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How to cite:

Batista, Luciano (2009). Key operations performance factors on trade and transport facilitation. In: Logistics Research Network Conference, 09-11 Sep 2009, Cardiff, UK.

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Version: Accepted Manuscript

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KEY OPERATIONS PERFORMANCE FACTORS ON TRADE AND TRANSPORT FACILITATION

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Introduction

Globalisation has dramatically changed logistics and supply chain management, demanding tightened operations and stronger management. Despite the current financial crisis, global trade is likely to carry on growing, as greater participation in international trade has long been identified as an essential element of economic growth, generating mutual benefits for the countries and businesses involved. The facilitation of trade and transport is therefore critical for countries that want to harness globalisation's new opportunities for development (Appels and de Swielande, 1998). According to the World Bank (Raven, 2001), countries with minimum cost and delay to legitimate cargo attract foreign investors to establish importing, production and distribution facilities. Moreover, the facility of trade and transport can have a major impact on a company's decisions about which consumer markets to enter, which suppliers to buy from, and which country to locate in (Avris *et al*, 2007). Yet, many organisations still struggle to deal with challenging customs processes which threaten the reliability of their supply chain. A complicating factor is that the spectrum of issues concerning trade and transport facilitation is very broad, involving economical, political, and operational elements.

In practice, once trade and transport facilitation rules and regulations are defined at the economical and political levels, the acceleration of the flow of goods across borders and implementation of efficient customs processes become operational issues in essence. This paper reports the findings of a Delphi study that focused upon the operational dimension of trade and transport facilitation. The study has identified operational performance factors that are crucial for the facilitation of international trade and transport. The factors were categorised by key strategic operations performance elements such as speed, dependability, flexibility, quality, and cost. The resulting framework provides a useful reference for more targeted benchmarking and monitoring of the performance of key operational processes that take place at border-crossing ports.

Research problem and questions

Trade and transport facilitation initiatives are seen as important means to promote competitiveness and smooth the progress of increasing trade volumes (OECD, 2003). The measurement of trade and transport facilitation performance provides the basis for the development and improvement of policies, regulations, projects, and activities with the purpose of accelerating the flow of goods and services across borders as well as optimising customs processes. Performance indicators can also be used to monitor projects and support regional and global analyses. A key problem is that the scarcity of indicators to allow benchmarking and support the assessment of trade and transport facilitation performance makes it difficult for policymakers and businesses to adequately analyse the operational difficulties they might face when connecting to global markets. Another major problem is lack of consensus on the definition of performance indicators for trade and transport facilitation. In general, there is neither uniformity nor standard frameworks or methodologies for measuring the operations performance of trade and transport facilitation (Raven, 2001). This scenario leads us to the following questions: which performance factors can be considered as general key operational elements for the facilitation of trade and transport? Can these factors be expressed in terms of performance objectives that are strategic for operations in general?

Research objectives

This study focused upon general aspects of trade and transport operations, at border-crossing ports, that are critical for the facilitation of international trade and transport. We considered the holistic operations performance of organisations involved in providing customs and logistics services in international ports. The main purpose of the study was to identify and categorise key factors that represent performance aspects of trade and transport facilitation operations. More specifically, the objectives of the study were:

- To identify operational aspects that can be considered as key performance factors on trade and transport facilitation.
- To categorise the identified factors in terms of general performance objectives that are strategic for operations in general.

Theoretical considerations

Trade and transport facilitation

The spectrum of issues concerning trade and transport facilitation is very broad. From an operational perspective, it refers to the management of international flow of goods with the objective of minimising logistical costs and accelerating customs processes. From a broader perspective, it includes transparency and professionalism of customs rules and regulations, efficiency of clearance processes, and compliance of customs procedures to international regulations (Wilson *et al.*, 2003).

The World Bank has developed and supported a number of studies on performance indicators of trade and transport facilitation. For instance, Wilson *et al.* (2003) considered more broad indicators which were constructed using country-specific data on port efficiency, customs environment, regulatory environment, and e-business usage. Avris *et al.* (2007) developed the Logistics Performance Index, which is a performance index reflecting the overall performance of countries on seven aspects: (1) efficiency of the clearance process by customs and other border agencies, (2) quality of transport and information technology infrastructure for logistics, (3) ease and affordability of arranging international shipments, (4) competence of the local logistics industry, (5) ability to track and trace international shipments, (6) domestic logistics costs, and (7) timeliness of shipments in reaching destination. More recently, the World Economic Forum has developed the Enabling Trade Index (Lawrence *et al.*, 2008), which measures the factors facilitating the flow of goods over borders and to destination. The index breaks the enablers into four overall areas: (1) market access, (2) border administration, (3) transport and communications infrastructure, and (4) the business environment. By its turn, the Global Facilitation Partnership for Transport and Trade (GFP) considers time, cost, flexibility, reliability, and safety as indicators to measure performance at a country, project, or global supply chain component level (GFP, 2008).

