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Report of Feasibility Study for

CROSS BORDER SUPPLY CHAIN VISIBILITY

Across Guangdong, Hong Kong and Asia

香港、廣東及亞洲間跨境供應鏈可視化之可行性研究報告

The Threat: trading landscape re-conditionings

貿易格局的轉變 — 對香港的威脅



Hong Kong as an entrepôt, has long been enjoying its advantageous geographical location and ties to Mainland China. Trading and logistics account for over 25% of her GDP. With Mainland China being our largest trading partner, most cargoes are passing through Hong Kong in a form of transshipment.

The trading landscape will evolve significantly as Mainland China enters into free trade agreements (FTA) with Association of Southeast Asian Nations (ASEAN) countries. Origin rules require consigned products be transported directly between Mainland China and ASEAN countries for tariff waivers.

The Opportunity: supports from the Mainland and worldwide attentions on Supply Chain Visibility

The 12th 5-year plan of Mainland China has not only reassured Hong Kong's role as a logistics hub but also encouraged Hong Kong to becoming regional distribution center for high value cargo.

香港作為國際轉口貿易中心，一直以來受惠於其優越的地理位置，及與中國內地緊密的貿易聯繫。其中，貿易和物流貢獻了香港25%以上的國內生產總值（GDP）。中國內地作為香港最大的貿易夥伴，大部分貨物都是以轉運方式經由香港進出中國內地。

然而，隨著中國內地與東盟（ASEAN）各國簽訂自由貿易協定（FTA），根據原產地規則協定，東盟諸國與中國內地之間的貨物貿易，要在兩國之間直接付運，方可享受關稅豁免的優惠，這給香港的貿易格局帶來了巨大的轉變。

香港的機遇：中國內地以及全球對供應鏈可視化的關注

中國的《十二五規劃》不僅再次確認了香港作為物流樞紐的地位，同時也鼓勵香港成為高價值貨物的區域分銷中心。

Whether international trades will continue to rely upon Hong Kong as a transshipment hub will largely depend on our continuous improvement to meet the world's growing needs and concerns that include efficient cross-border process, supply chain visibility and certificate of origin, etc.

Supply chain visibility (SCV) has recently gained tremendous momentum worldwide. Both the European Union (EU) and Asia-Pacific Economic Cooperation (APEC) have proposed SCV initiatives to facilitate trades. It is believed that SCV will eliminate inefficiency including cross-border frictions along a supply chain, which is crucial for Hong Kong as a transshipment hub.

Challenges of realizing SCV are not only technical in nature but also include economic and operational feasibility considerations. In this study the project team first investigated all three aspects of realizing SCV, then the project team conducted two pilot cases to further validate findings.

Studies done by IBM, Capgemini consulting and Aberdeen group have repeatedly confirmed the importance of SCV and it is currently on the top of top executives' agenda.

Both the EU and APEC have established SCV related policies with similar goals which are to facilitate trades, stimulate economic growth and promote sustainable development. Specific objectives are to remove frictions or chokepoints by accelerating digitalization and information integration across economy boundaries.

There are many ongoing SCV related initiatives being conducted within the European Community and APEC economies including Japan, Mainland China, and Taiwan. They are all in line with the SCV related policy goals. The specific means to achieve these goals are also very consistent across the different

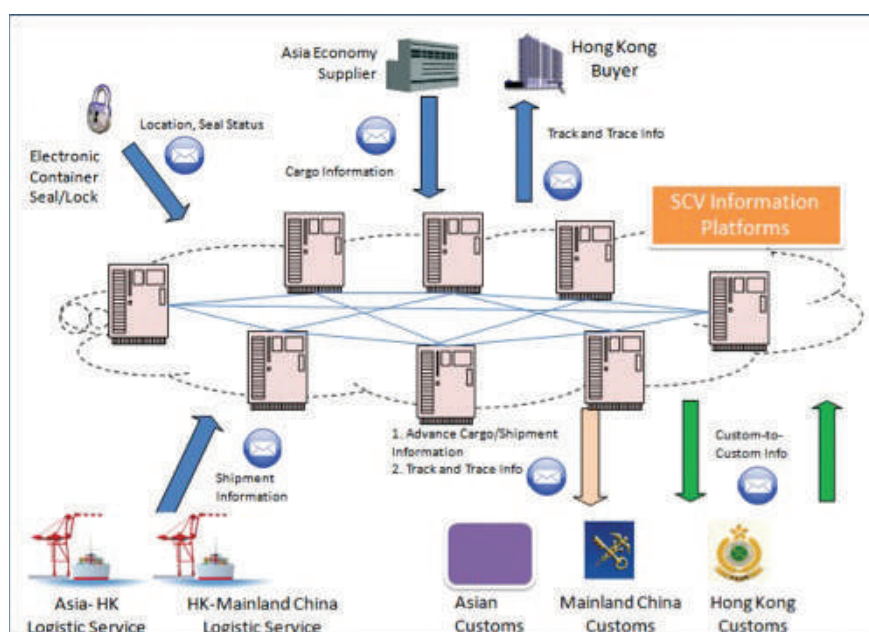
香港是否能夠繼續作為國際貿易的轉運樞紐，在很大程度上取決於香港能否在貿易及物流上不斷取得改進，以滿足全球貿易對於高效跨境運輸、供應鏈可視化、受認可原產地證書等日益增長的需求與關注。

