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Fragmentation is the enemy of innovation. Yet, perversely, fragmentation means the need for innovation is even greater, where the gaps in the chain require better efficiencies, better transparencies, greater competitiveness

There are few industries more fragmented than the air cargo chain. It is ripe for change and easily disruptible – yet stakeholders have little to gain individually from becoming the first mover, according to existing players.

“I am not sure if the pace of innovation in air cargo is slow, or just too slow,” says Ariaen Zimmerman, executive director of Cargo iQ. “The reason is the fragmented nature of the

industry, and that there is no one owner of the system. The industry depends on someone else innovating and adopting, which can be very expensive. There is a first mover disadvantage.

“What we need is systems integration. But the one that moves first will only reap the benefit when everyone does it, and will take the cost. Companies would have to implement

TAC takes air cargo into new arenas

Possibly the most significant development in air cargo has been the launch of the TAC Index, which is likely to enable it to join other commoditised industries in catching the eye of the financial world, and ultimately giving companies the opportunity to hedge on air freight rates.

The TAC Index itself now allows shippers and forwarders to access a real-time spot market for air freight rates.

TAC attracted major forwarders to provide data to enable it to launch a weekly airport-to-airport indices on various routes.

Forwarders can see how volatile rates are, and examine how their internal procurement benchmarks against the entire market.

“Forwarders come first,” explains Peyton Burnett, managing director. “We show them how TAC Index can be used as a benchmarking tool, a customer-facing tool, or as a settlement price for Index Linked Agreements (ILA). For example, for benchmarking we are developing new metrics which helps bring more usefulness to the TAC Index data; like differentiating between direct and in-direct route price trends. Another example, when settling ILA contracts, one of the counterparties must be a forwarder.

“We control how the data is used. Our prerogative is to protect all of our data providers’ interests first and foremost.”

The key is to make index-linked contracts available to cut the risks associated with booking air freight in advance.

ILAs are soon to launch, with several carriers and forwarders on board.

An ILA adapts to day-to-day prices. The Index tracks current prices, and when a forward booking is made, an ILA adjusts the contract automatically to take into account the new pricing level at the time of shipping. It avoids constant and time-consuming renegotiations.

Contracts can be settled either weekly, monthly or quarterly.

“The longer settlement period can reduce noise in the data, which should reflect the market more accurately,” explains Burnett.

The Index can also be used for forward data modelling. “The Forward Curve does not exist in the air cargo market; but it is a common instrument in other markets,” says Burnett. “A neutral third party company will give their opinion on the market at where they believe the TAC Index will settle. This is a formula based on macro-economic indicators and market intelligence.”

Michael Gaylard, head of strategy at Freight Investor Services, explains that air freight buyers will receive representative pricing, which is “always going to be at or close to what the market is trading at that time.

“Users want to move away from a fixed price. There is a desire to see how this works, to figure it out on an accounting basis.

“There are very few markets left which don’t have this, and definitely nothing the size of air cargo. Air cargo is an enormous market that really stands out – although one of the problems it might face is that it is quite fragmented.

“It is also a very traditional business. But there is a younger element coming forward from within the industry, and they do seem to be more accountable to the balance sheet.”

Possibly the most critical thing about this new way of working is that it eases the way for the air cargo industry to move closer to the financial industry, something that could reap rewards in terms of investment. The TAC Index has already helped cement the idea of air cargo as an industry, by launching its indices on both Reuters and Bloomberg.

And along with new processes, that could help propel air cargo into a more mainstream industry. “Air cargo is taking a step closer towards integrating with the global commodity markets,” believes Burnett.

something, invest and wait until the pivotal moment when they get a return on the investment.”

But, argues Sara Van Gelder, cargo and logistics development manager for Brussels Airport, there seem to be too many excuses and not enough action.

“The things that are fixable aren’t frustrating, they are challenging. But most frustrating is the fact that, as an industry, we do not seem to be able to tackle and resolve the issues that would be beneficial to all of us.

“We prefer to complain about the challenges, such as the fragmented supply chain, complexity and prices, over and over, and hide behind them. And in aviation, we have to deal with the fact that cargo is for many not the first priority. Not for airports, not for airlines, not for handlers.”

