

# **Interpreting a Case of Outsourcing Shift-gears in the Car Industry using different Theorys Simultaneously**

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## **ABSTRACT**

This paper bring forward a methodology that makes it possible to handle different theoretical models simultaneously when analyzing cases of outsourcing - without ending up with contradictory conclusions. The approach used in the paper is a development of a framework, the analysis of three commonly used models (The Make-or-buy model, the Network approach, and Industrial strategy) and a case study where outsourcing of shift-gears in the car industry is analyzed. The paper addresses the basic need to clarify the fundamental assumptions embedded in theories applied on outsourcing. It also clarifies hands-on how the suggested methodology can be used.

**KEY WORDS** - Methodology, Outsourcing, Make-or-buy, Network approach, Industrial strategy

**PAPER TYPE** - Conceptual

## **INTRODUCTION**

During the last decades, several different theories have tried to capture the mystery of outsourcing. In one school of thought commonly adhered to, here called the make-or-buy model, researchers often focus on the decision that lies behind outsourcing (Barthélemy, 2003; Ray, Sarkar & Sanyal, 2008). Following another school of thought, who takes the network approach, outsourcing becomes a binding issue between the buying firm and its suppliers (Dubois, Hulth & Pedersena, 2004). Other scholars focus on how strategies evolve, herein called industrial strategy (Tales & Drury, 2001; He & Nickerson, 2006).

The overall aim with this article is to cast basic methodological light on research into outsourcing and analyze the basic assumptions embedded within these three schools of thought: the make-or-buy model, the network approach and industrial strategy. The purpose is to show in what way different models used when studying outsourcing complement each other and jointly create a deeper interpretation of outsourcing than if only one is used.

### **Outline**

The outline of this article is as follows. The first section deals with a methodological framework and the theory's discussed are analyzed. The second section deals with an in-depth case study of outsourcing where different aspects of the kind of knowledge the three different schools would bring to this specific case are discussed. The last two sections include a discussion of the case as well as conclusions on the methodological consequences for further research on outsourcing.

## **THEORETICAL FRAMEWORK**

Outsourcing is a good example of an easily observable industrial change. The mere change - of activity from one legal actor to another - is at the centre of interest. By that it is of basic need firstly to understand what it means to analyze "change".

Historians often claim that change is not objective, but rather something that we as observers of it have expectations of and interpret as change (Burke, 1979; Middleton & Woods, 2000). This means that researchers, often implicitly, have models in mind that they use to study something - and then call it change, or non-change. By extension, it means, "how we represent change affects how we interpret the world" (Sarup, 1996, p. 99).

One method for explicitly bringing out the assumptions on change embedded in a theory is to consider how time and space are perceived in a study (Miettilä and Törnroos, 1993; Carr, 2006). If, for instance, a steering-group meeting were the unit of analysis studying changes, the time dimension is likely to be a couple of hours and the space unit would be very narrow – maybe only observing the changes that take place at that particular meeting. If, instead, the change in global competition was the unit of analysis, longer time frames would be used, maybe decades, and much broader space units than steering group decisions would be used. This raises three important propositions that can be used to understand different theories.

The first proposition is that time and space indirectly coexist (Danielsson, 1985). If one particular time dimension is used, the space unit possible, more or less implicitly, follows from this (and vice versa). The second proposition is that time and space can be viewed as having different levels (Misa, 1994). The third proposition is that change can be perceived

very differently depending on our implicit assumptions about change as such (Burke, 2001). In the following, these propositions will be used to analyze the different schools of thought.

### **The Make-or-buy school of thought**

The idea of analyzing outsourcing as “make-or-buy decisions” goes far back in history. It can even be claimed that already Culliton (1942) gave this school of thought a starting point. Ever since researchers have developed different kind of “decision-oriented” models in order to study changes within the value-chain, with growing interest over the last decades due to outsourcing (Ford et al, 1993; McIvor & Humphreys, 2000; Water & Peet, 2006).

Thereby this school of thought could be claimed to have started as a practical problem but gradually developed into a theoretical model. Therefore here, the model should not be mixed up with reality as such (and the basic practical problem that companies stand for when having a need to choose between in-house operation or buying from a supplier). In this respect the Make-or-buy school of thought is considered as a mental model, applied on outsourcing in order to understand it.

