

# Timing as a factor of successful early supplier involvement projects and preferred customer status: Case study in the automotive industry

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## ABSTRACT,

*This research focuses on the buyer-supplier relationship in the automotive industry. With the use of qualitative methods, the study examines the relationship between the main variables of preferred customer status and early supplier involvement. Apart from supporting existing literature on the topic of preferential treatment and supplier satisfaction factors, it also added several new antecedents to the literature and supported the positive effects of supplier satisfaction on preferred customer, and discovered the one directional influence of preferred supplier status on preferred customer status. More information has been found in the area of supplier involvement. Research confirmed positive relationship of technological newness and product complexity on the buyer's initiatives to earlier involve a supplier during NPD and the findings concluded that the timing of early supplier involvement is an important factor influencing the collaborations success. Moreover, timing of ESI was found to be a factor affecting supplier's satisfaction and successful early supplier involvement to be an antecedent to PCS.*

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## Keywords

Preferred customer, Buyer-supplier relationship, Key supplier, Supplier satisfaction, Timing, Technology, Early supplier involvement, Product complexity

# 1. INTRODUCTION

Commonly in the past, relationships between the buyer and the supplier had been mainly researched from the perspective of the buyer, where the focus would lie on investigating the attractiveness of the supplier for the buyer. (Baxter, 2012; Schiele et al., 2012) This approach worked on a generally shared assumption by both the academic world and the practitioners that in order to effectively market products or services, suppliers must be seen as attractive as possible to (potential) customers. (Schiele et al., 2012)

However, there are many industrial markets with oligopolistic structures, which grant the small number of suppliers the power to become selective about the different potential collaborations with buyers. (Schiele et al., 2012) This supports the idea that buyers are actually the ones who need to compete for preferential treatment, which gives buyers an immense competitive advantage, especially during times of unexpected supply chain disruptions leading to bottlenecks. (Steinle & Schiele, 2008)

In the last decades, a higher number of manufacturing firms have been building their businesses on less suppliers, but with higher engagement. (Cannon & Perreault, 1999; Hüttinger et al., 2012) As the importance of suppliers grows for the businesses, so does the competition among the buyers to secure the benefits of external collaborations. (Takeishi, 2001)

Competition is mainly to secure supplier's resources. Amongst those, besides the traditional production resources, are also innovation resources, such as personnel dedicated to new product development projects (Schiele & Vos, 2015; Steinle & Schiele, 2008). Nowadays, the majority of new products and patents even come right from the suppliers. (Schiele et al., 2012). Therefore, early supplier involvement (ESI) has become a key factor of new product development and buyer-supplier relationship and is even argued to be one of the most important factors of improving company's performance (Van Echtelt et al., 2008). This is done through the use of high technology of the suppliers (Morgan & Liker, 2006). Overall, early supplier involvement is not only crucial for the buying companies, but also the suppliers, who even have it as an antecedent of preferred customer status (Ellis et al., 2012).

Moreover the preferred customer status, Hüttinger et al. (2012) performed a literature review on the antecedents of preferred customer status, supplier satisfaction and customer attractiveness, with the conclusion that there had only been little research done in this domain till that time, the studies done were all individual (isolated) and there had not yet been a shared consensus established within the research community on these topics. However, in the following decade, more attention has been brought to the field by researchers. Nevertheless, the majority of carried out studies have still inclined towards the study of buyer's satisfaction of its suppliers (Ganguly & Roy, 2021).

The factor of early supplier involvement and timing has previously been researched by Dowlatshahi (1998), where the positive influence has been found. In this research we try to confirm and expand Dowlatshahi's (1998) findings. Moreover, this research studies timing more in depth, by also examining factors of potential influence: technological newness and product complexity.

Therefore, this research solidifies the connection between preferred customer status and early supplier involvement, and its factors that might play a role in such relationship.

Furthermore, this study intends to be an addition to the research on the topic of buyer-supplier relationships, specifically in the automotive industry.

*RQ: How does timing and its factors influence the success of supplier involved product development and obtaining preferred customer status?*

To answer the research question, firstly the relevant literature will be revised which will help form a conceptual model with propositions. For this research a qualitative research method will be applied through the use of interviews with a buying company and its suppliers from the field. Through answering the research question, the study aims to support the existing literature in the connection to early supplier involvement and preferred customer status and tries to expand the dimensions of the researched factors of timing of ESI.

## 2. RELATED WORK

### 2.1 The Concept of Supplier Satisfaction, Preferred Customer Status and Preferential Treatment

#### 2.1.1 Supplier Satisfaction and its antecedents

In the past, the focus had been merely aimed towards buyer's satisfaction, since the general premise assumed that the supplier needs to satisfy a buyer in order to sell its products. (Schiele et al., 2012) However, the topic of supplier satisfaction has been coming to the forefront as suppliers have become seen as an important part of a successful business (Steinle & Schiele, 2008). As a conclusion of Schiele et al.'s (2012) literature review, the number of research that measured supplier satisfaction was narrow at that time, however, more recent reviews show improvements in the interest of scholars researching the topic of supplier satisfaction (although in comparison to buyer's satisfaction, supplier satisfaction research is still scarce). (Ganguly & Roy, 2021, Piechota et al., 2021)

In the regards of the subject of how scholars perceive satisfaction, an agreement prevails that satisfaction of a supplier is a collective (multi-person) phenomenon within organizations. (Piechota et al., 2021; Essig & Amann, 2009; Schiele et al., 2012). The track of multi-dimensionality that had been built on the studies of multi-factor approaches of satisfaction of Maunu (2003), Essig and Amann (2009) and Hüttinger et al. (2012) and recently broadened by Piechota et al. (2021), identified potential differences in satisfaction

dimensions for supplier resource allocation. Older research had focused on one dimensionality of the relationship, whereas newer studies have shifted to the construct of splitting supplier satisfaction into dimensions.

Additionally, supplier satisfaction can concern a one time transaction, however most contributions relate to supplier satisfaction with business relationships as a sequence of continuous interactions (Piechota et al., 2021; Essig & Amann, 2009; Pelled et al., 2016) whilst its evaluation consists of all observable and non-observable aspects of a business relationship, such as business profit, partner behavior, relationship atmosphere and know-how exchange. (Essig & Amann, 2009; Hüttinger et al., 2012) Therefore the general division of dimensions is usually split into economical and non-economic factors. (Piechota et al., 2021)

While the concept of supplier satisfaction still misses a universally accepted understanding and unified approaches in the research world (Schiele et al., 2012; Piechota et al., 2021), there are several existing definitions of supplier satisfaction presented by various scholars that can closely present the perceptions and meanings of the concept. According to (Essig & Amann, 2009) supplier satisfaction is described as a "supplier's feeling of fairness" within a buyer-supplier relationship in regards to the incentives and contributions between the two companies. Additionally on the occasion that a supplier has feelings of unfairness in regards to the relationship, it leads to supplier dissatisfaction. The status of an unsatisfied key supplier can

affect the quality of the output production, leading to a lowered quality of the customer's final goods, which inevitably affects the buyer's sales volumes and profitability. Furthermore, the supplier is likely to leave the existing partnership in case of dissatisfaction, which can cause even greater problems for the buying firm. (Essig & Amann, 2009)

Another definition was described by Maunu (2003), as she defined supplier satisfaction as "...implementing the supply chain smoothly, without any adverse consequences. In order to be able to make that happen both hard and soft-based supplier satisfaction dimensions need to be in place and performed on a satisfactory level."

In that study, Maunu established a list of nine supplier satisfaction dimensions categorized into two dimensions: "Communication related" and "Business related". The stated dimensions belonging to business were profitability, agreements, early supplier involvement, business continuity and forecast/planning. Furthermore, supplier satisfaction can also come from openness (trust), feedback, buying company's values and responsibility, which are dimensions categorized under the sector of communication. Later, (Essig & Amann, 2009)'s study added the importance of a quality purchasing department on supplier satisfaction. They structured the supplier satisfaction index into three dimensions - strategic, operational, and accompanying. Measuring factors were assigned to each level, such as: strategic level - intensity of cooperation, operational level - order process and billing/delivery and accompanying level - communication, conflict management and general view. The study found order process and communication (conflict management) to be the most relevant factors for supplier's satisfaction.

In another branch of supplier satisfaction research, (Vos et al., 2016) expanded on the research of (Huttinger et al., 2014) and analyzed aspects of supplier satisfaction depending on the type of procurement process e.g. direct, indirect. Relational aspects that scored significantly on supplier satisfaction were: profitability, growth opportunity, relational behavior and operative excellence. However, relational behavior had solely an effect on supplier satisfaction in direct procurement, in case of indirect procurement relational behavior lost its significance.

Following Piechota et al.'s study (2021), the evaluation of economic aspects of a business relationship had higher direct effects on the relative assessment of the relationship as well as higher indirect effect on obtaining preferential customer treatment than social satisfaction aspects. This supports the findings of Huttinger et al. (2014) and Vos et al. (2016), where profitability and growth opportunity of a buying organization were strongly positively related to the obtainment of preferred customer treatment.

However, a high level of non-economic satisfaction can lead to an increased level of information sharing between companies, which can sequentially lead to economic benefits by improving supply chain coordination. That could for example help reduce the carrying costs of inventories and eventually also improve the economic aspects of a buying firm. This outcome explains the indirect effect of social satisfaction on PCT, as it creates a competitive advantage over competition in the contest of becoming a preferred customer (Piechota et al., 2021). Vos et al. (2016) even concluded that relational factors are just as important as economic factors for supplier satisfaction, as both factors explained similar variance in supplier satisfaction. This means that even if a buying firm is not strong economically, it can still achieve preferred customer status by satisfying the supplier in the relational aspects e.g. reliability, good relational behavior and operative excellence.

Next to the satisfaction variables dependent on the type of procurement as in the case (Vos et al., 2016), the type of company can also influence satisfaction. (Schiele, 2020) looked at the differences in antecedents of supplier satisfaction for private and public organizations. The findings were that most criteria for supplier satisfaction do not change based on the sector. The variables used were the same as the significant antecedents concluded by (Vos et al., 2016). Here again, the sensitivity of relational behavior in different environments showed, as it scored substantially higher in the public sector in comparison to the private one, implying it is more of a significant factor for supplier's satisfaction in public companies.

