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# Significance of Cross-cultural Trust in Streamlining Supply-chains for Global Enterprises

R. Ray Gehani

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*In high-velocity global markets, streamlining enterprise supply-chains and increasing trust can reduce high transaction costs. In this article, we integrate previous research studies on the evolution of supply-chains for global enterprises and the role of trust in inter-organizational transactions. We propose that the streamlining of supply-chains with low intermediation is most likely to be associated with the selection of trustworthy agents, deployment of trust-building interactions, and the institutionalization of trust in the participating enterprises. Future implications for researchers and practitioners include the study of resistance to change for implementing streamlined supply-chains.*

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## Growing Strategic Significance of Supply-chains

In recent years, the management of supply-chains has taken on an increasingly significant and strategic role in the competitiveness of global enterprises. In 1997, American firms spent \$862 billion, or about 10 per cent of the Gross National Product (GNP), on supply-chain related activities including storage and movement of materials from raw materials to finished goods.<sup>1</sup> For many firms the cost of purchased raw materials and supplies was 60 to 70 per cent of the cost of goods sold. With the increased reliance on outsourcing and focus on core-competencies, the purchasing of parts and sub-assemblies has grown, and the dependence on suppliers has been

enhanced. According to a recent survey of 225 firms by Pittiglio Rabin Todd and McGrath (PRTM), the costs for supply-chain in the best-in-class firms were 3 to 7 per cent less than the costs for their less competitive rivals.<sup>2</sup> This saving is equivalent to doubling the average net-after-tax profits for many companies. Researchers have estimated that the grocery industry could streamline its supply-chain to save 10 per cent of its annual operating cost and transaction costs, or about \$30 billion.<sup>3</sup> Researchers have noted that trust can improve manager-subordinate relationships internally, and facilitate inter-organizational relationships externally (Donney et al. 1998). Thus, a streamlined supply-chain can help an enterprise gain a

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significant competitive advantage in high-velocity markets.<sup>4</sup> Streamlined supply-chains with lower transaction costs also help enterprises reduce working capital, raise customer satisfaction, gain market shares and improve cash flows.

### **Challenges of Streamlining Supply-chains**

According to a Michigan State University study, more than 50 per cent of US companies, and a larger fraction of firms in other countries, continued to operate in the buy-sell transactional mode with their suppliers. For example, in the grocery industry, a typical box of cereal took more than 12 weeks to travel from the factory to the supermarket. A new car, on the other hand, took, on average, only two weeks, with less than five days travelling time between the factory and the dealer. For the rest of the enterprises already implementing the streamlining of their supply-chains, the supply-chains do not deliver the desired results to their satisfaction. This gap in performance is despite the abundance of technology available or used to integrate supply-chains.

A major challenge in managing global supply-chains is the complexity arising from cross-cultural, inter-organizational and inter-industry interactions. Each of the participating enterprises face dynamic shifts in their environments, competition and customer expectations. Time-related changes in high-velocity industries, with shrinking product life cycles, make it harder for managers to coordinate different segments of their supply-chain from raw materials to finished goods in nanosecond response time.<sup>5</sup> As discussed later, the supply-chains have evolved and streamlined over time with decreasing intermediation.

A critical deficiency in streamlining a global supply-chain, however, is often overlooked<sup>6</sup>—ignoring the role of human trust in speeding cross-cultural transactions and relationships between different agents in a supply-chain. Researchers have viewed trust as a 'meso' concept, integrating macro-level inter-organizational and institutional alliances with micro-level psychological processes and team dynamics (Rousseau et al. 1998). Cross-cultural trust in global supply-chains is the focus of this article. We will first define a supply-chain and the role of trust in its evolution. We will consider Tayloristic scientific supply-chains with low trust and high intermediation, Toyota's lean JIT (Just-in-Time) supply-chain with paternalistic trust and moderate intermediation, re-engineered supply-chain with technology-based intermediation, and Bose JIT-II supply-chain with high trust and disintermediation. We will then consider the internationalization process of supply-chains in global enterprises. This spans market internationalization, materials internationalization, parts internationalization and process internationalization. The streamlining of supply-chain architecture without intermediaries and the building of trust will be analyzed in three modes of developing inter-organizational social capital (Tsai and Ghoshal 1998). Finally, some implications for future researchers and practitioners will be presented.

### **Trust and Supply-chain Transaction Costs**

Different enterprises and functional groups transacting in a global supply-chain are grounded in their different cultures. To transact together, these enterprises and functional

groups must transcend their cultural biases to gain competitive advantages and superior capabilities for the extended enterprise. Researchers use the term 'social capital' to refer to the relational resources across cross-cultural ties, both personal and inter-organizational (Tsai and Ghoshal 1998). The high entropy of multi-party transactions in supply-chains for global enterprises, with ingrained perceptual and cultural differences, can cause high barriers to coordinating their efforts with one another. In the multi-cultural transactions in supply-chains of global enterprises, trust moderates the destructive effects of diversity, and produces synergies from unity.<sup>7</sup> He (Fukuyama 1995) points out the links between the wealth of an economy and its reliance on trust as an important social process. Trust improves the efficiency of market exchanges,<sup>8</sup> reduces transaction and agency costs,<sup>9</sup> and promotes cooperation.<sup>10</sup> Trust helps enterprises speed responses to dynamic and complex environments.<sup>11</sup> Over-reliance on transaction cost economics leads to spiralling suspicion of others, increasing distrust, and opportunism (Ghoshal and Moran 1996).

The research studies on the complex character of trust are fragmented. Researchers with different disciplines have viewed trust differently (Rousseau et al. 1998). Psychologists perceive trust with respect to the personal attributes and internal cognitions of trusters and trustees.<sup>12</sup> Sociologists view trust as embedded in sharing relationships between individuals and organizations.<sup>13</sup> Economists frame trust either as calculative as in formal contracts,<sup>14</sup> or institutional.<sup>15</sup> The role of trust in a global supply-chain spans from the micro intra-personal perceptions, to macro inter-organizational transactions, and includes the meso-level integration of team

dynamics between the two (House et al. 1995).

