DESIGN ENGINEERING CULTURE DIFFERENCES
- Ford’s acquisition of Volvo Cars

Magnus Lundbäck and Sven-Åke Hörte
Luleå University of Technology
Department of Industrial Organization
SE-971 87 Luleå, Sweden

ABSTRACT

The cultural issues of design engineering are important in the context of any inter-organizational collaboration. The objective of this article is to describe and analyze the design engineering decision-making process at Ford Motor Company. It examines the area that concerns culture in the workplace, but does so in the context of how Volvo employees understand it one year after Ford’s acquisition of Volvo Cars. It is clear that there are important differences in the way of conducting decisions between the companies, at least as the engineers at Volvo understand it. These differences will have a negatively impact on the speed of the integration process and future ability to co-operate.

INTRODUCTION

The automobile industry is in the middle of adjustment to future market situations. One way of doing this is to form new, or join existing, strategic alliances. Another is to merge with or acquire competitors. The movement of firms towards joint ventures and collaborative projects seems to be the trend, today. Mergers, acquisition and joint ventures are, however, nothing new; these activities have been described as occurring in waves, starting in the U.K. in the early 1920s. The second wave occurred in the ‘60s, followed by a third in the early ‘70s. The latest wave of re-structuring started in the mid ‘90s is still going on. There may be several reasons for the restructuring: changing market conditions, increasing availability of capital, rational financial or strategic, or just the need to share risks (Cartwright 1996). Auto companies seek ways to generate high-volume production, share market and distribution costs and co-ordinate product development activities. They try to produce several vehicle models and types from a single vehicle platform and thereby seek benefits of scale by sharing development costs. There is today, a strong trend of mergers, acquisitions and joint ventures in the automobile industry and many of today’s car manufacturers have met new kinds of challenges. This trend is shown in statements such as that by Toyota’s Okuda, who predicts that “in the next century there will be only five or six auto makers” (Naughton et. al. 1999). Fords’s CEO Jac Nasser says “The industry landscape will need to change, for global players to be competitive their sales volumes will have to be over 5 million per year” (Naughton ET AL 1999). The trend is also reflected by the increasing numbers of acquisitions in the automobile industry, where the latest is Ford’s acquisition of the former British and now German owned car manufacturer, Range Rover. Renault has taken a big share hold in Nissan, Volkswagen has bought Spanish SEAT and Czechoslovakian SKODA, and General Motors has bought the Swedish car manufacturer SAAB, to mention some of the recent activities in the field.

To get in to the business of acquisition, mergers and joint ventures is, however, risky. To integrate car manufacturing activities after an acquisition is seldom a straightforward process, even when there seem to be evident ways of creating synergies. Research shows that more than half of all acquisitions fail to meet expectations (Frankine 1998).
Generally, the earnings from these activities tend not to reach the expected levels (Triantis, 1999). Since the car manufacturers become larger, with more brands in their portfolio the cultural and co-operation processes become essential to success. In addition, co-operation has become an important factor for survival, not only inside the company, but crossing international, company and cultural boundaries. The importance of cultural aspects has been pointed out as one of the most important issues regarding integration following an acquisition (Triantis 1999). Research, for example Pettigrew (1979) and O’Donnell-Trujillo (1982) looked at organizational behavior and cultural aspects as an important factor has received a growing focus of interest.

One factor that certainly affects the growing interest in cultural issues is the increased globalization and number of acquisitions in recent years. The difficulties for companies such as Ford, General Motors, Volkswagen etc., who have different brands within the company, is to reach the expected synergies within the product development activities without weakening the dual function and distinction between its different brands and the different design engineering cultures at the product development units.

