

Great expectations. What efficiency can be reasonably anticipated in global teams?

Sylvie Chevrier, Annick Manco, Jeanne Salem

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Great expectations

What efficiency can be reasonably anticipated in global teams?

Sylvie Chevrier
Université Paris-Est Marne la Vallée
Cité Descartes
5, Boul. Descartes
Champs sur Marne
77454 Marne la Vallée Cedex 2
sylvie.chevrier@u-pem.fr

Annick Manco
Language Department Director
Institut d'optique Graduate School
annick.manco@institutoptique.fr

Jeanne Salem
Facilitator in project management
International Group (research field)
isalem_sermanet@yahoo.fr

Abstract

In the last twenty years, international firms have undergone various changes to become global firms. The inherent innovation potential of these global firms only materializes if the various entities cooperate efficiently and succeed in merging together their contributions. The object of this article is to examine the practical forms that this cooperation takes, so as to detect, by observing actors in global organisations, what barriers and difficulties they meet. This paper presents the empirical study of the dynamics of two R&D teams within a major French industrial group. By studying how the daily teamwork takes place, this article takes a critical look at the new models of organization and assesses how far they really favour innovation.

Great expectations

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Introduction

In the last twenty years, international firms have undergone various changes to become global firms (Porter, 1990) or transnational firms (Bartlett and Ghoshal, 1998) or meta-national firms (Doz et al., 1993). These changes in terminology do not simply consist in an upgrading of lexical terms; they reflect substantial changes in organization and structures. The usual logic of multinationals used to presuppose a compromise being found between on the one hand the centralization of operations in headquarter country and the subsidiaries which had to handle distribution onto local markets, and on the other hand decentralization, involving the replication of the value chain in each country of operation. In the latter configuration, each subsidiary was in charge of its own development, production and marketing operations, and most of the transactions between headquarters and subsidiaries consisted in financial transactions such as the repatriation of a part of the profits.

The new generation of international firms draws on the enormous progress achieved in transport but above all in telecommunications. The organization is now rationalized and streamlined on a planetary scale. Thus, research centres are increasingly located close to educational centres, production facilities gravitate around areas where key resources achieve the best trade-off between quality and price, as for distribution centres, they serve each major regional market. It now appears that the value chain is characterized by fragmentation into several entities and geographical dispersion (Mayrhofer & Urban 2011). Global businesses now put in place structures that function as networks, linking together not only subsidiaries but also partner firms so as to be able to design together and produce together products and services. The competitive advantage lies in the ability of these transverse structures to innovate, by fostering collective learning and by sharing ideas, experience, competence, cost and risk.

However, the inherent innovation potential of these global firms only materializes if the various partners cooperate efficiently and succeed in merging together their contributions. Rather than merely abstract knowledge resources that meet and naturally generate innovation, we have actors in flesh and blood who must find a way to make the most of the complementary nature of their skills and knowledge. The object of this article is to examine the practical forms that this cooperation takes, so as to detect, by observing actors in global organisations, what barriers and difficulties they meet. Also, the management approaches favouring the acquisition of these network structures' potential

gains should be determined. A closer observation also reveals that the innovation hinges on the quality of the cooperation within transnational teams that are not only multicultural but also often virtual and enmeshed in highly complex organisational structures. By studying how the daily teamwork takes place, it becomes possible to take a critical look at the new models of organization and assess how far they really favour innovation.

This article results from the empirical study of two R&D teams within a major French industrial group. Each team is in charge of an innovation for a product in the core competence of the Group, implying highly competitive stakes. Both teams bring together mainly engineers from the same group of countries: France, Germany and the United States, working with English as the *lingua franca*. They have worked together over many years, in similar organizational conditions. The teams are analysed in what they have in common, since they have similar cooperation imperatives, although the technical goal may be different. The field and data collection method are described in table 1.

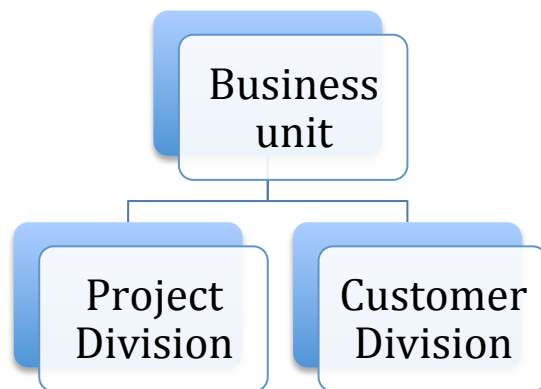
In order to analyse how these virtual and remote intercultural teams work, we will describe in the first part what practices they implement to try to achieve the objectives set to them, demanding that they should cope with distance, cultural diversity and organisational learning. Secondly, we show what difficulties persist and hinder efficiency. Last, this critical analysis will highlight the limits of the global models and to suggest how these might be tackled if the potential of global teams is to be truly achieved.

Table 1. Methodology

Case studies

Team 1

Project 1 is a R&D project which aims at developing a very innovative, high performance and high tech product. This product is expected to increase the company market share. At the time of the research, teamwork has been underway for 10 years and the core project team, which has numbered to 12 people, includes 4 persons of 3 different nationalities (French, American and German) located on 2 sites (in France and Germany). The team is in charge of designing the new product. Prototypes are manufactured in Germany. Tests, crucial to ensure the product performance, are carried out in the three sales sites through different protocols in compliance with local standards. The contributions of each site have been unequal and variable according to the project stages. This project involves two international Divisions (one is in charge of projects, the other one is the customer division). They both belong to the same Business Unit. The Business Unit manager is the supervisor of the project manager.



Project 1

Team 2

Project 2 aims at designing and developing a new science-intensive product intended to replace extant products, which so far have been different for 4 sites in 3 countries (France, Germany, USA (2 sites)). The new product has to comply with local market constraints and should enable the company to reduce R&D costs because it is unique. The project manager is located in the French site and is assisted by team leaders spread over the 4 sites involved in the project. Team leaders are in charge of technical issues in their expertise field and act as interfaces between contributors. Local correspondents for the project have also been assigned to ensure liaison with the other projects of each site. Overall, the team includes about 12 people of different nationalities: French, German, American, Russian and Chinese.

Project 2 entirely takes place within the Project Division. This Division has a matrix structure crossing technical disciplines and geographical areas. The project manager belongs to this Division as well as his supervisor.

Data collection

For each project, data on team dynamics have been collected through face-to-face or telephone interviews with present or former members and through the observation (listening) of conference calls between team members. Project managers have been interviewed several times.

As shown in the following tables, French members are the most represented in the interviewee sample. To some extent, it is a sample bias due to the entry mode in the organization through contacts with French managers. However, the French are also overrepresented in the company itself; even though it has become a multinational company, it is still marked by its French roots.

Team 1

- 2 conference calls with all project members

- 9 interviews

Nb of interviews	Interview mode	Position	Site	Citizenship
2	Telephone	Project manager	France	Fr.
1	Face- to-face			
1	Telephone	Customer division manager	France	Fr.
1	Face to face	Project Director in the customer division	France	Fr.
1	Telephone	Cross-discipline Coordinator	Germany	Fr.
1	Face to face	Project member	Germany	All.
1	Telephone	Project member	France	Fr.
1	Face to face	Project member	France	Am.

Team 2

- 2 conference calls with all project members

- 8 interviews

Nb of interviews	Interview mode	Position	Site	Citizenship
3	Telephone	Project manager	France	Fr.
1	Face-to-face			
1	Telephone	Former project manager	France	Fr.
1	Telephone	Project member	Germany	All.
1	Telephone	Project member	USA site 1	Fr.
1	Telephone	Project member	USA site 2	Am.

1. How cooperation in global teams is organized in the light of communities of practice

The aim of this first part is to describe the practices as they actually take place within the two teams, the members of which display a high level of expertise and have to work over three different regions

namely the United States, Germany and France. These teams meet the criteria of global virtual teams as defined by Taskin (2010), characterized by “*the absence of physical and psycho-sociological proximity alongside the subordination and control mechanisms*”.