近年來，供應鏈可視化 (Supply Chain Visibility) 在國際上得到了廣泛關注。歐盟以及亞太經合組織都在提倡通過提高供應鏈的可視性促進貿易發展。業界普遍認為，供應鏈可視化可大幅精簡運輸的冗餘程序，其中包括供應鏈中的跨境手續，這對於香港作為轉運樞紐的角色十分重要。

實現供應鏈可視化的挑戰不僅包含技術層面，同時需要考慮經濟與營運兩方面的可行性。本研究中，項目團隊首先從這三方面探討如何實現供應鏈可視化，然後利用兩宗實踐案例來進一步驗證研究結果。

IBM公司、凱捷諮詢 (Capgemini consulting) 以及阿伯丁集團 (Aberdeen group) 的研究都一再證明供應鏈可視化的重要性，因此如何提高供應鏈的透視度，已成為各大高管的首要議題。

歐盟與亞太經合組織已經建立了提高供應鏈可視化相關的政策，政策推行的目標在於促進貿易，刺激經濟增長以及促進可持續發展。另外，更具體的目標是通過加速跨境貿



The information flow of a cross-border cargo 跨境貨物資訊流

initiatives, they are:

1. standardize and digitalize customs process and documentation,
2. establish information standards and exchange protocols,
3. construct integrated information platform as a single window access,
4. connect multimodal logistics service providers,
5. share information with government administrations, and
6. track and trace cargo movement for security and efficiency.

Values and the challenges of Supply Chain Visibility

Apparently, SCV initiatives will require time, investment and commitments from multiple parties. The existing ones are mainly in planning, design or at most piloting stage. The objectives are to develop and test some of the six means listed above.

An economic feasibility study is conducted through examining whether sustainable business model can be identified and validated for a cross-border SCV initiative in Hong Kong. The business model should detail the rationale of how SCV initiative creates, delivers and captures economic value. The economic value can be in a combined form of financial value, social value, environmental value, etc.

Cross-border SCV services are typically treated as government sponsored not for profit venture. Sustainability of such a

易的數碼化與信息集結，減少阻塞點以及冗餘程序。

歐盟成員國以及日本、中國內地、中華台北等亞太經合組織經濟體都開始推行提高供應鏈可視化的措施。這些措施的目的都與供應鏈可視化的政策目標一致。縱使措施各有不同，實現最終目標的具體方法則相差無幾，不外乎涉及以下幾個方面：

1. 將報關的流程與文檔的建立標準化和數字化；
2. 建立信息標準與交換協議；
3. 構建綜合信息平台作為單一接洽窗口；
4. 連接多式聯運物流服務供應商；
5. 與政府部門共享信息；
6. 跟踪和追蹤貨物運輸信息以提高運輸安全和效率。

供應鏈可視化的價值和挑戰



供應鏈可視化的措施與方案必須由多方參與，投入時間和資金協力推行。目前現有的發展方案主要以規劃與設計，或最多以試點階段為主，主要目的在於測試上述六種方法。

針對香港跨境供應鏈可視化的問題，項目團隊進行了經濟可行性研究，探究可持續發展的商業模型是否能夠應用於實踐當中。此商業模型詳細說明供應鏈可視化方案的理論依據，其中包括如何創造、實現及獲取經濟價值（包含財務、社會、環境等價值）。

跨境供應鏈可視化服務通常被認為是政府資助項目，而非盈利服務。諸如此類的公共服務事業的可持續性應當取決於該服務是否能夠自負盈虧，或取決於其價值定位

utility service should be assessed as (1) how likely it can be self-sustained or (2) the positive difference between value proposition and operating cost. Government supports would mainly for initial setup costs but not for recurrent subsidy.