The limits of innovation due to the fragmentation of

the chain is, conversely, also hampered by the simplicity of the airline portion – moving goods from A to B.

“There has always been a simple view, an assumption that cargo will always move and that it’s simply about transportation from A to B. That’s how it’s been transported for hundreds of years,” explains Milind Tavshikar, chief

executive of IT provider SmartKargo.

“Things have changed in other industries, but there has been no reason to change this one, no benchmark – everyone is in the same boat, going at the same speed.”

Of course there have been some innovations – and IATA, keen to promote that, in 2015 launched its biennial Air Cargo Innovation Awards, which this year saw 43 entries: “all really good”, says Glyn Hughes, global head of cargo for the airline association.

“It could be that there is a lot of innovation, but we are not embracing it,” he suggests.

“As an industry, we seem to be waiting for the next big thing – and then the even bigger thing that might come after. Look at VHS – it was very disruptive to TV. It could control content in the home. But then came DVDs – so you either got the new thing or stuck with the old – but essentially they were still the

“The things that are fixable aren’t frustrating, they are challenging. But most frustrating is the fact that, as an industry, we do not seem to be able to tackle and resolve the issues that would be beneficial to all of us”

**Sara Van Gelder,
cargo and logistics
development manager
for Brussels Airport**



same. Now you can throw them all away because content is on demand.

“Air cargo hasn’t done any of that. It still sits on legacy systems, pieces of paper. The only transferable process is via a piece of paper – everyone can deal with it, but it’s very limiting in other ways. We are not short of innovation, just short on embracing it.”

There is little doubt that the industry could do with some new ideas – and others, with investment, bright ideas and enthusiasm are entering the market – particularly in the asset-light portions of the chain, with digital forwarders, booking platforms and IT solutions providers wowing Silicon Valley investors in a way that the traditional industry has not been capable of.

“There are huge amounts of efficiencies in new ways of doing business,” says Zimmerman. “New entrants can innovate – they step into the new technology, which could put existing players under duress. The industry is not at risk – it’s the current players at risk.”

But so far, the industry has struggled even with the basic elements of digitisation – such as e-air waybills (eAWBs). First mooted some seven years ago, eAWB penetration has failed



Milind Tavshikar,
chief executive of IT provider SmartKargo

to reach its targets each year. By year-end 2017, the downwardly revised target is 62% eAWBs on viable routes – as of September, eAWB penetration was barely hitting 50%.

Incentives?

At first, it was claimed that the industry players, particularly in forwarding circles, were laggards. Now, it seems the world has moved on, past eAWBs. One senior air cargo industry source, who preferred not to be named owing to the potentially negative interpretation of his comments, says: “eAWBs are hovering at a certain

acceptance level, so what is the incentive to invest?

“It increases your cost base, and there is no penalty for not doing it. It would change the cost structure if everyone, such as ground handlers, had to adopt it too.

“And the flipside is that eAWBs don’t offer all functionality – it’s the same old data and structure – it doesn’t necessarily add anything. eAWBs only add value when systems can understand each other.”

Air Canada Cargo has consistently been one of the more enterprising airlines in recent years. But even it found eAWBs hard to introduce initially – “the industry just wasn’t ready,” says Johanne Cadorette, manager marketing.

“It has been difficult. The industry was still phone-based, websites weren’t set up that way, legacy carriers didn’t have the infrastructure, and the demand wasn’t there. Even the notion of a centralised phone number was heretical five years ago. The industry has been slow to clutch onto new trends.

“Now, though, there is more of a digital environment.”

The carrier “anticipated that need”

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with a new booking portal, which automatically generates eAWBs, among other things (see box).

IATA's Hughes says the lack of digitisation of information in 2017 is "sad and embarrassing".

"Look at gaming consoles, phones, gadgets – you no longer get a paper manual. Banking is fully automated.

But we still have paper – even 50% of eAWBs still have paper. So as a 100-year-old industry we have to look at how it's operating today – and it's not that different."

