

THE BUSINESS ACTIVITIES AFFECTING SUPPLY CHAIN PARTICIPANTS: AN EMPIRICAL STUDY

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Abstract: *In this research, we examine the key activities in a supply chain with emphasis on both the processes and legal issues affecting supply chain participants. Managers of 44 Taiwanese companies doing business with U.S. companies completed surveys in which they identified the stages in a supply chain where interactions were most likely to occur among supply chain participants. From these responses we learned that different business activities had varying importance among members in the upstream and downstream supply chain. We also indentified where issues relating to contracts and intellectual property were most critical. From this study, each member along the supply chain will know which activity is the most important between it and its supply chain partners. Companies can also use the information discussed in this paper to prevent lawsuits pertaining to their supply chains.*

Keywords: *Supply Chain, Global Trading Partners, Contracts, Patents, Design, Distribution, After-Sales Service*

INTRODUCTION

A supply chain has been defined as a “system of organizations, people, technologies, activities, information, and resources involved in moving a product or service from suppliers to customers” (Damiani, Frati and Tchokpon, 2011, p. 455). Supply chain activities are those processes which transform raw materials into finished products that are delivered to the customer plus other activities that enhance the ultimate use of the product or service. Supply chain participants comprise continuous links within the chain that add value both to the overall process as well as to the individual organizations. Thus, both activities and participants are critical to firms’ understanding of the various relationships that exist within their supply chains and how knowledge transfer at any one of those links can improve the overall process.

The Supply-Chain Operations Reference model (SCOR) was developed by the Supply-Chain Council to provide a framework to analyze the various processes in a supply chain in order to improve supply chain management and related supply chain operations (Supply-Chain Operations

Reference Model, 2013), and is summarized in Table 1 below.

Table 1 SCOR Processes and Definitions (Supply-Chain Operations Reference Model, 2013)	
<i>Processes</i>	<i>Definitions</i>
Plan	Processes that balance aggregate demand and supply to develop a course of action which best meets sourcing, production and delivery requirements
Source	Processes that procure goods and services to meet planned or actual demand
Make	Processes that transform product to a finished state to meet planned or actual demand
Deliver	Processes that provide finished goods and services to meet planned or actual demand, typically including order management, transportation management, and distribution management
Return	Processes associated with returning or receiving returned products for any reason. These processes extend into post-delivery customer support

Among the purposes of the model is measurement of supply chain activities with respect

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to internal and external goals and improvement of the process through adoption of best practices. However, not all activities that may be relevant for such analysis are included in the model. For example, not included are sales and marketing, product design, and post-sale customer support. Also not included in the model are the legal considerations that impact each activity within the supply chain. This paper adds to our existing knowledge of supply chains by including those functions and how information transfer, efficiency, and legal protections may be improved at each node.

In addition, based on a report of U.S Department of State on October 2009, the U.S. is Taiwan’s third-largest trade partner, accounting for 12% of Taiwan’s exports and supplying 11% of its imports. Taiwan is the United States’ 9th-largest trading partner; Taiwan’s two-way trade with the United States amounted to \$61.6 billion in 2008 (U.S State Department, 2010). Thus, our research seeks to enhance our understanding of the importance of supply chain links by focusing solely on Taiwanese companies who have trading relationships with U.S. companies.

Our research seeks to study actual activities that are conducted by participants across a supply chain network. From these findings, managers can decide how to focus on improving existing activities as well as creating and implementing new partnerships and operations to maximize efficiency. These include activities in the typical SCOR model as well as additional linkages not examined in the model. In addition, an examination of the issues from a legal and regulatory perspective is critical. However, few studies consider supply chain and legal issues simultaneously. This study examines the legal constraints for such supply chain activities and, specifically, we discuss how to prevent lawsuits pertaining to a company’s supply chain.

SUPPLY CHAIN ACTIVITIES AND PARTICIPANTS

The SCOR model provides a framework for analyzing the essential activities carried out at each of the five main states of the supply chain. In the following table, we will explain the most common activities in the supply chain, including definitions, performance measures, and tools and applications for improvement.

