Building freight forwarding software capability for the future

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About the authors

Cris Arens has built his career around mergers and acquisitions in the logistics industry since 2008. He is currently a Managing Partner of Logisyn Advisors, a global M&A advisory firm headquartered in Chicago, IL. Logisyn Advisors brings together a senior team of logistics veterans with deep domain expertise dedicated to serving Logistics Service Providers (LSP) and Logistics Technology Companies. Most recently, Cris and the team helped facilitate the acquisition of Haven, Inc. by FourKites (a strategic instance of consolidation in the growing logistics technology sector). Technology is always a major component of due diligence in any LSP transaction and Cris' past role in orchestrating the sale of Vandegrift to Maersk is another well-known example of his focus.

Cris started his career in logistics in 1990. Observing how the internet would shape the industry, in 1995, he cofounded Fountainhead International, trademarked the product name of CargoWise. Although the company was initially unfunded, it grew very quickly within the U.S. based on customer contracts. The team took pride in delivering real solutions to customers versus PowerPoint pitch decks to investors. In 2006, the opportunity to take the product overseas was obvious. Fountainhead merged with a like-minded company overseas (which became WiseTech). Many of those original Fountainhead employees are still key players at WiseTech. Cris remained on the Board of Directors, running global sales and US operations until 2008.

Throughout his entire career, Cris has worked directly with entrepreneurs and CEOs across the supply chain. He has remained committed to honing his knowledge of the ever-changing logistics technology sector to expertly advise logistics clients in their global strategies. Cris and his family are global travelers, who enjoy calling Chicago their home base.

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Violeta Keckarovska is a research analyst with vast experience in the design, implementation and analysis of electronic and person-to-person surveys. Having worked across a number of sectors, including retail, luxury goods and FMCG, Violeta is experienced in gaining valuable insights across brand perception, voice of customer and strategic re-positioning intelligence campaigns for B-to-B and B-to-C clients. Violeta is one of Ti's technology specialists, leading projects to help investors understand the logistics technology landscape and to support logistics providers as they set their technology strategies for the future. Through these projects, and associated surveys, Violeta has developed an in depth knowledge of best-in-class technology service levels from LSPs, start-ups and software providers, as well as an understanding of the key shipper pain points that the latest technology seeks to address.

As a member of the Market Research Society, Violeta brings best practice in research, insight and analytics across Ti.

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The route to the market of today: CargoWise vs the rest

With digitalisation in full swing in the freight forwarding industry and customer expectations evolving to demand a better customer experience, forwarders find themselves reviewing their software strategy and ability of the existing tech stack to live up to customer expectations. This opens the door to another question, whether a company should buy a ready-to-deploy off-the-shelf solution; build a fully customised solution, designed for its specific processes; or buy multiple "best-of-breed" software solutions and stitch them together with integration specialists.

Forwarders that decide to go down the first route will quickly come to realise that presently the most sophisticated and comprehensive end-to-end solution is CargoWise. It is being used by the top 25 global freight forwarders, and its strong credentials make it extremely difficult for other vendors to contend its leading position in the market.

An emerging approach to building software capabilities is to buy "best-of-breed" software solutions and tie them together with integration and visibility specialists. The traditional backbone operating systems offered by companies such as CargoWise, Descartes or BluJay remain relevant with this approach, as companies still want one single source of truth. However, instead of viewing these operating systems as a one-stop technology shop, forwarders are increasingly considering them as the core systems or platforms on which to attach complementary functions that help them serve shippers better. This spin of the classic strategy of buying "best-of-breed" software has paved the way for many SaaS start-ups that provide innovative solutions in individual countries and niches which can be used as add-ons to the operating systems in use. The areas that have seen the greatest amount of unbundling of tech solutions are quotation/pricing, document automation and customer-facing environment.

This paper provides a strategic review of the freight forwarding software market and assesses the avenues that forwarders can take when developing their software capabilities. The paper includes evidence-based case studies and detailed analysis of the advantages and disadvantages of different strategies available to forwarders. We conclude by providing a comparative analysis of the established software vendors and start-ups.

Use of freight forwarding software by freight forwarders

Build or buy?

The following section reviews the pros and cons of using an off-the-shelf solution and building a proprietary in-house developed solution.

Advantages and disadvantages of buying vs building software solutions

Advantages of using third-party solutions

· Centralise IT and support the business on a single platform

Using a third-party software solution allows forwarders to support the business on a single software platform globally. The availability of a suitable off-the-shelf solution enables forwarders to abandon multiple legacy systems across different geographies and switch to one single, primary software that supports a global operation. This allows forwarders to offer consistency and uniformity to the product and service offering to customers globally.

· Faster deployment

Deploying off-the-shelf solutions is faster than developing a proprietary in-house system. Faster implementation enables companies to respond to new business requirements more quickly. As

a result, third-party solutions are particularly suitable for new players or existing players who wish to start from scratch and implement a new software platform with all the essential logistics functions that are nowadays offered by the third-party party logistics software providers.