Ford’s acquisition of Volvo Car Corporation, in February 1999, is one of the latest in a row of acquisitions in the automobile industry. Ford has steadily built up a portfolio of brands, including a minority shareholding in Mazda. Among the purchases have been the British niche brand Aston Martin and engine-builder Cosworth. Ten years ago Ford took control of Jaguar, and Volvo was bought in February 1999. To manage its luxury brands Ford has created the new Premier Automotive Group (PAG). PAG brings together Volvo, Austin Martin and Jaguar with the American premium brand Lincoln. "The Premier Automotive Group, under the umbrella of Ford Motor Company, will allow us to leverage the unique strengths of these four legendary brands, while preserving their individual values and characteristics," said Jacques A. Nasser, Ford President and CEO (Nasser 1999). This raises the question of how fast Volvo Cars can be integrated in to the Ford family since the speed of the integration process has been pointed out as an important factor regarding the success of company integration (Nachemson-Ekwall 1999). The concrete case has a complex organizational structure, with co-operation crossing cultural and organizational boundaries, in which we have studied the integration process during the first year after the acquisition. There are eight brands, in five countries, on three continents. Ford, Mercury and Lincoln at Ford US, Ford in Germany, Ford in England, Volvo in Sweden, Mazda in Japan and the two British car manufacturers, Aston Martin and Jaguar in England. In this situation, different national and organizational cultures meet to integrate, for example the Swedish customer-value-through-safety culture with the American business and cost oriented culture. Ford has decided to promote the development of new models based on common platforms. This means that design-engineering personnel at Volvo, who are used to a certain way of working, are to carry out platform work with Ford product development personnel who are used to working methods which differ in several important areas from those at Volvo. Co-operation in the projects is not only in engineering work, but also in attending a large number of meetings where commitments of different kinds are made. Design review meetings, cost review meetings, action groups, etc. In this international, cross company co-operation the project teams constantly face the situation of exchanging information to get a clear picture of the work being undertaken while trying to get the job done throughout an organization which is strongly affected by cultural factors. The cultural factors have had a great deal of attention paid as important to successful integration after an acquisition. Ignoring cultural issues in integration work can be a mistake that will negatively affect the ability of organizations to obtain desired synergies (Triantis 1999).
Decision making in the product development process

This paper is part of an ongoing Ph.D. research project, trying to target the mechanisms that influence the speed of Volvo’s integration in the Ford group, focusing the product development engineering area. Targeting the mechanisms that effect the speed of the integration process is a complicated area and there are many variables that have to be considered. However, we have located seven main areas that in our tentative results are shown to affect the speed of the integration process between the two companies. These areas are:

- Decision making processes
- Project schedules
- Platform definitions
- Personnel orientation
- Product development organization
- Business philosophy
- Design engineering specifications.

We have chosen, in this paper, to discuss the treatment of decision making regarding product development issues among other issues observed. The issue is demonstrative in the sense that it shows how product development personnel at Volvo experience the differences between Ford and Volvo. Triantis (1999) has pointed out the importance of an well-understood and developed decision making process in order to be successful in company acquisitions. Among organizational economic goals, often focused in relation to acquisitions, the informal reporting structures and decision-making processes are often neglected (Triantis 1999). As a result, when this happens, the personnel at the firm that is being bought tend to lose their understanding of how the company really works (Cooper and Lybrand 1997).

Decision making regarding product development is about managing the design and release, and manufacturability of the specified vehicle systems, sub-systems, and components to meet the functional, quality, time, weight and cost targets. Furthermore, critical, strong and weak areas inside the company are being selected. All engineering standards used by the different companies are evaluated and new standards developed, which entails a critical decision making process.

An important factor regarding decision-making is control over the actions involved. Paterson (1969) developed a framework to understand this issue. He orders the decision process in several steps:

- Collecting information. To collect information is about passing the information to the decision-maker, without comment, about what can be done
- Processing. To process information to be able to present advice to the decision-maker about what should be done
- Making the choice. That is getting a clear picture and determining what is intended to be decided
- Authorization. What is intended to be done, what is the final result expected of the decision, where it is authorized.
- Executing. Doing the things to be done

Control over the decision making process is determined by the control over these various steps. The process is then maximized, when the individual or the whole group controls all the steps. This emerges when the collection of the information, analyses, choices, authorization of the issues, and executing of the decision are all controlled. If this process
is split at different organizational levels the group or individual has less power. If the

group have control over the input information they do not need to let other actors make

the decision on what factors that should or should not be considered in the decision

process. When this process is split in the organizational context the decision-makers loses

some power to the information gatherers and advisors etc. The control can be lost in any

of the above-described steps, i.e. to the information gatherers, advisers, to the authorizer

or the executors.

The actual speed of the decision making process is essential for product development
activities (Wheelwright and Clark 1992). Eisenhardt (1989) has developed a model based
on three processes that determine the ability of the manager and group to effectively
attain a high speed in the decision making process. 1. Efficient and fast processing. The
decision-maker must have the ability to process and analyze great amounts of information
quickly and efficiently. 2. Efficient teamwork. To be effective, the manager must be
working with groups that have an efficient team structure, with harmonious relations
within the team. This is not the same as everybody always agreeing. Members of well
functioning groups often disagree. Group members who share a common vision and who
are mutually supportive aid fast decisions. That the right personnel chemistry is a key
factor of success in operations and established co-operating projects has also being
pointed out by Triantis (1999). The right chemistry is created when relationships are
formed, the objectives in the projects are not in conflict, and there is a fair degree of trust
and support of the partner (Triantis 1999). 3. Confidence to act. If the decision making
process is going to be fast the decision-makers should not be afraid to act. Managers and
groups can be afraid of making decisions based on uncertainty. The Eisenhardt research
(1989) described above is focused on high-velocity environments, which in many aspects
is the environment of product development activities in the automobile industry.