In the frameworks above, economical and political aspects are usually mixed together with operational aspects. As we intended to focus upon the operational aspects of trade and transport facilitation only, our framework was intentionally developed from a particular 'operations management' perspective. From this perspective, we have taken into account five elements that are well established performance indicators in the operations management discipline, namely: speed, dependability, flexibility, quality, and cost. According to Slack *et al.* (2007), these elements are critical strategic performance objectives that apply to all types of operations.

Critical operations performance objectives

Performing well is a business imperative. Successful organisations maintain their reputation largely because of the performance of their operations. In general, every organisation wants to be efficient and effective. The main objective of operations function in organisations is therefore to arrange resources and activities in an as most effective and efficient way as possible. Being effective means producing the goods and services that customers really want and being efficient means producing the required goods and services at as lowest cost and effort as possible.

Critical operations performance objectives are crucial factors that are strategically important to organisations. Being strategically important means that the performance objectives have to be considered as strategic goals to be achieved and the primary aim of the operations function is to deploy the appropriate resources to support the achievement of those goals. Typically, the operations performance objectives are specifically related to satisfying customers requirements. In general, the fundamental performance objectives that apply to all types of organisation and are closely related to customer satisfaction requirements are speed, dependability, flexibility, quality, and cost (Slack *et al.*, 2007).

1. **Speed:** Speed means doing things quickly. It is about delivering goods and services to customers as fast as possible. This involves making quick decisions and rapidly moving materials and information inside the operations. For example, in the context of trade and transport facilitation, 'automated processes' can be a speed performance factor.
2. **Dependability:** Dependability means doing things on time and as promised. It is about developing trustworthiness. Dependability can be achieved through the use of reliable equipments, effective communication, efficient scheduling systems, motivated workforce, transparency of processes, etc. In the context of trade and transport facilitation, 'transparency of border processes' can be an example of dependability performance factor.

3. **Flexibility:** Flexibility is about being able to change the operations to fulfil new requirements. As requirements can change over time, organisations need to develop operations ability to introduce new or modified products and services, as well as to produce a wide range or mix of products and services. Flexibility also involves volume flexibility (the ability to change volume of output over time) and delivery flexibility (the ability to change delivery time). Flexibility can be achieved to the use of more versatile equipments, suppliers with good flexibility performance, multi-skilled workforce, etc. In the context of trade and transport facilitation, 'different entrance times' can be an example of flexibility performance factor.
4. **Quality:** Quality is about doing things right. It means consistently producing goods and services that meet expectations. The quality objective can be achieved by the provision of error-free products or services that fulfil customer requirements. This requires skilled workforce, adequate job specifications, proper technologies, and effective communication. For example, in the context of trade and transport facilitation, 'adequate transport infra-structure' can be a quality performance factor.
5. **Cost:** Cost performance is about doing things economically. Low cost is a universally attractive aspect. Lower cost of production or service delivery reflects to the customer in form of lower price. Cost reduction can be achieved by developing good relationships with suppliers, good negotiation of supplying contracts, getting the right mix of resources and facilities as inputs, etc. In the context of trade and transport facilitation, 'no hidden costs' can be an example of cost performance factor.

Research method

In order to identify and categorise key operations performance factors on trade and transport facilitation, we have adopted Delphi study as the method of study. This method was adopted because it allows the achievement of reliable consensus on complex issues, in circumstances where accurate information does not exist or is impossible to obtain economically. It also allows reliable and creative exploration of ideas as the basis for the production of suitable information for decision making (Mitchell, 1991).

The Delphi technique is an exercise of group communication interspersed with controlled opinion feedback involving a panel of geographically dispersed experts. It comprises a series of issues or questions sent to a selected group of experts in a series of rounds in which information is collected from the group, analysed and fed back to them as the basis for subsequent rounds. The group interaction in Delphi is anonymous, in the sense that comments are presented to the group in such a way as to suppress any identification and avoid influences.

