

Management of Globally Dispersed Teams – A Case Study in the Automobile Industry

by

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Bachelor of Science in Aerospace Engineering
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Submitted to the Sloan School of Management
in Partial Fulfillment of the Requirements for the Degree of

Master of Science in the Management of Technology

at the

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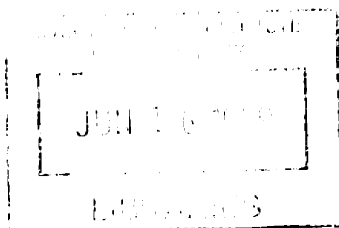
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ABSTRACT

As globalization gains importance within the business world, managers are increasingly exposed to the challenges of coordinating groups of professionals isolated in time and in space. Globally dispersed teams are subject to the same principles of effective teamwork that affect co-located groups, therefore those basics must be implemented whether or not dispersion is an issue. But the global scope of these teams brings an additional layer of complexity in which trust, communication, as well as socialization assume new dimensions, and individual roles gain new meaning.

The present work analyzes a real case of globally dispersed team, in the light of a theoretical foundation built from academic and managerial writings. It focuses on a diverse group consisting of at least four different nationalities and several corporate cultures, brought together in an engineering and design project for a new vehicle. Conclusions and recommendations are given in order to help management understand and deal with the types of issues found to be important in the case analyzed.

Thesis Supervisor: Janice A. Klein
Senior Lecturer, Management Science

Thesis Reader: Ralph Katz
Professor of Management

To The Creator,
who in His infinite mercy and wisdom
allows dreams to come true.

To my family –
in the broad, Brazilian sense of the word – for their
unwavering support in my pursuit of dreams.

To the friends
who became my family in Boston.

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Introduction

Globalization has been claimed by virtually every major organization as one of the central strategic issues of our times, so it is not surprising that we have begun to see systematic studies of the complexities involved in managing teams of remotely located professionals. The present work is part of a group effort at the MIT Sloan School to identify important factors that must be taken into consideration by management in order to optimize functionality and results from a team operating under such circumstances.

The first series of theses produced by this study (including this one) are based on case studies chosen from projects being conducted by the sponsoring corporations. The author was assigned to an automobile engineering and design project in his home country of Brazil, to which several international component suppliers have been brought as development partners. Within this group a more specific focus was given to the American supplier, which besides being one of the corporate sponsors of the five-year study at MIT, provides the best example of a truly dispersed team among the companies involved in the Brazilian project.

This paper is organized in the following manner: First a literature review is presented in which an attempt is made at identifying the principal issues governing the dynamics of a globally dispersed team. A detailed description of the organizational structure of the project is given in the second chapter, followed by a summary of findings from interviews conducted in Brazil and at the American supplier's headquarters in the United States. Chapter three provides a combination and comparison of the findings from the interviews with the theoretical foundation built in the first chapter. Finally, conclusions and recommendations are given in the last chapter,

designed to help management understand and deal with the types of issues found to be important in the case analyzed. We begin with a survey of writings on the different aspects of globally dispersed teams.

Readers are advised that, for the sake of clarity, quotations from the interviewees appear in italics, whereas excerpts from the literature review are in normal typeface.

Chapter One

Literature Review

1.1 – Teams that are Globally Dispersed

One of the primary points to be understood by managers of dispersed teams is the fact that the principles of sound teamwork applicable to co-located workers are still very much valid for a group of isolated professionals. A solid foundation of norms and procedures must be laid regardless of additional barriers of time and distance imposed by the group's specific circumstances. Katzembach & Smith (cited in Benson-Armer et al, 1997) define four disciplines that "must be established no matter where [teams] work":

- 1) *Complementary skills* -- which are the reason for bringing a group together in the first place;
- 2) *Goals* – and the accountability to achieve them;
- 3) *A Common approach* – to ensure uniformity and compatibility in the work to be done.

These first three basics, according to the authors, can be established regardless of physical distance separating individuals. The fourth factor, however, is harder to achieve:

- 4) *Common Purpose* – or the sense of oneness that binds the team together. It must "harness individuals' pride and seize their imagination as something worth effort and sacrifice." It is the result of trust being strengthened and of connections being formed within the group, a process that typically requires intense – and preferably face-to-face – interaction.

Physical isolation, of course, will amplify the shortcomings of a poorly structured team, making those deficiencies more evident and damaging than they would otherwise be in a co-located setting. As put by Benson-Armer and Hsieh:

[...] effective teamwork is hard to pull off at the best of times, and if team members come from different cultures, speak different languages, and seldom have the luxury of face-to-face meetings in which to size up their colleagues, it can prove a nightmare (1997, p.20).

1.2 – Trust

Most of the authors who have focused on dispersed teams put trust-building high up in the list of priorities to be addressed by management once the basics of teamwork are in place. If trust is important to the workings of co-located teams, it is much more so in circumstances where face-to-face contact is reduced to a minimum (Jarvenpaa et al, 1998). As globalization pushes present-day corporations into projects that are increasingly international in scope, maintaining the effectiveness of a staff with whom close contact is scarce has become a central concern in the minds of managers all over the globe.

The simplest answer to the challenge of managing people whom one does not see is to *trust* that they are able to carry out their responsibilities under minimal direct supervision. And yet such a relationship is hard to reconcile with “a managerial tradition that believes efficiency and control are closely linked and that you can’t have one without the other” (Handy, 1995). Dispersion therefore requires the rethinking of managerial practices.

Trust has not only to be present in the manager-employee relationship, but must also permeate the entire team. Peers need to be reassured that the interdependence of their tasks is not a liability to their individual performances, and that the risk of being affected by someone else’s inability to carry out duties is minimal. But isolation in time and space brings added challenges to the building of trust among such groups. As observed by Meyerson, Weich & Kramer (1996), “they often entail high-risk and high-stakes outcomes, yet they seem to lack the normative structures and institutional safeguards that minimize the likelihood of things going wrong.” These structures are difficult to put in place because “traditional sources of trust – familiarity, shared experience, reciprocal disclosure, threats and deterrents, fulfilled promises, and

demonstrations of nonexploitation of vulnerability” have less opportunities to develop since close contact is scarce.

How then can management reconcile the need for trust-building with the peculiarities of globally dispersed teams? The answer lies in a particular kind of trust.

1.2.1 – Swift Trust

Trust requires time and close interaction to develop, both of which are typically scarce in globally dispersed teams. When such constraints are imposed on a project, a special kind of trust must develop: *Swift trust*.

To trust and be trustworthy, within the limits of a temporary system, means that people have to wade in on trust rather than wait while experience gradually shows who can be trusted and with what: Trust must be conferred presumptively or *ex ante* (Meyerson et al, 1994, p.170).

And since there is little chance for the personal exchanges that enable trust to flourish, swift trust develops on the basis of interdependence, personal integrity and professional credentials. Credentials must be followed by actions in order to establish one’s credibility among peers, so that “Action strengthens trust in a self-fulfilling fashion.” (Jarvenpaa et al, 1998). If one presumes “that the other people in the setting are trustworthy [and] acts towards them in a trusting manner, the presumption of trust often acts like a self-fulfilling prophecy and creates the trusting behavior that was presumed to be there” (Baier, cited by Meyerson et al).

Swift trust requires constant reinforcement through a proactive effort by individuals to stay in line with group norms and expectations. It is a temporary phenomenon and will deteriorate over time if not given appropriate attention. In summary, swift trust is less reliant on interpersonal relationships than on the actions of individuals towards establishing a track record

of competence and trustworthiness. “Swift trust is less about relating than doing” (Meyerson et al, 1996).

1.3 – The Roles of Individual Players in Global Teams

1.3.1 – The Contractor

In their discussion of swift trust, Meyerson, Weich & Kramer identified the role of the *Contractor* as the person or entity responsible for the selection and recruiting of team members. Our previous considerations indicated that, in the realm of globally dispersed teams, trust is initially conferred to the measure of the individual’s reputation and credibility. In the absence of any other references

the credibility of the contractor – in terms of his or her reputation for creating and composing successful temporary groups – serves as a useful substitute for interpersonal history. [...] Each member assumes that the contractor has either had the requisite experience with others, or, at the very least, that he or she has asked around and checked them out (1996, p.185).

Endorsement by the contractor provides the initial basis on which swift trust can be established, as members are reassured that due diligence has been carried out and that the necessary competencies, experiences and skills are in place.

1.3.2 – The Champion

MIT Professor Scott Shane identified the figure of the *Champion* in innovative projects, or the individual who “garners resources and support for the innovative idea” (1997). Usually a project manager, it is through his or her *championing style* that project participants are motivated, senior management’s continued support is secured, task evolution is monitored, and

development goals are achieved. In a survey of 4000 managers in 32 countries, Shane evaluated the influence of local culture on four important aspects of managerial style:

- 1) Strict adherence to rules, procedures and norms, as opposed to freedom for personal initiatives;
- 2) Emphasis on personal benefits to be gained from the project as an instrument to attract collaborators – instead of organization-wide advantages (individualism vs. collectivism);
- 3) Close monitoring of work progress on a step-by-step basis (limited autonomy), versus management by broader tasks;
- 4) Centralized, hierarchical decision-making, as opposed to participative decision-making.

