

white paper

Change Is Coming: A More Profitable  
Business Model for Air Cargo

insight

Table of Contents	
The Global Marketplace	3
Cargo Business Models Need To Change	4
Low Cost Carriers And Cargo?	5
Towards A Simpler Cargo Business Model	6
The Internet	6
The Electronic Air Waybill	7
Web Services For Integration And XML To Replace EDI Messaging	7
Unit Bookings Simplify Pricing And Billing	8
A Neutral Document Imaging Service	8
RFID: Track And Trace For All	9
Air Cargo: The Traditional Carrier View	10
Can The Traditional Carrier Respond?	11
A New Air Cargo Business Model	12

## The Global Marketplace

Few business people need to be told that times have changed. Formerly stable industries such as banking, financial management and retailing have been re-shaped and energized by changed business models and new distribution channels.

The public has also changed their economic behaviour, demonstrating an instinctive grasp of price deflation theory by waiting for prices to fall to a level they judge reasonable before making their “big ticket” purchases of consumer goods. Improvements in the efficiency of the global supply chain are also helping to increase the overall levels of demand for Just-In-Time (JIT) logistics services. Although logistics costs today continue to makeup about 10% of the total price of goods delivered to consumers, ongoing progress in reducing cycle times is taking out more costs and enabling more price competition by retailers, who in turn sell goods in greater volume. So logistics efficiency gains, openly shared between business partners, drive new consumer demand by shrinking the transportation cost element and by enabling more rapid re-supply and delivery fulfillment.

A study carried out for Unisys entitled “The Agile Corporation” investigated this structural change as seen by 250 companies across the US and the EU. The findings endorse the impact of the “times have changed” introductory statement. Companies that fail to see developing trends or cannot adjust their business model rapidly to meet new market conditions are increasingly placed at risk. Those surveyed confirm that ongoing progress in technology is forcing change upon them. They also recognized that the fate of those unable to adapt is to fall further behind. The increasing complexity of systems and solutions plus the rise of global competition is creating a new breed of innovative companies. They differentiate by optimizing their business processes; they use transparent, open communication among their business units, their business partners and their customers. They experiment with new business models that are based on “shared benefit.”

The future of the global logistics industry looks excellent. Rising and sustained consumer demand is fed by structural manufacturing changes, where manufacture of more and more goods is moved to low cost production regions where new, high tech manufacturing processes are combined with low labour costs and high product standards. This step-change delivers the win-win combination: innovative consumer goods at affordable prices with quality product.

But, the fulfillment of this dream scenario is inter-dependent on agile logistics and a global deployment of better processes, especially for security. Are we demanding more of the air cargo industry than it can deliver?

Improvements in the efficiency of the global supply chain are also helping to increase the overall levels of demand for Just-In-Time (JIT) logistics services.

## Cargo Business Models Need To Change

The air cargo industry business model has, so far, proved resistant to change at the traditional scheduled carrier level. Scheduled carriers often operate their cargo divisions as a by-product of their passenger-focused businesses. These businesses are run using many labour-intensive handling operations and manual commercial processes, since their automation systems and operations processes are poorly integrated. They also suffer from a lack of measurable process cost and process quality.

The evidence that their air cargo business model is broken is shown by two outcomes: (1) a declining ability to control the pricing market for their cargo services and (2) their inability to demonstrate enough return to justify investments in better systems and processes.

While there are a number of emerging scenarios for how the air cargo business model will alter, we believe that structural change is now inevitable. The only question is the precise form that it will take. The traditional, passenger-focused carriers are most at risk of being left behind. The Integrators presence in agile logistics is already a given, while all of the two 20 forwarders have already changed to another type of business – the global 3PL. A third-party logistics provider, or 3PL, is a new entity combining the traditional freight forwarding role with the contract operation of warehousing, storage, stock control, trucking and distribution services. Their business model strategy is to provide contract logistics, on a third-party basis, for the global manufacturing and shipper communities. To win and keep this business, they must run it more efficiently than their customers can do it for themselves.

For the airlines, this is a significant change to the business base of their traditional customers, the forwarder. The “top 20” global forwarders/3PLs now control over 50% of the global heavy air cargo market in terms of product, capacity utilization and pricing. They also control the door-to-door and distribution centre segments for air cargo, which is where most of the added value lies. Their interest increasingly lies in serving the shipper and not the carrier, although nominally they are the carrier’s agent.