Researchers have also agreed that trust is an antecedent for inter-organizational cooperation and the sharing of resources.<sup>16</sup> Some researchers have pointed out that trust is not the same as cooperation (Deutsch 1962), as an actor may coerce cooperation from others by alternate legal means. Besides cooperation, trust is also known to facilitate adaptive organizational forms, such as networks.<sup>17</sup>

Some of the most frequently cited definitions of trust include, 'willingness to be vulnerable' (Mayer et al. 1995), or willingness to rely on partners, and have positive expectations from them. Trust has been operationalized as a 'rational prediction' of projected future events in agent-principal interaction (Lewis and Weigert 1985). Trust is defined as the mutual confidence that one party will not exploit the vulnerabilities of the other.<sup>18</sup> In general, two conditions must exist for trust to arise in a relationship. These are: risk or perceived probability of loss (Coleman 1990; Williamson 1993), and interdependence, whereby the interests of one partner cannot be achieved without reliance on other partners. Trust in a global supply-chain is an underlying psychological state resulting from cooperative behaviour and risky choices that partners make. Trust in supply-chains is dynamic, and it develops, builds and declines over time in relationships within the existing and new organizational forms.<sup>19</sup>

With high mutual trust, the culturally diverse participants in a global supply-chain can perform at their optimum performance levels, and transform their multi-cultural work groups with high cost transactions into poly-cultural teams. These teams are more

innovative, have lower costs of transactions and higher performances.<sup>20</sup>

### Changing Definition of a Supply-chain

Before we investigate how to build cross-cultural trust to streamline supply-chains for global enterprises, we must first define a supply-chain. Due to the increasing strategic significance of supplies in an enterprise's competitiveness (as discussed earlier), the term supply-chain has emerged from operations-level constructs such as purchasing and materials management, to a strategic-level source for gaining a sustainable competitive advantage (Harland 1996). A global supply-chain, which may be referred to as a supplier network, is defined as a set of global enterprises, linked together to collectively transform raw materials into competitive finished products and services with higher value-addition (Ellram 1991). A value-added supply-chain is similar to a value-chain, but with a different emphasis. In a value-chain, competencies are the focus of attention, whereas in a supply-chain the focus is on material flow and inter-organizational logistics. To keep all the participating enterprises running smoothly, and to be competitive in the increasingly globalizing markets, the global supply-chain must produce high quality products and services, with low cost and reliable deliveries to its target customers.<sup>21</sup>

Figure 1 shows that in a supply-chain the required raw materials are produced and provided by multiple tiers of suppliers via a number of intermediaries. And, the value-added finished products and services are delivered to customers, who may be either buyers (such as distributors, retailers) or the ultimate consumers. Effectively managing an enterprise supply-chain involves managing

the logistics as well as the relationships across all the interfacing suppliers, producers and distributors to enhance the overall capability of the extended enterprise. This is the key to competing in the high-velocity global marketplace.

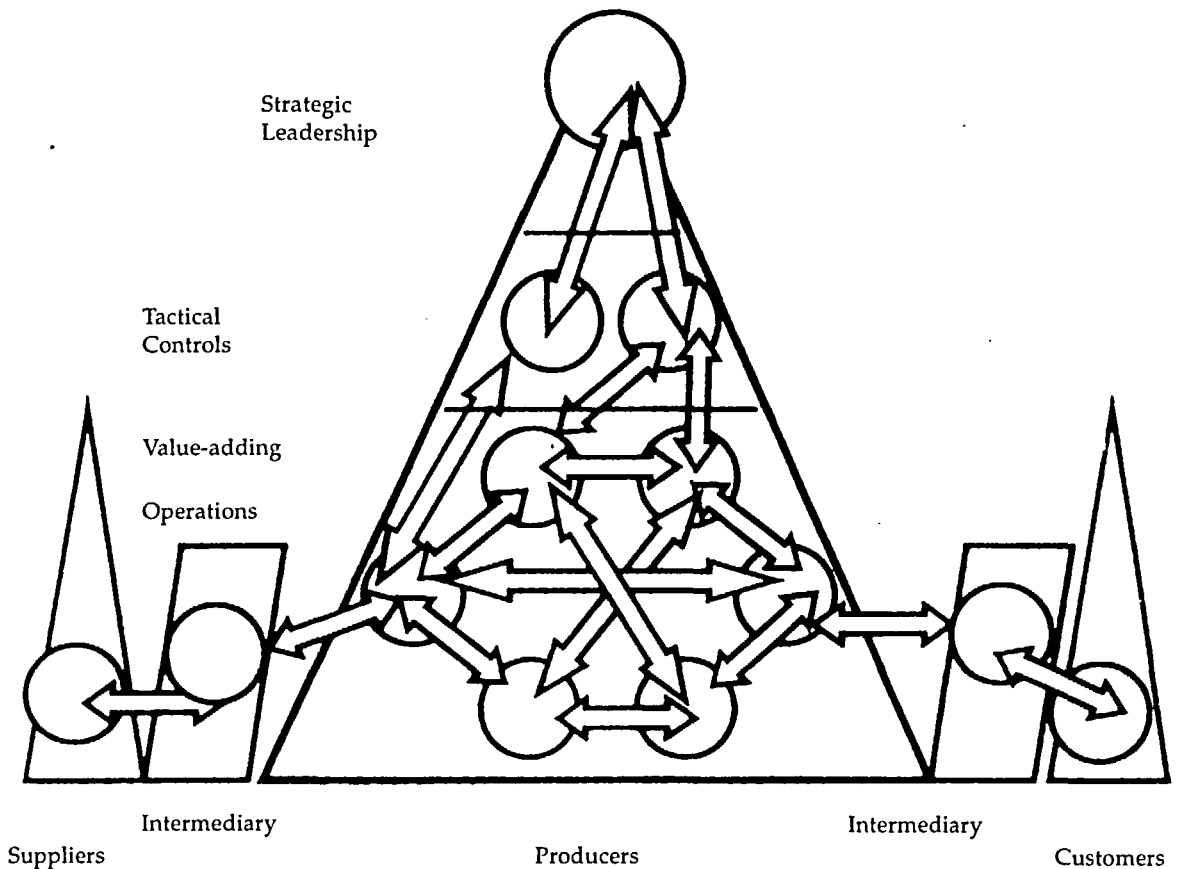
Five major attributes of a supply-chain have been identified. These include timely responsiveness, upstream-downstream configuration, co-location, use of information technology, and changes in environment.<sup>22</sup> With rapidly increasing competition, supply-chains have to adapt by operating and competing faster (Gehani 1995). To respond to these changing market expectations, supply-chains are forced to reduce intermediaries and streamline. We next discuss the varying significance of trust and control by intermediaries in streamlining supply-chains.