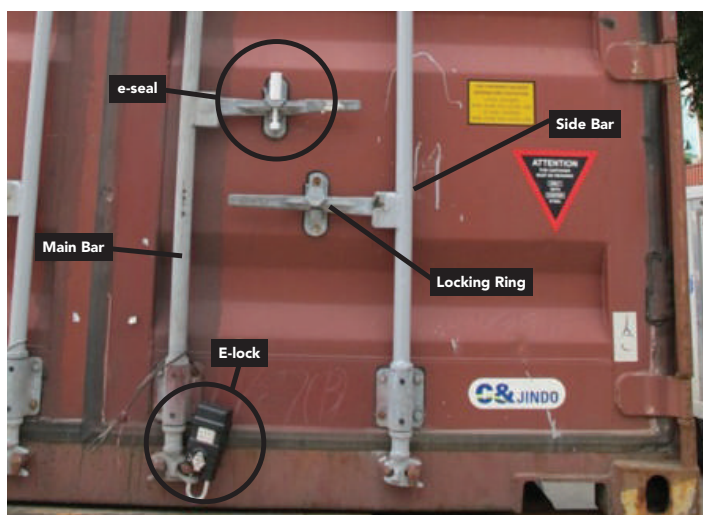
At the macro level, according to an APEC study, a 10% improvement in supply chains between borders of trade-dependent developed APEC economies such as Hong Kong would increase its GDP as large as 0.3%.

At the micro level, according to our interview surveys, cross-border SCV will benefit shippers, buyers, logistics service providers and customs. However, most of these benefits are specific to different products or different supply chain operation modes. They are difficult to quantify and may not be generalized.

In this study, four business models (i.e. based on (i) Supply Chain Uncertainty Reduction, (ii) Customs Inspection Reduction, (iii) Issuing Transshipment Certification, and (iv) Authorized Economic Operators) are identified with each based on at least one of the three quantifiable value propositions namely reduction of supply chain uncertainty, reduction of customs inspection and reduction of cost for transshipment certificate.

Two cases, one in Apparel and Clothing and the other in Electrical and Electronic are established to illustrate quantitatively, the sustainability of the identified business models in Section 4.4.

Based on the cross-border pilot cases amongst Mainland China, Hong Kong and Chinese Taipei, the project team also found that the two core values of SCV which are the abilities to (1) provide advance cargo information and (2) monitor cargo movement status and security.



Placement of e-seal and E-Lock 安置電子封條與電子鎖

與運營成本之間能否達到一個合理的比例。此類服務成立之初的投資有可能需要政府的支持，但是日後則無須給予經常性的補助以維持運作。

亞太經合組織的一項研究表明，宏觀而言，對於貿易型的發達經濟體如香港，假如能夠提高其跨境供應鍊錶現的10%，將會為整體國內生產總值帶來0.3%的增長。與此同時，根據本研究的調查訪問，從微觀角度來看，跨境供應鍊可視化將為貨運商、採購商、物流服務供應商以及海關帶來眾多好處。但是由於這些裨益在不同產品、不同的供應鍊運營模式下各有不同，所以很難具體量化，更不能一概而論。

本報告中定義了四種商業模式（根據降低供應鍊不確定性、減少海關查驗、批出轉運證明書和認可經濟營運商四種方式建立），每一個模式都建基於以下其中一個可量化的價值定位，包括：降低供應鍊不確定性、減少海關查驗和節省批出轉運證明書的成本。

項目團隊以量化形式，為服裝及成衣和電動及電子行業分別建立案例，並量化分析案例中供應鍊可視化的經濟成效。本報告中章節4.4闡釋了案例中商業模型的可持續性。

根據另外兩個實踐案例的結果，項目團隊發現供應鍊可視化的兩個重點價值在於 1)提前提供

貨物信息，和 2)監控貨物移動及保安。

要建立更有效的跨境供應鍊可視化，仍有許多阻礙需要克服。除了要了解如何應用信息平台和適應新的營運流程外，更重要

There are obstacles that need to be overcome for effective cross-border SCV. In addition to adopting new operating processes and information platform, one large undertaking would be training the users. We analyzed and assessed the operational and technical obstacles by first classifying the natures of obstacles into three groups namely Enterprise Internal (EI), Government to Government (GG), and Enterprise to Government (EG).