The methodological approach used to analyse this situation is the model of the learning communities as described by Etienne Wenger (1998). The author defines these communities by means of three main criteria: a group created by the mutual commitment of its members, whether this be spontaneous or guided, and the aim of which is to harness the complementary nature of the skills therein, materialized through sustained action. The group shares responsibility centred around a common project, changing in time with the various challenges met. Also, the group shares a common set of tools, resources and language, almost an idiolect that enables members to communicate.

The two teams observed may be considered as communities of practice according to Wenger’s description, and indeed they were originally formed with the aim of developing the Group’s overall competence by combining the various regions’ contributions into a complementary whole. In practice, both teams operate in transverse projects, which themselves take place within the matrix organization of the Group, crossing regions and technical disciplines. Both teams work towards achieving a new technology resulting from the combined and specialized competences identified in various parts of the Group. Also, the teams use the same body of technical references, similar communication modes and all members know and acknowledge the Group’s values expressed in the Charter to which all newcomers must subscribe.

The core members of these teams work full time on the projects, and have frequent interactions with one another. Core team members, however, still have their roots in the entity they belong to, while they also interact with other surrounding communities that form a constellation of communities of practice. The latter may be an in-Group client organization, or occasional contributors, or may even be the other communities that members belong to, be it a professional, technical or scientific community, or a regional entity within the latter. Other communities stem from previous acquisitions, gradually merged into the Group, yet still displaying some of the characteristics and practises of the original firm. Other local, site-based communities should also be taken into account, regardless of geographical frontiers, as may be true of expatriates who still have links with their country of origin. Moreover, within a community sharing the same nationality, other factors may give identity to a specific set of persons, for example as can be found within alumni of the same school, in the case of France, the fact of belonging to the same *Grande Ecole* may be a strong identity factor. The members of all these peripheral communities clearly only devote a part of their time to the projects and have limited interaction with the core teams.

The usefulness of analysing the teams in the light of these communities lies in the fact that it highlights certain practices, but it also highlights the way these project teams interface with the world organization they are part of. All the practises are as many daily habits, or *modus vivendi*, negotiated between stake-holders. They form the foundations for the efficient exchanges required to achieve the expected project results, as well as the organizational learning modes: « *Learning is the engine of practice and practice is the history of that learning.* » (Wenger, 1998, p. 96). Such practices are aimed at transcending the individual level, to achieve group learning and ideally extending into a body of practices that may be reproduced with other project teams.

1.1 . **Group learning within the global project team.**

Both teams have to contend with various types of distances, the most tangible being linguistic, geographical, time and cultural distances. In a pragmatic way, and since team members have considerable Group international experience, both teams have gradually found their own way of coping with these barriers. The resulting practices have grown almost organically, through implicit learning, this being only partly formalized, and sometimes not properly identified at management level.

The first practice consists in the actual selection of these team members. The high technical challenges require expert skills in very specialized areas of knowledge, and this competence is generally recognized by team members: “*Competences are mutually appreciated. When he (team member) says something, people really listen; when he says he carries out a study, we know that it is going to be done well, he is thorough. This is deeply appreciated. Perhaps, if he was here (in France), it might not be quite so appreciated, he might be considered as over-fussy. That is said sometimes but the bottom line for me is that he is dependable. When you are far away, that is very important indeed*”.

However, this competence would not suffice without good communication skills, without the ability to interact with people whose mind-set has been shaped by different geographical, technical or cultural environments. That is one reason why most team members chosen to be involved in global projects are people with expatriate experience, they are sometimes multi-cultural. As one Franco German coordinator expresses, being herself trilingual in French, German and English - having also been educated in France and in the States- the capacity to grasp several points of view is extremely useful in operational work: “ *What I find is that, now that I am working on the German side, I am far*

more successful; evidently I understand what the French want because I am French myself, but I also understand the Germans and the misunderstanding that can occur.”

Another point is that all team members master English, which is the official language of the Group. The language used by all is rich in jargon, but it has also gradually been further added to by what can be called an idiolect, inasmuch as each community develops its own linguistic codes, often shorter version of something that need no longer made totally explicit, or borrowings from another language, for example a French acronym, the whole evolving into a sort of *lingua franca*. The native languages also influence English, and it is not unusual to hear, in the same sentence, various mixtures of each, while the nature of imports varies with the nationality of the listener, and his/her linguistic skills.

When the projects were started, that is many years ago, training in inter-culturality was provided, by means of seminars which were appreciated by both teams: *“I think it is a good idea to have some preparation in intercultural communication, to manage to understand how it is others express themselves, I believe it is important ”*. Another said: *“There are major guidelines, that is what we see in the intercultural training sessions”*. As part of informal exchanges, more often than not between members of the same nationality, a self-conscious together-ness enables a common understanding of different behaviours: *“The project leader has worked one year in Germany, so he is aware of some things too. Sometimes I am even able to say to him: ‘you know what the Germans are like’. And he understands. Not in a formal way”*.

With the added dimension of remoteness, effective communication requires several practical adaptations that depart from the usual close and mono-cultural exchanges. Face to face exchanges remain fundamental, since they later allow, once a personal relationship has been established, better telephone exchanges, that is remote exchanges, or e-mail, that is asynchronous exchanges: *“Distance is less pressing now, I think that as long as we are in frequent contact, or more frequently in contact, to some extent that compensates for distance, for physical remoteness. Our project leader regularly travels to Germany, quite regularly, for this project”*. Face to face exchanges allow more communication to take place, non-verbal components and a deeper comprehension: *“ The reason why I had a face to face meeting with the different regions, about their requirements, is because it really does help. You’ll see, it really is not the same. You can’t see how they are reacting, it is not as productive a conversation.”* In another statement: *“We get the people geographically together. I think it is a very efficient move and it irons out the difficulties that can be caused by cultural differences”*.

In one of the projects, some members of the team had the opportunity of being brought together on the same site for about 3 years, and this, according to the people concerned, has fostered mutual adaptation: *“When people are face to face daily, things tick along nicely. I have seen in time as the team evolved, people, Americans, Germans, they changed too”*. And also *“It is more comfortable when you have had a chance to see people”*.

With experience, team members notice what is unacceptable to their foreign colleagues, for example concerning the way meetings proceed: *“ the German is very strict about the agenda, and times must be strictly respected; this with a Frenchman would not work either, he would say ‘this is crazy’. All this is a bit of a caricature, but each has had to tone his style down a bit”*. As for formalization: *“True, with a German fellow, this is important: if I just turn up with a rough draft, I must polish it up a bit otherwise I will be taken for a Charlie”*.

After several years of working together, teams have become vigilant so as to avoid possible sources of misunderstanding and have put in place feedback mechanisms: *“ When I write something, and if someone wants to have some questions, I invite on email ‘please use the phone’, because a lot of misunderstandings can happen via emails.”*

The third method implemented by the global teams is the attribution of responsibility to local teams in the realization of project actions. The underlying principle is *“Each department is responsible for the work effected”*. A formal project management plan, means of monitoring as well as mission letters formally lay down results to be achieved and those attained. By means of this answerability, the project leader can count on the efforts of all project contributors, despite distance: *“Now I place this in the hands of the local (German) team and now they will all sweat it out for two months. It is not an easy task. A heavy responsibility rests on their shoulders”*. From a technical stance, performance is seen as all the better when the responsibility is full and undivided, be it in France or Germany or the United States: *“ Where they (Germans) are at their best is when they have technical leadership for a whole sub-section, for example for a component (...) that is how they work best, the Germans. They go it alone; and you can be sure that, if they did what they did, it is the best that could be done”*.

It appears that the two project teams studied have many assets with which to achieve their very ambitious objectives: technical expertise, linguistic competence, international experience, intercultural seminars. Moreover, empirically, they have learnt to put in place practices to ease working together and to strive to attain better performance: communication to overcome distance, whether in writing or in speaking, bringing to bear wherever possible the advantages of physical presence or informal exchanges, and the attribution of full responsibility on precise contractual objectives.