The study indicated that national culture is a key determinant of championing style, and a major influence on the effectiveness of the innovative effort:

[...] national culture was far more important than corporate culture, industry, gender, level of education, functional area, age, length of work experience, or even championing experience in explaining preferences for different approaches to championing (Shane, 1997, p.301).

In the context of global teams, imposing a foreign style consisting of locally unacceptable practices is likely to cause undesirable friction, and often leads to failure. Yet previous research from the same author (Shane, 1993) also indicates that the most innovative societies are those in which individualism, autonomy and hierarchical flexibility are more acceptable. The right balance between locally acceptable practices and these ingredients for innovative success must be achieved. It is thus important that managers of globally dispersed teams understand the contrasts between cultural backgrounds of project participants, and that they identify the appropriate style in each context. “Managers need to adapt their approaches to promoting innovation to different cultures to get their ideas accepted” (Shane, 1997). In some cases partners

will be willing to absorb and adapt to a foreign style; in others, success will only be possible if partners are chosen from countries with the right cultural background.

1.3.3 – The Gatekeeper

Having seen the importance of an open-minded champion on the *managerial* side, we now focus on an equally important role within the *technical* staff: the *Gatekeeper* (De Meyer, 1991; Allen et al, 1977; Katz et al, 1981). De Meyer identifies this person as the one responsible for facilitating the flow of technical information between remote participants. In the jargon of different companies this position is defined as *sponsor*, *technological coordinator*, *liaison* or *ambassador*. The common denominator among these definitions is the responsibility for organizing the communication process, actively triggering contacts between project participants.

According to De Meyer, important qualities of a gatekeeper's personality are "a combination of technological credibility and social listening and integrating skills." The gatekeeper has a particularly important function in international projects, especially when technology transfer must take place across cultural and corporate boundaries. The same flexibility and cultural awareness required from the champion apply in the case of the gatekeeper of a globally dispersed team.

1.4 – Organizational Influences on Global Teams

1.4.1 – Psychology

Bartlett (in Porter, 1986 - Chapter 12) defines the set of explicit or implicit corporate values and shared beliefs as the organization's *psychology*. Workers from distinct national

origins, with their own particular norms and values, cannot always be expected by management to conform to a common corporate psychology when brought into a team. Obviously, this condition will be worsened in the case of groups formed not only from different nationalities, but also multiple corporate cultures. Bartlett's findings reinforce the discussion about the role of the champion in sorting out cultural diversity, as presented earlier in this review. He argues that "in an operating environment in which managers are separated by distance and time barriers, shared management understanding is often a much more powerful tool than formal structure and systems in coordinating diverse activities."

1.4.2 – Communication

It has been extensively argued (Allen, 1977) that efficient communication within engineering networks is best achieved through face-to-face contact. The intense exchange of information that characterizes R&D environments is greatly facilitated when individuals have the ability to control the speed with which information is offered, and they experience the immediate feedback that only personal contact can provide. Therefore "when truly international developments are started, companies must develop mechanisms to replace or support individual, face-to-face communication" (De Meyer, 1991).

Realizing the limitations imposed by distance on global organizations, De Meyer investigated the communication management practices of fourteen multinational corporations:

The companies were all strongly aware of the need to improve communications and often admitted that breakdown of the communication lines was the biggest recurring problem in their organization. We sorted the solutions they were pursuing into six broad categories:

- Efforts to increase socialization in order to enhance communication and information exchange;
- Implementation of rules and procedures in order to increase formal communication;
- Creation of boundary-spanning roles – assigning individuals to facilitate communication flows [i.e. gatekeepers];
- Creation of a centralized office responsible for managing communication;
- Development of a network organization; and
- Replacement of face-to-face communication by electronic systems (1991, p.52).

One possible way to manage communications within dispersed teams is to delegate the responsibility to a central staff of gatekeepers, in a hub-and-spoke setup. Another alternative is to encourage the formation of a network of informal communication channels linking the dispersed nodes, with no central controlling entity. In order to function properly, this approach requires:

- 1) Willingness from management to give up tight control;
- 2) Individual efforts by engineers towards building their networks;
- 3) Company support through travel, job rotation, communications infrastructure, etc.

In the context of a global team consisting of members from distinct corporate and national cultures, efficient communication becomes even more relevant for project success. Intuition suggests that management would in principle prefer centralizing responsibility for communications, as opposed to informal networks, given the added complexities of a global setting. Centralization translates into easier control, whereas informal networks are potentially difficult to monitor. But the latter also enables gains in efficiency, by eliminating delays as

information flows freely between end users. The tradeoff between speed and control has to be carefully assessed before a decision is made on which communication structure should be used. In many cases a compromise between the two may provide the optimal solution. In either way, “periodic face-to-face contact seems necessary to maintain confidence at a level high enough to promote effective team work” (De Meyer, 1991).

One of the focuses of the case study conducted in Brazil was understanding communication mechanisms and assessing their effectiveness.

1.4.3 – Socialization

The socialization period is defined by Katz as “a time of mutual discovery between the new employee and the employing organization [during which] every newcomer is testing his own self-image against the views and reactions of other organizational employees” (Katz, 1997). It is through this process that newcomers establish their credibility among peers, and earn the professional respect that will allow them to function in the new environment. It involves an active effort to reduce uncertainty about group values, reward systems and common professional interests. Therefore, one of the ways socialization can be defined is as the process of building trust among team members.

A series of factors may influence the speed and effectiveness of one’s socialization, sponsorship being one of the most important. Being introduced and closely followed by a veteran peer or concerned boss normally produces the best results. Some individuals have to actively seek sponsorship within the organization, but others have personality profiles that allow them to take socialization into their own hands, and are successful at securing their place in the sun entirely by themselves. In any case, in today’s competitive environment the primary

responsibility for socialization is on the professional himself. It can be a major source of frustration, stress and dissatisfaction for newcomers. According to Katz, high turnover rates among more junior members of professional groups can be directly traced to mishandled socialization processes.

The socialization framework is also applicable to global teams, since individuals must undergo similar phases of peer acceptance, relationship building, role identification, and performance feedback. Under these circumstances, one could expect the importance of socialization issues to be amplified by the difficulties imposed by communication, culture and distance. Socialization is a matter of particular interest in the case of the automotive engineering team studied in Brazil. Personnel from the American supplier have been rotated on a periodic basis, while management remains relatively unaltered. The fact that new professionals are being brought into the project on a regular basis – in substitution for “socialized” veterans – poses interesting challenges to the harmony of the global team. The impact of this practice was carefully observed in the course of the case study.

In summary, we have seen that globally dispersed teams are subject to the same principles of effective teamwork that affect co-located groups, therefore those basics must be implemented whether or not dispersion is an issue. Furthermore, the global scope of these teams brings an additional layer of complexity in which trust, communication, as well as socialization assume new dimensions, and individual roles gain new meaning. The theoretical foundation built in this first chapter served as a basis for interviews conducted within a real case of a globally dispersed team, and the findings are presented in the following chapter.

Chapter Two

Interviews

2.1 – The Light Vehicle Concept – LVC

In the early nineties the Brazilian subsidiary of a German automobile manufacturer identified the need for renovation of its light vehicle product line. The then recently created MERCOSUR economic block in Latin America offered an attractive growth market for which the company decided to update its aging models. This was the first comprehensive design project to take place outside of the German headquarters, and a new experience for the Brazilian Plant. Local engineering activities had been limited to adapting imported designs to the particularities of the South American market.

The initiative drew attention from Germany, which at the time was considering launching a “*world vehicle*”, following the trend set by other automobile manufacturers, which build and sell a common model all over the world (e.g.: Ford Escort and Toyota Corolla). The company decided to expand the Brazilian project to a global scale, and drew a multinational staff to a common location on the American West Coast, where the Vehicle Project Corporation was created in July of 1996. The staff for this operation consisted of 40 Germans, 16 Brazilians, 12 Americans, 3 South-Africans, 3 Turks, and several Southeast Asians of different nationalities.

After more than a year of co-located work, the Asian economic crisis forced the company to put its expansion aspirations in that area on hold, and the entire project had to be scaled down. The goal of creating a world vehicle was kept, but the development team – now reduced to a fraction of its peak membership – was relocated to the original birthplace of the project at the Brazilian Automobile Plant. The Light Vehicle Concept (LVC) group was established as an autonomous and focused unit in August of 1997.

