



# Digital business models in freight

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*A fresh perspective on the hypes, realities, and opportunities in the market*

May 2021

**Arthur D Little**

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# Executive summary

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Where is the disruption? In 2017, Arthur D. Little<sup>1</sup> first assessed the impact of digital business models on freight. Back then we argued that they may become a true industry disruptor. Now, four years later, it is time for a critical review. Digital business models are still very much a hype topic in freight, but they do not seem to have truly conquered the market just yet.

Is the disruption cancelled? Not at all. In fact, the industry transformation is well underway. Even though top-line figures and market shares do not yet fully reflect the ongoing transformation on a broad scale, growth rates are tremendous, and success stories are ever-increasing. To provide a fresh perspective on the evolution, status, and path forward for digital business models in freight as well as the implications for market players, Arthur D. Little has reviewed 100+ businesses in major markets around the world. Our study provides answers to the following key questions:

- 1. Hype.** What is there beyond the buzz? How has digital business in freight evolved since 2017, and where does the industry stand in 2021?
- 2. Scope.** What are digital business models in freight, and how can they be categorized? Which roles and positionings do they take on in the market?
- 3. Evolution.** How did business models develop? Which key archetypes can be observed in today's market, and how do they differ?
- 4. Market.** What are business opportunities, threats, and success factors among the different market segments? What can leaders and challengers do to succeed?
- 5. Conclusion.** What lies ahead for the industry? Where does this leave legacy players and new (digital) entrants in terms of strategic implications?

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<sup>1</sup> <https://www.adlittle.com/en/insights/viewpoints/digital-platforms-freight-transportation>

# 1. Introduction: Hype ... or reality?

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## Where is the disruption?

“Digital platforms in freight: a true industry disruptor?” – this was the key question that Arthur D. Little raised in 2017 when we first analyzed the subject in a comprehensive report. “Yes” was our firm response.

Now, it is time for a fresh perspective. If this statement is still true, where is the anticipated disruption? How far have digital business models come in the meantime? A quick comparison of the industry reality then and now seems to indicate: not quite so far. Despite all the hype around digital platforms and related businesses, there does not seem to be a true breakthrough yet. For example, the list of top 25 global freight forwarders has remained widely unchanged over the ensuing years – except for some changes up and down the order among established players. So, is the industry disruption cancelled?

## Change is already here

Not quite. In fact, change is already here. There are three factors to consider:

**First**, top-line figures of established freight forwarders (and carriers) already include a tangible digital business share. After all, some of the “traditionalists” are not that traditional anymore. In the meantime, many have built and expanded their digital presence in the market – with varying degrees of success. Some, such as US-based C.H. Robinson, have created an entire digital ecosystem early on and are now in frontrunner positions. Others, including large European players like DHL, Kuehne + Nagel, DB Schenker or Maersk, have followed suit, however so far with less relative market penetration in the digital space.

**Second**, while digital revenues may still be low compared to the overall industry size, digital freight business is developing rapidly. Depending on the market segment, annual growth rates can be in the high double-digit percentage area – compared to an average forecasted annual freight industry growth of between 4%-6%.<sup>2</sup> There is probably no other single example to better underline the strong growth potential of digital freight than Flexport. Founded only in 2013, revenues have rapidly grown to around €400 million in 2018 and up to presumably around €1 billion in 2019.<sup>3</sup> This places Flexport just outside the

abovementioned top forwarder list and among leading industry players on selected routes, such as transpacific ocean freight. COVID-19 has further boosted the advancement of digital business models in freight. Even though 2020 figures are not yet available on a broad basis, first indicators show that players have further expanded their relative position.

**Third**, digital business models in freight are not an entirely new phenomenon. In fact, their penetration has been high in certain market segments for years. For example, transport management system (TMS) providers have successfully positioned themselves at the customer interface of many large and mid-sized shippers. By automating the freight management process, forwarders and carriers have been degraded to mere executors in such constellations. This does not (yet) significantly impact legacy players’ top-line figures, but already has a bottom-line effect as it takes away potential to capture hidden profits that result from limited market transparency.

## Increasing market push and pull

The rising success of digital business models in freight can be explained by the mutual interaction of market push and pull effects.

On the one hand, digital business models are pushed into the market through improved value propositions, extended service offerings and technological progress:

- Digital value propositions and services have become competitive with – or better than – legacy providers’ offerings, at least in some areas such as spot pricing, where digital platforms are much more agile than traditional channels. Also, while digital business models originally covered a narrow field of use cases, they have extended their service scope toward comprehensive solutions for a broader customer base.
- Digital technologies such as artificial intelligence (AI), big data analytics, and cloud computing are evolving fast, and the logistics industry has started to integrate state-of-the-art solutions in their platforms. For example, Brazil logistics startup CargoX leverages blockchain by using a public network to securely validate document transactions.

<sup>2</sup> Sources: Arthur D. Little analysis, Transport Intelligence

<sup>3</sup> Source: JOC



Similarly, Hapag-Lloyd partners with Internet of Things (IoT) startup GlobeTracker to power its new real-time container monitoring system Hapag-Lloyd LIVE. The technological advancement allows for higher transparency, better quality of decisions, and lower production cost of services – potential game changer arguments in a commoditized industry.

