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An Intermediary's Learning Business System: A Case Study of Gore-Tex

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Supply chain management research has gained popularity, developing from the study of short-term dyadic relationships towards examining the multiple links contained in strategic supply chain networks involving long-term collaborators. We present a study of how an intermediary firm, which has no direct contact with its end users, built up a learning business system across its supply chain network to develop sustained competitive advantage. We argue that an intermediary firm with specific internal resources can develop a learning business system in a supply chain setting, and that such a firm — where it holds capabilities to integrate collaboration and leverage competition across its value chain — can build up hard-to-imitate competences for itself and the supply chain as a whole. Our findings demonstrate that an intermediary firm can proactively lead its material suppliers, manufacturers and brands in participating in a structured learning business system to the mutual benefit of its supply chain collaborators. The system is underpinned by certification mechanisms that advance technological product skills, develop capabilities, and maintain competition by not designating particular upstream suppliers to downstream buyers, and may eventually allow the intermediary to "set the rules of the game" in its industry. Overall, we conclude that an intermediary firm can create a learning business system that develops and maintains deeply embedded competences through establishing mechanisms for both collaboration and competition across its value chain.

Introduction

Supply chain management (SCM) research has gained popularity, developing from the study of short-term dyadic relationships or power relations concerning final tier suppliers towards examining the multiple links contained in strategic supply chain networks involving long-term collaborators (Azadegan et al., 2008; Harrison and Van Hoek, 2005; Huemer, 2006; Kanda and Deshmukh, 2008). The SCM research builds on concepts of power relations — assuming the core firm is the biggest buyer in the supply chain — and analyzes the relationships between buyers and sellers in the chain (Giunipero et al., 2008). Extant research mostly concerns final tier suppliers, and gives little attention to the roles of intermediary firms in collaborating and competing with their supply chain network, nor to how they can build up learning systems across their value chain. Intermediary enterprises often provide critical parts, materials, or components to fulfill end customer's needs, even though they do not have direct contact with its end users. Such firms' competences can include the capabilities to manage partnerships and to leverage resources, knowledge and technologies that can enable their supply chain networks to create new value and better products for their end customers (Cova and Salle, 2008). Examples of successful business-to-business supply chain intermediaries include Shimano (manufacturer of premium gears for bicycles) (Takeishi and Aoshima, 2002), Intel (producer of microprocessors for PCs) (Cusumano and Gawer, 2002; Perrons, 2009), and W.L. Gore (which produces what is recognized as the most successful material in the outdoor footwear industry) (Beaudry, 2009). The research noted above analyzes success factors from the perspective of architectural or platform strategies, but is insufficient in terms of studying intermediary firms from the viewpoint of a whole supply chain to find substantial evidence of how such firms develop their

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competences. In other words, how intermediary firms can manage and guide interfirm networks from their central positions, and lead them to the successful production of leading-edge products to meet demanding market challenges, has rarely been discussed.

Thus, we choose the successful intermediary firm, W.L. Gore, which dominates the waterproof outdoor footwear and apparel market, as our research case. The Gore-Tex trademark appears on well-known brands such as Nike, North Face, New Balance, Ecco, Merrell and Salomon, which demonstrates the dominant influence the firm has built up in the whole arena of outdoor clothing and footwear markets, enabling customers to keep dry and comfortable during their outdoor activities. Despite Gore-Tex's success in market, registering double-digit growth over the past five years (Beaudry, 2009), how Gore as an intermediary firm has developed specific firm capabilities, and has created mechanisms to acquire resources to refresh and evolve its competitive advantage via supply chain design and management, remain unclear and deserve more thorough investigation. The case study of Gore provides insights of an intermediary firm who established mechanisms for both collaboration and competition across their value chain to lead a learning business system that provides lessons for supply chain management theory.

Our article, therefore, has three aims. First, to analyze how an intermediary firm that has no direct contact with its end users can integrate external resources and manage collaboration across its value chain to develop its critical core competences; second, to investigate and identify what supply chain learning mechanisms are created and how; and third, to gain insights into how an intermediary firm can leverage capability development and competition to ensure ongoing learning, which can foster sustainable competences. To address these matters, we present an in-depth case study of Gore-Tex, examining the collaboration mechanisms and ties that operate between its supply chain partners.

We next review previous work on focal intermediary firm competencies and supply chain collaborations, and develop a learning business system concept that leads to three propositions. We then outline our research methodology and present our case study, and present our findings and discuss their managerial and theoretical implications. We end with our conclusions and some suggestions for future studies.

Theory and propositions

Focal intermediary firm competences

How a firm can best define itself and secure an industry position from where it can gain a distinctive identity for value in customers' minds, and so sustain its competitive advantages, have become increasingly popular research issues over recent decades (Porter, 1980; Prahalad and Hamel, 1990). Strategic management studies have emphasized that different enterprises possess heterogeneous and distinctive competences — which are strongly related to their performance — and argued that sustained competitive advantages are based on firm resources that competitors are unable to duplicate (Barney, 1986, 1991; Rumelt, 1984; Wernerfelt, 1984). Prahalad and Hamel (1990) suggest the core competence comes from the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies. Amit and Schoemaker (1993) argue that the capabilities refer to a firm's capacity to deploy resources, usually in combination, using organizational processes, to effect a desired end. Therefore, our research proposes that the capabilities of a firm are its abilities to deploy its distinguish resources and exploit its internal capacity to work with its external supply chain partners in order to provide the end users with value-added products. The firm's competences are unique abilities to integrate collaboration and learning activities and leverage competition across its value chain. Such competences in a collective learning framework lead to core competences in a supply chain network setting.

SCM studies developed from the study of transaction cost (Williamson, 2008), which involves short-term dyadic relationships, and moved towards examining the long-term strategic supply chain network collaborations (Giunipero et al., 2008) that seek complementary resources to meet rapidly changing technology and economic conditions (Lazzarini et al., 2001; Shook et al., 2009). Thus, supply chain focal firms can enhance their capabilities by consolidating and integrating their internal resources, while at the same time interacting with various external resources to refine their organizational processes, systems and structures (Allred et al., 2011).

An intermediary firm's capabilities can come not only from its distinctive resources, but also via its ability to leverage external network resources to accelerate and refresh its competences (Lorenzoni and Baden-Fuller, 1995; Lorenzoni and Lipparini, 1999; Rungtusanatham et al., 2003). When an intermediary firm aims to try to gain competitive advantage by acting as the focal firm in a supply chain network, it needs to: a) become the center of the supply chain partnerships and take on the responsibility of establishing the network's relationships; b) prioritize end users' needs, because any problems in the supply chain operations will cause end customers to evaluate the networks' products negatively; and c) exploit its firm distinctive resources and then gain further competences from collaborating with its supply chain partners (Lorenzoni and Baden-Fuller, 1995). We argue that a focal intermediary firm must not only build up its partner relationships with both upstream suppliers and downstream customers, but must also proactively collaborate with those of its partners' to create value for the supply chain in order to provide end users with high value-added products, which will ultimately bring mutual benefits to all value chain partners.

Although theorists have found many different ways to define intermediary firms and their goods, continuity of relationships, interdependence, stable market structures, and customer orientation have been identified as four of the main characteristics of such firms (Cova and Salle, 2008; Fern and Brown, 1984). Webster (1978) points out that

business-to-business buying processes can be highly complex and depends more on other business functions to their effectiveness than does business to consumer marketing. Gawer and Cusumano (2012) suggest that intermediary firms can lead in innovation and in creating value for end users (Azadegan et al., 2008). Thus, the capabilities to meet end users' needs as well as to integrate, coordinate and exploit the supply chain network operations are key features of intermediary firms seeking to build and sustain their competences. At the same time, focal intermediary firms in supply chain networks can create and master new technologies by borrowing ideas from others, and can make their partners more effective and competitive by sharing their expertise across their networks (Gassmann et al., 2010; Myers and Cheung, 2008; Tokman and Beitelspacher, 2011).

To summarize, the first priority is to meet end user's needs — but intermediary firms need to have distinctive resources as the prerequisite basis for doing so. It must also have the internal resources required to integrate with its external partners — upstream suppliers and downstream customers — to serve end users. In addition, an intermediary firm's capabilities are the ability to integrate its distinctive internal and external resources and to be able to leverage resources across its value chain. Thus we propose:

Proposition 1. *The capabilities of an intermediary firm underpin its role as a supply chain network initiator to integrate and leverage its upstream suppliers and downstream customers and to develop its core competences so as to meet end users' needs.*

Supply chain collaboration

Whether and how inter-relationships and collaborative status in supply chain networks can contribute to firms gaining competitive advantages are still hotly debated (Barratt, 2004; Cao and Zhang, 2011; Choi and Hong, 2002; Huemer, 2006; Min et al., 2005; Tokman and Beitelspacher, 2011). Yet firms can exploit their distinctive resources across their borders to create norms for new product developments and to network partners' mutual benefit (Laaksonen et al., 2008). The ability to collaborate with and learn from suppliers through knowledge exchange is also important, since important elements of manufacturing technologies can be learned from suppliers (Cheung et al., 2010; Dyer and Hatch, 2004). Barratt and Barratt (2011) pursue the notion of "information-based linkages", and recognize the combination of the internal and external linkages an organization needs to be able to extend its view across the entire supply chain so as to achieve improved operational performance and sustained competitive advantage (Cao and Zhang, 2011; Wang et al., 2008). Although the researches cited above show that interdependence, collaboration, and organizational learning within supply chain networks can improve firm competence, collaborations still fail from overdependence on technology, insufficient trust, unfitness, and inappropriate timing (Anderson and Jap, 2005; Barratt, 2004; Giunipero et al., 2008; Skjoett-Larsen et al., 2003).