The factor most influencing supplier satisfaction according to the study of Ganguly and Roy (2021) appeared to be the engagement of the buyer firm with its suppliers through smooth cooperation. In order to develop a close relationship it is important that personal contact with supplier's representatives is ensured and empathy established. Following that it has been found that if a buyer does an extra step to help a supplier, it results in more satisfaction. Those factors create a level of trust from both sides, which is an essential requirement for the maintenance of a sustainable relationship. (Ganguly & Roy, 2021)

Smooth cooperation and a close relationship, created through personal contact and empathy, then lead to a long-lasting relationship between a buyer and a supplier which is a crucial aspect for a business organization to be successful, as reciprocated satisfaction is an important element that contributes towards its success. (Ganguly & Roy, 2021)

As the well known relationship advice says: "Communication is the key", the same can be applied to a business relationship perspective between a buyer and a supplier. Communication is essential for a multitude of other factors that influence supplier satisfaction. Factors such as order processing and active preferred supplier status an antecedent to preferred customer status vice conflict management cannot function without good communication. (Essig & Amann, 2009)

Generally considering supplier satisfaction with regard to policies of a supplier could help improve the development of business relationships. A reasonable period for reevaluation is approximately once a year, or once every two years at minimum. (Essig & Amann, 2009)

ECONOMIC FACTORS	
Factors	Reference
Profitability	Maunu, 2003; Vos et al., 2016; Schiele, 2020; Bemelmans et al., 2015; Essig &
Growth opportunity	Hald et al., 2009, Nollet et al., 2012, Pulles, Schiele, et al., 2016, Vos et al., 2016
Early supplier involvement	Essig, M., & Amann, M. 2009; Maunu,
Business continuity/opportunities	Maunu, 2003; Vos et al., 2016
Maturity	Bemelmans et al., 2015
Operative excellence (billing/delivery, order process, forecast/planning)	Vos et al., 2016; Essig & Amann, 2009; Hüttinger et al., 2014; Hüttinger et al., 2012; Nollet et al., 2012; Schiele, 2020
NON-ECONOMIC (SOCIAL) FACTORS	
Factors	Reference
Relational behavior	Vos et al., 2016 (Direct procurement); Schiele, 2020; Bemelmans et al., 2015; Essig & Amann, 2009; Hald et al., 2009; Hüttinger et al., 2014; Maunu, 2003; Nollet et al., 2012
Communication (Conflict management)	Maunu, 2003; Essig, M., & Amann, M. 2009; Ganguly & Roy, 2021
Trust	Maunu, 2003
Company values	Maunu, 2003
Feedback	Maunu, 2003
Engagement (Close relationship)	Ganguly & Roy, 2021
Reliability	Vos et al., 2016
Quality of purchasing department	Essig, M., & Amann, M. 2009; Bemelmans et al., 2015

**Table 1. Factors of supplier satisfaction**

This section covered factors of supplier satisfaction identified by previous researches made on the topic. As visible from the table, a multitude of researches have agreed on a number of both economic and social factors. Next section will further focus on the studied connection between supplier satisfaction and preferred customer status.

### 2.1.2 The Social exchange theory and the cycle of preferred customership

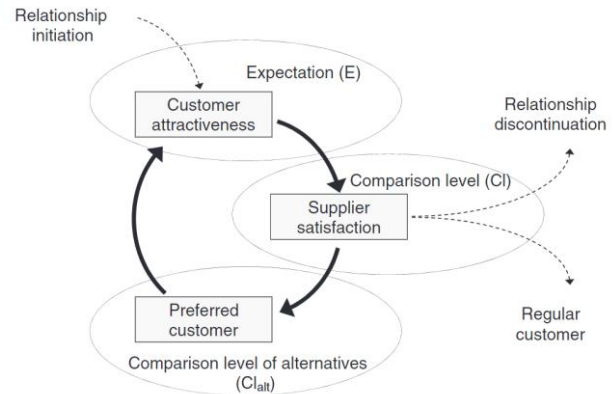
Social exchange theory, also referred to as SET, is one of the most influential conceptual paradigms in the field of organizational behavior. (Cropanzano & Mitchell, 2005) It is often used as a theoretical harbor for customer attractiveness studies (Schiele et al., 2012) and it sets the theoretical foundation for defining the role of satisfaction in business relationships (Piechota et al., 2021; Hüttinger et al., 2012; Nollet et al., 2012; Pulles et al., 2016; Schiele et al., 2012; Schiele, Veldman, et al., 2012). SET complements the arguments of Resource based theory, which discusses the consequences of resource allocation and explains the competitive advantage of organizations. (Pulles et al., 2016). The main focus of Social Exchange Theory are questions on the theme of initiation, continuation and termination of a business relationship, in context of the preferred customer cycle. (Schiele et al., 2012) It supports the idea of strong similarities in paths between supplier satisfaction and preferred customer status e.g. supplier first needs to become satisfied with buyer in order for buyer to have a chance of receiving preferential customer status. (Schiele, 2020)

In general, the theory relies on three base components that are connected to the cycle of preferred customers. (Schiele et al., 2012; Schiele et al., 2011; Schiele, Veldman et al., 2012)

First element is expectations (E) that results in the commencement of a business exchange, second is the “comparison level” (Cl) by which the outcome of the exchange is judged, resulting in satisfaction if the criteria are met or exceeded. Third element is known as the “comparison level of

alternatives” (Clalt), which is a step further from Cl, as positive results of Clalt lead to the attractive position of preferred customer status. (Schiele et al., 2012)

As previously mentioned, although supplier satisfaction is a strong antecedent for preferred customer status, the influence of exceeding the comparison level of alternatives is far higher. (Piechota et al., 2021)



**Figure 1. The cycle of preferred customership (Schiele et al., 2012)**

As noted in the cycle of preferred customership, supplier satisfaction is seen as an antecedent to receiving the status of preferred customer. However, that is not the sole antecedent of PCS that has been identified by researchers. The variety of antecedents is discussed in the following section.

### 2.1.3 Preferred Customer Status and its antecedents

A widely spread belief is that a buyer is always the one who chooses among suppliers and awards them with preferred supplier status. However, this is not always the case as in many industrial markets there is a small number of suppliers on a big base of buyers. This gives suppliers the power to assign certain buyers with a preferred customer status. (Baxter, 2012; Schiele et al., 2012) In general, it is still logical to presume that suppliers would treat all customers the same, however in reality it is not the case. (Steinle & Schiele, 2008; Schiele, 2012)

As to define preferred customer, it is “a buying organization that receives better treatment than other customers from a supplier.” (Nollet et al., 2012) These benefits can range from product availability, higher product quality, support in product sourcing and lower prices. These benefits become most important during a time of scarcity on the market for a necessary supply. The term of supplying products to preferred customers first is also referred to as preferential resource allocation. (Steinle & Schiele, 2008) Overall obtaining preferred customer status with key suppliers creates a positive impact on the buyer-supplier relationship as the buyer’s satisfaction with the partnership increases. This can have a beneficial effect on both companies, as their interaction and active collaboration expands. (Bemelmans et al., 2015) However, preferential resource allocation is not equally important for all buying firms, as the effect of supplier on competitive advantage of service firms was found to be non-significant. Preferential treatment holds the most relevance and importance for manufacturing firms. (Pulles et al., 2016)

As mentioned, in many different markets, there is only a limited number of suppliers with the necessary resources for the buying firms. Obtaining preferential customer status is then a way to gain a competitive advantage over competitors; for that reason, a supplier is regarded as a valuable resource that can increase the profitability of a business. (Steinle & Schiele, 2008).

If the below mentioned criteria are reached, a supplier serves as a competitive advantage to a company.

1 “they offer a valuable product to the final customer;  
2 they are rare, that is, there are only a few comparable suppliers;  
3 their product is not easy to substitute and  
4 it is difficult for third parties to imitate the buyer–supplier relationship.”

(Barney, 1991; Steinle & Schiele, 2008)

To categorize the levels of preferability of customers for a supplier, Schiele (2020) created a four level pyramid “Tie of advantages” that recognizes the possible customer statuses a company can obtain with its suppliers. The levels range from -1 to 2. At level -1: the customer pays more for the same level or gets less for the standard price, level 0: customer gets standard product/service for standard price and conditions, level 1: customer gets better service than other customers, but at additional costs and the highest level 2: customer gets better service than other customers at no additional charges.

In the same study, Schiele’s (2020) also identified antecedents of supplier satisfaction which ultimately result in preferred customer status: these factors were growth opportunity of customer, profitability, relational behavior and operative excellence.

Another antecedent for obtaining preferred customer status is the maturity of the buying firm’s purchasing department in managing supplier relationships, as mentioned and researched by Bemelmans et al. (2015). The highest maturity level manifests itself by a continuous assessment of the partnership and high collaboration in mutual future plans. This can be seen on a corporate level of a business. However, although preferable, being the largest customer does not automatically translate into for certainty being the most preferred customer for a supplier. (Bemelmans et al., 2015)

Although there are antecedents by which suppliers evaluate their customers in order to grant them a preferential status, many times buying companies do not need to possess all the antecedents to become a preferred customer. On the other hand, sometimes even when a buying company holds all the attributes to become a preferred customer, the status will not be given. (Bemelmans et al., 2015)

Steinle and Schiele (2008) argued that it is easier for companies that are in the same region to become preferred customers as it is easier to engage in early product development with the supplier, which leads to a tighter bond and sequentially higher satisfaction. This is mainly due to the lower social and technical impediments than in case of international relations. The research supports the analysis that cross-border relationships are harder to become preferred.

Nollet et al. (2012) designed a four step process of becoming a preferred customer. First step is the initial attraction (attraction of supplier’s attention). To achieve supplier’s attention, the supplier must be aware that the purchaser exists and have a positive expectation towards the purchasing organization. (Nollet et al., 2012; Schiele et al., 2011) Factors of attraction can be for example organization’s market share, financial, technological and sociopolitical factors. (Nollet et al., 2012) Second step is dedicated to performance (satisfaction of the basic value, relationship quality). Here, the necessity is to satisfy supplier’s expectations. Satisfaction is either operational, accompanying or strategic, with elements such as order process, communication, and billing/delivery. (Essig & Amann, 2009) Third step is engagement which consists of operational excellence, synergy and relationship mutual adaptation. As the supplier is continuously looking for ways to improve its position on the market, the supplier is motivated to invest more into a buyer if the supplier perceives the customer as contributing and better performing than the others. If all three steps are successfully overcome, the last step, sustainability of the

relationship comes into play. Here the buyer must be aware that its performance is being regularly reevaluated by the supplier, which can change the current trajectory of the preferential treatment. Therefore, the buyer must continue obtaining a better evaluation compared to its competitors. (Nollet et al., 2012) One of the key conditions for keeping preferred customer status is good communication. (Hald et al., 2009)

Many scholars agreed in their studies on the influence of supplier satisfaction on receiving preferred customer status, such as Baxter (2012), Vos et al. (2016), Hüttinger et al. (2012), Hüttinger et al. (2014), Pulles, Schiele, et al. (2016), Schiele (2020).

In the most recent research, Schiele (2020) again confirmed the strong similarities in paths between supplier satisfaction and preferred customer status, supporting the existing theory the cycle of preferred customership e.g. the supplier first needs to be satisfied with the buyer in order for the buyer to have a chance of receiving preferential customer status.

However, according to Piechota et al. (2021), buyer’s attractiveness and satisfaction from a supplier’s point of view are dependent on the evaluation of a business in comparison with the best available business relationship available. Although supplier satisfaction is an inherent antecedent for gaining preferred customer status, meeting or exceeding the supplier’s comparison level showed a far higher influence on receiving the desired status of preferred customer. Suggesting that the role of supplier satisfaction is a sufficient but not necessary condition for gaining PCT as the supplier’s view is also influenced by a relative outcome evaluation of the business relationships.

Lastly, if a supplier provides a buyer with preferential resource allocation, it indicates that the buyer holds a preferred customer status with the firm. That results in the buyer being privileged to receive the goods in the event of bottlenecks, or the supplier may customize/innovate the product according to the buyer’s wishes (Steinle & Schiele, 2008).