On the other hand, increasing awareness and cultural shifts promote an additional market pull effect for digital business models:

- Digital businesses have proven that their models work. They can deliver on their value propositions and execute services even under difficult market conditions (e.g., COVID-19 and associated capacity shortages). This has boosted their image, and they could continuously expand their “fan base,” even attracting large-scale enterprises that have high demands and that were previously rather cautious to experiment with new partners.
- As decision-makers’ mindsets evolve, digital business models are achieving greater acceptance, and the level of digital capabilities is rising. This accompanies an ongoing push for further freight procurement professionalization and the ever-increasing search for new areas of cost saving. The exploration of new digital business models has become inevitable for users in many areas – be it out of pure interest or due to a concrete business need.

**Activity in digital freight remains high**

As a consequence, activity within digital freight has remained high. Since 2017, there have been interesting developments at all fronts (see Figure 1). Some examples are:<sup>4</sup>

**Market entries and exits.** The rate of new market joiners has remained high. Besides tech startups, an increasing number of legacy providers have launched their own digital products to the market. Examples include Upply (by Geodis), connect 4.0 (by DB Schenker), and Navisphere (by C.H. Robinson). On the flip side, some previously hyped names have left the scene. Among the list are well-known German startups like Frachtraum or LoadFox.

**Mergers and acquisitions (M&As).** M&A levels within digital freight reach new highs every year. In 2017, two leading players in China’s trucking industry merged – Huochebang and Yunmanman. The newly formed Manbang Group became the unchallenged market leader, signing 70% of trucks running on arterial roads and 80% of logistics firms in the country. One year later on the other side of the globe, US-freight load board operator Truckstop.com acquired software solution provider Grizella, and in Europe, Alpega Group merged with the leading freight exchange in Spain and Portugal, Wtransnet. In 2019, freight forwarder Flexport acquired technology solution provider Crux Systems to accelerate automation of shipment-tracking capabilities. And in 2020, digital freight forwarder Sennder merged with French competitor Everoad and also acquired Uber Freight’s European business. Recently, in 2021, one of the global leaders in supply chain visibility, project44, acquired

Figure 1: Selected activities in the digital freight arena (2018-today)



Source: Arthur D. Little analysis

4 Sources: Arthur D. Little research, company websites, Reuters, Bloomberg, Transport Intelligence, DVZ

Ocean Insights, a leading solutions provider for ocean freight intelligence.

**Funding.** Money continues to flow into digital freight and has also reached an all-time high. Since 2017, venture capital volumes have more than tripled. Some highlights: Flexport collected a record-breaking new funding of €900 million by SoftBank in 2019. In the same year, Indian logistics unicorn BlackBuck raised €140 million in a series D round led by Goldman Sachs and Accel at a valuation of €900 million. Chinese Uber for trucks Manbang Group set a new funding record in 2020, raising €1.5 billion from a group of investors including SoftBank and Alphabet. In the US, Uber sold a €450 million stake in its logistics arm Uber Freight, using the funds to scale its logistics platform. Similarly, US digital freight network Convoy raised €360 million to scale its business in an increasingly competitive market. In December 2020, project44 announced a series D financing round of €85 million, bringing project44's total funding raised to €200 million. In early 2021, European digital freight forwarder Sennder raised €130 million to expand its proprietary technology offering and thereby surpassed a €800 million valuation.

**Service scope and branding.** Last but not least, players within the market are constantly adjusting their strategies regarding service scope and brand positioning. For example, Germany-based FreightHub expanded its service offering to freight management solutions and changed its branding to Forto to reflect the broader value proposition. In the US, marketplace operator TruckStop.com partnered with Circle Logistics to provide its carrier network with booking features, including searching for freight and locking in a rate. In Europe, Flexport launched Flexport Order Management, a solution that enables consignees and their suppliers to optimize supply chains. In Germany, digital road freight forwarder Sennder recently entered the software-as-a-service business with a new proprietary service platform sennOS.

Hype or reality? For digital business models in freight, surely both is true. There is plenty of exposure, but there is also reality behind the buzz. Digital business models are progressing. In this Report, we look behind the hype and outline the evolution of digital business models in freight, their market potential, and the implications for new entrants and legacy businesses.