· Need for scalability

The logistics industry can be volatile and logistics companies need to keep adapting to thrive. The IT logistics software should therefore be scalable and adjustable in order to rapidly respond to new/shifting customer needs or business requirements. In addition, as logistics companies expand to new markets being able to scale in terms of users quickly is important in order to process the increased number of shipments. Therefore, a system that can accommodate this type of expansion and that is flexible enough to adapt to any kind of scale up or scale down offers great value to logistics companies. For comparison, when companies expand but run in-house software, they need to invest in more processing power, more memory and network capacity to cope with the rising demand. What is more, if the volumes eventually drop again, they still have to bear the costs.

· Lower upfront costs

Third-party software requires significantly fewer in-house IT staff and can save on training costs. This means that off-the-shelf solutions are associated with lower upfront costs. Developing a bespoke software on the other hand is more expensive at the beginning because businesses must pay for the development process which involves employing IT specialists. However, the customisation process of third-party solutions significantly drives up the costs. As a result, logistics companies that must undertake a lot of customisation must reckon with high costs. For these companies, building proprietary software is likely to be a cheaper option. Ultimately, the costs are relative and depend on the size of the company. Businesses pay a per user licence fee for off-the-shelf products and this fee can be quite high for a large company. Therefore, for companies with global operations, building an in-house software might be cheaper than an off-the-shelf solution, and vice versa, for smaller companies subscribing to a third-party solution is probably the cheaper option.

· Access to latest technology

Using a third-party vendor enables logistics companies to secure immediate access to the latest technology. Unlike in-house software which don't evolve technology-wise as fast as third-party solutions, users of third-party software can benefit from the latest technology developments made by publishers of third-party software to their products as a result of the feedback they get from other customers.

Advantages of proprietary in-house developed solution

· High level of customisation and more personalized customer experience

Developing an in-house software enables forwarders to customise the software precisely to customer needs and consequently enables them to provide customer-oriented solutions and a more personalized customer experience. Designing, building and maintaining the system in-house means that companies can more easily change priorities or make changes as requested by clients. Logistics companies can work with their clients to better understand potential enhancements needed to the operations and technology, allowing them to determine the pace at which they can translate these into software changes. In other words, they don't have to commission additional work from third-party software vendors, whose solutions are quite generic and typically require additional customisation which comes at an additional cost.

· Enables differentiation from competitors

The high level of software customization enables forwarders to differentiate themselves from competitors. Software customisation according to customer requirements can be a core feature that enables differentiation from competitors.

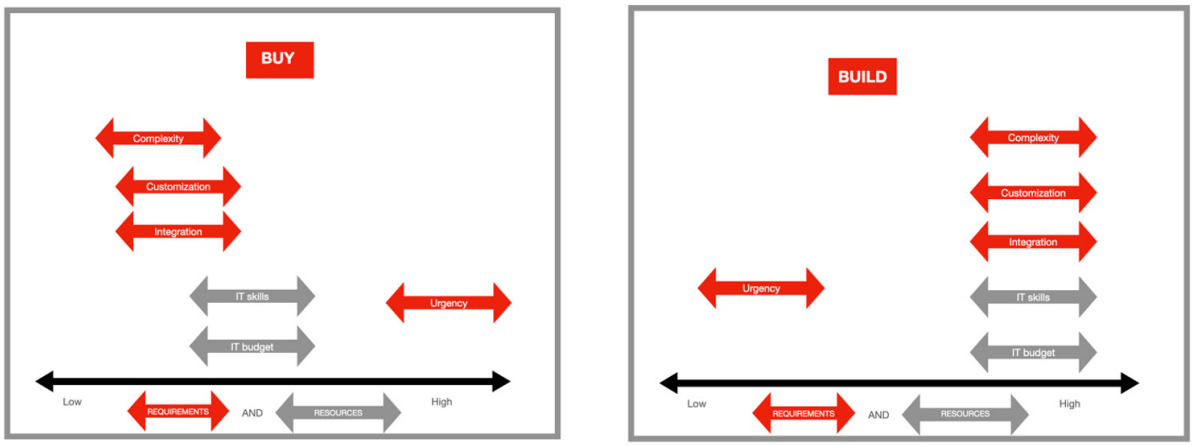
· Meets the need for flexibility and agility

Unlike off-the-shelf solutions which are quite generic and require a lot of additional customisation, by designing the software in-house, forwarders can avoid the inconvenience and cost of remodelling an off-the-shelf software to meet shifting customer needs. In addition, third-party solutions can't always support the requirements for system interfacing to enable communication with other stakeholders, such as carriers, airlines, customers, custom clearance companies.

· Improve Enterprise Valuation at exit

If done incorrectly, in-house development can become a liability in regards to Enterprise Valuation as it relates to M&A. However, as the digital freight companies have demonstrated, building proprietary technology can become a major asset when valuing a freight forwarder. This statement is provided with a major disclaimer, as most buyers may not feel as positively about in-house technology.

