links are not sufficiently thought through, firms fail to adapt to the world market changes. On the opposite hand, anticipating new innovation requires the creation of meso networks to interlink cooperation and competition. To determine the future demand of goods, all the countries nowadays compete on the world markets. The

competition among countries, not only concerns the “upstream business” (intensive in costly technology as aerospace, plane, energy sectors, medicine), but also the “downstream business” (intensive in uncouthly technology like computer industries or New Electronic and Communication Technologies –NECT-).

The long run and short run strategies for building meso networks

How firms create networks for building sustainable “competitive advantages”?

In this section, we study the role of networks to create a long run competitive advantage for small firms. With the globalization of the world economy, the optimal specialization strategy has changed a lot. Today, most of the countries specialize in sectors which produce high value goods so the competition for producing such goods has sharply increased since 1990. However, the “non price specialization”, that Krugman and Helpman (1985) propose for advanced countries, is no longer sufficient to explain the choices of specialization of countries. Emerging countries represent thus a rising part of the actual world trade and they know how to compete with advanced countries. Since 2001, China has increased its patent deposits in the highly innovation intensive “industrial goods”, India has exported high technology “computer services” and Brazil has highly exported in biotechnological goods that are intensive in research & development (2).

For understanding these actual strategies of firms, we enlarge the “competitive advantage” theory of Mickael Porter (1990). The innovation process must include the specific role of “market innovation”. In recombining into new products some “radical innovations” which were invented previously, the Apple Inc. has succeeded in answering for example to the new “needs” of the consumers. So we introduce into Porter’s diamond the concept of “differentiation” for analyzing the different strategies of firms which combine supply, demand, competition, and cooperation factors (**Chart 1**). With this concept of “differentiation”, all small firms are able to participate in “market innovations”. The aim of these innovations is to take into account the “real needs” of consumers on each particular market. Within the networks, the firms build systemic interrelations between opposite factors to reach an output which will be “more than the sum of its parts” (Koestler, 1984). Most of the small firms develop their competitive advantage by inventing some “market innovations”. For example, as most of the Indian people still live

with a very low income, the Indian firms practice more “frugal innovations” (Tata Nano, Ipad, Smartphone or 3D printer to build houses...) more than “radical innovation” (aerospace or pharmaceutical products..) in order to build competitive advantages (Prahalad and Hammond, 2002). In order to build “competitive advantages” for small firm, they must invent new “cooperation relationships”. The cooperation could be simple and just based on a tacit knowing sharing process. This kind of cooperation uses low-cost investments, for example the purchase of a cell phone for communicating and selling products. At last, firms must invent new ways to practice “competition” in using, as we will see in the next section, different kinds of competitiveness for increasing their market shares.

How firms create networks to increase their information competitiveness?

On the world market, the firms must nowadays manage three kinds of competitiveness: the “price competitiveness”, the “non price competitiveness” and the “information competitiveness”. This information competitiveness becomes more important because of the NTIC Revolution. Today, a “false information” (3) can destroy the reputation of a firm even if their products are of good quality. In order to be “pro-active” on the world markets, all the firms thus practice “Business Intelligence” (4). The methodology of the Business Intelligence is to transform the “information” into “knowledge” and then to transform “knowledge” into the “useful information”. The information competitiveness is thus quite different from the price competitiveness (to have low prices) and from the non price competitiveness (to develop their oligopolistic positions). To increase their market shares on the world market, the firms can use the three kinds of pro-active meso networks which support the information competitiveness. Here we present, as for the long run strategy, the case of small firms which can use the power of these networks. On one side of the competitiveness triangle presented by **Chart 2**, the “sharing networks” are useful for firms to initiate some cooperation between all the partners. On the other side of the competitiveness triangle, the “positive lobbying networks” are used by firms to explain to their partners how their products are better compared to their competitors. And, on the summit of the triangle, the “institutional networks” are useful because the co-building institutions are able to change as quickly as the economic rules on the world markets change. These intermediary institutions (industrial patents

organizations, non governmental organizations, regional councils...) help small firms to patent industrial innovations. The intermediary organization can also inform small firms about the new change in international norms or laws. Even if the small firms are not powerful enough to change the law, they can adapt their products to the new norm before the other competitors. As all the firms must nowadays “pro-act” on the world markets, these meso networks are particularly efficient to increase the power of the small firms.