It is important to understand that due to the modularity of vehicle design, the LVC group is responsible mainly for interior and body design, and for integration with other components designed elsewhere within the Plant (i.e.: chassis, engine, etc.). LVC is physically located in the heart of the local Engineering Department, which otherwise is strongly functional in its organization. This means that around the LVC group there is a Chassis Group, a Power Plant Group, and other engineering teams who are not focused on one particular product or model, but work on chassis and engines for the entire line of vehicles from several categories. This has been a source of friction, as the other groups tend to perceive the Light Vehicle Concept as a privileged élite. This notion is reinforced by the hierarchical status of the LVC project manager, who reports directly to the corporate heads of the Brazilian subsidiary.

Departure from established practices was a deliberate intention of the German headquarters. The LVC project not only broke the functional paradigm at the Engineering Department, but also launched an experiment of closer interaction with external suppliers during the design phase of new products. For the first time suppliers were given major responsibilities in conceiving and designing entire modules of a vehicle. In the case of the American supplier, it will also eventually produce the parts it designed and supply them to the Brazilian plant's assembly line.

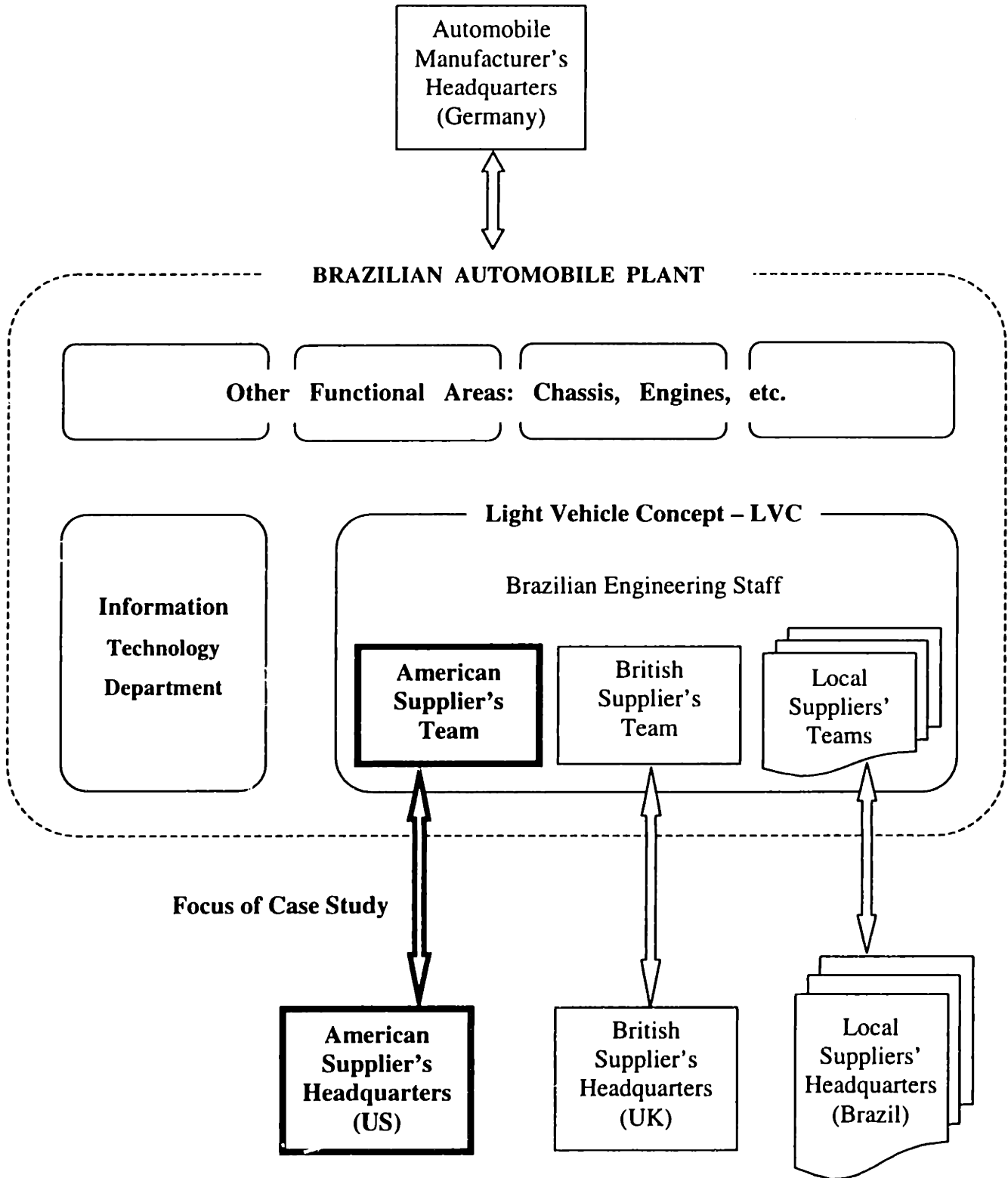


Figure 2.1 – The LVC group within the Brazilian Plant

A series of interviews was conducted in the months of January 1999, at the headquarters of the American Supplier, and February at the Automobile Manufacturing Plant in Brazil. A total of seventeen people from the different companies involved in the LVC project were heard, consisting of designers, engineers, and managers at several levels. They were initially given a chance to identify what were, in their opinion, the most pressing issues in their experience as a global team. Then they were asked to respond to a series of semi-structured questions covering areas such as organizational, personal and technological issues. It was interesting to note the eagerness of some team members to express their concerns – especially from sub-group leaders directly responsible for specific areas of the project. The findings from these interviews are presented in the remainder of this chapter.

A very important observation must be made at this point: The author made a conscious effort to widen the scope of the interviews, so as to encourage further study of this project by ensuing thesis writers at MIT. The objective of the following sections was to record as many aspects of the team's dynamics as possible, building a comprehensive source of information for future reference. The most significant issues raised in the interviews are addressed in the subsequent analysis.

2.2 – Organizational Issues

2.2.1 – Socialization

Two distinct company-sponsored socialization initiatives were identified throughout the project:

1) The original team that was assembled on the American West Coast underwent cultural awareness and off-site group bonding activities sponsored by the German automobile manufacturer. The effectiveness of these initial contacts was somewhat compromised by the lack of international experience demonstrated by the German facilitator. Suppliers were not yet part of the project at this point;

2) Later on, as the LVC group was formed in Brazil and foreign suppliers were brought in, similar off-site training was again held. In one such session, a Swiss professor who has lived for several years in Brazil gave a presentation on Anglo-Saxon versus Latin American working habits. This particular lesson was recalled by several team members as one of the most important events in their socialization experience, having created awareness of important cultural contrasts and promoted mutual tolerance across the many nationalities involved.

Their testimonies also indicate that personal effort has been the most commonly used socialization tool, so that socialization has been mainly taken into one's own hands. Aside from the initial activities mentioned above, only one clear sponsorship initiative was identified. The exception is one of the Brazilian engineers, who commits a full day to tutoring every time a newcomer joins the LVC team.

To this particular engineering group, establishing technical respectability has been a central issue. Several members trace their socialization success back to the point in which they were given the opportunity to effectively convey their competence to their colleagues. This fact suggests the applicability of the swift trust model to the project.

The LVC Engineering Manager – a German brought in from headquarters – believes in group bonding through the joint celebration of achievements. One such celebration was held

during the interview period in Brazil, as the entire LVC engineering, styling and prototyping staff gathered around the first completed prototype on a Friday afternoon for refreshments.

2.2.2 – Official Language

The official language of the LVC project is English which, not being the native language of the majority of the project's staff, has caused some trouble. It is interesting to notice that most Brazilian engineers seem comfortable with English, whereas a few foreigners are still not comfortable with the Brazilians' English. Occasional complaints range from reduced efficiency at meetings, to technical and managerial misunderstandings, to downright complete communication breakdown between foreigners and Brazilians from lower ranks (who are less educated and thus less proficient in foreign languages). It is unanimously agreed that face-to-face contact and body language have been instrumental in overcoming the language barrier.

The Brazilian plant offers structured Portuguese and English training in weekly classes, which are open to any team member interested. But to this date only one American (a resident) has been able to attend the Portuguese course for its full length. Several others have taken occasional lessons, but allegedly had to quit due to time constraints. The Brazilians have been more dedicated to the English training, apparently because they have more to gain in professional terms from learning English than the foreigners from learning Portuguese.

A different source of difficulties comes from the fact that Brazilian regulations and German technical standards have not been translated into English. This limits the independence

of some native English speakers, who depend on translators to obtain information essential to their jobs.

2.2.3 – The Resident

One of the earliest requirements imposed by the automobile manufacturer was that each foreign supplier maintain a full-time liaison person at the Brazilian plant. The rationale is to enable a smooth transition between technical personnel moving back and forth from overseas headquarters, besides eliminating multiple communication channels between the Plant and its suppliers. This position became known as the *Resident*.

