A recent article published recently by a group of analysts of the cabinet KPMG\(^1\) highlighted the possible and short-term disappearance of approximately 10 poles of competitiveness (on a total of 67\(^2\)). This analysis pin points that one of the main problem driving the poles to disappearance is the lack of actionable projects.

At the same time, the Minister of Economy, Finances and Industry underlines in connection with the two years of existence of the poles of Competitiveness, the development of innovating projects, often carried by large companies\(^3\).

In other countries, analyzes on the topic about “industrial clusters” highlight the conditions of success necessary to their development. For instance in China\(^4\), the authors of this show that one of the conditions of success of a cluster resides in the geographical proximity of the companies on the one hand, but also in the need for having between companies a cluster exchanges often characterized by co-operative projects. In the case of the success of the “high tech” projects in Israel\(^5\), these key factors of success were also highlighted. In Japan\(^6\), various comparisons (from industrial clusters) were proposed, amongst other things with the European Union.

These various analyzes and assessments prompt us to present some remarks concerning the French poles of competitiveness. These various data can be used within the framework of a SWOT analysis (Strengths, Weaknesses, (interns with the poles) Opportunities and Threats (external with the poles)), or within the framework of the “Porter’ S diamond theory\(^7\)”

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\(^1\) Le Figaro, Vendredi 8 Décembre 2006. Ten poles of competitiveness could disappear. « Pour KPMG la dynamique des pôles mondiaux est prometteuse, mais les projets manquent ailleurs ». Laurence Chavane.

\(^2\) http://www.google.com/search?hl=fr&q=poles+de+competitivite+nombre&btnG=Recherche+Google&lr=


\(^4\) Jun, Waqng. Interaction and Innovation in cluster development: some experiences from Guandong Province, China Yuzhou, Vassar


\(^6\) 30th ISBC in Singapore, September 22, 2003, pp.1-10

\(^7\) Le fonctionnement du cluster s’accorde sur le “Diamant de Michael Porter” dont les éléments principaux sont les suivants: http://clusters.wallonie.be/xml/fiche_recherche_fr.html?IDC=1772&IDA=3094

“Firms” sont les sociétés impliquées dans la réalisation des produits et services identifiant le cluster, “Related” sont les sociétés qui fournissent d'autres produits et services, mais à une clientèle [Demand] similaire et qui peuvent donc interagir tant avec le client qu'avec les “Firms” du cluster, “Factors” sont les éléments de l'environnement structurel (institutions, infrastructures, universités, supports, ...), “Demand” sont les demandes spécifiques dont les activités permettent à la fois la spécialisation et la croissance externe.
At the same time, at the European level a vast confrontation of ideas takes place based on the Bologna and Lisbon’s processes. Thus the agenda of Lisbon envisages⁸:

“In March 2000, EU heads of state and government agreed on an ambitious goal: making the EU “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion. In particular, it was agreed that to achieve this goal, an overall strategy should be applied, aimed at:

- preparing the transition to a knowledge-based economy and society by better policies for the information society and R&D, as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market;
- modernising the European social model, investing in people and combating social exclusion;
- sustaining the healthy economic outlook and favourable growth prospects by applying an appropriate macro-economic policy mix.”

Then, at the European level, the innovation, the R & D as well as the entrepreneurship are placed in the foregrounds. At the same time in 2006 the need for a more voluntary policy was underlined specially in the field of education, training and assistance to the small companies. The principal objective is the creation of more jobs⁹.

A fast analysis of the many reports (“that nobody reads, according to Mr. Barroso”¹⁰) shows that there is a relatively overall agreement on the need for innovating and to promote employment within the framework of a sustainable development. However important delays are noted due mainly to a too weak financing and a lack of political good-will of the EU Member States.

This leads us to highlight the role of the Regions which could supplied the low role of the federal state and which will become an incentive actor of the development as well as a catalyst for cluster generation. One then joined the problems of the poles of Competitiveness and the clusters.

As is underlined in the Lisbon’s agenda and most particularly for training and education¹¹:

“Governments and higher education institutions across Europe respond to these challenges in different ways. The Bologna process is an attempt to co-ordinate these responses through a package of structural reforms, notably the introduction of the two-cycle system, credit transfer and quality assurance.

The Bologna Declaration adopted by the Higher Education Ministers in June 1999 set in motion a series of reforms necessary to make European higher education more coherent, more competitive and more attractive for European citizens and for students and scholars from abroad. Reforms are needed because European Higher Education is lagging behind.