## 2. A short (hi)story of business model families in freight

### Three digital business model families

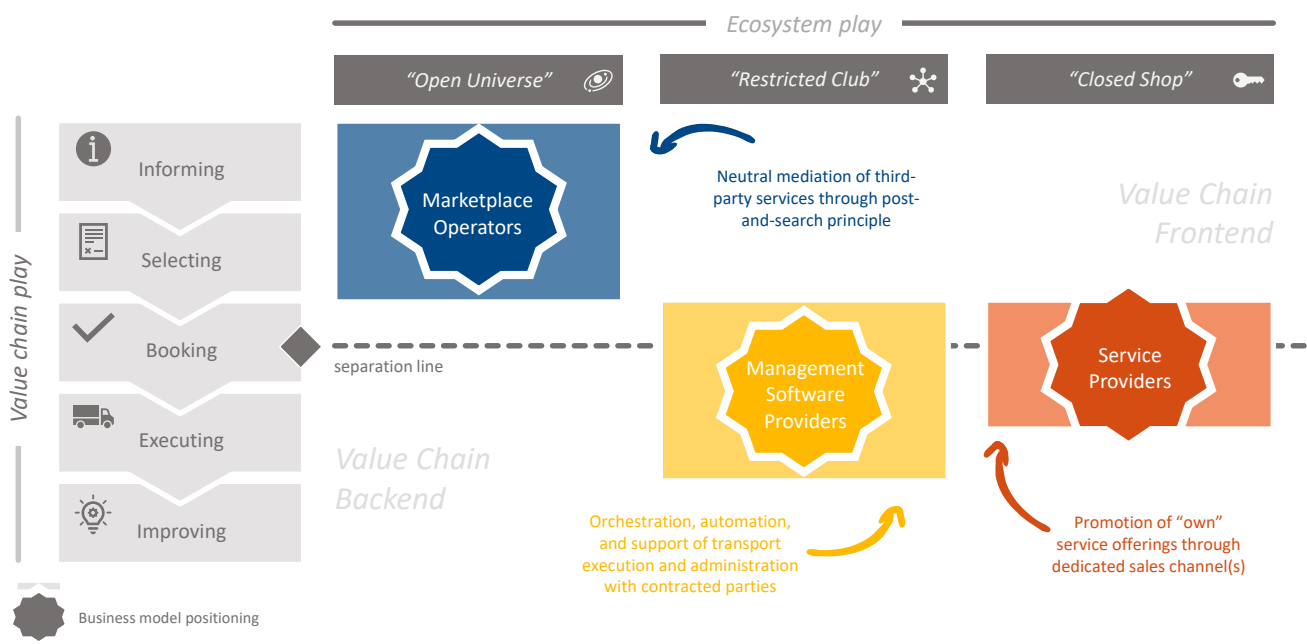
In general, digital business models leverage digital technologies to create superior value for clients. Such value can be created in two ways: internally, as through process automation in operations, or externally, such as through an online customer interface. As part of this study, Arthur D. Little is reviewing digital business models that possess an external component. This excludes businesses that utilize purely traditional customer interaction channels but digitalize their operating model. On the other hand, business models with a digital market approach are included in the scope irrespective of their methods to produce their services.

Using this definition, we can observe three families of digital business models in freight that show strong similarities to other industries such as travel or mobility: marketplace operators, service providers, and management software providers.

The three business model families have historically taken distinct positionings in the market along the dimensions of value chain and ecosystem play. As shown in Figure 2, the vertical axis reflects the processes covered at the front end (i.e., information and selection) or the back end (i.e., execution and optimization) of the value chain. The horizontal axis illustrates whether a model provides access to an open ecosystem of customers and partners, to a restricted subset thereof, or to a proprietary and closed offer channel.

**Marketplaces** are online platforms that help buyers and sellers facilitate the exchange of goods and services. In freight, marketplaces have their origin in the trading of loads and capacities between carriers and freight forwarders in a freight exchange (FX) model. Historically, they followed an open ecosystem approach, acting as a neutral mediator and focusing purely on matching supply with demand. Their value chain coverage was rather narrow and exclusively focused on information exchange and offering light support in the selection process. The actual booking and subsequent steps were performed outside of the platform.

Figure 2: Business model families in digital freight and their historic positioning



Source: Arthur D. Little analysis

**(Digital) service providers** focus on the packaging, configuration, and sales of their “own” offerings. Consequently, they possess means of production or brokerage. In the world of freight, such business models are the digital version of traditional service providers. Essentially, they operate a more or less proprietary channel and are hence traditionally rather “closed shops.” From a value chain standpoint, they were initially focused on acceptance of freight bookings (usually still in a simple form and with delayed confirmation) and offered light transparency along the subsequent steps, such as through tracking & tracing.

**Management software providers** represent models that allow their users to support the management of transactions across a defined portfolio of selected (contracted) partners. In freight, such businesses support organizations’ transport management – for example, shippers or forwarders – along major parts of the freight value chain (i.e., the typical transport management systems) or in selected parts thereof (i.e., specialized software or systems for billing or supply chain optimization). Historically, freight bookings by customers were placed exclusively with a defined subset of partners, connected through individual electronic data interchange (EDI) interfaces.

## Study of digital businesses reveals key trends

However, today’s reality of digital business models in freight is far more complex than these generic models portray. To depict an accurate landscape, Arthur D. Little has conducted a review of 100+ actual digital businesses in major markets around the world. Besides output factors such as revenues, growth rates, and market shares (where available to us), we have assessed their configurations along three dimensions: service offering, customers and go-to-market, and commercial and operating model. The analysis shows that, irrespective of the concrete business models, we can make three general observations.

### 1. Business models continue to converge

Business models in the digital world are rapidly evolving, and there is a convergence where boundaries between business models are becoming more and more blurred. Players have long left the narrow confines of their traditional positionings. Most notably, hybrid business models have emerged that position themselves at the crossroads of marketplaces, service providers, and management software providers. The hybrids are seeking to combine the strengths of the different business model families and to create superior value through an extended focus and internal ecosystem synergies.

Although the trend for business model convergence has existed in digital freight since approximately the 2010s, it has intensified recently. Consequently, niche players are increasingly challenged to find their unique foothold in a market that is constantly and rapidly evolving.