Researchers have tried to integrate the concept of the focal firm into considerations of collaborative supply chain relations (Barney, 2012; Möller and Svahn, 2003). Firms need to promote proactive mutual collaboration between all supply chain members if they intend to utilize supplier members' knowledge and resources to succeed in highly uncertain operational environments (Cao and Zhang, 2011). Firms' collaboration competences allow them to recognize the value of collaboration, and to increase supply chain capabilities by adjusting, re-allocating and rebuilding internal and external resources (Allred et al., 2011). Conflict between suppliers risks decreasing the advantage and offsetting the synergy of collaboration (Nickerson and Zenger, 2004). Thus, the ability to mediate issues across internal and external parties in order to resolve problems, while also leveraging competition to increase network partners' effectiveness, becomes critical.

Many studies recognize the potential of supply chain governance as a mechanism to leverage partners' competitiveness (Hernández-Espallardo et al., 2010; Wang and Wei, 2007; Wathne and Heide, 2004). Hernández-Espallardo et al. (2010) analyze the governing mechanisms of network knowledge-sharing, a key element to ensure mutual trust and respect, as well as to restrain opportunism. Looking closely at collaborations and the establishment of governing mechanisms with strategically important external suppliers shows how firms can benefit from relationships that foster opportunities for greater improvement among network members (Storey and Kocabasoglu-Hillmer, 2013; Vereecke and Muylle, 2006), and identify supply chain practices or rare, valuable characteristics that are difficult for competitors to imitate (Wang and Wei, 2007).

Thus, in order to advance the competitiveness of its whole supply chain network, a focal intermediary firm must possess the capabilities to establish supply chain collaboration mechanisms and expand its distinctive operational resources externally — so-called "deeply embedded supply chain competences". Such competences involve the understanding of the whole industry and its knowledge-sharing modes (and their governing mechanisms) to identify, build, and diffuse distinctive resources in and across the network. A successful intermediary focal firm will coordinate and smooth network collaboration, and build up a climate of trust-based governance with established mechanisms to continuously resolve partners' problems: the value created through their synergistic interactions can exceed what a single organization could generate alone (Ellram and Edis, 1996; Ketchen and Giunipero, 2004; Myers and Cheung, 2008). So, we can argue that:

Proposition 2. *The focal intermediary firm leads and maintains collaborative mechanisms via network "norms" to foster the creation of deeply embedded competences across the supply chain as a whole.*

Hard-to-imitate learning business systems

A business system is the "system of works" that a firm designs (within and beyond its boundaries) to deliver its products to its target customers (Itami and Nishino, 2010). An important business system requirement is that partners should be both initiators and problem-solvers, not just "doers". Doing the work involves learning about it (about both in-house and suppliers' work-flows) and also leaving "footprints" (accumulated information flows) for other learners. Thus a business system is also a learning system — so we can label it a "learning business system" — and is designed to realize a firm's strategic differentiation intent and to accelerate its learning to upgrade its capabilities to meet new challenges (Itami and Nishino, 2010).

A firm's business systems should not be confused with its business model, which describes how it plans to create value in the marketplace (Chesbrough, 2010). Business models mediate between technology development and economic value creation for shareholders, designing how the company makes money by specifying where it is positioned in the value chain (Chesbrough, 2010; Magretta, 2002). While business models tends to focus on value creation and capture — converting resources (technological competences and informational inputs) into economic outputs for markets and customers in ways that allow firms to retain some of the value they create as profits — business systems focus on accumulating long-run capabilities and creating learning mechanisms to integrate internal and external resources, so as to synergize overall supply chain features that are context sensitive and which can yield sustainable advantage (Kagono and Inoua, 2004).

We argue that, while a firm's internal attributes — such as its distinctive skills, technical and production capabilities, and its management style (the set of heuristic rules, norms and beliefs managers create to guide their actions) — will underpin its core competences, the external factors — the complementary resources its partners contribute, and how they interact with and learn from each other — are what may create competences, even if the core firm has no direct contact with end-users. The competences of the whole supply chain increase when the learning business system is adopted throughout the whole chain with a long-term perspective. We propose a successful learning business system operates through establishing mechanisms generated from both collaboration and competition across a supply chain network that is difficult for its competitors to imitate — in other words:

Proposition 3. *A learning business system is an intensive, interactive network underpinned by established mechanisms that is hard for competitors to imitate, and that continuously provides high value-added products to end users.*

Figure 1 illustrates our conceptual framework of a focal intermediary firm with specific internal resources which can develop a learning business system in a supply chain setting via certification mechanisms, organizational routines/norms, supported by guarantee mechanisms to enable the system to provide differentiated value products to end consumers. The intermediary firm integrates collaboration and leverage competition across its chain upstream suppliers and downstream customers to foster the learning system and transform/internalize the network partners' competences to build up hard-to-imitate competences for itself and the supply chain as a whole.

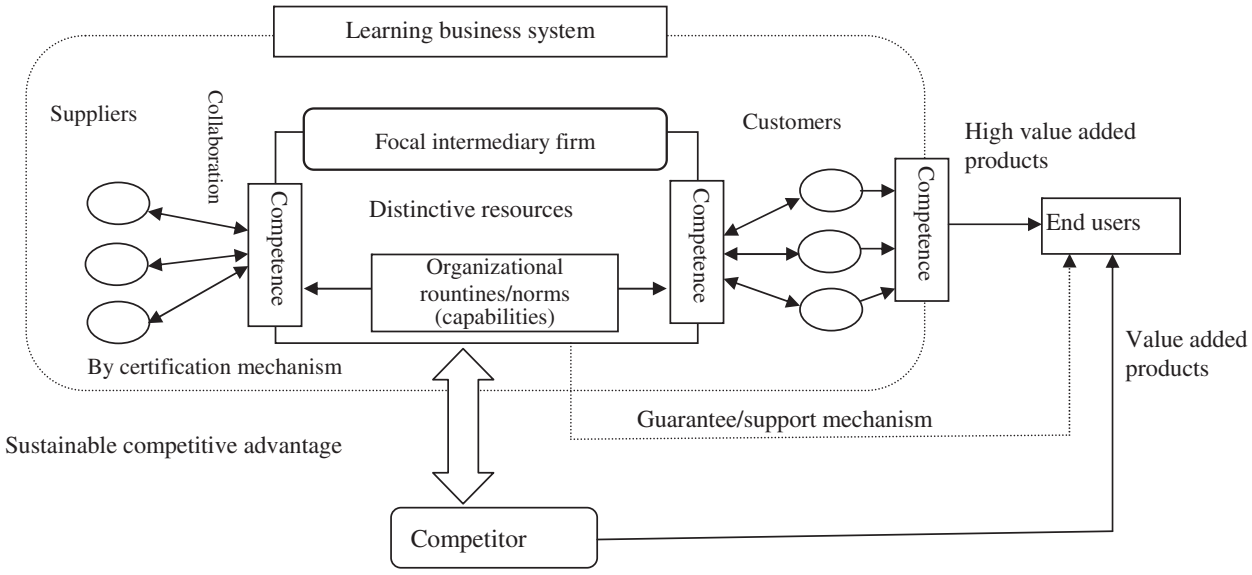

Figure 1. Conceptual framework of intermediary learning business system

Research design and methodology

Case study design

This study adopts a qualitative research method for two main reasons. First, it is appropriate when little is known about a phenomenon (Eisenhardt, 1989; Eisenhardt and Graebner, 2007), and there has been limited empirical research in the area of supply chain networks led by intermediary firms: indeed, such studies usually only employ data from one player, generally the leading brand or manufacturer (Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Gassmann et al., 2010; Yin, 1989). Our case study approach provides a more complete portrayal of an inter-organizational learning business system than a quantitative approach could, and is also appropriate to examine the collaboration mechanisms involved. Second, qualitative research can uncover new or alternative meanings and interpretations where multiple possible perspectives are involved (Huemer, 2006): our study investigates material suppliers, manufacturers and brand companies, so yielding a valuable richness for seeking fresh perspectives on the subject of supply chain collaboration.

Data collection

W.L. Gore and Associates, Inc. (established in 1958), is a U.S.-based material provider to the electronics, fabrics, industrial and medical markets. (To differentiate the company W.L. Gore from Gore's footwear division — our study's main setting and focus — and from Gore's trademarked fabric, Gore-Tex®, we use "Gore", "Gore Footwear" and "Gore-Tex fabric" to distinguish these three respective elements in our article. We also use the simpler general label "Gore-Tex" to indicate the whole chain system Gore Footwear has built up around the development, production and marketing of its patented fabric.) Our primary data source was a series of interviews and factory observations of the study firms over 2009–2010, but we also used industrial sector data dating back to 2001.