In table 2, all above mentioned factors can be seen separated into economics and non-economic dimensions.

ECONOMIC FACTORS	
Factors	Reference
Purchasing maturity	Bemelmans et al., 2015
Exceeding supplier's CL	Piechota et al., 2012
Supplier competitiveness	Nollet et al., 2012
Financial attractiveness	Baxter, 2012
Purchase volumes	Hüttinger et al., 2014; Steinle and Schiele, 2008
Further business opportunities	Hüttinger et al., 2014
Share of sales	Hüttinger et al., 2014; Ellis et al., 2012
NON-ECONOMIC FACTORS	
Factors	Reference
Geographical proximity	Steinle and Schiele, 2008
Communication	Nollet et al., 2012
Cluster membership	Steinle and Schiele, 2008
Supplier commitment (Involvement)	Nollet et al., 2012; Baxter, 2012; Ellis et al., 2012
Supplier satisfaction	Baxter, 2012; Vos et al., 2016; Hüttinger et al., 2012; Hüttinger et al., 2014; Pulles, Schiele, et al., 2016; Schiele, 2020
Customer attractiveness	Piechota, 2021; Hüttinger et al., 2012; Hüttinger et al., 2014; Pulles, Schiele et al., 2016
Reliability	Ellis et al., 2012
Quality of the relationship	Hüttinger et al., 2014

**Table 2: Factors of preferred customer status**

As reviewed, there is a broad amount of antecedents of preferred customer status. However, there are also some barriers that can limit certain buyers in obtaining such status. These barriers are discussed next.

#### 2.1.4 Barriers

Achieving preferred customer status largely depends on external relationship factors, for example availability or supplier's view on the quality of alternative business relationships as these factors positively influence the perceived attractiveness of a business relationship. However, these factors cannot be influenced or changed by a buyer. That creates a barrier within the relationship which can be hard to overcome (Piechota et al., 2021).

One of the tactics used to secure preferred customer status is by making significant investments that will make it very difficult for other customers to become a better alternative. These investments also increase the buyer's risks. This can be seen as a barrier towards achieving preferential treatment (Nollet et al., 2012).

Also, low maturity of a firm could also be considered a barrier, as it is less likely the buyer will receive PCS (Bemelmans et al., 2015).

As mentioned earlier, long distance between the buyer and the supplier plays a negative role in the results of preferred customer status, as international firms are less likely to have a close relationship and early product development engagement than cluster-based firms (Steinle & Schiele, 2008).

However, even if all these barriers are overcome, the status of preferred customer is not guaranteed (Bemelmans et al., 2015).

BARRIERS	
Factors	Reference
Investment costs	Nollet et al., 2012
Low maturity	Bemelmans et al., 2015
Long distance	Steinle & Schiele, 2008
Supplier's decision/willingness to classify	Bemelmans et al., 2015

**Table 3. Barriers of preferred customer status**

Full part of suppliers' classifications and its barriers has been discussed. In the next section, the focus is on early supplier involvement and the literature provided in its context.

## 2.2 Early supplier involvement, Product development

### 2.2.1 Product development in buyer-supplier cooperation

There has been a major shift in the process of innovation. It has only been three decades since companies started to do their new product development together with their suppliers. Till that time all NPD activities had been performed in-house. (Schiele & Vos, 2015) Organizations' focus is now mostly on core activities while outsourcing other functions to external suppliers. That is mainly because it is practically impossible for a company to possess all the technical expertise necessary for complex product development. (McIvor et al., 2006) That makes supplier cooperation essential these days (Schiele, 2010) as buying companies heavily depend on innovations developed collaboratively or solely by suppliers (Goldberg & Schiele, 2018). Moreover, across various industries, suppliers account for most of the new patent registrations (Schiele et al., 2012).

### 2.2.2 Early supplier involvement

Early supplier involvement (ESI) is referred to as a vertical cooperation between buyer and supplier in which supplier's capabilities are integrated at an early stage into manufacturer's supply chain and innovation processes (Mikkola & Skjøtt-Larsen, 2006).

With the rise of the concept of Just-In-Time inventory system and worldwide competition for scarce materials and parts, the role and function of suppliers in manufacturing operations have gained importance. Early supplier involvement has been endorsed as a means of integrating suppliers' capabilities in the buying firm's operations and supply chain system (Dowlatshahi, S., 1998). The main advantages of the supplier involvement is in taking advantage of the suppliers' technological expertise, especially in design and manufacturing. Advantages of early supplier involvement had been recognized by many researchers in the supply chain management domain (Dowlatshahi, 1998). Nowadays, extensive early supplier involvement in product development has gained on even more importance and is argued to be one of the best ways to enhance a company's product development performance, namely productivity, product quality and speed (Van Echtelt et al., 2008). Goldberg and Schiele (2018) also say something similar, as in their paper they mentioned that supplier involvement in new product development is closely connected to NPD project performance as it increases buyer's innovation and innovation project success.

Suppliers offer a multitude of resources during early involvement and there is a distinction between them. The resources can range from capabilities, technologies, investments, information, knowledge and ideas. During supplier involvement the supplier provides the resources, carries out the tasks and responsibilities in regards to the development of a part. (Wynstra et al., 2003; Van Echtelt et al., 2008) However, the resources can only be used



as effectively as the cooperation is. Studies have shown various factors that are important for a successful collaboration. These factors are a high level of trust, management commitment, information sharing and risk/reward sharing. Other studies have focused on the importance of the purchasing department in managing supplier involvement and the conditions enabling effective involvement. This helps to integrate buyers in development teams. (Van Echtelt et al., 2008) Also, supplier relationship with the purchasing department is crucial for good development of ESI. (Dowlatshahi, 1998)

There are two things to examine, when organizations consider a new innovation in collaboration with a supplier. It is important to choose both the “right” innovation that has a chance to become commercially successful and the “right” suppliers, who can execute the project well. (Goldberg & Schiele, 2018) For those purposes Goldberg and Schiele (2018) created a checklist for managers by which these two criteria can be evaluated. That is then combined into a scoring model that assesses the given innovation with the conclusion to either proceed with the innovation or to cease it. In case of a “bad” supplier and a “good” innovation, the buyer should try to find another supplier or otherwise cancel the project. On the other hand, a “bad” innovation can be salvageable if a “good” supplier is put on the project.

### 2.2.3 Risks of supplier’s involvement in product development

Wynstra (1998) recognized three most prominent risks of early supplier involvement. Reduced flexibility in terms of time arrangements and product development, information loss in regards to disclosing technical details of the new product or other manufacturing know-how and increased dependency of a buyer on the specific supplier as supplier’s know-how is necessary for further product development continuation. As a supplying company is more involved and in many cases mostly responsible for innovation ideas, it creates a high level of dependence on a buying company on its innovative supplier. Higher dependence forms a potential risk for a buyer. Although one risk for a buyer is that a supplier is the main motor behind a company’s innovativeness, on the opposite side there is the risk of supplier’s incompetence in project execution causing a possible project obstruction. (Goldberg & Schiele, 2018)

Another risk Goldberg and Schiele (2018) added is that a mismatch of dedication on a collaborative innovation project had appeared to be a root cause of supplier innovation implementation failure.

## 2.3 Factors influencing the success of buyer-supplier development (Timing, Technology, Product complexity)

As years go by, the complexity of technology increases, which makes it unfeasible for individual companies to stay informed of all new technological advancements in NPD (Laursen & Andersen, 2016b). New technologies mostly come from the suppliers and are one of the fundamental competencies the firm can offer (Petersen et al., 2004).

Research of Ragatz et al. (2002) did not support the positive influence of technology on project’s success, but found that more integrative strategies are used if technological newness occurs. It is supposed that due to the knowledge imbalances, buyers try to involve suppliers as early as possible.

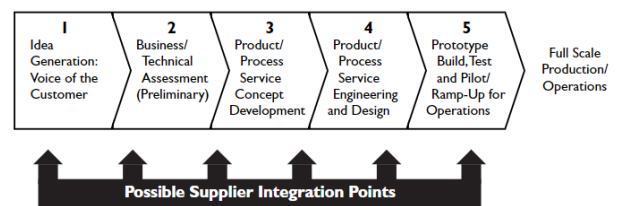
Therefore, the first proposition is as follows:

*P1: Suppliers are earlier involved by buyers, if the supplier’s technology is new to the buyer.*

Apart from supplier’s technology, complexity of the product is expected to play a similar role in the buyer’s decision of the timing of involvement. Challenges of product complexity mainly arise by product evolution, increased customization and changes in the manufacturing systems. (Samy & ElMaraghy, 2010b) It is expected that with rising complexity, earlier timing within ESI is needed. However, no research has been performed on this factor: *P2: Supplier is involved earlier within ESI, as the product complexity increases.*

Now the two factors of possible influence on timing have been proposed. Moreover, timing itself is anticipated to be an influential factor, specifically on the success of NPD projects.

Firstly, to explain the timing periods, Handfield et al. (1999) has defined the stages of supplier integration in product development stages.



**Figure 3: New product development stages (Handfield et al., 1999)**

In the automotive industry, such stages are usually also marked by gate numbers. Idea generation is the first stage of new product development, it is when the concept refinement takes place.

Second stage, the team might assess the business performance and technicalities of the product according to requirements by the customer. During the third stage, concept development, the specifications for the performance are set and a preliminary prototype is created. For product engineering and design, is where constructors from customer and supplier meet, the final design specifications are made and a prototype is ready to be build and tested. Last stage entails the actual building and testing or the prototype. (Handfield et al., 1999) ESI is commonly considered to be at the time of product concept and design. (Bidault et al., 1998) These stages also have the highest influence on the success of the project. (Handfield et al., 1999)

Dowlatshahi (1998) has stated benefits of buyer-supplier cooperation on product development and confirmed several hypotheses of his research concerning the timing of the collaboration, resulting in these findings: The earlier a supplier is involved in the buyer’s product design and development stage, “...the lower the likelihood of developing poor designs and the sooner the introduction of the product”, “...the higher the likelihood of more effective design, improved manufacturing operations, and less waste and scrap rate”, and “...the less likely it is for the buyer to propose part specifications to the supplier that are either too expensive to produce or require a long lead time.” Similar result was given by the study of Parker et al. (2008), where company’s project success was found to be positively affected by timing. This is very logical as more than 70% of the total life cycle cost of a product happens during the early design stage, which can be significantly lowered by a well done buyer-supplier cooperation (Asiedu & Gu, 1998; Handfield et al., 1999).

Therefore, as seen by earlier studies, it is proposed that:

*P3: The earlier the stage the supplier is involved in NPD, the higher the success rate of the collaboration*

## 2.4 Early supplier involvement as an antecedent of preferred customer status

With supplier involvement, it reflects the buyer's decision to include a supplier in product development activities and let them influence the product design. In the study of 2012, Ellis et al. confirmed that buyer's behaviors affect their preferred customer status, and that being mostly in the area of supplier involvement and relational reliability. These two factors are closely related to each other, as relational reliability is an inherent part of a successful supplier involvement. Hence, trust and increased expected value seemed to be the main variables positively affecting supplier's perception of a buyer.