### 2. Businesses expand their execution capabilities

Businesses are expanding their own capabilities to solidify their position in the world of digital freight. In the early days of the digital platform hype, some market participants – such as Cargonexx in Germany – sought a purely digital production model based on the concept of procuring capacities on an ad hoc basis and with the help of a powerful platform that combines access to large amounts of data with smart algorithms.

A purely digital business model – sounds too good to be true? Yes, to a certain extent. In the meantime, many players have moved away from this model as they have realized that having an internal execution capability – in whatever form – significantly helps to reliably execute on the value promise toward customers. The importance of internal execution capabilities is particularly pronounced in very dynamic markets with strong price fluctuations like ocean freight and in client constellations where stable setups are needed to reliably move large volumes on a frequent basis.

As internal capabilities gain importance, market players are exploring various commercial and operating models that are, however, unspecific to the particular subtype and merely general strategic choices for players that present their own offerings.

Three different production models can be observed:

- **First**, partnerships may be leveraged in an operational (e.g., through reliance on trusted/well-rated suppliers on regulated marketplaces) or strategic form (e.g., through long-term capacity agreements of digital forwarders).
- **Second**, businesses may leverage their assets and networks (including long-term leases for truck fleets, for example) to ensure a proprietary capacity backing. Some digital forwarders and legacy player marketplaces follow this model.
- **Third**, businesses may also invest in internal freight expertise to create additional value and ensure high quality across all process steps. While this approach is a “must have” for service providers, marketplaces have increased their footprint in this area as well.

### 3. Technology evolves but is no game changer

Technology is a key element of digital business models, yet our analysis shows that technological maturity alone does not guarantee success in the digital world. While it is essential for digital players to build their businesses on a sound, robust technology basis, it is even more important that businesses are creative to find their own unique positioning and ensure capabilities and capacities to deliver. At the same time, technology has become a commodity in many areas of the business as soft- and hardware “building blocks” are easily accessible even for small and midsized companies.

Nevertheless, players utilize varying degrees of technological maturity, and, in general, we have seen advancements in key areas, including:

**Frontend.** In terms of user interface, businesses have advanced their web presence but also implemented app-based interfaces. Some, particularly marketplaces that target smaller clients, have implemented a “mobile first” strategy.

**Data and analytics.** Leading businesses also leverage larger data pools, including enrichments from external sources, to perform analytics and improve decision making. The deployed algorithms are partially AI-based and predictive (e.g., to generate spot prices), albeit still on a low or medium maturity level.

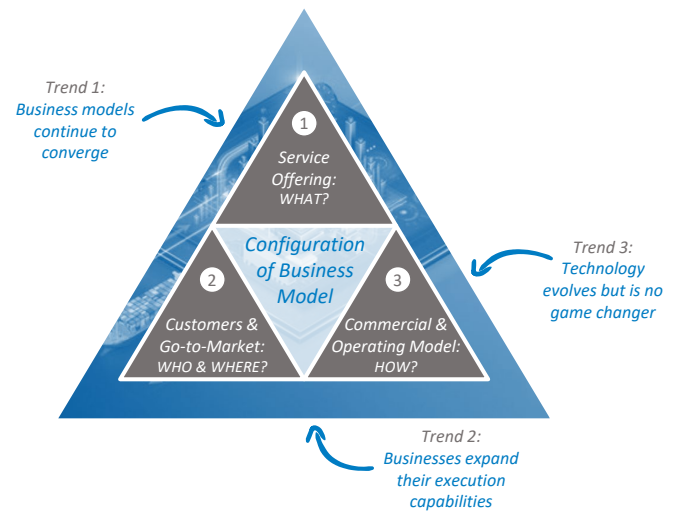
**Security.** In times of rising cyberthreats, data security has had to evolve as well. Protocols have leaped forward from simple – as in General Data Protection Regulation (GDPR) – to asynchronous encryption methods.

**Connectivity.** Connectivity has matured from integrated traditional EDI interfaces to working with (open) APIs, usually on a “per feature” basis. IoT integration in near real time happens in individual use cases but is not yet implemented on a broad basis, as digital businesses usually do not have full or widespread control over the assets and networks connected to their platforms and channels.

**Architecture.** Last, architectures have evolved from classic on-premise solutions to more and more cloud- and microservices-centered architectures that offer customers and operators more flexibility.

In addition to these general findings, specific characteristics exist for each of the three business model families. Next, we will discuss these along the three dimensions of service offering, customers and go-to-market, and commercial and operating model (see Figure 3).

Figure 3: Three trends influence business configuration in digital freight



Source: Arthur D. Little analysis

### Marketplace operators: from mediators to regulators

Marketplaces today either remain with their traditional service offering as pure mediator or they run a regulatory model that takes an active (or passive) role in influencing decision making. These marketplaces still provide a platform, but some businesses are integrating their own value-added services (e.g., transport insurances) or alternative offerings (e.g., own capacities) into their portfolios, making them a mix between marketplace and service provider. As shown in Figure 4, many marketplaces have also expanded downward on the value chain to offer end-to-end transaction management (from informing, selecting, booking, and to execution) which puts them into competition with management software providers. Marketplaces have also moved to the right by restricting the ecosystem (e.g., through the ranking, rating, and prioritization of offerings and partners) or by offering the abovementioned proprietary services.



