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Technology makes the world flat – well almost!

By Sangeeta Anand



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In the business of making things happen.



If there is one thing that separates boys from men in the supply chain industry, it's the ability to 'see the future'. (No, they don't have crystal balls!) But no other industry is as influenced and impacted by global environmental change as logistics, making its practitioners' jobs exciting as well as challenging.

A quick look at some subtle and some not-so-subtle global changes will help you see where I am coming from. Economic and political weight has shifted from the US and Europe to BRIC economies (Brazil, Russia, India and China). Increased global trade has made political and continental boundaries redundant. Add to that other macro factors like energy prices, demographics (older Western and younger Eastern populations) and environmental influencers, and you have a whole world based on uncertainties.

But that crystal-ball-gazing is made easier by technology which helps us cope with the fast-changing world around us. In addition, shrinking margins, competitive pressures, pilferages, damages and increasing customer demands are making it essential for manufacturers and distributors to look for technology solutions.

Cargo management

Take a global telematics security system used in US containers, for example. The system delivers 24/7 wireless GSM-GPRS-GPS-RFID technology to monitor container door seals (by air, road or sea). It provides real-time data, over GSM and the Internet, to Department of Homeland Security and US Customs and Border Protection. A transceiver and RFID transponder ride on the container door seal. Regular pulses transmitted by the transponder keep the 'black box' inside the container informed of seal status. In case of a security breach, an alarm sends a time-stamp to a security monitoring station.

Similar systems can also provide more comprehensive data like cargo opened during transit, shipments stopped for a longer-than-expected time, diversions to routes, changes in cargo weight, engine use or idling times, change in refrigerated temperatures, and of course speed data.

Closer to home, Air New Zealand has introduced a new cargo management system, called iCargo, which is expected to increase Air New Zealand Cargo's compliance with industry regulations, says Wayne Anderson, Air New Zealand's programme leader, cargo and ground operations. Organisations such as Air New Zealand have seen a significant enhancement to border and security controls, such as imaging, x-ray, particle detection, profiling and detailed shipper and commodity information.

Smart screening

But it's not just increasing customer demands and the growth of international trade that are driving technology. The need for real-time access to information and the risks of biosecurity and war are also playing a significant role. Predicting what new capabilities technology will provide will be key to the supply chain industry in the coming years, which is why business and technology of the future will be mobile, integrated and personal.

To cope with the challenges of identity and the movement of empty containers around the globe, Ports of Auckland may move towards more intense screening to alleviate security concerns surrounding 'empty containers'. The port recognises that it is a major conduit for information, administering a vast majority of cargo track-and-trace data, says Richard Potton, manager of sales, marketing and product development at Ports of Auckland. According to Mr Potton, "New Zealand's largest

international container port has therefore developed a comprehensive range of track-and-trace products and initiatives." The use of tracking technologies, such as RFID, is also expected to increase as these technologies become more affordable.



New Zealand Couriers has implemented 2D bar code scanning which allows for faster readings than conventional 1D bar codes and captures far more information.

Similar technologies are being used by many of the Auckland port users. Axis Intermodal, the port's specialist container handling and terminal operating company, offers many web-based products, which are popular with the port users. "The increased visibility is especially useful for importers who, via the web interface, are able to check Customs and MAF clearances and organise for their cargo to be delivered within only hours of being offloaded," says Craig Sain, general manager of sales, marketing and logistics for Ports of Auckland.

Linking technology with business strategy

The greatest challenge is to link futuristic technology to an organisation's business strategy, and utilise the right technology to support and improve a company's effectiveness in everyday operations in supply chain management. New Zealand is already addressing this challenge by working closely with its three main border agencies – the Ministry of Agriculture and Forestry, the Department of Labour, and the New Zealand Customs Service – for enhanced security initiatives. This connectedness has provided a more coordinated and seamless service to traders and travellers.

Customs constantly monitors its global operating environment and remains flexible to emerging changes. They are currently developing a new computer system with improved ability to store, investigate and analyse data. This system will reduce duplication between government agencies and will make Customs better able to respond to future changes in technology.

Privacy of information

A challenge facing the supply chain industry is the privacy of the history of a consignment. Since this information can be used for many purposes, it becomes essential to control access to the information.

To deal with this, New Zealand Couriers has built a number of features into its track-and-trace system which have the ability to capture milestone information, such as the delivery status of a consignment on its way to final delivery. The system introduces location bar codes at delivery addresses to identify the place of delivery. It also uses scanners that are able to capture digital photographs of ambiguous delivery addresses or insufficiently addressed items so a consignment can be tracked from point of origin to point of destination, thus closing the loop on a consignment's location.

One of the solutions for 'future proofing' such increasing information requirements – 2D bar code scanning – has already been implemented, according to Robert Levy, marketing manager at New Zealand Couriers. This technology enables faster reading than 1D bar codes and allows far more information to be captured and stored than conventional bar code technology.

Managing risk

Risk management is one of the key functions most security technology solutions are expected to provide. Technology will change the way we conduct business in the area of supply chain risk profiling and customer and supplier certification. Solutions such as 'green lane' trading for low-risk or secure traders will be important in the future. Security of electronic data will become increasingly important.

"Terrorism is the biggest challenge facing the supply chain industry," says Austin Baizil, who is export coordinator for James Dunlop Textiles, an importer of fine furnishing fabrics sourced from around the world. If technology is not upgraded, terrorists can gain easy access to any container, leading to a disaster for the modern world. "The industry itself undergoes constant changes to its shipping technology infrastructure and therefore chief technologists must extend supply chain functionality to better account for cargo integrity," he says.

Supply chain security operations rely aggressively on technology. Organisations view supply chain management as a cornerstone of their efforts to gain a competitive advantage. By implementing updated and constantly evolving technologies to address concerns of future supply chain security, we can address most, if not all, of these challenges mentioned.

Now, who borrowed my crystal ball?

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