Table 2 Supply Chain Activities		
<i>Process</i>	<i>Definitions</i>	<i>Performance Measures</i>
Procurement Process	The activity of obtaining goods and services for the firm (Robert and Stephen, 1991). Includes an order entry method (the way a company receives an order and the way it controls information and feedback to customers), order lead time (total order cycle time), and order path (Gunasekaran, <i>et al.</i> , 2001).	Performance measures include the agility of the ordering process, the accuracy of order processing, volume flexibility and capability, and the speed of order handling (Kim, 2009). Process improved by E-procurement systems (Baily, <i>et al.</i> , 2002; Kim and Shunk, 2003).
Production Process	Methods employed in the transformation of tangible inputs (raw materials, semi-finished goods, or subassemblies) and intangible inputs (ideas, information, and know-how) into goods or services.	Performance measures include productivity, capacity, quality, delivery speed, flexibility, and process velocity. Process improved by use of Gantt charts, Critical Path Scheduling (CPM), MRP II, Manufacturing Process Management software, and ERP systems (Simchi-Levi, <i>et al.</i> , 2003).
Quality Inspection	Methods used to insure that produce received is the produce that the firm ordered (Langley, <i>et al.</i> , 2009) and that it meets standards established by the	Quality is measured by performance, features, reliability, durability, conformance, serviceability, aesthetics, and perceived quality of product that satisfy the criteria that

contd. table 2

<i>Process</i>	<i>Definitions</i>	<i>Performance Measures</i>
Distribution/Delivery	<p>consumer regarding a product's overall excellence or superiority (Valarie, 1988).</p> <p>Involves a wide range of activities, including order placement and processing, distribution center operations, inventory control, and delivery (Schary and Skjott-Larsen, 2001).</p>	<p>the company has established, including the acceptable defect rate of products and the acceptable threshold of defective products (Simchi-Levi, <i>et al.</i>, 2003). Process improved by Six Sigma, ISO 9000 certificate, and the European Quality Award (Simchi-Levi, <i>et al.</i>, 2003).</p> <p>Delivery performance is based on customer satisfaction indexes and the flexibility of delivery systems (Gunasekaran, <i>et al.</i>, 2001), the speed of delivery which has two dimensions: the amount of time from when the product is ordered to when it is shipped to the customer (lead time), and the availability of delivery times (Simchi-Levi, <i>et al.</i>, 2003), and material holding, handling, and transportation costs (Shin, Benton and Jun, 2008).</p>
Warehousing	<p>Physical holding of raw materials, semi-finished goods, or finished goods until a firm uses them or for a specified period of time (Langley, <i>et al.</i>, 2009).</p>	<p>Performance measures include investment and operational costs, volume and mix flexibility, throughput, storage capacity, response time, and order fulfillment quality (Rouwenhorst, <i>et al.</i>, 2000); Additional measures include warehouse size and dimension as a measure of the storage capacity of a warehouse; warehouse equipment for storage, transportation, order picking, and sorting (equipment utilization); warehouse handling, fixed, and storage costs, including, construction, maintenance, and material handling costs; and space utilization (Gu, <i>et al.</i>, 2009). Process improved by Inventory Power (Inventorysoft), MRP, ERP system, Warehouse Management System (Larson and Halldorsson, 2002), and a Vendor Managed Inventory (VMI) system (Baily, <i>et al.</i>, 2002).</p>
Payment	<p>Occurs at every stage of the supply chain and includes a customer's payment history</p>	<p>Performance measures include the payment date, the actual day a firm's customer remits payment to firm, and payment pattern, the normal timing in which a firm's customers pay their accounts, expressed as the percentage of monthly sales collected in each month following the sale (Megginson and Smart, 2006). Process improved by use of credit and debit cards digital-wallets, e-cash, mobile payment, e-checks, and Payment Service Providers (PSP), such as Paypal and WorldPay.</p>
Materials Recycling	<p>The process of collecting used products, components, and/or materials from the field, disassembling them (when necessary), separating them into categories of like materials, and processing them into recycled products, components, and/or materials (Beamon, 1999). Typically, this activity will be conducted by raw material suppliers.</p>	<p>Performance measures include the purity of recyclable materials recovered, the percentage recycled materials (weight or volume) used or disposed of, the percentage of packaging or containers recycled, the material recovery rate, the core return rate, the ratio of virgin to recycled resources, the ratio of materials recycled to materials potentially recyclable, and material productivity (Beamon, 1999).</p>