We started our research by studying secondary sources to gain a deeper understanding about Gore's products (especially Gore-Tex), technology skills, operating processes and corporate culture, as well as its business strategies. Three of the authors (in various combinations) visited Gore China and its Chinese and Korean suppliers during 2009 and 2010, while the fourth attended the three-day "GORE-TEX® PRO" training event in 2009, to investigate first-hand how Gore Footwear employees interacted with its suppliers and other attendees. Intensive interviews were undertaken and close observations documented to further our understanding of Gore Footwear's management philosophies and organizational features, as well as how it selected and interacted with its partners. To learn more about Gore's business strategy and certification mechanisms, we interviewed senior executives from three representative Gore Footwear supply chain partners: 1) Texon, an international footwear material supplier included on Gore-Tex's Recommended Vendor Certificate (RVC) list; 2) Genfort, a footwear manufacturer on its Certified Manufacturer Agreement (CMA) list; and 3) La New, a Taiwanese casual shoe brand partner on the Trademark License (TML) list. Ten formal interviews were conducted with top managers with many years of working experience across Gore Footwear and its partners, and we made numerous other informal contacts during our data gathering process. A series of cross-checks showed our interview data to be highly consistent. Table 1 gives an overview of interviewees and companies the authors' visits to footwear factories and suppliers.

Case study: Gore-Tex

By 2013, Gore (a privately held company) had expanded its operations around the globe, employing more than 10,000 "associates", and earning a reported $3.2bn in revenues. Known for its distinctive management practices (Hamel and Breen, 2007), Gore has been on Fortune's 100 Best Companies To Work For List for sixteen consecutive years (http://www.gore.com/en_xx/aboutus/fastfacts/index.html). Even though footwear only represents about 8% of its total revenue, Gore dominates the outdoor footwear market, and Gore-Tex fabric is recognized as the most successful material in the industry, registering double-digit growth over the past five years, while selling 300 million pairs of shoes a year (Beaudry, 2009). A famous, highly competitive company with a valuable technological asset (the capability to produce ePTFE membranes), Gore could easily have acted simply as a specialist supplier to the footwear and apparel industries. Partnering with others was not a

Table 1
Profiles of interviewed companies

Company	Revenue (in $m)	Employee numbers	Interviewees' positions	Supply chain role	Established in year	Years in GORE-TEX supply chain
Gore Footwear	2,500	9,000	1 leader and 4 associates	Intermediary	1958	–
Texon	112	468	1 director	Material supplier	1894	2
Genfort	313	18,000	1 president	Manufacturer	1971	20
LaNew	72	1,900	2 vice general managers and 1 manager	Brand and manufacturer	1981	5

Data updated as of 2010.

necessity, but the company made a deliberate business strategy choice to create a supply chain to give customers added-value products that were differentiated from its competitors' offerings.

Gore Footwear comprises five departments — sales marketing, retail marketing, internal sales, "product specialist" and technical support departments. The technical support department — the main driver of the Gore Footwear business system — employs 21 people (known as "application engineers") globally: eight are stationed in Asia (where 70–80% of the world's Gore-Tex shoes are produced), of whom we interviewed five. The engineers, who have in-depth knowledge about the Gore-Tex fabric, are mainly responsible for protecting its brand image by ensuring consistent quality.

Gore Footwear's operations can be categorized into two major areas: product flows and technical support flows. In terms of product flows, Gore Footwear orders high-quality breathable fabric (raw material) from its independent upstream fabric suppliers, which it then laminates with its patented membrane. Its strategy is to maintain close to arms-length relationships with these suppliers, who are thought to be providing a commodity, and can easily be replaced by others if their fabric quality does not meet Gore-Tex's standards. In comparison, its strategy is to build partner relationship with its downstream partners, which it manages via a variety of certification mechanisms. The licensed shoe manufacturers, who hold Gore Footwear Certified Manufacturer Agreements (CMAs), buy Gore-Tex fabric direct from Gore Footwear, and are obliged to adhere to its rigid payment terms and delivery lead times. More importantly, the quantities of Gore-Tex fabric they order are determined by Gore Footwear and its brand companies, rather than by the shoe manufacturers, so Gore Footwear retains controls the levels of both the fabric purchasing and shoe manufacturing activities along the chain. Gore Footwear's CMA certification requires its manufacturers to adopt certain testing, processing and storage standards to ensure Gore-Tex shoes remain guaranteed high value-added products for Gore Footwear's licensed brands to sell and for its customers to rely on. Thus, Gore-Tex not only actively promotes its own brand, but helps increase the value of its partner brands with whom it has Trademark License (TML) agreements that allow them to hang the GORE-TEX® tag on their shoes. Gore Footwear's internal sales team supports the brands by training retailers' sales forces and setting up joint marketing plans and sharing market information with them, as well as providing after sales services and handling customer claims for branded items — which enable it to capture customer's feedback information (such as customer's ideas, thoughts and feelings) related to its products.

Given the vast amounts of material involved, and how material quality can vary between suppliers — or even within the same batch — quality is still not easy to control. But, Gore Footwear understood that unless it could guarantee the quality of its materials, it couldn't guarantee the quality of its shoes. In 2002, it began to address this problem by establishing a certification mechanism to control the quality of the fabric coming from its suppliers, proactively encouraging suppliers to send them material for testing in order to gain its Recommended Vendor Certificate (RVC) certification. Initially, the system was fairly loose and only a few suppliers were interested in participating, since they had to pay for the material testing and learning the testing procedures, standards, etc., took time.

In terms of technical support, Gore Footwear leases laboratory testing machines to shoe manufacturers (and to material/component suppliers) and provides them with on-call technical support services, both to ensure product quality and especially to protect its core competence (its patented waterproof membrane design) from leaking out. In 2008, Gore Footwear restructured the whole notion of collaborative partnerships with suppliers and manufacturers into a collaborative learning platform (a learning business system), which formalized its TML/CMA/RVC certification mechanisms (with clearer standards and closer monitoring mechanisms), and made membership obligatory — but also much more beneficial — for its suppliers. Following an initial RVC meeting for suppliers in 2008, Gore Footwear set up the GORE-TEX® PRO program (of regular professional training sessions) in the following year to offer suppliers, manufacturers and brand partners an ongoing collaborative platform for sharing industrial knowledge and information. Steven Yu (a Footwear Technical Support associate in charge of the training program) notes that the most important outcome is that attendees take what they have learned back to their companies, and convince their employees of the need to improve and sustain product quality.

Developing the intermediary firm competencies

Gore Footwear is a specialist intermediary, whose core competence stems from its patented assets and its advanced research and production technology. But, having no direct contact with its end-customers, it has to rely on its partners to deliver high-quality and high-value end product. "We don't have the luxury of having a visible technology, so we really have to rely on how our product is merchandised." said Matthew Schreiner, Global Footwear Specialist. "You want a shoe in which you can incorporate the Gore-Tex technology without affecting the look of the shoe and without constraining leather or component construction, so that the customers would spend $15 or $25 more for a technology they can't see" (quoted in Beaudry, 2009). Yu explained that Gore Footwear understood that simply focusing on developing its core competence would not allow it to build substantial market share: strategic alliances with manufacturers, brands and retailers were needed in order to take Gore-Tex to market leadership. Over recent years, Gore Footwear has worked with its range of business customers to gradually develop the mechanisms and build up the close relationships that have been the basis for both its product's ability to add value for its end users and its recent outstanding growth.

Gore-Tex's waterproof and breathable fabric is a critical material for outdoor products, and Gore Footwear proactively promotes its use in different types of shoes via close interactions with its supply chain partners. Gore Footwear technicians visit both its material suppliers and shoe manufacturers with increasing frequency, working proactively with them to solve problems. In one instance, a pair of black Gore-Tex shoes passed the waterproof standard, but the same model in brown

material failed the test. The manufacturers referred the problem to the Gore Footwear lab but there was no obvious answer, even when the investigation was widened to include the material suppliers. Eventually, after every possible element had been screened, it was discovered that the brown shoelace acted as a "wick", drawing water into the shoe, while the black lace did not. The shoelace supplier — which had not experienced this problem before — experimented unsuccessfully with several factors, before Gore Footwear worked with it to develop a solution: information about how the brown pigment caused wicking was shared with partners at subsequent training meetings. The peer-chosen leader at Gore must continually re-earn their colleagues' allegiance (Hamel and Breen, 2007); that fosters the continuous improvement and learning culture in its supply network and differentiates Gore Footwear supply chain from others.

