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**Formation and evolution of buyer-supplier
relationships: conceiving dynamism in actor
composition of international business networks**

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Introduction

Although network theory is less wedded to stability as neoclassical economic theories are (Johanson and Mattsson, 1991), network theorists also perceive and conceive evolutions in actor composition of business networks as relatively stable (Håkansson and Shehota, 1995; Forsgren, Hägg, Håkansson, Johanson and Mattsson, 1995; Johanson and Vahlne, 1990; Forsgren, 1989; Rugman and D'Cruz, 2000). Several scholars have conceptually questioned the viewpoint of assuming stability to be a basic structural feature of networks (Easton, Wilkinson and Georgieva, 1997; Halinen, Salmi and Havila, 1999). However, empirical proof of substantial turnover of actor involvement in business networks is scarce, with Hertz (1993) being an interesting exception to this rule.

In this paper, we want to explore the tenability of this *stability thesis*. The empirical material for this explorative research comes the automotive industry. This industry is a prominent example of a sector where one encounters inter-firm networks on a large scale (Castells, 1996; Dyer, 1996; Fine and Whitney, 1996). Additionally, this industry has known already for a long time an international spread of assets and actors (Ohmae, 1985; Dicken, 1998). Consequently, following a review of network theory literature and of empirical literature on business network compositions confined to the automotive sector.

Afterwards, we present the methods and materials applied to two automotive cases of buyer-supplier networks. For these two cases we assess the amount and type of changes (radical or incremental) that occur over a period of > 10 years. For this, with regard to both cases, a reconstruction is provided of the composition of the supplier network for a sample of automotive components.

The assessment methods for exploring actor composition stability are both of a quantitative and qualitative nature. The choice for this triangulation of methods was made in order to be able to provide sufficient nuances to the outcomes of either kind of analytical methods.

Empirical findings demonstrate that one case indeed shows a rather high degree of instability, whereas the other does less so. Based on the overall research findings, the article concludes that the phenomenon of supplier substitution may be a more widespread empirical reality. Consequently, conceptual frameworks should be able to cope with more dynamism and instability in business networks as regards actor composition than currently is the case.

Theorizing (in)stability in actor composition of international business networks

Business networks can be viewed as inter-firm exchange relationships or as interactions between autonomous business units, either initiated by the supplier or the buyer, whereby both parties recognize their mutual dependence and interest in each other's resources (Cunningham, 1980). Implicit in this characterization is the assumption that the involved parties are free to enter into, maintain or dissolve these relationships and networks. In this respect, the following statement is highly indicative. "..., although network relationships tend to be relatively stable and recurring; new network ties can also be formed. Over time these new ties can change old network patterns considerably. As such, networks are as much process as structure, being continually shaped and reshaped by the actions of actors who are in turn constrained by their structural or network position" (Nohria, 1992, p. 7). And in the same vein: "The network is in constant flux as suppliers, buyers and customers may enter and exit" (McKiernan, 1992, p. 106).

Network theorists also acknowledge that certain relationships -vital to the parties involved- may be disrupted, that their content may be changed or that the entire relationship may be traded in for another over time. In this light, Gadde and Mattsson (1987) found -through

analyses of individual dyadic relationships and of “one buyer”-“several suppliers” relationships that apparently stable relationships are subject to clear changes in the long run. Also Hertz (1992) and Lundgren (1993) report on radical changes in industrial networks. Nevertheless, experience suggests that change is mainly incremental with radical change being rare (Easton, Wilkinson and Georgieva, 1997, p. 275). Consequently, the main stream of conceptual network theory argues that most business-to-business (b2b) relationships tend to show a striking continuity. Moreover, drastic changes in a network structure are counteracted by the durability and stability of many of the network’s business relationships (Hägg and Johanson, 1982). Consequently, business networks are characterized by a relative stability (Forsgren, 1989; Johanson and Vahlne, 1990; Håkansson and Shehota, 1995; Forsgren et al., 1995).

At the same time, conceptual network theory does offer space to reason that actor substitutions and other radical changes in business networks do occur. For instance, the often-used time perspective in network studies enables to view b2b relationships from a dynamic angle. One can argue, therefore, that adaptations in inter-firm relationships can take place over time (Mattsson and Hultén, 1994; Håkansson, 1987; Håkansson and Henders, 1995; Håkansson and Shehota, 1995). Also, Laage-Hellman’s (1997) position that actors are moved by the desire to improve their network position provides room for assuming that rival suppliers may try to oust each other. However, also in this respect, the network approach (Johanson and Mattsson, 1991, 1993) postulates that the longevity of relationships and the specificity of each relationship, lead to a preference for voice instead of exit (Hirschman, 1970; Helper, 1987), and thus contribute to longevity of b2b relationships.