Van Gelder agrees: "In general, our industry has not been the most innovative. XML is being considered as an 'old standard', yet we still try and

struggle to get it implemented. An eAWB, just a part of e-freight, is still not something generally accepted in our industry. So we clearly have no culture of embracing innovation. And if we have seen innovation, often it was only on a company level.

"Improving processes, digitisation and automation have only been in-

Brussels Airport: open to digital transformation



As with many of the innovations identified in the air cargo industry, few are completely unique, but there are some fine examples of individual companies embracing new processes, introducing new concepts and, perhaps most importantly, taking a lead.

Brussels Airport is one. While no one can deny that airports such as Schiphol, Frankfurt, Hong Kong and Incheon have also been instrumental in bringing cargo to the forefront, Brussels has emerged as a significant player in a relatively short time, and has the mindset required to embrace new thinking.

As other airports have done, it set up a community, Air Cargo Belgium, to launch a platform which would first enable stakeholders to share ideas, and then to implement them. It allowed for risk-taking, mistakes and open-mindedness – key elements in innovation.

"We created a mind-set that is more open to digital transformation and cooperation than the average air cargo community," explains Van Gelder.

"This has resulted in projects such as our airside pharma transport, or our BRUcloud project. We started with the idea of creating a cloud-based data-sharing platform from scratch (not starting from the existing messaging or standards), without being 100% sure of which direction it was going in. We were willing, and were allowed to take risks, and experiment while all the time having clear goals we wanted to reach. I truly believe this is a very unique approach and not much seen in other air cargo communities.

"Locally, we work closely together with all industry stakeholders, companies and government bodies. We share responsibilities and efforts by sharing a common goal. This is not always easy and possible, but it is the only way forward to make radical changes in our fragmented logistical chain. It might be more difficult to do so as an industry, but we still believe it is the only way forward."

The BRUcloud allows applications to be plugged into one central data-sharing layer, both using already available data, as well as new information.

As Van Gelder explains, the platform does not try to digitise documents, but instead digitises data elements that are then stored and can be re-used. It eliminates duplication and opens new opportunities for data analytics, new applications and both internal and external improvements.

"Our customers can make use of network effects and economies of scale, with no need for in-house development, no need of big IT changes. It offers SAAS based applications, irrespective of the size of the players, and digital tools to smooth inter-company processes are available.

"The more stakeholders are on board, the more interesting it becomes to be part of it.

"Helping our community to move towards data-sharing will make us more resilient for future changes - and resilience is definitely a requisite skill in today's constantly changing world."

The platform thus also creates opportunities for app developers and stakeholders who are investing in innovative ways to reshape the existing processes, creating an eco-system.

Next up for Brussels is a slot booking application, which has just completed the testing stage.

It allows freight forwarders to book a timeslot via a central application to deliver or pick-up freight at the handlers' facilities, independent of the parties involved. The app algorithm looks for the best match between supply and demand, proposes an alternative if necessary, and makes sure the slot is reserved correctly.

Adding additional apps like a central driver database, licence-plate recognition and customs data can pave the way towards a "green lane" for freight loading and unloading. This means limited available resources are used more efficiently, eliminating paperwork and waiting times.

Taking further.

A white Air Canada Cargo aircraft with two engines, flying upwards and to the right. The aircraft features the Air Canada logo (a red maple leaf) on the tail and fuselage.

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house. But this doesn't always generate the results it could have, if it was done on an industry level.

"The things we are doing today are almost the same as we did many, many years ago. Instead of trying to implement an old standard, should we not be looking at other ways to work, and focus on the real new way of working, such as data sharing and open platform communication? So I am also wondering if the energy we put into innovation is spent in the best possible way?"

"Improvements we have seen are very limited and often have not led to an optimal result, because of wrong or limited use of the possibilities. However, I do feel that today there is a broader industry feeling and acceptance that there is a need for real change. But at the same time, I have the feeling that there is no common agenda on what we need to change and how we need to change. We are also lacking leadership in our industry to guide this change. This is something we try to do locally, in our cargo community, together with all stakeholders."