As previously mentioned, Maunu (2003) stated nine different supplier satisfaction dimensions, and early supplier involvement as one of them. That can potentially lead to preferred customer status. One of the stated reasons as to why ESI has an influence on satisfaction, was the trust created between the companies. She described supplier involvement in the relationship as "very important". The consequence of ESI is that information is known earlier which helps the overall logistics and both sides get to know people of the other parties better, which consequently results in working more as a team than a supplier and a buyer. To sum it up, early supplier involvement is a very good way to help build and strengthen a buyer-supplier relationship.

Quality of relationship is then a factor directly influencing achieving preferred customer status. (Huttinger et al., 2014)

Essig and Amann (2009) came to a similar conclusion, as early supplier involvement played a role in the satisfaction and that of mainly development-based partnerships.

Another factor to consider from a supplier's perspective is that of the results of ESI is increased dependency of a buyer on the supplying company. This dependency increases the chances of further business opportunities, which has been identified as an antecedent of preferred customer status. (Huttinger et al., 2014) Moreover, ESI is closely connected to communication which creates closer relationships. Both factors have been mentioned as an antecedent of supplier satisfaction by multiple researchers: Maunu (2003), Essig and Amann (2009), Ganguly and Roy (2021).

As mentioned, the ESI also works as a mean of improving operations and supply chain management of a buying firm through integration of supplier's capabilities. (Dowlatshahi, 1998) This can be seen as another positive influence of ESI on receiving preferred customer status since operative excellence has been recognized as an antecedent of supplier satisfaction of several studies: Vos et al. (2016); Essig and Amann (2009); Huttinger et al. (2014); Nollet et al. (2012); Schiele (2020).

Most literature proposes the positive relationship between ESI and PCS. Therefore, the fourth proposition of this research follows as such:

*P4: With a successful supplier involved NPD, the supplier is more likely to award PCS*

Coversely, Schiele, Veldman, and Hüttinger (2012) observed the relationship in the opposite way. Their research studied supplier's innovativeness being influenced by preferred customer status. They proposed the innovation conditions can improve with a buyer adapting a preferred customer policy with its suppliers. It is supposed suppliers would have a higher motivation to be involved with preferred customers than with others. Therefore, on the basis of Schiele, Veldman, and Hüttinger's (2012) research, the last proposition of our model goes as follows:

*P5: Having a preferred customer status increases the chances of successful NPD.*

Figure 3 displays a created research model in order to get a better understanding and overview of our propositions and their relationships.

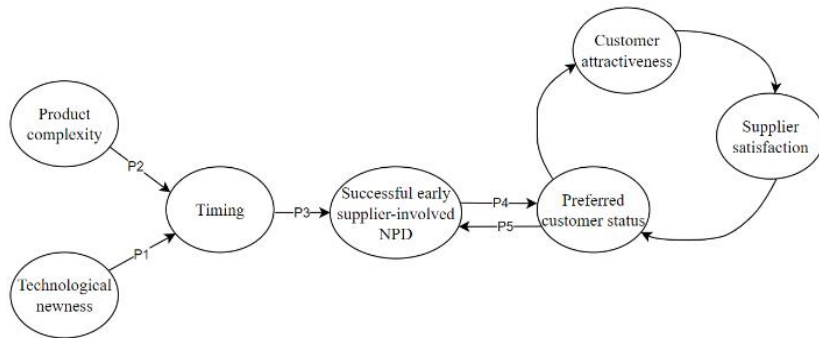


Figure 3. Research model

## 3. METHODS: RESEARCH DESIGN AND DATA COLLECTION

### 3.1 Research design

In order to be able to answer the research questions, there was a need to first obtain a deep understanding of the buyer-supplier relationship in the context of preferential treatment. This was done through a literature review that explained related concepts and summarized the results of other relevant scientific articles on the topic. Next to the literature review, this case study was based on a qualitative research approach. The data were collected through conducting 1-on-1 semi-structured interviews with representatives of the purchasing company and several of its key suppliers. The concept of doing individual questioning instead of focus groups is mainly for reasons of increased honesty and comfort, which results in more spontaneous and realistic data as the interviewee does not feel pressured by the presence of other members of the focus group to only provide desirable and socially accepted answers. The use of focus groups could inhibit the diversity of opinions and influence the results of the research. (Acocella, 2011b).

### 3.2 Research sample: interviews with Company X and its suppliers

The sample of this research contained the purchasing manager of Company X and five representatives of Company's X suppliers. Company X (respondent B1) is an international firm with one of the locations in the Czech Republic that develops and manufactures different component parts for most of the major automobile producers.

The sample of suppliers was varied as the interviewed suppliers were from different countries and were able to give a different view on the matter. The suppliers were purposefully selected to be located in Europe, to have a relationship with Company X for at least the minimum of 3 years, in order to be able to evaluate early supplier involvement processes between the companies. Suppliers must have also been considered a key supplier of Company X as that also ensures a stronger bond for joint product development and more specific information on the factors of the relationship (e.g. factors of satisfaction). As this study was situated in the automotive industry, suppliers were selected based on the anticipated high customer share coming from the automotive sector. The chosen suppliers were all selected to be manufacturers with in-house technologies. This ensured the candidates' suitability for this research. Moreover, the sample was also influenced by the suppliers' openness to collaboration. To describe each of the selected respondent. The sample of suppliers was namely from countries such as the Czech Republic,



Spain and Germany. The first supplier (S1) is based in Spain and focuses on injection molding and assembly of parts, painting, and supplying supporting technology. Supplier two (S2) is of Czech origin and offers production and construction of injection molds for thermoplastics and cutting tools. The third supplier (S3) is a German company designing and manufacturing stamping parts, punching and cutting tools. Supplier (S4) is a Spain based developer and designer of functional decorative parts and supplier five (S5) is a Czech company manufacturing plastic component.

### 3.3 Interview design and analysis

Due to the geographical location of some of the suppliers, the interviews were conducted via video-call to best mimic a face-to-face interview.

Two sets of questionnaires were developed based on the role of the company: buyer/supplier. The questionnaires consisted of around ten to fifteen key questions that helped to define the areas that wanted to be discussed. The use of semi-structured interviews pushed the interviews into the research area while leaving some leeway for additional questions that could provide a deeper understanding of the discussed topic. This approach also allows for a new discovery that was not previously considered. (Gill et al., 2008)

The first few questions of the questionnaire concerned classification, asking whether the company ranks its customer and if so in what way. Next part was focused on the benefits of such classifications, followed by the antecedents and the characteristics their customers need to have in order to have a chance of becoming a preferred customer. The questionnaire finished on the note of early supplier involvement in product development and its effects on PCS for the supplier.

To ensure the quality of the analysis of the data from the interviews, the representatives of companies were asked for consent to record and use the information shared during the interview. Interviews were conducted either in Czech or English language, depending on the preference of the respondent.

To structure the analysis of the collected data, an overview was made using tables. That allowed for easier detection of a potential pattern in suppliers' answers. For an easier analysis, all interviews were also transcribed, which ensured easier and more precise coding. Due to the small sample, analysis was done manually, without the use of a coding software.

The data was coded by using both the deductive, and inductive coding. Deductive coding was done by linking existing models, factors and ideas, to data mentioned in the transcripts. Conversely, inductive analysis was performed by looking through the raw data of the transcripts and deriving new concepts and ideas out of it. (Thomas, 2006)

During the analysis, first the interviewee responses were grouped based on the topic of what they were directed to. Afterwards, all specifically mentioned facts or antecedents were listed and compared with other interviewees' responses and put into tables for better overview. Later a deeper analysis was performed by repetitively going through each reply, and finding links, facts and ideas that have been both directly and indirectly presented by the interviewees.

## 4. ANALYSES OF THE FINDINGS & RESULTS

In this section the analyses of findings is discussed. Firstly, new antecedents for supplier satisfaction and preferred customer status were found and compared to the literature. In the later sections, propositions of the research were answered through our finding and ultimately, supported.

### 4.1 Supplier satisfaction, preferred customer status

#### 4.1.1 Suppliers' classification models and preferred customers

Company X (B1) classifies its suppliers based on factors such as logistics, technology and purchasing. However, B1 does not believe its suppliers do the same as there have been no indications that would support the claim. Overall, preferred customer status is an unfamiliar concept to the company. Now that B1's awareness of PCS is higher, they plan to put extra effort into securing such status.

Based on the analyses of the interviews, it is clear that classification of customers is still a fairly new concept that is only now gaining in popularity. Out of five of the interviewed suppliers, only 2 suppliers, S1 and S3, have classification parameters used to rank their customers and give preferential treatments. S1 divides its customers in 4 categories, A, B, C and D. Where with D are ranked customers that are nearing the end of the business relationship with S1, or there are no present business opportunities. C is for long term customers with uncertain future business opportunities. B signifies regular customers, who still decide between S1 and competitors on business offers, and lastly A represents the preferred customers, who have the best relationship with S1, classify S1 as a key/preferred supplier, and offer extensive future business opportunities to S1. This ranking system has only been implemented by S1 about 2,5 years ago, as a reaction to the newly changed market conditions. As argued by S1, there had been a low amount of business opportunities, therefore there was a higher need to focus and put all efforts on profitable and long term future customers. According to S1, having a ranking system has greatly improved the company's situation and has helped prioritize more profitable customers.

The classification at S3 is rather comparable to S1. S3 puts its customers in categories A, B, C, which are further distinguished by numbers 1, 2 and 3. This classification assigns preferred (the most profitable) customers letter A, whereas companies with low purchasing volumes or low business activity are placed into C. Their system has also been implemented very recently, around 2 years ago, for similar reasons as Supplier 1. Since the classification model is in its early years, the assessment criteria are often re-evaluated based on their validity and improved to fit the current needs. The rankings of the customers are updated at least once every 6 months.

Although supplier S2 do not have an official chart where customers get grouped, they admitted to having preferred customers based on their personal preferences, long term close relationship and other factors that will be discussed more in depth in the section of antecedents of preferred customer status and supplier satisfaction. In case of supplier 2, the "preferred customer" also receives benefits, mainly thanks to the good interpersonal relations.

Supplier 4 and 4 denied both giving customer statuses, as well as having any sort of "favorite" customer.

When suppliers 2, 4 and 5 were asked whether they plan on implementing customer classification or see it as a future possibility they dismissed both options, expecting the situation to stay the same. The reasons given were mainly due to the necessity of staying more flexible with customers, or not having a possibility to choose from customers, as all of them are of great importance for the supplier due to the strong presence of their Asian competition.

Company X is a preferred or at least a highly satisfactory customer for all interviewed suppliers. Oftentimes mentioned due to its purchase volumes, operational excellence and long term close relationship. Suppliers that use a classification system

(S1, S3) do not distinguish between different departments or branches, but rather look at the customer as a whole. This is mainly due to the centralization of purchasing to one main department who monitors all locations, even if spread all across Europe.