How managing the meso networks inside and outside the companies

The world changes have involved new strategies based on dynamic networks. The co-building of these networks is based on private markets and institutional regulations. Nowadays, the national institutions are not powerful enough to regulate the new economy where every thing moves quickly. Building meso institutions constitutes an opportunity to challenge competition and cooperation relationships. We apply the definition of the “institutions” of Hodgson (2006), quoted by Faruk Ulgem (2014), “the institution can be defined as systems of established and prevalent social rules that structure social interactions in order to make them compatible with the survival of a given society” to the reality of the knowledge economy. With the Division of Cognitive Labor (DCL), the social institutions become “intermediary institutions” (as community of practice, clusters, cooperatives...) which help the agents to adapt to new environments. These new institutional networks are important to stabilize the behaviors of firms. They also help the firms to create dynamic “Strengths Weaknesses Opportunity Threat” (S.W.O.T.) in transforming threats into opportunities. For building dynamic SWOT, the firms must create some “organized proximity”, which was defined by Rallet and Torre (2005) as “the capacity to encourage individuals to interact”. The organized proximity “helps” the individuals to work together and also “constraints” them (Rutherford, 2010). In our study, we analyze how the “organized proximity” permits to co-build the intermediary networks. For creating efficient “organized proximity”, within a network, two kinds of leader must be identified. The “economic leader” conducts a long run strategy and the “go-between leader” diffuses the “useful information” to the right actors and at the right moment.

The “Economic leaders” conduct the long run strategy

In the organized networks, the systemic interrelations between the individuals and organizations are not sufficient to create new innovations. Different works in sociology and management (Avolio and Bass (1991), Drown & Duguid, 2000) explain how the recent world changes made the regulation transform from a “hierarchical leader” into a “transactional leader” who proposes rewards to individuals in order to increase their efficiency. Since 1990, the “transactional leader” had also changed into a “transformational leader” (Karaszewski & Lis, 2013). This “transformational leader” co-builds a common strategy where all the issues are discussed by all the partners of the network (Kotter (2007), Wisman, 2014). In this section we analyze which are the minimal factors to define an efficient “economic leader”. From our studies on different experiments of cluster organizations in different countries (Baulant, 2007, Amisse et al, 2008), we find that the “economic leader” must have two main characteristics. First of all, the “economic leader” must be “visionary” and be able to see into the 30 years’ horizon. The second characteristic of the “economic leader” deals with the problem of stabilizing the cooperation relationships. Thus the “economic leader” must be sure that all the participants of his network would really “obtain an advantage” by cooperating from his own motivation. In such a configuration, the people who are involved in networks are looking to cooperate for co-building a new strategy and therefore would not want to practice a “free rider behavior”. So the “economic leader” doesn’t have to monitor all the actions of his partners, because he trusts them. As the individuals feel both linked with other individuals and have much autonomy within the network, they are very motivated to co-built the collective strategy.

The “go-between leaders” manage the short run strategy

The work of the “go-between leader” (the “gate keeper” of Crosier, 1977) is also very important to build successfully the “meso” networks. This leader constructs a kind of “alchemy” with the interactions of the employees where “the whole would become greater than the sum of its parts of the network”. To get different people to work together within the network, the go-between leader’s role is thus complementary to the economic leader’s role (5). The go-between leader knows how to make use of the network’s “weak ties” (Granovoter, 1973). When some of the partners of his network disagree to cooperate, the go-between leader must find compromises. In practice, the go between leaders must

understand how people, with different aims and culture, can cooperate. He has to formulate some “intermediary goals” which are useful in order to reach the final goal presented by the economic leader. The economic leader thusly builds organized proximity in the network by using the capability of the individuals to build together “new norms”. The go-between leader also builds organized proximity in the network in using the capability of the individuals to share of the “same frame of mind” (Rallet and Torre, 2005). To keep the network active, the go-between is pro-active for helping people communicate and cooperate (the “nudge” analysis of Thaler & Sunstein, 2010). This function within the network is paramount, even if the go-between leader seems less considered, than the economic leader, by society (6).