### Disintermediation in Streamlining of Supply-chains

Over the past two centuries, the span of control and trust in supply-chains has changed very significantly with the growth and evolution of production and operations practices (see Gehani 1998a). There is a growing competitive pressure to reduce the transaction costs along a supply-chain. We refer to a supply-chain with low transaction costs as a streamlined supply-chain. In this article, we review the evolution of streamlined supply-chain from a resource-based perspective.<sup>23</sup>

A firm's competitive advantage depends on its primary and secondary value-adding competencies. For example, the primary competencies included inbound logistics, research and development, lean production, concurrent product development and the outbound logistics. The secondary value-adding competencies include management

Figure 1  
Enterprise Supply-chain with Intermediaries



of resources such as information systems, human capital, and financial and accounting controls.<sup>24</sup>

### Streamlined Supply-chain: An Agile Architecture

In high-velocity hyper-competitive global markets, enterprises need agile organizational designs to appropriately respond to the emerging opportunities and/or hidden threats. An organization's architecture rep-

resents the formal frameworks by which its different value-adding processes accomplish task specializations. The traditional structures with functional silos slow down the response time of an enterprise to its market fluctuations.<sup>25</sup> The architecture of a global supply-chain must fit the business strategies of the partners. Yet, every enterprise has an idiosyncratic architecture that reflects its historical traditions and its current leaders' decision-making styles. It is therefore a daunting task to change from a supply-chain

with a hierarchical structure based on mistrust of suppliers and associates, to a supply-chain architecture based on relationships driven by mutual trust. A supply-chain's architecture must derive from its strategy-critical activities and core-capabilities that drive its key success factors. To conserve the rare resources of an enterprise, the non-core competencies may be outsourced by a buyer to more efficient and trustworthy suppliers and sub-contractors. A global enterprise can enhance its competitive advantage by gaining additional valuable capabilities via collaborative partnerships and strategic alliances with other enterprises in its supply-chain (S. Davis 1987). 'Disintermediation' is the process of eliminating certain intermediate steps in the supply-chain to get closer to customers and suppliers. In this article, we define streamlined global supply-chains as those with agile architectures based on low intermediation.

Table 1 gives a summary of the role of intermediaries and trust in the streamlining of supply-chains, from a craftsman's complete control to Taylor's scientific supply-chain, Toyota's JIT supply-chain, and Bose's JIT-II supply-chain. Over time, the architecture of supply-chains has changed with increasing expectations of flexibility and cost efficiencies. This has enhanced the signifi-

cance of building trust in streamlined supply-chains with lower transaction costs.

### Taylor's Scientific Supply-chain

#### *Intermediation with Low Trust*

Around the turn of the twentieth century, Frederick Taylor, after extensively studying productivity and time-motion efficiency in mining operations, proposed the scientific management of production and supply-chain operations (Kanigel 1997). This involved task specialization between supervisors controlling the outputs of workers, and workers performing their tasks with a predetermined one-best-way assigned for each task. This led to the division of an organization into functionally specialized silos for purchase, research and design, production, marketing functions and more. The scientific management, when applied to a supply-chain, recommends keeping suppliers at a distance, and buying their products with extensive intermediation by a bidding process to minimize cost. The supplier-buyer relationships and trust were driven out of the scientific decision-making process based on zero-sum 'win-lose' gaming strategy.

The scientific management of supply-chains worked well for relatively stable markets and competitive environments until

TABLE 1  
Span of Control and Trust in Streamlining of Supply-chain

<i>Supply-chain</i>	<i>Intermediation</i>	<i>Trust</i>
1. Craftsman's supply-chain	None	Little and irrelevant
2. Whitney's supply-chain	High	Based in machines
3. Eastman & Ford's supply-chain	High, integrated	Mistrust in variations
4. Taylor's supply-chain	High, scientific	Low and inspected
5. Toyota's JIT supply-chain	Medium	Unidirectional and high
6. Re-engineered supply-chain	Redesigned moderate	Information-based low
7. Bose's JIT-II supply-chain	Disintermediation	Boundaryless and bi-directional high

the sixties. As the oil prices rocketed sky-high in the seventies, a global rivalry intensified in many sectors including the automobile industry and the electronic appliance industry. The scientific management of supply-chains became too rigid and slow to respond to the fast-changing customer expectations and preferences, particularly with shrinking product life cycles. During the eighties, the Japanese producers were able to gain market shares and compete more effectively in global markets by fostering 'win-win' relationships with their suppliers.

### **Toyota's JIT Supply-chain**

#### ***Paternalistic Intermediation with Moderate Trust***

The Toyota production system evolved from a unique set of competitive conditions for the non-US automaker. Toyota entered the automobile industry much later than its American and European counterparts. By the thirties, the automotive technology was at a mature stage, and automobiles had a standard dominant design.<sup>26</sup> Toyota also faced higher costs of raw materials and energy in Japan than its counterparts in the USA. The island nation had a very limited domestic demand for automobiles prior to World War II, and even more so after the atomic devastation of Japan in August 1945. The Japanese auto-maker was therefore forced to compete in bigger markets overseas. Toyota decided to gain global competitiveness in mature automotive industries by cutting costs and eliminating supply-chain waste. Ends of spools of steel were recycled, and paper was used on both sides for business documents.

Toyota's response to the intensely competitive conditions for its factors of demand

and production was to develop the 'pull Kanban production system' with 'zero' (or minimum) buffer inventory in the supply-chain. The Toyota 'pull' production system ordered JIT supplies from suppliers, and produced parts only when required by the next stage in production. The supply-chain used manual information-sharing systems with cards and display boards. The 'pull JIT' production system dramatically improved Toyota's inventory turnover, reduced its cost of warehousing, and enhanced the reliability of just-in-time deliveries of quality goods. These effects helped Toyota improve its customer satisfaction and profit margins, and to gain significant market shares in global markets. The Japanese manufacturing practices produced faster cycle times, higher quality and lower costs in their supply-chains by having a trusting partnership with suppliers.<sup>27</sup> Process simplification, waste elimination, employee involvement, and shorter cycle times enabled 10 times better capital turnover ratio for the Japanese producer than its American rivals (Imai 1986). Toyota achieved this by trusting and closely integrating its 168 suppliers (compared to 3,500 suppliers used by General Motors and 800 suppliers coordinated by Volvo). With supplier integration, the machine set-up change, for example for a front fender, was achieved in 12 minutes at Toyota, while it took 6 hours in General Motors and 4 hours at Volvo.