Buy or build - Decision making framework for software development



Conclusion

The tools for in-house development have made rapid development of proprietary solutions versus ten years ago when most major freight forwarders were trying to move away from in-house development. Moving forward, it should be expected that the forwarding industry will experience a shift with regards to the software strategies. The main reason are the high costs of building proprietary software systems. As more and more third-party solutions move into the cloud and become available by subscription, an increasing number of companies will opt for cloud-based off-the-shelf solutions. However, those companies that have already invested quite a lot of resources in their systems and spent a lot of time customising the software systems to fit their operations, will put off changing them, until the market forces them to change. In either case, the transition is likely to be very expensive.

Software strategy of large and small and medium size forwarders

Large forwarders often have the required talent in-house and benefit from years of operational experience. They understand the industry, but they tend to suffer from a plethora of IT systems that are old and at risk of no longer matching increasing customer expectations. Many therefore choose to build their capabilities in-house whilst others collaborate with external software providers that are able to tick as many boxes as possible.

Global forwarders initially invested heavily in information systems either through accounting systems, or the nascent ERP technologies such as SAP and others. These huge, highly functional software systems did a fantastic job of integrating all the internal functions in a company and enforcing operational discipline. They were (and are) very expensive to buy, install and maintain.

But they were never designed to exist and collaborate in an open, interconnected trading partner network. More significantly, their inherent inflexibility has become a massive commercial disadvantage when the business has to rapidly change its operational model. This has resulted in the rise of a federated technology model to support logistics operations. This is where various applications from different vendors are used by companies to support operations. The IT staff in the company have a primary function to ensure the integration and smooth operations across the application 'federation', so that the users of these applications can service customers appropriately.

Larger players may have the staffing and financial resources to support the federated 'best of breed' approach, providing them with the opportunity to adjust the technology infrastructure if the company strategy changes. This approach is now easier to support as modern applications have been designed to collaborate and integrate through open interfaces, or API's. The costs to do so have also dramatically reduced. But there are still challenges to this, in the sense of being able to exchange information easily between applications is one thing but maintaining the context of that information across multiple databases, may be quite another. This is why many large, global forwarders are more likely to be interested in a global, fully functional software solution, that allows them to centralise their IT and unify global operations. They are also more likely to afford this type of solution. For instance, CargoWise claims that the top 25 global freight forwarders use its software solutions. Global forwarders such as DHL Global Forwarding, CEVA, Bollore, DSV, to name a few, have replaced their multiple legacy systems with the single platform solutions offered by CargoWise, with the ultimate goal of supporting their global businesses on a single platform.

Smaller forwarders are better suited to deploy off-the-shelf solutions due to their limited budget, lack of IT proficiency, and because these solutions are already available on the market and proven to be effective for forwarding organisations. Same as larger businesses, smaller forwarders are probably still best served by going with vendors who provide a complete suite of capabilities across a single platform. Preferably one that has been designed as a service running on one of the major cloud platforms such as Microsoft Azure, or Amazon's AWS. Some smaller forwarders however typically need some of the software capabilities but not all and these are more likely to implement specific modules and complementary functions rather than a complete software suite. For smaller forwarders it is also very common to partner with a software vendor that has a regional focus as it is built around that specific market.

Reality check – the practicalities of operating and switching to another software

Even though freight forwarding software plays an important part in improving forwarders operations, taking on new software solutions generally brings with it some level of risk, especially if it challenges existing processes and business culture.

The most common challenges when implementing freight forwarding software include:

- adapting existing IT infrastructure to new software solutions
- system interfacing
- staff struggling to adjust to new processes and tools

Typically, the initial implementation of off-the-shelf solutions takes several months to roll out globally, though software upgrades are continuously performed as new functionalities are being added to meet evolving business requirements. Factors such as the number of users that need to be set up also affect implementation duration. Companies that have a high number of users and customers using the software are likely to stick to the solution for longer due to the difficulties that could arise from switching to another solution.

The capabilities of the in-house IT team also have an impact, though this doesn't always promise a straightforward implementation. An example of the complexities of adapting an off-the-shelf solution is DHL Global Forwarding's attempted 'New Forwarding Environment' (NFE) project. Implementation errors and spiralling costs led to the suspension and eventual cancellation of the project. SAP, who provided the software for NFE, were quick to make it known that the failure of the project was a result of poor implementation, not issues with the software they had created.

System interfacing is another common challenge. Even though system interfacing is nowadays easier to support as modern applications have been designed to collaborate and integrate through open interfaces, or API's, there are still challenges to this. As previously stated, the ability to exchange information easily between applications is one thing, but maintaining the context of that information across multiple databases, may be quite another. An integrated application usually means that all of the various modules (sales management, pricing and quotations, bookings, visibility, etc.) all share a common database. But in a world where companies are using a combination of systems, trying to maintain coherence across what may be multiple databases can be a challenge.

In addition, while the use of a variety of complementary systems is very common in the forwarding market, cyber security risks when using outside providers increase. The more systems a company uses, the wider the "attack surface" it creates for hackers.