Design / Engineering	<p>The process of originating and developing a plan for a product, structure, system, or component with a specific intention or use. Design for supply chain involves the concept of simplifying product designs to allow easier manufacture, assembly, and packaging (Handfield and Nicholas, 1999). The design of new products, or the improvement of existing ones, and the design and development of the production process to produce them, are crucial activities in most industrial organizations (Montgomery 1998). Recent technology has provided the tools for manufacturers to mass produce products that can be customized to meet customers' specific needs (Handfield and Nicholas, 1999).</p>	<p>Performance measures include the time needed to generate a new product idea, the ability to convert these ideas into reliable, functional designs that are user-friendly, the ability to be readily produced, and the compatibility with the needs of customer. Process improved by Computer-Aided Manufacture (CAM) software, MRO applications for maintenance management, and AEC software for civil engineering (Simchi-Levi, <i>et al.</i>, 2003).</p>
Product Specification	<p>The collection of product requirements (Pahl and Beitz, 1988); the process of capturing and transforming customers' needs into a representation that a design can follow (Darlington and Culley, 2002). In other words, product specification is the input to product design activity (Simchi-Levi, <i>et al.</i>, 2003). These specifications provide the basis for production-related decisions such as the purchase of materials, selection of equipment, assignment of workers, and the size and the layout of production facility.</p>	<p>Tools to support this activity include product data management systems used to track and control data related to a particular product. The data tracked usually involve the technical specifications of the product, specifications for manufacture and development, and the types of materials that will be required to produce the goods (Miller, 1998).</p>
Marketing	<p>The social and managerial process associated with promoting goods or services for sale, by which individuals and groups obtain what they need and want through creating and exchanging products and values with others (Kotler, <i>et al.</i>, 2008). The roles of marketing in SCM are defined by exchanging information and seeking collaboration with supply functions and working towards a mutual understanding of the information exchanged and collective goals (Jüttner, <i>et al.</i>, 2004). Information exchange includes providing timely data on defined customer segments, new customer/product opportunities, and planned promotions, furnishing feedback on over/under service delivery, and seeking information on lead times, capacity, and pipeline costs.</p>	<p>Marketing researchers use statistical methods such as quantitative research, qualitative research, hypothesis tests, Chi-squared tests, linear regression, correlations, frequency distributions, Poisson distributions, binomial distributions, etc. to interpret their findings and convert data into information (Simchi-Levi, <i>et al.</i>, 2003), or data mining to explore the role of customer behavior (Haag, <i>et al.</i>, 2008).</p>
Advertising	<p>Any paid form of a presentation of products of commercial significance to prospective customers (Mentzer and Schwartz, 1985). The interactive relationship between participants is one where one person</p>	<p>Performance factors include comparative sale volumes, influences before and after advertising activities, reputation, information transmission, and the number of consumers reached (Anderson and Renault, 2006). The</p>