This was an entirely novel approach to the American team, where no members had any experience in such a function. The two engineers who have so far played the role of residents for the American supplier were volunteers. They had to learn how to cope with the responsibility on their own, since a comprehensive job description was not available. The first one arrived in August of 1998 for an eight-month assignment, and was joined two weeks later by the second, who stayed for four months. It is not surprising that both are single and relatively young (see discussion on traveling below).

Although it has not been openly discussed, plant personnel confessed that it would be preferable to have a more senior supplier representative occupying the position. This was not motivated by the resident's lack of technical competence, but by decision-making clout. At least one Brazilian engineer with managerial responsibilities could not identify who had been the American supplier's resident, suggesting the existence of a communication problem. Apparently there had been no formal introduction of the resident as such, so that the LVC team had to learn from daily experience who was in charge of communication with the American supplier.

A typical day for a resident consists of a formal meeting and several informal interactions with designers, stylists, engineers, and managers from the many companies involved in the LVC project. Constant phone and e-mail contact with headquarters is also common, but hands-on technical involvement in design or engineering is reduced to a minimum.

After several months of interaction, the consensus indicates that the role of the resident has been instrumental to the effectiveness of the project. One engineer declared having felt "*out of sight, out of mind*" in previous overseas assignments, but was very satisfied with the exposure enjoyed as a resident. Yet even for these younger engineers the pressures of being in such a crucial position have been hard to endure, and both felt they had taken their fair share of self-sacrifice by completing one assignment. Neither was willing to go back to Brazil for a second term as resident, and have limited their future involvement in the LVC project to engineering activities. Management seems to understand and accept their position, recognizing the importance of past contributions.

2.2.4 – Logistics

The manager of the American supplier group expressed concern with the percentage of his time devoted to the resolution of peripheral logistics problems, particularly when traveling in the company of members of his staff. Examples of areas he has had to become involved with include:

- Hotel selection and longer term housing arrangements;
- Car rental (locked keys, mechanical problems, etc.);
- Documents and legal issues (visas, local driver's licenses).

In the worst situation faced to date it was necessary to bail one of the team members, who had been driving with an International Driver's License, out of a local jail. The traffic agent who made the arrest was allegedly unfamiliar with that type of document.

Short-term stays overseas can be arranged from headquarters in the U.S., while longer stays can be taken care of by renting apartments and obtaining local documents. But *"how do I manage the in-between?"* One could conceivably see the resident as being in charge of logistics, yet the workload of that position as it is presently defined is considered heavy enough. The absence of a local support staff puts the burden of logistics on management's shoulders. The possibility of allocating a full-time manager to support the team in Brazil has been considered but – in the manager's own words – *"that would defeat the whole purpose of the global team"*.

2.2.5 – Project Documentation

Several team members from distinct corporations and nationalities reported spending less time in formal meetings at LVC than they were used to back at their headquarters. A great deal of informal interaction takes place at the present stage of the project. The following are the main documents currently in use to record project evolution:

- 1) Minutes of meetings: Summaries of decisions and to-do lists are officially issued for every formal meeting.
- 2) Engineering Change Request – ECR: The official document for notification and record keeping of modifications in engineering specs. Every ECR goes into the project's database and is electronically linked to affected CAD files. ECRs were introduced by the British supplier, based on previous experience in international projects of similar nature.

3) Communication Sheet: An informal means of communication between individuals, used mainly for minor task assignments and requests for information. No official record is kept, but most team members keep copies in their private files.

2.3 – Personal Issues

2.3.1 – Traveling

Aside considerations about technical competence and knowledge of the CATIA CAD system, the most important criteria for selection of American team members are their flexibility and willingness to travel. *“I paint a very negative picture to prospective employees, and therefore I am not sympathetic with whining”*, says the manager. Overseas travel rotations for engineers and designers are typically one to three weeks in duration, and take place up to six times per year. Residents, by contrast, stay in Brazil for three consecutive months at a time, and return to the U.S. for a week or two to renew their visas. The resident on duty in February of 1999 had been on assignment for seven months, and was scheduled for replacement in March of 1999.

The personal opinion of several team members is that the traveling is interesting in the beginning, but becomes more of a burden with the accumulation of repeated assignments. One veteran of several trips said it would be preferable to establish residency overseas (family and all) for an extended assignment than to make several shorter trips. All members of the American supplier's team recognize the fact that their work pace is much more intense while in Brazil, as compared to back in the U.S.

Extensive travel rotation has somewhat compromised the LVC team's efficiency. Many members (suppliers and Plant staff) complained about having redundant discussions with successive waves of rotated personnel over the same issues. This obviously causes frustration, as issues that were supposedly resolved are re-addressed by newcomers. In spite of the resident's efforts to ensure seamless transitions, not all Americans have been up-to-date with the project's *status quo* upon their arrival. In fact, one American confessed that it usually took him about one week in Brazil to be productive again, and that "*each new trip required a new learning curve.*" There seems to exist a coordination problem at the American headquarters, since the information that flows from the resident in Brazil is not effectively reaching all concerned parties in the U.S. Another possibility is that some team members have been underestimating the need to become closely involved and prepared before their next trip takes place.

An important point about traveling was made by one of the Brazilian engineers: As the LVC project progresses into the detailing phase, the direction of intense travel may have to be reversed. Members of the Plant's engineering staff may need to pay repeated visits to the overseas suppliers, as detailed design of components takes place at their headquarters. It would be interesting to revisit the project within a year of these first interviews (by early 2000) to assess this new stage of global interaction.

2.3.2 – Family

Empirical evidence indicates that intensive traveling is more easily handled by younger professionals, and this is reflected by the average age of the American engineers and designers who were interviewed in Brazil (upper twenties). A factor contributing to this is the family status

of that group – most are either single or married without children. During their recruiting, married team members are warned by the American manager about potential strain in their relationships for, in his experience, “*friction is a given*”. Employees of the American supplier who spend at least 48 days abroad within a year gain the right to bring their spouse along for up to a month, with expenses paid by the company.

Among the British a more alarming situation was found: the team leader estimated that 80% of that more mature group had experienced divorce since becoming involved in extensive traveling. The British supplier has by far the most experienced team in globally dispersed work. The Germans interviewed are permanently located in Brazil for the duration of the project, and have either brought their families along, or have been repeatedly visited or gone back themselves. In their opinion, exposing their families to a new culture has been an enriching experience. One of the Brazilians keeps his wife permanently registered as his full legal representative, so as to avoid any problems resulting from his frequent unavailability due to traveling.

2.3.3 – Rewards and Compensation

There is a wide variety of compensation mechanisms among the three foreign nationalities participating in the LVC project:

The Germans have their original salaries multiplied by a fixed factor to compensate for the added expenses from living abroad, and are not entitled to any reimbursements. On the career advancement side, a German engineer regretted the fact that a detailed evaluation matrix applied

to local staff at German headquarters has not been replicated at the Brazilian Plant, or even at the LVC group.

The British have the most creative compensation setup. Employees below the managerial level are paid as individual "*limited companies*", and have to personally deal with all the budgeting, accounting and legal implications of running their own one-person operations. They are given assistance during installation, yet only managers enjoy full employment benefits such as pension funds, health care and company cars.

The Americans continue to receive their normal salaries in the U.S. and are given an allowance for room and board while in Brazil. The arrangement has been particularly interesting for one of the residents who is single, and has been able to keep all her belongings in storage in the U.S. Since there is no rent or utilities to pay in her home country – and her living expenses while in Brazil are paid by the company – she has been able to save a substantial percentage of her monthly salary. Company cars are available in limited numbers, and are typically shared by at least two team members. As far as career advancement is concerned, the Performance Review system used at headquarters is also applied to the global team: Goals are jointly set with management at the beginning of the year, being revised half way through the year, and assessed against achievements in December. Raises and promotions are granted accordingly.

Every foreign supplier manages the visa and other legal aspects of transferring its employees abroad. Another common characteristic across all countries and companies involved is the fact that no special career treatment is given to employees for being part of a globally dispersed team, whether on assignment abroad or at home headquarters. The only exception was at the German headquarters of the automobile manufacturer, where employees returning from

overseas assignments are given priority for promotion over colleagues from equivalent hierarchical levels. They are also guaranteed to return to at least the same position in which they formerly worked, if they so desire.

2.4 -- Technological Issues

2.4.1 – CATIA CAD System

It was agreed upon from the very beginning of the project that all Computer Aided Design files would be generated in the CATIA system, which is widely used worldwide and is the standard at the Brazilian Plant. One of the criteria used in the selection of suppliers was their experience in generating design and engineering documentation with this particular system. But, in the case of the American supplier, this prerequisite was somewhat relaxed due to extensive experience in component design. This supplier tried initially to rely on file conversion from its internal system to CATIA, but gave up on this approach shortly after the first frustrating attempts. It had to hire designers with CATIA experience and train its staff in order to continue in the project. Overall, all partners in the LVC project have reached satisfactory proficiency with CATIA, and the CAD system by itself has not caused friction within the team. It is the project documentation database and the transfer of files between the co-located team members and their headquarters abroad that has proved to be a continuous source of problems.