The Toyota JIT manufacturing and purchasing process treated its supply-chain like a river with upstream and downstream partners. The larger buyers had a higher unidirectional and paternalistic power over their smaller suppliers. Toyota, however, frequently 'partnered' by financing its first-tier suppliers and owning their stocks. Toyota moderated its intermediation by sharing its



expertise in quality control, scheduling and new product development with its suppliers. The American auto-makers and producers of electronics appliances, even when emulating Toyota's just-in-time production and delivery process, continued to intermediate with market-based competitive bidding processes based on minimum cost rather than trust-based relationships.

### **Process Re-engineering Supply-chain**

#### *Information-technology-based Mediation*

The Business Process Re-engineering (BPR) has been one of the most influential models for management of US enterprises in the nineties.<sup>28</sup> Promoters of BPR reversed the previous trend of task specialization and division of labour with hierarchical functional orientation, and instead advocated process orientation by reintegrating inter-dependent cross-functional tasks into a flat non-hierarchical structure. They also proposed ambitious and radical ideas breaking conventional rules with order-of-magnitude performance gains over slow incremental changes. This was achieved through the extensive use of information technologies, and broadening of workers' responsibilities in the processes.

Many components of process re-engineering existed prior to 1990 in different disciplines, but these were not assembled together as an important construct for managing a global enterprise. For example, the quality improvements were left to 'bottom-up' quality circles with limited information and resources. Tight coordination and more intensive use of information technology were the primary changes in process re-engineering that started with a clean-sheet

design. Successes depended on the senior management's sponsorship and willingness to invest resources on high-energy re-engineering teams. The failures often came from an inability to implement the re-engineered design changes. This author postulates that lack of trust played a key role in such re-engineering failures.

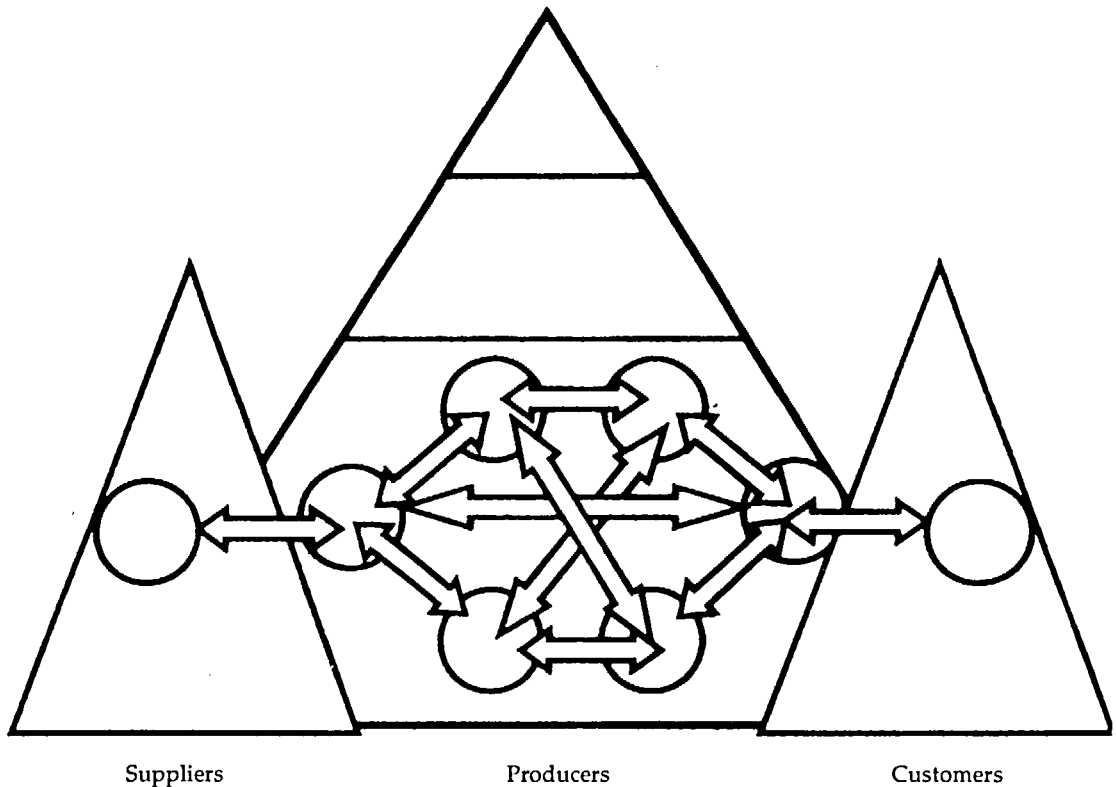
### **Bose's JIT-II Supply-chain**

#### *Disintermediation with Two-way Trust*

In 1987, the Bose Corporation, a producer of premium audio equipment, with plants in New Hampshire, Massachusetts, Michigan, Canada, Mexico and Ireland, innovated trust-based disintermediation to streamline its supply-chain system. Figure 2 shows a supply-chain without intermediaries, and with overlapping boundaries. For example, Dell Computer Corporation used the direct marketing business model to customize personal computers for its customers using 1-800-DELL DIRECT telephone lines and its [www.delldirect.com](http://www.delldirect.com) website. American Airlines allowed its customers to directly access its SABRE reservation system, and eliminated the intermediate travel agents. Walmart allowed its suppliers direct online access to its retail sales data. The suppliers were empowered to decide the shipments to individual retail stores, eliminating the need for intermediate distribution centres.