She adds: "Although there are

innovations that are impressive, even in our industry, it is difficult to mention one specifically as most have not contributed to our industry in general, but have rather strengthened the competitive advantage of specific companies."

"The gap between carriers and the integrators is still big, and the challenge is to get people to see that gap"

SmartKargo

The question, then, is what the industry should be focusing on. And it is true that there are many companies working on good ideas, and many individuals who are making them happen.

Ecommerce

Ecommerce is one of the greatest triggers for a rebirth of the air freight industry, with short delivery times and small parcels favouring the sector.

"One thing that has changed is consumer expectation," says Hughes. "They want quick, more effective

transport and supply chains for freight flows. That is where, as an industry, we can come together and design those future supply chain needs. That's where the innovation cycle comes in."

A quickly growing market, particularly in cross-border shipments, could give the air cargo industry more opportunity than it has seen in some time. Research firm Forrester foresees cross-border ecommerce outpacing domestic growth, with a compound annual growth rate of 17% between 2017 and 2022, compared with 12% for overall B2C ecommerce. The firm also predicts that cross-border purchases will comprise 20% of all global ecommerce in 2022, with sales of \$62bn.

But, as SmartKargo's Tavshikar says: "Companies like UPS and DHL have profited massively from the evolution of Amazon, and have tapped into it.

"But belly carriers have not seen any part of that action. They are not able to keep up with it. More Amazons are coming up, and people now expect shipments within 36 hours – and someone will do that – but not the traditional belly carriers.

"Technology on the ecommerce side has evolved rapidly, and the business has evolved rapidly. Technological innovation has evolved very fast in the past five years – but on the supply side, lots of air carriers simply haven't innovated at all. All the supply side have worked through the middlemen – the forwarders – so there is a disconnect between them and the end customer.

"The beneficiaries of all this are the integrators. Someone is delivering, but no one in the belly world is aware of it, or targeting it. That's the disconnect."

He argues that it is the ability to understand and implement change management which makes or breaks a company, something which mid-tier companies do better, as they are more flexible and more likely to take risks.

The idea behind SmartKargo, which provides IT solutions to enable ecommerce shipments, on a pay-per-use basis for mid-tier airlines, was to close the gap between how the integrators and airlines operate, and produce tools to allow air carriers to operate as an integrator.

"We analysed the critical gaps which prevented airlines grabbing a portion of this supply chain.

"FedEx gets \$7bn in express revenue. [Outside of the integrators] all the other airlines together get far less. But



in comparison, they have 10 times the available space. So this equation was baffling. How do you get technology to allow carriers to compete in that space?

“And the price gap between belly carriers and FedEx is big too. So we had to understand – how can technology bridge that gap?”

SmartKargo claims to be a technology platform which puts airlines on the same level playing field as the integrators, without having to invest in building it.

“FedEx operated without the internet, it had trucks, people and service levels. Today, an airline doesn’t have to do that. It can work with all service providers, it doesn’t have to have a guy with a truck.”

“People are sceptical about getting into this space. But some carriers have a tremendous appetite for this. It’s a high margin business, and the biggest asset is the plane and it will fly anyway. There is money left on the table if it doesn’t take cargo. It’s like having an extra bedroom and renting it out – it costs the same. That’s why Airbnb is successful, and it’s exactly like that, you just plug into the network.

“You need the mindset so others can see it happening. Carriers don’t know how fast or slow others are moving.



“FedEx operated without the internet, it had trucks, people and service levels. Today, an airline doesn’t have to do that. It can work with all service providers, it doesn’t have to have a guy with a truck.”

“But the mid-size realises, and are getting more than 10% of revenues from cargo – and that should be the benchmark. That’s a sea change and will change the way carriers think about cargo.

“The vision was always to enable the carriers to change their business model. We next want to extend our business model and use tools that are available today, not legacy IT environments. We can produce more, via a smartphone, and use that info while, for example,

building a pallet.

“The gap between carriers and the integrators is still big, and the challenge is to get people to see that gap. They still see a box going from A to B, and there are still people who work like that, for example with boxes with no bar code - that’s the information state of this industry.”