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France to oppose plan for EU services market
Thomas Fuller International Herald Tribune
Friday, February 4, 2005

Compared to the United States, Europe is lagging behind in private investment in higher education, as well as in the number and level of incoming students from other continents.”

It is also noted that in complement of the development of the innovation by the development of clusters a national and regional voluntarist policy of education is also placed in the foreground. This is very important because this approach in education will concern the European context of exchange and diplomas recognition, independently of the national habits and practices.

1 - Why the poles of competitiveness?

To ensure, within the framework of the development of the French national program of Economic Intelligence (equivalent of Competitive Intelligence for US and of Business Intelligence for UK) a regional industrial dynamics was not easy to create. The call of projects for the creation of the poles of competitiveness in France was an answer which received a very favourable echo and which gave the necessary impulsion. An observation is however necessary: if one examines a certain number of countries were the innovation, the crossed fertilization, the links between SME-University-and great industrial groups are developed, one notes that a certain time (often of many years) is necessary to achieve this goal. As an example let us quote the Silicon Valley in the USA as well as the Triangle Park in Raleigh (USA) where the development was the fruit of the history or was a will of States (Federal and Regional) and were more than 15 years and even much more for Silicon Valley were necessary to reach the stage of current development. It is thus necessary to keep in mind, at the French level, if a benchmarking is made, this time constant. Indeed to catch up with wasted time will take necessarily several years during which the “destiny” of the poles of competitiveness like that of the “start up companies”, will be variable: from a continuous development until a pure and simple disappearance. Thus Alain Juillet12 in a conference given in Avignon (France) within the framework of the pole of competitiveness fruits and vegetables indicates: “because the finality of the poles of competitiveness, is not to have a pole in a corner of France but in 10 years or 20 years to have many poles to replace the companies working individually by companies working into various networks to face their competitors”.

2 - Some keys to succeed

A - Information

One of the fundamental keys of success is related to information. It is clear that the systematic exploitation of information (formal and informal13) in a precise objective is one of the keys of success. But to reach its objective there is a strong need of the development of a common vision, possible scenario and road map. This means that a pole which will be developed only with in mind to get governmental subsidies will not be able to reach this objective. A tight control of the road map over time will be necessary. Of course in the same pole, according its size, various objectives may be developed.

12 Alain Juillet has been appointed by the French Prime Minister as the person which will report on Competitive Intelligence in France near the Prime Minister
13 or written information and human information or secondary sources and primary sources or documentation and network information
B - Networking
Many works highlight the network power. Indeed, the diversity of the expertises, of the approaches of the objectives constitutes a common wealth. If that is admitted by all on a conceptual base, force is to note that this is not always the case in the reality. Then a special care should be taken to be sure that the best possible networks will be developed. But developing a network without a clear objective is useless. Then we will see below that there is also a need of a legal framework to make the network efficient. It makes obvious that a change of mentality is necessary, to share information but also and this seems to us the most important create out of this information the **actionable knowledge** which will facilitate the development of products and services within the clusters.

C - The creation of actionable knowledge
If information is necessary, it is not an end in itself. Starting from formal or informal information, it will be necessary to create a knowledge for the action. This is common place to underline that we are entering into the knowledge society and that knowledge will become one of the most important asset of a company. But, the situation will become more complicated when the creation of knowledge will not be only inside a company but will concern the whole cluster. The creation of knowledge will necessitate to share information, to have experts from various cluster companies working together to develop a common objective. This thus implies for a pole two distinct actions: the search for information and its dissemination, and the creation of knowledge for action. It is thus obvious that if the objective is only to gather information and to disseminate it among the partners, the objective of the creation of an actionable knowledge will not be achieved. How the interest of the various partners will be preserved in this process is one of the key of the success of the clusters. How a pole of competitiveness will be able to create a dynamics to nurse common joint projects with a fair ROI for all the partners will be a milestone in the life of a pole.

D - Joint projects
The poles of competitiveness were created above all, in France, to sustain the development of the 189,000 companies which have between 9 and 200 employees, in an increasingly difficult competitive environment. The disparity of the poles, which may contain in the same time large companies (even multinational) and small one (of a few tenth of workers) can generate various problems of competition, intellectual property, etc. A strong governance and a legal framework for the development of the industrial activities is necessary.