Many cargo management teams are still in denial over this power shift, and it is not yet clear how the traditional cargo carriers will evolve and recover some agility and pricing power. Is the carrier now permanently restricted to the airport–airport segment? If they are, how should they adjust their future business model? If the forwarder is now the agent of the shipper and not the carrier, can they be brought back into a more balanced relationship where new added value is created and shared? What form should that future relationship take?

Wider global supply chain improvements are now the key market force driving the carriers’ business case for change. Our summary title for this step-shift is: global visible commerce (GVC). This will change the game for many players within the global air cargo industry. The key features of GVC are:

- Provably secure supply chain (full visibility of the value chain; item level tracking = visibility of stock speed through the air cargo delivery pipeline + full visibility of warehouse inventories and stock turns)
- Safe commerce delivery (provable full security; authorized handling verification and counterfeit prevention of goods, via electronic pedigree checks on each item, packing case, pallet, container and ULD)

The twin demands of better customer service and new security legislation will join to push GVC into being. The strategic focus is now on process simplification, verification and audit, while also meeting increasing security demands. The key characteristics are: agility, flexibility and adaptability, plus visibility. But the starting point for the journey is the realization that the existing carrier air cargo business model is broken.

## Low Cost Carriers And Cargo?

In his model for industry analysis, Professor Michael Porter defined the key forces that increase market rivalry and hence create what he defines as a market that is undisciplined.

Global aviation demonstrates this outcome very well. The traditional carriers were formed and nurtured under conditions of regulatory protection in which a scheduled airline ran a production-led process and their customers paid enough to support it. Many carriers have experienced sharp declines in their fortunes as Low Cost Carriers (LCCs), using new business models, have attacked their short haul passenger business. Industry commentators have coined a descriptive term that is also an implied insult: “legacy carriers.” The very phrase encapsulates the perception of a collective failure to adapt and change.

The new LCC business models use a common framework:

- Simplified processes to ensure low costs
- High aircraft utilization to drive down fixed asset costs
- Aggressive use of technology to drive new distribution channels via a lower cost structure
- Flexible, highly productive labour teams

All these factors combine to deliver perceived customer value. The manner in which their products are offered is less uniform. Many LCCs specialize in short haul travel while, in the US at least, some fly transcontinental – coast to coast.

There are some other key differentiators: some LCCs use secondary airports for good slot availability and keen pricing on their ground handling and landing costs. Most of them also bypass the in-built costs of traditional industry passenger distribution channels. The legacy passenger distribution costs, comprising GDS or CRS fees and SITA or ARINC network messaging charges, are completely bypassed in the LCC business model by using a web-based, direct to market sales channel.

The LCC has been the industry phenomenon of the ‘90s. By taking a new look at the traditional industry model for passenger and experimenting with new forms, LCCs have grown into a significant industry force. They achieved their success by following three clear principles:

- Simplicity – don’t do anything that doesn’t add value
- Adopt new technology to the maximum, and use it wherever it can take out costs, enable process change, and deliver on the simplicity goal
- Use an open business model and share the gains this model delivers with customers

Although LCCs do not carry cargo today, there is nothing to prevent them doing so. Ryanair carried courier and small package cargo on their EU routes for a while, although they have since stopped. The inhibitors are that traditional air cargo processes and their associated costs and complexities get in the way of a fast turnaround, so the costs of carrying cargo outweigh the benefit. However, the LCC model also shows another characteristic of agile behaviour: it continues to evolve. New Asian LCCs plan long haul flight networks; some will also carry air cargo.

We predict that air cargo will become more important to this particular evolution of the LCC business model. Cargo revenue on medium and long haul international routes has often made the difference between route loss and profit. In addition, the year-round demand for cargo lift can also be more consistent than for passengers. Air cargo may also have complementary seasonal demand.

The strategic win for LCC entry to the air cargo markets will be to find a business model that can deliver LCC-style cargo service to a carefully selected target market, while avoiding the process costs and complexity of a traditional carrier cargo operation. The LCC will also seek an operational model for air cargo that can turn around the aircraft inside the overall turn time for passenger operations. To meet this target requires a different cargo business model – one that is built to a profit focus in which cargo always adds a net value that is greater than the associated flight operations, ground handling and marketing costs.