1.2 Learning within a global team in relation to its organizational environment

The two core teams lead projects while also inter-acting with other communities of practice since many team members also belong to other groups and in any case have frequent dealings with them. To facilitate these exchanges, specific measures have been put in place in the hope of facilitating these interactions and nurturing organizational learning.

The first of these is a coordination task force between local communities or technical discipline communities, put in place as a result of a crisis: for team 1, the naming of a coordinator after an open conflict, for team 2 a task force set up to speed up work after a missed deadline. This can also happen in anticipation of needs in terms of innovation for new market shares, as witnessed in team 1. In any case, the mission had to be legitimized, since recognition by all is essential. One way to do this is via the mission letters, for the coordinator as well as the teams. “ *The coordinator has a precise task with respect to the project. He is legitimate because we all know there is a mission, with the emphasis on project scheduling*”. Or “ *Clearly, we have appointed a coordinator, she was given a mission letter, co-signed by me and the World (technical discipline) Manager, giving her a number of missions, namely to be the mandatory entry point and communication point between all the different technical groups in the project*”.

The ideal person for this kind of mission has to have deep mastery of the technical aspects, that is to say the capability to understand the interdisciplinary nature of the project: “ *This was one of the requirements when I was appointed: to have someone with the same technical discipline background to make sure contact was secured*”. Also, intercultural competence and the ability to grasp strategic stakes is required: “ *The US expert is going to work out the road-to-market, in the last phase of development, so as to enter that market, as clearly it is the American market that is targeted*”. The person entrusted with the mission should then be able to grasp issues, to assess with the necessary detachment the relative positions of each, contributing to the advancement of the project and filling the role both of translator and whistle-blower.

Since several communities of practice and several cultural entities are involved in the same project, it becomes necessary to clarify how decisions are taken: « *Decision process within [our Division] is not clear because of our numerous interfaces with [customer Divisions] in particular. The responsibilities are also not equally shared among [our Division] managers leading to a large burden for some of them. Furthermore, because of our matrix organization, the decision process does not always involve the right persons*”.

It has also been observed that the team players have elaborated their own mental picture of how different nationalities operate on this point. By dint of repetition, these characteristics end up being fairly widely shared: « *Sometimes when I talk to French colleagues: when they have meetings with bosses, I understood it's different from what we have in Germany. In France it's more like taking information: that's what the boss is saying, I got this information, that's it.* »

“The French, they tend to be very hierarchically minded. A Frenchman will let his boss take the decision for him, overall. It is not true of a German. The German gives his opinion. He might let the boss take the decision but he won't change his mind. At least those I know, maybe I cannot generalize”.

“An American can easily fall into line with a decision even if it is not technical. He will see if it makes sense technically and if economically or from a market point of view the optimum solution lies elsewhere, he will have no qualms in setting this optimum as his objective”.

« The German process for decision-making is similar to the French system in terms of the thoroughness to explore the project before execution. »

In this context, the project leader has a particular role to play in ensuring a long-lasting convergence within teams and between communities. He must, for example, be mindful of maintaining compatibility between various practices and reciprocal perceptions: “ *What I do right now, in the departments where I have contacts, I use these contacts, and where I don't have any, I go there myself, and we work out actions together*”. He solicits contributions from everyone: “*In that way, by adopting the principle ‘OK we lay down everything on the table’, everyone has a chance to speak*”.

Another means implemented is the development of competences by mutual inter-community learning. This is at the heart of the global teams' *raison d'être*, that is to say, to advance overall competence by harnessing together the strong points previously found scattered in different units. The way to achieve this is first to closely evaluate the various potential contributions in view of an optimized redistribution of the projects' different activities. “*The centres for a particular competence may be local. Hence for a given project we will tend to entrust certain technical aspects to the German side because that is where we find the strongest competences, for other technical aspects we get the French side to work because they have the best experts, and for other aspects such as risk management, we turn to Americans because they are really talented on this subject*”.

Thus getting everyone to work together tends to develop mutual exchange and learning: “*From the other side, that was one of the great things in the project, that we learnt a lot from each other. So that the people don't tell only, speak on their views, were able to switch to generate a common view*”. Another person confirms: “*I see some positive things, especially a consolidation of relationships*

between France and Germany, and this contributes to the development of competences in France as historically this department would deal with basic recurrent activities, and less with development”.

Such learning may be accelerated sometimes when extra human resources are needed and must quickly update their skills: *“Getting two German engineers over to the States was a big personal investment, but it enabled me to have four people on the job for the following two months, which was a great help”*, as stated by an engineer in the States who was short of manpower on a very challenging local task.

After some years, a real *esprit de corps*, or team-spirit sets in between members of the same community, even if they belong to different sites: *“ Inevitably, amongst developers, there are more bonds between the French and the Germans, some Americans participated too, and inevitably that is where you get most trust, most bonding”*.

Pooling together highly specialized expertise leads to an overall rise in expectations insomuch as the respective expectations are added. For example, feedback is richer because it has a broader base, a larger range of experience is drawn from, a broader variety of competence is summoned. Standards therefore tend to be aligned on the very best, across all regions. Thus, in one of the projects, the three participating regions have together opted for a technical solution which was found in only one region but deemed the best by all, after across-the-board assessment comparisons. Similarly, procedures implemented result from a selection of those which seem most efficient in each team: *“ In terms of work methods and documentation, we are increasingly americanizing our own ways. To give a concrete example, a quality assurance procedure describing what is to be done and the stages that have to be complied with, the French procedure was altogether 3 pages long, plus one page with logograms. The same procedure in the United States, describing the same thing, was about 30 pages long. And in Germany, it is a little less but in the same proportion”*.

As for experts, they can also change towards new stances, as a result of skilful mediation which by patient confrontation of the respective strong points allows a new compromise to emerge: alternating individual consultation with collective discussion. It is important to allow each point of view to be aired prior to negotiation: *“ The term ‘we’, it has to be ‘we as the company’ not we in Germany, we in the US, it has to be a team approach, so the best way to instil that is, when I talk to the people: OK what is the requirement, what is the basis. So now that I have the basis, I go to the other regions, and say, ‘these are the comments that we have from Germany, this is why we need them’. So when we get back altogether, as a team, we say ‘we’ve gotten through all the little things, I’ve personally talked to all of you, we have all the little things, now these are the big items still. We have this problem with*

this, we have this requirement, and this is why we have it, and we are not sure if it is the best way to approach it, because of past experience here or there”.

On the subject of communication within this complex array of communities, it is eased when the organizational context fosters exchanges and travel, as long as the cost burden can be shouldered: *“At the time, there were no financial problems. People travelled an awful lot between France and Germany. There was a direct flight. This created a closeness between France and Germany which has lasted up until now. The fact that a worldwide organization had been set up has allowed people to be closer and has led to better work together”.*

Information technologies also facilitate daily communication even with teams far apart. However a first face-to-face meeting always helps to create a strong relationship that is continued via IT: *“If you know people by face, it’s easier to get in contact. That’s one way of human life that a personal contact helps to improve communication. It’s possible just to communicate by phone and by email, no doubt about it, it’s helpful and it improves the relationship if you have at least sometimes to meet face by face. For some people, not for everybody, it lowers barriers. If I have a problem, I take the phone and call my counterpart directly in France or in the US and discuss directly the problem”.*

However, outside the core team, other members of these teams are subjected to diverging pressures between on the one hand the demands of their immediate environment and on the hand the expectations that stem from the projects. Face to face meetings help to maintain the necessary efforts and to avoid discontinuity in work or the lapsing of attention or commitment due to distance, especially with auxiliary teams.