The Bose JIT-II supply-chain, innovated in 1987, is based on smoothing and merging of the interface boundaries between a producer and its first-tier suppliers. These collaborations go beyond merely sharing common information regarding production schedules and fluctuating demand levels. Instead of the traditional hard-to-penetrate enterprise veil,

Figure 2  
Streamlined Supply-chain with Disintermediation



the Bose JIT-II model included 12 in-plant representatives of its nine key suppliers as a critical component of their streamlined supply-chain. These suppliers' representatives used Bose's purchase orders for buying parts and supplies with predetermined standard costs and purchase limits. These purchases (including plastic resins for moulding speaker enclosures) accounted for about 30 per cent of Bose's total external purchases. A supplier's employee was provided office space within the Bose purchasing department or the production shop floor. The supplier's representative was provided full

access to Bose's database, and authorized to directly place orders on behalf of Bose. This eliminated the need for a sales/marketing person for the key supplier, and the necessity of a buyer for Bose. The supplier's representative also attended and actively participated in Bose's new product development programmes involving the supplier's parts, and other process improvements and cost-cutting re-engineering plans. With JIT-II supply-chains, Bose reduced its inventories by one-eighth from its low JIT levels, saved significantly on its overheads, and increased its business with the suppliers by 35–45 per cent.

Many of Bose's suppliers are spread around the world.

Since the emergence of the East Asian economic tigers in the early eighties, and the fall of the Berlin Wall in the late eighties, many leading enterprises have expanded their domestic operations to multiple global markets. As these enterprises globalized, their supply-chains were globalized too. The supply-chain internationalization process will be discussed next.

### **Enterprise Internationalization and Supply-chain**

Since the late eighties, more than half of US enterprises more than doubled the number of foreign countries they operated in (Dornier et al. 1998). Some of the leading enterprises accounted for more than 55–60 per cent of their revenues from these international operations. About 20 per cent of the output of these US enterprises is produced internationally, with about 25 per cent of the US imports accounted for by transfers between the US global enterprises and their international affiliates. From these statistics, it is clear that management of global supply-chains and international operations have become increasingly significant in the competitiveness of global enterprises.

Supply-chains of global enterprises are similar to the supply-chains of domestic enterprises, with some added complexity and higher risk of exposure to multiple market environments having different socio-political structures. Coupled with these risks is the added challenge of operating speedily in spite of significant cross-cultural differences.

Different global enterprises, however, participate in international markets with different degrees of involvement and inte-

gration of their value-adding chains and supply-chains. There are four stages in the internationalization process. In the first, market-internationalization stage, a domestic enterprise may manufacture all its goods and buy all its raw materials domestically in the home country market, but increase its revenue by using international distributors. These distributors help distribute these goods in targeted international markets, in the downstream supply-chain segments of their outbound logistics. This is particularly preferred when the enterprise is pursuing an early international strategy. In the second, materials-internationalization stage, an enterprise manufactures all its goods in its home country, but the mercantile enterprise cuts costs by using international suppliers for rare or more economical raw materials in the upstream inbound logistics of its supply-chain.

Over time and with some accumulated experience in international markets and cultures, a global enterprise in the third, parts-internationalization stage, may carry out some manufacturing of parts and components in international plants. These international plants may be subsidiaries owned by the global enterprise, or may belong to sub-contractors producing the parts for the global enterprise. And finally, in the fourth, process-internationalization stage, a global enterprise may choose to use a fully integrated global supply-chain. For example, Ford 2000 is an ambitious programme to fully integrate its research and design centres, assembly plants, dealers and sub-contractors around the globe to produce commonly shared auto platforms and models. Some of the recent global mergers, such as the Chrysler–Daimler, British Petroleum–Amoco, Goodyear–Sumitomo Rubber/Dunlop deals,

also force these global enterprises to fully integrate their supply-chains. Such globalization strategies internalize many of the value-adding processes, and the enterprise is forced to rely on more globally scattered suppliers with different cultural backgrounds.

### **Streamlining Supply-chains by Cross-cultural Trust**

The inter-organizational social capital, based on trust in global supply-chains, can be a source of competitive advantage. Three dimensions of inter-organizational social capital are: cognitive, relational and structural value-creation.<sup>29</sup> Independently, three sources of building trust were identified for multi-cultural transactions in supply-chains for global enterprises.<sup>30</sup> In this article, in the context of a global supply-chain, we have integrated previous research findings under three key elements: trustworthy agents as the cognitive social capital; trust-building processes as the relational social capital; and institutionalization of trust as the structural social capital.

#### **Trustworthy Agents**

##### ***Cognitive Social Capital***

To streamline poly-cultural global supply-chains (with high interdependence of participating agents), selecting transacting agents with trustworthy perceptions is a prerequisite to reducing risks in a trust-based supply-chain. In this article, trustworthiness is an attribute of an individual actor or enterprise,<sup>31</sup> trust-building is the attribute of a transacting relationship (Gambetta 1988; Ring and Van de Ven 1994), and structural

institutionalization of trust is the attribute of an enterprise network.<sup>32</sup>

To illustrate trustworthiness, consider the example of safety of a Detroit-born child safely playing alone in a Jerusalem park because of the dominant value that other adults, even strangers, are trustworthy (Coleman 1990). From an agency theory perspective, parents trust their children to a trustworthy baby-sitter.<sup>33</sup>

It is therefore reasonable to expect that a more trustworthy enterprise is more likely to be a popular transaction partner for other enterprises in a global supply-chain. Proper selection of a trustworthy partner can help mitigate some of the risks of transactions between different individuals and enterprises in a global supply-chain.

As the supply-chain internationalizes from the market-stage internationalization to the materials-stage internationalization, and to the process-stage internationalization, the dependence on trustworthy collaborators increases. In highly streamlined supply-chains with no intermediaries and deep dependence (Sheppard and Sherman 1998), trustworthiness in a partner enterprise requires honesty and integrity, so that it is unlikely to take advantage of opportunities to cheat. The trustworthy perceptions improve the dyadic relationships between the transacting participants. A trustworthy buyer or seller is likely to promote superior performance, offer reliable deliveries and lower costs without extensive intermediary control. These trustworthy perceptions, however, vary and are rooted in the values of the participants' respective cultures.<sup>34</sup> The buyers and suppliers must therefore adapt their perceptions of other transacting agents to the differences in their national cultural values (such as power distance, individualism/collectivism,

masculinity/femininity, and the degree of uncertainty avoidance). For supply-chains involving Asian partners, Confucian dynamism was added to the previous four cultural values.<sup>35</sup> A dilemma for managers of supply-chains for global enterprises is to evaluate their partners' performances by the home country's cultural values, or by the host country's cultural beliefs. Their mutual trust will depend on a negotiated balance between the two. Therefore, we postulate our first research proposition (P1), that transacting with trustworthy exchange agents will be positively associated with more streamlined global supply-chain with low intermediation.