The claim for longevity and even dedicated b2b relationships is also the leading thought in the Flagship/Five Partners (F/5P) model of Rugman (1999) and Rugman and D’Cruz (2000). On the other hand, from their work it can also be understood that hub firms in networks aim at

sustained competitiveness for the network as a whole. It is this aim that may induce them to consider the ongoing participation of suppliers in the network they manage.

All in all, it seems that conceptual network theories view *actors in networks to a large extent as a fixed group of pieces on a chess board that can change their positions and their mutual strategies, but where few or no new chess pieces enter the game*. Therefore, it considers above all the evolutionary character of existing relationships.

Consequently, it appears that for example competitive processes between rival buyers and suppliers are underestimated (Montgomery, 1995). A similar message comes from Halinen, Salmi and Havila (1999). They advocate for more attention to changes of relationships, including the substitution of relationships or partners. Also Easton, Wilkinson and Georgieva (1997) express such thoughts. Also from literature on embeddedness it can be reasoned that firms may consciously choose to substitute business partners. From Grabher's (1993, p. 24) and Uzzi's (1997) observation that firms risk "lock in" if they become too embedded in their alliances with other firms, it follows that entrepreneurial instincts and interfirm competition also make firms consider partner substitutions in order to regulate lock in-effects, over embeddedness and path dependencies on long-standing relations.

Moreover, organizational learning theories (Levitt and March, 1988; Nooteboom, 2002) lead us to think that, whilst companies gather experience and knowledge regarding inter-firm collaborations as such, they may become less "aversive" to enter into wholly new relationships. Thus, it can be argued that considering to change network partners from time to time can be enhanced by firm's accumulation of b2b experience.

Empirical lessons in actor composition from international automotive networks

Lagendijk (1994) observes that, in spite of efforts to unlock this situation, the European automobile industry is still dominated by a small number of national champions with their own nationally focused supply chains.

Volpato (1997), Carillo and Gonzalez Lopez (1999), Pries (1999), Shimokawa (1999) and Gonzalez Lopez (2000) detect that many overseas establishments of suppliers follow OEMs from the home base where they already had a long-standing relationship. Moreover, they reveal a convergence between buyers and suppliers with respect to their globalization and international investment strategies. They demonstrate that foreign establishments of suppliers typically follow from corporate negotiations between hub firms and their suppliers in a shared mother country. Aláez, Bilbao, Camino and Longas (1999) also report on suppliers' recognition that cultural and organizational proximity helps to obtain contracts from OEMs. They argue this is a driving factor for "local" firms to become part of (foreign) MNEs.

However, as an alternative to these b2b links between assemblers and suppliers from the same country, Laigle (1997) and Sadler (1999) report on several cross-border alliances between suppliers and single-ventured greenfield investments by suppliers in order to break into OEM relationships outside their home continent. Also from a more dynamic perspective, Larsson (2000) posits that inter-OEM alliances and take-overs, will probably have an impact on the origin of capital of supplier networks with which OEM subsidiaries will work. He especially foresees changes for the domestic suppliers of the entity that is taken over.

The latter points at a rupture of suppliers' dependence on co-home market assembly firms for internationalization, and that internationally experienced companies forge new ties in a rather path-independent way. Dicken and Oberg (1996) provide additional arguments to foresee more multi-national automotive business networks. They draw on tendencies that encourage firms to set up organizational networks focused on continents as a whole, rather than at national markets. Especially as trading blocks integrate.

Implications of literature review for research design

Theoretical literature points at the learning processes firms undergo through their experiences with b2b relationships. Such experiences enhance their courage to enter into b2b relationships with less well-known partners. It also provides starting points to reason that rival firms display competitive behaviour to substitute each other and that also buyer firms may benefit from and may, thus, aim for supplier turnover.

Empirical research demonstrates that suppliers try to seduce assemblers to switch suppliers. Competitive behaviour of rival firms, take-overs among suppliers and targeted investments by suppliers are additional operations that can contribute to a periodic reshuffling of buyer-supplier relationships. Similarly, the review of empirical literature indicates that after the initial stages, supplier companies intend to diversify their client base in a multinational way. Buyer firms act likewise, exploring supplier possibilities in a more global way. It appears that economic integration processes, which lead to a homogenization of economic space, contribute to this.

Research methodology

The empirical material to explore the tenability of the stability thesis comes from two longitudinal case studies on buyer-supplier networks around foreign-owned car assembly plants in Spain. The choice for longitudinal analysis stems from the fact that only by taking a time element into account, one will achieve to capture and understand the sequence of events that describes how things change over time” (Van de Ven, 1992; Pettigrew, 1990).

