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MANAGING ASIAN SUPPLY CHAINS: CHALLENGES AND OPPORTUNITIES

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ABSTRACT

This paper draws on the experience of the authors as practitioners of Supply Chain Management (SCM), from the numerous roundtable discussions organized by the Institute with senior industry executives, and from the empirical observations of trends impacting the development and management of regional supply chains, particularly for countries in Asia.

INTRODUCTION

The logistics industry is a critical sector within any economy, particularly in Asia. In 2004, Asia's logistics industry was estimated to be worth USD 1 trillion, and is expected to continue to grow at an expected rate of 12.6% annually until 2009 (Logistics Industry Guide, 2005). SCM excellence is becoming increasingly important as a functional differentiator in many business environments. However, in Asia, the realities of this industry can be very different from the developments prevalent in the rest of the world. Such differences (and similarities) are accentuated by the presence of large and multinational logistics organizations, socio-cultural differences and different stages of evolving economic maturity, the adoption and the rate of penetration of new logistics systems and technologies, coupled with the requisite physical and "soft" logistics infrastructure.

Over the past few years, with increasing turbulence in the global economy, Asia has also played host to a string of events in the logistics and SCM arena. These are: 1) an evolution of new logistics systems and technologies either imported from mature economies in the West or developed by established regional technology vendors; 2) greater investments in critical logistics infrastructure through private-public-partnership programmes to help accelerate the growth of the industry; 3) the emergence of (albeit competing) mega-logistics hubs, inclusive of ports and airports, such as those found in Singapore, Hong Kong, Bangkok, and Shanghai; 4) a vigorous wave of consolidation of information and communications technology solution vendors; 5) mega mergers and acquisitions of regional logistics service providers (LSPs) by both foreign and regional LSPs, e.g., PWC logistics acquiring Geologistics and Translink, Toll Logistics buying into SembLog, CJ Global Logistics' purchase of Accord Express; and 6) greater scale and scope of logistics services and manufacturing outsourcing.

These, and many other significant events, have spawned new opportunities and challenges for cross-border supply chains within Asia, and an accompanying thirst for new streams of relevant applied research and applications especially in the field of logistics and supply chain management. Underpinning much of this transient change has been a concerted effort by the user community and the industry at collectively and jointly: 1) reducing pipeline costs through better supply chain consolidation strategies; 2) improving end-to-end process efficiencies through better design and re-engineering; 3) outsourcing of non-core

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functions by producers of goods to ensure leanness and fitness of use; 4) engaging in business transformation optimization for traditional manufacturers; 5) recognizing the core competencies and strengths of the LSPs in nation-wide distribution in large land masses such as China and India, and 6) creation of industry standards by government agencies and industry associations for seamless cargo flow. Other drivers of this transience also include: the urgency to optimize regional supply chains through better transport modelling and emergency scenario planning, greater facilitation of cross-border trade, accelerating product life cycles mandated by global manufacturers, new paradigms of competition such as speed to market, the growing emphasis on safe and secure supply chains, and new regulatory environments mandated by international, regional and national regulators. All these present a growing list of the challenges faced by the LSPs and the end users of such services!

Unfortunately, this plethora of challenges is set against a backdrop of a highly complex and culturally, politically and economically diverse geography – Asia. Moreover, key to these developments is the impact of such trends and events on the people, processes, strategies, and technology aspects of the supply chain. The attendant need is then the ability to sense correctly and respond adequately within a short time frame, which inadvertently translates to the ability to reach a rich client set within a seven-hour flying radius of the client's market(s) or the LSP's logistics nerve centre in Asia. We discuss some of these issues below.

OUTSOURCING

In outsourcing, where practised, the trend has been to largely outsource lower-end manufacturing, storage and transport logistics, in particular to relatively cheaper labour cost and/or higher skilled content locations such as those currently found in India, China and Thailand. In China, outsourcing will continue to grow as the region's factories continue to fuel global production and stimulate economic growth. As long as outsourcing is accepted as the best competitive approach to help streamline operations, lower direct labour cost, and maintain focus for the company, there will be a place for SCM. However, while outsourcing may seem a plausible approach in ensuring operational efficiency and strategic effectiveness for a firm, there are also challenges accompanying the execution of logistics, both on the inbound and outbound aspects.

There has also been an increasing emphasis by manufacturers, particularly those with in-house logistics units, on continued divestment of their physical assets and an increased focus on building brand capital. In short, this entails a paradigm shift from the tangible to the intangible. The separation of ownership between the traditional assets such as warehouses and transport fleets and the logical assets such as knowledge and brand has imposed new pressures on people, processes and strategy needed to manage the balance between physical assets and knowledge assets. Also the activities most frequently outsourced to the LSPs are outbound and inbound transportation, warehousing, customs clearance and brokerage, and freight forwarding (Langley et al., 2005).