Organizational and reporting structures developed for the support of the decision-making
process explain how formal decisions are made and what reporting and supporting
structures are needed in order to be more effective. Efficient ways of making decisions
also include, however, the informal decision making process, which has been pointed out
as an important factor regarding efficiency in the decision making process (Cooper and
Lybrand 1997). The understanding of the process among the project team, management,
and the different partners in a project is essential for efficient communication, which will
affect the speed of the developing process (Wheelwright and Clark 1992). The activity of
collecting, assessing and choosing from a set of options lies at the core of making
decisions. In the design engineering process the different options are endless.

On the basis of the above definition of what constitutes an effective decision, we next turn
our attention to how decisions are being made; by the group, by the manager and by
subordinates together with the manager etc. Vroom and Yetton (1973) have developed a
model that suggests there are different decision-making styles available; autocratic,
consultative and group. The different styles are shown below.
<table>
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<tr>
<th>Decision style</th>
<th>Definition</th>
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<tr>
<td><strong>Autocratic</strong></td>
<td>Managers make the decisions alone. Managers ask for information from subordinates but make the decisions alone. Subordinates may or may not be informed about what the problem is.</td>
</tr>
<tr>
<td><strong>Consultative</strong></td>
<td>Managers share the problems with subordinates and ask for information and evaluations. Meetings are held, not with the whole group, and a manager then goes off alone and makes a decision. The team meets, with the manager present, to discuss the problem, but the manager makes the decision.</td>
</tr>
<tr>
<td><strong>Group</strong></td>
<td>The team meets as a group to discuss the problem, and the group makes the decision.</td>
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In order to identify the differences in the decision making process the three theoretical models are used i.e. control over actions involved, speed of the decision process and the way of which the decision-making process is carried out in order to evaluate the decision making style.

With these aspects of decision-making, we are now in a position to analyze the decision-making as comprehended by the engineering personnel at Volvo Cars and the answer to our research question.

**RESEARCH QUESTION**

In this paper we analyze how product development employees at Volvo comprehend decision making at Ford Motor Company one year after Fords acquisition of Volvo Cars. The aim is to analyze differences between decision-making approaches at Volvo Cars and Ford Motor Company. Decision-making is analyzed from the perspective of the design engineering personnel at Volvo Cars.

**METHODOLOGY – DATA**

Current data for the study was gathered during 1999 at the product development organization, Volvo Cars, which has a total of 2500 employees. The organization is located in Gothenburg, Sweden. The integration with Ford has been studied, documented and followed during the first year of the process. To derive appropriate data on the perceptions of design engineering personnel and to address the research question, a structured questionnaire was developed. Design engineering personnel, project managers and senior management, with technical and business knowledge from the product development organization, were identified and 22 interviews were arranged. Interviews with the senior management were carried out in both a structured and an unstructured manner. Interviews with the engineering personnel and project managers were, in the main, carried out in a structured way. However, others involved in the product development process, including Human Resources, Financial and Quality Managers, have also been interviewed. Results from the interviews have been discussed with the respondents to eliminate errors or misunderstandings about the interview responses.
Complementary data on the product development organization, such as project documentation, turnover, financial reports, employment etc., has been used supplementary to the observations and interviews.

**ANALYSIS AND RESULTS**

Eisenhardt’s (1989) model for speed and performance in the decision process is very applicable to the way of working at Ford and Volvo. There are tools and methods available used for processing the information thought the decision-making process at both Ford and Volvo. At Ford there is also a well-developed organizational culture for documentation. This culture has lead to well developed and frequently used databases. The result is a powerful information flow though the decision-making process at Ford which is better developed than the one at Volvo. Working groups with participants from Volvo and Ford are known for smooth and harmonious relations. In spite of this, the speed of the decision-making process at Ford is experienced as being low. This seems to be due to the degree of confidence to act in the organization. As Eisenhart (1989) has pointed out, decision-makers must not be afraid to make decisions. The understanding among Volvo personnel is that Ford personnel do not have the confidence to act and take the necessary decisions, which from Volvo’s point of view slows down the decision process.