As a company, Gore is known for its unusually innovative and progressive team-based culture and flat management style (Hamel and Breen, 2007), which "recognizes the importance of fostering a work environment where people feel motivated, engaged and passionate about the work they do." (Terri Kelly, Gore President and CEO; quoted in Maher, 2010). In practice, its "associates" are not assigned to specific tasks — they have free will to follow "leaders" and/or try to develop their own ideas, and set up their own teams. "As long as your idea is excellent and worth execution, there will be followers," said Yu. An example of how such initiatives feed into Gore Footwear's strategy development was when Yu and his leader Chabi Liu (head of Gore Footwear Technical Support) sensed that rising labor costs and increased competition in the footwear industry threatened to make profits razor thin. At the time (from 2003), the sports/athletic brands — Adidas, Nike, Reebok, Timberland, etc. — were the leading casual footwear manufacturers, and were moving towards adopting lean production techniques (by reducing set up times, leveling production volumes, adopting Kanban scheduling systems and reducing inventories). But the outcomes differed according to whether manufacturers adopted lean production as a technological system or as a supporting system (involving employee empowerment, self-directed teamwork, multi-skilled workers, etc.), and as to how the skills involved were implemented across the whole company. The seeds of what would become the Gore-Tex business strategy were planted when Yu and Liu understood that Gore Footwear's lean implementation should not only focus on the production side and utilizing lean production techniques, but that a more important element was the collaboration with partners and understanding the needs of end users, which involved the stable employment and long-term training of multi-skilled core workers, who could continuously improve operations to respond to changing manufacturing and market environments. Gore Footwear is clear about the importance of developing its capabilities to meet end-user's needs and planned to establish a continuing learning system that would gather in its supply chain partners so they could all grow together. By 2008, its network learning initiatives led to the GORE-TEX® PRO training program, which became a major step in Gore Footwear's ability to set the industry standard for waterproof shoes.

Despite Gore Footwear's unique internal patented assets and its advanced management ideas, acquiring external resources by collaborating with its upstream suppliers and downstream customers to solve problems was what enabled it to "set the industry standards" for breathable waterproof fabrics to meet the end user's needs: to keep their feet dry and comfortable during their outdoor activities.

Supply chain collaboration mechanisms

Despite Gore-Tex's intermediary position in the supply chain structure, it plays the leading role in its collaborative learning network. Capturing external resources that can add value to products, and helping promote them, is essential to sustaining Gore-Tex's competences, since end-customers cannot directly see the advanced technology involved in its waterproof/breathable fabric. Gore Footwear has worked with its shoe manufacturers over some 30 years, initially under only fairly loose supervision. But its technical support department has now built up network collaboration mechanisms around three types of partner certification, designed to ensure product quality throughout the value chain by monitoring and assisting suppliers, manufacturers, and brands to support the production and marketing of Gore-Tex's high value-added footwear. They are:

The Recommended Vendor Certificate (RVC), which controls the quality of fabric coming from material suppliers.
The Certified Manufacturer Agreement (CMA) which quality controls the production of GORE-TEX® footwear by its manufacturing partners.
The Trademark License (TML) that governs which branded retailers can sell GORE-TEX® branded footwear.

By 2009, Gore Footwear had over 270 partners signed up to one or other of these agreements (43 RVCs, 80 CMAs and 150 TMLs), whose key features are summarized in Table 2. The purpose of the certification mechanisms is to ensure the quality of Gore-Tex products across three different stages, and this aim is supported by an intensive interaction learning platform which means that its network partners have graduated from being simply "doers" to active "problem solvers". The learning platform is available to all parties via training events, regular and occasional meetings or lab alliances and rituals, and its overall collaborative atmosphere promotes progressive learning across the network.

Gore-Tex selects its partners according to how much time and energy they can commit to the collaboration. Once certified as a partner, a company becomes a member of the Gore Footwear learning business system, and works through a model of intensive collaborative learning with others, attending GORE-TEX® PRO training programs and meetings to learn and to share information, and being visited by Gore Footwear associates. The system is "semi-closed" — partners have the option to keep participating, or to leave. The RVC operates as a "recommend" supplier list: CMA partners are required to source

Table 2
Features of the GORE-TEX footwear certification mechanism

Categories	Material suppliers	Footwear manufacturers	Brand companies
Certification	RVC	CMA	TML
Numbers	43	80	150
Purpose	Screening qualified material suppliers	Manufacturing qualified GORE-TEX footwear	Marketing high value added GORE-TEX footwear
Mechanisms	• Certify materials • Not designated supplier	• Certify manufacturers • Suggested manufacturers list	• Co-branding
	Intensive interaction learning platforms		
	– Superior partners ritual – Testing lab alliances	– GORE-TEX® PRO Training – Production monitoring – Testing lab alliances	– Salesforces training – Performance evaluation

Data updated as of 2009.

their materials from those suppliers, but are not directed to any specific one — nor are TMLs required to buy their shoes from any particular CMA. Gore Footwear gives its certified partners no guarantees as to how much fabric or how many shoes the brand partners will order from the upstream suppliers. This mechanism retains elements of competition; certified suppliers/manufacturers need to keep upgrading their competitive advantage so that they gain orders, and stay in the network.

Crucially, the system is learning-oriented: by staying in the system, and by attending various training events or improvement meetings, partners can gain greater understanding of industrial standards, learn new management techniques, and enhance their problem-solving capabilities. The certification mechanisms are designed to build sustainable competitive advantages and learning for the future so as to enable the continuous creation of differentiated advantages. To illustrate how these mechanisms operate, and their consequences for Gore-Tex's learning business system, the following sections examine Gore Footwear's interactions a representative partner from each category.

Recommended vendor certificate (RVC)

In 2002, Gore Footwear began to adopt a list of specified RVC material suppliers to address various quality problems that had affected the performance of Gore-Tex shoes. At the initial RVC meeting in 2008, certified material vendors, footwear manufacturers and branded companies were assembled in order to create a collaborative platform. The purpose of the RVC meetings — now held annually — was to achieve more intensive communication between a wider range of Gore-Tex system members and raise the levels of collaboration among supply chain partners. At the early stages of the RVC concept (2002–2007), Gore Footwear encouraged (rather than required) its material suppliers to submit material for laboratory testing — although not many did so, as they saw no immediate benefit, nor did they foresee how significant Gore Footwear would become in the industry. Now, material suppliers submit their material for testing voluntarily, so as to stay on the RVC list. Although the annual meeting also has a "ritual" element — in awarding "best practice" accolades to suppliers — the focus is on collaboration rather than competition between partners. As Liu noted, "It's not necessary for partners in the same industry to focus on competing; collaboration will enlarge the whole market pie." Besides celebrating successful "role models", the meeting acts as a forum where suppliers can explain how they have improved processes, solved problems, or achieved specific goals, and where they can consult fellow suppliers about their experiences.

Texon is a hundred-year-old British company that has developed into a well-known international footwear material brand with an annual income of some $112m, and has been on Gore Footwear's RVC supplier list since 2008. Texon is normally a first choice for the best footwear counters materials, and thus was selected due to the fact that it owns its specific internal resources. Texon had no previous relationship with Gore Footwear before being invited to attend the 2008 RVC meeting, but was interested in the notion of a learning collaboration, to grow both its product quality and its markets. It chose to become involved as a network member, not just an RVC supplier, but to share industry-level knowledge about market and technology trends, problem-solving skills, etc., as well as to find out more about Gore-Tex's learning business system and management philosophies. Ben Su, Texon's Sales Director for Greater China, explained:

> "We are different from other material vendors because we solve customers' problems and teach them how to use our product. Gore-Tex is a leader in footwear material and supplies waterproof and non-wicking products … we realized that Gore-Tex's demanding testing standards, especially in solving problems about shoe structure, would be a great help in advancing our capabilities … Gore-Tex's certification mechanisms are 'freestyle'. Gore-Tex knows how to manage partners to produce its certified products, even though it doesn't really know about partners' products."

The collaborative learning mechanism Gore Footwear built up pulled suppliers into the loop, and developed their capabilities by synergizing external partners to the point where they now produce materials that can command premium prices for using in Gore-Tex branded products. Gore-Tex's strong reputation with consumers encouraged suppliers to want to learn and develop alongside it — thus, as the certification mechanism developed, so did the interactions and learning between partners, creating greater value for them all.

Certified manufacturer agreement (CMA)

Only manufacturers whose processes are approved by Gore Footwear can gain CMA status, and thus production licenses to produce Gore-Tex footwear legally. When branded companies seek a certified manufacturer, Gore Footwear screens its CMA list and recommends appropriate companies, or (if a new candidate manufacturer is suggested) formally evaluates its factory and production facility, environment, techniques and willingness to cooperate as a Gore-Tex business system member before signing it up. Gore Footwear lays down rules for standard operating processes and teaches producers how to manage all aspects of the fabric, and then monitors and supports them in their production of Gore-Tex shoes by leasing them a range of lab testing equipment. The knowledge of how to make certified Gore-Tex footwear then spreads around producers' factories, so all employees in the system clearly know how to use the Gore-Tex fabric so as to improve product quality and avoid production obstacles.