E - Co-opetition
The poles of competitiveness also have as a finality to export. If the pole can develop a local attractiveness, this is not to create a competition inside the country, but to create the conditions to export the products and services from the poles in other markets than the national one. In many cases the companies present in the pole are concurrent often on the same markets (regional, national or foreign). Of course, in the ideal case, all the companies of the pole should be complementary, but that is seldom the case. This is why co-opétition [14][, i.e. the fact that one can cooperate in certain cases while being competitor in others] is very important. Then the companies should learn inside the poles: what they can make together in spite of their mutual competition.

F - A clear legal framework

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14Barry Nalebuff and Adam Brandenburger, Co-opetition, ED Currency Double day, 1996.
A “rather simplistic” concept consists in saying: let us put our ideas, information and knowledge together and after the development of products or services born from this cooperation we will protect them. This way of thinking, a posteriori is the best way to lead a pole of competitiveness to its loss, even to its disappearance. To allow the partners of the pole to exchange and cooperate in “good faith”, it is necessary to install a legal framework which will make it possible. It will be necessary to define the perimeter from which the actions of any nature undertaken in the pole will profit to the “contracting” partners. This again poses the problem of the governorship of the pole. Within such a framework, original approaches like that of Australia can be underlined. In this approach it is clearly shown at the beginning that “Turning innovations into commercial success has been identified as being key to Australia’s future prosperity”. This second the Palmisano, Beffa, Renaissance II, reports. The date is important, because this is in 2001 that this legal framework was stipulated:

- The starting “cluster” is made to be developed within the framework of a company which will be created by the participants. This must be clear at the beginning so that the legal bases are safe.
- A careful analysis of the shareholders intentions is made before the development of the cluster. So that they will be clear for all the participants. Certain orientations are variable according to the institutions, organizations or companies. The desired criteria can be of international fundamental research, generation of scientific publications, the return on commercial investment, increase in activity and creation of jobs, etc…
- When all the actors approve to set up the “clusters” one will develop a model of participation on a shareholding based with a distribution of shares. For example for the project, initially 100 shares would be emitted. Each participant having an attribution at the beginning according to its implication in the project, with an adjustment made after a year of effective contribution. Thus each year the amount of the shares will reflect the effective contribution of the participants.
- If the results require taking a patent for their protection, this will be made in agreement with amount of shares of the various partners. The same will be done if products or services are launch to the market.

In France, an analysis of the StratinC report highlights for some clusters the need to take a particular care of the structure in which the companies will cooperate. Thus the aeronautical cluster in Lorraine was preceded by the creation of a SAS, in which all the recipients companies are present. Thus the situation is clear and the problem of governorship is regulated upstream.

Then, when products or services are developed by the cluster, all the legal problem of intellectual property and ROI, will be solved. This manner of working ensures the maximum

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15 Developing a new business model for enabling research – the case of the ACPFG in Australia


18 Intelligence Stratégique et réseaux innovants. Stratinc, Interreg IIIC http://www.e-innovation.org/stratinc

19 In 2003, the recipients of this cluster have choose a flexible institutional structure : a SAS (Societé par action simplifiées). This is a company with a status in which all the participants are the shareholders.
effectiveness of the system: the work with confidence, protection of the results, conditions of marketing and return on investment. This manner of working is interesting particularly if small and middle size companies are engaged in the cluster.

All occurs as if we are in the presence of two applicable strategies according the clusters, one being mainly centred on the products and services which can be developed in the near future, the other which is rather concerned by the development of generic technologies suitable for the cluster and of course with a longer time constant. Within this framework the agenda will not be the same as well as the actions which will be developed. Assistance of the Government will be required in certain cases for heavy equipment, educational programs and fundamental research. Within this framework the cluster could be more open.

3 - The role of the Economic Intelligence

A - Definitions
There are many definitions of the Economic Intelligence, note that the definitions from the USA, where the priority is given to the company, i.e. the systematic search for information for the best possible decision-making to gain more market shares and to maintain or create competitive advantages. But other definitions, for instance given by Alain Juillet or the Deputy Carrayon highlight the necessary control of strategic information to make the nation able to maintain its competitiveness.

