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Experiences from IKEA

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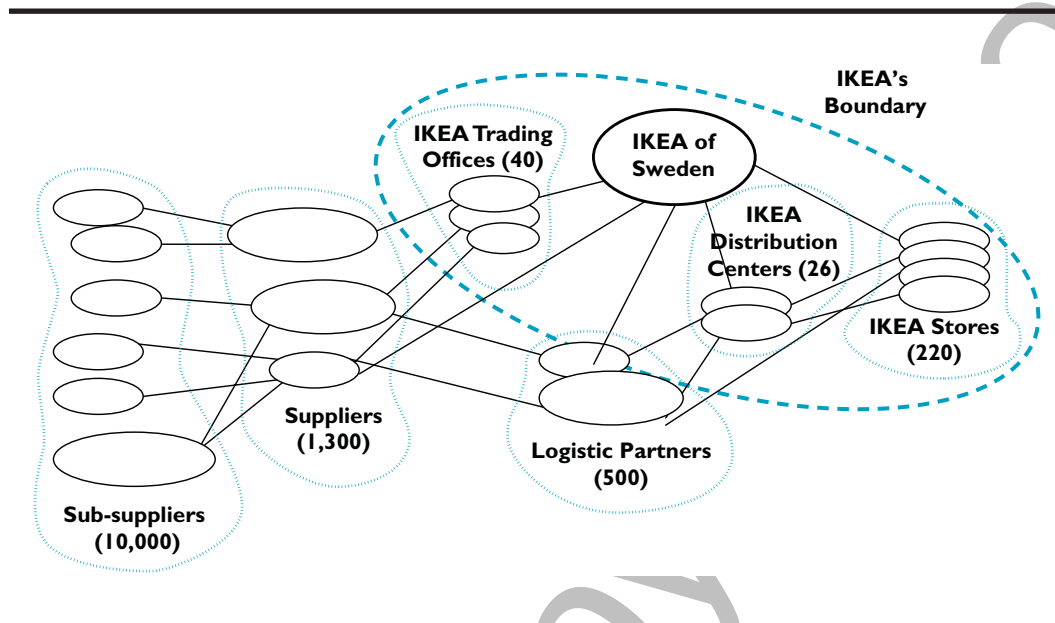
Strategy in Industrial Networks: EXPERIENCES FROM IKEA

Enrico Baraldi

IKEA was founded over 60 years ago in Southern Sweden. It has since grown to become the world's largest furniture retailer; in 2006, it had sales of over Euro17 billion, as well as 12,000 product items and 104,000 employees. The company's focus has consistently been on marketing products at extremely low prices. Its first purchases in the 1950s were made from producers' unsold stocks, in order to keep costs low. However, large sales success soon allowed IKEA to start ordering models of its own design from local manufacturers. Next, IKEA introduced innovations, such as flat packs, which reduced production and transport costs, and the "showroom-warehouse" concept, which reduced retailing costs.

During its expansion in the 1960s, IKEA also laid the groundwork for its purchasing strategy, relying on *long-term relationships* with selected suppliers as external sources for its offerings. Today, its supply network spans the entire world and has become increasingly complex. However, the use of this network is still in accordance with the same basic strategy as in the 1960s: to design and purchase products that entail low production and transportation costs. IKEA achieves this by carefully taking into account, in its design and purchase strategy, all the activities performed in the network, from raw materials to customer homes. Remaining faithful to its original external orientation, IKEA performs only a few of these activities internally, while it intensively uses its relationships with suppliers to combine its internal and their external resources for the sake of both efficiency and development. For instance, products are developed in close interaction with suppliers while taking into consideration the impact of the raw materials, components, and facilities involved, since all these resources entail

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FIGURE 1. IKEA and Its Industrial Network

costs and have an impact on quality, design, and function. In fact, next to low costs, reasonable quality, appealing designs, and adequate product functionality are major goals for IKEA. These goals induce the company to promote a *constant* product and technical development, which contributes to its image as an innovative and fashion-oriented firm, but which depends heavily on the contribution of its entire network of suppliers.

To cope with such tasks, IKEA needs advanced skills in marketing, retailing, logistics, purchasing, product development, and technologies. This need of competence is reflected by IKEA's complex organization, which consists of over 550 business units specializing in these fields and spread over more than 50 countries. However, the complexity of IKEA's organization is overshadowed by that of its industrial network (see Figure 1). This network includes 1,300 direct suppliers and about 10,000 sub-suppliers, spread over 60 countries. Over 220 IKEA stores are located in 30 countries including Europe, Australia, the U.S., and China. Between IKEA's stores and suppliers stands a vital, but less visible part of IKEA's network: its wholesale and logistic operations, comprising 26 Distribution Centers spread over 12 countries. Since IKEA does not own any transport facilities, this network is physically connected via another group of external actors, a few hundred logistic partners.

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A pivotal role in this network is played by "IKEA of Sweden," a leading business unit that not only manages IKEA's product range, but also *supervises* the entire IKEA universe and develops long-term marketing, logistics, and purchas-

ing strategies. In fact, whereas most IKEA units are rather specialized (e.g., local purchasing for IKEA's 40 Trading Offices), IKEA of Sweden has both an overall responsibility and a coordinating role in the development, purchase, distribution, and marketing of each single product.

This article analyzes the experience of IKEA in dealing with its industrial network and discusses the structural components and dynamic interactions of a "network strategy," that is, a strategy that considers and uses the external network for a company's goals. The case study was built through 70 interviews, conducted mainly in 1999-2003 with personnel at IKEA and suppliers in Sweden, Poland, and Italy.¹

The Pervasiveness of Industrial Networks

Networks are widely publicized and researched phenomena, especially in high-tech sectors,² where the likes of Dell, Microsoft, or Genentech pursue their network strategies through *R&D joint ventures*, *cross-licensing*, or *strategic alliances*. However, these fashionable terms do not fit the type of networking going on within the furniture industry or other low-tech industries. However, traditional sectors also present network-like structures. Examples include the tile industry,³ the apparel industry,⁴ and the Italian districts⁵—which specialize, for instance, in knitwear (Carpi), packaging machines (Bologna), or textiles (Prato). These sectors are composed of many small and medium-sized firms that develop close links to their suppliers and partners, and often also cooperate intensively with them on technical issues.

Networks are not only important for small firms that need to interact with their peers to supplement their limited resources, but networks are fundamental for large companies as well. For instance, multinationals in the steel,⁶ paper,⁷ and automotive⁸ industries interact tightly with their suppliers, sub-suppliers, distributors, and customers to develop new technologies or increase efficiency. There are many examples of large firms from several sectors that relied strongly on networks for their rapid growth: Apple, Benetton, Toyota, Corning, and McDonald's, to name a few.⁹ Finally, networks of stable relationships are the norm in several industries, including construction, publishing, textiles, and cultural production.¹⁰

It seems that all types of firms, large or small, high-tech or low-tech, interact closely with other firms and organizations around them. In other words, inter-firm interactions and networks are *everywhere* in our economy.¹¹ However, despite all this interaction, inter-firm networks went practically unnoticed by mainstream management research until around the 1980s. This neglect of inter-firm relationships stems from both the actual behavior of firms—in periods characterized by arm's-length relations,¹² close interactions and networks are more difficult to discern—and the dominant research paradigms, which either had different units of analysis or viewed relationships simply as odd *exceptions*.¹³

Although Richardson¹⁴ recognized the importance of business relationships as early as 1972, it took time for these ideas to enter mainstream strategy

literature; and when this finally happened, the impetus came from sociology. Granovetter stressed in 1985 that economic transactions are embedded in networks of social relations where trust matters,¹⁵ and Powell attributed networks a status equal to markets and hierarchies, viewed as three alternative forms for organizing economic activity.¹⁶ Eventually, Swedberg suggested that *all* markets can be viewed as social structures filled with interactions, rather than as pure price-driven mechanisms.¹⁷

In sum, there exists compelling evidence for the diffusion and persistence of business relationships and networks, in all sectors and for all sizes of firms. Mainstream strategy research was late in recognizing the importance of networks, and did not take them into account until the influence of sociology and widely publicized strategic alliances or joint ventures made it impossible to neglect this interactive side of business life. However, there is still a risk that focusing on these special and conspicuous networking episodes may hide the bulk of networking activities and interactions that go on silently under the surface of daily business activity.¹⁸ To avoid such a risk, one can rely on a theoretical perspective that views industrial networks and relationships as essential phenomena, that is, as *the norm* rather than the exception: this is the viewpoint of the “Markets-as-Networks” approach.

“Markets-as-Networks”:

A Network-Based View of Business Management

Are we really sure that inter-firm relationships and networks are merely *exceptions* in economic organizing, in a world where firms can only choose between pure market exchanges or hierarchical control? What happens if we overstate the argument of Swedberg and start considering instead networks as the *norm*, that is, as the most natural and normal form of economic organizing?¹⁹ Following this reasoning, networks came first, while markets and hierarchies are both human constructions, that is, structures imposed on networks for the sake of transparency (markets) or control (hierarchies).²⁰ Accepting networks as the norm can also help focus on the effects that they produce. Examples of such “network effects” are unexpected product failures,²¹ irrational patterns of electricity consumption,²² and imbalances spread by IT systems.²³ However, to enable researchers and managers make sense of networks and their effects, appropriate analytical tools are necessary.