The footwear maker Genfort (annual sales $313m) is an example of a manufacturer on Gore Footwear's CMA list. Genfort has been a Gore Footwear business partner for over 20 years — in fact, was its certified first Chinese manufacturer — and now makes shoes for 36 different brands, including twelve Gore-Tex brands. Robert Tsai, the Genfort President said, "Many years ago, Gore-Tex was a 'policeman', checking that your quality met its standards all the time. This monitoring involved a lot of testing and examining expenses. But Gore-Tex has changed its role — now it is a partner helping you remove production obstacles. Gore-Tex assists manufacturers to work with material vendors to solve quality problems, so the CMA strategy has become a reality." Working with Gore Footwear for such a long time has allowed Genfort to accumulate manufacturing skills, which it has spread as embedded routines throughout its organization. Genfort has experience of how using uncertified material can cause manufacturing costs to rise. Another common problem for contract manufacturers is not having precise enough production lines, which cause poor product quality. Footwear manufacture requires more complicated skills and closer interactions between network partners than for other garments or accessories: for example, making one outdoor shoe involves about 200 different processes –so making Gore-Tex products can be worrying for manufacturers. (Tsai recalls how the first pair of Gore-Tex shoes Genfort made, twenty years ago, filled with water when subjected to Gore-Tex's testing standard.) The trial-and-error process involved can be tremendously costly, but once employees understand the approved production routines, product quality is guaranteed, which is what has enabled Gore-Tex shoes to lead consumers' quality expectations rather than merely respond to their demands. Tsai believes about 60% of Genfort's business comes from Gore Footwear, either directly or indirectly, and that this kind of mutually beneficial situation derives from the formulation of Gore-Tex's business strategy, which develops long-term partner relationships naturally and continuously: "It is very powerful, and has led to Gore-Tex dominating the outdoor footwear market."

Trademark license (TML)

The Gore-Tex Trademark License (TML) brand certification is awarded to products licensed to use the GORE-TEX® trademark: the list currently includes some 150 brands including many well-known names. Gore Footwear's marketing department assesses appropriate candidates before they are officially certified as partners to see if their marketing investment plans for Gore-Tex shoes are acceptable. The department has considerable experience in developing campaigns before product launches to gauge consumer perceptions and create producer level awareness, and also offers in-store support for product launches (Beaudry, 2009). Gore-Tex works with TMLs in two major ways — product style development and joint marketing projects — so as to understand end users' needs and market information/trends, and thus counter its disadvantage as an intermediary firm of not dealing directly with end users.

La New (annual revenue $72m) is a well-known Taiwanese casual shoe brand and manufacturer that started selling Gore-Tex branded products in 2005, and has since become an important Gore-Tex partner in the Taiwanese market. It joined the Gore-Tex supply chain after its Vice President of Operations, Esau Chen, asked himself, "How much can we sell a pair of waterproof shoes for without Gore-Tex?" and is now on both Gore's CMA and TML lists. Using the Gore-Tex trademark offers benefits to both partners in the Taiwan market: for instance, most local customers thought Gore-Tex only made mountain climbing shoes before La New took the brand into the domestic casual market. As Chen points out:

> "La New only makes a few Gore-Tex styles compared to its other brands … [but] is planning to use Gore-Tex in its leather casual shoes so they will dry more quickly than regular leather shoes. Brands will be eliminated from the market competition if they don't keep up. Our current TV advertisement promotion focuses entirely on GORE-TEX®. Although we pay most of the advertising costs, Gore-Tex has convinced us they would like to develop a long-term partnership with us."

Having La New as a partner has helped to open the Taiwanese market to Gore-Tex® Footwear. In contrast, it has not (yet) succeeded in selling in Japan, where it has no local partner, and is just seen as a "material", rather than as a guarantee of high-quality differentiated products. Chen added: "We have proved that we are not only capable of manufacturing Gore-Tex casual shoes, but also know how to sell Gore-Tex shoes. We have made three-year plan with Gore-Tex to expand the markets in Taiwan and Vietnam. La New and Gore-Tex definitely need each other if we want to expand."

Gore Footwear only selects one brand (or, at most, a few brands) in each market segment to protect its position. As an international brand with connections with many other well-known footwear brands, it has accumulated deep industrial information and knowledge: collaborating with Gore-Tex will give the young domestic Taiwanese brand very valuable ex-

perience, and teach it a lot about how to operate as an international business brand. La New sold three times more Gore-Tex shoes in 2010 than in 2009, and the value created by mutual learning from their inter-organizational interactions has benefited both parties. The free return service Gore-Tex offers (via the TML), along with the Gore-Tex hangtag, has helped to develop a strongly loyal end-consumer base that willingly shares thoughts/feelings with the Gore-Tex brand — and that advantage is rooted in the Gore-Tex collaborative system.

Results and discussions

The focal intermediary firms' competences

Gore-Tex's competences stem, in the first instance, from its patented, high-tech waterproof and breathable membrane (ePTFE). SympaTex, a well-known German brand with a large European outdoor clothing market, provides waterproof/breathable fabric targeting a lower price market. SympaTex's business is solely as material provider to the outdoor footwear and apparel market and eVent supplies the waterproof/breathable membrane, while Gore Footwear has been successful in leading the waterproof product of footwear market and setting its industrial standards, by continually focusing on innovative and creative projects (as it believes is the best strategy) and making followers chase it.

As an intermediary firm, Gore-Tex's ability to develop unique intermediary goods is the capability base that enables it to lead and act as a focal firm in its supply chain network. This capability also underpinned by its collaborative innovative mechanisms, and supported by its managerial strategy in its learning business system. This system has promoted increasingly successful interactions with its supply chain partners in recent years to their mutual benefit: as its network partners contribute their expertise in either marketing or specific manufacturing skills, so their system interactions represent win-win exchanges. We suggest that internal resources — such as advanced technology assets — may only offer short-term competitive advantages to those that hold them. In this case, the focal intermediary firm possesses the capacity to update and renew its competence, and the ability to coordinate and integrate its internal resources and external activities to establish routines and best practices (new rules, clear standards, problem-solving mechanisms) and organizational processes to turn them into both non-substitutable resources and end-user value.

On the other hand, Gore-Tex leverages value chain competition by leasing (instead of selling) lab testing equipment to both RVCs and CMAs, so the core competence remains internally held. Gore-Tex also controls the quality of its fabric and footwear production with strategic suppliers and partners — and their continued willingness to interact with the focal intermediary firm in a sustained supply chain collaboration has led to a climate of continuous learning with a long-term perspective, which has promoted its "rules of the game" to become industry standards, and improved and added value to all its members' final products. Our findings support our proposition that a focal intermediary firm can integrate and leverage its own and external distinctive resources to serve its end users, and by doing so sustain and renew its core competences.

The certification mechanism for supply chain collaborations

Gore-Tex's supply chain collaborations are supported by the certification mechanisms it has proactively pursued to ensure product quality to end-users. Being able to construct and promote collaborative learning via intensive interactions between its supply chain partners to solve problems together represents a competitive advantage for an intermediary firm as a network leader. In the past, footwear industry suppliers and manufacturers have generally been competitors, and have not normally been in contact with each other. By successfully building up its learning platform, Gore-Tex has bridged the gap between its upstream suppliers and downstream customers. The GORE-TEX® PRO training program provides opportunities for partners to get to know each other's needs — they are no longer just competitors, but now even act as collaborators — and to learn new techniques, and for trainees to take creative ideas back and share industrial knowledge via collaborative networking (Bartlett and Ghoshal, 1998; Gulati et al., 2009; Hamel, 1991). The reviewing systems — such as the annual RVC meetings — provide both platforms and mechanisms to advance partners' production skills and management capabilities, and to reward suppliers who have done well (as well as, sometimes, encouraging suppliers who have not been recognized over several years to leave the list to avoid "losing face"). Thus, all supply chain partners continually refresh their competences, so that they are actively fostered within the collaborative network setting, going beyond just competing to be the best.

The supply chain network cross-links upstream and downstream suppliers, and fosters bilateral exchanges between the two. The certification mechanisms are communication channels for upstream and downstream partners, which are built on two particular elements: 1) a platform for and ethos of knowledge sharing and mutual learning; and 2) partner feedback. The collaborative learning mechanisms, in this case, not only concern sharing knowledge about making waterproof shoes via the training programs and meetings, but also include the "invisible" platforms such meetings create, when delegates return to their home settings but retain their contacts with each other, via which they both develop their problem-solving skills, and feed back problems (and solutions) to the focal firm in its role as system leader. The development of best supply chain practices into network norms fosters qualitative changes in the system center's relationships with its manufacturers, so its role develops from "policeman" to that of "senior partner". Further, network partners were all able to improve their capabilities and to participate in an "industrial evolution". They have the chance to leverage industrial learning from the partnership to overcome some of their own internal production difficulties, as well as increasing their business orders and raising consumer perceptions of their own brands by allying them to the Gore-Tex® brand. However, the essential

characteristic of this intermediary-led collaborative network is intensive partner-level interactions, which raises barriers against competitor entry, and encourages customers to pay premium prices for superior products, to the benefit of all partners. Thus, our findings support our proposition that the intensive interactions, mutual learning, and feedback processes inherent in collaborative supply chain network mechanisms drive the establishment of norms, and are context-sensitive advantages which are difficult to transfer, and so support the creation of hard-to-imitate features across the supply chain as a whole to ward off potential competitors.