## **Trust-building Transactions**

### ***Relational Social Capital***

The second source of trust for streamlining supply-chains is through promotion of transactions that reinforce and build trust between the transacting agents. Most relationships, including supply-chain relationships, start out short on mutual trust. This is not necessarily a sign of danger ahead. Trust is built over time through social interactions, which act as channels for information and resource flows in supply-chains. The research studies on organizational socialization have highlighted the significance of informal social interactions in adopting their organizations' embedded values (Van Maanen and Schein 1979). In a global supply-chain, different enterprises have different embedded values, codes, languages, goals and preferred practices. Individuals in one enterprise may collectively share a set of these embedded attributes. Trust-building transactions help these individuals share their embedded

values with individuals in partnering enterprises.

Historical accumulation of trust-building transactions in supply-chains improves mutual interdependence. Each adverse experience, on the other hand, chips away and breaks the trust accumulated over time. An enterprise, buyer or supplier, thus builds or breaks mutual trust with each transaction. Suspicions about others often arise from a feeling of one's own zero-sum insecurity and misgivings about competitive weaknesses. There may be nothing wrong with the supply-chain partner. In each such trust-building or trust-breaking transaction, the supply-chain partners go through recognition, roaring and registering stages before they produce any results.<sup>36</sup> The significance of trust-building transactions grows as a global enterprise evolves from the mercantile trade, involving the market-internationalization stage and the materials-internationalization stage, to the parts- and process-internationalization stages. Therefore, we propose our second research proposition (P2), that enterprises using more frequent and positive trust-building social interactions will be positively associated with more streamlined supply-chains with low intermediation.

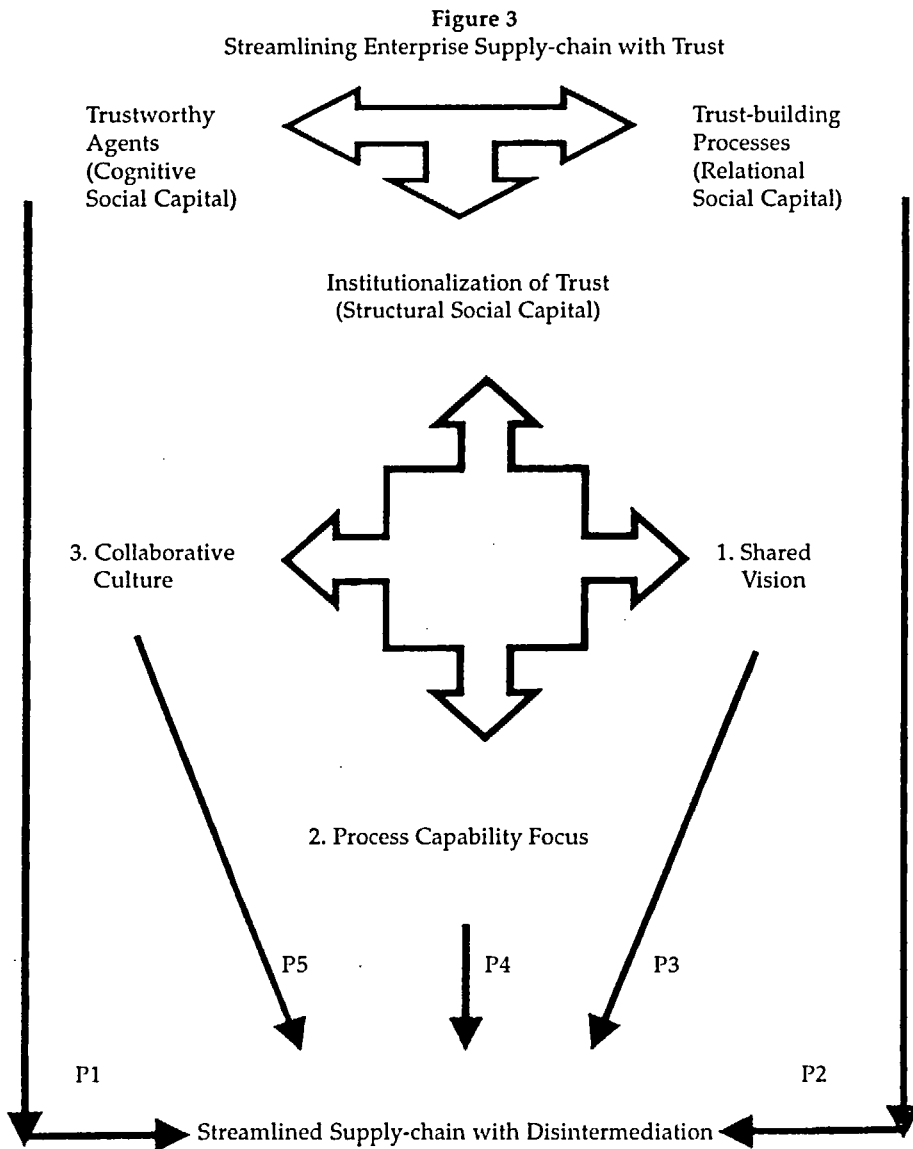
## **Institutionalization of Trust**

### ***Building Structural Social Capital***

To gain sustainable trust in supply-chains, global enterprises must institutionalize the value of trustworthiness and trust-building processes when making their strategic and tactical decisions. A distinction was made between relational and structural embeddedness of trust in inter-organizational interactions (Granovetter 1985).

High trust in a global supply-chain of a global enterprise can be built by institutionalizing trust as an integral part of its strategic re-invention and planning process. The strategic re-invention process for a supply-chain, is a modified business process re-

engineering (BPR) process. In this article we propose that people-based trust is a prerequisite to the radical process of re-engineering accomplished with information technology.<sup>37</sup> Figure 3 shows that strategic re-invention of supply-chains involves institutionalization



facilitated by transacting with trustworthy agents via trust-building processes by the upper echelons of leadership on the following three fronts:

- Trust-based shared vision
- Focus on process capabilities
- Cultivate collaborative culture

*Trust-based Shared Vision* Building mutual trust in the supply-chain of a global enterprise starts in the upper management echelons (UME) of the interacting enterprises. The strategic leadership of a participating global enterprise and its supply-chain partners must integrate trust as a core value of their shared vision. Such long-term shared vision, and the short-term win-win mission, must be unambiguously formulated and frequently communicated by the strategic leadership to all the transacting agents inside and outside the global enterprise. This helps reduce the transaction costs in the supply-chain.