B - Strong signals
In the same time to maintain the development and to create competitive advantages is considered as a stake for all nations in the 21st century, This orientation is clearly indicated in a certain number of reports which are as many clear signals highlighting the bond between development, innovation, competitiveness and Competitive Intelligence (or Economic). Briefly let us quote some of these strong signals:

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20 This is the case of Taiwan, where from a general demand from the industries one moves to the formulation of a fundamental problem by technological institutes follow by the transmission of the fundamental aspect to research institutes. Then, when some progress are made, they return to the technological institute which integrate these progress into the technology and make it generic for the related industries. Taiwan's Approach to Technological Change: The Case of Integrated Circuit Design.
Tao-Long Chang, Chintay Shih and Chiungawen Hsu
Technology Analysis and Strategic Management, Vol.3, n°2, 1993

21 Systematic program to collect and analyze the information upon the activities of the competitors. …… in view to achieve the strategic goals of the company (Larry Kahanner) Analyze the information, upon the competitors which are involved within the decision process of the company. (Leonard Fuld) Knowledge and forecast of the surrounding world - in view to assist the decision of the company’s CEO. (Jan Herring)

22 “to develop a mode of governorship whose object is the control of the strategic information which has as a finality the competitiveness and the safety of the national economy and the national companies”

23 “The economic intelligence can be defined like all the coordinated actions of research, treatment and distribution of the information for its exploitation, information useful for the economic actors. These various actions are carried out legally with all the guarantees of the protection necessary to the safeguarding of the inheritance of the company, under the best conditions of times and costs. The useful information is that whose necessary for the various levels of decision of the company or the community, to work out and implement in a coherent way the strategy and the tactics necessary to the attack of the objectives defined by the company with an aim of improving its position in its competing environment. These actions, within the company, are ordered around an uninterrupted, generating cycle of a shared vision of the objectives of the company.”
- Palmisano report: Innovate America (the USA) The U.S. Council on Competitiveness has unveiled a report entitled "Innovate America". Defining innovation as the "single most important factor in determining America's success through the 21st century," the report clearly states America's task in the next 25 years is to "optimize [the] entire society for innovation."
- Befä report: Renewing the French Industrial Policy (France) Increasing the R & D to become more innovative and competitive.
- Carrayon’s report: Economic Intelligence and Social Cohesion. Economic intelligence will participate to the French cohesion by increasing its competitiveness
- Report Rebirth II (Canada) “Canadian Creativeness and Innovation for the new milenium “
- The Commonwealth of Australia (already referred above) “Commitment to Innovation”
- Law to promote the key role of Technology Transfer from University to industry (Law about TLO24; 1998) (Japan) The MITI (Ministry of International Trade and Industry) became the METI (Ministry of Economy, Trade and Industry) (Japan) The Council of Science & Technology became the Council for S&T Policy.

C - The role of the Economic Intelligence in the poles of competitiveness
The Economic Intelligence, within the poles of competitiveness must constitute a lever to develop a governorship which will aim to comfort the above the key factor of success and to analyze the pole in term of SWOT (forces, weaknesses – internal to the pole and opportunities and threats - external to the pole). Within this framework, obvious remarks such as the new competences to acquire, the training in certain precise fields, etc. will have to be taken into account. In the same way the analysis of opportunities and threats will open necessarily various international aspects of the poles activity, since the objective is to create value through export.
However, this exercise, if it appears simple at first sight will run up against internal practices and habits of the companies’ member of the poles. The final objective to create complementary and not an internal competition must remain in mind of the people in charge of the pole development. A second point, which derives directly from the definition given by Alain Juillet, will be the attractiveness. It can be declined in attractiveness of the pole, attractiveness of one or several companies of the pole and regional attractiveness.

- The attractiveness of the pole. To be attractive (to attract partners, establishments, capital risks), the pole necessarily must communicate. This communication will have to take account of the communication of the companies of the pole, but also of the communication of the region in which the pole is inserted.
- The communication of the companies. It should normally be in synergy with that of the pole. This aspect will need a strong cohesion with the governorship.
- The regional attractiveness, adequacy of the poles chosen with the regional political objectives. If it seems obvious that this area will benefit from the presence of a pole, but it can be different in many cases. For example for electoral reasons or because of the wide dispersion of many small companies (often with less than 10 people), other activities need to be comforted by the regional policy. It is obvious that if some

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“A technology licensing organization (TLO) is a corporation, which obtains patents for university researchers’ research results and licenses out those technologies to private companies, serving as an "intermediary" between industry and universities.”
conflicts happen in this financial context the best way to solve them will be to have a close contact between the governorship of the pole and the political regional decision makers.

There is a direct link between Economic Intelligence and regional development. That gives rise to the regional attractiveness and to the territorial intelligence, etc. which concern the actions of all nature carried out in synergy to support the development of the region.

D - The role of the Universities and public Research centres in the poles of Competitiveness

One can consider this role at two levels:

- the creation of the pole,
- the link with the development of the pole.