A set of such tools for analyzing industrial networks as pervasive and “normal” phenomena is offered by a research tradition known as “IMP” (Industrial Marketing and Purchasing).²⁴ This approach, sometimes referred to as “Markets-as-Networks,” grew out of extensive empirical studies of industrial buyer and seller relationships conducted in Europe in the 1960s and 1970s, that is, well before the modern frenzy over networks.²⁵ The early empirical findings were then related to sociological theories of exchange²⁶ in order to develop a series of models of the dyadic interaction between firms. These models stressed the importance of power/dependence, cooperation, closeness, and expectations in the daily interactions between buyer and seller.²⁷ It was only a short step from

TABLE 1. The Structural Components and the Dynamic Interactions of a Network Strategy

Structural Components	Dynamic Interactions
1. Defining Relationship Contents: Contents include exchanged volumes, learning, trust, commitment, duration, and control (depending on a relationship's goals, role and function). 2. Forming the Network Structure: This structure is based on the number of business relationships, their roles in the network, hierarchy, and geographical location. 3. Evaluating Goal Matching with the Network: Comparing a firm's goals/resources with those of the network. Which external resources are needed and available? What are the goals of other actors?	Combining Resources: Concrete and complex resource combinations created through interaction processes with external actors: inter-organizational routines/joint projects 1. Interacting via Inter-Organizational Routines: <i>Repetitive and formal</i> processes that mobilize relationships and enable resource combinations to <i>maintain efficiency</i>. 2. Interacting via Joint Projects: <i>Ad hoc and informal</i> processes that mobilize relationships and enable resources combinations to <i>foster development</i>.

single relationships to *networks of relationships*: when IMP researchers recognized that single relationships are related to each other via technical, economic, and social interdependencies, the way was paved for more complex models stretching to the entire network surrounding a firm.²⁸

The Markets-as-Networks approach has gained currency within the field of industrial marketing²⁹ and international business,³⁰ but it can also be used to cast new light on strategic issues of efficiency and development.³¹ To summarize, the Markets-as-Networks approach focuses on all types of inter-firm interactions. The starting point is that firms constantly interact with counterparts such as key suppliers and customers through business relationships that are related in a network structure. Consequently, firms are *embedded* within networks that exist beyond their will. From a strategic point of view, firms need to be aware of these networks and of how to use them actively. Companies vary widely in their will and capacity to do this: not all firms can become “strategic centers,” which, like IKEA, are able to manage a web of partners.³² Nevertheless, all firms are embedded in a network, which can be both good and bad.³³ It is therefore advisable for firms to understand how networks work and how they can be approached for strategic purposes.

The Structure and Dynamics of a Network Strategy

A network strategy can be understood in terms of *structures* and *dynamics*, according to the idea that a network structure composed of relationships and external resources needs to emerge before a company can use the network in its daily interactions with counterparts. Therefore, the analytical frame that we will apply to discuss IKEA's network strategy comprises three *structural components* and two types of *dynamic interactions* (see Table 1). The structural components concern the architecture of the network (e.g., the number of firms involved), the long-term features of each business relationship (e.g., the goals of the

involved actors), and the configuration of external resources (e.g., their distribution and technical connections). These structural elements are relatively stable and do not change overnight in a network, as stressed by the Markets-as-Networks approach.³⁴ The dynamic interactions concern instead the processes that go on daily in any business relationship in terms of the activities performed, the communications among actors, and the concrete combinations and adaptations of resources across organizational boundaries. These interactions are termed “dynamic” because the underlying processes change more frequently and can contribute to changes in the structural components (e.g., to the emergence of new long-term goals or to the inclusion of new actors in the network structure).

The three structural components are: definition of the content of each business relationship; formation of the network structure; and evaluation of the matching of IKEA’s goals and resources with those of the network. The logic of Component 1 is that IKEA strives to influence such relationship contents as exchanged volumes, commitments, trust and learning depending on how each relationship can contribute to achieving IKEA’s goals. However, Component 2 stresses that focusing on a single relationship would not be enough because IKEA’s goals can be reached only by connecting several relationships into a broader network structure, including the establishment of new relationships and the assignment of specific roles to certain counterparts within a hierarchy of relationships. Finally, Component 3 suggests that a firm needs to evaluate how its own goals and resources can match those of its counterparts in the network: unless this match can be achieved by means of dynamic interactions, adjustments might be necessary in the other two structural components, such as establishing new relationships or changing their contents.

The three structural components provide the basic network structure within which dynamic interactions unfold continuously. At a general level, these daily interaction processes entail combinations of resources by IKEA and other actors in the attempt to match IKEA’s goals and resources with those in the network. At a specific level, there are two types of dynamic interactions: interacting via inter-organizational routines for efficiency purposes; and interacting via joint projects for development purposes. Whereas inter-organizational routines are, for efficiency’s sake, rigid scripts executed repetitively, joint projects are development processes that can stretch over several years, thus becoming less controllable by IKEA and more uncertain.

IKEA, The Interacting Company: Handling a Network of Relationships

IKEA’s relationships and network are pivotal in fostering *development* of IKEA’s products and technologies, and in sustaining *efficiency* in its daily operations. IKEA is certainly not the only firm that relies on extensive network interactions for its strategy. In particular, other retailing firms such as Benetton and Hennes & Mauritz apply a similar approach to complex webs of partners. However, IKEA does it in a special way. A major difference in comparison, for

instance, with Wal-Mart,³⁵ is that IKEA stretches its interactions as far upstream as possible in the network, all the way to raw material suppliers. IKEA intensively cooperates with these suppliers in order to ensure the quality and the environmental friendliness of inputs to its direct suppliers downstream. Another important difference is the extent of IKEA's cooperation with its partners: this extends to complex and enduring development projects whereby IKEA's products and technologies are *co-developed* with suppliers.³⁶

Finally, IKEA's interaction mechanisms strongly differ from both hierarchically steered networks, such as the Japanese Keiretsu,³⁷ and looser arm's-length relations mostly based on purchase power, such as those of Wal-Mart.³⁸ The main difference is that instead of solely exploiting the power of being a large buyer, IKEA takes a *long-term approach* and strives to build lasting relationships based on mutuality. This means that it also explicitly considers the interests of suppliers, who would otherwise lose the motivation to interact with IKEA. Moreover, IKEA does not strive to unilaterally control these relationships, but relies on extensive delegation of tasks to its suppliers, and even accepts being dependent on some of them. Thus, for IKEA, mutual *trust* and *commitment* are more important interaction mechanisms than power.

IKEA's Background and the Structure of Its Network

IKEA's concern with providing low-price products characterizes both its current strategy and its history. The introduction of flat packs in the 1950s allowed important savings in transportation and production costs. In fact, IKEA's customers took over assembly activities, and suppliers only needed to deliver un-assembled furniture components. Later on, selling costs could be contained thanks to "showroom-warehouses": retail stores were redesigned so as to combine a large exhibition area with an adjacent self-service warehouse. IKEA could afford such low retail prices that its sales rocketed in the 1960s, signaling the start of its expansion, with several stores in Sweden and abroad. However, a strong reaction soon followed from Swedish furniture retailers, who tried to strangle IKEA's purchase sources by requiring that all Swedish producers stopped supplying IKEA. IKEA's countermove was to go looking for suppliers abroad. Thus, the first agreements with Polish producers were signed in the 1960s, laying the groundwork for many business relationships that still exist today.

Long-lasting relationships with selected key suppliers are still the hallmark of IKEA's purchasing and product development strategy. As IKEA is directly involved only in conceiving, distributing, and selling its products, it needs partners that can concretely *develop* and *produce* a total of 12,000 items that meet its cost, quality, and design goals. Still, extensive knowledge of the network, from raw materials to customer homes, is pivotal for IKEA to conceive products that are not only "cool" and functional enough to sell, but that can also be produced according to set cost and quality goals.

Figure 1 gave a simplified idea of the extension and complexity of IKEA's network, encompassing about 10,000 organizations, from sub-suppliers to IKEA retail stores. Connecting this network geographically requires a very advanced

logistic system, including 20,000 transport corridors. However, what counts more than these physical connections are the *organizational* connections that IKEA needs in order to interface with this complex network. In fact, IKEA created specific organizational interfaces to handle relationships with the various actors: not only the 1,300 direct suppliers and 500 carriers, but also hundreds of the 10,000 sub-suppliers, especially large firms supplying core materials such as packaging (e.g., SCA) or coatings (e.g., Akzo-Nobel).

The strategic role of the unit known as IKEA of Sweden has already been mentioned. From IKEA's hometown of Älmhult, its 700 employees perform another fundamental role: interacting from a central position with key logistic partners and suppliers on such strategic issues as *long-term capacity planning* and *major technical development projects*. Conversely, at a local level, the main interfaces with suppliers are IKEA's 40 Trading Offices, employing 3,000 people worldwide. Even if these local purchasing offices replicate the structure and competence of the central unit, IKEA of Sweden (with purchase strategists, product category specialists, technicians, order managers, and logisticians), their interactions with suppliers mostly concern daily issues (e.g., orders and deliveries) and occasionally development or tendering for new product assignments. IKEA pays its Trading Offices a percentage on the purchases made from the suppliers they "represent." Finally, the daily logistic coordination with all suppliers and carriers is handled by IKEA's 26 Distribution Centers.

IKEA's Approach to Business Relationships

IKEA's approach to supplier relationships depends on the product involved. Complex products, both in terms of construction (e.g., sofas) and of production technology (e.g., the "Lack" table, featured below), are assigned to suppliers with which extensive mutual trust, commitment, and knowledge have been established through long-term relationships. These strong relationships entail extensive joint investments in facilities. On the other hand, products whose technical simplicity means they are easily interchangeable (e.g., rugs) are usually purchased through shorter-term relations. A similar variation exists in the relationships with logistic partners: out of over 500 such partners, IKEA has developed close cooperation with only 50 (e.g., Maersk, Willy Betz, SJ Cargo, and TNT), which between them account for 80% of IKEA's transport volumes.

Still, the majority of IKEA's purchases happen through *deep and established* relationships. A common trait is IKEA's attempt to avoid abusing its power position. The focus is instead on the mutual benefits accruing to both IKEA and its suppliers. Cooperation with IKEA should ideally bring suppliers advantages such as stable and long-term orders or technical development projects where IKEA can "pay" for thousands of tests. In fact, IKEA is well aware that those actors that no longer have advantages may end their cooperation (as did the coating supplier Becker-Acroma in the episode reviewed in Appendix A).