Project teams, though keenly aware of the constraints of virtual exchanges, nevertheless realize the value of direct communication and adequate information for surrounding teams too, so as to maintain locally a sense of belonging, a sense of long-term cohesion: *“We were asked to organize some ‘technical days’ to inform (the department) about what point had been reached in the project, what the problems encountered were, what successes we had. It was also a problem on the French side: for many people within the same organization, the project did not mean anything to them at all.”*

The last measure implemented by the global teams consists in setting up common operational tools, shared by all the communities that take part in the same project. These include standardized technical forms, which may seem more or less significant to some; *“We would like the Germans to work in the*

same manner as Americans. For example this translates into using identical forms: it is for each to lay down his requirements in these forms”.

The same goes for technical approaches and directives, for example test protocols, which may be relevant to all but may also have specific local features: *“Testing protocols have been elaborated little by little. The principle is always the same: to look at what the local requirements are in each country, what the exact needs are, and then to try and negotiate an agreement where all situations are catered for”.*

Similarly, the same preoccupation with convergence in management inspires the initiative to work out tools to monitor progress and respective contributions: *“At the end of the year, we set up an action log, an Excel file with a list of the main project actions. This will help me monitor work, and will also be a means of interfacing effectively. Along with the group leaders and engineers, our reporting will be made easier as well as action supervision”.*

Thus, in addition to internal measures within the core team, many learning mechanisms have been observed which tend to strengthen the contributions from practices outside the project team, originating in its working environment. For the most part, these learning approaches have been elaborated with hindsight, resulting from trial and error and in reaction to the difficulties encountered. These may be summed up as inter-community bonds: coordination, decisional modes, or the strengthening of collective skills, competence development and the raising of technical standards.

2. The litmus test

In this section, the actual project results will be reviewed, as well as the daily reality of virtual global team-work, with special emphasis on leadership and management.

2.1 Mixed results

The two R&D teams studied had been given the mission to design and produce a completely new and advanced product that would combine the best characteristics of all the products previously developed in the different contributing regions and hence also in what were previously different companies. At the launching of these projects, the anticipated time span was between two and five years, to reach the stated goal of an innovative design. However, after ten years, and in both teams, this goal has not quite been achieved. In the first team, a critical deadline was not honoured. As for the second team, few clients have signed up for the new project, expected performances have not quite materialized as was hoped. In retrospect, specialists think it is legitimate to believe that the

targets set were deliberately optimistic and ambitious, not only in respect of the expected synergies between teams but also in terms of scientific and technical achievements. According to a French engineer: “ *Projects – especially those that are unique, of the R&D type, completely new, things that have never been done – we tend to be very optimistic on the time it takes to complete the tasks*”. An American member of the team confirms, this time on the other project: “*Part of the problem with this project to me is that to some extent there has been unrealistic expectations* ».

In part, this optimism was deliberate because it was hoped that setting radically new goals would bond the teams together, since they did not know each other before, and had sometimes even been in competing firms before. Moreover, risk is inherent to research and development activities.

The prolonged efforts of both teams have had positive effects on the quality of existing products, given that some of the improvements have since been implemented. In team 1, the significant upgrading of products currently on offer have been noted by clients and have enabled the Group to maintain its position as key player on the market. As regards team 2, the project resulted in the enhancement of very specialized competences in several fields, as could also be perceived by clients. Nevertheless, from a commercial stance, the hoped-for products are still not readily available off-the-shelf, and it is difficult to assess exactly if the return on investment for the considerable sums invested is satisfactory: “ *The product has never been deployed (...) it never become a standard industrial product, an off the shelf product. In this case it was an innovation, not a straightforward adaptation of existing things*”.

The most obvious friction points, or limitations, relate more to the project management than to the innovative products themselves, that is to say, longer design times than had been anticipated, and team fatigue. With the passing of time, new difficulties arose and budget restrictions became increasingly pressing, therefore team morale seemed to be affected while project leaders showed clear signs of fatigue, even anxiety: “*We all wish this could be over*”. In the course of interviews, the deep stress was sometimes expressed as a call for help: “ *There is one point where you might be able to advise me, I perhaps, perhaps I am not a good project manager*”. The relatively high turnover in project management is additional evidence. There have been several crises, which have caused changes in leadership, every two or three years.

2.2 Organizational complexity

Although the projects themselves are over ten years old, the organization in which they have taken place is more recent. First, it has been necessary to absorb previously independent, sometimes rival

units, which thus became partners overnight, belonging to different nationalities, and having different corporate cultures. This diversity not only expressed itself in different working habits, but even reflected previous technological strategies, sometimes aimed precisely at the avoidance of a rival patent. Each entity was more or less attached to its own approach, and giving up these in order to find a common, single compromise, sometimes proved painful. Some engineers interviewed and especially those with 15 years' experience or more, had deep-seated habits, from their previous companies. What they felt revealed a sense that change, or new ideas, were not welcome, this being sometimes described as the "not invented here" syndrome: *"So where Americans are concerned, it is a refusal to accept something new from Europe: it is not our stuff. They always take a back seat on this project, by nature. You always have to coax them into it. It was really hard, to be always trying to get them on board"*.

In 2006, a deep restructuring of the company took place aiming to irreversibly consolidate the whole into a matrix organization where regions are crossed with technical disciplines, and project leaders sometimes had to report to several lines of hierarchy. This is how project leaders express the challenge of having to deal with a high number of interfaces: *"What I apprehended was, sometimes for rather complex studies, big ones, the number of people involved tends to increase in proportion. The risk is to have a sort of dilution of responsibilities, or the risk to lose a global sight of what is going on. It is in this sense that I was saying that it is unwieldy to manage."*

In their own field studies, Bartlett and Ghoshal (1998) have also highlighted the tension between a centralized organization and local, more autonomous sites: *"The very design of the global matrix prevented the resolution of differences among managers with conflicting views and overlapping responsibilities"*. The loyalty that teams felt towards their local group, rooted in a region and involving people they knew well directly rather than virtually, were potentially in conflict with the worldwide logic of a global organization, of streamlined and rationalized division of work and pooling of competences.

Within the Division itself, the reconfiguration of departments and new organization charts with modified reporting have resulted in additional echelons and interfaces, what have obscured both structure and decision-taking, especially for the echelons below: *"They did not quite see why we should be divided up. What was the purpose of this overall strategy, the coherence between the parts, communication, all these things are not particularly concrete and practical in the eyes of the local people"* (French project manager). The exact functions, missions of the new entities, the "added value" they contributed, all seemed rather hazy for some engineers: *"There are stakes that they don't*

perceive, on added value, I think that is the reason (...) I who work with them daily, I do see what this added value is. And even so, I only see a part, since there are some things I do not see. But when you are any old engineer, all you hear is 'this project is going to be stopped because the X department has decided so'....".

The high number of interfaces in an organization of ever growing complexity also tends to blur the reasons why certain decisions are taken, especially if they are taken far away. For example, in the second project, in one instance where agreement between team members could not be reached, the French management ended up making the final choice, decisively: *"You propose various hypotheses; there are lots of ways of making a hypothesis and they are all acceptable, and from a human point of view it is sometimes difficult to give up your own hypothesis. It happened to me, we had a trial test to check a hypothesis. The Germans validated this particular way of doing the test, and it was feasible. But at the end, I only have one budget, not two, so I take the decision, and it is a technical one"*. However, such decisions might not be understood or accepted by the Germans who imagine they were left out of the decision-making process.

Moreover, working across different time zones, on two continents, the various regions do not find it easy to coordinate the work amongst themselves and to identify with the same objectives. In this context, and away from the close monitoring that a local manager might exercise, it is not difficult to favour local priorities over those of the global project: *"Sometimes people in the US were not available. You know, they were working on other things, projects of their own, US projects, and it seemed like some people did not have really enough time to work on what needed to be worked on"*. The temptation of withdrawing into oneself grows as difficulties arise. Since distance increases the influence of isolation or incomprehension, it becomes relatively easy to remain passive with respect to colleagues from another region, especially if they are not known personally. This may be deliberate or unconscious, yet the outcome is that some colleagues or even managers do not receive adequate information, communication becomes patchy, as witnessed by this comment from project 2 leader *"You know, some people are a little bit like black boxes sometimes. You send things, and nothing emerges"*. The other project leader (team 1) similarly attests: *"I have had work done on some things at my end, I find it has added value, it looks pretty good. I get the impression his problem is that he does things too but does not communicate about it; I am not part of his information loop"*. A sort of hazy vagueness sets in when team members only meet occasionally. According to the same project leader: *"It happens more with Americans, if you see that there is a great silence, that there are no reactions, you ask yourself 'what on earth is happening'?"* And whatever hi-tech

communications means are involved, meaningful exchanges are limited. Frustrations arise from the lack of information or scant feedback on actions taken and from the lack of clarity as regards progress.