We will not examine here the “triples helix” which was the subject of multiple publications and works. In this framework one considers three partners whose coordinated actions allow the development of the innovation: the State (or the Region, that is to say the political authorities), the research institutions (public but also private), the companies (those which do research or which can innovate in products and services development). A good example of the triple helix and its effects is presented by Elias Zerhouni, Director of the National Institutes of Health (NIH) in the USA: “The success of American scientific research depends on the existing implicit partnership between academic research, the government and industry. The research institutions have the responsibility to develop the scientific capital. The Government finances the best teams by a transparent system of selection. Industry holds the critical role to develop robust products intended for the public. This strategy is the key of American competitiveness and must be maintained.”

- During the creation of the pole. The research organizations and the universities (research teams and laboratories), joined the pole of competitiveness very often to emphasize current competences, but also to seek for new research funds and facilities.
- During the development of the pole the situation may be different. Various projects are developed within the pole and the laboratories will contribute as expected or new competences will be necessary and new external public actors will become necessary. In this case, that could be a source of conflict. Another perverse effect was already noted in certain universities: for example when a pole of competitiveness exists in the region and if certain laboratories of the university are active in this pole, they often develop an hegemonic positions in their institution. This situation may be prejudicial in the long term. The results will be to sterilize innovation in certain areas. Various mechanisms of regulation must thus be installed based if possible on tierce third party analysis.

These types of problems have been examined in depth in Japan, amongst other things during the various phases of application of the organic law of 1998. The role of the Universities to

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26 Presented in December 2006 during the congress organized by the American Society of Hematology. Cited in What model the the French public research, Les Echos, wednesday January 10th 2007, Alain Perez
promote the technology and science transfer and the necessity to develop patent portfolios\textsuperscript{27} were strongly underlined. In the same way as we saw previously the search for new legal framework (for example in Australia) should bring a solution for a complementary development of the activities of the cluster’s companies. One can also quote in the same order the idea that Renaud Dutreil\textsuperscript{28} (French Minister for SME, Trade and Industry) want to impose: a minimal proportion of SME representatives within the steering committees of the poles of competitiveness. If there are only large companies in these committees, those will be interested only in “great projects” and no more room will be available for small companies. This position can also be unfortunately comforted by the complexity of the submission of proposal to the various agencies (French and EU) for research, innovation and R&D.

\textbf{E - The international collaboration of the poles of competitiveness}

It is obvious that within the framework of the globalization the strictly national actions have only a few chances to succeed. It is then necessary to create the conditions of an international collaboration. But, that will rise the problem of governance. If one admits that the poles of competitiveness are made to create a synergy in the pole including SME (189,000 companies into 9 and 200 people must be consolidated because they ensure employment\textsuperscript{29}), the insertion of the poles in various international co operations may generate various frictions among the actors because of the differences in culture and finality. But if we also consider that international collaboration is an opportunity for the development\textsuperscript{30}, the balance should be done within the governance of the pole. These international aspects are even (to some extend) limited by security reasons (true or false). For instance the State will finance (up to 80\%) a software to ensure the global security of the poles of Competitiveness.\textsuperscript{31} Those difficulties underline that the poles of competitiveness are very young and that they will need a certain period to find an equilibrium between large and small companies in their functioning.

\textbf{Conclusion}

The French poles of Competitiveness constitute a strong hope for those who believe that a new industrial development is possible. But, to succeed it will be necessary to stop some old behaviour: the permanent quest for the financial state help and the hegemonic position of large industrial group at the expense of the small and middle companies. Unfortunately, there are many signals which show that this is not the direction which is followed in certain poles. It is then the duty of the political decision makers to stop the patronage and to take as

\textsuperscript{27} Journées scientifiques franco-Japonaise, 2005, Tokyo.
\textsuperscript{28} Le Figaro, Economie, Monday December 11th 2006, interview from Béatrice Taupin and Marie Visot
\textsuperscript{29} Alain Juillet, Avignon 2006, pole of competitiveness fruits and vegetables
\textsuperscript{31} Pôles de compétitivité : vers une sécurité renforcée (Brève Usine nouvelle, 17/11/2006)
To allow all the actors of the poles of competitiveness to work in all confidence, therefore in full safety, is one of the keys of the success of the French clusters. This is why the State will finance up to 80 \% two innovating software of economic safety which will be able to equipe all the poles of competitiveness (which will finance 20 \% remaining), announced today the Minister delegated to the Regional planning, Christian Estrosi, during the second forum of the poles of competitiveness held in Sophia Antipolis.
guideline the results really obtained and not the lobbying and pressure of small groups of individuals.