## Towards A Simpler Air Cargo Business Model

Although we use the LCC example as a guiding star, the principles that drove them forward so well in the passenger market can be used and applied to a new cargo business model. Successful LCCs apply four key rules: simplicity, aggressive use of new technology to reduce costs, building a business model that shares the gains with the customer and encouraging a culture of on-going change. Their desirable outcome is a business model that drives up business volumes and revenues at a higher rate than cost increases.

Although some aspects of the air cargo market – notably price/demand elasticity – are not the same as the passenger market, a robust scenario can be built using LCC principles:

1. Use the Internet to drive lower distribution costs.
2. Use the e-Air waybill to remove carrier and 3PL process costs and realign shipper responsibilities and liabilities.
3. Use Document Imaging services to remove the cost of handling paper.
4. Use RFID and EPC code technology to enable electronic audit, pedigree and cargo security and to automate item level tracking with lower process costs.
5. Keep using new technology to drive change, as soon as the benefit case exists.

## The Internet

### **Focus the booking access profile to unit level. All customer booking and tracking interactions for cargo operate via a web portal**

The goal is a drastic simplification of the existing air cargo model so that many of today's sales and distribution ground handling, airport processes and communication network distribution costs can be eliminated. A cargo portal will be actively used to deliver electronic distribution and to provide clear business rules of engagement. The various e-booking profiles available will "steer" the customer base; attractive unit prices will be on the offer for shipper-loaded ULD cargo bookings that are presented to the carrier properly packed and secured, already Customs cleared, with security reporting complete and with RFID security tags attached for proof of electronic pedigree and enablement of item level tracking on demand.

In this scenario, loose freight or general air cargo will be refused for bookings, or simply directed elsewhere in the market place by quoting far higher prices than the traditional scheduled carriers charge. This tactic delivers major simplification to the air cargo business model. By only carrying the freight types that you know will generate an acceptable profit level, your cargo business processes can be drastically simplified.

As a consequence, operations costs are then must lower. Many traditional scheduled carriers already fly almost 40% of their cargo tonnage as Shipper Loaded ULDs (SLUs). The open question is: does the remaining 60% of their cargo traffic make enough revenue and profit to cover their distribution network, pallet build, ground handling and airport costs – and leave an acceptable profit margin as well? The argument to jettison their least profitable cargo will become valid for many carriers. If not today, then in the near future as general freight yields continue to fall.

## The Electronic Air Waybill

### All unit bookings will be made on Electronic Air Waybill (e-AWB) and tracked electronically

The latest Montreal convention is now a legal reality, signed by the USA, 15 major EU countries, Canada, Japan and another 35 nations. The e-AWB is now underpinned by legal changes that place new liability on the shipper and the forwarder covering compensation, packing responsibility, security processes and causes of delays. Now that the critical mass adoption point is passed and the e-business legal framework is secured, the e-AWB will become a key step-change enabler. This can replace the multiple-part paper air waybills and paper chain that underpin today's global air cargo logistics business processes.

The obstacles to e-AWB adoption are the usual air cargo industry quartet: inertia, fear of change, the need for detailed collaboration with trading partners, and disputes/failure to reach agreement with partners over who pays for the cost of change.

The big wins from the e-AWB are:

- Much better internal process efficiencies with lower costs (eliminating manual data re-entry by each player in the chain)
- Lower booking and cargo handling error rates
- Faster information flows (delivering more reliable flown-as-booked flight network performance, later flight close out times, shorter "ready for pickup" reclaim times after flight arrival)
- Lower error rates on Customs "holds" and "snagging" (caused today by missing documents, documents in error, etc.)
- 100% track and trace information quality and far more timely event notifications
- It opens the door for implementation of IATA's e-freight initiative to link electronically to multiple customs and security agencies

## Web Services For Integration And XML To Replace EDI Messaging

Many forwarders and carriers are evolving their enterprise systems to make use of modern Internet-based technologies. A common example is the move to a browser. All clients of the hosted Unisys airline cargo system now use a browser which provides excellent response times, flexibility to introduce change rapidly at low cost, a familiar environment for new staff to learn the application and the ability to integrate with the web services of partner companies.