After-Sale Service	<p>(focal firm) is a leader and the other (retailer) is a follower (Li, <i>et al.</i>, 2002). This means that the focal firm will decide what information is advertised, where it is advertised, and the budget of its advertising. The retailer is a bridge to transmit the company's advertising message to end-consumers.</p> <p>After-sales services for manufactured goods to encompass the set of activities taking place after the purchase of the product, devoted to supporting customers in the usage and disposal of goods. After-sales service cannot be considered simply as a set of operative activities; rather it plays a strategic role, affecting the product-service mix that is offered to the customer and also affecting the physical and organizational configuration of the overall logistics chain (Patelli, <i>et al.</i>, 2007).</p>	<p>media for advertising and commercial activity include television, radio, magazines, newspapers, mailed circulars, billboards, in-store promotions, and the internet including social media, E-Bay, and pop-ups (Anderson and Renault, 2006). A special form of advertising, catalogue marketing, involves selling by the direct mailing of catalogues to a select list of customers (Kotler, <i>et al.</i>, 2005).</p> <p>Performance measures include (i) operating profit: ROA and ROI are indicators of performance at the strategic business area level; (ii) customer satisfaction: flexibility and productivity are indicators that relate to the process level; (iii) reliability, responsiveness internal lead times, waste, costs, and asset utilization evaluate the activity level; and (iv) service portfolio: human resources, IT, and service capacity are considered at the development and innovation level (Gaiardelli, <i>et al.</i>, 2007). An application of an after-sale service evaluation tool is a Customer Relationship Management (CRM) system (Haag, <i>et al.</i>, 2006).</p>
Warranty	<p>A manufacturer's assurance to a buyer that a product or service is or shall be as represented. It may be considered to be a contractual agreement between the buyer and manufacturer entered into upon the sale of the product or service (Murthy and Djamaludin, 2002). Depending on the product and the buyer, different types of warranties are offered.</p>	<p>Performance indicators include warranty periods covered under a warranty and a company's warranty policies (either a full replacement warranty (FRW) or a pro-rata warranty (PRW)). Tools to support the warranty activity of the company include a Level Modeling System which simulates the life cycle of the product to detect potential failure of the product in order to produce a suitable warranty policy (Murthy and Djamaludin, 2002).</p>
User Training	<p>User training refers to the activities which demonstrate the features and functionality of the application of a product to the users through lecture and laboratory exercises. Users may attend one or a series of classes in progressive order to become knowledgeable and skilled in the use of an application or product, while a user manual is a document for users that explains how to use or system, product, or program (Haag, <i>et al.</i>, 2008).</p>	<p>To evaluate the performance of user training, the Information Management Online (2009) website pointed out several factors such as the amount of training time, the user's understanding of product characteristics, and the ability to use the product.</p>
Technical Support	<p>Technical support is an activity that encompasses installation, repairs (warranty work and out-of-warranty repairs), check-up, and disposal of a product (Gaiardelli, <i>et al.</i>, 2007).</p>	<p>Performance measures include the extent to which product information is updated and the process which provides technical and commercial information and services and includes product registration, warranty extension, complaint management to end users, and dissemination of new product information (Gaiardelli, <i>et al.</i>, 2007).</p>

The parties who are included in a supply chain network consist of raw material suppliers, parts and accessory suppliers, OEM manufacturers, the product/branding company (or focal company), dealers, retailers, and customers; the model also includes the business activities that are conducted by each of these participants as illustrated in detail in Figure 1.

LEGAL CONSIDERATIONS

In this section we explain the legal issues that must be considered by each party in the supply chain. Some issues are more important at specific stages of the supply chain while other should be relevant for all parties and at each stage of the value chain. In addition, while our sample for empirical testing of our model included trading partners in the United States and Taiwan, the legal considerations discussed here are not specific to any particular country.

Contracts

The contract is the legal embodiment of the agreement between the parties. It represents the promises that each party makes in return for performance by the other party. For purposes of the supply chain, the contract, which is often titled as a Service Level Agreement will typically involve a promise to provide goods and/or services (from the seller) in return for a promise to pay for such goods or services (from the buyer). When the contract fully specifies all of the rights and obligations of the parties and sufficiently covers contingencies which are outside the parties' control, the contract will operate to insure that the transaction is carried out to the satisfaction of all parties to the contract. Knowledge of the basic requirements of contract formation will help managers avoid the potential for disputes.

An essential element for creating an enforceable contract is an "offer and acceptance." The terms of the offer must be specific and should include: (1) the identity of the parties; (2) a description of the subject matter of the contract; (3) price; (4) quantity; (5) time of performance; (6) place of delivery; and (7) other special features (Segal, 2005). Problems arise, however, when the buyer proposes a purchase by submitting a purchase offer to the

seller, with the material terms on the front and a myriad of provisions on the back which are generally described as "boilerplate," and the seller responds by sending the buyer its form, with the material terms consistent with the buyer's form but different boilerplate on the back.

Contracts do not have to be in writing in order to be enforceable, with several exceptions, most notably for supply chain parties, contracts for the sale of goods over a certain amount and contracts which by their terms cannot be performed within one year. However, any written memorandum will satisfy the requirement as long as the quantity term is stated. Further, in order to enforce a contract that requires a written document, the contract must be signed by the party against whom enforcement is sought. When both parties are merchants, as will be the typical case among supply chain participants, a signature will not be required if a memorandum is sent and the recipient does not object within ten days.