We applied a multiple case study, followed by a cross-case analysis, as this forms the most adequate way to gain a detailed insight into the variables and dynamics around the location behaviour to be explored (Brinberg and McGrath, 1985; Yin, 1994; King, Keohane and Verba, 1994). The underdeveloped state of literature on the causal structures around

suppliers' location behaviour from a network perspective, together with the exploratory and theory-developing character of our research suggests that case studies are an appropriate research method (Schoenberger, 1991; Markusen, 1994; Yin, 1994).

We apply a “top-down” approach to the business network cases to be looked upon, and to ascertain whether supplier instability is a relevant feature in contemporary business network formation. That is, on a buyer-specific network basis we assess the occurrence of supplier substitutions. This choice is invoked by two considerations. One, the primary purpose of this research project is to explore the relevancy as such of the supplier substitution phenomenon. Two, it are the buyer firms that function as the final decision takers in the composition of buyer-specific networks.

The following establishments account for the added value of studying actor composition evolutions in automotive business networks in Spain. Although Spain is a country without indigenous automotive OEMs, it houses a significant automotive industry and most of the firms active in Spain are based on foreign capital (Lagendijk, 1994, 1995). Due to Spain's late adhesion to an integrated trading block (the European Union), it allows to follow b2b formation processes as a function of the homogenization of economic space. Therefore, Spain forms the ideal setting to analyze b2b formation trajectories around hub firms. Finally, a ‘host country’ like Spain is a far more useful locus for studying actor composition dynamics of business networks than the home bases of the hub firms of such networks. The latter approach induces the risk of getting bogged down in biased settings related to excessively weighing local heritage factors (Porter, 1990; Krugman, 1991; Ohmae, 1993) or political pressures (Wolff, 1996; Bloch, 1999).

The two business networks that were analyzed, were FASA-Renault in Valladolid and VW Navarra in Landaben and their corresponding supplier networks. The FASA-Renault plant in

Castilla y Leon has always been partly or completely under Renault's control, whereas the Landaben plant has switched ownership several times: from AUTHI to SEAT to Volkswagen.

Definition and measurement of key concepts

To capture the phenomenon of actor composition (in)stability in business networks, we build on insights from change theories and concepts like the punctuated-equilibrium model (Gersick, 1991; Van de Ven, 1992; Van de Ven and Poole, 1995). Consequently, we forward measurable and change theory-conform operationalizations and observable indicators for constructs that are key to exploring supplier (dis)continuity in business networks.

Radical and incremental changes

In line with Gersick (1991), Van de Ven (1992), Van de Ven and Poole (1995) and Halinen, Salmi and Havila (1999), we suggest a distinction between two types of change. Incremental change: adjustments within ongoing business relationships and overall stability of a network's "deep structure". Radical change: changes of entire relationships including their termination and substitution of partners causing modifications in a network's "deep structure".

Deep structure

The term "deep structure" refers to the fundamental choices, which sets of business actors have made regarding who they are connected to (Gersick, 1991; Halinen et al., 1999).

Critical event

"Critical event" is proposed as the concept for occurrences that trigger changes. Examples can be (Håkansson and Johanson, 1993; Halinen et al., 1999): mergers and acquisitions, changes in a company's business, marketing and purchasing strategies and major geopolitical and macro-economic events.

B2B relationship continuity

Continuity refers to the time during which a buyer plant maintains a relationship with its various suppliers. Alternatively, it refers to the degree of substitution that can be observed with regard to the subsequent suppliers for a specific component. We measure continuity of b2b relationships by dividing the amount of supplier substitutions by the amount of change possibilities for the conjoint of components under consideration in a given time period.

Formula 1: Degree of continuity of b2b relationships

$$L_{T_0-T_n} = 100\% * \left(1 - \frac{\sum \text{supplier substitutions } T_0-T_n}{\sum (\text{N product generations} * \text{N components}) T_0-T_n} \right)$$

Source: Author's elaboration.

Obviously, the presented formula can only serve as a relatively “clinical” proxy for assessing a network characteristic like stability. In order to obtain a less sterile assessment of (in)stability of business networks’ supplier involvement, we distinguish between (A) substitutions as a consequence of take-overs of and joint ventures with incumbent suppliers or reallocation of production inside the supplier apparatus, resulting in virtual supplier substitutions (oligopoly-related substitutions); (B) substitutions as a consequence of the involvement of entirely new suppliers (competitiveness-oriented substitutions); (C) substitutions as a consequence of the first-time externalization of the production of an automotive part; and (D) (re-)internalization of previously outsourced tasks. With respect to the oligopoly-related substitutions, we will assess whether the leading entity in the “new” consolidated supplier is completely new to the buyer firm or not, in order to determine whether it can be judged as a genuine substitution.

The amount of substitution possibilities (the denominator of the formula), is determined by the number of car model changes that take place during the time period under consideration, multiplied by the number of components whose supplier identity and origins are followed.