In similar ways, modern applications connect to each other using XML rather than EDI. The former is much more adaptable and better able to handle complex and real-time communications such as those of self-service Internet tools. By way of example, Unisys Cargo Portal Services already uses XML to link many carrier and forwarder systems. The result is a real-time infrastructure linking many organizations in ways never done before. Gone are the costs and delays of legacy distribution systems; in their place, enormous flexibility to be closer to clients.

Unisys is the leader in these areas with many patents for its browser user interface and over 150 XML interfaces in the public domain.

Developed in the Second World War as a means of identifying aircraft, the modern RFID computer chip is the usual packaging miracle of today.

## Unit Bookings Simplify Pricing And Billing

The more subtle gain from e-AWB use will be the gradual erosion of fictitious pricing information on the air waybill booking. If the booking record is now electronic and private between carrier and forwarder, there is no longer any need to resort to concealment of the truth. As pricing is now per unit of load, the distinction between TACT pricing and actual HAWB pricing falls away. Such a change also simplifies the carrier revenue accounting process and makes revenue predictions easier. Financial data and cash flows are also far more reliable; revenue operations and collection costs will also be much lower than the traditional air cargo business model.

## A Neutral Document Imaging Service

### Document Imaging and Management Services – “shared win” basis

Another key change-enabler for air cargo is removing the work and effects of handling paper by making it electronic. Document processing services are not new and the technology has been steadily developed and used by other industries. The financial sector in particular now depends on such systems to reduce back-office costs, by enabling new workflow processes that simplify their document handling workload and take out labour costs.

Customs and security authorities increasingly required information in advance of goods arrival. Though some information can be provided electronically, many still require sight of paper documents. A small irregularity can result in an entire pallet or ULD of goods becoming trapped in Customs causing supply chain delays and creates service failure penalty costs that are claimed from the carrier later on, by the forwarder/3PL.

The Unisys solution, called In-transit Document Manager, is based on a central, electronic database that can:

- Hold details of what documents are required for different shipments and routings
- Store and record the status of electronic documents and paper images
- Present the information in the many different ways as required

Security profiles provide log-in control for shippers, forwarders, ground handlers, general sales agents and multi-modal carriers, allowing them to upload, verify and retrieve information in line with their role. The service is designed to integrate with other web-based systems from Unisys and other companies.

The In-transit Document Manager can handle virtually any number of document types which most commonly will include House air waybill (HAWB), Master air waybill (MAWB), Consolidation manifest, Commercial invoice, Certificate of origin, Packing list etc.

The boldest shippers, 3PLs and carriers will work together to make this step-change move away from paper. Our view is that this is an area of opportunity for the committed air cargo carrier to lead. Simplified cargo processes + lower costs + top service quality = key market differentiator.

The US Department of Defense visibility network currently tracks and secures approximately 35,000 conveyances and 25,000 containers, worldwide, per day.

## RFID - Track And Trace For All

### RFID tagging secures security and tracking issues. IATA is starting an RFID project for passenger baggage tracking, but impact on air cargo could be more profound.

Radio Frequency Identification Device (RFID) is an old-but-new technology. Developed during the Second World War as a means of identifying aircraft (friend or foe, IFF), the modern RFID computer chip is the usual packaging miracle of today. A tiny data chip is embedded in a tag that is printed on a product, much like today's bar code. It allows a company to:

- Track their items at each supply chain location, from plant to consumer
- Fight copying and counterfeit goods by embedding a unique EPC code into each genuine item
- Prove the origin and handling of the goods. Known shippers will use RFID and EPC tags to show a sterile supply chain and enable better quality in security processes.
- Record who the end-customer is, apply detailed recall procedures for complex consumer goods such as PCs, cars and mobile phones
- Track the amount of goods in the supply chain (as stock) and save capital in distribution and warehousing storage costs

The suppliers to the US Pentagon are already putting an RFID tag onto every pallet that enters the US Army supply chain. Since 1994 Unisys has served as the prime integrator and managed service provider for the US Department of Defense (DOD) in-transit visibility network. Using a mix of RFID, optical scanning and satellite technologies, this worldwide network has more than 750 nodes, including airports, seaports, rail terminals and road waypoints. The DOD visibility network currently tracks and secures approximately 35,000 conveyances and 25,000 containers worldwide, per day.

