



# Thinking out of the box

*Delivering the goods – how HPH supports the global supply chain*

By Andrew Ashley



**S**HOPPING IS WIDELY REPORTED to be the world's number one leisure activity. We all do it. And increasingly we're buying goods sourced from every corner of the earth. In an era of globalisation the things we buy may have been transported thousands of miles before we ever see them.

We all shop. But we rarely stop to think about how our purchases reach the store. We take for granted all the logistical effort that goes into moving goods from the place of manufacture to the point of sale. Until there's a problem, that is.

Recent events have shown how easily the global supply chain can be disrupted. When Hurricane Katrina hit New Orleans, it

knocked out one of the largest ports in the US and made a huge hole in the country's ability to import the goods it needs. Just to take one example, all the Starbucks coffee drunk in America enters the country through New Orleans. So if the port is out of action, the coffee en route for the US has to be redirected and landed elsewhere – or consumers will have to go without their lattes and espressos.

It's not just natural disasters that can affect shipping. International trade disputes can also hold up cargoes. Until China and the European Union reached agreement on quotas in September, shipments of Chinese textile products were stacked up, unable to gain access to European ports – leaving consumers unable to buy the clothes they wanted.



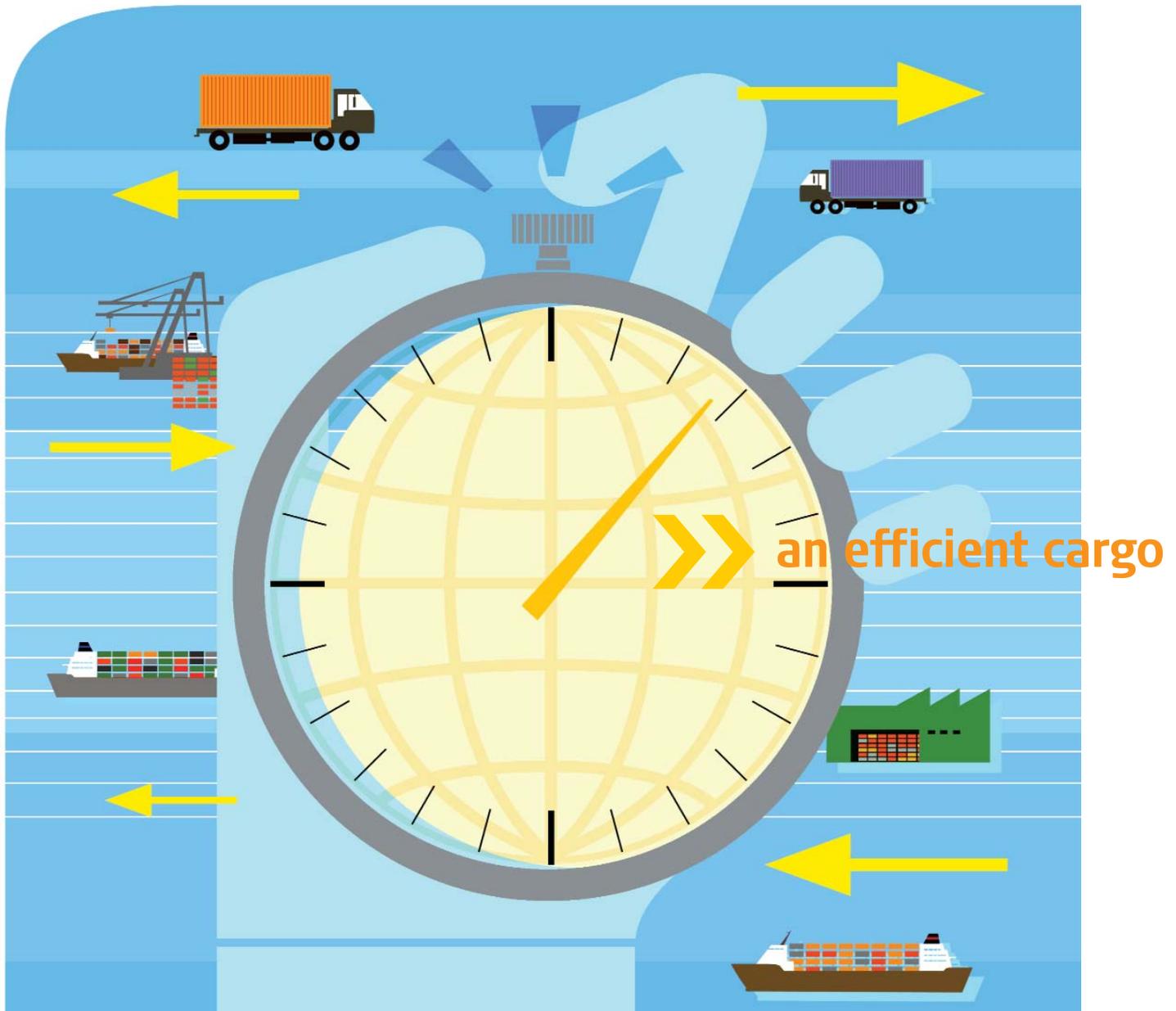
Katrina was an extraordinary event. And trade disputes are generally resolved sooner or later. But every day there are large and small events that have an impact on the movement of goods. And that means an impact on what people can buy in stores and malls around the world. Here we take a look at how Hutchison Port Holdings (HPH) is making sure you can buy the goods you want, by ensuring transparency in every link of the supply chain.