Conclusion

The globalization and the knowledge economy lead to an uncertainly world. In such a world, the firms must use pro-active networks to sustain their innovation strategies and their competitiveness practices. To manage these long run and short run strategies, inside the firms, two kinds of leaders have been studied. The “economic leader” conducts the innovation strategy and the “go-between leader” manages the producing and selling strategy. The networks organization of firms induces the apparition of new regulation policies which are far from the “top down hierarchy”. Effectively, networks must be flexible enough to be both open to new innovations (by monitoring for example) and closed to internal objectives and cultural habits for inducing learning effects. Managing innovative and selling networks are hard tasks. As the networks have powerful leverage effects in building “virtuous circle” in economic growth, the firms have to concentrate their efforts on controlling the “key points” of their network in giving some degree of liberty to each individual within the network. Our analysis stresses the key role of differentiated meso networks for innovating and competing. This study reconciles the two opposite approaches in economics: the strategic vision of the competition and the participative vision of the innovation. In further works, we will explore to a greater extent these new ways of “thinking the complexity” and “acting efficiently” in taking into account, not only economic and quantitative efficiency, but also social and qualitative efficiency. The main objective would be to define a New Regime of Economic Growth and a New Way of Consuming, based on the concept, proposed in

the Stiglitz Report (2008), of the “Gross Product Happiness” index which seems more adapted to the world knowledge economy than the “Gross Domestic Product” index.

Table 1: Consequences of the two main world changes on external competition and internal organization of the firms

<u>Factors</u>	<u>Level</u>	Macro Nation-States Political Approach (1815)	Micro International Firms Economic Approach (1990)	Meso Institution Networks Ecological Approach (2000)
World changes		- Goods liberty - Int. Division of Labor	-Capital Assets liberty -Int. Industrial Division	-Knowledge liberty -Cognitive Labor Division
Environment		Abundant	Limited	Rare
Information		Lack of information	Sur information	Lack of useful information
Analysis		Dual Invisible hand (Market)/ Welfare States Hard Power States-Nations	Inclusive Internal Markets Soft Power Belief, value, preference	Systemic: Learning Networks Smart Power Organized Proximity
Organization nature in private firms		Price Competition	Monopolistic Competition	“Coopetition”
		Hierarchic Leader	Transactional Leader	Transformational Leaders
		Top Down (firms) Learning by Doing	Down Up (consumers) Learning by Using	Co-building (RES) Learning by Sharring

Table 2: Consequence of the two world changes on the long run specialization and the short run competitiveness of the firms

<u>Strategies</u>	<u>Level</u>	Macro (1815)	Micro (1990)	Meso (2000)
Free Trade Agreement		Goods	Capital Assets	Knowledge
Labor Processes		Int. Division of Labor	Int. Industrial Division	Cognitive Labor Division
Long Run Strategies		Comparative Advantage Theory	Non Price Advantage Theory	Competitive Advantage Theory
		Ricardo, H.O.S.	Krugman and Helpman	Aghion, Howit, Porter
Short Run Competitiveness		Price Competitiveness	Non price competitiveness	Informational competitiveness
Organization in firms and network		Hierarchic leader	Transactional leader	Economic leader Go-between leader

Chart 1: How to use Meso Networks to co-build long run Competitive Advantages for Small Firms