The numerator of the formula expresses the genuine third party substitutions. That is, the competitiveness-related substitutions and the oligopoly-related substitutions that can be judged as a genuine substitutions.

With regard to the former, take note that whether a substitution is valued as a genuine substitution depends on the fact whether the leading entity in the “new” consolidated supplier is completely new to the buyer firm or not. Similarly, whether a substitution type A, B, C or D is valued as a whole substitution, half a change or, for instance, a quarter of a change, depends on the fact whether –on average- over the time period considered, the OEM practiced single sourcing, double or multiple sourcing for the component in question or whether it sourced in separate parts that make up the component. It also depends on the question whether ‘inside’ one of time period of reference itself, for instance 1984-1994 for VW Navarra or 1990-1996 for FASA-Renault, there was a switch from one supplier to another. Consequently, the numerator of substitutions can be expressed in fractions.

First-time externalizations and re-internalizations do not refer to the substitution of a third party supplier for another. Therefore, they are not taken into consideration to determine the final value of the numerator. However, they do represent changes to the network structure. Consequently, they are also worth while monitoring. The extent to which the resp. types of substitutions occur serve as additional indicators for typifying the changes, radical or incremental, observed with regard to the deep structure of the buyer firm-specific supplier networks.

Processed materials

For both the VW Navarra and the FASA-Renault case, we made use of annual reports of assembly plants themselves and of their mother companies. In addition, between 1996 and 2002 interviews were held with high-placed representatives from both assembly plants and

the head quarters of the mother companies. Further interviews were held with representatives of regional umbrella institutions, and with suppliers to the respective assembly plants.

Finally, secondary analysis and data processing was conducted on a large variety of data with respect to identity of the suppliers behind all sorts of assembled materials and components. This was obtained from the assembly plants, the corporate level of the mother companies, the regional press, specialized automotive reviews, scientific publications concerning the automotive sector in either Navarra or the Valladolid region, all kind of written or otherwise codified data received during the interviews, targeted written correspondence with suppliers to the respective assembly plants and from annual reports and other publications of those suppliers with the longest tradition of working with the two assembly plants.

The data obtained via the annual reports analysis and the oral and written information obtained via interviews and correspondence served to establish a clear view on:

- i. In-house activities both at the buyer firm in question and at other plants of the same OEM concern;
- ii. The distribution of internalization and externalization between the OEM hierarchy and independent suppliers;
- iii. Buyer firm-specific overviews of component-specific suppliers involved over time;
- iv. OEM-specific management of supplier relations.

Reporting structure

The chronological changes in the actor composition of the supplier networks surrounding the two buyer plants are described in terms of particular periods between the mid-1980s and 2001. This is inspired by the aim to detect evolutionary patterns, critical events and change types with regard to deep structures (Van de Ven, 1992; Halinen et al., 1999).

The introduction of a new product is taken as the typical window of opportunity for OEMs to evaluate current supplier relationships and judge whether actor changes are convenient. They mark the particular sub-periods in our empirical case studies.

For the Landaben factory in Navarra our primary empirical analyses and field work concern the sub-periods during which the Landaben factory produced the VW Polo, i.e. from 1984 onwards. For an assessment of the amount and kind of supplier substitutions that occurred around the Landaben plant, we will elaborate on the sub-periods 1994-2001 (VW Polo A03 and the VW Polo GP 99) and 2001 and beyond (the VW Polo A04 production period). We focus on these time segments, as we judge the available data on these two sub-periods to be most suited and accurate to deal with the corresponding constructs for measuring change.

Borttaget:

For the FASA Valladolid plant our primary empirical analyses and field work concerns the period when FASA Valladolid produced the Renault Clio, i.e. from 1990 onwards. The first sub-period runs from 1990 until 1996 (Renault Clio first-generation and the restyled second-generation). The second sub-period runs from 1996 to 2001 (Renault Clio II production period). The last sub-period runs from 2001 onwards, representing the New Clio era.

Borttaget:

For the Landaben plant, our actor composition analysis was based on a supplier sample around 20 automotive parts. For the FASA Valladolid plant, the actor composition analysis was based on a supplier sample around 16 automotive parts. These samples embody a representative cross-cut of parts that in their majority are typically sourced out by car constructors today. We focused specifically on interior and exterior trim components. Also certain propulsion and chassis components (gear box, engine, brake devices, transmission, steering system and power train) are included, as vital components of the final product.²

² The whole list of components for VW Navarra consisted of: exhaust pipe, rear end bumper, front end bumper, fuel tank, seats, steering system, cabling, cockpit, isolating floor coverings, interior trims and consoles, door and roof panels, lights, small metal devices, gear box, engine, brake devices, transmission, power train, gear stick and pedals. For FASA Valladolid, the whole list consisted of: exhaust pipe, front and rear end bumper, fuel tank,

Results

Evolution of the composition of the supplier network around the Landaben plant

During the selected sub-periods with regard to the Landaben plant, we see that two new product versions were launched, i.e. the Polo GP 99 and the Polo A04. Based on the Landaben-specific sample of 20 components, this offers -ceteris paribus- 40 possibilities to change the actor composition of the network. The following table, based on the contents of Tables 1a-1c in Appendix A, presents the kind and amount of changes that could be registered from 1994 onwards according to the substitution categorization forwarded previously.