Finally, switching to another operating system is extremely difficult task as it involves a lot of

migration and change of processes. These difficulties put companies off from switching to other operating systems. This applies in particular to the core logistics software. Forwarders that operate an in-house build system are even less likely to migrate to another software as implementing an in-house software is a more time-consuming process than implementing a third-party solution. Switching is more acceptable if it involves complementary software systems. The process of changing complementary software systems is not as complicated and time-consuming compared to that of the core logistics software system. For instance, some forwarders might consider replacing or sourcing an additional software to respond to the business needs at a micro level, such as country, business section, etc. A key factor to consider when switching to another vendor is the compatibility of the off-the-shelf solution with the current IT set up of the business.

Case studies

DHL Global Forwarding

In 2018, DHL Forwarding started rolling out the off-the-shelf Transport Management System, CargowiseOne, a product developed by WiseTech Global. Tim Scharwath himself was scathing about DHL's legacy systems saying, 'We had to do the investment because our old legacy system is from the 1980s'.

CargoWise TMS has been rolled out to the entire ocean freight organisation, whereas on the air freight side, the roll out will be completed in 2021. Once completed, DHL's Global Forwarding main operations will then be managed uniformly via one system.

Scharwath would not reveal the exact cost of rolling out the TMS across DHL's global network but insisted the investment was needed not only because DHL needed to upgrade and replace legacy systems to remain competitive, but also so it could continue to attract talent in the forwarding sector.

Recognising that implementing a new TMS globally is a significant change for the business, DHL Global Forwarding chose a gradual, phased approach to the CargoWise roll-out to allow the organisation to adapt to the changes.

DHL Global Forwarding has suffered problems in the past when attempting to upgrade its IT architecture. Back in 2015, it was forced to abandon its New Forwarding Environment (NFE) initiative, a radical IT modernisation programme designed to bring the company's forwarding division into the digital age. €308m were written-off by the group as a result.

The implementation of the CargoWise TMS is less ambitious but also less risky than NFE as it is being used by other global forwarders, so it is practically tested. When it came to the decision

whether to outsource a solution or build its own TMS in-house, DHL Global Forwarding decided to go with an off-the-shelf solution as it provided deep integrations and broad functionality.

The developer states that one of the benefits of using CargowiseOne has been the replacement of a complex network of applications, which typically involves a mix of proprietary and third-party software, with a single system.

The two companies say that benefits include:

- Automation – productivity gains
- Reduction of costs – fewer proprietary and third-party systems
- Greater shipment visibility – real time alerts and data availability
- Data accuracy – reduction in double keying
- End to end shipment ownership
- Harmonization of process and application
- Scalability – ability to add new geographies and users

Commenting on the ways the new TMS changed the way DHL Global Forwarding operates, Scharwath stated that the new solution supports its hub and spoke model and enables it to consolidate their shipments, something that the legacy systems did not support as strongly as the new TMS. It also brings the ability to customise and personalise all customer facing documents (e.g. invoices, statements, pre-alerts, manifests, order status and delivery advices) as well as audit tracking of all system and user actions. The result is, DHL claims, significantly improved service, reduction in operating costs and an improvement in its ability to win (and retain) new clients.

Since implementing CargoWise as their core TMS, DHL Global Forwarding has seen increased productivity, and improved integration, automation and communication across their global network.

Management commented that the introduction of the new system will be difficult to quantify in financial terms. At the time the system was first being introduced Frank Appel, DHL's CEO, commented that the new TMS was partly responsible for an improvement on conversion rate of gross profit to EBIT due to its beneficial impact on controlling indirect costs. 'We are approaching the levels of 2012 and 2013 before we started the New Forwarding Environment activities (see introduction) which is very favourable,' he commented. Other applications such as the introduction of Quoteshop, Electronic Document Management and Electronic Supplier Portal have also helped.

myDHLi

In contrast with DHL's approach to buying an off-the-shelf TMS, the company has developed its own online customer platform for comparing quotations and making instant bookings. Its offering, MyDHLi, launched in 2020, allows customers access to air and ocean rates. It also has an Analytics and Reporting function, which according to Tim Scharwath, is an important part of its 'race against digital forwarders.' It is also a tool to encourage smaller customers to the business, which brings higher yields. As of May 2021, the platform is available in 62 countries. Online bookings and sales rose by +56% (year-on-year Q1/2020 to Q1/2021).

DSV Panalpina Agility

As well as keeping up with the digital transformation of the freight forwarding world, the management of DSV has the added headache of integrating the technologies of the companies it recently acquired – Panalpina and Agility.

In terms of IT integration Jens Born Andersen, DSV's and now, Panalpina's CEO, said that the company would look to mainly use DSV's IT systems which he said were highly productive whilst Panalpina had been on a "journey with its productivity" with their system.

DSV uses CargoWise for its air and sea divisions, which has been chosen as future transport management system for the air and sea division in 2008. The CargoWise software has been customized and configured to fulfil the needs of all DSV customers. The software was initially deployed centrally in the central Group IT division based in Copenhagen and was then rolled out to more than 50 countries. Before selecting the CargoWise software for its global operations, DSV used the product for its Asian operations, which reportedly removed a lot of risks and showed the promises were real.

DSV commenced moving major Panalpina operational activities onto CargoWise in 2020. The IT migration of volumes from Panalpina to CargoWise One is expected to take around 12 months.