Moreover, IKEA does not unilaterally control these relationships but accepts that it may sometimes be strongly dependent on its suppliers, as in the case of key logistic partners and those suppliers that daily refill IKEA's stores

through “Vendor-Managed Inventory.” IKEA does not even unilaterally control such key sources of its innovativeness as product and technology development projects. Here, IKEA delegates much responsibility to the most competent partners, either those who have long been in charge of manufacturing a certain product, or those who have specific technical competences.

Different Types of Relationships in IKEA's Network

The composition of IKEA's network varies greatly in terms of the *size* of the actors involved. There are many small suppliers (and especially sub-suppliers) that are highly dependent on IKEA, and which IKEA can more directly influence with its powerful position. However, IKEA exerts its influence not only by holding down prices, but also by inducing suppliers to upgrade their technologies in ways that eventually benefit the suppliers themselves. This *mutuality* is in fact the hallmark of all of IKEA's business relationships, even of those where IKEA could exploit a power position due to the overdependence of a supplier.

On the other hand, there are also larger counterparts with which IKEA has a much more balanced power relation. These large actors are not easily influenced by IKEA, and they comply with IKEA's requests only if they gain something from a specific cooperation. For instance, Akzo-Nobel, a sub-supplier of coatings, is a 15,000 employee and €6 billion chemical group. IKEA is certainly an important customer for Akzo-Nobel, but not to the extent that Akzo will blindly comply with any requests. Instead, Akzo-Nobel chooses to engage in IKEA's development efforts when this provides it with specific advantages, such as learning a new technology. Similarly, the key logistic partner Maersk has thousands of trucks and employees, alongside hundreds of vessels and local offices: in this case, it is more IKEA's transportation routines that need to fit into the logistic network of this partner rather than vice versa. Relationships with such large actors directly involve IKEA of Sweden for central negotiations; and even if IKEA still remains a key account for most suppliers (covering at least 1% of their sales), there is more balance in power and dependence.

IKEA's relationships are also very heterogeneous from a *geographic* point of view,³⁹ because they are spread over the regions that provide specific resources or location advantages, such as nearness to IKEA's major markets (Germany and Central Europe). Geographical location is one of the key factors when selecting new suppliers, because it strongly affects costs, competences, and delivery times. The resulting geographic pattern is as follows: Chinese suppliers rank first, with nearly 20% of purchase volumes, mainly due to cost reasons; Polish ones rank second, thanks to a good mix of low costs, technical competence, and nearness to Central Europe; and Swedish suppliers, despite high costs, still rank third thanks to their advanced technical competence.

Geography is an important factor, but not the only factor, in supplier selection and hence in constructing the structure of IKEA's network. During the selection process, IKEA of Sweden and the local Trading Offices that propose a supplier also evaluate these other factors, in order of importance: total costs,

provided that IKEA's quality and environment requirements are respected; current and planned production capacity; technical competence; and readiness to make investments for and with IKEA. An additional rule is that suppliers should not depend on IKEA for more than 50% of their turnover. The rationale here is not only the avoidance of over-dependent suppliers that would be hurt too much if IKEA's order volumes should decrease, but also reliance on the learning and development achieved by a supplier thanks to interactions with *customers other than IKEA*.

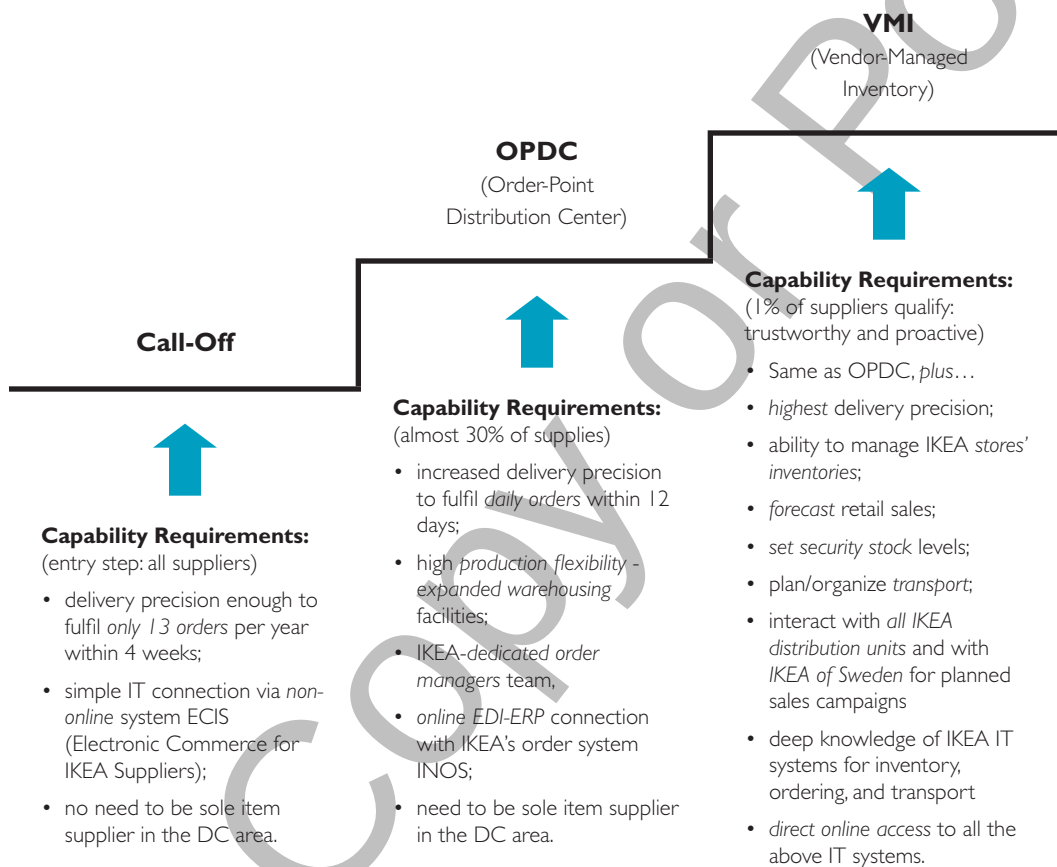
Then, with some suppliers, IKEA develops long-lasting and complex-content relationships, which entail large volumes and commitments. IKEA often even purchases machinery for these suppliers and trains their personnel. An even more restricted group of highly trusted suppliers is then invited to take part in complex technical *development projects* with IKEA: these suppliers are those with greater competences (e.g., in logistics or coating technologies) and those willing to become more committed to IKEA due to a positive history of interactions or strong expected benefits. IKEA already understood in the 1960s that using a long-term approach to purchasing actually favors IKEA itself, by allowing lower production costs and purchase prices and faster and improved development for its products. This approach produces even better results if IKEA follows a philosophy of mutuality and also takes into account the interests of its suppliers: this is reflected in IKEA's attempt to balance production volumes among several suppliers and in IKEA's investment programs to upgrade a supplier's competences (e.g., technical or administrative training).

For instance, IKEA applies a *ladder model* to IT and supplier logistics issues (see Figure 2): increasing supplier responsibility in deliveries (from simple fulfillment of IKEA's orders to "Vendor-Managed Inventory") must correspond both to increased IT integration with IKEA and to improved logistics capabilities. However, this model does not build only on improved routines and IT, but also on the development of a *stronger* business relationship, entailing more trust and commitment between IKEA and a supplier. This also implies better information flow and the commitment of concrete resources, ranging from dedicated personnel to building new warehouses at a supplier's site.

The deepening of a supplier relationship around IT and delivery issues starts from consistent delivery performances, and proceeds along a supplier's improvements on these dimensions:

- increased experience of IKEA's ordering routines or retail sales patterns;
- logisticians and order management teams dedicated to handling IKEA's orders;
- improved communication with IKEA's units such as retail stores and IKEA of Sweden;
- improved IT competences acquired from daily use of advanced IT tools such as ERPs;
- the willingness to invest in expensive new IT solutions;
- a direct knowledge of the IT ordering systems located at IKEA; and

FIGURE 2. IKEA's Ladder Model for Supplier Interactions and IT/Logistics Capabilities



Key:

Call-Off: IKEA emits orders every fourth week and suppliers must deliver within the next 4 weeks.

OPDC: IKEA emits orders daily and suppliers must deliver within 12 days.

VMI: Suppliers are in charge of deciding when and how much to deliver to IKEA.

- improved manufacturing flexibility and willingness to make physical investments (in production or warehousing capacity) in order to cope with fluctuating order volumes.

Suppliers who achieve the aforementioned capabilities (often thanks to support and training provided by IKEA) and make the required commitments can move up along the ladder depicted in Figure 2. However, IKEA is also *cost-driven* and a highly demanding customer that puts pressure on its suppliers. Therefore, if repeated efforts to improve a supplier competence and efficiency do not produce good results, IKEA is ready to terminate that relationship. As a result of IKEA's efforts to develop (or terminate) supplier relationships, its

network is heterogeneous, a feature that IKEA views as a key source of development.

What Goes on in IKEA's Network? Two Interaction Processes

The rich structure of relationships and the widespread competences accessed by IKEA through its network would be useless if IKEA did not have the ability to *combine* these resources to achieve efficiency and foster development. At a general level, this ability relies on IKEA's organizational structure, on its strong competence in such areas as product and technology development or logistics, and on its long-term approach and network-oriented culture. At a more concrete level, the combination of external resources and competences relies on two managerial tools: detailed *routines* performed repetitively by IKEA and its suppliers in such efficiency-driving processes as order management; and ad hoc *projects* that tackle specific product and technical development issues and often involve up to 20 firms. Inter-organizational routines and projects are essential mechanisms to promote and handle the numerous interaction processes unfolding in the network structure reviewed above.