Table 1: Changes in actor composition of VW Navarra's supplier network by kind of substitution

(A) oligopoly-related substitutions	(B) competitiveness-oriented substitutions	(C) first-time externalizations	(D) re-internalizations
7	8 ½	3/4	0

Source: Author's elaboration.

Table 1 implies that out of a total of 20 components –whose supply would be reconsidered twice from 1994 onwards- 16 ¼ changes with regard to the suppliers responsible for their delivery were observed. Especially the number of over 8 competitiveness-related substitutions is significant. These happened even in cases where a supplier already owned nearby supply establishments (e.g. with fuel tanks, bumpers, pedals and cabling). Of the 7 oligopoly-related substitutions, 5 ½ of them were changes in which the leading entities were completely new to VW Navarra. Consequently, these 5 ½ can be judged as genuine substitutions. In terms of “genuine” substitutions, we then observe 5 ½ plus 8 ½ competitiveness-oriented substitutions makes 14 in total. When applying the previous data to the continuity formula presented before, the following result emerges.

seats, steering system, cabling, cockpit, isolating floor coverings, interior trims-consoles and door and roof panels, lights, small metal devices, gear box, engine, brake devices, transmission and power train, .

Calculation 1: Degree of continuity of b2b relationships around the Landaben plant from 1994-2001

$$L_{1994 - 2001} = 100\% * (1 - \frac{14.0}{40.0}) = 65.0\%$$

Source: Author's elaboration.

This proxy indicates that more than one third of all initial supplier relationships were completely exchanged. As such, it appears that a substantial number and degree of change(s) in the actor composition occurred during the period under consideration. More so, if we take into account that the Landaben plant worked almost exclusively on the basis of single sourcing. In that context, substitutions have a much stronger impact. Finally, the fact that the time frame under consideration was rather short -spanning only 7 years- strengthens this establishment. The picture would be even starker, if we were to leave out the propulsion and chassis components (gear box, engine, brake devices, transmission and power trains), which were subject to few changes, as they were principally manufactured in-house for the entire period under analysis. By all means, it is clear that the dominant form under which changes took place were rather radical through substitutions of incumbent suppliers by entirely new supplier relationships. This also strengthens the impression of limited stability.

Evolution of the composition of the supplier network around FASA Valladolid

For many components delivered to the FASA Valladolid plant, a tendency to go from fragmented to integrated (modularized) outsourcing was observed. This was for example the case with fuel alimentation, seats, cockpits, isolating floor covers and small metal devices. Nonetheless, with regard to certain other components 1+n module-specific supplier relationships stayed intact, like for ignition and steering systems, interior trims and bumpers.

In many cases the tiering processes coincided with the acquisition of first tier suppliers to FASA Valladolid by long-standing providers of Renault France or by firms that had purchased production and R&D assets of Renault France. Consequently, many of the

suppliers that emerged as tier one supplier to FASA Valladolid were familiar ones. Thus, a status quo as regards many main suppliers to FASA Valladolid was the outcome. Many companies that acted as suppliers of a certain component during the initial production period of the Renault Clio still do so today. Consequently, rather than genuine supplier substitutions, virtual substitutions took place via take-overs and incorporations of early FASA Valladolid suppliers into the ranks of companies that already functioned as suppliers to Renault France. See e.g. exhaust pipes, bumpers, fuel tanks, seats, cabling, cockpit, floor covers, transmissions and to a lesser extent for brakes, engine propulsion group, steering systems and interior trims, consoles and door and roof panels.

Lights and the stamping of small metal devices were two exceptions to the rule. Here, one does observe some genuine substitutions.

All in all, most cases of supplier selection around the respective components of our sample reveal a survival of the fittest process whereby the ultimate supplier was already a FASA Valladolid supplier at the end of the 1980s.

For a further assessment of the changes in the actor composition of the supplier network around FASA-Renault Valladolid, we will now attempt to characterize the substitutions that took place during the time frame 1990-2001. During the three sub-periods this comprises, 1990-1996, 1996-2001 and 2001 and beyond, one sees that two new product versions were launched, i.e. the Clio II (1996) and the New Clio (2001).³ Based on the FASA Valladolid-specific component sample, this offers -*ceteris paribus*- 32 possibilities to change the actor composition of the network. The following table, based on the contents of Tables 2a-2d from Appendix B, indicates the kind and amounts of changes that could be registered according to the substitution categorization, forwarded previously.