Accordingly, our study took into account the opinion of experts in the area of global logistics and supply chain in order to identify key trade and transport facilitation performance factors in terms of speed, dependability, flexibility, quality, and cost. Academics, consultants, and practitioners formed the group of experts. The criterion to identify experts was 'peer review'. Initially, experts known to the researchers through their participation in complementary research, conferences, and seminars were asked to identify individuals who they think had appropriate expertise due to their experience, knowledge, and perceived foresight in the area of global logistics and supply chain. Additional experts were identified from prominent practitioners and academic publications. From the list of identified experts, we formally invited a balanced proportion of academics, consultants, and practitioners to participate in the study as Delphi panellists. Eleven experts have actively participated in the Delphi study.

With the purpose of providing a practical way of reaching useful consensus, the Delphi study was developed in three rounds, which were structured in a sequence that culminated in a list of key operations performance factors related to trade and transport facilitation. Each round focused on specific exercises that added value to the whole identification process. In the first round, the experts elicited operations performance factors they considered crucial in the area. In the second round, the performance factors were classified in terms of speed, dependability, flexibility, quality, and cost. Finally, in the third round the whole framework was refined.

Research main findings

Table 1 below represents the consensual outcome achieved in the Delphi study. The framework provides a categorisation of key operations performance factors on trade and transport facilitation in terms of speed, dependability, flexibility, quality, and cost.

Table 1: Key Operations Performance Factors on Trade and Transport Facilitation

CATEGORY	PERFORMANCE FACTOR
SPEED	<ul style="list-style-type: none"> • Shipments/consignments cleared as scheduled • Key documents available electronically • Clear and automated duty payment processes • Clearance automation and availability of pre-clearance processes • Agile customs processes and transport operations
DEPENDABILITY	<ul style="list-style-type: none"> • Reliable and visible transport schedule • Effectiveness and efficiency of the clearance and transport services delivered by customs and other border agencies • Accurate registration of shipment/consignment information • Security inspections delivered on time • Low risk of criminal activity and security incidents • Harmonised and transparent customs processes • Standardised transport procedures • Compatible and adequate infrastructure of ICT systems • Effective and efficient communication between terminals, services, and operators
FLEXIBILITY	<ul style="list-style-type: none"> • Capacity to operate with multiple transport modes and vehicle sizes • Capacity to operate with multiple supply chains with specific operating requirements and from different sectors • Capacity to operate with different entrance times
QUALITY	<ul style="list-style-type: none"> • Shipments/consignments delivered with no damage • Adequate transport infrastructure and facilities • Responsiveness and willingness to communicate and cooperate with customers • Competent and available staff (customs officers, transport operators, and brokers)
COST	<ul style="list-style-type: none"> • Customs and transport services delivered with no hidden costs • Customs and transport services delivered with no undocumented payments • Services delivered within expected costs

Discussion

The operational aspects above identified do not necessarily represent an exhaustive list of key operations performance factors for trade and transport facilitation, as any approach to measuring operations performance in this area should take into account specific circumstances and capacities of individual border-crossing ports. Nonetheless, the factors above provide a list of core operations factors that are crucial for the facilitation of trade and transport. The categorisation of those factors by critical operations performance elements such as speed, dependability, flexibility, quality, and cost provides a useful managerial framework for the analysis of the performance of trade and transport facilitation at the operational level. In practical terms, the framework above can be used as a basis for monitoring, benchmarking, and detecting specific areas with poor operational performance. This way, port managers and government customs officers can develop more targeted and straightforward initiatives to improve the agility (speed), reliability (dependability), responsiveness (flexibility), quality, or cost effectiveness of their trade and transport facilitation processes. The framework can also be used as a common reference for the comparison of the operational performance of different ports, supporting strategic decisions such as government prioritisation plans to improve the infrastructure of ports with poor performance as well as logistic providers' decisions to operate, or not, with a particular port.

Conclusion

This paper reported the findings of a study conducted with the purpose of identifying and categorising key factors that represent performance aspects of trade and transport facilitation operations. It expands knowledge in the field by presenting a structured categorisation of key performance aspects in the area according to well established operations performance indicators. The framework developed

in this study can be a useful benchmark for regional comparisons, helping the assessment of trade and transport facilitation operations performance at port and country level. The study also contributes to the definition of more standardised indicators that can potentially assist in designing and implementing effective and targeted programs to increase agility, dependability, flexibility, quality, and lower the cost of moving goods and services across borders. Finally, it provides a basis for the development of further indicators for the analysis of performance aspect of trade and transport facilitation, as well as a basis for the development of further studies involving comparative analysis of operations performance aspects in the field.

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Acknowledgements

This study was funded by the Chartered Institute of Logistics and Transport (CILT) UK.

Citation

Batista, L. (2009), 'Key operations performance factors on trade and transport facilitation', Proceedings of the 14th Annual Logistics Research Network Conference, Cardiff, UK, September.