The foundations for the make-or-buy model have many similarities with decision theory applied in the context of organizations developed around mid 1900, see ie Simon (1955). In most variations of the basic make-or-buy model used, a discrete situation is analyzed (one limited issue).

The most commonly applied make-or-buy model, however, rarely includes the history of the situation. It seldom considers the effect of former business deals for similar products between the buying firm and the supplier, or the connection between manufacturing and the way in which the product was developed. The model as such also rarely includes the influence of indirect factors and the context of the situation.

### **The Network approach**

In contrast to the make-or-buy model, the “Network approach” stresses the importance of time, in the sense that companies’ interdependence on each other is emphasized (Håkansson, 1987; Gadde, Hueme & Hakansson, 2003). The bonds between companies remain over long periods of time and therefore it is unlikely that customers change supplier relationships (Johansson & Mattsson, 1987). Thus, the network approach suggests both a longer time frame of analysis as well as a bigger space unit than the make-or-buy model implies. On the other hand, it is not a theory with the depth of detail the make-or-buy model implies is needed to understand a situation. A natural consequence of the network approach is that a single business deal between companies can seldom be studied in isolation - no business is an island, as Håkansson & Snehota (1989) puts it.

The foundations for the network approach are often described as standing in clear contrast to the so-called marketing-mix school in the field of marketing developed early, that is, by McCarthy (1960) and Borden (1964). It is often claimed that the network approach considers business relationships as a long-term issue but that marketing mix, just like the make-or-buy model, assumes short-term issues (Johansson & Mattsson, 1987).

### **Outsourcing as an Industrial Strategy issue**

When outsourcing is studied as an “Industrial strategy” issue, the basic underlying model can easily be claimed to have its foundations in research by Porter (1980) and Prahalad & Hamel (1990). However, it ought to be claimed that this school of thought has far older roots and is influenced by early strategists like Chandler (1962) and Ansoff (1965).

In this school of thought the competitive landscape lie at the centre of the analysis. This means that the analysis is often on either corporate or industry level. Longer time frames than single decisions are definitely the case here (Quelin & Duhamel, 2003; McIvor, 2008).

In this school, it has earlier been observed that the general competitive climate for industrial companies have changed during the last decades and that companies have consequently refocused and restructured (Loch, Chick & Huchzermeier, 2007). In such a situation, it is natural for companies to refocus their core business and specialize and/or establish their operations in new ways – which might lead to outsourcing. In other words, from the perspective of this school of thought, outsourcing easily becomes a tool for managing strategic change in companies as a whole.

Compared to the other two schools, the main interest in this school of thought however is not always in what is going on inside what Rosenberg (1982) would call “the black box” of the company. Instead, the focus is often on the transformation of the industry, the context of the company and how it adapts to new situations (Leiblein, Reuer & Dalsace, 2002). By that it helps us understand the context for outsourcing, but not necessarily specific outsourcing situations.

### **Conclusion on Embedded Assumptions within Different Models**

In table 1 the three schools-of-thought are summoned concerning the two dimensions addressed: time frame (short, medium, long) as well as space-unit (low, medium and high). The models clearly have different embedded assumptions concerning both time and space (Miettilä and Törnroos, 1993).

## **ANALYSING A CASE USING THE PERSPECTIVE OF DIFFERENT SCHOOLS**

In this section, the three different schools will be used to analyze a case study on outsourcing.

### **A short overview of the case**

Year 1 several operations in pre-assembly were outsourced at the car company Saab Automobile (henceforth referred to as Saab). At that time, these operations were carried out on shop-floor space next to final assembly of complete cars. There was a need for cost reduction, and estimations also pointed to increased production volume for the future; therefore, space for expansion was also needed.

One of the actions taken, during what internally became called “the structural programme”, was that pre-assembly of complete manual shift gears for the 900 car model was outsourced to the company Scandmec - a supplier located about 130 kilometers away.

Initially, Scandmec took over responsibility for final assembly of the complete shift gears, including 20 supplier contracts. Some manufacturing operations were then fairly quickly taken over by Scandmec themselves, i.e., plastic molding and manufacturing of housings. Other contracts were awarded to new suppliers. Scandmec wanted to increase its own share of manufacturing and make use of its own suppliers. The deal meant an annual increase in sales of 1 million Euros and a production volume of 30 000 shift gears.