2.4.2 – Project Documentation Database

The Information Technology department at the Brazilian plant has developed an in-house workflow system responsible for keeping track of all CAD files, meeting agendas and minutes,

Engineering Change Requests (ECR), spreadsheets, and similar project documents maintained as official records. The Light Vehicle Concept project is pioneering the use of this system, and has suffered through the inevitable hardships of early software development. Common complaints indicate the system's inconsistent ability to keep track of document versions and their correspondence with the appropriate CAD files. Although this system's poor performance does not directly affect global interaction, several team members reported it as a source of friction at some point between suppliers and Plant personnel.

2.4.3 – File Transfer Mechanisms

At the center of the communication infrastructure issue is resistance from the Information Technology Department to allowing free supplier access to the Plant's local area network (LAN). Perhaps the greatest dilemma faced by this globally dispersed team is the fact that a significant level of trust has been created among the multinational engineering staff of the LVC project, and yet its performance is being affected by the lack of trust from an external department.

Transfer of CAD files was originally done via tape. In the specific case of the American supplier, a fast satellite link to one of its factories – located in the same Brazilian city – was used for the international transfer. The file was then downloaded to a tape and taken by car to the Automobile Plant. The IT Department later adopted a proprietary system for secure file transfer, which provides controlled access to the plant's network and external links, and eliminates the need for tapes. This file transfer system is nevertheless seen as unreliable and slow: typical CAD file transfers take up to half a day to complete.

The technological infrastructure supporting global interaction within the project presented by far the highest level of dissatisfaction among all the issues raised. The ability to communicate design modifications by means of a CAD file was pointed out by suppliers as fundamental for effective remote interaction with headquarters. In some instances digital photography of prototypes and mockups has been used. Although improvements have been made in the last few months, fast and reliable file transfer has yet to attain the levels to which suppliers are accustomed in their own in-house systems. As an attempt to establish more reliable channels, the possibility of creating a digital link between the Automobile Plant and the American supplier's local facilities is under study.

2.4.4 – E-mail

E-mail is also directly affected by the IT Department's policy towards network security. To access their e-mail and the Internet, suppliers have to use external Internet Service Providers (ISP) via dial-up telephone connections. But the Brazilian telephone infrastructure is slowly recovering from decades of stagnation under state control, and service is still unreliable. The author personally witnessed an engineer struggle for almost two hours trying to log into his personal e-mail account. This has obviously been a constant source of friction: In one instance, a local manager had to intervene in a heated dispute between IT support and a foreign team member that had deemed the situation unbearable.

In spite of unpredictable accessibility, e-mail was reported to be a useful tool by the majority of team members. Most claim to send an average five to ten work-related messages a day. E-mail is said to be especially effective for European team members who communicate

across several time zones, and are not always able to reach colleagues at headquarters by phone. One engineer from the American supplier uses e-mail to prepare colleagues for teleconferences, claiming that better efficiency is achieved when people are given a chance to consider the agenda ahead of time.

For in-house communication, the Automobile Manufacturer also utilizes a legacy e-mail system between mainframe computers. Although not able to send attachments, this system has provided a reliable link between its many global facilities for years, and is still in use by its staff, although not available for the international suppliers.

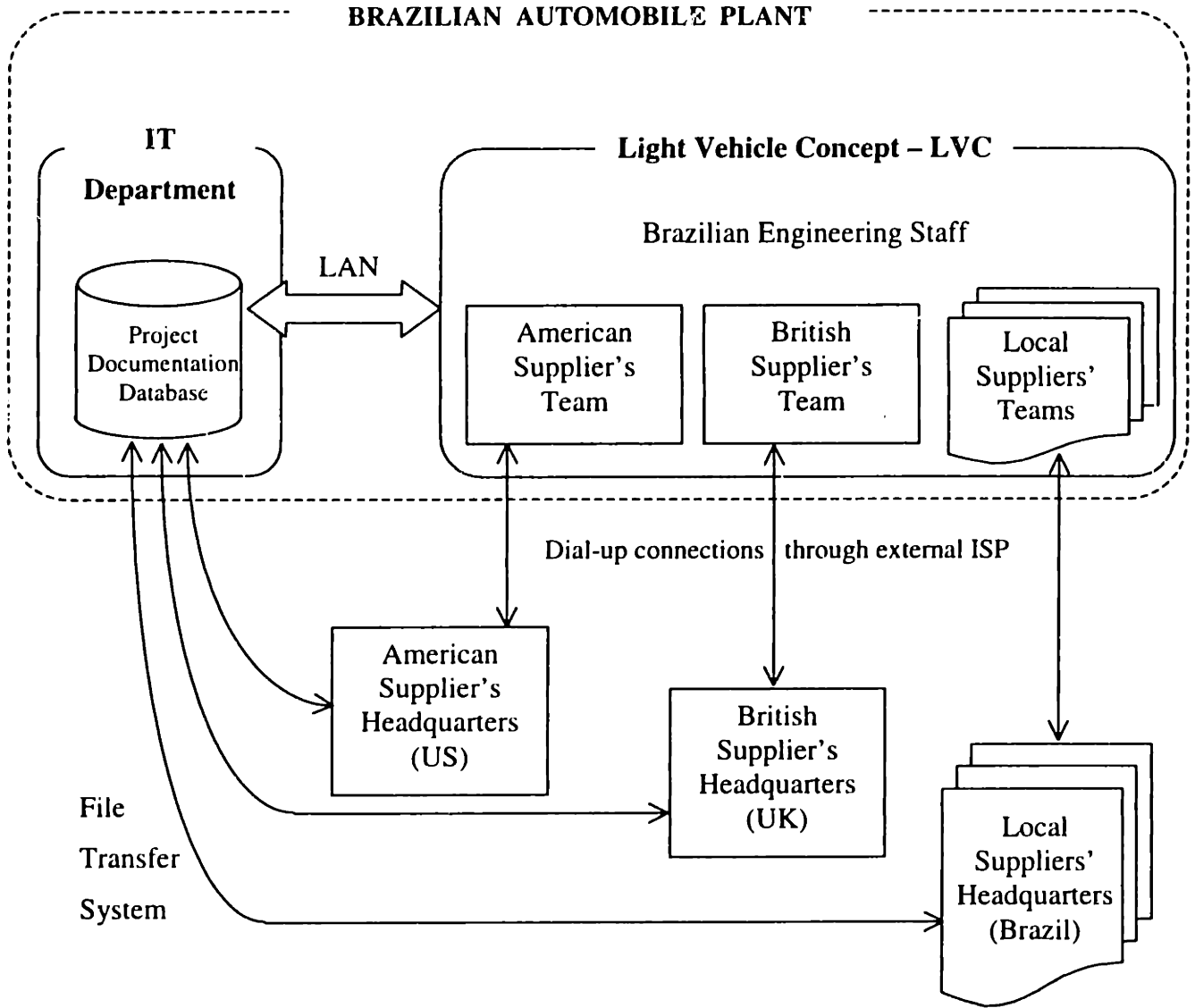


Figure 2.2 – Information Technology infrastructure at the Brazilian Plant

2.4.5 – Telephone and FAX

Voice communication is by far the most commonly used resource for bridging distances. As mentioned before, the Resident centralizes all communication between Brazil and the U.S., in order to avoid potential confusion from multiple channels. Several international phone calls may be placed per day in periods of peak activity. The American group prefers to hold teleconferences in an isolated room where members can interact in privacy, but this is seldom possible due to the physical layout of the engineering offices at the Brazilian plant. The use of teleconferences is nevertheless kept to a minimum as communication is centered on the resident.

Faxes are used as a fast alternative to CAD file transfer when modifications need to be shown on drawings. This nevertheless requires a few extra time-consuming steps such as printing, reducing, photocopying, besides being subject to an unreliable phone system.

2.4.6 – Videoconference

Videoconference was ruled out as a tool for the project from the very beginning, having in mind the technical limitations of the Brazilian Plant. It has been the experience of several team members that the cost-benefit relationship of this particular technology is still not able to justify its use in projects with such heterogeneous corporate participants. Yet being able to make face contact was acknowledged by the majority as being highly desirable once the technology is up to par.

2.5 – Work Meetings

The author was able to participate in two work meetings during his visit to Brazil, which provided additional insight into the dynamics of the interaction between members of the global team while temporarily co-located. As was mentioned before, the LVC project is characterized by fewer formal meetings and interaction than the team members are otherwise accustomed to, and by many informal exchanges on a daily basis.