A strategic shared vision, based on mutual trust, provides a vital force for resource-sharing and information exchanges needed to gain a sustainable competitive advantage. Several research studies have shown that a shared vision helps integrate together loosely coupled systems (Orton and Weick 1990). In moments of crisis, a strong commitment to a clear shared vision acts as a guiding 'North Star' for all the stakeholders. In high-velocity turbulent times it helps thousands of associates distributed in a global enterprise decide how they must respond. With a clearly communicated vision, customers and suppliers in the supply-chain know how their counterparts will behave in an ambiguous crisis situation. A customer-driven vision is reassuring to customers in such crises. A 'win-win'

vision reinforces suppliers' faith in their buyer.

The status and significance of value statements and formal codes of ethics have been analyzed for large US global enterprises (Humble et al. 1994). The credo of health-care giant Johnson & Johnson, one of the most popularly known codes of values in the US enterprises, is the unifying force for its thousands of employees in widely distributed divisions.<sup>38</sup> The credo clearly outlines that Johnson & Johnson's first responsibility is to doctors, nurses, patients, mothers and all others who use their products and services. This credo guided the managers' and employees' choices during the Tylenol poisoning crisis. While pursuing this credo, Johnson & Johnson asserts its belief in the 'win-win' sharing of gains with its partners. The credo states that its 'suppliers and distributors must have an opportunity to make a fair profit.' Johnson & Johnson's trust-based credo is incorporated in its employee training and educational programmes, and is an important part of its recruiting and selection criteria. The strategic leaders at Johnson & Johnson constantly support the trust-based vision, giving their special attention to more vulnerable and cost-sensitive processes, such as purchasing and selling. Such shared visions cannot be achieved by global enterprises without the active involvement of their key suppliers. Therefore, we propose the third research proposition (P3), that the development of a clear shared vision, and its frequent reinforcement and communication by the top management team to the transacting partners, will be positively associated with a more streamlined supply-chain with low intermediation.

The trust-based shared vision is necessary but not sufficient to gain a sustainable

competitive advantage in high-velocity global markets. For institutionalization of trust, the win-win vision must be reinforced and integrated with process capabilities, and the creation of a collaborative culture (discussed below).

*Process Capability Focus* In the new global economy, enterprises and their supply-chains must be agile to respond to the fast changes in their customers' expectations, market competition and technological shifts (Humble et al. 1994). Process focus deals with the procedures that different enterprises use in transacting across a supply-chain. The cross-functional teams are driven by activities rather than by the 'status' of the individuals involved. Customers and suppliers in a supply-chain do not care which sub-system inside a global enterprise is responsible for a mishap. With process focus, these stakeholders can expect the participating enterprises in a supply-chain, or the different functional departments in an enterprise, to use seamless procedures to deliver quality goods and services. In the streamlined supply-chains, purchase managers are not compensated and rewarded for selecting their suppliers exclusively by the minimum cost bids. Instead, they rely on more balanced scorecards, involving reliable deliveries and less variations in their processes. Traditionally, enterprises derived their economies of scale by issuing large purchase orders for standard products. In the dynamic new global economy with high-velocity changes in technology, this traditional approach implies higher obsolescence and costs of the parts, components and finished products. Instead, the hyper-competition in the market demands streamlined supply-chains using

just-in-time delivery processes with small lot sizes, and lower costs.

Another major difference with process capability focus is in the way information and resources are shared with others in a supply-chain. Innovative deployment of shared resources has helped partners create new products and generate added value (Ghoshal and Moran 1996) in a Schumpeterian constructive-destruction mode. In the traditional low-velocity market environment, the buyers with low trust for outside suppliers can control the key information close to their chest. This can drastically increase the response time of a supply-chain in a fast-changing high-velocity environment.<sup>39</sup> With shared procedures used by multiple enterprises across a globally dispersed supply-chain, the response time to an external change can be improved significantly. Several researchers have claimed that innovation requires unique combinative capacities based on diverse resources (Kanter 1988; Kogut and Zander 1992).

In traditional multi-tiered supply-chains with low mutual trust, enterprises experience lag effects which are hard to forecast. For every fluctuation in upstream demands of finished goods, buyers in every successive downstream stage in the supply-chain add either excess or discounted amounts for margins of safety. This increases the work-in-process inventories of key resources. A high trust in supply-chain would significantly reduce such unproductive investment in excess or short inventories.

Therefore, we postulate our fourth research proposition (P4), that global enterprises with heavy focus on process capabilities are positively associated with the more streamlined supply-chains with low intermediation.



*Cultivating a Collaborative Culture* Irrespective of the stated formal structure, every global enterprise has its own unique culture reflecting the way different processes are actually carried out. This enterprise culture reflects the organization's true values, beliefs and philosophies for conducting its business (Kotter and Heskett 1992). In a global enterprise, culture is influenced to a certain extent, but not entirely determined by the national culture of its home country. Large global enterprises are therefore expected to have, not a homogeneous monolithic culture, but a variety of sub-cultures in its different parts. An enterprise culture must fit and facilitate swift implementation of the business strategy of the global enterprise. In an enterprise culture where a widely shared value is mistrust of others, with excessive intermediation and detailed bureaucratic control, it will be hard to expect suppliers to come forward with innovative suggestions to improve the strategic capability of the buyer enterprise. On the other hand, a widely shared value of trust with empowerment could help the global enterprise gain significant competitive advantage from its suppliers' capabilities in cost reduction and new product design. Adversarial enterprise cultures, once established, usually take a long time and immense efforts to change to collaborative cultures. Crises and mega-shifts in external environments, on the other hand, may force organizations to adopt new ways of conducting their processes. A close alignment between a collaborative strategy and a trusting culture could result in a 'hard to imitate' strategic advantage over rivals in high-velocity global markets. Therefore, we postulate our fifth research proposition (P5), that the global supply-chains, where collaborative culture is cultivated, are positively

associated with more streamlined supply-chains with low intermediation.