#### 4.1.2 Antecedents of supplier satisfaction and preferred customer status

Based on the findings, Company X believes that suppliers see them as an attractive customer, thanks to the desirability of the automotive industry and the intense collaboration (supplier days, audits) B1 tries to ensure with its suppliers. However, some major factors of dissatisfaction prevail, mainly due to long payment terms B1 sets (90 days Europe, 120 days Asia), not always paying on time and therefore causing financial distress to the suppliers, as well as large fluctuations of orders, creating inventory problems and obsolete material. Lastly, B1 tries to always give equal opportunities to all of its preferred suppliers. Since many of the suppliers do not use the concept of preferred customer, there appeared to be a lot of nuances in what could be categorized as an antecedent of supplier satisfaction rather than preferred customer and vice versa. It is safe to say that in these terms both variables have many similarities and are sometimes hard to differentiate.

As previously mentioned, Company X has been categorized as a key customer by all of the suppliers. Company X received such status thanks to a multitude of factors. The prevalent factors were the purchasing volumes and the high frequency of orders, which were mentioned by three out of five suppliers. Open, straightforward and friendly communication appeared to be another necessary antecedent according to S1, S2 and S4. S1 added that being able to communicate w Company X in the native language (Czech) also makes a positive difference. There were many other varied individual antecedents specific to each supplier: S1 values that it is Company X's preferred supplier by a received analysis, S2's satisfaction is also supported by knowing Company X for a very long time and being used to its processes, S3 appreciates the wide range of products that Company X has, which leaves S3 with a lot of different potential product orders, S4 mainly enjoys the organization's structure and the precise, well organized project planning, in which Company X excels at in comparison to other customers. Lastly, S5 values the long term relationship that helped S5 enter and thrive within the automotive industry.

As of the general antecedents of supplier satisfaction and preferred customer status, all suppliers found it greatly important to be early involved in customers' projects. That is mainly because it lowers the amount of time and money spent on the project. Out of the economic factors, all profitability, growth opportunity and purchase volumes, were mentioned as an antecedent by at least three of the five suppliers. Operative excellence, such as forecasting and early and precise planning, also led to increased satisfaction in case of S1, S2 and S4. Additionally, S1 appreciated the financial stability of a customer, in other words, being able to rely on receiving the customer's payables on time.

A big emphasis was also placed on non-economic (social) antecedents. A large portion of these factors are positive results of having a long term relationship, which was also stated as an antecedent by all but one (S3) suppliers. Communication and relational behavior were often highlighted by suppliers. S1, S2 and S5 found feedback important, from which they learn valuable information, such as whether they are a preferred supplier to the customer (an antecedent of PCS for S1 and S2). Being a preferred supplier of a key customer appeared to be an important antecedent for S1 and S2 for acknowledging the

customer as a preferred. However, this positive relationship is only one sided, as B1 denied any kind of influence of preferred customer status on receiving preferred supplier status. Company X has its own set of antecedents that are used to classify the suppliers. These factors are: technology, quality, logistics and purchasing costs.

The antecedent of preferred supplier is often connected to another two, the loyalty of the buyer, and trust and openness. Antecedent compliance with contracts and payments terms have been identified by suppliers 1 to 3, since not receiving payments on time can cause major financial issues for the suppliers. S1, S2 and S4 appreciated the feeling of certainty towards a customer, as they can rely on its word. Surprisingly, three out of five suppliers put geographical proximity as an antecedent to PCS. This was mainly mentioned due to the costs and difficulties of logistics of intercontinental customers.

During the interviews, new antecedents that had not been mentioned by the literature appeared. S2 and S5 enjoy when the buyer is willing to "go and do an extra step" for the suppliers if necessary. This can be also seen as helping out the other party in rough times. Another newly stated factors were, closely matching customer's product portfolio (S3) and customer sharing its budgets and margins (S2).

Overall, most antecedents matched the factors found in literature review. However, they are mixed with newly acquired antecedents that have been deducted from the interviews.

To compare the answers of B1 to the suppliers' answers, B1 was mostly focused on the technological and more tangible factors (quality, technology...), whereas suppliers' factors were broader and apart from profitability included more social factors.

All factors mentioned by suppliers are displayed in the table below, with new factors being indicated in green.

ECONOMIC FACTORS						
Factors	S1	S2	S3	S4	S5	Count
Profitability	x		x		x	3
Growth opportunity	x	x	x			3
Early supplier engagement	x	x	x	x	x	5
Financial stability of the customer	x					1
Operative excellence (Forecast/planning)	x	x		x		3
NON-ECONOMIC (SOCIAL) FACTORS						
Feedback	x	x			x	3
Loyalty of buyer	x	x				2
Openness and trust	x	x				2
Cooperative relationship	x	x				2
Relational behavior	x	x		x		3
Communication	x	x			x	3
Quality of purchasing dep	x		x			2
Reliability/certainty	x	x		x		3
Long term relationship	x	x		x	x	4
Good organizational structure				x		1
Closely matched product portfolio			x			1
Risk aversion (looking out for risks, taking small steps to prevent risky situations)				x		1
Buyer's help/willingness to do an extra step for the supplier		x			x	2

Factors in green = new factors

**Table 3. Analysis of supplier satisfaction factors**

ECONOMIC FACTORS						
Factors	S1	S2	S3	S4	S5	Count
Purchase volumes	x	x	x			3
Profitability	x		x			2
Further business opportunities	x	x	x			3
NON-ECONOMIC FACTORS						
Competence/good relationship with the purchasing departments	x	x				2
Geographical proximity	x	x	x			3
Relational behavior	x	x				2
Communication (problem solving, professional yet friendly)	x	x				2
Long term relationship	x	x				2
Being a preferred supplier of the customer	x	x				2
Customer shares next year budget and		x				1
Compliance with contracts and payment terms	x	x	x			3
Early supplier involvement (Timing within ESI)	x					1

Factors in green = new factors

**Table 4. Analysis of preferred customer status factors**

This section has summarized factors of both supplier satisfaction and preferred customer status. From the respondents' answers we found factors previously mentioned by older literature as well as new unresearched factors.

#### 4.1.3 Benefits to having preferred customer status

To this day many suppliers treat all customers the same and they see PFC as something not even considered. However, there are plenty of other companies that have changed their view of thinking, and provide benefits to preferred customers. Suppliers 1, 2 and 3 prioritize certain buyers, whereas S4 and S5 treat everyone equally.

The benefits seen from the three suppliers were all very similar and straightforward. All S1, S2 and S3 concluded the same benefit they provide their A customers, that being order prioritizing, which leads to a shorter lead time. S1 added that they are also more lenient towards returns and complaints, and overall try to give the preferred customer a nicer experience. S2 only has one unofficial preferred customer, with which they help each other out with financial struggles either through earlier ordering or order prioritizing, if any other issues from the customer appear, they try to give their support. S3 did not have any additional remarks besides order prioritization. B1, in case of being a preferred customer, also expects having the benefit of being prioritized in order processing in case of capacity problems. Therefore, the expectations and reality meet very well here.

Benefits of PCS	S1	S2	S3	S4	S5
Order prioritizing	x	x	x		
Returns and complaints leniency	x				
Overall nicer experience	x				
Help during financial distress		x			

**Table 5. Benefits of PCS**

## 4.2 Technology newness and product complexity as influencing factors of ESI timing

In the context of timing, the buying company is the deciding factor. Suppliers usually work with one type or similar group of technologies, whilst the customer has the overview or different

supplier technologies, and can better evaluate the factors. Therefore, the interview with the buyer will be the main source of discussion for this part. Supplier 2 and 3 believed that in the case of newer, more advanced technology, the supplier should be earlier involved, as the supplier has all the know-how necessary for developing the product. However, although it was thought that product complexity should matter in timing, interviewed suppliers are manufacturers of a relatively "easy" and identical set of products or services (molding, cutting).

On the other hand, Company X, as an automotive manufacturer, takes the path of the most advanced technologies, in order to follow the industry's rapidly growing standards. Therefore, technology advancements are always sought after (B1). Similarly, due to Company X's manufacturing being focused on modern car displays from pilot to pilot, the developed products, that are at the end all put together, greatly range in its complexity/difficulty. According to B1, early supplier involvement plays a big role in both factors.

B1 admitted that depending on the product complexity and technology used by the supplier, Company X puts more or less effort into earlier involvement. According to B1, supplier's technology newness plays a greater role in the timing of early supplier involvement than product complexity. Although oftentimes, these factors go hand in hand. That is because as product complexity grows (e.g. going from manual speedometer to one full digital display) new technologies emerge. However, even if the complexity of the product is low but there is new technology used by the supplier, Company X will try to involve the supplier earlier than other of the product category. This is so that the engineering team of the supplier can give the feedback and solutions as early as possible. The benefit stated by B1 in new technology is the generally lower costs.

These findings support the third proposition (P1) of this research, that technology newness is positively related to timing. That confirms the conclusion of the study of Ragatz et al. (2002), which concluded a higher amount of integrative strategies in the presence of technological newness.

Regarding product complexity, Company X works with three categories of its products. With the most complicated ones, there is a lot of details and things that need to be discussed. Therefore, it is important to start the supplier involvement very early (B1).

For Company X, the most complex products come from displays such as optical bonding, hybrid bonding, electronics and connectors. These products are the most important to the company, therefore they put most effort into ESI. The second, lower product category, is molds, metal products and functional and decorative plastics. Sometimes with molds, it is required to get a 100% clarity. That is then something that is often discussed with suppliers early on. The third category are the least complex products for example protective foils, rubber parts, dampers, or customer labels. According to B1, there is usually a great difference in the timing of early involvement in each of the categories. However, Company X always tries to early involve all suppliers.

Therefore to put it in other words, in regards to our findings, although the factor of complexity has less influence on timing than technological newness, our second proposition, where we assume that with higher product complexity suppliers are earlier involved, is still supported.

## 4.3 Effects of timing within ESI on the success of new product development

All suppliers, although ES involved, mainly believed that they should be involved earlier, due to the development process being more effective and therefore, successful. Most common

reasoning was that there are time consuming discussions between the engineering teams of a customer and a buyer about the feasibility of the product that could be prevented by working on the primary technical assessment together. This does not only saves time, but also brings down unnecessary costs.

According to S2, being earlier involved within ESI brings its benefits. S2 stated reasons for success such as shortening time of realization, because questions regarding feasibility, quality, measuring methods and logistics requirements are handled right from the beginning. The same was said by S1, who included that timing saves everyone not only time and money, but also a lot of unnecessary stress that can negatively affect the buyer-supplier relationship, which is one of the factors that influences successfulness of the projects. S1 also added that it is crucial to discuss all documents about flexibility and feasibility before signing contracts.

As mentioned, S3 is usually the latest involved of all suppliers. Late involvement causes large problems for S3, as they sometimes need to rebuild the entire project and go in another direction in terms of the used material or measurements within the model. For that reason, looking out for more engaging customers is important. That is not only for the reasons of time pressure and stress put on the company, but also it terms of sales. If S3 is able to deliver the first prototypes, there is a higher chance to also win several other prototypes and projects. It would also make the collaboration easier, as S3 might recommend a material that the customer does not know, which they can then implement instead. If the customer is satisfied with their new specific material, there are more sales opportunities and better pricing for the customer. The benefit of future sales was agreed on also by S4, who said that they are generally more considered by customers for future orders, whenever they are involved earlier in the development.

Another factor that timing can improve for the project success is the quality of the buyer-supplier relationship. As the supplier is earlier involved, the companies better understand each other's problems, points of view and the whole picture of the project, through which they can grow together as companies (S3). S4 pointed out the same, explaining that earlier timing gives you the change to work more as one team, rather than a buyer and a supplier.