It is still uncertain whether Agility will be moved onto CargoWise or continue to use the proprietary software currently in use. Typically, the acquired company ends up using technology from the acquiring company so it can be assumed that Agility's volumes will be moved onto CargoWise. Ultimately, it depends on the acquisition objective and whether DSV acquired Agility to run it as a standalone company or to integrate it into DSV/Panalpina operations. If the objective is for Agility to become a completely integrated part of DSV/Panalpina operations, migrating onto CargoWise is the most likely scenario.

DB Schenker

In terms of 'make or buy', DB Schenker has pursued both strategies. With regards to customer-facing solutions, DB Schenker has gone down the path of building its air and sea platform in-house. connect 4.0 is available in Europe, the US and certain Asian markets for air and sea

bookings, including quotations and end-to-end tracking. It seems that the process is not entirely automated. Global pricing teams are involved (coordinating with local country offices) in updating the latest rates provided by shipping and airlines. The data is then uploaded to connect 4.0 which allows customers access to them in what DB Schenker call 'real time'. The system also provides track and trace and will provide real time tracking of vessels and predictive ETAs.

In contrast, in Europe, the company had originally been trying to develop its own online road freight booking platform but realised this would take too long in the current fast-moving tech environment. Instead, it entered into an equity-interest cooperation agreement with US-based technology company uShip investing $25 million in 2017 for exclusive rights in Europe. The company uses the platform for land transport through its online platform, Drive4Schenker, which uses uShip technology to connect 50,000 transport partners in its European land transport network.

With regards to back-end solutions, DB Schenker is currently engaged in the development program TANGO (Transport Application for Air and Ocean Freight Network and Global Operations) to establish a new TMS for the global Air and Ocean freight forwarding operations. TANGO replaces more than 32 legacy systems and, as the single, central TMS worldwide, supports the harmonised processes of DB Schenker's air and ocean freight business. The solution covers the entire end-to-end process of transport transactions – from order to invoice generation. In addition, it enables analysis of the transport chain in terms of costs, revenues and process quality. A further element is the integrated rate and contract management. TANGO is being developed in four phases and is being deployed to all the company's country organizations to form the global core Air and Ocean freight forwarding system. DB Schenker collaborated with Capgemini to develop the software, while the definition of requirements was delivered by DB Schenker.

In addition to developing its own technology, DB Schenker partners with vendors in certain technology areas. For instance, by using the Infor Nexus network, DB Schenker gains stronger data management capabilities, enhanced shipment visibility and predictive ETA notifications. When it comes to customs clearance, DB Schenker partners with Riege. In 2013, DB Schenker selected Scope by Riege Software as a single software system to handle all customs formalities in Germany. In the past, Schenker Germany relied on various solutions to deal with different customs procedures.

E.T.H. Cargo

The following case study demonstrates how off-the-shelf solutions and the modular approach to software implementation support the expansion of smaller businesses.

E.T.H. Cargo is a small forwarder based in Puerto Rico. In 2011, E.T.H. embarked upon its journey to digital freight forwarding and deployed Descartes' automated manifest system (AMS) to simplify the flow of ocean cargo into Puerto Rico. The solution enabled E.T.H to file manifest

information electronically with U.S. customs authorities and allowed for electronic updates on the acceptance and status of manifest data.

As the pharmaceutical industry had grown significantly on the island and had created a niche shipping market to Japan, E.T.H. added a new Descartes module to file advance shipment information electronically to Japan Customs via the Nippon Automated Cargo and Port Consolidated System.

It then went on to deploy Descartes Datamyne which was tailored to show import/export activity specific to Puerto Rico. The solution is used to analyse shipping patterns to monitor volumes with existing customers and identify new opportunities.

Most recently, E.T.H. supplemented its tariff management service with Descartes' solution to automate contract management for buy and sell side ocean rates. The rate management solution is integrated into Descartes cloud-based forwarder enterprise offering. The final step for E.T.H. is to replace its legacy back-office system and on-site server environment with the Descartes system. This should help the company to further streamline shipment management, customs compliance, accounting, and CRM.

Competitive landscape of the freight forwarding software market

Established software providers vs start-ups

The freight forwarding software market is moderately concentrated. Despite the relatively high level of merger and acquisition activity, there is still a good number of global and regional software vendors that keep the market in balance. As of recently, there has been an increasing number of software companies that deliver customer-facing tools, allowing forwarders to provide instant online quotes. This has traditionally been a relatively underinvested area compared with the investments in back-end operating systems. The proliferation of customer-facing software vendors is a response to the threat coming from digital forwarders which have set a new standard for better operational management and customer experience.

The incumbent software vendors have been very successful at taking a strong grip on the transport value chain to expand their influence. They have achieved this by evolving their business model to include as many functions as possible along the value chain. Usually, software vendors set out to develop a specific solution which will be the core of the business. Over time, vendors start adding other functions, in most cases upon requests from clients. Even though these new functions rarely become the core business and the speciality of that vendor, they play important role in customer acquisition and retention.