Soon after this deal, Scandmec also became responsible for engineering work on shift gears for Saab. First, it was for an updated version of the 900 car model– the basic version that was already pre-assembled. Later, it involved being responsible for the development of a totally

new shift gear, for the 95 car model. With these additional activities to be handled, it could be claimed that Scandmec had developed into a system supplier.

All of this happened over a period of three years.

### **The case considered from a make-or-buy point of view**

If this case were considered strictly from the make-or-buy model point of view, our unit of analysis would be short and narrow. First, we would focus on the manufacturing of the shift gears for the 900 model (the first business deal). Either explicitly, or implicitly, the view presented by the purchasing department at Saab would be our starting point.

This means that we would focus on an existing product and be interested in neither earlier contracts between the companies nor the product development of shift gears before manufacturing started. We would mainly focus our interest on Saab personnel and not on how this case would be told from the Scandmec-point of view.

However, it is likely that we would analyze different options available to Saab before deciding to outsource. Several possible suppliers might have been discussed and different offers would have been of interest to us.

It is also reasonable to assume that we would try to consider future issues concerning shift gears, such as how future changes in batch sizes would affect the decision. The production capacity at Scandmec would, therefore, be noticed. If, however, estimations of future volume did not indicate dramatic changes, this factor would probably not be of further interest to us.

An example of what we would probably have observed though is that during the early stages of the process, while outsourcing of pre-assembly was the only issue, Scandmec made some investments. This was done in the factory where formerly no assembly whatsoever had been performed. In order to facilitate a speedy handover, one production engineer at Scandmec videotaped the existing pre-assembly at Saab.

Finally, we would combine all the units of information that we could gather to try to understand what triggered the final decision. We would compare our findings with the observation that Saab decided to outsource the shift gears to Scandmec. It is likely that price, compared to internal cost, would be the parameter of greatest interest.

It is, nevertheless, interesting to point out that in this particular case no formal structural analysis was made within Saab before outsourcing - of either the preassembly or product development issues.

Of course, several calculations were made – for instance, on price levels and batches of delivery. There were also in-depth discussions between personnel from both companies. Not least, it is important to stress how deep the technological discussions were between the companies. In particular, these concerned R&D personnel when, shortly after the first deal (the pre-assembly), it was also decided that Scandmec would take over the product development for the next version of shift gears for the 900 model.

As an illustration of the complexity of the situation, it can be mentioned that Saab was originally not at all convinced that Scandmec had the relevant resources for either pre-assembly or product development. However, since Scandmec knew that Saab had also discussed quality problems with existing shift gears they saw a possibility. Therefore,

Scandmec had invested in developing a slightly different technical solution, and even showed the result using vibration tests. Solely Scandmec, purely on speculation, paid for this. As a result, Saab agreed on outsourcing first pre-assembly and shortly after also the R&D work for the new version of the 900 model.

It is, therefore, likely that we as researchers would consider the lack of structured process of major interest. It is also possible that we would reach conclusions on how the process of could be developed further for instance with the use of make-or-buy-check-lists.

However; we would still have to deal with a narrowed space unit of analysis, mainly focusing on short time frames and considering every deal as if it were independent of any other.

### **Observations based on the network approach**

With a network model in mind, it would not surprise us that it was Scandmec who were awarded responsibility for pre-assembly. Since this theoretical framework would suggest that we start by analyzing how actors, activities and resources between the companies were linked, we would search for evidence of tight interdependence, which there was.

We would probably observe that before the pre-assembly was outsourced, Scandmec was already manufacturing several of the components needed, among others, mechanical links and plastic parts for the shift gear housing. Two separate factories handled these operations.

We would also observe that the business deals concerning these parts for shift gears had been signed years earlier and that Scandmec's main customer focus was on the vehicle industry. Scandmec also delivered shift gears to Opel, Volvo Car, Renault and Scania.

It is also likely that we would be interested in analyzing why Scandmec had put R&D resources into the shift gears. With that question in mind, we would observe that, for several years, the management of Scandmec intended to try to take over a larger share of the responsibility for Saab products.

Scandmec's ambition was to become a system supplier. The idea behind this was simple. With products of their own, Scandmec management thought they could increase their margins as well as gain better long-term control of the destiny of the company.