2.3 The reality of virtual exchanges

Field analysis of how global teams actually work reveals that there are several kinds of distance, or barriers to be overcome before successful collective work can take place, as is detailed below, by reviewing what happens in some difficult communication situations. We will show the loss in clarity and accuracy that is due to these obstacles, whether organizational, linguistic or cultural.

Differing technical expectations and how they are interpreted

Even what may appear to be objective technical data may, with distance, end up being far from clear. As is described even by an experienced French engineer working in the United States: “ *take some thing like ‘ I’m concerned by the level of details in the Topical Report’; you know that action has to stem from this, but you still don’t know which chapter is being talked about, is not detailed enough, and what kind of detail.... To produce a quality report, I don’t quite know what that is*”. Yet, also according to the protagonists, this incomprehension is not due to a lack of effort or discussion on what was expected: “ *I think it was a struggle, the people [French and Germans] worked very hard to understand what was needed for the documentation and we [Americans] tried to explain and had a lot of discussions. And at first the people, everyone seemed to understand. But when someone tried to do some of the work, you find out that the message was not presented clearly. And then you have to have more discussions and more changes. And in the end the people in France have a good idea but it has taken some time*”.

Uncertainty and lack of precise information are frequent in virtual teams where it is more difficult to have the interaction necessary for monitoring purposes than in physically close teams. The project leaders sometimes have to resort to mere conjecture, to make up for the missing information: “*But I don’t quite know where the blockage takes place. The blockage is mainly due to the fact that the person who originated this action does not have the time or the availability to provide us with all the details we need to work out when we will have the project finished*”.

Working with English as a lingua franca

Working in a language other than one’s native language is no simple matter. Since English is the *lingua franca* of the teams studied, specific difficulties arise which add to the challenge of virtual work, such as constraints of oral or written exchanges without the benefit of face to face interaction

as takes place for work over a telephone, an inevitable point of contact for remote teams. Without this immediacy, it is easy to remain uncommitted, or even silent: “ *It might be someone who doesn’t dare to pick up the phone, because he has no idea who is at the other end, or because his/her English is not very good, or because he/she is not sure to understand very well. And at the beginning we did have people who were afraid to pick up the phone to call their opposite number*”.

A very good skill in English is a prerequisite for working in the teams under study, and subtler mechanisms influence communication: “*Working in English, even if you speak well, all day, can create communication difficulties that you don’t even suspect*”.

For example, the apparent likeness between certain pairs of words can be very misleading as regards the intended meaning and the perceived meaning, as is described by this German engineer: “*We faced that we had to solve some problems very rapidly, it was urgent. One of the French colleagues said “we will work on that with the best delay” (laughter) The others were a little puzzled. What does it mean?*”. Native speakers have a natural advantage, being able to draw on subtleties and nuances that either escape non-native speakers, may be ignored, or even be misused by them (Geoffroy, 2001). Uncertainty occupies the many gaps that lie in one’s vocabulary or may be caused by the fact that most words have several meanings. An American engineer picked up this incident, where of the two possible meanings of a term, the wrong one was adopted, with emotional overreaction to boot: “*Example of the ‘outstanding issue’ that was not a big issue but a ‘pending issue’... they jump out of their seat!* » The intended meaning was not in the least controversial, but it takes lexical skill to summon the likely meaning in context. Moreover, unlike what took place in this incident, many instances of shifts of meaning go unnoticed, at least in the heat of the moment.

When prolonged technical exchanges take place, as for example during conference calls lasting several hours, it is difficult to take one’s time to polish one’s expression: “*And what is more, everything being in English, there is the filter of English; even if one speaks English, one misses out on an awful lot. You are not going to make complicated sentences with broken English. It is an additional difficulty*”. This deterioration in communication is not limited to subtle niceties: the overall gist of a discourse may be missed, or a key argument, or the kind of information that does not come within the scope of the expected, for example what is new and surprising.

In contrast, native speakers, in this case mostly Americans, can make the most of nuances that for example can advance an idea in the most diplomatic manner. This is not a superficial factor, since this approach smoothens potentially contentious points, averts causing the least offence, making such points more easily acceptable. In the following example, it is through the use of modal forms that the

message is toned down: *“But it seems that consensus is the predominant mode for the French. Maybe that is just my perception. I will admit, I think our business decision quality has improved. I would say. »; « One thing is whenever there is a company change it seems like, your benefits are lower, you don't have as many benefits. And you don't know, that might not be.... I mean it happened during the change, a large change in benefits. But then again, if we had stayed in the same company all the time maybe our benefits would have been reduced anyway....”*

Similarly, the ability to find a felicitous turn of phrase, to make use of wit and humour, to hit on the *“mot juste”* all have an impact on the quality of communication. For example, when in a discussion a particular situation or behavior has to be summed up in so many words, as was observed in meetings, the ability to propose – and therefore have the initiative with - the right formulation is a valuable asset. If the same formulation is then adopted by others, in time the lexical field and all it stands for leave a mark on the group, to some extent influencing its vision.

A characteristic of English is the rather tenuous link between the written and phonetic forms, which does not make understanding of spoken English any easier. Thus it is not rare for people to need a visual support in order to properly follow discussions: *“Often, the Germans don't come up with visual supports, it is rather strange. They just talk. I am deeply visual, so without this support, I find it very very hard”*. Contrary to what normally takes place in reading comprehension, the spoken exchange does not always allow for the possibility to check some information or to go back to what was said previously. The emotional dimension of communication should not be overlooked, and one result of the above is the possible loss of self-confidence, the overall de-stabilization that comes of knowing that a message has been lost, as well as the awareness that it is sometimes embarrassing to ask for repetitions or explanations before fruitful exchanges can take place.

The frequent change from one language to another is in itself deeply tiring, and according to some, it also hinders memorization: *“ Well, this information is stored in the brain in French or in English, you don't really know which. So it is not very simple to remember what was said in meetings”*. Most important, the diversity in native languages involved is a source of confusion: *“What I notice, how can I describe it, even after ten years, there are moments of difficult communication: the same word can have a meaning in French, another in German and another in English”*. This is increased by the syndrome of frequent borrowings from one language to the other, or the elaboration of jargon where, for example English management terms are used across the board in French and in German. Experience has rendered some engineers acutely aware of this, maybe because a concept may not even have its equivalent in the target language. They may also question what concepts lie behind

even a familiar term: “ *That is the reason why now we pay particular attention to tricky things - what do I mean by this or that: for example what is exactly a ‘design requirement’, ‘design specifications’. What (French) terms do we use? You don’t systematically see what others see in them, and that is always important*”.

Such sensitivity to meaning goes well beyond the well-known and well documented phonetic difficulties involving accent, pronunciation, *faux-amis* or translation problems, even though these are still present. Furthermore, another layer of meaning is to be explored, for example in what is not said explicitly, the use that is made of communication styles, social codes or insinuations, ambiguities, or micro-messages. Team members were well aware of how differently the same message may be interpreted: “ *I go and present something, I explain a number of items, and then comes the answer, sometimes from the French side, consisting in all the extrapolations that can be made from what I said, to consider that I did not really say what I meant and that something lies hidden behind the words, and this requires what I said to be decoded*” (French project engineer).