To be enforceable, contracts must include the quantity term of the product(s) to be sold. In addition, a contract must impose mutual obligations between the parties; a contract that appears to promise performance but in reality leaves one or more of the parties free to choose whether or not to perform lacks the mutuality of obligation and is not enforceable. Courts refer to such promises as illusory. An important exception applies for output and requirement contracts. An example of an output contract is when the seller agrees to sell to the buyer "all of my production for the year." On its face, the contract does not require the seller to produce or sell anything to the buyer. However, courts recognize that such contracts guarantee the seller a steady customer and guarantee the buyer a steady source of supplies and are thus likely to uphold them. Similarly, in a requirements contract, the buyer agrees to purchase all of its needed supply from a particular seller. The contract will be upheld because it guarantees the buyer a uniform supply and gives the seller an assured market thus reducing costs (Segal, 2005).

When one party fails to render all or a part of the performance as promised in the contract, the party has breached the contract and the non-breaching party has several options available. In a transaction between supply chain participants, if

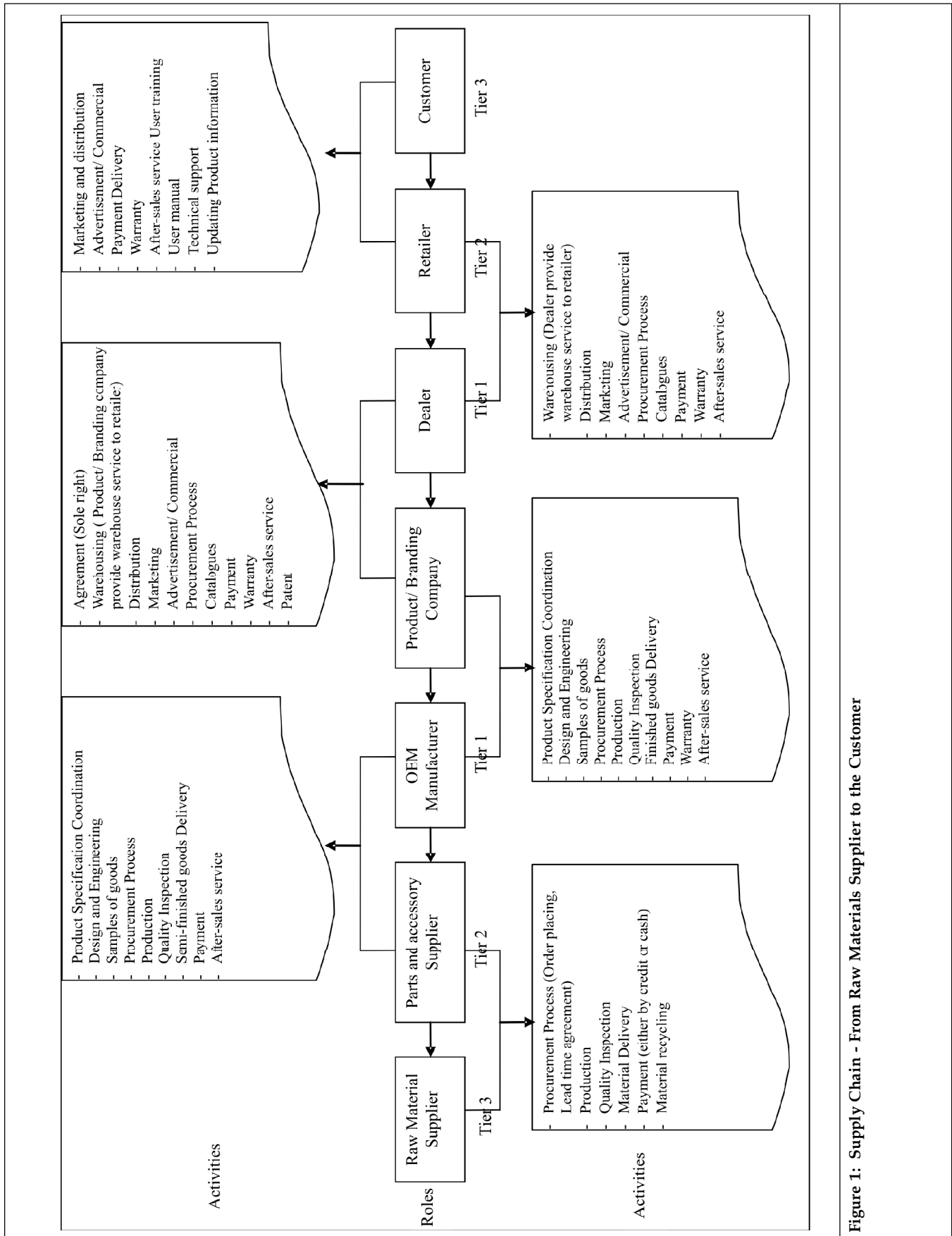


Figure 1: Supply Chain - From Raw Materials Supplier to the Customer

the seller fails to provide the goods or services within the time specified in the contract, the buyer may obtain the goods or services elsewhere and recover from the seller any compensatory and incidental damages, that is the difference between the contract price and the market price that the buyer must pay for such goods or services plus and costs incurred to obtain performance (Clarkson, *et al.*, 2009). In addition, foreseeable damages that are caused by the breach, such as loss of expected profits incurred by the buyer, are called consequential or special damages and may be recovered against the seller (Clarkson, *et al.*, 2009).

Punitive damages are not recoverable in contract cases even if the breach was intentional. In the case where the buyer breaches the contract, generally by non-payment, the seller may collect the contract price, plus interest; however, the seller is obliged to mitigate its damages, typically by selling the goods to another buyer, if possible. Finally, it is not unusual for a contract to contain a liquidated damages provision which states that a certain dollar amount must be paid in the event of a future breach.

