

Research Focus

Emerging Issues for Supply Chain Security

Christopher Findlay

A series of terrorist attacks starting with those of September 11 2001 have heightened concerns about security in international transport systems, more so in developed economy members of APEC.

One response to concerns about the security of trade has been to introduce new regulations and procedures that raise the level of security in the transport system, such as the new regulations for international maritime transport. At first glance, such a response appears to conflict with the goals of trade facilitation, and this prompted a lively debate in APEC. One view to emerge is that the same technological innovations under consideration as part of the trade facilitation agenda might also contribute to supply chain security goals.

Solutions to trade facilitation problems often involve producing information in new forms and redoubling efforts to economise on processing and sharing information. The same forms of, and processes for, sharing information are relevant to trade security goals. These points are evident in a report produced by the Pacific Economic Cooperation Council's 'Study on the Mutually Supportive Advancement of APEC's Trade Facilitation and Secure Trade Goals Post September 11'.

However, efforts to 'secure trade', based on better information flows and the associated information and communications technologies, present challenges for developing countries.

The technological solutions proposed are demanding in terms of relatively scarce capital and skilled staff in those economies. The effect of introducing a security agenda alongside trade facilitation goals has been to accelerate the timing of investments in these assets. Pressure for change has intensified, but the tasks sometimes appear overwhelming when it is difficult to identify priorities for action and where coordination among domestic agencies is also imperfect (the latter being a challenge in developed economies as well). The demands for resources are significant, not just in establishing new systems but then also in maintaining them.

While pressure for change comes from developed country trading partners, where the consequences of lack of security are regarded as very costly, developing country policy makers may have different perceptions of risk and therefore different priorities in terms of public spending.

A 'supply chain perspective' is important in finding efficient solutions to achieve secure trade given the complexity of those chains and the number of countries involved at the various stages of production. An investment by a developed country at an early point in the supply chain might be a more efficient solution than effort concentrated within its own jurisdiction.

The concerns of developing countries also highlight the value of regional cooperation aimed at incorporating the supply chain perspective, relaxing resource constraints, and sharing experiences of implementation strategies.

Various forms of commercial cooperation are expected to be valuable. For example, during a transition phase, the PECC Study found that transshipment through secure ports might be an efficient solution. Foreign investment in logistics and ports services also accelerates the implementation of relevant technology. Private sector operators have strong incentives to secure their own systems.

The ANU confirmed a number of observations at a recent regional seminar on this topic:

- a technology contributes to both facilitation and security goals,
- b a supply chain perspective can enhance the design of technological solutions, and
- c the value of regional cooperation, including at the commercial level.

Conversation at the seminar also identified new issues in three areas:

- a new vulnerabilities emerging as a result of technological change,
- b managing change and the importance of public-private partnerships,
- c managing the data produced, analysing it and responding to it.

New Vulnerabilities The supply chain can be thought of as a 'system of systems'. The effect of ICT-based technological change is to connect those systems and share data between them. (These data are currently often re-entered and re-processed alongside the

Strategies for East Asian growth and openness: Conference

The School, in association with the Centre for Strategic and International Studies in Jakarta, will host a conference in Bogor on 1-2 August. The discussions will focus on trade, investment and the international dimensions of technological improvement, human capital formation and investment in infrastructure in promoting East Asian growth. Speakers will include HE Dr Mari Pangestu, Indonesia's Trade Minister, HE Sri Mulyani Indrawati, National Development Planning Board of Indonesia, Anwar Nasution, Chair of Indonesia's Audit Board, Hiroshi Watanabe, Vice-Minister for International Affairs, Ministry of Finance, Japan, Shujiro Urata, Waseda University, Philippa Dee, ANU, Stephen Schwartz, IMF, Bill Wallace, World Bank and Peter Bushnell, New Zealand Treasury. The conference is part of a series associated with an ANU project on *Advancing Economic Integration in East Asia*, co-funded by Japan's Ministry of Finance and Australia's Department of Treasury.

East Asian Bureau of Economic Research (EABER): Launch

Dr Boediono, a former Indonesian Finance Minister, will formally launch EABER in Bogor on 1 August. The EABER is a forum for high-quality economic research focussing on issues facing the economies of East Asia. It comprises representatives from Japan, China, South Korea, Vietnam, Cambodia, Laos, Thailand, Malaysia, the Philippines, Indonesia and Australia. It will provide research support for policymakers, improve links between researchers throughout the region, and create venues where researchers and policymakers can come together to discuss issues vital to economic development in East Asia http://www.eaber.org/intranet/main/eaber_home.php.

New technology and policy reform: Workshop

APSEG PhD students Jeff Fountain, Jong Kwan Lee, Roy Chun Lee and Adam Johns with Kanokwan Atcharyachanvanich and Mika Matsumoto from Japan's Institute for Informatics will deliver papers on regulation and convergence, universal service/access policy and new technology and services applications at a workshop at the ANU on 12 August.

movements of goods from one jurisdiction to another; technological change can economise on those processes). But, the adoption of new technology with each system and the reliance of each one on data provided from another create new vulnerabilities.

Concern was expressed that these vulnerabilities could be understated. Further, it was noted that the commitment to new technology could lead to 'misplaced assurance' following its adoption. In addition, the adoption of the new technology involves a significant commitment of resources. Those commitments should be subject to cost-benefit analysis, but success depends on an assessment of the contribution of the investment to risk reduction. It is not clear that the vulnerabilities in the current system of systems are sufficiently well understood to complete this analysis.