With regards to customers and go-to-market, marketplaces have traditionally focused on carriers and freight forwarders as they ran a FX-type model in a neutral mediator setting. This model has not been appealing to shippers as it requires expertise for users to find attractive deals and ensure flawless execution. With the emergence of managed and regulated models, however, users are receiving additional support. Some freight exchanges strive to bring together carriers and shippers on the same platform – so far with limited success. Another business model subtype that has emerged, so-called shipper marketplaces that target the mediation of actual forwarding offerings, are an appealing option for (small and mid-sized) shippers that are interested in effective comparison and easy booking of freight services.

In terms of modes and geographies, FX-type models concentrate on road freight and have a continental focus. Shipper marketplaces may offer various modes (e.g. including both air and ocean services) and have a rather intercontinental focus. Marketplaces usually solely use their own platforms as channels to position their offerings. Often, listings on marketplaces (their key asset) are protected from non-registered users.

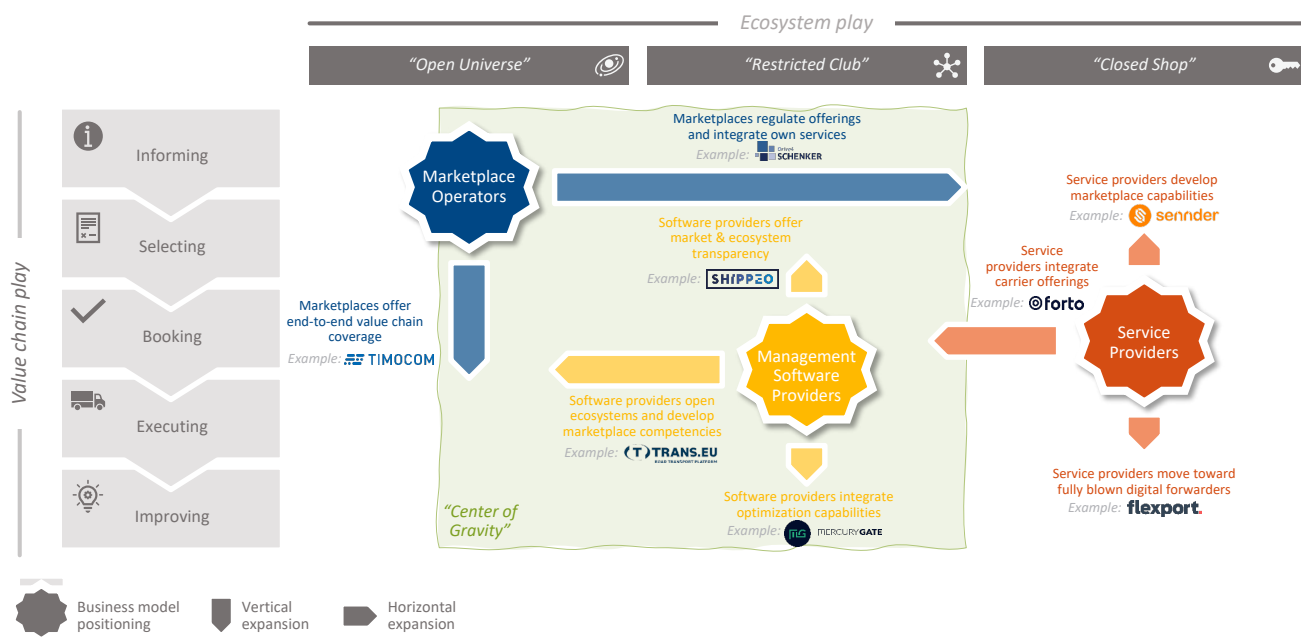
Within a marketplace segment, the commercial model is widely dictated by the overall market logic. Business models predominantly follow a subscription-based model. Value added or alternative freight services are usually charged by transaction with an included profit margin.

## Service providers: evolving toward true challengers for legacy businesses

Service providers are still embracing the service offering of brokers, producers, and sellers of their own services. They often take true ownership for what they sell, provide guarantees and accept liability for the transports. However, some service providers have altered their promise and product definition by positioning themselves as hybrids and moving both horizontally and vertically (refer to Figure 4). For example, some service providers leverage their own marketplace environments to procure freight capacities in the background. Others have developed toward end-to-end operators that can cover the entire value chain.

Overall, service providers have not changed their market approach significantly over the years as, to a large degree, target segments are predefined by the value proposition service providers offer: Shippers remain the key target segment. While they were traditionally more successful with smaller customers, service providers are breaking into larger-scale enterprises with increasing success. Mode- and geography-wise, service providers can be focused on certain niches, or they can cover the entire suite. Lastly, they position their services through their own interface but are also open to allow access from foreign sources to leverage additional channels and capture more revenues.

Figure 4: Convergence of digital business models in freight



Source: Arthur D. Little analysis

In contrast to marketplace operators, service providers are following an exclusively margin-based (buying vs. selling rate) pricing scheme to recover costs that apply (and an appropriate margin that is desired) per transport booking.

### **Management software providers: spider in the web**

Management software providers have widely kept their service offering and product definition as neutral platform operators. So far, they have not introduced their own service offerings (e.g., capabilities to book own freight offerings) and primarily act as coordinators. Through expanded value chain coverage, management software operators are moving both upward and downward as shown in Figure 4 to become true full-scope operators (e.g., by integrating marketplace capabilities). Additionally, some have expanded to the left as they become more integrated toward the public universe instead of being tied only to private ecosystems defined by their clients.