International sales contracts between companies or individuals in different countries are governed by the United Nations Convention on Contracts for the International Sale of Goods (CISG) if the parties' countries ratified the CISG. All of North America, most European countries, and some Asian countries including China, Japan, Korea, and Singapore have ratified the CISG. While Taiwan has not explicitly ratified the CISG, the convention has been applied in at least one case involving companies in Taiwan and the Peoples Republic of China (Yang, 2006). In general, the CISG follows the Uniform Commercial Code (UCC) adopted by the U.S. and applies only to business transactions for the sale of goods, not services. Unlike the UCC, the CISG does not require contracts for the sale of goods to be in writing. In addition, the CISG requires that an acceptance of an offer must contain identical terms. If the parties each use their own forms for the offer and acceptance a contract will not be enforceable, so parties are advised to draft customized contracts for each transaction.

Patents, Copyrights, and Trade Secrets

When two or more parties in the supply chain enter into business transactions, they often expose their

trade secrets and other intangible intellectual property that are very valuable to their business. In the context of modern electronics, software, pharmaceutical, and other markets and supply chains, the need for protecting intellectual property investments becomes extremely critical to businesses. In most countries laws protecting intellectual property have been enacted. For example, a patent is a grant from the government that gives an inventor the exclusive right to use and sell an invention for a specified period of time (Clarkson, *et al.*, 2009).

Laws differ as to whether the first person to invent a product or the first person to file the application for a patent is awarded the patent. A copyright protects the authors of original works such as literary, dramatic, musical, artistic, and certain other intellectual works, including computer programs, by giving the author the exclusive right to reproduce the work, distribute the work, or sell or otherwise transfer ownership of the work. A trademark is the distinctive mark or logo that a manufacturer affixes to its goods to insure that the consumer can depend on a trademarked item to have expected quality and characteristics associated with the manufacturer (Ciula 2009). Trademarks are generally protected by registering them with the appropriate government office designated for trademark administration. Trade secrets include any information which gives a company a competitive advantage such as formulas, processes, programs, and customer lists and are generally recognized as protected in most jurisdictions.