Building a learning business system to generate hard-to-imitate competences

Our case study reveals Gore Footwear as the centre of an integrated business system formed of three groups of partners who interact with each other. In terms of product flows certified footwear manufacturers purchase Gore-Tex material from Gore Footwear or from certified suppliers, from which they produce footwear that can be certified with the GORE-TEX® tag, which is then shipped to brands and on to end users. The process includes two important features to protect intermediary firm assets: Gore Footwear leases lab-testing machines to manufacturers and material suppliers with technical support from Gore Footwear, so they can adhere to its methods and standards; and it also controls production volumes using order information received from brands and retailers according to agreed marketing plans. These arrangements ensure the intermediary firm against over production of either fabric or shoes, which those producers might distribute illegally, or which Gore-Tex management itself might sell for short-term profits.

The information flow contains mutual learning in terms of industrial information among upstream and downstream suppliers, as well as order negotiation information (including market plans and price negotiations), and the market information the focal companies gather via the brand hang-tag guarantee of a free return service and customers' feedback. The partner feedback generated from the three types of certifications ensures the product quality and also promotes the knowledge-sharing ethos. In terms of its overall certification mechanism, a semi-closed arrangement — Gore-Tex's "certified but not designated" strategy — is adopted. Once firms pass their RVC or CMA certification standards, they become members of Gore-Tex's business system and are featured on its recommended lists. While these lists guarantee the quality of fabric or shoes, Gore Footwear does not oblige any manufacturer to use any designated material supplier, nor direct brands to buy from any specific manufacturer: decisions as to where to place their orders remain with the buyers in each case. More specifically, these mechanisms effectively retain the element of competition between suppliers and between manufacturers, while avoiding Gore Footwear exercising any favoritism towards a specific RVC or CMA partner, and still ensure the quality and performance of the final product that carries its brand name. Members wanting to maximize their value capture by gaining continuous flows of orders must stay in the system and maintain their interactions to keep learning and improving — certification is not enough to guarantee order flows. The certifications must be backed up by members keeping up-to-date with supply chain learning flows. At the same time, partners still remain free to enter or exit the "semi-closed system" system according to their own strategic imperatives. Thus, the certification mechanism is designed to continuously build system competences into the future, with learning fueling process improvements, eliminating production barriers and setting increasingly high industrial production standards to ensure high value-added products for final consumers.

In summary, the innovative technology for making outstanding goods at each supply chain stage, suppliers' abilities to produce high standard material/components, manufacturers' capabilities to make superior products, and the brand companies' marketing skills and knowledge are all crucial for the success of Gore-Tex's learning business system (see Figure 2). Its inter-organizational interactions and learning business system have become evermore deeply embedded, and as a result have integrated and deepened individual partners' distinctive capabilities, thus supporting the proposition that a learning business system can generate hard-to-imitate competences — and growing business flows — for all partners.

Theoretical contributions and managerial implications

We studied how an intermediary firm built up a learning business system across its supply chain network to develop sustained competitive advantage. An intermediary firm with specific internal resources can develop a learning business system in a supply chain setting. Such a firm holds capabilities to integrate collaboration and leverage competition across its value chain, can build up hard-to-imitate competences for itself in particular, and for the supply chain as a whole. Large firms, which make and sell end products in the network, no longer necessarily initiate supply networks. Being a collaborator as an intermediary firm that has no direct contact with its end users in a supply chain learning business system can allow firms to gain more than they would by acting as competitors. Despite the limitations of single cases, our study has illustrated important theoretical contributions in the very limited intermediary research.

First, SCM studies focus on short-term dyadic relationships, and extant research concerns the nature of multiple links in supply chain networks (Cusumano and Gawer, 2002; Giunipero et al., 2008; Kanda and Deshmukh, 2008; Perrons, 2009) that gives little attention to how intermediary firms can integrate resources and leverage powers across their value chain as a whole. This article presents a new approach to supply chain research — studying an intermediary firm that has no direct contact with its end users — to clarify how an actor holds internal capabilities to establish mechanisms, integrate collaboration and leverage competition across its supply chain upstream suppliers and downstream customers, so its system can serve end consumers along with multiple links in SCM chains. We believe this approach yields a better understanding of complex SCM network relationships.

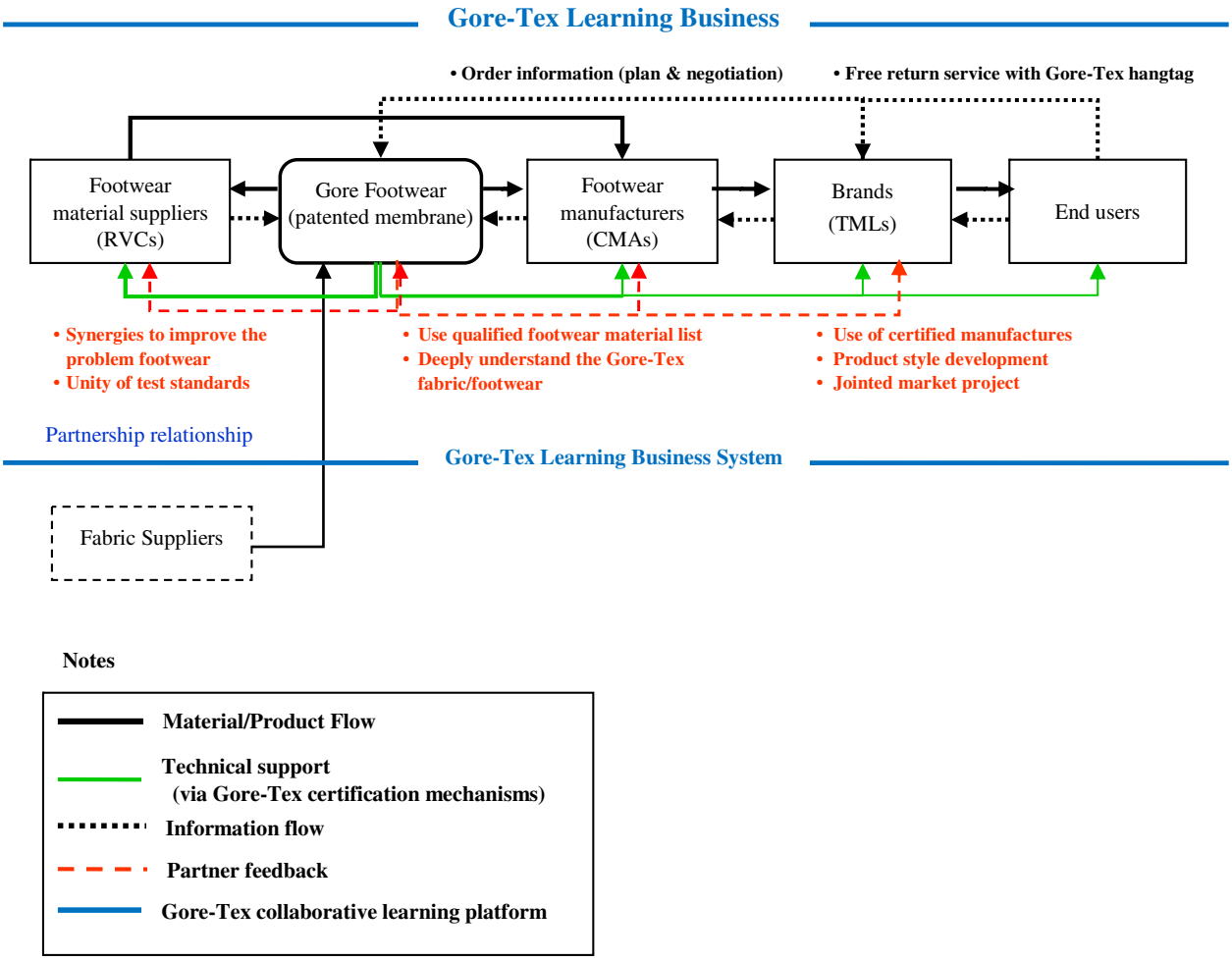

Figure 2. Summary of Gore-Tex's learning business system mechanisms

Second, many studies have emphasized the importance of chain network collaboration (Huemer, 2006; Min et al., 2005; Skjoett-Larsen et al., 2003), but research to identify concrete and critical collaborative mechanisms is yet to be systematically investigated. This study, in particular, advances a supply chain collaboration research. It demonstrates how core firm's specific resources and organizational routines/norms support creating the substantial certification mechanisms effectively. At the same time, certain levels of competition between collaborators remain, which enable the system to continuously provide differentiated value products to end consumers.

Third, SCM research generally focuses on the importance of organizational learning with partners (Cheung et al., 2010; Dyer and Hatch, 2004), but analyses of what types of SCM networks create learning opportunities are very limited. The business learning system we study here demonstrates how supply chain members invested in mutual learning through long-term collaborations, to gain new knowledge or share best practices, and so promote SCM network hard-to-imitate competences. Studying this business learning system allows SCM scholars to gain a greater understanding of what kinds of learning mechanisms promote knowledge transfer, thus making a worthwhile contribution to developing strategic supply chain theory.

Managerial implications

Our study identifies how an intermediary learning business system emerged, and how partners' interactions have created value in a collaborative ethos (see Figure 3). The certification and governance mechanisms have become norms for system members to follow, with the continuous learning and interactive participation among partners effectively yielding products with greater value-added than competitors' efforts have achieved. Learning Business systems evolve and improve over time, to the point where they become specialized to their contexts, and cannot easily be copied.