Does RFID bring implications for traditional heavy air cargo? We believe that it can and, in some defined markets, it will. Manufacturers/shippers will begin to equip goods with RFID chips, for the reasons noted earlier, and then the retailers will put pressure (also via the shippers) on the forwarders/3PLs. The business case for retail to push RFID into their suppliers' operations is clear. Major retailers will steadily increase the pressure to conform on their shippers and 3PLs.

Traditional air cargo processes leave air cargo vulnerable to theft of high value freight shipments, usually while held on the ground in forwarder, GHA or airline premises. Air cargo theft is often an "inside job" in that information is gained to target the high value consignments by leakages from the paper-based systems. A new a cargo business model can address these problems with a combination of more off-airport build and break-bulk activity. The Integrators and the big 3PLs will handle this in widely dispersed locations and in secure premises. The opportunity time for theft is also decreased by minimizing dwell time through later flight close outs / faster pick up times and through only handling built up ULDs and pallets secured with alarmed RFID tags.

The new cargo model airport and ramp ground-handling activities are then reduced to: handover point security check, check-weight, balance, load and fly. The global shippers, Integrators and 3PLs collaborate to do the rest.

At present the scheduled carrier air cargo industry does not have an overall plan for RFID evaluation and adoption and no IATA standards are yet agreed. If RFID take-up continues at the current adoption rates, then RFID tagging at item, pallet and ULD level will be driven into the air cargo business from the outside, by the global shippers and consignees. In this outcome, the carriers will often not know that they are carrying sets of passive RFID tags. However, the technology will give the shipper/consignee an interesting byproduct: automatic data capture of 3PL and carrier door-to-door delivery performance.

As Integrators and 3PLs add to their pallet and ULD tagging coverage, the outcome will be a gradual filling in of tracking "black holes" and gaps in information flows. Almost as a byproduct of a wider change, RFID will attack the traditional air cargo tracking quality and comprehensiveness problem head on.

Global visible commerce will allow the shipper, 3PL, GHA and carrier to each see the same information, and a secure Internet tracking system integrated with the cargo portal will allow all key parties to track what they need to know about the cargo movement and dwell times. Meanwhile, as the cost curves for adoption continue to fall, active RFID tags will find a home on pallets and ULDs.

This innovation will deliver automatic location tracking and dwell times for the 3PL and GHA sectors in the air cargo chain. Another key benefit is security process improvements and support for electronic pedigree checks, ensuring that no interference to goods has occurred while in ground storage or transit.

The implications for RFID usage within the global supply chain are far more profound; this technology can help ensure that global world trade continues to run smoothly since approximately half of all air cargo is carried in the bellies of passenger aircraft today and terrorist interference with these flows would bring major implications for all.

The case for a new business model for traditional cargo carriers must be based on winning back improvements in pricing control and also on positioning to achieve a larger share of the higher margin cargo business.

## Air Cargo: The Traditional Carrier View

Today, traditional carriers use paper air waybills and carry consolidation traffic. Many air cargo departments believe that “the profit is in the air waybill.” While paper air waybills will be with us for quite some time and consolidations will of course continue, we suspect that demands for ever-tighter security regimes, electronic proof of pedigree and more supply chain visibility will keep driving up the handling costs for this type of air cargo – and so make it less profitable going forward.

The risk here is that a “do nothing” strategy regarding the introduction of new technology and new processes could see another line of profitable cargo business move away to more focused long haul cargo operations that operate with new cargo business models. Any long haul LCCs that emerge will of course bypass this debate completely. Their rules-based booking engines and simpler inventory systems will reject this traffic anyway. They will recognize a recent but key “tipping point” in 3PL and global forwarder thinking. Surveys of their industry confirm that global forwarders now believe that carrier delivery reliability and service quality are more important than the unit price of air freight lift. This is a key culture change; we believe the full implications are not yet appreciated and understood by many traditional cargo carriers.

In response to their loss of cargo pricing power and declining yields, traditional carriers have concentrated on cutting costs within their existing cargo business model. Station level handling has often been outsourced to their party General Sales Agents (GHAs) and country-level sales and marketing has been outsourced to GSAs. But no one has yet changed their cost base by changing their core business model, either as a combination carrier or as a dedicated all-freighter cargo operator. We believe that the opportunity to simplify the air cargo business model is now available and the door is open to doing this.