Ford has well functioning processes for controlling the decision process, which has led to admiration in the Volvo organization. The executive style at Ford has also been observed as something professional and well developed. This means that the group where the decisions can be made has a great power in the organization. On the other hand the group that does not have authority to make decisions may not do so. The way Ford conducts the decision making process and controls the actions involved is experienced as professional, highly efficient and purposeful, and has been given a lot of credit by Volvo Car’s design engineering organization. It is, however, seen as a high level decision making process which is quite different from the Volvo way, which is seen as more relaxed, flexible and team oriented than the process at Ford, who is seen as slow and bureaucratic. The different way of making decisions is also apparent in the differences in personnel who attend the platform meetings. Ford is much more likely to send people who will not have full authority to take the decisions that are usually taken at the Volvo platform meetings. So, while Volvo personnel may be willing to take a decision the Ford personnel may want to address the issue to the organization and its management. Furthermore, product development personnel at Volvo are of the opinion that the Ford project managers tend to send the decisions upward in the hierarchy. This decision-making method is the opposite of the Volvo way, where project managers have the authority to delegate the decisions as far down in the hierarchy as possible. At project meetings Volvo observe that Ford engineering personnel gather as much information as possible and then transfer the decision making to their managers. Accordingly, this has led to employees at Ford developing into extremely skilful technical managers. Ford managers are well up to date with technical issues. Managers at Volvo do not have as much technical skills as their counterparts at Ford, is the existing impression in the organization. Control over the decision making process is obviously very high up at Ford. At least, that is how the employees at Volvo’s engineering departments comprehend it. It is clear that Ford has developed the Paterson (1969) model very well, of the importance of controlling the actions in the process.

At Volvo Cars the decision making process is informal, i.e. many of the decision are taken by verbal agreement. Decisions can be made quickly since the design engineering
teams at Volvo have the authority to make all decisions themselves. This is a part of the vehicle platform strategy and working methods that were developed after the unsuccessful merger with Renault. At Ford, on the other hand, the decision process is more of a consultative nature when the team meets, with the manager present; to discuss the problem, but the manager takes the decisions. The understanding at Volvo is that decisions are made by agreement in the engineering teams. The engineering teams have all necessary competence represented. Volvo understands that even if the engineering teams at Ford know the answer they address the question to the manager. On the basis of the decision-making model developed by Vroom and Yetton (1973) it is clear that Volvo carry out decisions at group level, while the decision style at Ford is consultative, with the manager taking the decisions.

However the success of communication between project teams is related to personnel relationships (Triantis 1999). In the Volvo Ford case these relationships are already effective. Not only based on the direct question of the comprehension and experience of co-operation with Ford employees, but Volvo engineers also voluntarily express their opinion of agreeable and attractive co-operation.

**DISCUSSION**

When decisions are made regarding product development issues the speed of the decision-making processes is important. Clearly, in activities such as product development, rapid decision making is closely related to good corporate performance. If the decision making process is neglected after an acquisition the employees lose track and tend to lose their understanding of how the company really works (Cooper and Lybrand, 1997). When this control is lost the speed of the product development process is effected (Wheelwright and Clark 1992). Since the speed of product development activities is an important factor for company survival the importance of handling decision-making processes after acquisitions should be observed as one of the important mechanisms that has an effect on the speed of company integration processes in post acquisition work.

In view of the importance of speed in the decision-making process cultural differences become important factors to success in company acquisitions. As was pointed out in the beginning of the paper, many acquisitions fail and one important reason for this is the underestimating of the cultural impact. For companies that have broad cultural differences it’s important to analyze the cultural impacts of co-operation.

What is clear from this study is that there are important differences between companies in the way of conducting decision making, at least as the engineers at Volvo experience it. One of the most striking observations in relation to this, arising from both the interviews and the participant observations, is the strong conviction among Volvo employees that the Volvo way of doing thing is the right way. The reason for this is the hard work that has been put into get the existing model to make it work as well as it does, at Volvo today. Thus, when the decision making process seen inside Ford is understood to be less effective compared to the Volvo way, the reaction will be as described above. Irrespective of Ford’s acquisition of Volvo Cars, the organization would probably have difficulty to criticize and change the existing model due to its history.

The paper stresses that the perception of the design engineers at Volvo will influence future co-operation. Examples have been given that engineers at Volvo comprehend the decision making process at Ford as slow and bureaucratic, which will affect the way in
which Volvo acts toward Ford when a decision has to be taken. The differences may eventually lead to integration, understanding and acceptance of problems. Today, Volvo tries to understand how the decision making process at Ford works. This has also led to the feeling among engineering personnel at Volvo that nobody takes necessary decisions. The signals are clear that the employees are about to lose their knowledge of when and where decisions are taken. The risk that Volvo employees will lose their mental map of how the company really works is obvious.

In conclusion, this study has mapped out the decision-making differences regarding design-engineering issues, as the product development personnel at Volvo Car understand them. The purpose of this research was to identify variables that would assist managers in increasing the speed of the integration process as well as to increase subsequent acquisition performance. By helping managers understand some of the important factors that affect the speed of the integration process, they will be better prepared; which hopefully will improve future design engineering performance.

REFERENCES