³ We leave aside the restyled second-generation of the original Clio as an additional new product launchment, as this concerned predominantly an upgrading of the previous product with the same suppliers.

Table 2: Changes in actor composition of FASA Valladolid’s supplier network by kind of substitution

(A) oligopoly-related substitutions	(B) competitiveness-oriented substitutions	(C) first-time externalizations	(D) re-internalizations
15	3.57	2.08	1

Source: Author’s elaboration.

From Table 2 it follows that a large number of oligopoly-related substitutions took place in particular. Of the 15 oligopoly-related substitutions, it appears that 7 of them were changes in which the leading entities were completely new to FASA Valladolid, and which, thus, form genuine substitutions. In terms of “genuine” substitutions, we then observe 7 oligopoly-related substitutions plus 3.57 competitiveness-related substitutions, makes 10.57 in total.

When applying the previous data to the formula presented previously for assessing “continuity” of b2b relationships, the following picture emerges.

Calculation 2: Degree of continuity of b2b relationships surrounding FASA Valladolid from 1990-2001

$$L_{1990-2001} = 100\% * (1 - \frac{10.57}{32.0}) = 67.0\%$$

Source: Author’s elaboration.

At first sight, this proxy indicates that a substantial number of changes in the actor composition have occurred as well. However, in view of the much larger number of stability-oriented changes that were detected (the oligopoly-related substitutions in which many long-standing suppliers to (FASA-)Renault were involved as well as the various re-internalizations), it should be acknowledged that this research case is in fact very much in line with the viewpoint that especially changes and adaptations with regard to existing relationships take place. Certainly, when taking into account that the Valladolid plant worked with multiple suppliers for various components. In that context, the substitution of one out of several suppliers for a specific component embodies a less drastic change. Finally, the

adopted time frame spanned over a decade. This also strengthens the impression that in this case incremental changes prevailed.

Discussion of empirical results

As regards the *stability thesis*, we witnessed a substantial difference in the degree to which the phenomenon of b2b relationship continuity existed in the two business networks that we analyzed. The VW Navarra supplier network saw an *inequivocal* large number of changes in terms of its b2b relationships and a lot of suppliers were substituted over time. Some of these substitutions even had to do with companies that had previously made greenfield investments near the Landaben plant. It experienced more or less continuously revolutionary periods with regard to the actor composition of its supplier base. Model changes functioned as critical events, resulting in a considerable number of supplier substitutions throughout the whole supplier sample, leading to relatively radical changes in the deep structure of the actor composition of its supplier conjoint with each model change. This is in line with supplier management policies VW set in motion (Grohn, 2002), notably since Lopez de Arriortua. Solid and embedded supplier relationships were now thoroughly benchmarked with alternative suppliers and these “bonded” relationships were no longer prolonged automatically. As a consequence, it seems to challenge the stability thesis.

The results around FASA Valladolid demanded a more careful interpretation. All in all, they displayed a fairly stable composition of, or at the utmost an incremental change to, the supplier network over time and as such corroborate the validity of the “textbook” argument concerning stability and continuity with respect to buyer-supplier relationships and networks. The most prominent changes were oligopoly-oriented substitutions, to a certain extent orchestrated by Renault itself, emphasizing and guiding the incremental character of the changes to the supplier network around FASA Valladolid. A very large number of virtual substitutions was observed through the creation of joint ventures and take-overs between

incumbent suppliers, or the filialization of activities. From a corporate perspective there was, therefore, a striking continuity and in b2b relations. This seemed to be the outcome of a deliberately followed supplier policy at Renault to come to a uniform third party supplier base for all European Renault plants assembling the same car (Gorgeu and Mathieu, 1995).⁴

Consequently, the instalment of a uniform supplier base –which took place between 1987 and 1990- formed an evolutionary period during which the foundations were put in place for the deep structure of FASA Valladolid’s third party supplier base. This supplier base would only be gradually adapted in the years that followed.

As regards radical changes, it knew just one marked period revealing change processes to the deep structure of its supplier network, notably to the chassis and propulsion parts of it. This was situated in the 2nd half of the 1990s. The components in question had been produced in-house until date and, thus, were not yet delivered by third party suppliers. However, a series of losses both at FASA-Renault and at Renault inspired the headquarters to initiate a turnaround in internalization-externalization choices with regard to these mechanical organs.

Research implications

All in all, our research findings indicate that instability of b2b relationships is a relevant phenomenon to business networks.