Operationally, since customs plays a significant role in cross-border supply chains, the engagement and collaboration of different customs are essential for addressing issues of cross-border SCV, such as harmonizing/standardizing cargo security equipments, information exchange and mutual recognition of AEO. Such GG obstacles are considered high in difficulty due to the effort to resolve them. The EG and EI obstacles, such as provision of the technical and operational requirements for SCV and the acquisition and installation of hardware and software for SCV are mainly low or medium in difficulty.

Technically, the concerns are standards for cargo security equipments and data sharing between the supply chain partners, and the information system development of an enterprise to support SCV. Since there are available methods and standards, technical obstacles are relatively low in difficulty.

Enabling technologies for cross-border SCV are mostly in place. As technologies continue to improve for lowering adoption barriers and costs, the technical aspect of realizing SCV is of the least concern among the economic feasibility, operational feasibility and technical feasibility

In short, the implementation of cross-border SCV requires enablement, long-term collaborations and harmonization/standardization of the involved parties and economies. Different IT infrastructures, data formats and equipment are currently being used by companies and government agencies along cross-border supply chain. Interoperability is a major concern in terms of mutual recognition, safety and security requirement, as well as compliance to current rules and regulations.

的是培訓使用者。為了有效分析與評估這些營運性與技術性難題，項目團隊將這些阻礙分為三大類，即：企業內部、政府與政府之間以及企業與政府之間。

營運方面，由於海關在跨境供應鏈上擔當極為重要的角色，所以海關的參與及合作對於供應鏈可視化的實現至為關鍵，以解決多個不同的困難，譬如跨境使用集裝箱保安設備（如電子封條），或是認可經濟營運商（AEO）相互認證等問題。此類政府與政府之間的問題極為複雜，解決這些問題難度很高，需要投入相當大的努力。而解決企業與政府之間障礙、企業內部障礙的難度，如實施供應鏈可視化在技術、運作上所需的政策，或是安裝供應鏈可視化所需的硬件與軟件設施等，相對而言屬於中低難度的挑戰。

在技術方面，問題主要集中體現在規格標準上，例如供應鏈夥伴之間對集裝箱保安設備信息的共享，以及一個企業內部對供應鏈可視化信息的系統整合問題。不過，由於現在已有現成的方法和標準，技術方面的難題難度相對較低，解決這些問題所投入的時間與精力也相對較少。

技術方面的問題在三個可行性研究中可說是最容易解決的。隨著技術的不斷進步，運營成本會隨之降低，並且克服跨境供應鏈可視化阻礙的技術也會更加成熟。

總而言之，要實現跨境供應鏈可視化，參與的企業和經濟體需要培養有關能力，進行長期合作以及推行協調/標準化。而跨境供應鏈上的企業和政府機構通常使用不同的信息技術基礎設施、數據格式和設備，因此在相互承認、安全和保安要求、以及遵守現行規則和規章方面，互通性是主要問題。

Recommendations for future work

The origin rules of both ASEAN FTA and ECFA require consigned products be transported directly between partner countries for tariff waivers. To cope with the challenges of the FTA between Mainland China and other economies, it is recommended that Hong Kong SAR Government needs to actively participate in FTA negotiation with major trade partners, and also study the use of cross-border SCV, besides the existing methods (e.g. issuing certificate), as an alternative means to authenticate the origin/ transshipment of goods, as well as to propose to Mainland China to leverage such SCV solution to facilitate the certification of origin/ transshipment of FTA goods in order to sustain Hong Kong's role as gateway to Mainland China.

In order to reinforce Hong Kong's role as the premier maritime and logistics centre in Asia and gateway to Mainland China as well as to enhance the overall competitiveness of the logistics industry, Hong Kong should take following steps towards the realization of cross-border SCV:

- I. Being a pathfinder to diagnose the readiness and implementation capacity on cross-border SCV.**
- II. Encouraging wider participation of cross-border SCV in regional level, especially through government-to-government liaison with Mainland China, to facilitate the certification of origins / transshipment of FTA goods, as well as to leverage APEC/ABAC platform for public-private engagement and cooperation.**
- III. Establishing a framework for information connectivity by using data standard and data visibility platform to provide interconnectivity to public-private stakeholders along entire supply chain.**

未來工作建議

東盟自由貿易協定和兩岸經濟合作架構協議的原產地規則要求，只有貿易夥伴之間直航運輸的貨物才可享受關稅豁免。面對中國內地及其他經濟體簽訂自由貿易協定帶來的挑戰，項目團隊建議香港特區政府與主要貿易夥伴積極商討自由貿易協定，研究如何利用跨境供應鏈可視化，可在現行的方法（如批出證書等）外，提供多一個方法證明貨物的原產地／轉運，並與中國內地研究有關供應鏈可視化解決方案的可行性。