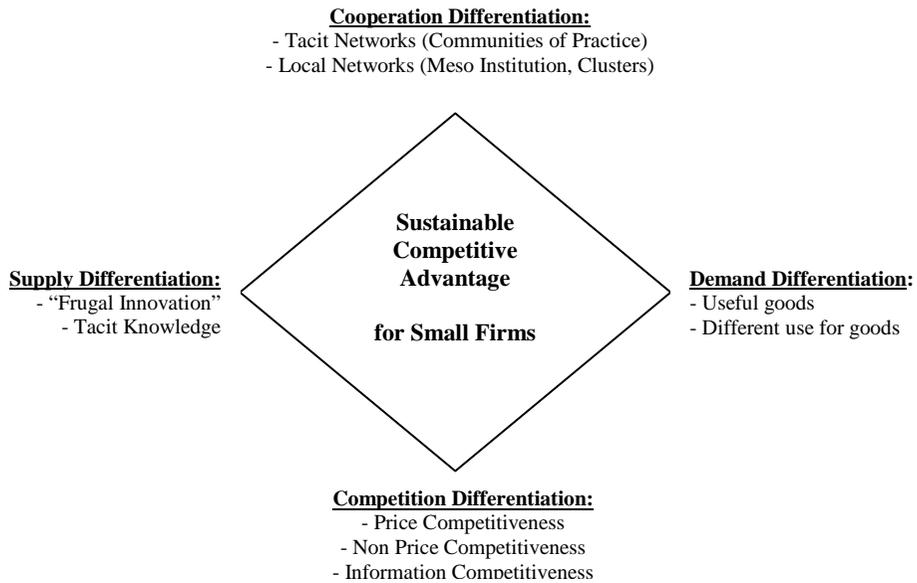
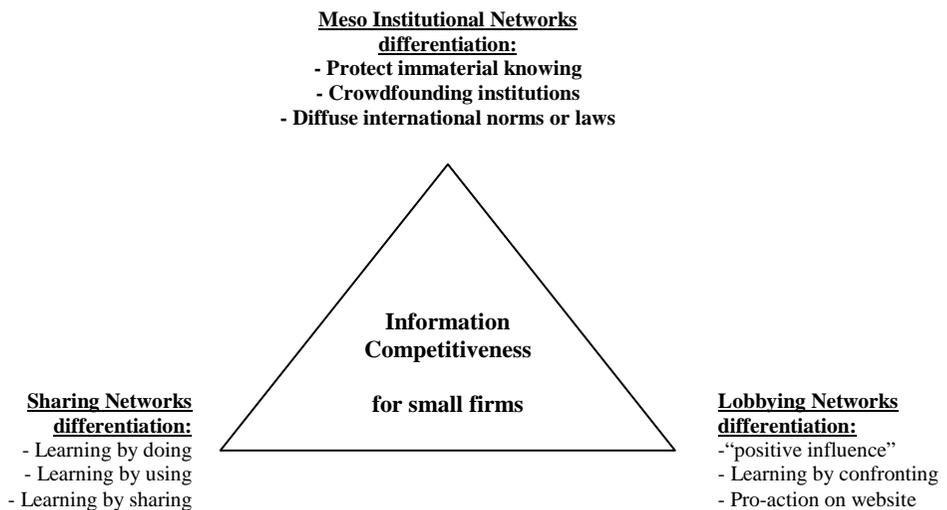


Chart 2: How to use Meso Networks to increase short run Information Competitiveness of Small Firms



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Notes

(1) Kirdina (2014) analyzed the interactions between the "revolution" and the "social evolution" in different countries. The "path dependency evolution" depends on the interactions between "individual values" and "communitarian values" in different spheres (economic, political, and ideological).

(2) Brazil exports "intelligent textile goods" which combine "cotton" with "spider's genes" to make textile elastic and resistant.

(3) The team of researchers conducted by the professor Ronald Hites (2004), published research in the review "Nature" which concludes that the Norwegian salmons were more cancerous than the salmons from North America. This information, largely diffused by the media, had induced a 40% decrease of the sales of the Norwegian salmons on the French Markets, even after that this information was corrected by some other scientific analyzes.

(4) Even if Business Intelligence is not new (Wilensky 1967, Ansoff, 1975), the Business Intelligence practices had sharply increased since 1990, with the end of the "cold war".

(5) In the knowledge economy, the leaders are "hill-climbers on an unknown landscape". The "Maverick leaders" (the economic leader) "discover new land" and the "Follower leader" (go between leader) explore in detail this new land (Muldoon, 2013).

(6) On the concept of "bounded rationality" created by Herbert Simon, Dominique Foray (2000) shows how Michel Crozier played a "go-between leader" role to diffuse this concept in France.