### **Cross-cultural Trust and Supply-chain Streamlining**

In this section we briefly integrate and review the consequences and potential risks of streamlining global supply-chains with high and low intermediation.

In less streamlined supply-chains with high intermediation, and low interdependence, trust is deterrence-based or 'calculative'.<sup>40</sup> In such supply-chains, partners closely coordinate others' behaviours to achieve their unilateral goals. A poor coordination carries the risk of disruption of production, unacceptable quality of products, delayed deliveries and low customer satisfaction. Institutional mechanisms are developed to penalize partners and suppliers who perform unreliably. Such penalties could be formal, as with court lawsuits, or these may be relational, such as cessation of future business.

In highly streamlined global supply-chains with low intermediation, trust is based on deep dependence invoked by a sense of obligation to conform to a shared model of behaviour. The truster and trustee internalize their shared vision, preferences, beliefs, values and ways of doing business. With no intermediation in a highly streamlined supply-chain, a trustee/supplier's behaviour is often outside the purview of the truster/buyer. This invisibility carries the high risk of opportunistic cheating by the supplier. In addition to such intentional cheating, additional risk may arise from the trusted agent partner's failure to carry out the obligations of its principal's responsibilities to its key stakeholders (Eisenhardt 1989).

In conclusion, we gather that the streamlining of a global supply-chain with no intermediation has the potential benefits of lower transactional costs and faster response time. Disintermediation, however, also carries the risk of excessive dependence on partners and the risk of an agent's intentional opportunistic cheating or unintentional failure of meeting principal's expectations.

### Research and Managerial Implications

With high-velocity changes in hyper-competitive market environments, supply-chains are expected to play increasingly significant strategic roles in the survival and growth of global enterprises in the twenty-first century. In the past, researchers and practitioners reduced their transaction costs in supply-chains by one-way information

exchanges and internationalization by large producers. Process re-engineering attempts with intensive use of information technology, rather than collaborative human trust, had mixed results during the nineties. In this article, we reviewed the developments showing that the streamlining of supply-chains can improve enterprise capability significantly by building trust. To improve the capability of the overall enterprise supply-chain, trust must be mutual between the buyers and suppliers, based on their network inter-dependence and low intermediation. One objective of this article was to inspire further empirical research on the role of trust and disintermediation in supply-chain in different market conditions. Resistance to such transformational changes in the implementation of a streamlined supply-chain can be the focus of future studies on this increasingly significant subject.

### NOTES

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1. Some of the empirical evidence of expectations of supply-chains is available in Davis et al. (1999). Some information was derived from a related 1997 report, *The State of Logistics Report* by R. Delaney cited in this source.
2. For a wide range of anecdotal examples of significance of trust in supply-chains see Mariotti (1999).
3. Challenges and opportunities in the grocery industry are discussed in Henkoff (1994).
4. For an update on markets and hierarchies see Williamson (1999). See the seminal work on transaction cost economics in Williamson (1975).
5. For a global comparison of the Japanese and American practices for new product development see Gehani (1992).
6. For a taxonomy of time-based tactical and strategic management of technology see Gehani (1995).
7. A seminal study of cross-country comparisons of trust was provided in Fukuyama (1995).
8. See some early models in Arrow (1974) and Smith (1981).
9. Recently, interest in emotional intelligence in managerial competence has grown. See Frank (1988), Jones (1995) and Williamson (1975).
10. For analysis of cooperation in organization see Mayer et al. (1995) and Smith et al. (1995).
11. Contextual influences are discussed in McAlister (1995) and Korsgaard et al. (1995).
12. Early thinking on trust can be seen in Deutsch (1958, 1962) and Tyler (1990).
13. For a sociological perspective see Granovetter (1985), Rousseau (1995) and Lucker (1986).
14. The economic view in formal contracts is well articulated by Williamson (1993).
15. Institutional analysis in economics can be seen in North (1990).
16. Cooperative relations have been analyzed by

- Gambetta (1988), Gulati (1995) and Ring and Van de Ven (1994).
17. Network organizational structures are discussed in Miles and Snow (1992).
  18. Trustworthiness was the focus of Barney and Hansen (1994).
  19. For an overview see Das and Bing-Sheng Teng (1998) and Miles and Creed (1995).
  20. For a comprehensive systems view of enterprise technology as a transformation process, see Gehani (1998a and 1998b).
  21. See Killen and Kamauff (1995). A pioneering study of supply-chain in automobile industry was provided in Womack et al. (1990).
  22. The research topics are summarized in Baxter (1999).
  23. For an overview of the resource-based view of a firm by one of its pioneers see Barney (1995).
  24. Use of value-adding chain for strategic purpose was well articulated by Porter (1985).
  25. For a detailed discussion of the functional silos with rigid boundaries across relay-race sequential steps see Gehani (1992).
  26. Gehani (1998a) discusses the significance of dominant design in the patterns of innovation.
  27. First insight into Japanese production practices was provided by Schonberger (1982).
  28. The re-engineering movement took off with Champy (1995). Also see Davenport (1993), Hammer and Champy (1993).
  29. See Nahapiet and Ghoshal (1997) and Tsai and Ghoshal (1998).
  30. For a detailed discussion of trust in high-performing poly-cultural teams, see Gehani (1998b).
  31. Resource-based perspective is described in Barney and Hansen (1994).
  32. Networks are analyzed by Hakansson and Snehota (1995).
  33. Anatomy of trust is discussed in Sheppard and Sherman (1998).
  34. One of the earliest studies of the impact of country culture on a global enterprise was presented in Hofstede (1980).
  35. The significance of cultural values in the rise of Asian tigers was described in Hofstede and Bond (1988).
  36. For a more detailed discussion and examples of the components of cross-cultural trust see Gehani (1998b).
  37. See studies in business process engineering by Champy (1995) and Davenport (1993).
  38. For Johnson & Johnson credo see the company's Annual Report, 1995.
  39. Gehani (1995) discusses the tactical and strategic aspects of time-driven agile enterprises competing in high-velocity technology-based industries.
  40. The significance of degree of dependence has been elaborated by a number of researchers including Lewicki and Bunker (1995a, 1995b); Sheppard and Tuchinsky (1996a, 1996b).

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