為了鞏固香港作為亞洲一流的航運及物流中心 and 通往中國內地的門戶地位，以及提升其物流業的整體競爭力，香港應採取以下措施以實現跨境供應鏈的可視化：

- 1. 率先評估跨境供應鏈可視化的準備程序和實施能力。**
- 2. 在區域層面上，尤其在香港與中國內地之間，鼓勵更廣泛地採用跨境供應鏈可視化，為自由貿易協定的貨物來源／轉運的認證提供便利。同時利用亞太經濟合作組織或亞太經合組織工商諮詢理事會，以鼓勵政府和業界之間的參與與合作。**
- 3. 使用數據標準和數據可視化平台，建立信息連接框架，使整個供應鏈上政府和業界的利益相關者能夠互聯互通。**

ABOUT GS1 HONG KONG

Founded by the Hong Kong General Chamber of Commerce in 1989, GS1 Hong Kong is the local chapter of GS1®, a not-for-profit, global supply chain standards organization headquartered in Brussels, Belgium, with over 110 national chapters in 150 countries. GS1 Hong Kong's mission is to enable Hong Kong enterprises to have more efficient, visible and safer supply chains through the provision of global standards and a full spectrum of standards-based solutions and services, thus making possible business optimization and value creation.

ABOUT THE ASIAN INSTITUTE OF SUPPLY CHAINS & LOGISTICS OF THE CHINESE UNIVERSITY OF HONG KONG

The Asian Institute of Supply Chain & Logistics (formerly known as Li & Fung Institute of Supply Chain Management & Logistics) was established in 2006 with a generous donation from the Victor and William Fung Foundation Limited. In 2012, we are very happy to have the industry leaders including Cathay Pacific Airways Limited, China Merchants Group, Kerry Logistics, and Pacific Air Limited, joining the Fung Group to support the Institute. In the years to come, the Institute will play the role of a key driving force in the development of logistics services and supply chain management in Hong Kong and the rest of Asia. We will continue to strengthen our cooperation and collaboration with industry leaders to spearhead forward-looking best practices, and to set examples for others to follow.

ABOUT LOGSCOUNCIL

Formed in December 2001, the Hong Kong Logistics Development Council (LOGSCOUNCIL) provides a forum for the stakeholders to discuss and co-ordinate matters concerning "Logistics Hong Kong". Members from the public and private sectors are appointed by the Chief Secretary for Administration. Building on Hong Kong's connectivity and infrastructure, the objective of "LOGSCOUNCIL" is to create an even more conducive environment so that Hong Kong would remain as the preferred international and regional logistics hub and a supply-chain base.

關於GS1 HONG KONG

GS1 Hong Kong 於1989年由香港總商會成立，是GS1社群的成員組織之一，也是一間積極開發和實施全球供應鏈標準的非牟利機構。GS1總部位於比利時的首都布魯塞爾，擁有超過110個成員組織，遍及全球150個國家。GS1 Hong Kong 憑藉全球供應鏈標準和以標準為本的解決方案及服務，讓香港企業享用更有效率、更高透明度和更安全的供應鏈，以優化業務及創優增值。

關於香港中文大學亞洲供應鏈及物流研究所

「亞洲供應鏈及物流研究所」，前身為「利豐供應鏈管理及物流研究所」，蒙利豐集團贊助于2006年成立。2012年，為了維持 進一步加強香港作為亞太地區首要的供應鏈和物流中心，研究所除得利豐集團的持續資助，更是得到各界的支持，包括：國泰航空、嘉裡物流（香港）有限公司、招商局集團（香港）有限公司、及太平洋航空有限公司，更名為「亞洲供應鏈及物流研究所」，研究所將開展更多的研究及發展工作，及與業界保持緊密的合作。

關於香港物流發展局

香港物流發展局於2001年12月成立，目的是提供一個平台供持份者商討及協調推進物流發展的事宜。來自公營及私營機構的成員由政務司司長委任。香港交通四通八達，基礎設施完備，正好為發展香港物流營造一個更有利的環境，使香港繼續擔當國際及地區首選的物流樞紐及供應鏈基地的角色。

Contact Us 聯絡方法



GS1 Hong Kong 香港貨品編碼協會

22/F, OTB Building, 160 Gloucester Road, Wanchai, Hong Kong
香港灣仔告士打道160號海外信託銀行大廈22樓

Tel 電話: (852) 2861 2819 Fax 傳真: (852) 2861 2423 Email 電郵: info@gs1hk.org

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