Order Management Routines at IKEA and Its Partners

This process defines the replenishment needs of IKEA stores and communicates them to the supplier in charge of each specific product. Setting exact order quantities is critical in order to avoid stock-outs in retail stores or extra inventory costs. Timing is essential too, because suppliers are bound to given lead-times and cannot react to a delayed order with immediate deliveries. IKEA achieves efficiency in the order-management process through an advanced procedure that estimates its own replenishment needs and very structured routines that transfer these needs to each supplier, stating such details as the exact response time and modes required from them. Nothing is left to chance, and IKEA considers many variables (such as stock levels, lead-times, and goods-in-transit) to define when and how much should be ordered of a certain product.

However, matters are complicated by the fact that IKEA sells 12,000 products, with very different production approaches and lead-times. For instance, a sofa will be finished *after* a customer order is placed, because the producer needs to wait until the customer has chosen the fabric; whereas standard products such as coffee tables are produced *before* orders, against sales forecasts. Therefore, IKEA's orders of sofas and other customized products are steered by end-customer orders, and so need longer lead-times; whereas orders of standard products are triggered by automatically preset reorder points at IKEA stores and Distribution Centers, and have shorter lead-times. To be able to fulfill an order, a supplier needs to master the details of the ordering routine specific to each of the products it delivers to IKEA. Manufacturers supplying IKEA with volumes higher than Euro50 million yearly have large teams of IKEA-dedicated order managers, fully engaged in handling IKEA's orders.

To further complicate things, not all IKEA suppliers are equally able to respect short lead-times and to fulfill orders coming in *daily*. Therefore, different

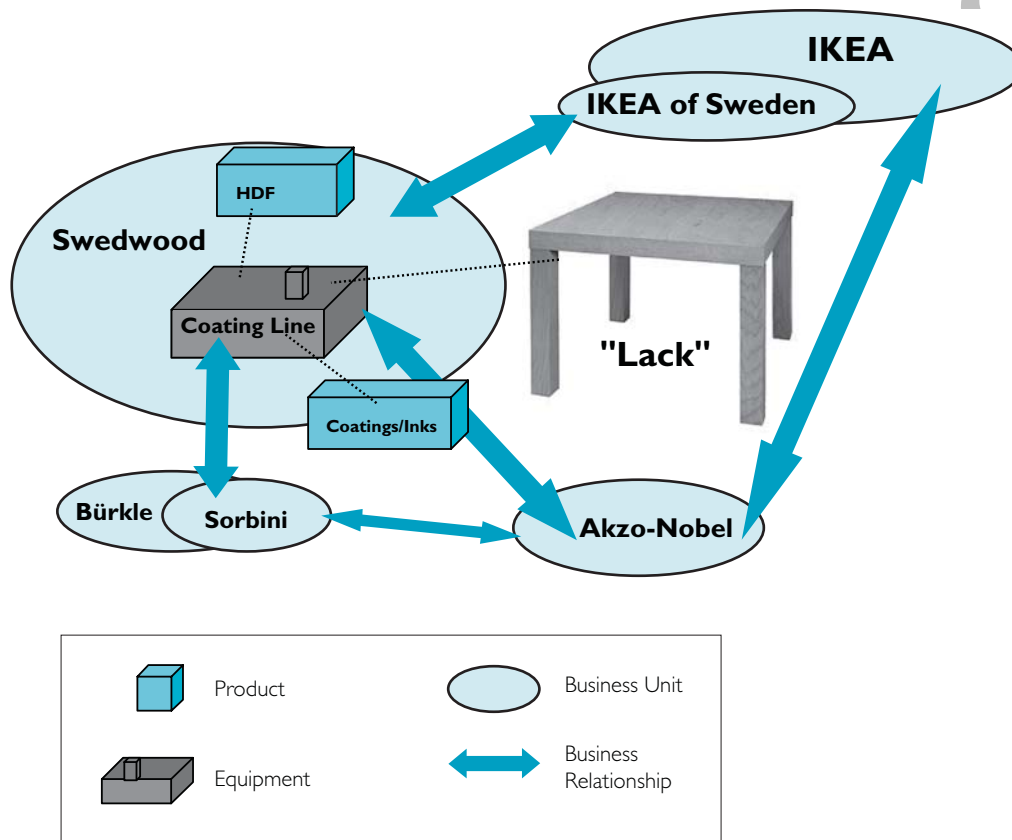
suppliers interact with IKEA by means of different ordering routines, depending on their ability and type of product. For instance, IKEA cannot implement with all suppliers the ordering routine “OPDC” (Order-Point Distribution Center), which involves issuing orders every day and requiring fulfillment within 12 days. Instead, many suppliers follow the “Call-Off” routine, which involves issuing orders every fourth week and requiring deliveries within the following 4 weeks. The OPDC modality is clearly more precise for IKEA’s receiving units and reduces stock levels and goods-in-transit within IKEA. However, OPDC creates stronger pressures on suppliers not only to learn a new ordering routine, but also to become more flexible and speculative, or even to increase finished goods stocks in order to react to shorter lead-times.

Still, OPDC is not IKEA’s most demanding ordering routine for a supplier. The “VMI” routine (Vendor-Managed Inventory) grants suppliers access to IKEA’s stock data and assigns them the responsibility to decide when and how much to deliver. In this way, a supplier is empowered to exploit its knowledge of IKEA’s ordering patterns. However, this knowledge, essential to forecasting IKEA’s needs, only comes after having interacted daily with IKEA for some years. Additionally, with VMI, close interaction and joint planning between a supplier and IKEA stores become necessary to secure product coverage for special events such as store openings and sales promotions. All order management modalities are highly interactive routines performed daily by IKEA and its suppliers according to rigid scripts, mostly decided unilaterally by IKEA. At the same time, IKEA strives to introduce new ordering routines such as OPDC with key suppliers, according to the aforementioned ladder model that requires direct supplier involvement and large mutual investments.

The “Printed Veneer” Project for the “Lack” Table

An important type of development projects in IKEA’s network concerns *new technologies*. In fact, IKEA searches constantly for technologies that can reduce costs, improve quality, or allow new designs. Coating technology, for instance, is pivotal in furniture manufacturing, because it strongly affects both design and quality, but it is also costly and, if badly handled, can become hazardous to health. IKEA is therefore very concerned with coating technologies and has promoted hundreds of projects to improve them at its suppliers. One of these projects is the “printed veneer” project, which addressed the high cost of the veneers used for IKEA’s best-selling “Lack” table, with more than 2.5 million units sold yearly.

In 2000, IKEA of Sweden raised some concerns about the high cost of veneers, which accounted for about 20% of the material costs for the veneered versions of Lack. These concerns triggered a series of discussions and an evaluation of potential solutions at Swedwood Poland, the manufacturer of Lack tables. Akzo-Nobel, one of their major coating suppliers, proposed to Swedwood a new coating technology that would allow substituting real veneers with a *printed pattern*. Thus, Swedwood and Akzo-Nobel initiated a large technology development project with the aim of printing veneer on wood. This project was particu-

FIGURE 3. The Network of Resources Combined in the "Printed Veneer" Project

larly important not only for cost reduction, but also for product design and aesthetics. Veneers are very visible on Lack tables and so the need to respect the perceived-quality requirements made this project particularly complex. The aesthetic target was that consumers should not notice any major difference in the printed pattern compared to real veneers. Akzo-Nobel took a leading role in perfecting the technology and introducing it into Swedwood's plants. Leading the project meant identifying suppliers of the necessary equipment and supervising the many tests required to fine-tune the technical solution. Many technical and organizational resources had to be combined during this project (see Figure 3, which shows the products, equipment, business units, and relationships that were involved).

The involved business units were all related by long-term relationships. In particular, Akzo had been supplying Swedwood for 20 years and closely interacted with IKEA of Sweden to negotiate the prices and conditions applicable to IKEA's direct suppliers. Finding a way to print veneer patterns on Lack's surface, which is made of HDF (high-density fiberboard), was not a technically easy task.

To start with, Akzo had to develop new coatings and inks. Moreover, many technical resources fell outside Akzo's competence: new coating lines, resembling printing presses instead of traditional coaters, were necessary. Therefore, Bürkle and Sorbini, two coating lines suppliers who had previously supplied Swedwood and cooperated with Akzo, modified their equipment to suit the new process. Following Akzo and Swedwood's specifications, Bürkle and Sorbini adapted two coating lines that were installed at Swedwood's plants. However, the most demanding part of the project was getting all the technical resources to work together to satisfy IKEA's requirements. This took over a year of tests, led by Akzo at Swedwood's plants. On several occasions, Akzo had to modify its coatings and inks to allow them to work together with HDF and the new coating lines.

However, by the time the new "print-on-wood" technology was ready, the problem of high-cost veneers had already been solved by a large supply of inexpensive and high-quality veneers purchased by IKEA's Trading Offices. Still, the new technology was now available, and IKEA decided to apply it to other products manufactured by Swedwood, namely, a series of shelves that were officially launched in 2002. In initiating this project, IKEA had justified its high costs with large cost savings for a specific large-volume product, the Lack table. When the new technology became less relevant for these tables, IKEA could rely on the fact that Swedwood manufactured several other IKEA products with similar veneering problems.

At the same time, efforts continue now to diffuse the "print-on-wood" technology both to other IKEA products and to other suppliers across IKEA's network. Moreover, in 2006 the aforementioned large supply of inexpensive veneers dried out. Thus, printed veneer was finally applied to its original target, Lack tables. IKEA and Swedwood are currently discussing the application of the "print-on-wood" technology not only to substitute veneers, but also to print directly on IKEA's furniture any pattern developed by IKEA's designers. Thus, a technical development initiated for cost reduction has opened up another way to sustain IKEA's image as an innovative and cool furniture company.