Established software vendors have more blue-chip customers than start-ups and benefit from high lock-in with existing customers. Despite the fact that the availability of cloud-based solutions has made switching somewhat easier, the implementation of a global solution still requires a lot of time and resources on various levels, leading to high switching costs. As a result, the profit margins of the leading software vendors are healthy, with WiseTech and Descartes recording profit margins of 29.5% and 37.6% in 2020 respectively.

The established players in the freight forwarding software market mainly compete on price, scalability and functionality. Increasingly, this means offering functions that go beyond the core shipment management, finance, and back-office functions that used to define traditional backbone operating systems. This also provides opportunity for new entrants with a substantial financial backing that can develop robust solutions which can be attached as complementary tools to the core operating system.

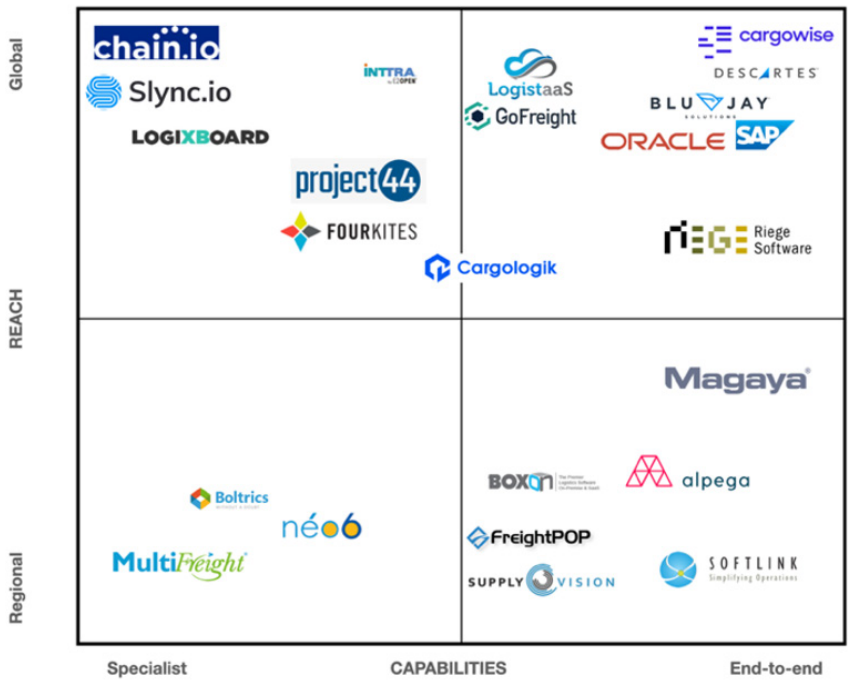
In addition to delivering value by filling the functionality gaps of established vendors, many start-ups seek to expand the reach of their solutions and amplify their aggregate value through collaboration with other software vendors. For instance, the rate management software Portrix Logistic Software, partners with the white-label platform Kontainers, to provide a bundled offering including their respective products and the integration between them. This allows forwarders to automate the rates they receive from carriers, add margin, and digitally quote to shippers. Another example is Qwyk which partners with SimpliShip to link the latter's freight rate management solution with Qwyk's vessel schedule, visibility, and booking tools to create a hybrid

transportation management system. The partnership has enabled these companies to scale their technology globally.

It is worth highlighting that the majority of start-ups offering software solutions for forwarders do not necessarily seek to replace the operating systems provided by the established vendors. As previously stated, replacing those operating systems is incredibly tedious and can take years. Rather, start-ups seek to provide specialists technology solutions that integrate into the existing systems used by forwarders and fill the gaps left by the established software vendors.

Comparison of capabilities

Competitive landscape of the freight forwarding software market



Established software providers such as CargoWise, Descartes, BluJay Solutions and Magaya provide complete, end-to-end software solutions on a global scale. In terms of capabilities, the established software vendors have a much more extended scope compared to specialist software providers and start-ups. Typically, instead of developing new functions, most of the established software vendors buy other vendors to complement their portfolio of modules to be able to give customers a single solution. The challenge here is to integrate these additional modules with the existing core product and into the existing infrastructure.

Start-ups on the other hand typically provide isolated software solutions which can be used as add-ons to the operating system in use. These new players take a much more focused

approach to solutions and concentrate on providing a very specific type of service. Those that have developed a convincing solution often become acquisition targets (e.g. Kontainers-Descartes, CargoSphere-WiseTech, Aljex Software-Descartes, Catapult International-Magaya). It is common for start-ups to develop solutions that are aimed at filling the gaps left by the established software vendors. To illustrate, most of the incumbent vendors don't focus on instant online quoting and front-end solutions, providing opportunity for other vendors to supplement the limitations of these operating systems. For instance, despite the broad functionality of the CargoWise operating system, its existing customer-facing solutions are allegedly not fully meeting customer expectations. Some CargoWise customers therefore decide to use other complementary solutions, whether customer-facing or internal, from start-ups that are directly integrated to CargoWise.

Comparison of customer strategies

The availability of complete end-to-end software suites and the opportunity to scale easily makes established vendors the go-to solution for large global forwarders who want to bring their global operations under one uniform operating system. This isn't to say that they don't cater to the needs of smaller forwarders. The modular software composition and the fact that software "building blocks" are now easily accessible, allows established vendors to serve even small and midsized forwarders.