### **Creative use of technology**

Hutchison Whampoa Limited (HWL) has long brought an innovative approach to the transportation business. Hongkong International Terminals (HIT) had a key role in the development of container terminals in Hong Kong during the early days of

containerisation. And HPH, formed in 1994 to bring together all the port operations and related businesses within HWL, has consistently achieved success through the creative use of technology.

Now with 40 ports in 19 countries, HPH continues to play a leading role in the global supply chain. Its latest initiative is the best example yet of how technology can be used to ensure supply chain visibility, enabling shippers to provide consumers with the goods they want, when and where they want them.



In April 2005 HPH formed a joint venture called Savi Networks with US-based Savi Technology Inc, a leading provider of active Radio Frequency Identification (RFID) supply chain solutions, to develop and operate an RFID-based information network to track and manage containerised cargoes.

Using active RFID “tags” located in each container, this network provides shippers with real-time information about the status of their cargoes from origin to final destination. The available information includes location, regardless of whether the containers are in transit on land, being held in a port facility or at sea, environmental factors that might affect the condition of the goods, such as temperature, light or humidity, and the integrity of the sealed container.

This information is easily accessed by all parties with a

legitimate interest in a shipment through a web-based application. On a subscription basis, trading partners can obtain and share data in a common format through an infrastructure that can be integrated with existing enterprise systems.

Specific features of the system include automatic notifications of abnormal conditions during transit, warnings of tampering with sealed containers, audit trails, a designated chain of custody control at key hand-off points and customised supply chain measurements and analytics.

HPH and Savi are building this network by installing active RFID equipment in as many ports as possible – not just those managed by HPH. Interested parties, including shippers, transport companies and logistics service providers will be able to connect to the network by installing compatible equipment at their own locations. HPH and Savi will work together

to extend the network by establishing relationships with other port operators, as well as with providers of complementary technologies and services.

### Enhancing your shopping experience

RFID tracking networks may not sound particularly relevant when you're doing the rounds in a vast shopping mall, hunting for the jacket you want in the exact style, size and shade. Or hunting for anything else, for that matter.

But Savi Networks' automated tracking capabilities have huge implications not just for shippers of goods, but for all the consumers who are buying those goods in the shops. That's all of us.