From a network model perspective, however, it cannot be assumed that we would have observed the lack of a structured decision approach at Saab. It is even likely that we would not even have asked for such an approach. Our unit of analysis would not have been of that kind. On the other hand, in focusing on longer-term issues, we would naturally notice that when Scandmec took over responsibility for the pre-assembly, the company was already the supplier that delivered the greatest added value for the shift gears.

It is clear, then, that this approach would enable us to expand our unit of analysis, both in time and space, in contrast to the make-or-buy approach. Instead of analyzing every deal as independent of every other, we would consider them as manifests of the development of a long-term relationship between Saab and Scandmec. Indirectly, we would move to a higher level of analysis than the make-or-buy model indirectly would allow us to do.

Therefore, we might also have wished to end the analysis here, reaching the conclusion that Scandmec had developed into a system supplier. In historical time, it would be about three years after the outsourcing of pre-assembly.

We might even have chosen to use the case presented so far specifically showing how a supplier develops into a system supplier – an issue that has created huge interest in the research community during recent decades due to outsourcing.

If we had ended the case here, however, we would have missed the opportunity to observe the interesting situation that emerged just one year later - problems concerning the 95 model. These problems resulted in Saab finally insourcing the development activities again and Scandmec no longer being the same kind of system supplier. In the following section, that part of the development will be included in this case study.

### **An industrial strategy perspective**

With the industrial strategic school of thought in mind, we would mainly be interested in how the business deals would fit into a pattern of the long-term development of two companies' strategic change.

Thus, we would have observed that at the time of the outsourcing deals considered so far, Scandmec was a company that had focused since several decades back on plastic molding and mechanical operations – and increasingly the car industry as segment. Examples of sub-components that had been produced for decades were mechanical and plastic parts for fuel-measurement systems and shift gears.

From this perspective we would neither be surprised to discover that Scandmec recently had restructured its manufacturing facilities, focusing on two different factories: one for mechanical parts and the other for plastics. Nor would we be surprised to discover that Scandmec had started to employ R&D personnel - even someone formerly working for Saab to head up a new R&D unit.

When we enter the case, Scandmec had been a supplier to Saab for years and had also, several times, suggested that Saab should hand over various product development issues to Scandmec. However, up to that date, Scandmec had been rejected. Saab wanted to keep its product development internally since the products concerned were considered strategically important enough to retain in-house.

The issue of strategically important in-house products for Saab was particularly important for shift gears, since these were one of the products that in a very intricate way decided how the customers perceived the quality of the final car. One-way to understand how this can be the case is by imagining when a prospective customer first gets into the car. The sound and the feeling experienced when drivers shift gears have always been of importance for premium car brands like Saab, BMW and Audi.

It is also very likely that with this school of thought in mind we would expand our unit of analysis even further in an attempt to understand how other different factors had affected both companies strategically. Thus, we would most likely have observed that this year was a very dramatic year for Saab – the year that GM decided to buy 50 % of Saab and try to end a very long period of financial difficulties for Saab.

The point raised here is that when GM took over ownership, new prerequisites for Saab developing new car models evolved. Saab had been losing money for decades and the new owners had clearly indicated that restructuring was needed. GM therefore quickly decided that, from a design point of view, Saab models needed to be more "Saabish" than they already were. At the same time, components needed to be integrated into the GM system, which

meant reusing several components already found in Opel models or vice versa. With this decided upon, several development projects already in progress had to change.

From the beginning of the R&D project for the 95 model, Saab had decided that the main goal was to develop a “normal version” for the new gear shift, instead of a former Saab-unique version. The normal version meant placing the key for the car beside the steering wheel and not close to the shift gear. The former unique Saab version, which existed in the 900 model, meant keeping locating the car key beside the shift gears. Physically, the car key was placed between the front seats, embedded with several shift gear sub-components. This former version was a design feature for which Saab was historically globally well known. However, from the beginning of the development project, Saab had decided to abandon this solution for the upcoming 95 model. It was felt to be a cheaper version and since Saab was losing money, cutting R&D costs was important.

With GM as the new owner, however, Saab suddenly had to revert to the very old Saab version when developing the 95 model (that is, back to a solution similar to that for model 900). This, in turn, meant that the shift gear again became what can be called a strategic component for Saab – and therefore insourcing its development became crucial.