The customer focus of management software providers historically has been broad, targeting all three key client segments: shippers, carriers, and forwarders. However, whereas in the past providers have targeted mostly larger-scale customers due to the high investment cost and effort, modern cloud-based management platforms are more appealing and affordable even for small and mid-sized organizations.

Businesses in this segment have always been rather mode- and geography-independent as operators focus on the provisioning of a tool that does not necessarily require deep specific freight knowledge or resources. Due to the nature of the business model, management software providers present offerings exclusively through their own platforms.

The commercial model of management software providers is typically characterized by a flat-fee plus transaction-based scheme. Due to the rise of cloud-based solutions, some commercial schemes have moved to a subscription-based model plus optional additional transaction-based pricing.

In Figure 4, which illustrates the movement of business model families along the positioning matrix, the green markings highlight overlaps between the service offerings of business model families in today's landscape.

### **Result: nine business model archetypes**

The advancements and differentiators we have outlined have led to nine distinct business model archetypes that are found in today's market environment. In the next section, we summarize these subtypes and share practical examples of their implementations in the marketplace.

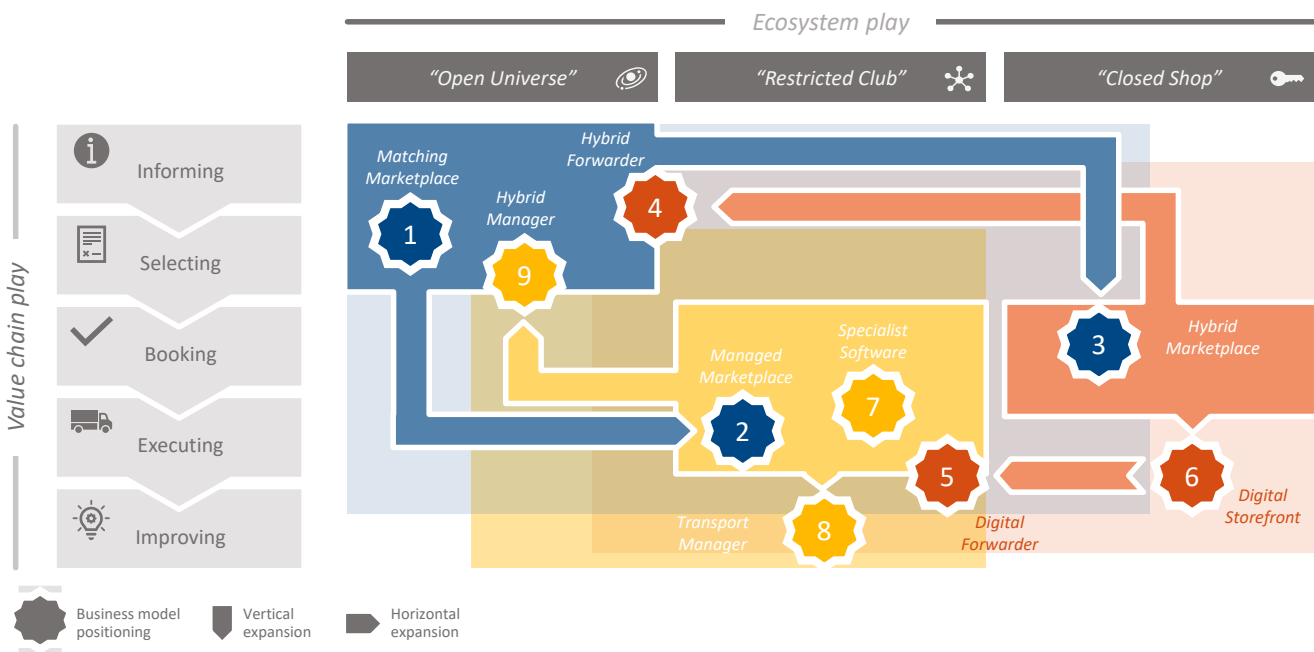






# 3. Nine business model archetypes to conquer the industry

Figure 5: Emergence of nine digital business models



Source: Arthur D. Little analysis

**1 Matching marketplaces** represent the most traditional form of marketplaces that still exist today. They follow the original principle of a neutral platform that facilitates third-party offerings such as capacities and loads (in a typical FX setting) or freight-forwarding services (in a shipper marketplace setting). They possess a rather narrow value chain scope, only supporting the matching itself in most cases. Matching marketplaces represent a declining practice, and we expect to see them evolve toward managed or hybrid models over time. However, in today's market they still have a legitimate role as they target customers that explicitly prefer a direct interaction with partners through offline channels.

**Quick assessment:**

- + Simple platforms
- + Neutral market position
- Rather narrow offering
- Typically low digitalization level

~20% share in marketplace segment

Examples: 123cargo RAALTRANS

**2 Managed marketplaces** enable the support of all or most steps along the value chain, from searching and booking of offerings up to – in the most advanced cases – payment and improvement of future transactions through advanced analytics. They deviate from their pure mediator role by actively (or passively) influencing transactions conducted on the platforms (regulator model); for example, through ranking, rating, and ultimately (de-) prioritization of partners and offerings. They are the most common business model archetype in the marketplace segment today and come in the form of an FX model, tendering platform or shipper-oriented marketplace.