Alongside others (e.g. Gadde and Mattsson, 1987; Easton et al., 1997; Halinen et al., 1999), we argue that it deserves much more attention than it is currently receiving from business network research.

As supplier selection processes take place by OEM headquarters, the perceived substitution intensities at FASA-Renault Valladolid and VW Navarra reflect decisions that were taken centrally for the entire Clio and Polo production respectively on the European continent. As

⁴ Take note that the large number of oligopolization-inspired substitutions found in this case, does support the position that (rival) suppliers try to dethrone incumbent suppliers in an attempt to generate business.

such, they are company-specific and not plant-specific. Consequently, we hypothesize that the respective supplier substitution intensities reflect OEM headquarters positions with regard to (dis)continuity and bonding of b2b relationships. That is to say, it is the outcome of the way HQs act upon and cope with learning experiences with respect to b2b relations, competitive behaviour among suppliers and (sudden) changes in general (see also Håkansson and Johanson, 1993).

To profound into the factors and mechanisms that intervene in actor substitutions and that drive such processes, we see a number of starting point for research.

First of all, to build upon insights from the following schools of thoughts:

- 1) Concepts of competitive behaviour of firms (Montgomery, 1995), which advocate that firms try to improve their network positions at the cost of rivals.
- 2) Claims of embeddedness theory that argue that firms will ultimately try to avoid lock-ins (Grabher, 1993; Uzzi, 1997) to avoid path-dependency on long-standing relationships.
- 3) Concepts of organizational learning (Cyert and March, 1963; Levitt and March, 1988; Lane and Lubatkin, 1998), which emphasize how buyers and suppliers lose fear over time to internationalize independently. Similarly, how the reluctance to relate with unknown partners lowers after accumulating b2b relationship management experience.
- 4) Lessons from generic change theories (Gersick, 1991; Van de Ven, 1992; Van de Ven and Poole, 1995) that help to understand and conceive the impact of b2b relationship intrinsic and extrinsic critical events and gradual processes on business network formation and evolution.

Secondly, to conceive dynamism in actor composition in business networks both from a buyer and a supplier perspective. Not only considerations of buyers, being the primary stakeholder in supplier network composition decisions should be included. Also the fact that suppliers

(aim to) entertain multiple b2b relationships, means that amidst the whole of clients they service, they may value that certain relationships are not worth while (anymore) and worth stepping out of. As such, it is important to include supplier considerations and not to perceive buyer-specific relationships as if they were functioning in a relational vacuum. See in this respect also Florence's (1996) and Pries (1999) statement that buyer firms also encourage suppliers to work for multiple clients.

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Appendix A: Inputs for “Table 1: Changes in actor composition of VW Navarra’s supplier network by kind of substitution”

Table 1a: (A) oligopoly-related substitutions around VW Navarra at Landaben

Nr.	Substitution	Past experiences with new owner
1	Entry of Expert components, front-end supplier, into VEAS (joint venture between Expert and Peguform) in 2001	Yes
2	Take-over of Dynoplast, fuel tank supplier, by Walbro in 1995	No
3	Take-over of Industrias Esteban, suppliers of seats, by Archter und Ebels + RHW (Bertrand Faure) late 1980s	No
4	Take-over of Unicables, supplier of cabling and cockpits, by Delphi in 1995	No
5	Take-over of Lignotock, supplier of cockpits, by Sommer Allibert Siemens in 1999	Partial
6	Take-over of Heidemann Novel Ibérica, supplier of gear sticks, by Adwest Plc in 1997	No
7	Take-over of Adwest Plc, supplier of gear sticks, by Dura in 1999	No

Table 1b: (B) competitiveness-related substitutions

Nr.	Substitutions	Valued as
1	Switch from 100% exhaust delivery by Arvin to 50-50 between Arvin and Faurecia in 2001	½ a substitution
2	Switch from Dynamit Nobel Ibérica to Mecaplast for rear end bumpers in 2001	1 (whole) substitution
3	Switch from Walbro to Kautex for fuel tanks in 2001	1 (whole) substitution
4	Switch from partial supply of cabling by Bordnetze to partial supply of cabling by Unicables in the late 1980s	½ a substitution
5	Switch from exclusive supply of cabling by Unicables to exclusive supply by Bordnetze in 2001	1 (whole) substitution
6	Switch from Delphi to Lignotock for cockpits in 1997	1 (whole) substitution
7	Switch from Dynamit Nobel Ibérica to Mecaplast for interior trims and consoles in 2001	1 (whole) substitution
8	Switch from Küster as lead to supplier and Irausa as second supplier for door and roof panels to the inverse situation in 2001	½ a substitution
9	Switch from MAESA-Hella to Yorcka for lights in 2001	1 (whole) substitution
10	Switch from Lunke to ATESO for pedals in 2001	1 (whole) substitution