We don't usually think about supply chains, lead-times, inventory, pipelines and labour requirements on shopping expeditions. But it's because automated tracking is having such an impact in precisely these areas that we are more likely to be able

They can reduce supply lead-times and provide retailers with the goods their customers want at short notice. They can minimise pipeline inventory and the level of "safety stock" held to cope with cases of supply chain disruption. They can help retailers reduce the proportion of items that are out of stock at any time. And underpinning all this is the holy grail of cost reduction. A single efficient cargo tracking network reduces the cost of multiple supply chain IT systems and cuts labour requirements. Result: the goods that customers want, delivered efficiently and cost-effectively.

### Making the world a safer place

HPH didn't venture into the initiative with the sole objective of making the supply chain more efficient. Safety and security were key considerations.

Savi Networks' tracking capabilities address the many security issues inherent in any large-scale global transportation

## tracking network cuts costs and labour requirements

to buy what we want, without waiting and at an attractive price.

When shippers can combine easy access to information about the location and content of shipments at any point in their journey with the ability to switch routes and destinations at short notice, they are in a strong position to meet demand and cater to changing requirements in markets around the globe.

system: theft, damage, loss, unauthorised tampering, smuggling and illegal immigration. The data provided by active RFID tags in containers can help combat all these problems. But since this technology was first developed, new considerations have emerged.

Using container tracking for security purposes was given a

## SMART CONTAINERS – HOW THEY WORK

**S**AVI NETWORKS, the company formed by HPH and Savi Technology Inc, is developing and operating an RFID-based network to provide a state of the art container tracking and management system.

The network concept is significant. When HPH first started exploring the possibility of using RFID technology, its plans were based on the analogy of providing a mobile phone service. Now it is effectively setting up a complete infrastructure and offering a network which will also be used by other service providers. It will also offer a range of value-added services utilising the network.

HPH and Savi are building this network by installing active RFID equipment in ports. Interested parties, including shippers, transport companies and logistics service providers will be able to connect to the network by installing compatible equipment at their own locations.

Savi Networks operates rather like a telecommunications network service provider as it owns and operates the core infrastructure. The company uses this infrastructure to offer information services on a per-container trip basis. It will also offer active RFID hardware and related services that will enable users to extend the functionality of the net-

work to the origination and destination points of cargoes.

The network is based on an interoperable architecture designed to accommodate Automatic Identification Data Collection technologies, such as barcodes, passive RFID technologies, and Global Positioning Systems to track ships and trucks that transport ocean containers.

Savi Networks also offers a number of active RFID "tags" that will effectively turn ordinary containers into "smart containers", capable of communicating with the network. Based on the ISO 18000-7 suite of standards, these tags can transmit information about the contents of the container, as well as data on security, location and environmental conditions, including temperature, humidity and light

Originally bolted to the outside of the container, these tags can now be placed inside, with only a small antennae attached externally. This makes the tags highly secure, protecting them from accidental or deliberate damage that could render them inoperable.

HPH is currently actively involved in the ISO standardisation process to establish a common platform tracking services. 433 MHz looks set to be adopted as the standard for the radio frequency.

## now a container's journey



major impetus by the horrific events of September 11, 2001. Even before 9/11 the potential dangers of attacks through civil transport networks had been recognised. Stephen Flynn, a port security expert and senior fellow at the US Council for Foreign Relations who had worked for both the Clinton and Bush administrations, had repeatedly warned about how containers could be turned into lethal weapons.

With 9/11 the threat of huge attacks became real. Preventing the use of transport facilities as terrorist weapons became an overriding imperative. HPH recognised the huge contribution that cargo tracking technology could make to transport security. Although it does not own ports in the US itself, as the world's largest port operator a large proportion of cargoes bound for the US are routed through its ports. At least 40 per cent of containers entering the US are handled by HPH at some point in their journey.

This put the company in a unique position to work with the US government on ensuring the integrity of boxes moving in and out of the country. So HPH took the initiative to work with the US authorities on how Savi Networks technology can be used to alert the authorities to any tampering with containers during transit. Since 9/11 John Meredith, HPH Group Managing Director, has spent a lot of time working with US government agencies to explore how HPH can help ensure the security of cargoes entering the US. This task has been com-

plicated by the fact that no single department is responsible for port and transportation security issues. Mr Meredith has been working with US Customs, the State Department and other agencies, as well as with committees of the Senate and the House of Representatives.