The first proof of change in air cargo models lies with Internet usage adoption patterns. The LCCs created their first storm by by-passing the passenger equivalents of CCS, the GDS systems, in favour of direct enquiry, booking, billing and sales processes operated via Internet websites and booking engines. The traditional air cargo industry has long argued that heavy cargo cannot be booked as simply as a passenger booking, but our experience with the Unisys Cargo Portal Services (CPS) is that, after a slow start, the pioneer carriers are seeing steadily rising booking volumes and an interesting range of wider business benefits.

The case for a new business model for traditional cargo carriers must be based on winning back improvements in pricing control and also on positioning to achieve a larger share of the higher margin cargo business. Using the “shared win” proposition in heavy air cargo, carriers should aim to become partnership service providers, but this must be delivered by better process quality and reliability to increase their attractiveness as a partner to the Integrator and global 3PL. Defined cargo services are then set up, branded and operated on a “shared win” partnership basis for the agreed target markets. The carrier no longer attempts to be “everything to everybody,” but is focused on what cargo business is good margin and what is not.

Such shared win services could include SLU only or Time-Definite, or Door-to-Door or Shipper/Country Distribution Centre Consignee. New business model cargo services will also not necessarily use the traditional gateway airports. If Boeing planners are right, then frequency and point-to-point services will come to dominate the global, deregulated aviation markets of the future. The Integrators often use secondary airports that have either no or few night operations restrictions and can also deliver quick ground handling times. This is already aligned with the LCC business model.

Some of the G7 and G8 group of countries have already run trials of end-to-end, paperless Customs clearance processes. They are candidate locations for the next step-change win in air cargo, where better security processes are enabled by aggressive use of document imaging services and RFID technology, so that high frequency, just-in-time cargo services meet higher security standards while also offering the Integrator or 3PL lower unit shipment costs.

In the absence of an airline lead, we predict that the process change drivers in air cargo will be the global shippers, working with the Integrators and global 3PLs. The global shipper must first be persuaded to accept legal responsibility for providing accurate Customs declarations and security information to the relevant authorities. In return, the shipper will be offered a new combination of competitive shipment prices with JIT frequencies, better delivery reliability and security. If enough global shippers sign up for the vision, then the “tipping point” is achieved.

## Can The Traditional Carriers Respond?

The usual air cargo industry quartet: inertia, fear of change, the need for detailed collaboration and failure to reach agreement with partners over who pays for the cost of change will hold back scheduled carrier thinking this time around as well. But some carriers are thinking through these implications for change. As the new technologies become cheaper, the business case for change will strengthen quickly. This is the time to begin investigations into what is needed, what are the implications of change and what is the business case for change.

## A New Air Cargo Business Model

Unisys has a great deal of experience with the air cargo industry. We have experience in working with logistics providers to change their cargo business model. We have already built some global supply chains that are prototypes and test beds for much of the technology described. In addition to the global supply chain for the US military, Unisys has built four secure global supply chains for the TSA in the US. These industry supply chains are multi-partner and multi-modal.

The implementations faced many of the same problems as the air cargo industry, where new business model benefits have to be defined, agreed to and shared with other parties if all are to succeed. From all of this recent experience, we have developed our new global visible commerce capability.

We built and now host the airline cargo systems that handle up to 35% of the world's freight; we are bringing the industry online through Cargo Portal Services, our multi-carrier booking and shipment management service; and we are introducing the In-transit Document Manager to take paper documents electronic and speed the flow of goods moving internationally.

In summary, we have several key enablers of a new air cargo business strategy in place. We are experienced in defining change and then managing the delivery process. New processes, new systems and new thinking are required as traditional carriers stop chasing cargo volume and become more selective about which business model they will pursue and which cargo they want to fly or reject. We look forward to engaging with you to explore, test or validate your strategic options.

If you think you would benefit from change, or need to review where you are and where you should be, then contact us. We look forward to working with you to scope and deliver your future.

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To learn more about business transformation, visit us on the Web at: [www.unisys.com/logistics](http://www.unisys.com/logistics) and subscribe to our quarterly newsletter, FastForward, which has information on developments for Logistics service providers.

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