Interaction processes such as ordering routines and the printed veneer project would not be possible without two important premises: IKEA's *internal structure and competences* and its well developed *interfaces* for interacting with the network. For instance, IKEA of Sweden employs 700 people specializing in furniture technologies, logistics, and so on. That unit includes 50 "purchase strategists" and 100 technical experts. Moving from IKEA's center to its periphery, we encounter 40 local Trading Offices employing 3,000 people who deal daily with suppliers. Therefore, IKEA's multifaceted organization, with its many internal competences and external interfaces, is necessary for IKEA to pursue its network strategy and interact with the actors in its network.

Discussion: Structures and Dynamic Interactions in a Network Strategy

What sustains IKEA's network strategy? In other words, what are the key factors that enable IKEA to interact with its network in order to fulfill its efficiency and development goals? The framework introduced earlier contains both *structural components* and *dynamic interactions*. The idea is that *before* interacting with the network and using it dynamically, a network structure needs to emerge. This is clearly a simplification, because network structure and dynamics are tightly related. Indeed, a network structure can very well emerge more from ongoing interactions (inter-organizational routines or ad hoc projects)⁴⁰ than from IKEA's active choices to shape it. Still, as the purpose of this framework is to simplify matters, structural and dynamic factors are discussed separately.

The Structural Components of a Network Strategy

IKEA strives to shape the structure of its network by selecting suppliers, at least the 1,800 direct suppliers and logistic partners (see Figure 1). The structure and composition of this network are strategically important because they create both *opportunities* and *restrictions* for the actions that IKEA can undertake. Therefore, foresight is necessary over the goals to be reached, the resources needed to accomplish them, and the actors to be mobilized to access external resources. The actors and resources in IKEA's network enable IKEA to achieve its main strategic goal: "providing inexpensive good-quality products to as many customers as possible." Moreover, this network structure reflects more specific *efficiency* goals, such as low sourcing costs or smooth product flows, and *development* goals, such as new products or new technologies.

Structural Component 1: Defining Relationship Contents

Because of the importance of specific counterparts for achieving its goals IKEA needs to *define the content* of each relationship, in terms of exchange volumes, learning, trust, commitment, and duration. However, the content of one relationship cannot be defined in isolation from other relationships because it is related to the role played by that relationship in the overall network: for instance, compared to an interchangeable sub-supplier, a first-tier unique supplier often receives larger volumes, sustained by the high trust and commitment emerging from a long-term interaction. Not surprisingly, IKEA aims to strengthen the latter type of relationships. But among first-tier suppliers there are even more subtle differences based on the degree of IT integration with IKEA and on the operational responsibilities assigned to each supplier. To increasing supplier capabilities and commitment correspond increasing logistic responsibilities, according to a ladder model (see Figure 2). This increase in supplier responsibility entails an increase in IKEA's dependence on selected suppliers. Another dimension to categorize relationship content is the *initiative and leadership* taken by a partner in development processes. In fact, partners such as Akzo-Nobel, who are formally second-tier suppliers, often display strong initiative and take a leading role because of their advanced technical competences

and their own network of contacts. This type of relationships entails important exchanges of technical knowledge with IKEA and is oriented towards the long term since many development processes are time-consuming.

All the above forms of relationship content are issues that IKEA can rarely shape unilaterally. Moreover, IKEA's ability to control and define a relationship's content is even more limited for its *indirect* relationships, such as those between its direct suppliers and their sub-suppliers. Therefore, IKEA must agree to delegate, for instance, project leadership to a key partner that can select other actors and define the contents of their own relationships (as Swedwood and Akzo-Nobel do with their own partners). This delegation is extensive in development projects, where IKEA's trusted key partners can partly affect the project goals and have ample freedom to mobilize other actors that have the required technical capabilities. IKEA's delegation and a partner's freedom in defining a relationship's content are instead more restricted when it comes to inter-organizational routines (e.g., order management), which for efficiency's sake need to be more controllable and uniform.

However, even within IKEA's *direct* relationships (e.g., with Swedwood), IKEA cannot unilaterally decide the relationship content. Content such as exchanged volumes, technical learning, and trust emerge instead from a two-party game that requires the capabilities, engagement, and commitment of IKEA's counterparts as well. In this game, IKEA is sometimes more powerful, especially in relation to smaller actors, but in other cases IKEA is so technically or volume dependent on certain counterparts that it must partly accept their efforts to shape the relationship content: for instance, exchanged volumes and technical investments are typically negotiated with key partners such as Swedwood.

Structural Component 2: Forming the Network Structure

Each relationship plays a well-defined role within a partly hierarchical structure. IKEA's network includes, for instance, first-tier as well as second-tier suppliers, some of which play the role of "major" as opposed to "reserve" suppliers. Moreover, IKEA has direct relationships to certain actors (e.g., Swedwood) and indirect relationships to others (e.g., Sorbini). IKEA strives to shape this structure firstly by affecting the number of firms that are part of the network. For instance, between 2002 and 2007, IKEA reduced the number of direct suppliers from 2,400 to 1,300.⁴¹ Therefore, the remaining direct suppliers were given more responsibility. This implies not only larger volumes, but also that each direct supplier now handles more complex relationships with an increased number of sub-suppliers. Each relationship also has a specific function for the entire network because it connects other relationships: for instance, the relationship IKEA-Akzo assigns a leading role to Akzo in setting the technical agenda of its relationships with Sorbini and Bürkle (see Figure 3).

Another network structure feature essential for a global player is the *geographical* spread of relationships. Suppliers are selected depending on the place-related features of their resources (e.g., labor costs, raw materials, and proximity

to end markets) and on their role in IKEA's network (e.g., project-leading partners need to be located near other involved units). The geographical structure of IKEA's network is evolving towards a stronger emphasis on Chinese suppliers, who increased their share of IKEA's purchases from 14% to 18% between 2003 and 2006. The macro-reasons behind this trend are not only easier communication and lower transportation and production costs, but also the technical advances made by Chinese suppliers, who now guarantee quality levels comparable with European ones. IKEA's retail expansion in China further motivates selecting local suppliers, for both political and transport reasons. However, despite this geographic trend, suppliers from Sweden, Italy, and Poland still play a major role when it comes to sophisticated technical developments that require very specific competences, tight coordination, and co-location (see the Lack example).

Although IKEA strives to shape the configuration of its network, its control over this structure is never complete: partners' goals matter too. Furthermore, despite IKEA's will, some actors take steps either to leave the network or to change their position within it (see the case of Becker-Acroma in Appendix A). IKEA's control and overview of some parts of the network are also limited because some partners include in a project wholly new actors that IKEA had not considered. This happened, for instance, during the "printed veneer" project, whereby Akzo-Nobel involved a new equipment supplier, an Italian cylinder engraver, in IKEA's network. In such cases, IKEA agrees to delegate to reliable partners not only the performance of key tasks, but also the selection into IKEA's network of other relevant actors: this clearly affects the structuring of the network but is partly beyond IKEA's control.

Structural Component 3: Evaluating Goal Matching with the Network

IKEA's specific goals can be accomplished thanks to the resources of other firms and accessed through the direct and indirect relationships that shape a network structure (see Figures 1 and 3). Therefore, it is important to assess the *matching* of the goals and resources of the firms involved. A structure that enables matching includes both relationships that provide *similar* resources (e.g., IKEA's parallel suppliers) and those that provide *complementary* resources (e.g., the relationships between IKEA's suppliers and their own sub-suppliers).

However, it is clear that IKEA's goals and those of its partners do not always match each other. IKEA certainly seeks firms with which it can share goals at a general level: for instance, IKEA and Akzo-Nobel share the goal of developing coating technologies that improve furniture quality or costs. However, goals can sometimes be matched only after intense negotiations and discussions. Moreover, unexpected turns of events can change the initial goal congruence: this happened for example when IKEA decided not to launch the "printed on" Lack tables, which had been the main development goal of Swedwood and Akzo-Nobel. However, at a general level, Akzo-Nobel's goal of developing new coating technologies could still be accomplished within its relationship to IKEA. In fact, IKEA is a perfect test customer that can subsidize

Akzo's own developments: how many furniture retailers could afford to sacrifice thousands of real products just to perform technical tests?

IKEA's goals are more easily matched with those of the network in routine interactions, such as order management routines, which are applied daily without being questioned. However, goal convergence becomes more problematic in situations requiring development efforts and sacrifices from IKEA's counterparts: for instance, rising conflicts over technical developments for IKEA's Billy bookshelf induced the coating supplier Becker-Acroma to withdraw from an unwanted joint venture with IKEA (see Appendix A). Perfect goal congruence in the network cannot be achieved, simply because the network is not composed of firms that IKEA can unilaterally control. Despite IKEA's size and power, these firms remain independent and hence are relatively free to set their own goals. More precisely, the goals of IKEA and all firms in the network are *interdependent*. This means that achieving one's goal depends on the goals of other firms. Håkansson and Ford stress that managing *the* network is impossible or even undesirable.⁴² Instead, all firms need to manage *in* networks, which requires carefully *taking into account* the goals and resources of all the firms involved. Therefore, to enable "managing in the network," a key component of a network strategy is assessing the matching between one's own goals and those of the other firms involved.

The Dynamic Interactions of a Network Strategy

Next to evaluating and shaping the structure of the industrial network, it is necessary to understand what happens within this structure. Thus, the analytical focus shifts to the *interaction processes* that unfold in the network and that stand for its dynamics. These processes are particularly important because achieving strategic goals depends on *how* the interaction processes unfold, which now becomes more important than *who* performs them (i.e., the structural components). In strategic jargon, dynamic interactions are more concerned with implementation than are structural components, but they are essential to achieving the specific efficiency and development goals associated with a given network structure.