Managing Change Technological change of the type proposed here is significant. In the presence of significant investments sunk into existing arrangements by a wide range of parties, a 'scrap and build' strategy is unlikely to win wide support, whatever the cost-benefit appraisal from a community point of view. Existing structures include various social relationships which provide key support for existing arrangements.

Parties with critical interests in the choice of solutions include members of the private sector, both shippers and logistics and transport operators. Their own systems are now connected with those of the public sector and reform of the latter has significant implications for the former. Innovation in the private sector can also economise on the demands on systems in the public sector. The interaction between the regulatory responses by government and incentives for private investment in securing trade should be understood.

Managing the Data If the arguments for new technology are accepted, efficient investments are made from a supply chain perspective, and private and public linkages of systems are sustained, then the next concern (and also one that has to be anticipated in the cost-benefit analysis of proposals for change) is the management of the data produced. Specific issues include:

- a the design of the data required, and its format (this is currently a matter before the World Customs Organisation which is developing models of how to proceed – but 'messy negotiations' on these questions are now taking place at regional level)
- b consideration of the data and the decision making based on that data
- c dealing with missing values (in systems which assume complete information)
- d responses to positive indicators of a threat, to false positives and to false negatives
- e legal uncertainties, for example, in situations where the data does not actually match the shipment, is the exporter or importer responsible?
- f sharing information which has commercial value or which may contravene privacy concerns
- g the use of the data in risk management methodologies, which can be used to prioritise tasks such as physical inspections
- h the links between data available in intelligence systems and data from within supply chains and commercial networks (to be combined in ways which inform the implementation of strategies based on risk management).

Next steps

Discussion at the seminar suggests returns to effort in a number of areas including the following.

- a Analysis of the gains from cooperation within and between international organisations is critical. For example, coordination of the work within APEC and the ways in which its Counter Terrorism Task Force can become more effective

- b Within the APEC agenda, participants at the seminar appreciated the range of tasks to which the task force was committed, and stressed the value of capacity building programs to support the specific programs
- c Also important is cooperation across international organisations (e.g. APEC and WCO, or APEC and WTO (building on the latter's trade facilitation program)
- d Linking government bodies or official structures with private sector organisations, many of which are working on the integration of their own systems, is also critical (examples were provided of cooperation of private sector supply chain participants in ASEAN – see www.rosettanet.org).

The second area of proposed action was to extend the case studies of the nature of the problem and the solution: a sample is found in the PECC Study.

- a Of value is assessment of the management of the information flow and the implementation of risk management systems based on information flows. Also of value is work to examine experience in arranging coordination between agencies and activities along the supply chain.
- b The experience to date of other transport sectors was of particular interest. The airline sector experience is especially relevant.
- c The parallels in the experience of the banking sector were also worth exploring, for similarities in the design of secure systems.

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These issues were explored at a video-conference on 'Supply Chain Security and ICTs' held at the Australian Pavilion at the Aichi Exposition in Japan on 23 June 2005. The seminar was organised by the Australia-Japan Research Centre at The Australian National University with support from the Australian Department of Foreign Affairs and Trade, from Australian Pavilion staff, and from the Pacific Economic Cooperation Council.

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Events

10 August, Dan Griswold (Centre for Policy Studies, Cato Institute), *Bilateral FTAs in a free trade architecture*, Sparke Helmore Theatre 1, Law School, Fellows Road, ANU

24 August, *China Update 2005*, http://150.203.99.68/research/research_units/china.php. The event is titled *The China Boom and its Discontents* this year. It is being held at the Visions Theatre, National Museum of Australia from 9am–5pm. There is no charge to attend, all are welcome and a light lunch will be provided. The event is supported by AusAID and the National Institute of Economics and Business

23–24 September, *Indonesia Update: Indonesia, Australia and the Region* <http://rspas.anu.edu.au/economics/ip/IU05/>

23–26 August, *Solomon Island Updates*: 23 August, *Policy Seminar*, Honiara; 24 August, *Economic Update*, Honiara; 26 August, *Economic Update*, Gizo

School Seminars*

2 August, Luca Tacconi (APSEG), *Reconstructing decentralisation, forest and livelihood narratives: land use benefits in Sumat, Indonesia*

9 August, Chakriya Bowman (APSEG), *Commodity currencies and cross-hedging*

16 August, Sven Wunder, Center for International Forestry Research, Indonesia, *Payments for environmental services: some nuts and bolts*

23 August, Krislert Samphantharak (University of California, San Diego), *Mixing family with business: A study of Thai business groups and the families behind them*

*Seminars are held at 12.30 pm in Seminar Room 4, First Floor, Crawford Building

Short courses/training

1–10 August, Leadership, management and governance in the public sector

1 August–21 October, University administration course for China Scholarship Council

29 August–16 September, Responsible parliamentary government http://apseg.anu.edu.au/exec/exec_short.php

Publications

The China Boom and its Discontents, Ross Garnaut and Ligang Song (eds), Asia Pacific Press ISBN 0 7315 37270, \$40

Asia Pacific Press publications can be ordered online at <http://www.asiapacificpress.com>, or by contacting Landmark Educational Supplies, Ph: 03 5625 4290, Fax: 03 5625 3756, bookdistribution@elandmark.com.au

Pacific Economic Papers

348 *Growth and Reform in the Korean Economy* (Proceedings of the conference on growth and reform in Korea: Implications for Australia) Jong-Soon Kang and Jung Soo Seo (eds)

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