Same as the established vendors, start-ups target forwarders of all sizes as their customer base, particularly if they provide specialised standalone software solutions. For instance, Kontainers (acquired by Descartes Systems in 2020) which provides online tools for forwarders to transact online through their own branded platform has three tiers of solutions aimed at the top 25 forwarders and containers lines, mid-size forwarders and a pared-down version aimed at small forwarders. Start-ups with a regional focus can either have smaller forwarders as their customers or large global forwarders looking to use a solution for their country-specific operations that has been built around that particular market (e.g. Softlink, Riege).

Top freight forwarding software providers and start-ups

CargoWise by WiseTech is the industry's most widely used operating system and is used as a benchmark. The CargoWise product sets a standard in the global freight forwarding industry without which many of the leading forwarders could no longer do their business at all. The core value proposition of CargoWise is having a single, unified experience through which it delivers different functions that forwarders can easily add onto their existing systems, without going through the lengthy process of implementation, deployment and integration with the existing

systems. This is very appealing to forwarders with global operations that want to bring all systems under one roof.

Despite having the best product on the market, CargoWise is not without weaknesses. Shipment visibility, reporting dashboards, and online quoting are some of the areas where CargoWise falls short of customer expectations. WiseTech is currently developing a new customer portal, called Neo, to fill some of these gaps and enable its customers to offer shippers a self-service environment. But as some industry commentators and clients of CargoWise argue, the company hasn't always proceeded with product development or integration of its many acquisitions quickly enough.

CargoWise primarily competes with Descartes, BluJay Solutions and Magaya. These four incumbents have grown inorganically and used acquisitions to expand their customer base and service offering. Since WiseTech went public in 2016, it went on an acquisition spree, acquiring 46 companies. These acquisitions include providers of customs, warehouse, transportation management and container yard solutions across Asia Pacific, Europe and the Americas. In comparison, since 2012, Descartes has acquired 29 companies, ranging from customs, final mile, freight transportation, visibility, and e-commerce solutions providers.

BluJay is the rebranded and merged entity from Kewill's 2016 purchase of TMS provider LeanLogistics. It has made four acquisitions since 2017. The company has 5,700 global customers across EMEA and APAC, including 20 of the top 25 global LSPs. In May 2021, it was announced that BluJay will be acquired by the end-to-end supply chain management platform E2Open. The acquisition aims to combine the capabilities of the two companies and enable them to compete with the market leaders in the multimodal domestic TMS segment for shippers and forwarders, such as Oracle, Blue Yonder and SAP.

Magaya's core market is forwarders operating in the US–Latin American trade lanes. It serves over 1,500 companies around the world in 80 different countries. Its customers include small and medium sized companies, but Magaya also offers solutions for larger companies with multiple locations and high shipment volume. In 2020, Magaya acquired the Miami-based freight rate management provider Catapult, to integrate quoting capability into its ecosystem.

While the top of the list remains stable and continues to grow through acquisitions, new entrants are mixing up the software landscape with capabilities that traditional vendors are working to replicate or integrate into their ecosystems. Dallas-based Slync.io, founded in 2017, is one of the most prominent start-ups competing in the market for workflow automation and data contextualization. It focuses primarily on multi-party supply chain interaction, automation and collaboration. It automates core logistics processes, including pulling together data from internal systems and external data sources. Slync integrates data from different sources, including email, Excel, legacy systems, partner programs, internal IT systems. The flexible architecture of the platform allows customers to have a tailored interface for their role in the supply chain.

Collaboration is built into the platform, allowing different stakeholders to communicate faster and in real-time. Slync has made great progress in landing large forwarders as customers, including Kuehne + Nagel, DP DHL, and Expeditors International. Slync.io has raised $75.9m in funding over five rounds.

Logixboard is another prominent start-up in the software landscape. It competes in the white-label platform market, which is becoming increasingly crowded due to evolving shipper expectations and the digitalisation wave in the industry. Founded in 2017, Logixboard sells a customer engagement platform for freight forwarders. Among other things, it offers customers a platform on which to manage, view and track shipments throughout the shipping process in addition to automated communication tools. Logixboard requires no change from the forwarder, separating user interface and data storage, and offers real-time data visualization for customers. The solution basically helps forwarders to protect themselves from the disruption coming from digitally enabled entrants such as Flexport but also from the pressure coming from the top, as traditional forwarders make significant investments in digitalisation. In addition to helping them stay ahead of the digital curve, Logixboard also enables forwarders to increase the traditionally low margins in the industry by automating as many tasks as possible. Logixboard doesn't compete with the incumbent software vendors and instead offers solutions that can be integrated into the operating systems offered by the incumbents. The start-up has raised a total of $18.8m in funding over three rounds.