KEEPING PACE WITH CUSTOMER REQUIREMENTS

A technology savvy customer base has continuously challenged product designers and hence the constant renewal of the product portfolio leading to further challenges in supply chain design/re-design, logistics flow processes, and

the new need for innovative services-based supply chain solutions. Supply chains are constantly being challenged to fulfill these ever-changing needs. As Asia continues to rise in affluence, consumer preference and requirements will be more sophisticated and demanding, with a keener expectation and desire for more customized products and services. This will bring to bear an increased pressure on faster and smoother delivery in the final mile, again relying on the full orchestra of SCM to deliver.

Synchronizing supply and demand in this climate of fast-paced innovations especially in outsourced supply chains and global sourcing has led to new vulnerabilities in the supply chain. Coupled with threats to supply and access to new and traditional markets, this has demanded a new discipline of securing the supply chain end-to-end from potential disruptions, natural or otherwise. Indeed, supply chain security and risk management have been elevated to the head of many an enterprise's agenda not only with the need for compliance, with the myriad of new regulations, but also knowing how to manage possible contingencies, when supply chains become vulnerable to externalities. For shippers, their major expectations are to lower their logistics cost, shorten cycle time, improve service level, reduce inventory level and enhance reliability. Langley et al. (2005) have reported reductions in logistics cost, fixed logistics asset and average order-cycle and cash-to-cash cycle; while increases in order fill rate and inventory turns for most companies. However, the challenges for LSPs are sometimes to maintain service level commitments and are to design adaptive supply chains to match the ongoing requirements from their customers.

UNDERSTANDING REGIONAL COMPLEXITY

Asia, given its diverse geography and culture, has a complex logistics landscape of competitive supply chains. The ability to mitigate the associated supply chain risks can only materialize with a comprehensive understanding of the root causes of this complexity. Such an understanding emanates from a thorough analysis of trade flows, soft and hard logistics infrastructure and a clear appreciation of the macro global and regional trends, free trade agreements, the productive application of new knowledge, and an arsenal of tried and tested supply chain-driven solution responses. Part of this solution lies in the cooperative or perhaps co-opetitive arrangements between governments, countries and LSPs in ensuring that they work consistently to reduce or ameliorate the degree of complexity involved in moving goods from one location in one country to another location in the same or different country in Asia. The urgency to gain a better grasp and control of the regional complexity inherent in this part of the world calls for logisticians who fathom the politics, cultural nuances, sociological diversity, administrative impediments, and economic maturity of the nations to broker a smoother passage for their goods. Some constraints restrain the growth of the LSPs. One of these is the reluctance of clients to outsource their entire logistics. In this regard, Huang and Kadar (2003) note that while over 88 % of shippers in China outsource their direct transport needs, only 48% outsource their logistics services. Excluding the MNCs, this figure is even lower at 16%.

POSITIONING FOR TIME AND COST ADVANTAGES

Notwithstanding the above, Asia still needs to rely heavily on multi-modalism to execute most of the logistics. Indeed, many of the issues that the industry has to contend with may seem global in nature but in reality have a local impact. Asia,

simply because of the growing emergence as both a globally dominant production and consumption powerhouse, is where most of the supply chains start, reaching out to markets as far as the USA and Europe. Navigating such global complexity requires specific strategies that address varying market regulations, customer preferences and product requirements. For instance, nifty postponement strategies as evidenced by spatial and temporal aggregation have been adopted as viable solutions but challenges still abound particularly when dealing with returns and technology export control regulations. Modular serviceable or interchangeable product designs, strategic inventory positioning and novel replenishment schemes for reverse chains are some opportunities driving supply chain innovation for sustained competitive advantage.

'SMART' MODELS

The need for 'smart' models is obvious when one considers the complexity involved when goods are transported through several countries, with different customs stipulations and checks, before arriving at their final destination. Typically, the flows of goods, cash and information within Asia can be more challenging to coordinate. The consideration of varying tax rates and duties, different exchange rates, labor and land costs, trade barriers, transfer prices, and duty drawbacks becomes fundamental in any supply chain re-design optimization model applicable in Asia (WERC Watch, 2002; Rheem, 1997).

We treat the supply chain re-design problem by evaluating the feasibility and performance of different operating scenarios. The entire supply chain is modeled as a mixed integer programming problem to minimize the total logistics cost, which includes transportation cost, warehousing cost, labor cost and corporate tax. Using this model, the total landed cost can be readily calculated and verified with some established benchmarks. Optimal solutions are found under various scenarios and the cost-location-time trade-offs can be better understood and used as inputs for managerial decision making. Based on our model, mere transportation consolidation of goods within Asia for some industries, ceteris paribus, can reduce the landed cost by at least 1%. Subsequent smart re-designing of the supply chain can yield a maximum cost saving of 19%.

CONCLUDING REMARKS

SCM in Asia continues to intrigue logistics professionals. What we have presented above are some major challenges of operating and managing supply chains in this region. However, the opportunities to apply and realize significant savings in the chain far outweigh the inherent challenges, which have remained in Asia since time immemorial. Herein lies the new frontier and promise for SCM.

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