Mr Meredith's work has led to many initiatives to reduce the risk of major terrorist attacks. For example, in close partnership with the US Department of Energy and with European Union security agencies, HPH has installed "sniffer" devices to check for radiation in a number of ports, including Hong Kong, Felixstowe (UK), Rotterdam and the Bahamas. These sniffers can detect the neutrons given off by "dirty bombs", which could cause huge damage to life and property if they were to reach targets in densely populated urban areas.

HPH and Savi have now undertaken many trials, involving thousands of containers. These trials have been so successful that use of container tracking technology is likely to be made mandatory very soon, first by the US and then by EU member states. All container traffic originating in or destined for these countries will have to be monitored, significantly reducing the likelihood of any security breach.

### Win-win situation

With its Savi Networks initiative, HPH is in the position of promoting a service that offers huge advantages to all con-

## HPH took the initiative to work with

# can be tracked, from loading to the final destination

## FROM GUANGDONG TO LONG BEACH - RFID TRACKING IN PRACTICE

**H**PH's joint venture with Savi Technology launched its SaviTrak™ information network in September. In co-operation with Mitsui & Co (USA) Inc, a service provider in IT and logistics and financial technology, Savi Networks is now providing real-time information and logistics services to a major Japanese supplier of consumer goods to leading US retailers, including Wal-Mart.

The supplier ships the goods to Yantian, a major port in Guangdong, where they are loaded onto vessels and shipped to the Port of Long Beach in California and then trucked to a holding centre from which they are distributed to retailers. Throughout this process the containers are constantly tracked by Savi's real-time network.

SaviTrak's system was designed to achieve supply chain best practices, offering shippers a number of valuable benefits:

- **Nested Visibility** – by linking data from passive RFID labels on cartons of goods to information stored in and transmitted by Savi Technology's active RFID tags on cargo containers, users have full real-time visibility of container shipments and their contents

- **Source Tagging** – tagging EPC-compliant labels at the factory where the goods are sourced is more cost-effective than

further downstream in the supply chain, and means that users can move beyond "slap-and-ship" compliance programmes to gain economic benefits within their own supply chain

- **Dynamic Management** – Savi Technology's network, combined with automated event and exception-driven alerts, provides real-time information and reports on the location, status and security of shipments as they move through the supply chain.

The operational launch by Savi Networks is the culmination of several years of industry and government-driven programmes that have successfully validated the RFID technologies and software now being deployed. It's a clear illustration of HPH's strategy of achieving continuous improvement through supply chain innovation. Advanced technologies are providing users with added business value and competitive advantages.

As Lani Fritts, COO of Savi Networks, says: "This initial project marks the operational readiness of Network and SaviTrak, and demonstrates how our use of passive and active RFID technologies can help suppliers improve transportation security concerns and achieve better operational efficiency and customer service at the same time."

cerned. Shippers and the businesses they're supplying stand to benefit commercially, while governments appreciate that container tracking will make it much easier for them to protect their populations from terrorist attack.

Legal requirements for use of the technology are likely to be introduced soon but HPH hasn't lost sight of the fact that the original objective of Savi Networks was to provide shippers with complete supply chain visibility.

As Mr Meredith points out, the real-time information that HPH can now offer gives shippers more control over cargoes. "Now they can track every aspect of a container's journey, from loading at the factory, through the journey to the port, the time at sea to the final destination ... even whether the cargo is stuck in port somewhere," he said. The necessary equipment is installed in all major ports around the world and HPH is not waiting for legislation or the results of the standardisation process. Strong demand from shippers ensures

that take-up will be rapid and widespread.

So next time you're out shopping, you might reflect how HPH's commitment to technological innovation is helping to deliver the goods. 

## the US authorities