2.5.1 – Styling Meeting

This meeting began as one of the tensest moments of the visit. Modifications had been introduced by the designers which had not been officially reported through an Engineering Change Request form (ECR). As a consequence, inconsistencies were introduced between the full-size clay model of the vehicle and the CAD files being used by the engineers. The meeting was called by the German manager of engineering to resolve the conflict, as well as to reinforce the need for effective communication and adherence to operational procedures.

Regardless of who was at fault, this incident shed some light on the actual authority of the resident among the engineering staff. The American resident was present at the meeting, and yet it was a more senior member of the team (in terms of age and experience, not hierarchy) who took control of the situation, speaking on behalf of that group. After a round of finger-pointing and credibility reinforcement, practical decision-making got under way and the atmosphere became more relaxed.

2.5.2 – Engineering Weekly Meeting

The German manager presided at the weekly meeting, which had a total quorum of sixteen engineers from all the companies involved in the LVC project. This encounter was a particularly interesting setting in which to observe the use of language, group norms, and the level of socialization within the group.

Brazilians, Britons, Americans and Germans were spread around the table, not clustered in pairs or national groups. This suggested a substantial level of integration, as people seemed to be comfortable with each other regardless of their national or corporate origin. Many parallel conversations took place throughout the meeting, while most participants expressed opinions at one point or the other as the agenda progressed. There was freedom to intervene, interrupt and ask questions at any point. The overall tone was friendly – even a few jokes were shared. All of this indicated again a well-socialized team.

English was the official language, but some participants did experience difficulty understanding the many different accents. At least in this meeting – perhaps due to the higher level of education of the engineering staff – language was not a significant barrier.

2.5.3 – Informal Meetings

The author witnessed several informal meetings taking place at different points throughout the visit to Brazil. The variety in number of participants, subjects and settings in which these took place confirmed the importance of informal encounters to the dynamics of this group.

Chapter Three

Analysis

The previous chapter presented a variety of issues identified in the interviews conducted in Brazil and at the American supplier's headquarters in the U.S. The author selected a few of these to be analyzed in light of the literature review of chapter one. These were considered to be the most significant at the present stage of the Light Vehicle Concept project.

3.1 – Team Dynamics

3.1.1 – Team Basics

The interviews showed that the LVC project has in place the three basic teamwork disciplines mentioned in section 1.1, namely:

- 1) *Complementary skills* – Breaking away from the traditional functional structure of the Engineering Department, LVC brought specialized suppliers and their skilled professionals together, each in a specific, complementary area of competence;
- 2) *Goals* – Engineering development projects have the advantage of resulting in tangible products, the progress of which is measurable and can be objectively assessed. The goal of the LVC group is clear: to have a vehicle designed, tested and ready for production by a date that was commonly agreed upon;
- 3) *A Common approach* – Mechanisms for group interaction have been put in place. A common CAD system has been adopted. Formal and informal meetings are periodically held. Project documentation is ensured through Engineering Change Requests, Priority Lists, Communications Sheets, and a common Project Database.

Of course the workings of these mechanisms still require improvement: The IT infrastructure supporting documentation lacks reliability; ECRs have been neglected at times; travel rotation compromises efficiency; and so on. The basis nevertheless is there.

The true richness of this case study resides in understanding how the fourth principle of sound groupwork has been established: A *Common Purpose*, or how trust, interdependence, and a sense of oneness has developed in spite of physical isolation. The following sections will address the building blocks that have been put in place to give the LVC team a common purpose.

3.1.2 – The LVC Champion

If there is a champion of the LVC project, the interviews indicate that he is the German engineering manager. His position at the top of the engineering structure allocated to the new vehicle puts him in control of significant resources, as well as corporate support for the LVC initiative. He demonstrated high enthusiasm for the project, confessing even to "*designing at the steering wheel as I drive home from work*". This enthusiasm is shared with the staff through, among other things, the celebration of milestones such as the Friday afternoon luncheon around the first prototype.

Contrary to traditional stereotypes associated with his nationality, he has demonstrated openness to input, feedback, and even to criticism from the LVC team. Interesting enough, he admits to having been "*strongly influenced by the American corporate culture*" to which he was exposed in seven years of residency in the United States. The experience reshaped his managerial style and made him "*believe in openness*". To his credit, there were no explicit complaints from the LVC staff about his managerial practices, indicating that the mistake of imposing an inappropriate foreign championing model (as previously discussed in item 1.3.2) has been avoided.

Understanding the role of the champion – and the power that can be channeled through his commitment to the project – can be an important tool in the hands of other team members.

The authority to resolve several issues raised by the interviewees resides within the reach of the engineering manager. But of course he cannot be expected to intervene in situations of which he is not aware. This suggests that the champion must periodically reinforce his availability and commitment to the group, encouraging them to seek his intervention and to tap into his power to mobilize resources within the Brazilian plant.

3.2 – Socialization and Trust

3.2.1 – Swift Trust within LVC

The LVC project fits Meyerson's description of a temporary system prone to the development of *swift trust*:

Uniqueness – It is a uniquely focused group within a functional structure, and whose activities differ considerably from the remainder of the Engineering Department's routine;

Significance – LVC is a highly regarded project within the German automobile manufacturer, a fact evidenced by the access its manager has to the corporate heads;

Clarity of Goals – The project has a very specific mission (i.e.: the development of a new vehicle), with a clearly defined agenda.

In fact the interviews show that significant levels of trust in the technical competence of the team members have been reached, even though individuals are being continually rotated from headquarters. In accordance with what could be expected from Meyerson's model, engineers confirmed that "*technical competence has been a door-opener*" as well as "*technical expertise led my integration process*". Three important additional factors contributing to trust-building can be identified:

- 1) The well-established reputation of the supplier companies, which strengthen their employees' credentials and create a pre-disposition towards acceptance from other members. The role of LVC management as *contractor* of competent suppliers is perceived as having been well carried out;
- 2) The permanent presence of the *resident*, who has the time and opportunity to build deeper and more enduring trust that can be "borrowed" by colleagues from the same company;
- 3) Jobs well done by previous professionals create a positive expectation towards the next one to be rotated. Conversely, poor performance by the present visitor can create problems for the next one to be brought in from abroad. We will call this the *trust chain* effect.

3.2.2 – Socialization in a Swift Trust Context

Aside the personal commitment of one single Brazilian engineer to sponsoring newcomers, no specific procedures have been established to help the socialization of professionals who are added to the LVC project. Off-site events held at the beginning of the project provided the initial ice-breaking, while celebrations of milestones have helped the bonding of veterans. But those caught in the middle have for the most been left on their own. As put by the American supplier's engineering manager, those who eventually joined the project had to "*jump in and swim*".

It can be argued that such tools are not in place in a system that operates on swift trust because they are simply not needed. Long-term socialization is not an issue since involvement in the project is temporary and the LVC group will eventually be dissolved. In a manner typical of swift trust environments, the LVC project requires proactive involvement of the professional in establishing technical credibility, a process that is mostly within his or her own control as tasks

are performed. Indeed, the interviews with team members confirm the fact that responsibility for building credibility has been taken into their own hands. In some instances, for the reasons presented earlier in item 3.2.1, the resident has also been involved in the process, leveraging his status as trusted veteran into a catalyst for trust-building around the newcomer. In summary, socialization has been mostly a matter of personal effort, and that seems to have worked well for the LVC project.

An entirely different situation arises within the suppliers' teams. This is where the professional's long-term employment commitment lies, and where deeper socialization must take place. The informal dynamics of the American team, combined with its manager's openness, have apparently been enough to ensure a smooth integration of new engineers or designers within that specific sub-group. However, special attention must be given if recently hired employees – who are still undergoing their socialization at headquarters – are sent overseas into an environment where socialization has different timing and depth. The employee should be aware of the contrasts as well as of the different set of demands imposed by socialization in a context of swift trust.

3.2.3 – Reshaping Expectations

In their discussion of swift trust, Meyerson, Weick and Kramer highlighted the importance of team members' backgrounds in the shaping of their expectations towards the new group. Past experiences with colleagues and management forge their understanding of roles, norms, ethics, procedures, and so on. As they come to a new setting – and this is particularly true in dispersed teams – they bring these preconceived categories along and expect them to fit the new environment. “Because there is insufficient time for these expectations to be built from

scratch, they tend to be imported from other settings and imposed quickly in categorical forms” (1996). There is always a danger that these categories are inappropriate or biased – sometimes they may even reflect stereotypes or prejudice. If swift trust is to develop in an international project involving global dispersion coupled with multiple national and corporate cultures, people’s expectations have to be carefully managed.

To this effect, the lecture on the contrasts between Latin American and Anglo-Saxon working habits – given by the Swiss professor at one of the LVC kickoff events – was instrumental in reshaping categories formed in the minds of team members by their previous experiences, as well as homogenizing expectations within the team. This type of cultural awareness activity proved its worth in the LVC project, and should be planned into similar future projects.