Cultural distance

As we hope to show in this section, the members of international project teams are aware of certain cultural discrepancies and consistently try to decode messages and interactions. Their observations sometimes lead to contrasting impressions, possibly contradictions: “*Americans tend to start out on things very quickly*” or “*Americans tend always to be slow on stating off R &D projects*”. A French coordinator also observes: “*Americans are rather like the French. They have the same way of communicating with signals: they have a first objection, and if it is not perceived, they no longer say anything and drop the matter*” while other remarks pick up on inconsistencies: “*Some are very direct, others much less so. It can be disconcerting for the French. You never quite know what sort of person you are dealing with, and you are forever asking yourself if you are going to make a gaffe by being too direct with a person who expected more and vice versa*”.

National stereotypes quickly reveal their limitations in the light of the diversity of behaviours observed, and it is tempting to come to the conclusion that individual personalities are a more satisfying explanation. Witness a French manager: “*It is due to his own personality. Before it was (name of person). He was also someone who took his commitments seriously and who stood by them. I can’t say it is an American trait, it is a question of the person*”. On the other hand, stereotypes are rife, while at the same time they are coated in prudence: “*The French, they are very hierarchically minded. A Frenchman will let his boss take the decisions for him on the whole issue. This is not true of Germans. A German will speak his mind. He will let his boss take responsibility for the decision*

but will not change his mind. Or least that is true of the ones I know, but maybe I cannot generalize”. This attempt to be detached from stereotypes applies to one’s own personality, as is clear from the words of an American manager: *“I learnt that, my preferences and my personality were more like the Germans rather than like people typical of the US. So what was quite interesting was we got to know one another personally and maybe at the very beginning got rid of the notions of stereotyping French and Germans, and US folks, even though some of that still exists”.*

The daily confrontation with different working methods indeed results in a deeper awareness of one’s own practices: *“One of the things that managers in the US really have a problem with is the fixation on headcount. There is a very strong constraint on headcount, and how many people you have on the payroll, that is used to manage the cost. In the US we manage the cost, and headcount is just one way to manage the cost”.*

Traditions within the profession, or institutional differences (such as legal frameworks) are also brought to bear to explain differences: *“This is because those two, they are both American sites but they don’t have the same background; before they were two separate companies, so they don’t see quality procedures in the same way”* (French project leader). Also: *“I don’t believe cultural difference is the point, here; it is rather due to the fact that this industry (...) is highly regulated in the United States, that things ought to be done in a certain way (...). That is why we have to put in place all these procedures, and that we have to follow rules to the letter (...). These are rules and if you don’t comply with them, you can go to prison”.*

Whatever the origin of these differences, managing international projects cause one to be confronted to a host of different practices that continue to be sources of irritation. For example, some German engineers are reluctant to use slides at meetings: *“Slides sometimes, sometimes not, it depends. Sometimes, when you are in discussion in a meeting, you want to have some solutions and if you are using slides, you put it on a big screen and every one can read and everyone says that’s it. I think people stop to think”.* Yet, the fact that the slides which could help share ideas and foster thinking are not produced is interpreted by their French opposite numbers as a sign of lukewarm commitment. Another example is the acceptance of change or innovation. If it is proposed by one team, it may well find itself on a collision course with the other team’s wish to see everything well-planned in advance, or with the desire to avert risk. According to the Germans, the French have a tendency to start on a project too quickly, which then obliges them to carry out changes - which, in the realization phase, results in delays. From their stance, the French teams see it as perfectly legitimate to modify a decision, if the new one is deemed to be better, without necessarily taking the time for a new consultation. As for the American team, one member states: *“the US gets impatient during the long*

planning process and can get frustrated by the loss of flexibility during the execution phase". The significance of planning, the priorities that deserve time or otherwise do not appear in the same light to the various teams. It took some years to find a *modus vivendi*, each having to make concessions, as a German engineer explains: *"What is sometimes difficult is perhaps the way the planning is made: I have often the impression that the French people tend to a very optimistic planning; and sometimes the German would be a little more reluctant. But I think that is not a problem, that you have to know how to handle that and that you can always communicate if there is a problem"*.

Other trends may be observed, showing a certain hybridization in management practices. The verbatim reveal that, for Germans, even the manager is subjected to the imperative of discussion in view of consensus, and of technical argumentation. The French who have worked in Germany have noted: *"In France, it is the manager who in the end will take the decision. Whereas where Germans are concerned, everyone down to the smallest engineer must agree, otherwise nothing goes, no decision is taken"*. American management, with its emphasis on empowerment (a word which, significantly, is quite difficult to translate into French) gives a wide berth to the initiative of lower echelons, while at the same time they are expected to be formally accountable when results have to be produced, financial reporting included. After years of operating in international circles, French management is not unchanged: it betrays evidence of contrasting influences. There is tension between an American influence whereby collective work is highly valued as well as team building, and the lingering of a more characteristically French approach where the manager, ultimate decision maker, enjoys a global strategic vision which does not necessarily have to be explained to the lower levels of the hierarchy: *"The boss (...) is in a key position, he influences the final decision, because, for example, he has key data that the others may not have, for example on strategic issues. Information which he won't share, but which he can filter and dispense in order to justify his decision"*. Thus, management as exercised by the French project leaders embraces both the notion of "boss" as ultimate decision-maker in accordance with an overall vision, and other precepts frequently worded in English and emanating from the American environment. That is why in interviews as well as in meetings, recurring notions that often retain their English formulation include 'lessons learnt', 'team building', 'recognition' and 'trust'.

This section highlights the fact that the constant deciphering which takes place and is required of members of multicultural teams, does not always avert two types of very different difficulties. On the one hand the tramlines of national stereotypes, on the other hand and in contrast with the former, the minimization of the role played by culture, to the advantage of individual personalities or

institutional specificities. Even when cultural differences have been identified and when people in charge have correctly taken note of the diversity of expectations, the adaptation of management methods does not always produce the desired effects as is shown in the section below.

2.4 The perceptions and experience of global team managers

Having described the experience of the teams as a whole, we will now turn our attention more particularly to the managers in charge of the projects. A special focus will be the mismatch between the efforts deployed by these project leaders with the aim to put in place measures for coordination and cooperation, and the perception of the same by those people they are meant for.

There are many examples of initiatives, on the part of managers, showing they try to adapt to the differences that have been noticed, as well as to create or maintain trust among the team members: *“For Americans, it is a good thing to tell them that their procedures will be respected, that we will even add to them so as to reassure them because in their view, the French practically work without any procedures. Our own (group) procedures are tiny compared to the American ones”*.

Through two examples, we hope to show that the efforts made by project leaders to adapt to all and sundry, do not always produce the results anticipated. The first Franco-German example is a fine illustration. The French project leader, hoping to display a consensus oriented team spirit, spared no effort to involve his team and moved readily to visit the more scattered components thereof: *“For my part, I try to iron out difficulties. To bring everyone back to the technical nitty-gritty, so as to avoid becoming over-emotional, or I try to foster exchanges between team members, so as to avoid each going in his own direction. Even then, sometimes I am flabbergasted... things do not always turn out well.”* This project leader had worked in Germany, and his efforts were in the direction of what he had perceived as a mind-set of in-depth collective discussion. Yet a German engineer within his team maintained that what he had seen of the French management was in fact top-down communication: *“My feeling was that people from France, from Lyon might participating, you might not hear that much from them; most of the people are hearing [French project manager].... Discussions are more starting from Germany, from the US sometimes. In Germany most of the things are reactions and discussions, which is good”*. It is legitimate to conclude that the mental picture this engineer had of the “hierarchical” French management was sufficiently rooted to block perception of any other reality, while it may be safely ascertained is that the French manager’s efforts were in vain.