Therefore, we can conclude our findings with four managerial implications based on the above theoretical discussion.

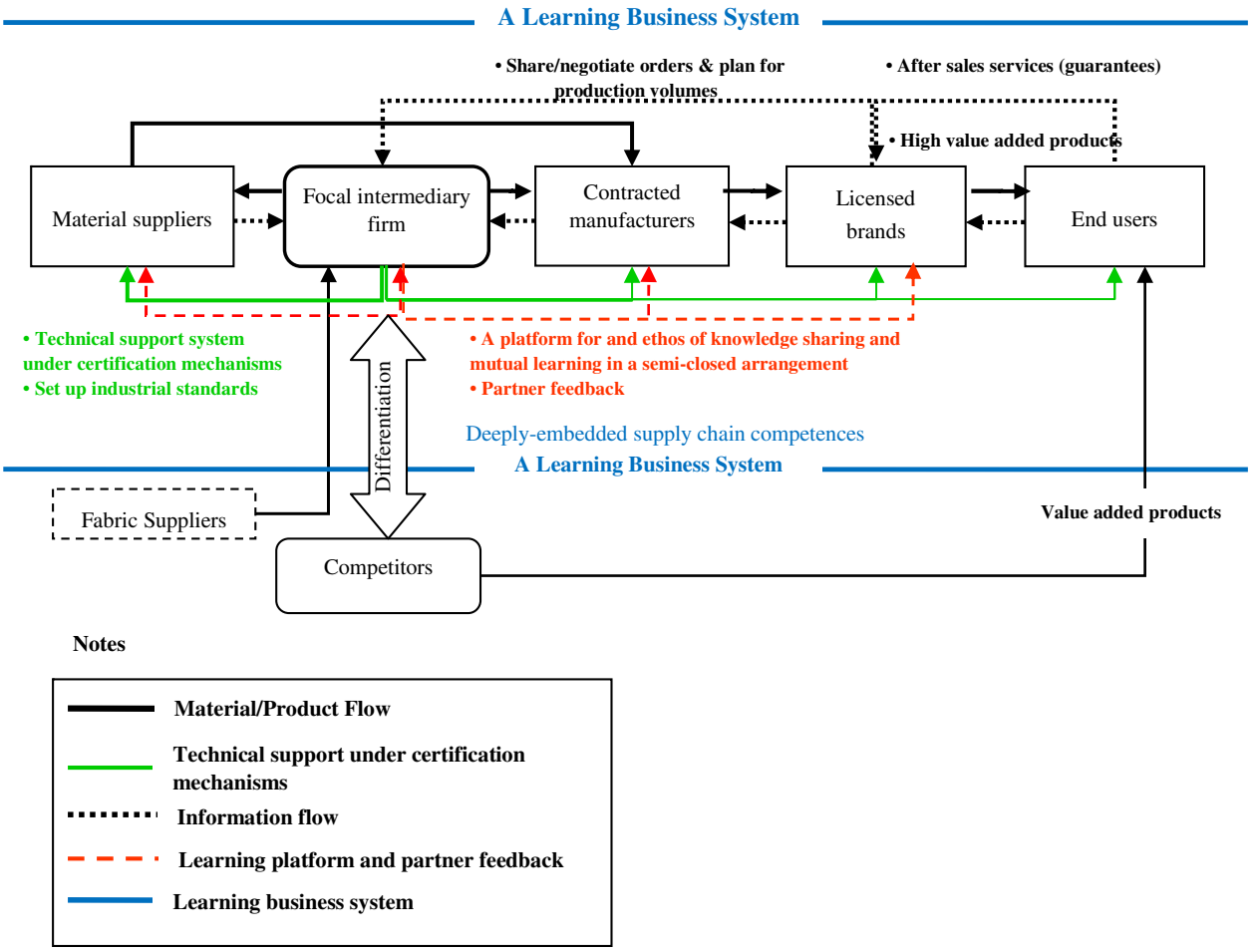

Figure 3. The intermediary's learning business system

First, the focal intermediary firm manages its internal distinctive resources of advanced technologies, human talents, advanced product development skills, organizational routines (or best practices) as prerequisite bases, and then promotes the intermediary-centered collaborative concept to its supply chain partners (who used to be competitors) to sustain the focal firm's competences. Paying close attention to end users' needs remains a priority, since the focal intermediary firm not only serves its immediate buyers, but also develops the competence to link its upstream suppliers and downstream customers and, eventually, the end users.

Second, the supply chain management is an integrated unit. An intermediary firm leads the supply chain and connects the raw material suppliers all the way to the end users. The intermediary firm created certification and recommendation mechanisms that tied partners into shared values, but which at the same time retained the element of competition, encouraging partners to try to be the best of their type, as well as motivating them with guarantees and support systems that led to them formulating industrial standards and mutual problem-solving. As a consequence, best network practices enabled the collaborative norms to accelerate deeply embedded supply chain competences in the rapidly changing market. Further, the supply chain mechanism includes end users needs and feedback in joint product and market developments, that have even led the intermediary firm's own brand to have greater value than the final products' brands.

Third, our research illustrates the value of a platform for, and the ethos of knowledge sharing and mutual learning from partner feedback, as well as technical support from the focal firm in a semi-closed arrangement. The intermediary case studied here leases testing machines to manufacturers and suppliers, and controls production volumes via negotiation and marketing plans with brands, thus showing managers how to use SCM to create competitive advantage for the organization, and also how to manage the tension between competition and collaboration.

Fourth, the essence of the learning business system is continuing learning and feedback from external partners to provide customers with continuously improved and differentiated products. The intermediary firms' upgrading of its partners' competences has enabled the whole supply chain to adapt to the changing external environment, and strengthening partner relationships has sustained firm competences across their value chain. The performance of a learning business system will

continue to evolve and improve over time, making it more and more difficult for competitors to imitate, thus widening the gap between it and its competitors.

Conclusions and directions for further studies

The most important value of an intermediary firm is creating a learning business system that develops and maintains deeply embedded competences through establishing mechanisms for both collaboration and competition across its value chain. This article explicates the learning business system, and, in particular, shows how intermediary firms can create learning business systems. A successful business system requires a focal firm to possess distinctive capabilities to build up supporting and learning mechanisms to develop deeply embedded competences, and to lead upstream and downstream supply chain partners proactively to provide high-quality solutions to end users. As a consequence, network partners' industrial skills, knowledge and best practices (in meeting customer needs) can be upgraded to become norms across the whole supply chain — intrinsic and hard-to-imitate competences that supply chain competitors cannot copy.

The study provides evidence about how an intermediary can lead and interact with its supply chain partners to learn together in a way that authenticates material suppliers, manufacturers and brands, in order to provide high value-added products. The pattern of not designating specific material suppliers or manufacturers to downstream purchasers maintains competition within the system among the collaborators, and keeps every member keen to advance their capabilities. This in turn leads to the accumulation of intermediary firm's deep-rooted competences across the supply chain, and builds a learning business system with sustained ability to offer customers superior end products. Our footwear industry observations show that, of all the material suppliers and manufacturers in the outdoor footwear market, Gore-Tex is the most successful intermediary. The beneficial result of being a member of its business system was illustrated in 2011, when the Pau-Chen Group — the world's largest sports footwear manufacturers — chose to become active as supply chain network participants, and to recognize the importance and value adds of the intermediary in its supply chain.

Although the purpose of this article was to investigate an intermediary's learning business system, we realize it has some limitations that deserve more attention, and which can point the way towards further studies. First, we used a qualitative industry approach to explore an intermediary's business system, so a limitation of this study is that it does not present a cross-case comparison that might yield conclusions that could be more generalizable to other intermediaries. This is an approach future studies could consider. Second, future research may continue this article's line of inquiry in different ways, such as examining the extent to which organizational culture can be an important contributor to business system performance. Such factors relate to social structures and how they affect managerial or employees' behaviors and commitment, and thus deserve more observation to develop deeper insights. Third, another specific area of interest for further study is the linkages between intermediary "ingredient" brands and final product brands. Most empirical research in this area is limited to marketing issues, but the circumstances under which ingredient brands might become more powerful than main product brands (as, arguably, Gore-Tex has) are worth further study.