Integration

Whether it’s for ecommerce, or any other shipment, air cargo has been slow to try to bridge those gaps in its chain, to

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What is innovation?

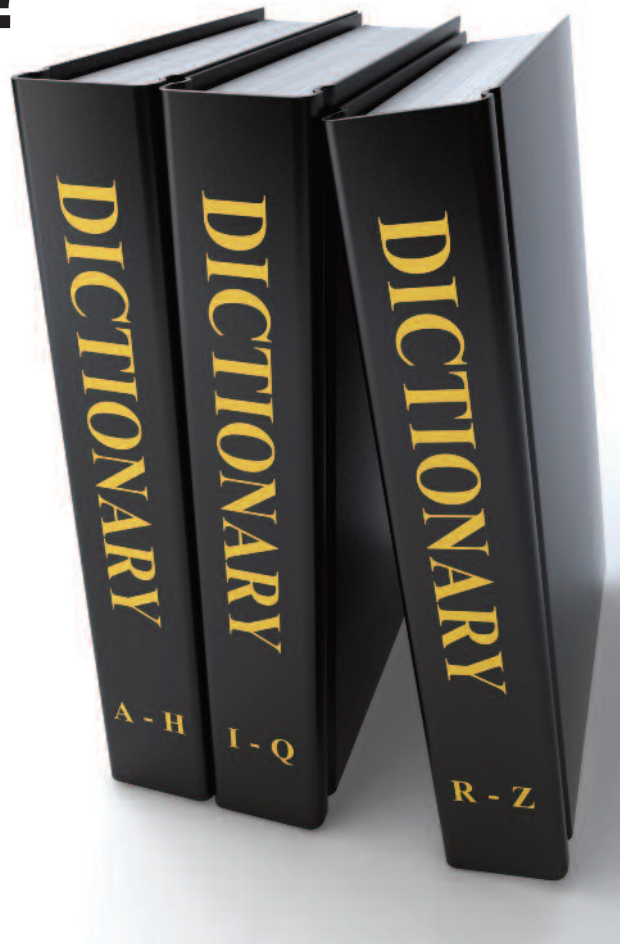
**“To innovate: To make changes in something established, especially by introducing new methods, ideas, or products”
– Oxford English Dictionary**

Innovation does not just mean new technology. Technology is simply an enabler. A business leader who innovates fast, but lacks the technology to implement the ideas, can't make changes. You need both for it to work. SmartKargo's Tavshikar points to smartphones as an example of the symbiosis between the two.

“They are constantly evolving – every nine to 12 months there is a step up, and that's constantly in sync with the evolution of the business model. Then companies like Facebook add more for more mobile users. It's both innovation and technology which allows you to run a Facebook app on your device. That is both a business model evolution and technological innovation together. The two need to stay in step.”

Van Gelder agrees. **“There is much more technology readily available than our industry can absorb at this moment. The way to really innovate is by rethinking our processes and our business models, the way we work together - and technology will be there to make this possible.**

“There are a lot of companies, from small start-ups to bigger innovative and disruptive companies that I admire and find inspiring. Look at Amazon, how it is having an effect and impact on logistics, without really being, initially, a logistical company. But it is having a bigger impact on our industry than anybody else in the last decade.”



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smooth out the fragmentation, and that's where technology can help.

"There are areas where we are a little bit slow – IoT, 5G, big data – and for an industry as complex as ours, we would be a major beneficiary of those," admits Hughes. "The carrier or forwarder could communicate with the handler, the trucker – all information could be simultaneously stored and connected. It could smooth out the bumps. But there is no strategy in place yet and other industries are already on it. We wait until it's there.

"Where you have one party, you get a forced mandate – lots of people need to look at it and to show how each one can use it. Then you have a real chance to jump and embrace."

Luckily, in terms of systems integration, there is one party which can lead the way. CargoIQ, the reborn Cargo2000 (a name much objected to until it changed in 2016, a public statement revealing air cargo's decade-and-a-half behind the times), has plenty of innovative ideas, as well as the know-how and enthusiasm to get them off the ground.