Furthermore, problems with late timing were also discussed. For example, the chances of making a mistake, due to not being involved enough to understand the whole project, are way higher. The mistakes might be concerning the material or geometry of the product, and it can happen that the supplier will not be able to solve these issues on time, or at all, making it an unsuccessful collaboration (S3).

Benefits	S1	S2	S3	S4	S5
Time saving	x	x	x	x	x
Lower costs	x	x			
Better relationship	x		x	x	
Less stress	x		x		
Sales opportunities			x	x	
Higher chance of success			x		

**Table 5. Positive factors of timing within ESI**

Overall, based on all the findings stated, it is save to conclude that timing of supplier's introduction to the development in ESI has a greatly positive effect on the success of early supplier involved new product developments. Therefore, our third

proposition (P3), is supported by our research. That confirms the relevancy of Dowlatshahi (1998) even 25 years later. Furthermore, based on the analyses, suppliers have put strong emphasis on early timing even within ESI, and all of them showed signs of higher satisfaction with timing. Therefore, an extra link between timing and supplier satisfaction could potentially be drawn out.

#### 4.4 Preferred customer status and successful early supplier involvement

According to B1, the success of NPD is measured based on four characteristics: product is developed exactly in accordance to final customers wishes, product is manufactured within the pre-defined date, in the prescribed quality and within the set costs. Also, Company X does not see successful product development collaboration as a factor that would have an influence on their classification of suppliers. That is mainly due to B1 being the motor behind deciding when suppliers should be involved in the project, and not the other way around. Moreover, Company X does not consider preferred customer status to be an influence on the success of the collaboration, as suppliers always want the business and ESI does not happen enough to not be appreciated by all (even non-preferred) customers.

There are different stages in which suppliers get early involved. For most suppliers, these stages would depend on the specific customers, however, it would usually be in the third or the fourth stage of product development. Although all confirmed to be early involved, some were later than other. Supplier 3 seemed to be involved relatively late, mainly due to the nature of the company's products. Supplier 4 said that a certain balance is necessary, and a mixture of early involved and later involved customers is good. This was argued by the uncertainty of serial production even after a time consuming ESI. This reference was mainly towards smaller firms, as small organizations might not be able to do a large production, which makes the time spent on the NDP not worth it for the supplier. In general, based on our findings, smaller firms are also less likely to receive preferred customer status. However, B1 argued that a small production is not common in the automotive sector, and such example can only be applied in other industries.

Apart from the above mentioned example of S4 with small firms, all interviewed suppliers see early supplier involvement as an absolute necessity or something they are greatly interested in within a buyer-supplier relationship. S2 even declines offers by customers that are not willing to involve S2 early in the development. On the other hand, S5 is involved in development with only one buyer. However, according to S5, a customer who would like to participate in ESI, would be immediately preferred over other customers. The same goes for S1, who even sees ESI as an antecedent to PCS. S3 and S4 are most of the time involved, however not with all customers and not always early enough. They would, therefore, prefer to be involved earlier within the ESI.

As mentioned, Company X is a preferred/highly satisfactory customer of all the suppliers. According to S1, Company X is very diligent and wants to do ESI as early as possible, which are very important positive aspects of Company X. What S2 enjoys about the collaboration with Company X, is that Company X has forms that they already send together with their initial offer. There stands what needs to be asked and discussed. This saves both parties time, ensures no topics are missed during discussions, and puts everything into a written form, which is always strongly preferred.

Although ESI is also preferred by S3, there is not enough customers who are interested in it. Therefore, due to the small



amount of customers who are trying to involve S3 early, it is not possible to distinguish preferred customers based on this factor.

Interestingly, S1 mentioned that there is also a thing as too much supplier involvement (e.g. too early, too often). It happens when the customer involves the supplier unnecessarily early in the process with very frequent discussions. Simply put, supplier's time has also its limits, and therefore time spent on each project needs to be in a reasonable amount.

In general, all suppliers felt the need or desire to be involved earlier than the current ESI standard regardless of the customer status. With S4 adding, that a healthy balance of ESI is important.

To conclude, an obvious positive connection between ESI and PCS has been seen through respondents' answers. Our findings confirm the fourth proposition (P4), which proposed that with earlier supplier involvement, suppliers are more likely to give preferred customer status. These findings support the research of Ellis et al. (2012), where the ESI as an antecedent of PCS was confirmed. On the other hand, a similarly strong relationship was not presented in the other direction (P5) since suppliers do not feel enough involved and in general show preference to any customer's ESI. However, due to the limited amount of findings and inconclusive answers, no conclusion could be drawn. However, it is still assumed that PFC on ESI relationship is not significant in the automotive industry, but might play more importance elsewhere. As this proposition was non-conclusive, it does not support nor deny the findings of Schiele, Veldman, and Hüttinger (2012).

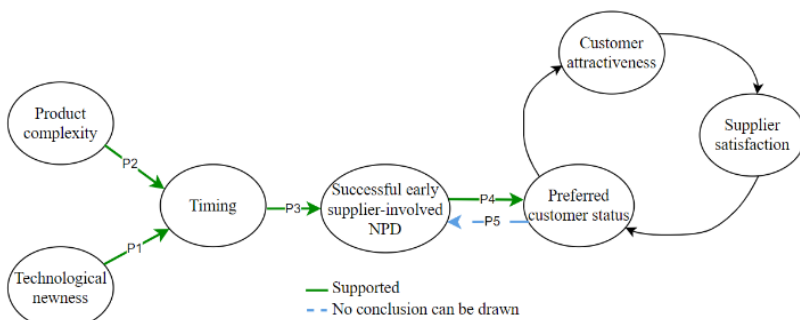


Figure 4. Research model with findings

## 5. DISCUSSION OF THE FINDINGS AND THEORETICAL CONTRIBUTIONS

In this paper, the research of antecedents of supplier satisfaction and preferred customer status expanded the amount of generally known economic and social factors. The research also tested the relationship between the preferred customer status and ESI, the effects of technology and product complexity on timing and the success of supplier involved new product development projects.

The discussion first analyses the results of preferred customer status and supplier satisfaction, and later the early supplier involvement factors in relation to PFC.

### 5.1 Antecedents of supplier satisfaction and preferred customer status

#### 5.1.1 Supplier satisfaction

In comparison of the factors discovered in older literature and this research, it was found that many of factors by researchers such as Maunu (2003), Vos et al. (2016) and Essig and Amman (2009) discussed, are still of relevance today.

Overall, non-economic factors appeared to be more varied depending on the individual likings of the supplier in the decisions of satisfaction than economic. All but one communication related factors identified by Maunu (2003) were

stated by the respondents. The factor that did not change the perceived satisfaction with a buyer was the company's values. A factor that was not stated as an antecedent in the literature review was long term relationship, yet it was the most prominent social factor of all. This is assumed to be because long term relationship can also influence or be a base to many of the other antecedents such as trust and loyalty.

Economic factors of our suppliers were very similar to the ones mentioned by the existing research with an exception of maturity by Bemelmans et al. (2015). The most prevalent factor was early supplier involvement, which supports the propositions of this research. This was argued by the cost reduction, more accurate expectations of the final product and shortened time of development. Surprisingly, with the exception of maturity and company's values, all factors of SS from the review were also found in the interviews. Two of the newly found factors were closely matched product portfolio or risk aversion. Such factors are very logical as companies are more satisfied when there are more business opportunities, and less possible financial issues with a buyer.

In all cases, suppliers were satisfied with the business relationship with Company X. In the firms, where official classification of customers occurs, Company X was always rated as an "A" – preferred customer. This supports the earlier discussed theory of social exchange which advocates supplier satisfaction as a precedent to preferred customer status.

Concluded, this research confirms the earlier research on antecedents of supplier satisfaction of Maunu (2003), Vos et al. (2016), Essig and Amann (2009), Nollet et al. (2012), and others to still be relevant. This research contributed with several new satisfaction factors, such as risk aversion of the buyer, closely matched product portfolio, loyalty or long term relationship, and supplier satisfaction has once again shown to be an antecedent of preferred customer status, supporting the theory of preferred customership (Schiele et al., 2012). Future research could incorporate these new factors into their studies to see whether they would be supported in also another suppliers' sample.

#### 5.1.2 Antecedents of preferred customer status

As stated in the literature review, the common belief is that only buyers assign preferred statuses. (Baxter, 2012; Schiele et al., 2012) Although this was mentioned by the literature over ten years ago, the belief has mostly persisted till today, with more than half of the respondents believing that preferred status is only for customers, not for the suppliers to do. Company X as well as some of the suppliers, were not familiar with the concept of preferred customer status at all, and some also denied the possibility of PCS, explaining that customer is always the one who chooses, not the other way around. However, two supplying companies have recently changed their view, and due to the market conditions, started classifying its customers. It is also been noticed, that preferred customer status of the suppliers was not largely appreciated by Company X and did not have any influence on its supplier classification. However, this might change in the future years.

Comparing our research to the older papers on preferred customer status, such as the one of Steinle and Schiele (2008) actuates that earlier research was mainly based on theoretical background, and not so often seen in practice, at least in terms of automotive industry, as all interviewed companies have only learned about this concept within the past two to three years or not at all.

Compared to the antecedents of supplier satisfaction, factors of preferred customer status seemed more focused on money. That supports the research of Hüttinger et al. (2014) and Vos et al.



(2016), as both in this and their studies, purchase volumes, further business opportunities and profitability all appeared to be an antecedent to PCS. Moreover, the research confirmed other non-economic antecedents such as geographical proximity (Steinle & Schiele, 2008), communication (Nollet et al., 2012), quality of the relationship (Huttinger et al., 2014) and supplier satisfaction (Pulles, Schiele, et al., 2016; Baxter, 2012; Vos et al., 2016; Huttinger et al., 2014; Schiele, 2020).

Additionally, this research expanded the list of antecedents by a couple of new ones in the non-economic dimension. These antecedents were for example preferred supplier status, compliance with contracts and payment terms, long term relationship and relational behavior (previously mainly mentioned in context of supplier satisfaction). Although a number of studies has been performed on antecedents, every company is unique and will therefore slightly differ in needs and preferences. Moreover, preferred customer status is more often than not a very recently adapted concept for the companies. For that reason, it is not of a surprise that new antecedents keep being discovered. New antecedents then also open the door to more future research possibilities.

On the benefits received from being a preferred customer, companies mainly stated support in product sourcing and preferential resource allocation, which supports the research of Steinle and Schiele (2008).

To conclude this section, research confirmed the economic antecedents of preferred customer status of Huttinger et al. (2014) and Vos et al. (2016) as well as non-economic antecedents by Steinle and Schiele (2008), Nollet et al. (2012), Baxter (2012) and others. The most interesting antecedent that had not yet been acknowledged by the literature, but was researched in this paper, was preferred supplier status. This can open the door to new possible scientific papers further researching the relationship between the preferred supplier and preferred customer status. As mentioned before, this research has found this relationship to be one tailed.