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References

Allred, C.R., Fawcett, S.E., Wallin, C., Magnan, G.M., 2011. A dynamic collaboration capability as a source of competitive advantage. Decision Sciences 42 (1), 129–161.
Amit, R., Schoemaker, P.J.H., 1993. Strategic assets and organizational rent. Strategic Management Journal 14 (1), 33–46.
Anderson, E., Jap, S.D., 2005. The dark side of close relationships. MIT Sloan Management Review 46, 74–84.
Azadegan, A., Dooley, K.J., Carter, P.L., Carter, J.R., 2008. Supplier innovativeness and the role of interorganizational learning in enhancing manufacturer capabilities. Journal of Supply Chain Management 44 (4), 14–35.
Barney, J.B., 1986. Organizational culture: can it be a source of sustained competitive advantage? The Academy of Management Review 11 (3), 656–665.
Barney, J.B., 1991. Firm resources and sustained competitive advantage. Journal of Management 17, 99–120.
Barney, J.B., 2012. Purchasing, supply chain management and sustained competitive advantage: the relevance of resource-based theory. Journal of Supply Chain Management 48 (2), 3–6.
Barratt, M., 2004. Understanding the meaning of collaboration in the supply chain. Supply Chain Management: An International Journal 9 (1), 30–42.
Barratt, M., Barratt, R., 2011. Exploring internal and external supply chain linkages: evidence from the field. Journal of Operations Management 29 (5), 514–528.
Bartlett, C.A., Ghoshal, S., 1998. Beyond strategic planning to organization learning: lifeblood of the individualized corporation. Strategy & Leadership 26 (1), 34–39.
Beaudry, J.E., 2009. Gore Customer Footwear News. Fairchild Publications, Inc., New York, NY, p. 26.
Cao, M., Zhang, Q., 2011. Supply chain collaboration: impact on collaborative advantage and firm performance. Journal of Operations Management 29 (3), 163–180.
Chesbrough, H., 2010. Business model innovation: opportunities and barriers. Long Range Planning 43 (2–3), 354–363.
Cheung, M.-S., Myers, M.B., Mentzer, J.T., 2010. Does relationship learning lead to relationship value? A cross-national supply chain investigation. Journal of Operations Management 28 (6), 472–487.

Choi, T.Y., Hong, Y., 2002. Unveiling the structure of supply networks: case studies in Honda, Acura, and DaimlerChrysler. Journal of Operations Management 20 (5), 469–493.
Cova, B., Salle, R., 2008. The industrial/consumer marketing dichotomy revisited: a case of outdated justification? Journal of Business & Industrial Marketing 23 (1), 3–11.
Cusumano, M.A., Gawer, A., 2002. The elements of platform leadership. MIT Sloan Management Review 43, 51–58.
Dyer, J.H., Hatch, N.W., 2004. Using supplier networks to learn faster. MIT Sloan Management Review 45, 56–63.
Eisenhardt, K.M., 1989. Building theories from case study research. The Academy of Management Review 14 (4), 532–550.
Eisenhardt, K.M., Graebner, M.E., 2007. Theory building from cases: opportunities and challenges. Academy of Management Journal 50 (1), 25–32.
Ellram, L.M., Edis, O.R.V., 1996. A case study of successful partnering implementation. International Journal of Purchasing and Materials Management 32 (3), 20–28.
Fern, E.F., Brown, J.R., 1984. The industrial/consumer marketing dichotomy: a case of insufficient justification. Journal of Marketing 48 (2), 68–77.
Gassmann, O., Zeschky, M., Wolff, T., Stahl, M., 2010. Crossing the industry-line: breakthrough innovation through cross-industry alliances with 'non-suppliers'. Long Range Planning 43 (5–6), 639–653.
Gawer, A., Cusumano, M.A., 2012. How companies become platform leaders. MIT Sloan Management Review 49, 28–35.
Giunipero, L.C., Hooker, R.E., Joseph-Matthews, S., Yoon, T.E., Brudvig, S., 2008. A decade of SCM literature: past, present and future implications. Journal of Supply Chain Management 44 (4), 66–86.
Gulati, R., Lavie, D., Singh, H., 2009. The nature of partnering experience and the gains from alliances. Strategic Management Journal 30 (11), 1213–1233.
Hamel, G., 1991. Competition for competence and inter-partner learning within international strategic alliances. Strategic Management Journal 12, 83–103.
Hamel, G., Breen, B., 2007. The Future of Management. Harvard Business School Press, Boston, MA.
Harrison, A., Van Hoek, R.I., 2005. Logistics Management and Strategy. Pearson Education, Ltd.
Hernández-Espallardo, M., Rodríguez-Orejuela, A., Sánchez-Pérez, M., 2010. Inter-organizational governance, learning and performance in supply chains. Supply Chain Management: An International Journal 15 (2), 101–114.
Huemer, L., 2006. Supply management: value creation, coordination and positioning in supply relationships. Long Range Planning 39 (2), 133–153.
Itami, H., Nishino, K., 2010. Killing two birds with one stone: profit for now and learning for the future. Long Range Planning 43 (2–3), 364–369.
Kagono, T., Inoua, T., 2004. Business System Strategy. Yuhikaku, Tokyo.
Kanda, A., Deshmukh, S.G., 2008. Supply chain coordination: perspectives, empirical studies and research directions. International Journal of Production Economics 115 (2), 316–335.
Ketchen, D.J., Jr., Giunipero, L.C., 2004. The intersection of strategic management and supply chain management. Industrial Marketing Management 33 (1), 51–56.
Laaksonen, T., Pajunen, K., Kulmala, H.I., 2008. Co-evolution of trust and dependence in customer-supplier relationships. Industrial Marketing Management 37 (8), 910–920.
Lazzarini, S.G., Chaddad, F.R., Cook, M.L., 2001. Integrating supply chain and network analyses: the study of netchains. Journal on Chain and Network Science 1, 7–22.
Lorenzoni, G., Baden-Fuller, C., 1995. Creating a strategic center to manage a web of partners. California Management Review 37 (3), 146–163.
Lorenzoni, G., Lipparini, A., 1999. The leveraging of interfirm relationships as a distinctive organizational capability: a longitudinal study. Strategic Management Journal 20 (4), 317–338.
Magretta, J., 2002. Why business models matter. Harvard Business Review 80, 86–92.
Maher, J., 2010. W.L. Gore & associates continues its tradition as one of nation's best workplaces. <http://www.gore.com/en_xx/news/FORTUNE-2010.html> (accessed 20.04.10.).
Min, S., Roath, A.S., Daugherty, P.J., Genchev, S.E., Chen, H., Arndt, A.D., et al., 2005. Supply chain collaboration: what's happening? The International Journal of Logistics Management 16 (2), 237–256.
Möller, K., Svahn, S., 2003. Managing strategic nets: a capability perspective. Marketing Theory 3 (2), 209–234.
Myers, M., Cheung, M.-S., 2008. Sharing global supply chain knowledge. MIT Sloan Management Review 49, 67–73.
Nickerson, J.A., Zenger, T.R., 2004. A knowledge-based theory of the firm — the problem-solving perspective. Organization Science 15 (6), 617–632.
Perrons, R.K., 2009. The open kimono: how Intel balances trust and power to maintain platform leadership. Research Policy 38 (8), 1300–1312.
Porter, M.E., 1980. Competitive Advantage: Creating and Sustaining Superior Performance. Free Press, New York.
Prahalad, C.K., Hamel, G., 1990. The core competence of the corporation. Harvard Business Review 68, 79–91.
Rumelt, R.P., 1984. Towards a strategic theory of the firm. In: Lamb, R.B. (Ed.), Competitive Strategic Management. Prentice Hall, Englewood Cliffs, NJ, pp. 556–570.
Rungtusanatham, M., Salvador, F., Forza, C., Choi, T.Y., 2003. Supply-chain linkages and operational performance: a resource-based-view perspective. International Journal of Operations & Production Management 23 (9), 1084–1099.
Shook, C.L., Adams, G.L., Ketchen, D.J., Jr., Craighead, C.W., 2009. Towards a "theoretical toolbox" for strategic sourcing. Supply Chain Management: An International Journal 14 (1), 3–10.
Skjoett-Larsen, T., Thernøe, C., Andresen, C., 2003. Supply chain collaboration: theoretical perspectives and empirical evidence. International Journal of Physical Distribution & Logistics Management 33 (6), 531–549.
Storey, C., Kocabasoglu-Hillmer, C., 2013. Making partner relationship management systems work: the role of partnership governance mechanisms. Industrial Marketing Management 42 (6), 862–871.
Takeishi, A., Aoshima, Y., 2002. Business case: shimano. Hitotsubashi Business Review 50, 158–177.
Tokman, M., Beitelspacher, L.S., 2011. Supply chain networks and service-dominant logic: suggestions for future research. International Journal of Physical Distribution & Logistics Management 41 (7), 717–726.
Vereecke, A., Muylle, S., 2006. Performance improvement through supply chain collaboration in Europe. International Journal of Operations & Production Management 26 (11), 1176–1198.
Wang, C., Fergusson, C., Perry, D., Antony, J., 2008. A conceptual case-based model for knowledge sharing among supply chain members. Business Process Management Journal 14 (2), 147–165.
Wang, E.T.G., Wei, H.-L., 2007. Interorganizational governance value creation: coordinating for information visibility and flexibility in supply chains. Decision Sciences 38 (4), 647–674.
Wathne, K.H., Heide, J.B., 2004. Relationship governance in a supply chain network. Journal of Marketing 68 (1), 73–89.
Webster, F.E., Jr., 1978. Management science in industrial marketing. Journal of Marketing 42 (1), 21–27.
Wernerfelt, B., 1984. A resource-based view of the firm. Strategic Management Journal 5, 171–180.
Williamson, O.E., 2008. Outsourcing: transaction cost economics and supply chain management. Journal of Supply Chain Management 44 (2), 5–16.
Yin, R.K., 1989. Case Study Research: Design and Methods. Sage Publications, Newbury Park, CA. <http://www.gore.com/en_xx/aboutus/> (accessed 20.09.13.).

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