"We need to implement new ways of working, and bring something to the market that benefits customers," says

Zimmerman. "The enabling factor is the Master Operating Plan that we wrote and created with members – it's not an innovation in itself, but it allowed for innovation.

"Everyone now does some form of track and trace, and we have enabled a lot of that. But I am more excited about what we are about to do.

"The next step is not just about where a shipment is – it's about where it will be, when. This is the kind of information we haven't been sharing enough as an industry."

CargoIQ is launching a smart data project, looking at benchmark continuity on a process level.

"We are now talking to the Global Shippers' Forum about current projections. Reliability and control are more important than speed. This will enable people to see the controls over a shipment," explains Zimmerman.

"A belly carrier might have two hubs, and 20 or 30 solutions for getting a shipment from A to B. All those would be in guaranteed performance metrics. One solution may be full, or delayed, there may be congestion or bad weather, but it's on a network and there will be other solutions. This platform will offer real live projections,

and people can route cargo in the most efficient way, and use predictive analytics.

"Now, systems run with a slight delay, based on data. This will be able to process predictions, online, in real time. That's the next step, and the true innovation."

Along with the technological change, is another innovative idea. CargoIQ is talking to shippers, to check product performance.

"When we come to the performance metrics, we need to ensure what is happening. We believe you can't hold your provider to be reliable if you don't stick to your own schedules. So we are talking to shippers about what they need to do to enable the providers to offer the right service.

"The cargo needs to be in the right place, in the right order, and booked with the right product. In between you get the forwarders, who should have free reign but need high transparency."

He explains that in, for example, pharma, you could guarantee using only accredited facilities, which would mean that airline customers would not have to focus on the flight, only on shipping cargo in line with the promise.

HKG-USA - 28.80 HKD ↓ 0.02(-0.1%) HKG-EUR - 19.67 HKD ↑ 1.26(+6.8%) FRA-SEA (SE Asia) - 1.10 EUR ↑ 0.05(+4.8%) FRA-NOA (N America) - 2.46



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"It doesn't matter how you route it. You need transparency on events, rather than the underlying route details. And for a forwarder to have confidence in that, you need real transparency."

Cargo2000 set milestones and targets, with offsets agreed by carriers and forwarders. The next step adds predictive processes, and expectations as well as targets.

"We'll put all the process steps in like Lego, and then you can see if what you sold is in line with your metrics."

It is expected to take a year or so more to develop – perhaps to be ready

initially by the end of 2018.

There are many pockets of innovation in air cargo – which is part of the problem for the wider industry.