However, the maintenance of trust requires an ongoing effort from the team leadership, lest performance deteriorates. Comments made by interviewees such as: “*Americans are narrow-minded*”, “*show-business oriented*” or “*pushy*”; “*Brazilians are slow*”, “*have a different sense of urgency*” and “*are too people-oriented, instead of focusing on the task at hand*”; “*Europeans are straightforward, even to the point of being harsh*”; seem to indicate that it is time for management to work again on reshaping expectations.

3.2.4 – IT versus Engineering

Lack of trust demonstrated by the IT Department towards the foreign suppliers can be understood in the light of interdependence, or the lack thereof. Suppliers depend on the information technology available at the Brazilian plant to exchange vital information with their overseas facilities, besides keeping track of technical data. Success in their tasks is directly affected by the IT Department's competence at keeping systems running, and willingness to let suppliers utilize resources under its authority. The IT department, on the other hand, is a service provider within the plant and does not depend on the engineering staff to carry out its responsibilities. This unbalanced relationship by itself hinders the establishment of trust. Furthermore, there is little if any direct interaction between the foreign staff and local IT professionals, so that trust-building activities seldom take place. Finally, the constant rotation of foreign nationals widens the isolation between the two groups. Unless the dynamics of the interaction is changed so as to allow trust to develop, there is no alternative but to maintain in place the counter-productive security and control systems being used. This constitutes "a paraphernalia of systems, checkers, and checkers checking checkers [which are] expensive and deadening" (Handy, 1995). For the LVC group this means external access to e-mail through dial-up lines or, if partial progress is made, the establishment of firewalls and similar network security systems that keep tight control over users.

There are of course genuine concerns by the IT Department about maintaining safeguards to protect the competitiveness of the German automobile manufacturer. Yet the present arrangement is unanimously considered by suppliers to be excessively unbalanced, and a common ground has yet to be reached which meets the needs of both sides.

3.3 – The Resident’s Many Roles

Several of the individual roles and organizational responsibilities investigated in Chapter One were found to be within the sphere of influence of the resident. Some of them, such as centralizing communications, were deliberately included in the job description of that position. Yet others exist of which most of the LVC staff is not even aware. The understanding of these additional responsibilities can be an important tool in the hands of management for improving the mechanics of the global team:

3.3.1 – Communications

The resident has made continuous face-to-face interaction possible between the Brazilian Plant’s engineering staff and its suppliers. Several of the authors reviewed emphasize the cruciality of such close personal contacts for the workings of scattered teams, and their views are generally supported by the findings from the interviews. The hub-and-spoke setup described by De Meyer is clearly present in the LVC project, as residents from the various suppliers bridge the flow of communications across corporate and national boundaries. This arrangement has indeed maintained substantial control in the hands of management, as the intense daily exchanges between the Plant and the suppliers’ headquarters have enabled overseas managers to stay reasonably current.

One remark must be made, nevertheless: Suppliers should ensure that their residents are clearly identified to the team as such, and not simply assume that it is clear to the rest of the group. In at least one instance, a Brazilian engineer’s level of confidence in the Americans had fallen precisely because it had not been clear who was in charge of centralizing communications with that company. The issue of communications is further addressed in the next section.

3.3.2 – A Partial Gatekeeper

At least in the particular case of the American supplier, residents have partially fulfilled the role of gatekeepers, or individuals responsible for monitoring, gathering, as well as facilitating the flow of up-to-date technical information within their team. It has been a partial role for two main reasons:

- 1) The American residents have been relatively young, consequently their technical experience is not sufficient to make a significant impact on the daily technical challenges arising in Brazil. They must nevertheless ensure that the right competencies are drawn upon from headquarters in order to solve those challenges;
- 2) The residents interviewed admit that intense involvement in communication coordination has kept them from performing technical tasks, and this to some extent has hampered evolution in their original areas of engineering expertise.

The conclusion is that residents must be willing to postpone growth on the technical track as a tradeoff for their overseas assignment, and individuals not aspiring to, or unfit for managerial positions should not be considered for the position.

The interviews and meetings witnessed in Brazil suggest that the issue of the residents' lesser technical seniority can be extrapolated into the managerial arena. The episode in which an older team member took control from the resident (in the course of a styling meeting) made it evident that residents may more often than not be exposed to situations beyond their leadership clout. Management faces a dilemma: only the younger engineers are willing to undergo the deprivations of extended overseas assignments, due to the flexibility of their early careers. And yet these less experienced professionals are at the center of substantial technical, managerial and political challenges.

3.3.3 – Cultural Buffer

One resident, who has been a foreigner in the United States since his adolescence and therefore has had previous experience in being immersed in a new culture, has what the author considers to be the right attitude towards global interaction. He not only identified the opportunity to live in Brazil as a window for personal enrichment, but also as chance to reach out across corporate and national boundaries and make a difference. In his interview he declared that he had made a conscious effort to take part in off-work events together with the local Plant staff, absorbing and understanding as much about the culture as possible, while building the relationships essential to his job. It soon became evident that, regarding the depth of interpersonal relationships, Brazilian culture is in many ways similar to his native background. He took advantage of this commonality by proactively seeking closer relationships with the locals, and “*walking the extra mile*” whenever called upon. One Brazilian teammate, for instance, acknowledged the extra effort the resident put into helping him polish his English. Benson-Armer and Hsieh captured the essence of such a cooperative attitude:

Team members should also reach out to help others. This might involve extra effort – be it to respond to a request or to pass on to others ideas that might benefit them – and it seldom brings immediate reward or recognition. But the long-term benefits in terms of building a reputation and accruing trust are immeasurable. A good deed might even lead to a new business opportunity (1997, p.25).

Finally, having built a mental framework of the Brazilian way of working and conducting business, this resident acted as a *cultural buffer* between his team and the Brazilian staff, cushioning differences in expectations between the players. Whether this was a conscious or

unconscious initiative, the interviews with other teammates indicate that it was an important factor contributing to the effectiveness of the LVC project.

The role of resident is undoubtedly one of sacrifice. As one of them put it: "*My private life was forfeited, for I missed precious time with family and friends*". But if the right match is made between the individual and the requirements of the position, there is immense experience to be gained. Being a swift-trust *anchor* as colleagues come and go in their rotations can be a significant source of personal satisfaction. The same can be said from the cultural exposure that only several months of immersion in a foreign country can provide. Being a resident is obviously not for anyone, and choosing the right person for the role is one of the most important decisions facing management.

3.4 – Technology Infrastructure

It would be foolish to ignore the impact of technology on the dynamics of globally dispersed teams. Were it not for the Information Technology tools available to the LVC team, regardless of their appropriateness, the project would simply not have been feasible in its present format. Engineers may nevertheless be tempted to oversimplify their framing of global dispersion by focusing too much on the available technological solutions. If one conclusion is to be drawn from the present case study, it is the fact that technology alone is by no means sufficient to ensure a successful project involving globally dispersed teams. The complexities of human interaction, team norms, communication, and trust far outweigh the impact of e-mail or videoconferencing. Support from literature for this view is abundant:

[...] we will have to rediscover how to run organizations based more on trust than on control. Virtuality requires trust to make it work: Technology on its own is not enough (Handy, 1995, p.44).

There are two sides to the technology coin. On the one hand, technology can help uncover business opportunities that would otherwise have remained out of reach. On the other hand, it cannot erase the difficulties faced by global teams that rarely, if ever, get together in the same place. Indeed it can sometimes prove to be a false friend (Benson-Armer et al, 1997, p.27).

Technology has created a magnificent new world, bursting with opportunity [...] and we're never going back. But we cannot move forward successfully without preserving the human moment [i.e.: close interpersonal interaction] (Hallowell, 1999, p.66).

Some day, perhaps, when groupware evolves into comprehensive, integrated systems that are more like a state of mind than a toolkit, technology will play a much greater role. But for the time being, the emphasis on learning should be more on the dynamics of the group than on the capabilities of the ware (O'Hara-Devereaux et al, 1994, p.418).

The LVC project reinforces the notion that, when technology works, it is taken for granted; but when it does not, that can trigger all sorts of unresolved human issues that would otherwise go ignored.

Chapter Four

**Conclusions and
Recommendations**

Having assessed the applicability of the literature review to the reality of the automobile design project, we conclude the case study with a summary of pending problems and recommended courses of action towards their solutions. The best practices of this team are also highlighted as useful tools to be applied in other similar projects. Once again, the reader is reminded that the focus of this paper is the American supplier's design and engineering staff, which has in fact been operating as a globally dispersed team. Therefore the following considerations are centered on the issues that were identified as critical to the performance of that subset of the LVC group.