**Quick assessment:**

- + Broad or full transaction support
- + Guarantee of defined quality level
- Losing "offline deal-closing" opportunity

~50% share in marketplace segment

Examples: TIMOCOM FREIGHTOS

**3 Hybrid marketplaces** are positioned at the intersection of all three business model families. They not only possess the traits of managed marketplaces, but they also incorporate their own service offerings as an alternative to third-party offerings. Hybrid marketplaces are becoming increasingly common. For production of services, they typically use long-term partnerships (e.g., with insurance providers or carriers) or their own production means (e.g., through access to legacy forwarder assets).

**Quick assessment:**

- + Broad or full transaction support
- + Additional services and guarantees
- Losing neutral market positioning: risk of blurry brand positioning



Examples: **saloodo!** **SCHENKER**

**4 Hybrid forwarders** also position themselves between business model families. They promote their own packaged service offerings to the market but leverage marketplace capabilities in the back end to contract partners and procure capacities, following essentially an Uber-type model. As such, they are typically completely asset-free and procure capacities dynamically or based on longer-term contracts through the marketplace.

**Quick assessment:**

- + Powerful marketplace procurement
- + Forwarder-like guarantees to clients
- Only digital broker model: typically no assets or low asset intensity
- Currently bound to rather simple business segments (e.g., full truckload)



Examples: **CONVOY**

**5 Digital forwarders** emulate the traditional freight-forwarder model on a broad or full scale, not only offering pricing but true end-to-end logistics along more complex transport chains and the entire customer journey – like a classic forwarder. Modern digital forwarders already cover wide ranges of the value chain, including advanced analytics capabilities that allow for smart routing and network optimization. Production models vary and range from long-term partnerships (e.g., with carrier frame agreements) to their own production means (e.g., using their own assets).

**Quick assessment:**

- + (Effective) digitalization of forwarder model
- + Typically broad or full-service portfolio
- Partially traditional internal processes (i.e., for production of services)



Examples: **flexport.**

**6 Digital storefronts** are online sales channels that serve the sole purpose of promoting own services to the market. They typically – but not always – follow a rather narrow value chain scope, focusing predominantly on pricing. There has been a recent influx of digital stores from legacy forwarders, but we expect these to evolve toward full digital forwarder models on a longer-term basis.

**Quick assessment:**

- + Simple platform with clear purpose
- Typically limited functionality (no true end-to-end forwarder offering)
- Partially traditional internal processes



Examples: **connect 4.0** **KN FreightNet**



**7 Specialist software** players target the support of individual process steps along the value chain. They position themselves as experts for customers to improve or automate functions such as billing or network planning and optimization. The range of specialist management providers in the marketplace is immense and difficult to quantify due to an often non-exclusive focus on the forwarding industry.

**Quick assessment:**

- + Clear value proposition and functions
- + Neutral position
- Usually narrow scope
- Often standalone offerings



Examples:  

**9 Hybrid managers** possess the same traits as transport managers but incorporate their own marketplace competencies as part of their offering universe. This archetype enables customers – usually shippers – to place freight tenders or spot shipment requests on the marketplace to receive offers for services that are not yet covered in agreements with existing providers.

**Quick assessment:**

- + Typically full scope offering
- + Additional expansion along ecosystem for offer addition
- Blurred brand positioning
- Loss of neutrality



Examples:  

**8 Transport managers**, typically in the form of TMS, follow a much more extended scope compared to specialist software providers. They support and automate the entire transport management chain, from booking of shipments and up to billing, invoicing, and optimization. Modern transport managers offer easy integration with different ecosystem players such as forwarders, carriers, and third parties and usually interface directly in the customer’s ERP system. Solutions range from small and flexible tools for mid-sized customers up to full-suite “heavy” solutions for large enterprises.

**Quick assessment:**

- + Typically full scope offering
- + Neutral orchestrator position
- No or limited own service offering for enrichment



Examples:  







# 4. A market with plenty of potential ... and tough competition

## What's in it for market participants?

What is there to gain for these nine business models? Which markets are attractive and why? To answer these questions, Arthur D. Little has modeled market sizes and growth for each of the three key segments based on bottom-up aggregation of key figures from the 100+ businesses we studied.

## Marketplace operators: leaders cement position

The global marketplace business had a value of approximately €2.8 billion in 2019 (see Figure 6). Europe accounted for approximately €447 million, or 16% thereof, and ranked behind Asia and North America. The expected CAGR of 28% will lead to total revenues of approximately €11.9 billion in 2025. As income is generated mainly from subscription fees, there is a natural ceiling for the overall revenue potential. We do not foresee the industry moving to an overall new pricing logic soon, even though additional revenue streams will be captured from value-added services.<sup>5</sup>

Profits in the segment can be high. Successful marketplaces can achieve EBIT margins of 40% or more. This is due to very low marginal cost for every additional paying customer. Also, pricing schemes sometimes lack transparency, allowing marketplace operators to skim different fees from different customer types, based on their individual perceived value and willingness to pay.