While forming the network structure can rely on simply assessing the matching between internal and external resources, implementing a network strategy with specific goals requires combining *dynamically* and more profoundly the resources in the network. These concrete *resource combinations* are created through continuous interaction processes. For instance, through the order management routines, IKEA achieves efficiency when all firms involved combine daily such resources as 12,000 products, countless components, transport means, and their specific competences. Resource combinations are particularly dynamic when the goal is to develop new technologies: during the "printed veneer" project, coating-related resources were combined and recombined in complex ways, as witnessed by the many tests required to find out how new resources could work together.

Inter-organizational routines and *projects* drive a network strategy because they are the concrete mechanisms through which relationships are practically mobilized and they provide the context in which dynamic resource combinations occur. However, these two types of interaction processes differ in their functions and applicability to *efficiency* goals, for which routines are more appropriate, as opposed to *development* goals, for which projects are a better mechanism.

Dynamic Interactions 1: Interacting via Inter-Organizational Routines

Compared to development projects, inter-organizational routines are more *structured* and *rigid* mechanisms because they clearly specify in advance the nature and timing of the activities performed by IKEA and its partners. For these reasons, inter-organizational routines are adequate for daily interactions that aim to maintain efficiency. Examples of key efficiency goals for IKEA include reduced lead-times and inventory costs as well as more precise deliveries. To achieve such goals, order management routines, for instance, clearly specify the time frames, each actor's roles, the interaction patterns, and the resources involved.

The continuous performance of inter-organizational routines also brings about adaptations in the firms' activities that can be better linked for mutual efficiency gains, as stressed by Håkansson and Snehota.⁴³ Moreover, according to Zollo, Reuer, and Singh, inter-organizational routines improve the performance of cooperative agreements.⁴⁴ Still, compared to the open-ended nature and ample delegation of joint projects, IKEA strives to control more unilaterally the performance of critical routines such as order management, for the sake of certainty and homogeneity across its network. Therefore, these inter-organizational routines need to closely follow the script that IKEA requires from its partners.

Dynamic Interactions 2: Interacting via Joint Projects

Joint projects are *ad hoc* and *more flexible* mechanisms than routines, and are therefore employed for interaction processes that aim to foster product and technology development.⁴⁵ For instance, the "printed veneer" project had rather broad goals (i.e., tackling the issue of costly veneers), timeframes, roles, and interaction patterns, and many unplanned resources could be involved as the project unfolded. In comparison to routines, projects entail less control and more uncertainty for IKEA. For instance, the "printed veneer" project was highly uncertain because it was rather open-ended and technically challenging and had an open timeframe. Moreover, IKEA was not able to control the selection of new participants in this project, as the technical leadership was assigned to Akzo.

Nevertheless, no matter how strongly IKEA can control a project, inter-organizational projects are important drivers of development for at least three reasons: they *organize* IKEA's interactions with its network by allocating tasks and responsibilities, they *focus attention and efforts* on a specific development problem, and they *select and mobilize* key actors who can contribute relevant knowledge to tackle the problem at hand. Similar advantages of projects as tools

to foster innovation have been recognized (although in an intra-organizational context) by Bowen, Clark, Holloway, and Wheelwright.⁴⁶ Moreover, as stressed by Brady and Davies,⁴⁷ projects facilitate “explorative” learning, that is, they enable learning by exploring new areas of knowledge. Such exploration is particularly important when IKEA does not know what technology needs to be developed or who can develop it, as in the case of “printed veneer.” Then, the flexibility of projects as coordination mechanisms comes in handy, together with IKEA’s delegation to selected actors, who are in turn free to engage their own trusted partners. Furthermore, if the new actors remain permanently engaged, projects assume an even broader renewal potential by affecting the structure and composition of IKEA’s network.

Granted the importance of the external network for IKEA, a natural question is: What does IKEA need to have itself in order to interact successfully with this network? IKEA’s *competence*, *organizational structure*, and *culture* are important prerequisites for IKEA to be able to initiate and take part in the interaction processes that drive its network strategy. Those internal features strongly affect how the focal firm interacts with specific partners, via inter-organizational routines and joint projects,⁴⁸ and are fundamental for any strategic center to successfully interact with a web of partners.⁴⁹ Firstly, IKEA possesses strong competences in all areas necessary to interact with and support suppliers: IKEA of Sweden employs about 100 experts in important areas for its product and technology development, such as wooden materials, coatings, and surface treatments; while to support interactions with manufacturers and carriers concerning distribution routines, IKEA of Sweden employs about 100 logistics and order management experts. These technical and logistic competences are also reproduced on a local level within IKEA’s Trading Offices.

Secondly, IKEA has created both *central* and *local* organizational interfaces to interact with suppliers. The central business unit, IKEA of Sweden, both negotiates with major suppliers the worldwide prices and discusses long-term investments and capacity plans. IKEA of Sweden also intervenes during supplier selections and extensive development projects. Alongside these central inter-organizational interfaces, IKEA also interacts locally with single suppliers through its 40 Trading Offices. These business units are in charge, first and foremost, of daily issues such as ordering and logistic coordination; but they also intervene in yearly capacity planning and supplier selection meetings, where they represent their own local suppliers against other Trading Offices. Thirdly, IKEA’s culture may be inspired by cost-containment, but there is a strongly rooted understanding that this goal requires mutual *long-term* commitments with key external partners. These values inspire IKEA’s criteria for supplier selection (which stress a supplier’s readiness to make long-term investments for and with IKEA) and management systems (which reward Trading Offices based on the volumes that they, *together with* their local suppliers, supply to IKEA worldwide). Such mechanisms strengthen the specific Trading Office-supplier relationship and facilitate the emergence of mutual trust. Thus, IKEA can accept the neces-

sity of being dependent on certain highly trusted partners without the need to unilaterally control the relationship.

However, despite IKEA's positive experiences, its competences and organizational structure often need to change to fit specific partners and interaction processes that unfold in the network. Changes in IKEA's competences may be necessary to exploit new opportunities and are often driven by joint projects: for instance, IKEA learned new coating technologies and "VMI" by interacting with its suppliers and logistic partners. A specific joint project may even lead IKEA to create special business units (see the joint venture GIAB presented in Appendix A). On a broader scale, IKEA currently deals with three major organizational changes stimulated by developments in the network: opening new Trading Offices in countries offering interesting sourcing opportunities; increasing the responsibilities and competences of Trading Offices in Asia, as a reaction to the increased volumes and know-how of Asian suppliers; and creating direct interfaces between retail stores and selected suppliers, in order to improve product development and deliveries during sales promotions.

Conclusions and Implications from the IKEA Case

Industrial networks and business relationships play key roles for the strategy of IKEA and of most firms. Therefore, firms need a "network strategy," that is, they need to consider and use the external network in order to accomplish their own goals. The framework presented in this article helps to systematize the factors that can improve interaction with the external network. The structural components and the dynamic interactions were elaborated on the basis of IKEA's network strategy; the key implications of IKEA's experiences of network interactions can be summarized as follows:

- In order for a firm to implement a network strategy and achieve its own goals, the focal firm's resources must be *combined* with those of external actors. This combination is made concrete through two types of interaction processes: inter-organizational routines—well suited for achieving efficiency goals—and joint projects, aptly addressing development goals.
- These interaction processes are facilitated if the goals and resources of the various parties match each other. However, perfect goal congruence never exists in a network of independent firms. Therefore, evaluating the goal and resource *matching* with specific counterparts can help in two major ways: in choosing from the beginning partners with more attuned resources and goals (e.g., those willing to make long-term commitments); and in supporting the negotiations necessary to increase the goal congruence with specific partners.
- Even if a firm can improve its "network matching" by forming the structure of the network (e.g., by selecting suppliers), no absolute control can be established over the network. Some counterparts may not accept the relationship content expected by the focal firm, or may even choose to interrupt their interactions and leave the network. Therefore, business

relationships with key partners need to be carefully handled to establish strong outposts in the network. In fact, the limits to controlling the network structure and processes suggest the need to *delegate* responsibilities to *trusted* and competent external actors who are capable, in turn, of engaging other relevant actors. This is what IKEA does, and it is especially important in technical development projects that involve very widespread competences.

- The external network cannot compensate for the gaping weaknesses of unprepared firms: the strategic center cannot be “hollow.” In fact, forming the network by attracting counterparts and continuously interacting with them requires that a firm is capable and prepared to “meet the network” in three main ways: by possessing extensive and specialized *competences* (see IKEA’s considerable logistic and technical competences); by creating appropriate *inter-organizational interfaces* (see IKEA’s many specialized purchasing units and its product developers, who travel 200 days a year to meet suppliers); and by promoting a *network-oriented culture* that favors a long-term approach and the creation of mutual trust instead of the abuse of power over partners.
- While being prepared to “meet the network” also means being *flexible* enough to change internal competences and inter-organizational interfaces to better interact with a changing network, a network-oriented culture is instead more of a *stable pillar*. In fact, IKEA’s entire network strategy strongly relies on mutual trust and commitment to selected partners as substitutes for absolute control: its is only if you trust a committed partner that you can accept dependence on it and delegate essential tasks such as technical developments. However, trust and commitment do not appear overnight in a business relationship, but require a long-term approach. This is why IKEA takes so seriously its supplier development programs to improve selected partners’ IT and logistics capabilities (see Figure 2) or its joint technical development projects. These initiatives take time, but they eventually pay off when these suppliers can be more trusted for IKEA’s daily replenishments or for technology issues.