4.1 – Areas of Potential Intervention

4.1.1 – Improvements in Project Documentation

A common approach to record keeping was shown to be one of the basics of effective teamwork: It is therefore understandable why so much dissatisfaction has arisen from operating an unreliable documentation database. Unfortunately for the LVC group, their project coincided with the early stages of development of the Brazilian Plant's workflow system, and their needs are not being met. There are two alternative courses of action to be considered:

- 1) Accelerate the pace of evolution until the in-house system attains acceptable performance;
- 2) Adopt a third-party system that has been proven to work in the desired fashion.

Factors such as remaining project time, cost of further development or changeover, training, potential project delays, as well as team motivation will have to be weighed. Reaching a consensus among suppliers, the Plant's engineering staff and the IT Department has not been an

easy endeavor. The intervention of the *champion* could prove to be a turning point towards the solution of the issue.

4.1.2 – The Champion

The German engineering manager's enthusiasm for the project has not been explored to its full potential, and could be instrumental in overcoming the technological hurdles put in place by the IT Department. The LVC group's unique position inside the Brazilian plant – with direct access to the corporate heads – can be leveraged to the benefit of the foreign suppliers, in their quest for a better IT infrastructure. From a technological perspective, solutions for efficient communication are simple and readily available. The real challenge comes from internal politics at the Brazilian Plant, an area in which the champion's personal intervention can make the difference.

4.1.3 – The Resident

The creation of the *resident* role is among the most significant lessons extracted from this case study, and one that has important application potential in other similar globally dispersed teams. There are nevertheless a few aspects of the resident's responsibilities that remain partially unresolved, and deserve further attention:

Seniority – For the reasons previously discussed, residents have been young professionals with somewhat limited managerial exposure. However, LVC's history indicates that a higher level of experience is desirable due to the complexities of the role. Having recognized this need, the American supplier decided at the end of 1998 to initiate preparation of a more senior engineer, who will eventually assume that post at the LVC project. Living in Brazil will not be a problem,

since this engineer is a local citizen who has been temporarily brought to the American headquarters for training. Besides bringing more significant managerial experience into play, this new resident has the added advantage of being bilingual. This person will undoubtedly affect the dynamics of the team, so the author recommends that further study be conducted beyond the present writings in order to evaluate the new conditions.

Logistics – Putting the resident in charge of logistics has been considered before but, given all the considerations about trust-building, socialization, and communications, it is evident that this individual has many more crucial responsibilities to be concerned with. Distracting the resident from those nobler functions is likely to prove counter-productive, and consequently is not advisable. A Brazilian clerical assistant to the resident can be hired at marginal cost to provide for this need.

Training – The findings from this case study – as well as those from the other Sloan School students who addressed globally dispersed teams – will be presented to the sponsoring organizations, which include the American supplier. This material could form the basis for specific resident training in the complex aspects of swift trust and socialization. Being at the center of those team issues, the resident can make a significant impact if well prepared.

4.1.4 – A Hybrid Communication Model

The hub-and-spoke communication setup described in section 1.4.2 has been central to effective coordination across the many companies involved in the project. The mechanism envisioned by the automobile manufacturer – having residents positioned as hubs between Brazil and suppliers' headquarters – has provided a level of control with which managers at the Plant and overseas are comfortable. But deficiencies in the telecommunications system have forced the

suppliers to rely on the resident not just for inter-company coordination, but also for intra-company communication. In other words, the residents have not only become a channel across the organizations, but also within their own supplier groups (see figure 4.1).

For the sake of improved efficiency, it would be in the interest of the American supplier to encourage its staff to evolve into the sort of informal, networked organization proposed by De Meyer (1991). In order to succeed, this initiative would require that the telecommunications infrastructure problem be solved in the ways previously discussed. With the technological support in place, the American engineers and designers would be encouraged to exchange information more freely among themselves, impacting the speed with which tasks are performed. As a consequence, the resident's responsibilities could be scaled back to the original scope, which is conveying information across the corporate boundary, between the supplier and the Brazilian Plant. Potential gains in efficiency from a networked organization deserve further evaluation by the American supplier's management.

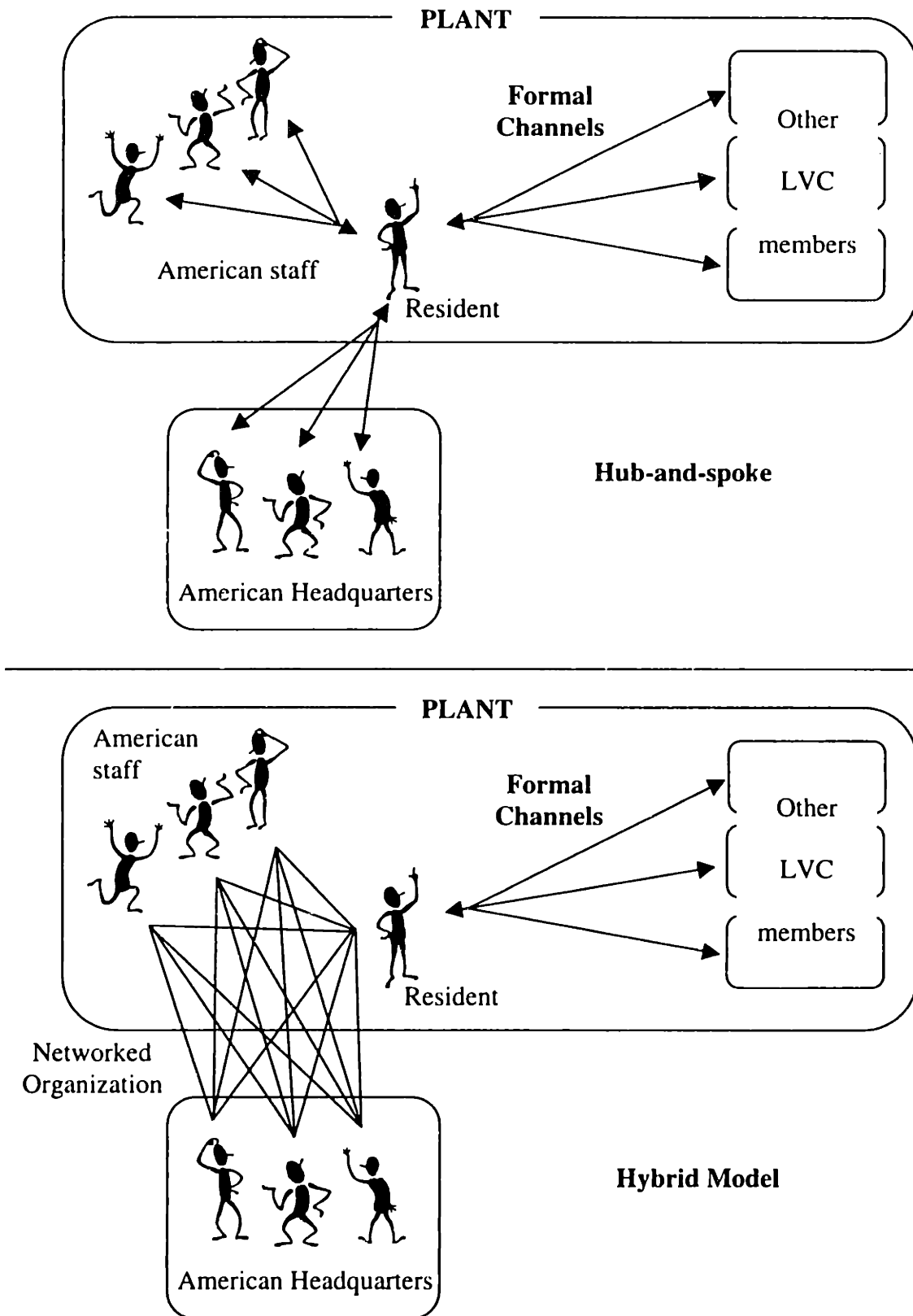


Figure 4.1 – Hub-and-spoke versus a hybrid communication model

4.2 – Recording Experiences

Finally, it is the author's opinion that a wider effort should be made to document the experience gained from the LVC project. According to the American supplier's management, this type of project reflects an irreversible trend towards global business at that company, and will become increasingly common in the years to come. It is thus important to build a collective memory from which future teams can be trained. The breadth of the interview report presented in Chapter Two is a first move towards detailed documentation, and could be complemented with other reports to be written by selected team members. This should not be a lengthy burden, but instead could be organized as questionnaire to be filled out while the issues are still fresh in their minds. Their experiences are precious assets that will be lost if they move on to other responsibilities without recording them. It would be interesting to orchestrate this effort across the other groups presently studying globally dispersed teams at the American supplier.

4.3 – Further Research

The author strongly encourages that the American team be followed through the next stages of the Light Vehicle Concept project, especially if the flow of international travel is indeed reversed for the detailed design phase. The outcome of the recommendations presented here, should they be implemented, is also worth assessing.

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