RESEARCH DESIGN AND RESULTS

Given the large amount of trade between Taiwan and the U.S. we chose to focus on Taiwan companies who are reported to have commercial relationships with U.S. firms. A survey was sent to 100 Taiwanese companies and asked managers to evaluate which activities are typically undertaken between two members in the supply chain. A total of 50 respondents returned a completed survey via email or regular mail, resulting in 44 valid usable responses. The respondents were mostly male (73%), completed a bachelor's degree or higher (74%), and held management positions within their companies (54%). In addition, the experience of most of these managers was more than 10 years

(71%), and most of them have worked for at least one company that has more than 200 employees. Thus, we concluded that these respondents are sufficiently knowledgeable to participate in our survey.

In the second section of the questionnaire, a list of activities that are typically undertaken at each position or between two members in the supply chain were displayed. In total, six columns represented the activities that are performed by six pairs of members (raw material supplier and parts and accessory supplier, parts and accessory supplier and OEM, OEM and product/branding company, product/branding company and dealer, dealer and retailer, retailer and customer). Table 3 summarizes the responses of the 44 managers and decision-makers regarding the activities that are undertaken between supply chain participants. The values in the table are the number of experts who were in agreement, and the activities carried out by each pair supply chain participants.

From Table 3 we find that within the relationships between the pairs of members, several activities were most important. At the initial stages of the supply chain, procurement, production, quality inspection, delivery, and product specification/coordination are the most critical activities. These findings point out that quality, logistics, and specifications should receive significant consideration from these partners. Many research studies reveal that quality control or ISO9000 standards have been adopted in most companies. Logistics continues to be a topic of considerable interest. Furthermore, many logistics companies have been established, such as FedEx, DHL, and TNT.

While payment is conducted at all stages or transactions of the supply chain, it is deemed most important between product branding company and dealer and dealer and retailer. Each member in the supply chain will have transactions with both upstream and downstream members; one side buys goods, the other pays for the goods. In addition, the method and timeliness of payment helps to evaluate the current financial situation of the buyer. It is the activity that cannot be ignored in any stage of supply chain. Interestingly, marketing and advertisement were also ranked highest by these parties and by the ultimate customer.

All participants indicated that after sales service and warranty are important, with parties at the end of the supply chain ranking these activities most relevant, stressing the importance of quality and reliability of the product. With the exception of the last stage, contracts are deemed relevant among all parties in the supply chain; patents are also more important in the first four stages.

CONCLUSION AND REMARKS

In this paper, we introduce the key activities for each member along the supply chain and using survey data, found the key interaction relationships at each state of the supply chain. For managers, this research provides guidance as to the processes and relationships that require the most attention at each stage of the supply chain. Further investigation into each stage is needed to determine what processes are involved and how processes vary among industries and globally. These relationships were determined through the expert opinions of 44 Taiwanese businessmen. Surveys of their trading partners in the U.S. and elsewhere would provide confirmatory evidence that these are in fact the salient supply chain functions at each stage. The effectiveness of the tools suggested for improving supply chain processes could also be examined.

As contractual issues emerged as appearing at all stages of the supply chain, legal scholars may want to examine court cases involving supply chain contracts and determine what specific issues appear to be most relevant at each stage. The overarching caveat when considering the legal ramifications of being part of a supply chain is to insure that adequate protections are in place to prevent the need for costly measures to remedy problems that could have otherwise been avoided. The parties are well advised the include all of the material terms in the offer to avoid later confusion and to clearly state the express terms of the agreement so there is no need for later interpretation by the courts. Thus, managers should examine existing contracts with supply chain partners to insure that they meet their needs.

Regarding intellectual property, despite safeguards under the law, enforcement of rights under a patent, copyright, registered trademark, or trade secret is often difficult. It is not unusual for supply chain participants to have to disclose and

transfer patented assets and related know-how to other entities farther down the supply chain. These parties should take all necessary steps to insure that their relations with other supply chain participants do not jeopardize their proprietary knowledge and interests. Supplier contracts with its customers should include indemnification clauses for any unauthorized use or infringement of its intellectual property rights. However, in many cases, it is not difficult for a dishonest person to copy goods or software or manufacture a counterfeit product and affix a mark similar to the legitimate owner's trademark. Once the property is illegally used or counterfeited, the secret is revealed and profits are lost which cannot be adequately recovered through monetary damages. In addition, the compromise of supply chains by substitution of genuine articles with counterfeits may result in personal injury litigation, leading to potential public relations and product liability debacles (Williams, 2007). If a company learns about a potential misappropriation beforehand, it may be able to sue for an injunction prohibiting future use, depending on applicable law. For firms doing business within a supply chain,