## **5.2 Successful early supplier involvement in new product development**

### *5.2.1 Product complexity and technological newness as factors of timing*

As analyzed in the findings, Company X prioritizes the factor of technological newness over the factor of product complexity, when deciding on the timing of early supplier involvement. However, both factors are still a major influence on the timing. As discussed, if new technology of a supplier emerges, the buying company becomes strongly dependent on the know-how of the supplying firm. Therefore very early involvement is necessary in order to receive supplier's opinion right from the start of the development. The same opinion was received by the suppliers. Therefore, these results supported the first proposition that technological newness positively influences ESI timing. Additionally, new technologies, even if majorly unknown, were always preferred by company X over older technology.

Based on the interviews, Company X has several product categories that are of different complexity. Although early involvement is present in all categories, the timing varies as the complexity changes. As found, company X prioritizes the timing within early supplier involvement with more complex products. This is due to more specifications having to be discussed during the process of development and the time of development being lengthier as the complexity grows. As known from the previous section, proposition two was supported. Meaning this research has indicated a new previously unresearched variable to be influential in the matter of timing of early supplier involvement.

In conclusion to this section, this research has contributed in several ways. It has found a strong bond between timing and technological newness, and therefore solidified and improved the research of Ragatz et al. (2002) and their contributions of integrative strategies and technology. Secondly, the paper adds to the literature of ESI with a newly studied factor of product complexity in relation to timing. This opens the door to new future research avenues, where these factors could further be studied by for example testing how product complexity affects NPD's success on its own and compare it to the positive effect it has on timing.

### *5.2.2 Timing as an indicator of success*

As concluded by the findings, timing has a large effect on the success of the buyer-supplier NPD. A benefit of earlier timing, which was mentioned by all suppliers, was time efficiency. In general, the later the supplier is involved in the project, the higher the number of necessary discussions between the organizations and the higher risk of making mistakes, creating a lower chance of a successful project. Moreover, apart from higher success rate, an increased level of supplier satisfaction was noticed if the timing of ESI improved. That is not only expected to be due to the higher chance of success, but also a lower stress levels than what suppliers usually experience when involved late. Then, even when a project is completed successfully, supplier might connote the buyer with the negative feeling of high pressure and stress.

To summarize, the research has confirmed its third proposition and updated the findings of Dowlatshahi (1998) on earlier timing having a positive effect on successful ESI. Next to that, an obvious relation between earlier timing and supplier satisfaction was found. This is a new contribution, which has not been previously found by other studies. Future studies could further research such relationship, as it was not the main topic of this paper.

### *5.2.3 ESI as an antecedent of PCS*

Although all suppliers preferred being early involved, only one supplier had it as an antecedent, due to many suppliers not categorizing their customers at all, or not having enough ESI customers to do so. For these reasons, stronger results were found in the relationship between supplier satisfaction and ESI, where all five suppliers stated ESI as a factor. This supports the findings of studies such as Maunu (2003) and Essig and Amann (2009). As mentioned prior, supplier satisfaction was one of the antecedents of preferred customer status, which supports the cycle of preferred customership by Schiele et al. (2012).

Even through the limitations of small sample of suppliers with PCS, it was obvious by all suppliers, that customers who involve them early are preferred. This confirmed our fourth proposition and the research of Ellis et al. (2012). It should also be added that it was found that even within ESI, the earliness of involvement mattered to the suppliers. Overall, the earlier they were involved, the better. However, one supplier stated there can also be too much ESI. Therefore, it can be concluded that: If in moderation, the earlier the supplier is involved, even within ESI, the higher the chance of obtaining preferred customer status.

Moreover, the influence of preferred customer status on early supplier involvement was not found. Although the majority of suppliers always preferred being more involved, and the buying company denied noticing preferred customer status making a difference to the NPD project, the difference between PFC and regular customer was ambiguous, and the amount of findings was insufficient to draw an absolute conclusion. Therefore, the research of Schiele, Veldman, and Hüttinger (2012) could not be supported nor contradicted. Future research could further study the relationship with the comparison of automotive industry and

other industries, as a difference within industries is expected to be seen.

## **6. IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH**

### **6.1 Managerial implications**

Practical contributions for Company X as well as similar automotive companies can be drawn out of this research to help make better organizational decisions in dimensions researched in this paper. Prior to this research, Company X was not familiar with the concept of preferred customer status. Through the literature review, the concept was thoroughly explained and can give Company X a good understanding of the phenomenon. Company X should not only understand it, but also acknowledge it and discuss strategies that could lead the company to PCS. From our research findings, it is visible how suppliers perceive and classify Company X based on the diverse economic and social factors. Social factors seemed to have more effect on supplier satisfaction, whereas becoming a preferred customer was more money driven with factors such as purchase volumes and profitability. This can help companies establish their priorities and put more focus on factors that are viewed as important by their suppliers, in order to become even more attractive and finally, preferred. To give an example, based on our findings, earlier timing of early supplier involvement increased satisfaction of all suppliers. Similarly, a long term relationship and communication were significant factors. Company X should then choose highly appreciated factors by the suppliers, and try to implement or improve them. As an example, as known from the interview, Company X often does not pay on time and compliance with contracts and payment terms was mentioned by all suppliers with PFC, making it one of the most common antecedents. Therefore it should be a high priority of Company X to improve that. However, each supplier is different, and not all measure based on the same factors. This is something buying companies can also consider more in the future. Moreover, knowing that preferred supplier status as well as feedback positively affect preferred customer status, buyers should make their preferred suppliers more aware of their position in the company's classification, perhaps by including it as part of a regular feedback.

This research can also be used by supplying companies, as it showcased the opinions and classification factors of a large automotive firm and other competing suppliers. As mentioned, Company X rates its customers on four parameters; technology, quality, logistics and purchasing which all are of equal weight. Suppliers can evaluate their worst performing parameter and put more effort into improving it. Furthermore, for suppliers that have not started classifying its customers, it is advised to do so, as the analysis showed high suppliers' satisfaction with the classification if already applied.

Additionally, through this research, companies can get a better understanding of the importance of early supplier involvement, its stages and how to achieve a more successful buyer-supplier collaboration. That is again mainly directed towards buyers, as they are advised to start involving supplier earlier, as it shown to increase the success on collaborations and supplier satisfaction. Also, after this research, companies should be more aware of prioritizing certain suppliers over others, and place personnel and resources more efficiently on the right NPD collaborations. For example, by trying to categorizing their products and technologies.

### **6.2 Limitations and future research**

This study brings new findings and expands the literature in the circle of supply chain. However, it also comes with its

limitations. The research was performed on a small scale of only five suppliers and one buyer, and with only two supplying companies having an official classification of customers. Therefore, the small sample size has limited the results, since positivist approach (questionnaire) to research generally requires a larger sample than other qualitative methods (Boddy, 2016). There was also a low variety of represented product manufacturers, as all companies' manufacturing mostly concerned mold and plastic design. Moreover, the research was done primarily for the automotive industry, therefore the conditions might not apply the same in other markets. Some limitations also come from the quality of the interviews, as they were performed relatively early in the research, therefore in some cases more inductive coding was performed. Moreover, coding was done without the use of a coding software, which might have influenced

Future research could be improved by using a larger sample size as a base in order to achieve more accurate results. The interviews should take place ideally in the later stage of the research, where more in depth interviews can be performed. Many of the participants either have not heard of preferred customer status, or are not open to doing it. Future research could examine more closely the significant difference between the extensive literature on PCS and reality. Most suppliers were also very close in terms of the product portfolio and manufacturing. That might have led to skewed results due to the companies' similarity. For future research, it is preferable that interviewed companies have a wider range of operations, and are therefore on different levels of development involvement.

## **7. CONCLUSION**

The research confirms and supports the existing literature on the antecedents of preferred customer status and supplier satisfaction. It also added several of its own new antecedents to the literature and supported the positive effects of supplier satisfaction on preferred customer, and discovered the effects of preferred supplier status on preferred customer status. More information has been found in the area of supplier involvement. The findings concluded that the early phase of early supplier involvement is an important factor influencing the success of new product developments. Research confirmed the positive relationship of technological newness and product complexity on the buyer's initiatives to earlier involve a supplier during NPD.

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## BIBLIOGRAPHY

- Acocella, I. (2011). The focus groups in social research: advantages and disadvantages. *Quality & Quantity*, 46(4), 1125–1136. <https://doi.org/10.1007/s11135-011-9600-4>
- Asiedu, Y., & Gu, P. (1998). Product life cycle cost analysis: State of the art review. *International Journal of Production Research*, 36(4), 883–908. <https://doi.org/10.1080/002075498193444>
- Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Baxter, R. (2012). How can business buyers attract sellers' resources? *Industrial Marketing Management*, 41(8), 1249–1258. <https://doi.org/10.1016/j.indmarman.2012.10.009>
- Bemelmans, J., Voordijk, H., Vos, B., & Dewulf, G. P. (2015). Antecedents and benefits of obtaining preferred customer status. *International Journal of Operations & Production Management*, 35(2), 178–200. <https://doi.org/10.1108/ijopm-07-2012-0263>
- Bidault, F., Despres, C., & Butler, C. (1998). New product development and early supplier involvement (ESI): the drivers of ESI adoption. *International Journal of Technology Management*, 15(1/2), 49. <https://doi.org/10.1504/ijtm.1998.002593>
- Boddy, C. R. (2016). Sample size for qualitative research. *Qualitative Market Research: An International Journal*, 19(4), 426–432. <https://doi.org/10.1108/qmr-06-2016-0053>
- Cannon, J. G., & Perreault, W. D. (1999). Buyer–Seller Relationships in Business Markets. *Journal of Marketing Research*, 36(4), 439–460. <https://doi.org/10.1177/002224379903600404>
- Cropanzano, R., & Mitchell, M. S. (2005). Social Exchange Theory: An Interdisciplinary Review. *Journal of Management*, 31(6), 874–900. <https://doi.org/10.1177/0149206305279602>
- Dowlatshahi, S. (1998). Implementing early supplier involvement: a conceptual framework. *International Journal of Operations & Production Management*, 18(2), 143–167. <https://doi.org/10.1108/01443579810193285>
- Ellis, S. J., Henke, J. W., & Kull, T. J. (2012). The effect of buyer behaviors on preferred customer status and access to supplier technological innovation: An empirical study of supplier perceptions. *Industrial Marketing Management*, 41(8), 1259–1269. <https://doi.org/10.1016/j.indmarman.2012.10.010>
- Essig, M., & Amann, M. (2009). Supplier satisfaction: Conceptual basics and explorative findings. *Journal of Purchasing and Supply Management*, 15(2), 103–113. <https://doi.org/10.1016/j.pursup.2009.01.001>
- Ganguly, K. K., & Roy, S. (2021). Supplier Satisfaction in Buyer–Supplier Relationships: Assessment from Supplier Perspective. *Journal of Business-to-Business Marketing*, 28(3), 247–264. <https://doi.org/10.1080/1051712X.2021.1974167>
- Gill, P., Stewart, K., Treasure, E., & Chadwick, B. L. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*, 204(6), 291–295. <https://doi.org/10.1038/bdj.2008.192>
- Goldberg, J., & Schiele, H. (2018). Early Supplier Integration: Assessing Supplier Innovation Ideas. *IEEE Engineering Management Review*, 46(3), 94–102. <https://doi.org/10.1109/emr.2018.2866379>
- Hald, K. S., Cerdón, C., & Vollmann, T. E. (2009). Towards an understanding of attraction in buyer–supplier relationships. *Industrial Marketing Management*, 38(8), 960–970. <https://doi.org/10.1016/j.indmarman.2008.04.015>
- Handfield, R. B., Ragatz, G. L., Petersen, K. J., & Monczka, R. M. (1999). Involving Suppliers in New Product Development. *California Management Review*, 42(1), 59–82. <https://doi.org/10.2307/4116601>
- Hüttinger, L., Schiele, H., & Veldman, J. (2012). The drivers of customer attractiveness, supplier satisfaction and preferred customer status: A literature review. *Industrial Marketing Management*, 41(8), 1194–1205. <https://doi.org/10.1016/j.indmarman.2012.10.004>
- Hüttinger, L., Schiele, H., & Schröer, D. (2014). Exploring the antecedents of preferential customer treatment by suppliers: a mixed methods approach. *Supply Chain Management: An International Journal*, 19(5/6), 697–721. <https://doi.org/10.1108/SCM-06-2014-0194>
- Laursen, L. N., & Andersen, P. H. (2016). Supplier involvement in NPD: A quasi-experiment at Unilever. *Industrial Marketing Management*, 58, 162–171. <https://doi.org/10.1016/j.indmarman.2016.05.023>
- Maunu, S. (2003). Supplier satisfaction : the concept and a measurement system ; a study to define the supplier satisfaction elements and usage as a management tool.
- McIvor, R., Humphreys, P., & Cadden, T. (2006). Supplier involvement in product development in the electronics industry: A case study. *Journal of Engineering and Technology Management*, 23(4), 374–397. <https://doi.org/10.1016/j.jengtecman.2006.08.006>