Another example concerns the Franco-American relationship. One French project leader expressed in these terms her disappointment about not receiving the answers to her questions: *“If one makes the*

effort of communicating in the other person's language, if he notifies a number of technical points that require answering and if the response is a brief, laconic sentence concerning one of the points and that briefly, that is rather... I consider that a lack of respect. The person has neither bothered to read the mail carefully nor spent adequate time to produce an answer. He/she has not deemed this to be a priority". On the other side, the version by a French engineer in the US of what had happened goes thus: *" I have noticed that her approach (the French project leader's) is rather direct and that tends, how can I put it, ... it tends to irritate some of the 'die-hard' Americans. In particular, one of the engineers in my team had told me more than once that he was annoyed with her (French project leader) because she would send him mails with requests concerning (project 1) and, well his impression is that he was overwhelmed with work and that the project was just one of his responsibilities, his impression was that he could not meet all her expectations, while obviously she wanted replies and ... that did not always do down very well".* This viewpoint is corroborated by the account of what practices were attributed to French management, which an American colleague called "micromanagement": *"Yes, that is micromanaging. And that is not, not accepted, in the US. In the US it is very much frowned upon. It happens but it is not how people like to work. It makes people think that you don't trust them, that you are not allowing them to do their work."*

In these two examples, the work carried out by the French managers to try to adjust or to be efficient in conducting the project are simply not recognized. The leaders are presented with the stereotyped image of the top-down and interfering French management style, in which they do not recognize themselves, especially where the younger project leaders are concerned.

It may even happen that this desire to adapt is misunderstood by the French themselves. For example, when a French project leader, mindful of team building, tries to bond the team by holding many meetings and organizing several meals together, an American engineer comments: *"I mean it is always nice to look forward to 'I want to go to lunch!' (laughter)... and you always go at the same time, with the same people, ... whenever somebody comes by your office, or 'I need to take a break, I'll walk around the office' ... It is different, there is a 'camaraderie'."* He seems to understand the efforts, though he notes that in the United States, the same goal would be pursued differently. However, at the same time, a French engineer takes a dim view: *" Our work methods are different. It is... in effect, it is a question of objectives: I don't really see what we are trying to do with this team business (...) French management, I would say, works a lot with, I would say, this 'trying to be pals' attitude (...) It is emotion-based: you bring people together a lot, you make them come."*

Even when there is a degree of convergence on specific points, for example among the French and Germans with respect to the importance of technical discussion, or the French and Americans in relation to team spirit, the actual implementation of these concepts leaves much room for differing interpretations, since the principles necessarily remain rather general.

These cross comparisons also highlight a phenomenon which consists in each looking out for traits or behaviours that in some way have already been registered, so such an extent that it is difficult to imagine some facets which depart from these preconceptions. Despite the high personal commitment of the project leaders to bring about the desired convergence, interpretation gaps increase with time. After a number of years, and as we have already pointed out, fatigue sets in.

In order to round off the analysis of field experience, it may be underlined that a number of these misunderstandings remain little recognized, underestimated or mis-identified by the organization's higher echelons. This is confirmed in the spectacular instance of the key deadline for the American market having been missed by one of the teams: *“When you start to notice that intermediate planning dates are missed, that is the first sign that the risk is very real of not achieving things within the agreed time. The immediate reaction of the project leaders is ‘we are not going to tell upper management directly because we still have enough time to put things right’.”* (French engineer).

3. Lessons learnt

This third part seeks to draw a number of lessons from the case studies, as regards the management of global intercultural teams.

3.1 Synergies or negotiation costs?

An analysis of the daily working of global innovation project teams shows that the pooling of means and resources, as well as the desired complementarity of expertise leads to a great increase in interfaces. More accurately, the diversity of points of views necessitates lengthy consultation and harmonization processes if shared decisions are to be reached, and coordination requirements increase in proportion with the diversity of the contributing parties in the several sites. Moreover, the delivered goods must meet the respective expectations of all those contributing, which considerably adds to the already numerous constraints. Henceforth, it is easy to see why mutual enrichment and synergies are in jeopardy, or at least they should be qualified, owing to the multiplication of interfaces, the inevitable adjustments and concessions that have to be made. In other words, the negotiation costs of these scattered structures are considerable and are generally under-estimated. As has been shown by the precursors of intercultural synergies studies, although a high degree of

diversity is beneficial in the upstream creativity phases, the same diversity may be a penalizing factor in the downstream phases of decision convergence and common actions (Adler, 1986). Hence, a common pooling of all the phases may not be the best approach. The teams observed have, of their own accord, come to the conclusion that it may be more efficient to distribute activities and responsibilities over the various sites, with looser central control: *“If we give them leadership on some components, indeed they will do excellent work. But to try and work together may not be a worthwhile objective”*.

“There was more responsibility given to the [technical specialization] community to develop and I think the performance was not that bad ».

« Each department is responsible for the work it carries out You cannot go and check everything in detail. That is what they want to put in place now, a design review at regular intervals».

With time, the teams have developed the knack of delegating increasingly the design and development of some modules to local teams and to reduce coordination imperatives. As has to be done by most organizations, global teams have learnt to opt for what they consider to be the right balance between centralization and decentralization, in view of costs, control, answerability and the competences to be maintained, developed or shared. The costs of possible overlaps are relatively easy to calculate and should be compared with the less obvious costs of lengthy and difficult integration. Similarly, the persistence of specific national market features, for example in terms of regulations, in any case entails sizeable local adjustments, and these are underestimated at the stage when the global organization's performance has to be anticipated.

The reasonable approach seems to be the enhancement of local assets in an ‘adding and complementarity’ perspective, rather than seeking to achieve synergies that require very closely knit interaction. Although the search for the global integration of all the different entities has, at first, enabled a better mutual acquaintance, and has given a glimpse of the potential that could be achieved with the whole, this should no longer be the accepted unchallenged premise of new projects. A closer circumspect *ad hoc* review, with various participants called upon to make specific contributions seems to be less ambitious, possibly less promising of breakthrough innovations, but more realistic, including from an economic standpoint. Despite the respective expertise, the quality and quantity of efforts deployed by the persons involved, the technical, organizational and cultural complexity resulting from these global projects is difficult to handle.

3.2 Synergies cannot be willed into being.

The hoped for synergies do not mechanically result from the juxtaposition of expertise via a formal network structure, and the complex, transverse structures should be doubled up with managerial measures to create opportunities, in time and space, to breathe life into the theoretical cross-fertilization.

As has been shown by the advocates of organizational learning (Senge 1990) capitalizing on knowledge occurs when at a micro level, interpersonal exchanges really take place. It is for management to provide the right incentives with appropriate measures to allow this cross-fertilization to operate.

Among the measures that are generally recognized, mediation, coaching should be mentioned, as well as any other means to take a detached view of possible misunderstandings, blockages or incomprehension. Creating a forum enabling actors to be able to discuss and to analyse their own actions and difficulties seems to be a worthwhile investment despite the pressure of time, when elaborating successful modes of collective functioning. Also, rich feedback and inter-project return on experience, or lessons-learned procedures can accelerate group learning, whether in the form of direct exchange or in a more formalized manner.

Besides, negotiating the various visions and perceptions is, as seen above, both necessary to obtain the desired integration, and slow owing to the buffer effect of distance. On this point, decision-taking mechanisms deserve special attention. On the one hand, close support may be offered to the teams by means of exchanges with experts on different aspects of the project; this helps to overcome the relative isolation of the project leader. On the other hand, it appears that certain choices affect more than the project team and are best made at a level above the particular project's contours. In practice, this hierarchy is many-headed since a project draws on human resources belonging to a number of entities. This is then best handled by a sort of *ad hoc* structure of the steering committee type, with a mission to monitor and guide synergies to pave over the difficulties that project leaders cannot resolve at their own level. Such a committee would replace the existing project review structures, whose decision-making tends to be opaque in the eyes of the teams and whose contribution project leaders only solicit if a very serious crisis has occurred. This committee would clearly determine upstream what the expected economic gains are of pooling together competence, know-how and what improvement in work practices may be expected. It would also guide and steer the implementation thereof on the basis of key indicators. There is, however, a risk of repeating at the new level the old harmonization difficulties already encountered in the project. One alternative would be to put in place structures of the type « *heavyweight projects* » (Clark & Wheelwright, 1992), or alternatively

structures which would reinforce the project leaders' powers by freeing them of their bonds *vis à vis* divisions or profit centres, so as to turn projects into independent entities having wholly dedicated human resources. In this scenario, it is interesting to note that in fact this would consist in the replacement of the deeply complex global teams having transverse characteristics within a matrix organization, by a multi-disciplinary and multi-national organization having nevertheless a more conventional hierarchical structure.