Table 1c: (C) first-time externalizations

Nr.	Substitutions	Valued as
1	Switch from shared supply of steering systems by VW and TRW to 100% supply by TRW in 2001	½ an externalization
2	Outsourcing of VW Navarra’s share of power train assembly to Expert in 1998	¼ of an externalization

Appendix B: Inputs for “Table 2: Changes in actor composition of FASA Valladolid’s supplier network by kind of substitution”

Table 2a: (A) oligopoly-related substitutions around FASA-Renault Valladolid

Nr.	Substitution	Past experiences with new owner
1	Take-over of Ekin and PCG, exhaust suppliers, by ECIA in 1996	Yes
2	Entry of ECIA, exhaust supplier, into Faurecia (merger between Bertrand Faure and ECIA) in 1999	Yes
3	Entry of Solvay fueling systems, fuel tank supplier, into Inergy (joint venture between Solvay and Plastic Omnium) in 2000	Yes
4	Take-over of Inerga, front and rear end supplier, by Peguform in 1996	Yes
5	Adhesion of Sommer Allibert, supplier of front and rear ends; floor coverings and door and roof panels, to Faurecia in 2001	Yes
6	Entrance of Peguform, front and rear end supplier, into VEAS (joint venture between Expert and Peguform) in 2001	Partial
7	Creation of a joint venture between Plastic Omnium and Inoplast around 2000, to take care of the front and rear end supplies that were previously delivered by Plastic Omnium	Partial
8	Take-over of Trety, seat supplier, by Johnson Controls in the mid-1990s	No
9	Take-over of CETASA, cabling supplier, by Delphi in the mid-1990s	No
10	Take-over of MAISA, cabling supplier, by UTA in the 1990s	No
11	Sale of MAISA, cabling supplier, by UTA to Lear in the 1990s	No
12	Take-over of Reydel, cockpit supplier, by Plastic Omnium in 1995	Yes
13	Take-over of cockpit division of Plastic Omnium by Visteon in 1999	No
14	Take-over of Gunasa, supplier of floor coverings, by Sommer Allibert in the mid-1990s	Yes
15	Take-over of Valeo’s motor and electricity activities by Siemens in 1995 (engine propulsion parts)	No

Table 2b: (B) competitiveness-related substitutions

Nr.	Substitutions	Valued as
1	Switch from shared supply of exhausts by Norma and Ekin (ECIA) to 100% supply by ECIA in 1996	½ a substitution
2	Switch from Draft. Airex + Carbureibar to Bundy / IT Group for fuel alimentation in 1996	½ a substitution
3	Substitution of Fagor-MCC’s share in front and rear end supply, by Sommer Allibert in 1996	1/3 of a substitution
4	Switch from shared supply of cabling by MAISA and CETASA/Delphi to exclusive supply by Delphi in 2001	½ a substitution
5	Substitution of Simoldes’ share in door and roof panels supply, by Plastic Omnium in 1996	1/3 of substitution
6	Including Delphi-Lucas Varity for supplies of engine propulsion parts in 2001	¼ of a substitution
7	Switch from Yorka’s part of lighting supply to Hella-Maesa in 1996	½ a substitution
8	Switch from shares of Mikalor, Alumalsa, Inyectametal and Acenor in small metal device supplies to Estampaciones Bizkaia in 1996	1/3 of a substitution
9	Substitution of Bendiberica’s share in brakes supply, by Fagor Ederlan and Bundy / TI Group in 1996	1/3 of a substitution

Table 2c: (C) first-time externalizations

Nr.	Substitutions	Valued as
1	Outsourcing of FASA-Renault Valladolid’s share of steering system assembly to TRW in 1996	½ an externalization
2	Outsourcing of SMI’s (Renault) share of steering system assembly to Koyo in 1996	½ an externalization

3	Outsourcing of (FASA-)Renault's share of transmission assembly to NTN	½ an externalization
4	Outsourcing of (FASA-)Renault's share of motor propulsion part assembly to NTN	¼ of an externalization
5	Outsourcing of shares of Funfrap (Renault) in small metal device supplies to Sofedit Ibérica in 1996	1/3 of an externalization

Table 2d: (D) Re-internalizations

Nr.	Substitutions	Valued as
1	Parts of front and rear end bumper components at FASA-Renault Valladolid as of 2001	¼ of a re-internalization
2	Substitution of Ayra Durex and Ascometal shares in transmission supplies, by in-house FASA-Renault/Renault France (incl. ACI) production in 1996	½ a re-internalization
3	Substitution of Fagor's share in motor propulsion part supplies, by in-house FASA-Renault/Renault France (incl. ACI) production in 1996	¼ of a re-internalization