Chain.io is a cloud-based data integration provider founded in 2016 in Philadelphia. It helps companies integrate data from various providers and connect to various TMS, rating and booking platforms, freight payment providers, and more. For instance, if a customer sends data in legacy EDI, the software allows forwarders to load the data into a TMS like Cargowise One or Descartes IES. As it is a neutral connectivity network, it allows forwarders to mix-and-match the best software providers, making it an extremely valuable player for the best-of-breed model of building software capabilities. Its latest integrations include systems such as Cargowise, BluJay, Magaya, Portrix, WebCargo and Terminal 49. The company states that it has tripled its revenue and increased its customers by 50% during 2020. Its software has been deployed across the air and sea freight as well as trucking industries. The start-up has raised a total of $7m in funding over two rounds.

As more and more tech software continues to emerge in the forwarding industry and as forwarders realise the value of the best-of-breed model of building software capabilities, integration specialists like Chain.io will grow in importance.

M&A outlook: The changing structure of the software market

Typewriters and fax machines still exist. However, freight forwarders that resisted developing or buying enterprise software 20 years ago have been marginalized or are long gone. The technology game is no longer about introducing automation to the freight forwarding industry, it is about putting the data on steroids.

The new normal for the successful freight forwarder will soon come with the expectation of:

• Sharing data electronically with everyone involved in the supply chain for any particular shipment at any given moment in time

• Using AI to enhance human decision making in routing and general operations

• Seamlessly and easily integrating the freight forwarder's system with customers and vendors

• Helping shippers forecast their logistics needs to control costs and ensure capacity.

Shippers want the answers to their questions without having to contact their freight forwarder. Freight forwarders need to improve their visibility and communication versus adding another layer between the data ….or eventually they will book direct with the carriers. With that expectation in mind, think of the possibilities for logistics technology entrepreneurs. Logistics technology start-ups are sprouting up in every geographic market in every niche of the supply chain. Smart industry veterans and tech gurus who recognize a bottleneck or problem and risk everyting to deliver a solution. The authors of this report expect to see even more logistics tech start-ups based on the market opportunity.

In contrast to these start-ups, the established global software providers dream of a world where they control the entire supply chain. Like Oracle and SAP in the 1990s, they are proponents for master data management. There are certainly benefits to one software system for everything, like accuracy, security and uniformity of the data. However, the tradeoff is often functionality, development speed and pricing. With current technology, there are options to control data quality that don't require building walls. The future of supply chain technology will be open systems communicating seamlessly. That is no longer a dream, it is today's reality.

As discussed in this report, the largest global freight forwarders use the major software providers for back office, accounting, and government requirements (i.e. customs clearance). Overall, this is a major improvement over in-house legacy systems. However, most of them still want to differentiate themselves from their competitors in regards to technology. The freight forwarding executives also fear the digital freight companies investing heavily into proprietary systems. If everyone else is on one system, it will be an easier battle for the new digital companies to win in the end. That is the opportunity for tech start-ups and in-house IT teams.

As in every industry, many technology entrepreneurs risk their own security with the dream of a big pay day at exit, whether it be via an IPO or acquisition event. Considering the amount of investment capital looking for opportunities in supply chain technology, enterprise valuations are

skyrocketing. Venture capital has always looked for big ideas, and now supply chains are on the radar of private equity and family funds in the COVID era. Private equity historically has required strong EBITDA as part of their investment criteria, but based on a lack of platform opportunities, multiples of revenue valuations are being explored in the tech sector...otherwise they won't find investment platforms.

Adding to that feeding frenzy is the fact that established software firms have investors who want growth as they build towards their IPO or acquisition event. They are pushing their executive teams to build their own revenue and product offering via acquisition. E2Open and Blujay are just the latest example of that trend. We also expect to see large global freight forwarders start exploring technology acquisitions in order to stay competitive.

Even during the peak of COVID, M&A in the logistics technology sector was hot. As we go back to some version of normal, expect the M&A activity in the logistics technology sector to reach a boiling point.

About Ti

Transport Intelligence (Ti) is one of the world's leading providers of strategic market research and analysis dedicated to the global logistics industry. Utilising the expertise of professionals with many years of experience in the express and logistics and freight industries. Ti provides a mix of quantitative data and qualitative insights designed to show you how the market will develop over the next 5 years to help you prepare your strategy for the future of the market. Ti's off-the-shelf market intelligence is delivered via its regular newsletters, market reports and online market intelligence platform known as the Global Supply Chain intelligence (GSCi) portal. Ti also provides bespoke market research and consultancy services to support companies in their strategic and business planning when no off the shelf solution will do.

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About Logisyn

Logisyn Advisors takes pride in its unique approach to mergers and acquisitions (M&A) within the global logistics sector, focusing on the mid-market. Our company was founded to assist industry business owners either grow through acquisition or maximize their value in a financial exit. We are more than M&A advisors focused on logistics; we are logistics veterans executing a proven M&A process. Our senior executives have 125+ years of combined logistics domain expertise to accurately advise you on the optimal next step for your business. Logisyn provides advisory services for sell-side, buy-side, and enterprise valuation to successfully deliver on all of your company's goals.

For further information about how our services can help you, please visit our website at logisyn.com. To set up a free confidential consultation with our team, please email us at confidential@logisyn.com to get started.