APPENDIX A

From Saving the “Billy” Bookshelf to Conflicts with Suppliers

The “Billy” bookshelf is one of IKEA’s best sellers; it sells over one million units yearly. In the 1980s, Billy was one of IKEA’s most representative products, strongly associated with its design style and with its image of a family-friendly company. However, this situation came under threat in 1991, when traces of formaldehyde were found in Billy packs in Germany. In IKEA’s largest market, the media started accusing IKEA of “poisoning” customers: a commercial catastrophe and a complete loss of reputation were near, and IKEA had to solve the problem rapidly in order to restore its goodwill. IKEA of Sweden began a close

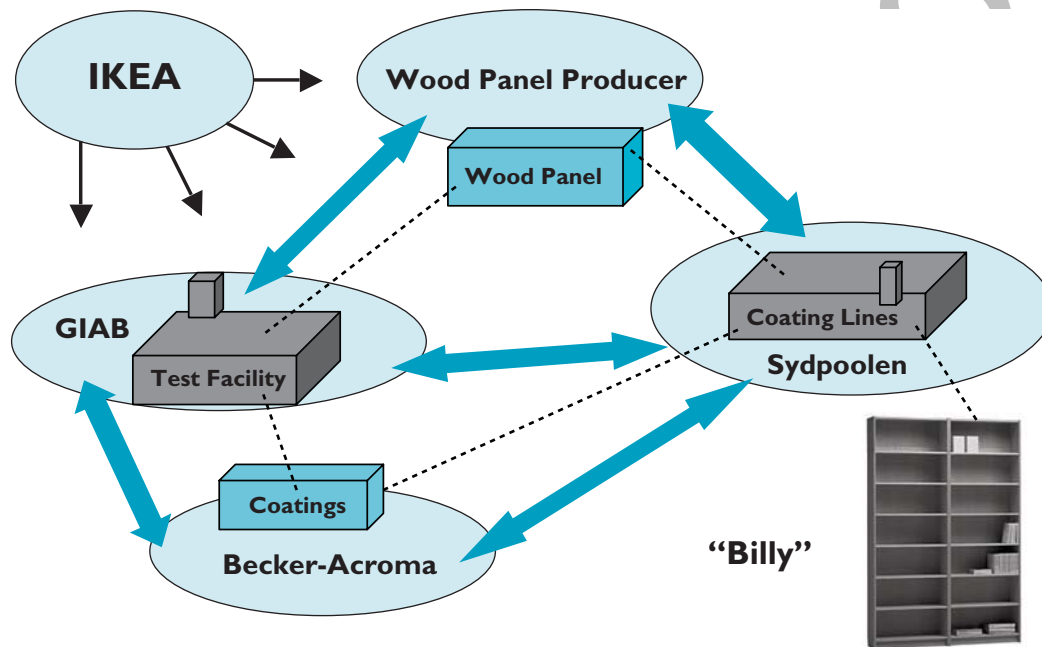
scrutiny of the whole production process at Sydpoolen, a group of Swedish suppliers that manufactured Billy. The coating process soon became the key suspect, since hazardous chemicals were used in this production phase, and there was a risk that these chemicals might remain on the surface of the furniture.

In a state of emergency, IKEA of Sweden mobilized Becker-Acroma, one of its major coating suppliers. In consultation with Sydpoolen's technicians, they were able to relate the formaldehyde emissions to two causes: the use in Sydpoolen's factories of acid-curing coatings known to emit this gas; and too short a time between curing and packaging, which did not allow all the formaldehyde to dissipate before packing took place. Therefore, the first action taken was prohibiting the use of acid-curing coatings at all IKEA's suppliers. Meanwhile, Becker and other coating producers started supplying an older technology known as water-borne lacquers. IKEA, however, saw this solution as only temporary, and started searching for a robust solution. Becker suggested the use of UV-curing, in which ultra-violet lamps are used to attach coatings to wood panels.

After a few months, IKEA also founded GIAB, a new firm with the specific purpose of making this UV technology more economically viable and introducing it to all IKEA's suppliers. At the same time, IKEA made it clear to all the firms involved with this technology that they were required to take shares in GIAB, which was then transformed into a joint venture. Among these actors were Becker-Acroma, Sydpoolen, and the sub-supplier of wood panels. GIAB was equipped with a UV-based coating line that functioned as a full-scale testing facility around which the above actors gathered to perform tests. The goal was to find out how coatings needed to be modified and which parameters should be reproduced in the coating lines of other IKEA suppliers. These resources are shown in Figure A1.

IKEA's goal with the joint venture GIAB was then extended to making it a powerhouse for the development of furniture coating technologies in general. However, even though cooperation was achieved on the factory floor, the project was ridden with conflicts. Becker-Acroma felt that the coating suppliers had been used by IKEA as scapegoats for the Billy "scandal," and that they were now obliged to do most of the work of finding a solution. Becker-Acroma also saw the establishment of GIAB as an accusation that these suppliers were incapable of developing new solutions by themselves. Despite these hard feelings, many tests were performed, which eventually led to finding the right combination of UV coatings, particle boards, and coating lines. During the 1990s, this technology was rolled out across all IKEA suppliers, which today use UV curing almost exclusively. However, the forced cooperation eventually became unacceptable, especially to larger actors such as Becker-Acroma, who more or less stopped contributing to GIAB's development. Therefore, at the end of the 1990s, despite IKEA's plans to turn GIAB into a consultant with its own customers outside the IKEA universe, GIAB lost momentum, firstly as it had fulfilled its task, and secondly as it had never been accepted by coating producers.

FIGURE A1. The Network of Resources Combined during Billy's Coating Project



Notes

1. Next to 70 in-depth interviews, the empirical material was collected via a dozen visits and site observations made at IKEA and its suppliers' facilities in Sweden, Poland, and Italy. These sources were completed by first-hand written sources such as documents, catalogues, brochures, and company presentations, and by secondary sources such as newspaper clips and other publications related to IKEA.
2. For examples in the software sector, see B. Iyer, C.H. Lee, and N. Venkatraman, "Managing in a 'Small World Ecosystem': Lessons from the Software Sector," *California Management Review*, 48/3 (Spring 2006): 28-47. For examples in the biotech sector, see W. W. Powell, K.W. Koput, and L. Smith-Doerr, "Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology," *Administrative Science Quarterly*, 41/1 (March 1996): 116-145; W.W. Powell, "Learning From Collaboration: Knowledge and Networks in the Biotechnology and Pharmaceutical Industries," *California Management Review*, 40/3 (Spring 1998): 228-240.
3. See the Sassuolo area in Italy as featured in M. Russo, "Technical Change and the Industrial District: The Role of Interfirm Relations in the Growth and Transformation of Ceramic Tile Production in Italy," *Research Policy*, 14/6 (December 1985): 329-343; M. Russo, "Complementary Innovations and Generative Relationships: An Ethnographic Study," *Economics of Innovation & New Technology*, 9/6 (December 2000): pp. 517-557.
4. See the study on the garment industry in New York City by B. Uzzi, "Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness," *Administrative Science Quarterly*, 42/1 (March 1997): 35-67.
5. See M.H. Lazerson and G. Lorenzoni, "The Firms that Feed Industrial Districts: A Return to the Italian Source," *Industrial and Corporate Change*, 8/2 (1999): 235-265.
6. See B.R. Koka and J.E. Prescott, "Strategic Alliances as Social Capital: A Multidimensional View," *Strategic Management Journal*, 23/9 (September 2002): 795-806; E.H.M. Moors and P.J.

- Vergragt, "Technology Choices for Sustainable Industrial Production: Transitions in Metal Making," *International Journal of Innovation Management*, 6/3 (September 2002): 277-299.
7. T. Wedin, *Networks and Demand: The Use of Electricity in an Industrial Process* (Uppsala, Sweden: Department of Business Studies, Uppsala University, 2001).
8. See I. Stuart, P. Deckert, D. McCutcheon, and R. Kunst, "A Leveraged Learning Network," *Sloan Management Review*, 39/4 (Summer 1998): 81-93; C. Carr and J. Ng "Total Cost Control: Nissan and Its U.K. Supplier Partnerships," *Management Accounting Research*, 6/4 (December 1995): 347-365.
9. The list is presented on page 148 of G. Lorenzoni and C. Baden-Fuller, "Creating a Strategic Center to Manage a Web of Partners," *California Management Review*, 37/3 (Spring 1995): 146-163.
10. See W.W. Powell, "Hybrid Organizational Arrangements: New Form or Transitional Development?" *California Management Review*, 30/1 (Fall 1987): 67-87.
11. Networks have probably always been there, since the early days of the modern corporations, even if periodic increases in vertical integration tend to hide inter-firm networks. Even the Fordistic model emerged in the early 1900s from a highly networked structure in the car industry. See pages 365-368 in R.N. Langlois and P.L. Robertson, "Explaining Vertical Integration: Lessons from the American Automobile Industry," *Journal of Economic History*, 49/2 (June 1989): 361-75.
12. These types of adversarial postures were for instance typical in the car industry until the early 1980s, as discussed by L.-E. Gadde and H. Håkansson, *Professional Purchasing* (London: Routledge, 1993).
13. Dominating paradigms within strategic management have been for decades the microeconomics-inspired Industrial Organization [see J.S. Bain, "The Theory of Monopolistic Competition After Thirty Years: The Impact on Industrial Organization," *American Economic Review*, 54/3 (May 1964): 28-32; M.E. Porter, *Competitive Strategy: Techniques for Analyzing Industries and Competitors* (New York, NY: Free Press, 1980)] and Transaction Cost Economics [see O.E. Williamson, "The Economics of Organizing: The Transaction Costs Approach," *American Journal of Sociology*, 87/3 (November 1981): 548-577; "Strategizing, Economizing, and Economic Organization," *Strategic Management Journal*, 12/8 (Winter 1991): 75-94]. Whereas Industrial Organization could not consider networks because it used as key unit of analysis whole sectors, Transaction Costs Economics views inter-firm relationships and networks as exceptions in economic organizing.
14. G.B. Richardson, "The Organization of Industry," *Economic Journal*, 82/327 (September 1972): 883-896.
15. M.S. Granovetter, "Economic Action and Social Structure: The Problem of Embeddedness," *American Journal of Sociology*, 91/3 (November 1985): 481-510.
16. W.W. Powell, "Neither Market Nor Hierarchy: Network Forms of Organization," in B.M. Staw and L.L. Cummings, eds., *Research in Organizational Behavior*, Vol. 12 (Greenwich CT: JAI Press, 1990), pp. 295-336.
17. R. Swedberg, "Markets as Social Structures," in N.J. Smelser and R. Swedberg, eds., *The Handbook of Economic Sociology* (Princeton, NJ: Princeton University Press, 1994), pp. 255-282.
18. Even scholars studying strategic alliances are dissatisfied with the research bias towards applying atomistic views to interactive phenomena such as alliances. For instance, Ranjay Gulati called for a paradigm shift, from an atomistic to a social network-embedded view of alliances. See page 295 in R. Gulati, "Alliances and Networks," *Strategic Management Journal*, 19/4 (April 1998): 293-317.
19. This view is presented for instance by H. Håkansson, "Organization Networks," in A. Sorge and M. Warner, eds., *The IEBM Handbook of Organizational Behaviour* (London: Thomson Business Press, 1997), pp. 232-239; M.J. Piore, "Fragments of a Cognitive Theory of Technological Change and Organizational Structure," in N. Nohria and R.G. Eccles, eds., *Networks and Organizations: Structure, Form and Action* (Boston, MA: Harvard Business School Press, 1992), pp. 430-444.
20. Markets and hierarchies, the norms in many established theories (e.g., marketing, strategy), would then become just *extreme cases* whereby the informal network interactions are constrained either inside a strict hierarchy (based on command and bureaucratization) or by a perfect market (composed of autonomous firms that coordinate solely via price signals).
21. See H. Håkansson, "Product Development in Networks," in H. Håkansson, ed., *Industrial Technological Development—A Network Approach* (London: Croom Helm, 1987), pp. 84-115.