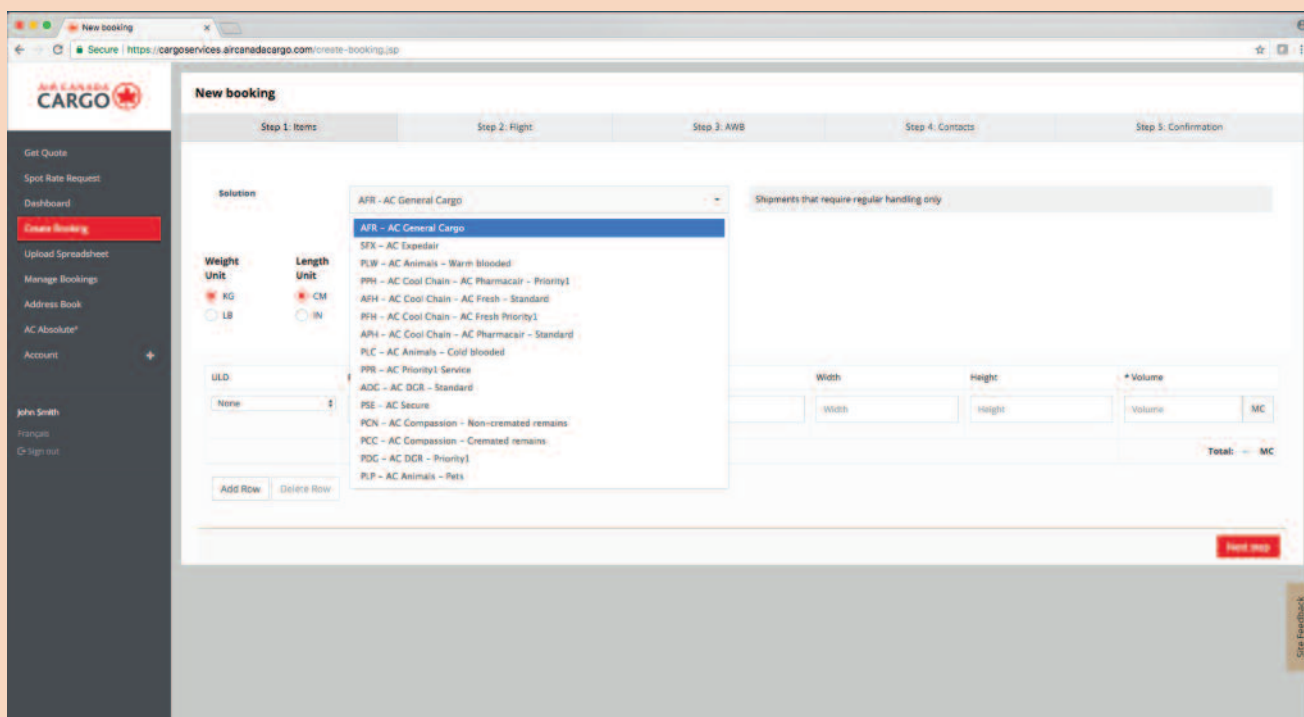
"It should be a common effort," argues Van Gelder. "The weakest link in our chain might determine the final outcome and result. So we should be very careful not to have endless discussions on who gets the biggest profit in the end, and thus should be the one who pays most for the investment.

"Or even calculating it to the last euro, and dividing between all parties what is in it for each of us.

"We have had discussions where parties were not interested in improving because their competitor was getting the same advantage as well. If you ask me, it is not companies that need to try harder, but those people that do not see the bigger picture."

IATA's Hughes has advice too: "The key is to try 10 things, and fail in nine. Sometimes we are too cautious and we only try one. There are pockets of innovation in every sector. It's reassuring that this industry is starting to take innovation seriously. And that will help bridge the gap between what we are doing, and what we need to do."

Air Canada Cargo portal: easier to do the business



Air Canada Cargo, in common with some other airlines, has created a customer-focused booking platform as one of several innovations it has worked on.

The idea was to make it easier to do business with the carrier, by creating a more intuitive online process.

The carrier originally launched its online booking with Cargo Portal Service (CPS), but wanted an own-branded, proprietary presence online, which also allowed it to introduce and improve processes.

"The technology in air cargo is not necessarily leading edge – in fact it often looks like something out of the 1980s," says Johanne Cadorette, manager marketing.

"We wanted something intuitive, which was very important in terms of ease of doing business. We worked with customers in a test environment, with constant updates."

Fred Opong-Agyare, e-business support manager, explains: "It is like Expedia – you sign in, put in the date, and then you get info on the stations, and status checks on flights, and quotes. You can select products, restricted articles, opt for dry ice and so on. The system talks directly to our internal systems.

"It takes twice the time in CPS. CPS serves its purpose quite well, but you can't do interline bookings, which you can on our site – although a call centre still needs to confirm it currently.

"We control it, so we can tailor it and develop it based on our and our customers' needs. We can anticipate developments and it gives us a lot of flexibility and agility. Bookings can be made very quickly."

It also enables e-freight and e-AWBs. "The customer can submit data, but before the shipment goes out, we will print it, if needed, and give it to the forwarder. The data is transmitted, so there are fewer errors.

Air Canada had also wanted bookings to be made in French as well as English, which it couldn't with CPS. It can now roll out a multilingual platform, incorporating numerous other languages.

"About 20% of our business comes through it now, and we want to improve on this," says Cadorette.

"You need an Air Canada account, so it's not so much for ad hoc business."

But, she adds: "We think it's likely that forwarder and airline interfaces will get closer, so we'll see what develops from that."