- Mikkola, J. H., & Skjøtt-Larsen, T. (2006). Platform management. *European Business Review*, 18(3), 214–230. <https://doi.org/10.1108/09555340610663737>
- Morgan, J. P., & Liker, J. K. (2006). The Toyota Product Development System: Integrating People, Process, and Technology. <http://ci.nii.ac.jp/ncid/BA78367969>
- Nollet, J., Rebolledo, C., & Popel, V. (2012). Becoming a preferred customer one step at a time. *Industrial Marketing Management*, 41(8), 1186–1193. <https://doi.org/10.1016/j.indmarman.2012.10.003>
- Parker, D. B., Zsidisin, G. A., & Ragatz, G. L. (2008). Timing and extent of supplier integration in new product development: a contingency approach. *Journal of Supply Chain Management*, 44(1), 71–83. <https://doi.org/10.1111/j.1745-493x.2008.00046.x>
- Petersen, K. J., Handfield, R. B., & Ragatz, G. L. (2004). Supplier integration into new product development: coordinating product, process and supply chain design. *Journal of Operations Management*, 23(3–4), 371–388. <https://doi.org/10.1016/j.jom.2004.07.009>
- Piechota, S., Glas, A. H., & Essig, M. (2021). Questioning the relevance of supplier satisfaction for preferred customer treatment: Antecedent effects of comparative alternatives and multi-dimensionality. *Journal of Purchasing and Supply Management*, 27(1). <https://doi.org/10.1016/j.pursup.2021.100672>
- Pulles, N. J., Schiele, H., Veldman, J., & Hüttinger, L. (2016). The impact of customer attractiveness and supplier satisfaction on becoming a preferred customer. *Industrial Marketing Management*, 54, 129–140. <https://doi.org/10.1016/j.indmarman.2015.06.004>
- Pulles, N. J., Veldman, J., & Schiele, H. (2016). Winning the competition for supplier resources. *International Journal of Operations & Production Management*, 36(11), 1458–1481. <https://doi.org/10.1108/ijopm-03-2014-0125>
- Ragatz, G. L., Handfield, R. B., & Petersen, K. J. (2002). Benefits associated with supplier integration into new product development under conditions of technology uncertainty. *Journal of Business Research*, 55(5), 389–400. [https://doi.org/10.1016/s0148-2963\(00\)00158-2](https://doi.org/10.1016/s0148-2963(00)00158-2)
- Samy, S., & ElMaraghy, H. A. (2010b). A model for measuring products assembly complexity. *International Journal of Computer Integrated Manufacturing*, 23(11), 1015–1027. <https://doi.org/10.1080/0951192x.2010.511652>
- Schiele, H. (2012). Accessing Supplier Innovation By Being Their Preferred Customer. *Research-technology Management*, 55(1), 44–50. <https://doi.org/10.5437/08956308x5501012>
- Schiele, H. (2020). Comparing public and private organisations in their quest to become a preferred customer of suppliers. *Journal of Public Procurement*, 20(2), 119–144. <https://doi.org/10.1108/jopp-10-2018-0041>
- Schiele, H. (2010). Early supplier integration: the dual role of purchasing in new product development. *R & D Management*, 40(2), 138–153. <https://doi.org/10.1111/j.1467-9310.2010.00602.x>
- Schiele, H., Calvi, R., & Gibbert, M. (2012). Customer attractiveness, supplier satisfaction and preferred customer status: Introduction, definitions and an overarching framework. *Industrial Marketing Management*, 41(8), 1178–1185. <https://doi.org/10.1016/j.indmarman.2012.10.002>
- Schiele, H., Veldman, J., & Hüttinger, L. (2012). Being a Preferred Customer of Leading Suppliers and Its Impact on Supplier Contribution to Innovation. In *Supply Chain Innovation for Competing in Highly Dynamic Markets: Challenges and Solutions* (pp. 269–289). <https://doi.org/10.4018/978-1-60960-585-8.ch018>
- Schiele, H., Veldman, J., & Hüttinger, L. (2011). SUPPLIER INNOVATIVENESS AND SUPPLIER PRICING: THE ROLE OF PREFERRED CUSTOMER STATUS. *International Journal of Innovation Management*, 15(01), 1–27. <https://doi.org/10.1142/s1363919611003064>
- Schiele, H., Veldman, J., Hüttinger, L., & Pulles, N. J. (2012). Towards a social exchange theory perspective on preferred customership — concept and practice. In *Gabler Verlag eBooks* (pp. 133–151). [https://doi.org/10.1007/978-3-8349-3928-9\\_6](https://doi.org/10.1007/978-3-8349-3928-9_6)
- Schiele, H., & Vos, F. G. S. (2015). Dependency on Suppliers as a Peril in the Acquisition of Innovations? The Role of Buyer Attractiveness in Mitigating Potential Negative Dependency Effects in Buyer–Supplier Relations. *Australasian Marketing Journal (Amj)*, 23(2), 139–147. <https://doi.org/10.1016/j.ausmj.2015.04.009>
- Steinle, C., & Schiele, H. (2008). Limits to global sourcing?: Strategic consequences of dependency on international suppliers: Cluster theory, resource-based view and case studies. *Journal of Purchasing and Supply Management*, 14(1), 3–14. <https://doi.org/10.1016/j.pursup.2008.01.001>
- Takeishi, A. (2001). Bridging inter- and intra-firm boundaries: management of supplier involvement in automobile product development. *Strategic Management Journal*, 22(5), 403–433. <https://doi.org/10.1002/smj.164>
- Thomas, D. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of*

*Evaluation*, 27(2), 237–246.  
<https://doi.org/10.1177/1098214005283748>

Van Echtelt, F., Wynstra, F., Van Weele, A. J., & Duysters, G. (2008). Managing Supplier Involvement in New Product Development: A Multiple-Case Study. *Journal of Product Innovation Management*, 25(2), 180–201.  
<https://doi.org/10.1111/j.1540-5885.2008.00293.x>

Vos, F. G. S., Schiele, H., & Hüttinger, L. (2016). Supplier satisfaction: Explanation and out-of-sample prediction. *Journal of Business Research*, 69(10), 4613–4623.  
<https://doi.org/10.1016/j.jbusres.2016.04.013>

Wynstra, J. Y. F. (1998). Purchasing involvement in product development. *Technische Universiteit Eindhoven*.  
<https://doi.org/10.6100/IR517000>

Wynstra, F., Weggeman, M., & Van Weele, A. J. (2003). Exploring purchasing integration in product development. *Industrial Marketing Management*, 32(1), 69–83.  
[https://doi.org/10.1016/s0019-8501\(01\)00197-3](https://doi.org/10.1016/s0019-8501(01)00197-3)



## **APPENDICES**

### **Questionnaire for buyers**

1. Do you classify the relationship you have with suppliers? If so, how?
2. Do you have indications that the suppliers are doing the same with you?
3. Is there management commitment to achieving preferred customer status with strategic suppliers? If so, how does this show? If not, how could management commitment help in this matter?
4. Whom do you have a preferred customer status with?
5. Do you notice shorter lead times, influences on the purchasing prices, better access to innovative capabilities and shared development projects?
6. Which other benefits do you notice from having a preferred customer status?
7. What have you done in the past to become a preferred customer of strategic suppliers? Are there other actions you did not undertake that could have helped in reaching a preferred customer status?
8. Do you consider your company an attractive customer to suppliers? What are the factors that are influencing this attractiveness?
9. Is your company able to provide supplier satisfaction with important suppliers in exchange relationships? Which factors induce satisfaction in these relationships? And which cause dissatisfaction?
10. Are there measures that are planned to be undertaken to become a preferred customer of other suppliers?
11. Do you involve suppliers in new product development?
12. Do you think early supplier involvement influences supplier's classification of your company?
13. Does being a preferred customer influence the collaboration?
14. What benefits do you see in early involvement (or any potential negatives)?
15. Do you have specified stages/timing you use in your company to evaluate how early you involve a supplier? Does the timing matter?
16. Do you try to involve suppliers earlier if the used technology is new to you?
17. Does product complexity influence the timing of involvement?

### **Questionnaire for suppliers**

1. Do you assign different status types to customers? Which status types do you assign?
2. Do you assign a preferred customer status to a customer company as a whole, or to different establishments or sub-branches of this company separately?
3. Have you assigned a preferred customer status to Company X?
4. How do the status types influence your behaviour towards customers?
5. What benefits do you offer to a preferred customer?
5. Do you consider Company X an attractive customer? What factors are affecting this perceived attractiveness?
6. Are you satisfied with the business relationship with Company X? What factors are affecting your satisfaction or dissatisfaction in this relationship?
7. What are your company's motivations for giving Company X a preferred customer status? What did Company X do to achieve the status? What could Company X do to further improve its status?
8. What are measures that customer must undertake to achieve a preferred customer status and what is the necessary behaviour they must show?
9. What do customers generally do to achieve preferred customer status? Does this differ from the behaviour you would like them to show?
10. Do you collaborate with your customers on product development? Do you get early involved in projects with Company X?
12. Is early involvement an important factor you consider when building a long term buyer-supplier relationship/choosing customers?

13. Does the timing of involvement matter to you?
14. What benefits do you see in early involvement (or any potential negatives)?
15. Do you have specified stages/timing you use in your company to evaluate how early you are involved?
16. Do you think with new technology you should be involved earlier than usual by the buyer during new product development?
17. Does product complexity influence the timing of involvement?