22. See Wedin, op. cit.
23. See E. Baraldi, *When Information Technology Faces Resource Interaction: Using IT Tools to Handle Products at IKEA and Edsbyn* (Uppsala, Sweden: Department of Business Studies, Uppsala University, 2003).
24. A comprehensive literature overview over the IMP tradition is presented on pages 25-30 of H. Håkansson and A. Waluszewski, *Managing Technological Development: IKEA, the Environment and Technology* (London: Routledge, 2002).
25. These studies included both a large-scale questionnaire studying hundreds of business relationships in Europe in the late 1970s and numerous extensive, deep case studies. The latter research approach still characterizes current IMP research: since the 1970s, hundreds of case studies have traced the industrial network around a focal firm or a technical solution by means of snowballing data collection techniques reaching up to 100 interviews.
26. See G.C. Homans, *Social Behavior: Its Elementary Forms* (New York, NY: Harcourt, Brace & World, 1961); S. Macaulay, "Non-Contractual Relations in Business: A Preliminary Study," *American Sociological Review*, 28/1 (February 1963): 55-67; P.M. Blau, "The Hierarchy of Authority in Organizations," *American Journal of Sociology*, 73/4 (January 1968): 453-467.
27. See, for instance, the model on page 24 of H. Håkansson, ed., *International Marketing and Purchasing of Industrial Goods: An Interactive Approach* (Chichester: Wiley, 1982).
28. An example of these network-level models is the so-called "ARA" model, which decomposes the substance of industrial networks into three layers: inter-firm Activity patterns, Resource constellations, and webs of Actors. This Activity-Resource-Actor model is elaborated in H. Håkansson and I. Snehota, eds., *Developing Relationships in Business Networks* (London: Routledge, 1995).
29. See J.C. Anderson, H. Håkansson and J. Johanson, "Dyadic Business Relationships Within a Business Network Context," *Journal of Marketing*, 58/4 (October 1994): 1-15; L. Hallén, J. Johanson, and N. Seyed-Mohamed, "Interfirm Adaptation in Business Relationships," *Journal of Marketing*, 55/2 (April 1991): 29-37.
30. See U. Andersson and M. Forsgren, "Subsidiary Embeddedness and Control in the Multinational Corporation," *International Business Review*, 5/5 (October 1996): 487-508; and U. Andersson, M. Forsgren and U. Holm, "The Strategic Impact of External Networks: Subsidiary Performance and Competence Development in the Multinational Corporation," *Strategic Management Journal*, 23/11 (November 2002): 979-996.
31. For a Markets-as-Networks view of business strategy, see H. Håkansson and I. Snehota, "No Business is an Island: The Network Concept of Business Strategy," *Scandinavian Journal of Management*, 5/3 (1989): 187-200.
32. The concept of "strategic center" is used by Lorenzoni and Baden-Fuller, op. cit.
33. There is, in fact, also a "dark side" of networks, stressed for instance by H. Håkansson and I. Snehota, "The Burden of Relationships or Who's Next?" in D. Ford, ed., *Understanding Business Markets* (London: Thompson Learning, 2002), pp. 88-94. Networks do not only produce positive effects for development and efficiency, but they are also ridden with conservative forces that embed (in the sense of "constraining") the firm. Too close business relationships can be harmful for novelty, a problem defined as "over-embeddedness" by Uzzi [op. cit., pp. 60-63]. However, the dark side of networks derives not only from social aspects: networks can in fact generate technical lock-ins and economic overdependence for the involved firms.
34. In fact, business relationships require time to be established, but then display a strong continuity and can stretch over decades (as is the case for several of IKEA's relationships). This continuity includes institutionalization and dependencies that make relationships hard to change or terminate. These combined effects create stability in a network, where the involved actors, their goals, and their resources change only slowly. For the structural characteristics of business relationships and networks, see H. Håkansson and I. Snehota, eds., *Developing Relationships in Business Networks* (London: Routledge, 1995).
35. For a description of Wal-Mart's supplier relationships, see M. Petrovic and G.G. Hamilton, "Making Global Markets: Wal-Mart and Its Suppliers," in N. Lichtenstein, ed., *Wal-Mart: The Face of Twenty-First-Century Capitalism* (New York, NY: The New Press, 2006), pp. 122-138.
36. IKEA's approach can be contrasted with Charles Fishman's rendering of Wal-Mart: "Wal-Mart has the power to squeeze profit-killing concessions from suppliers...Wal-Mart price pressure can leave so little profit that there is little left for innovation." The quote is found in C. Fishman, *The Wal-Mart Effect* (New York, NY: Penguin, 2006), p. 89.
37. For the basic features of Keiretsu, see K. Miyashita and D. Russell, *Keiretsu: Inside the Hidden Japanese Conglomerates* (New York, NY: McGraw-Hill, 1994); H. Kim, R.E. Hoskisson and

- W.P. Wan, "Power Dependence, Diversification Strategy, and Performance in Keiretsu Member Firms," *Strategic Management Journal*, 25/7 (July 2004): 613-636.
38. See Fishman, op. cit.; C. Fishman, "The Wal-Mart Effect and a Decent Society: Who Knew Shopping Was So Important?" *Academy of Management Perspectives*, 20/3 (August 2006): 6-25, at pp. 13-14.
 39. For a comprehensive analysis of how IKEA utilizes geographical factors across several places, see E. Baraldi, "The Places of IKEA: Using Space in Handling Resource Networks," in E. Baraldi, H. Fors, and A. Houltz, eds., *Taking Place: The Spatial Contexts of Science, Technology, and Business* (Sagamore Beach, MA: Science History Publications, 2006), pp. 297-320.
 40. Development projects, regarded here as *dynamic* interactions, entail also strong structuring elements: even in informal projects, a specific organization—"a network in the network"—is typically built. This can alter the content of existing relationships between IKEA and its partners, as it partly did in the Billy episode among IKEA and Becker-Acroma (see Appendix A). Moreover, IKEA's technical projects are often an occasion for new actors to be included in the structure of IKEA's network: the "printed veneer" project, for instance, involved for the first time an Italian firm that is now a stable supplier of engraved cylinders.
 41. Meeting with Anders Brorström, Deputy Procurement Director, IKEA Russia, Moscow, February 28, 2007.
 42. See H. Håkansson and D. Ford, "How Should Companies Interact in Business Networks?" *Journal of Business Research*, 55/2 (February 2002): 133-139. On page 138, the authors stress that achieving total control over a network, however unlikely it is, is undesirable because it would transfer all burden and source of innovation and wisdom to the controlling company itself.
 43. On the concept of "activity links," one of the key dimensions in the IMP network "ARA-model," see H. Håkansson and I. Snehota, eds., *Developing Relationships in Business Networks* (London: Routledge, 1995), pp. 28-30.
 44. See M. Zollo, J.J. Reuer, and H. Singh, "Interorganizational Routines and Performance in Strategic Alliances," *Organization Science*, 13/6 (November/December 2002): 701-713.
 45. These advantages of both intra- and inter-organizational projects as coordination mechanisms are recognized, for instance, by J. Sydow, L. Lindkvist, and R. DeFilippi, "Project-Based Organizations, Embeddedness, and Repositories of Knowledge: Editorial," *Organization Studies*, 25/9 (November 2004): 1475-1489.
 46. H.K. Bowen, K.B. Clark, C.A. Holloway, and S.C. Wheelwright, "Development Projects: The Engine of Renewal," *Harvard Business Review*, 72/5 (September/October 1994): 110-120.
 47. See T. Brady and A. Davies, "Building Project Capabilities: From Explorative to Exploitative Learning," *Organization Studies*, 25/9 (November 2004): 1601-1621, at 1605-1607.
 48. A routine such as OPDC strongly depends on IKEA's competences and organization and is impossible to perform without adequate external interfaces. The effect of IKEA's internal structure is present, although less evident, on development projects, whose success certainly depends on IKEA's competence and organizational structure, but where much responsibility and control is typically delegated to actors farther away from IKEA.
 49. See Lorenzoni and Baden-Fuller, op. cit.