especially in international trade or manufacturing, watching for counterfeit goods and diligently enforcing intellectual property rights against infringers and counterfeiters are critical to prevent illegal infringement (Olson, et al., 2007). Both internal monitoring by company employees, officers, and distributors, and external monitoring by investigative agencies and customers can help to Thwart any Infringement which will Adversely affect the Company's Business without the Owner's Knowledge of the Damage until after it has occurred (Olsen, et al. 2007).

In addition to safeguarding contract and intellectual property issues, parties in s supply chain need to be aware of potential exposure for personal injuries and insure that their insurance policies cover them for any liability caused by a distant party within the supply chain. Merely including a contract clause purporting to shift the liability back to the party causing the injury will not insulate a company named as a defendant in a lawsuit. In addition, it is important for supply chain participants to be aware that, under antitrust laws, too much market power created by their

Table 3
Activities Conducted Between Supply Chain Participants

<i>No Business Activity</i>	<i>Raw material supplier & Parts and accessory supplier</i>	<i>Parts and accessory supplier & OEM</i>	<i>OEM & Product/branding company</i>	<i>Product/branding company & Dealer</i>	<i>Dealer & Retailer</i>	<i>Retailer & Customer</i>	<i>Total</i>
1 Procurement Process	43 (98%)	40 (91%)	29 (66%)	31 (70%)	30 (68%)	13 (30%)	226
2 Production	37 (84%)	43 (98%)	35 (80%)	12 (27%)	7 (16%)	7 (16%)	184
3 Quality Inspection	35 (80%)	40 (91%)	41 (93%)	34 (77%)	31 (70%)	27 (61%)	248
4 Distribution and Delivery	32 (73%)	36 (82%)	28 (64%)	39 (89%)	41 (93%)	34 (77%)	246
5 Payment	33 (75%)	35 (80%)	29 (66%)	38 (86%)	38 (86%)	36 (82%)	244
6 Material Recycling	33 (75%)	22 (50%)	18 (41%)	16 (36%)	16 (36%)	8 (18%)	135
7 Product Specification Coordination	42 (95%)	42 (95%)	41 (93%)	21 (48%)	18 (41%)	7 (16%)	213
8 Design and Engineering	27 (61%)	32 (73%)	38 (86%)	20 (45%)	14 (32%)	17 (39%)	180
9 After-sales service	24 (55%)	28 (64%)	29 (66%)	36 (82%)	39 (89%)	41 (93%)	225
10 Warranty	22 (50%)	27 (61%)	31 (70%)	36 (82%)	35 (80%)	44 (100%)	222
11 Warehousing	26 (59%)	26 (59%)	26 (59%)	34 (77%)	35 (80%)	9 (20%)	182
12 Marketing	17 (39%)	20 (45%)	26 (59%)	35 (80%)	41 (93%)	29 (66%)	188
13 Advertisement/Catalogues	14 (32%)	10 (23%)	20 (45%)	37 (84%)	34 (77%)	41 (93%)	166
14 User training, User manual, Technical support, Updating Product information	19 (43%)	23 (52%)	28 (64%)	28 (64%)	35 (80%)	41 (93%)	197
15 Contracting	33 (75%)	36 (82%)	36 (82%)	33 (75%)	31 (70%)	11 (25%)	216
16 Patents	26 (59%)	26 (59%)	34 (77%)	28 (64%)	19 (43%)	14 (32%)	173

relationships could be challenged in court as anti-competitive.

As supply chains have become an integral part of a company's business and provide a source of competitive advantage, it is critical that managers understand the important links within the process and are able to make improvements that will create the most impact for their business. This paper contributes by identifying the key business activities that should receive the greatest amount of attention as well as providing guidance for mitigating legal liability. Expanding on the SCOR model, we define the key processes and provide measures for performance and improvement of efficiency at each stage of the supply chain.

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