3.3 Taking on board cultural differences

After years of working in an international environment, practices have indeed changed, nevertheless they remain rooted in local *milieu*: this may be the institutional context where working methods or techniques are concerned. It may also be the cultural context with regard to work or managerial behaviour (method of taking decisions, monitoring and control, leadership). Awareness of differences has already grown amongst the players within observed teams, as is clear from the two following examples, in addition to several already mentioned: *"You have to know about the rules relevant for the others, or the rules they follow also in management aspects. For instance at the start of the project, here in Germany, it was very common to have direct contact with the higher management"* *"With the standards we had 10 years ago, Americans did not feel very reassured. They trust the standards we have today. It isn't a question of competence. For Americans, the French did not go into enough detail"*.

However, more often than not, the cultural differences that have been picked up pertain to practices or attitudes observed, and the cultural environment which gives them meaning are not easily called to mind as a logical and coherent whole; *"As for Germans, it is much more complicated: as soon as you ask them to change something, all hell is let loose"*.

Given this, a sensitive awareness of differences leads to more or less appropriate inter-personal adjustments, rather than a thorough and explicit renegotiation of practices acceptable to all, and this can lead to frustrations on both sides. *"He is generally positive to work with, he is transparent, in a German way, I discussed with [Y]. Sometimes I am feeling he needs to be sharing some information of details, with me. He is sharing as much as would be typical for a German Manager, if things are under control, or seem to be under control, and then he is not sharing, and something will develop, and he is providing information, but not before. It could be that this is a typical approach in Germany, and so we are trying to get him to adapt more to a global organization."*

A sizeable proportion of these differences remain invisible and un-considered, which in turn causes unseen trammels in cooperation. It is indeed difficult to discriminate intercultural differences when what spring to the eye are the institutional rivalries, or unconventional but individual experience, or competing know-how. “ *Today we function quite well but we do feel certain national self defence mechanisms returning, when the going gets rough. It has to be recognized that the equilibrium is rather unstable at times. For example, when you need a certain orientation in some projects, we choose on the basis of global interest, and this may be perceived by a region as favouritism in favour of another region. Just as may happen in other projects which are not multicultural but where a decision is felt to be taken to favour a particular division or department*”.

Inter-site mobility is another means to advance mutual comprehension and a better grasp of the different attitudes. Yet it would be a mistake to be content with the individual participants’ experience, even though they may well have rich international experience. A kind of homing instinct hinders adaptation when adjustments are entirely the work of individuals and are not formalized in explicit and recognized cooperation procedures.

On this point also, a thoughtful inquiry should be conducted so as to produce practical protocols for communication, interaction and broadly speaking team work: “ *It is important to take the time to talk, either face to face or on the telephone, to really lay down all the problems and fears on the table and address them*”. For example, if a better efficiency is to be attained at meetings, a round the table consultation could open and close meetings, in which members could be specific about what their expectations are, and then to assess if these are met, if each one considers he/she has been heard, and to evaluate the quality of decisions taken. Although this measure might make things more cumbersome, it would also provide quick feedback suitable for speedy adjustments and for involving those who might be tempted to adopt a passive attitude.

3.4 The development of specific skills

It is customary to recall that managerial competence is crucial in a project, as is the technical competence. The nature of work in international and virtual teams also calls for other skills, on top of the traditional ones.

The first of these skills is the ability to face up to the high degree of complexity of such technical and institutional environments, over prolonged periods. Individuals must find it in them to operate in unstable environments because they are fast-changing and because they bring into play many interdependent dimensions. This requires considerable cognitive skills in processing numerous and

complex facts, as well as emotional skills to handle stress. Researchers in project management have already shown the dark side of management under intense pressure (Asquin et al., 2007). The fact that teams are global, by adding the extra dimension of remoteness and national diversity to the cost, quality and timing constraints inherent to projects, weighs down the already heavy psychological burden and increase the risk of work related stress.

Work in international environments also requires greater self-knowledge. Although, in a culturally relatively homogenous environment, the theory at least of how to work well together is shared by all, this is far from being the case in intercultural teams. And while acquaintance with what gives meaning to concepts in the partner teams is extremely useful, this insight into cultures must start with oneself, with an awareness of one's own mind-set and mental representations. Indeed all the dimensions of cooperation are coloured by the cultural landscape of what makes up the best manner of living and working together, and this is revealed only by interaction with those whole mental landscapes we do not share (d'Iribarne 2008). Being aware of one's own presupposed notions is the proper starting point from which to explore other clusters of meanings, to be followed by the ability to adjust to others in the wisest manner.

Working remotely or virtually also adds another layer of interpretation of others' interaction, or lack of it. As we have seen, e-mail requests that are left un-answered, or teleconferencing without the aid of visual input, place a high demand on one's sensitivity to one's environment and ability to understand it. The ability to grasp tone, style, to decode silence, to ask pertinent questions so as to reduce doubt, to foster feedback - all these have their importance not only to maintain or create trust among members but also to advance the project overall. These skills are likely to be developed in time, and with better knowledge of other team members' respective contexts, but a pre-requisite is the ability to perceive and process all manner of weak signals, and an appetite for and insight into contextual understanding and the human dimension of work situations. Bilingual and trilingual individuals have at their fingertips the linguistic skills that enable them to make use of high aural sensitivity, or intensive listening, or the ability to extract more meaning out of any given message, to detect even the more hidden facets, by careful processing of intonation, *double-entendre* or innuendoes, posture or social codes. The ability to correctly observe and interpret another's modes of thinking, sometimes called empathy but not limited to another's feelings, so as to encompass intellectual approach, curiosity as regards his values and the intellectual organization of his discourse - all contribute to what may be regarded under the umbrella of intercultural competence (Waxin, Barmeyer, 2008).

Furthermore, team learning does not stem merely from individuals' learning ability but rather from a collective competence. As Senge writes (1990) « *Team learning is a team skill. Learning teams learn how to learn together* » (p. 257). The author insists on the role of dialogue, to be distinguished from discussion, the goal of which is to convince the other party, so as to achieve this group learning: “*In dialogue, people become observer of their own thinking. (...) Dialogue allows to raise the awareness of each other's incoherence of thoughts and lead to more coherent collective thoughts*” (p. 242). A sense of two-way dialogue, patient accuracy, and careful listening contribute to the team's chance of clarifying their thoughts, and advance discussion sufficiently to achieve what Senge calls (1990) a shared vision: “*When a team becomes more aligned, there is a commonality of purpose, a shared vision and understanding of how to complement each other's efforts*”. The exact means of stimulating such development of this dialogue and this collective competence remain to be clarified.

Conclusion

This empirical work has proved to be an opportunity to see beyond the surface of the little known reality of global teams. It sheds light on the barriers and obstacles that members of international, scattered and virtual teams have to contend with, in sharp contrast with the great expectations placed at their doorstep. Even in favourable circumstances, with a high expertise, recognized by all, prolonged collective interaction, mutual acquaintance through face to face meetings enabling team members to meet, seminars on inter-culturality and formal returns on lessons learnt, global teams are up against the greatest hardships to achieve the expected results. A solely technical and economic vision consisting in juxtaposing know-how to increase creativity and to count on a wide geographical distribution across several time zones to enable round the clock activity on projects on which the sun never sets, in the hope that projects will develop faster, all these reach their limit. This is not to say that there are no assets, no gains or synergy to be had from these transnational projects, but their full potential is only achieved at the price of a considerable managerial investment in human issues. Their success hinges equally on the quality of negotiated cooperation processes and the nurturing of team work competence.

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