Linking this to the observation that Saab actually also had difficulty in explaining and deciding the technical specifications needed for the shift gear, we can understand why the development work was insourced only shortly after it was outsourced. In fact, not even Scandmec wanted to continue with R&D. It was considered to be complicated since the technical specifications were too difficult to define and the time limitations were very short. Considering the case from this point of view, one might claim that Scandmec never actually became a system supplier except for a very short period.

However, it must be emphasized that even though product development was in-housed, Scandmec continued to handle pre-assembly for the 900 model that was still in production. When the 95 model was finalized, Scandmec was also given responsibility for handling its pre-assembly operations.

## **DISCUSSION**

Of course it is not to take for granted that with a make-or-buy model in mind we would be interested in the problems that occurred roughly three years after the first outsourcing deal. On the contrary, it is the network approach that stresses the need to understand the historical development of relations, not the make-or-buy school.

However, since the make-or-buy model implicitly emphasizes a smaller unit of analysis at a lower level, it is not unreasonable to assume that we would have observed important details in this case right from the beginning – not least differences between the products concerned.

Originally, pre-assembly concerned an already developed shift gear for the 900 model. The first development task at Scandmec concerned an updated version of 900. Here Scandmec developed small patents based on their own vibration tests. The problems that later appeared concerned the totally new 95 car model. All of these products existed simultaneously. For example, the new development project for the 95 model started several years before the preassembly of the 900 model was outsourced.

One point raised in this case is therefore that the work done by Scandmec and Saab on former products affected the way in which outsourcing of subsequent products was handled. The way

in which manufacturing issues were organized influenced how product development was organized, and so on.

Another point raised is that the changes in technology as well as the problems that occurred during each outsourcing deal were also important. For instance, they help us to better understand why the shift gear changed from being strategic for Saab and produced in-house, to being non-strategic and outsourced, and finally becoming strategic and in-housed again.

It is unlikely that all the observations presented could have been made visible within the framework of one single school of thought – no matter which had been chosen. All in all, the case study thereby shows us that combining the notions of the various schools of thought is far better than using only one of them - since the sum of them gradually enrich/deepen our understanding of the case.

## **CONCLUSIONS**

In this article, three different schools of thought whose basic concepts often are used to study the mystery of outsourcing have been in focus. In research conducted on outsourcing, the notions in these schools of thought are seldom applied simultaneously.

The make-or-buy school of thought as such does not fully help us to understand why outsourcing is such a commonly occurring phenomenon in industry. It is not a model developed to understand such high-level issues. To do so, it is better to make use of the school of thought in which outsourcing is considered as industrial strategy – analyzing the industry as such, as well as companies and the reasons behind their strategic changes.

The make-or-buy model implies that the product analyzed more or less stays the same in different options (unless the two different options of make versus buy are not comparable). This model is, therefore, not easily applied, neither for product development nor for understanding strategies for whole companies.

The industrial strategy school of thought, however, does not help us to understand the particular kind of problems that might occur during outsourcing. This is instead something the make-or-buy school of thought, at least implicitly, can help us to observe - simply by emphasizing a smaller unit of analysis.

The network approach emphasizes the historical situation behind a business deal and can help us to increase our understanding of a particular case. The network approach certainly helps us to understand how deeply former connections between companies can influence future outsourcing deals. However, the network approach as such neither helps us understand specific technological problems that might occur during outsourcing nor indicates how we should interpret strategic changes on corporate level.

There is nothing strange and unusual about a school of thought having limits. However, it is important to know what the limits are – and how to treat them.

Can then different these different theories include each other? This is an interesting question since it can be considered a tempting idea. The answer, however, is that schools of thought that are built upon different time and space perspectives are not generally possible to integrate. They complement each other but cannot with full success include each other.

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## **TABLES AND FIGURES**

### **Table 1**

### The Embedded Assumptions concerning Time and Space in Different Models

<b>School-of-thought</b>	<b>Time-frame</b>	<b>Space-Unit (Level of analysis)</b>
Make-or-Buy-model	An isolated situation (Short term issues)	The practical situation of a choice-situation concerning making or buying a product
Network-approach	Bonds over time (Middle)	Relationships/interdependence between actors, resources and activities
Industrial Strategy	Long time-frames	Corporate/industry level