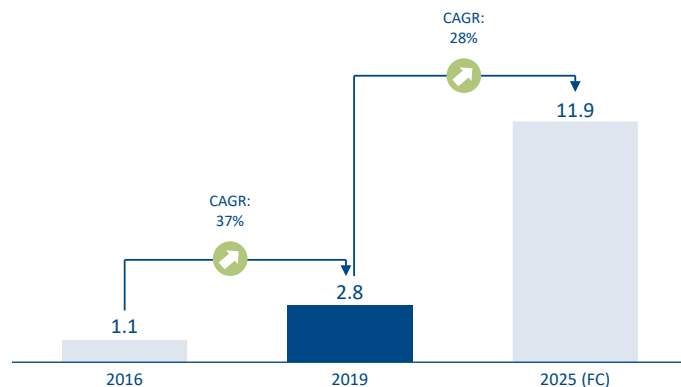
Power in the segment is highly concentrated. With network effects as the key success factor, early frontrunners have maneuvered themselves into a comfortable position. For example, in the European road freight exchange sub-segment, longstanding top players like TIMOCOM, Alpega, and Trans.eu hold a combined market share of nearly 50%. The remaining portion is distributed among a wide range of European-wide legacy provider businesses such as Saloodo! and Drive4Schenker, local champions like RAALTRANS in the Czech Republic, or Transpobank in Italy, as well as new startups. Consequently, new entrants and smaller businesses find it difficult to compete and to gain market share, despite more mature products in some cases.

Figure 6: Marketplace operator segment – key figures, 2016-2025 (forecast)



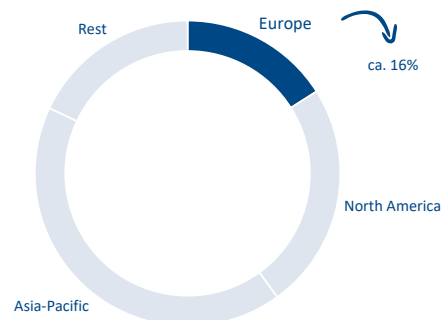
### Revenue growth 2016–2025 (FC)

Global figures in billion euros, growth rates as CAGR in %, forecast is Arthur D. Little estimate, based on CAGR trend



### Revenue shares by region in 2019

Based on revenues of market participants by region, figures in billion euros, assumes conservative share of transaction-based revenues



Source: Arthur D. Little analysis

<sup>5</sup> Source: Arthur D. Little analysis

User dependency (supply and demand side) in the segment is comparatively high, particularly when it comes to leading marketplaces. For example, small truckers usually rely on freight exchanges to find loads for effective round trips. They often have no alternative but to search on the well-established platforms, which offer them the best chances to secure their income.

Looking ahead, leaders in the marketplace segment must build around their advantage of superior network effects and leverage profits to secure their position. They should take the following steps:

- Actively monitor (e.g., through mystery shopping) their competitors' actions closely to remain within striking distance of the most mature businesses in the segment. To anticipate potentially disruptive ideas and counterattacks by peers, players should implement a structured innovation management process.
- Focus even more on locking in existing clients through long-term incentivization programs (e.g., bonus schemes), superior product value (e.g., effective search), and targeted pricing schemes (e.g., value-based). Satisfied clients that generate quantifiable results from a well-working marketplace are very unlikely to leave as long as it works for them and there is perceived value.
- Focus on targeted network expansion without impacting the quality of services or disrupting the harmony between existing user groups. Leaders may decide to evolve toward new markets to create synergies with existing offerings or to attack new niches (e.g., dangerous goods or cooled transportation) and approach new types of customer segments (e.g., onboarding of shippers to FX platforms).

In contrast to the market leaders, challengers face an uphill battle. However, depending on their strategic intentions and their long-term stamina, opportunities exist. Even though not easy, powerful networks can be built from scratch, and marketplaces may serve as an opportunity for players to generate synergies with other business lines that they may operate.

To seriously take on the fight to marketplace leaders, challengers should:

- Target drastic business model innovation. A simple "me too" approach will be insufficient to displace established leaders. Challengers need to be bold to differentiate and innovate their business. For example, marketplace offerings of legacy players like DHL have gained market share after a slow start by bringing in proprietary capacities to platform users as an additional guarantee and refined value proposition.

- Carefully pick their battles by choosing the right target segments, markets, and niches from the start and by building value proposition, brand, and pricing schemes around these cornerstones. Building a powerful network can only succeed with a clear positioning and focused expansion strategy on a mid- or long-term basis. Hence, challengers may focus on individual customer groups (e.g., small-sized trucking companies) or specific lanes with less competition to build up their platform.
- Consider partnership approaches. Instead of competing with similarly small-sized challengers for market share, players may unite and combine their strengths and networks to create a larger-scale platform universe and gain traction faster. To make this work, an effective governance and attractive incentivization schemes for all sides are key.

## Service providers: tremendous potential for incumbents and newcomers

With roughly €17.1 billion, the size of the digital service provider segment was already significant in 2019, and it will continue to grow at a rapid rate (see Figure 7). We expect the CAGR to average 47% until 2025, leading to €174 billion and nearly a tenfold increase in segment revenues.

Approximately €7.8 billion (46%) out of the total value corresponds to international air and ocean forwarding. This includes players such as Flexport or Forto as well as many local and regional businesses plus many digital forwarding arms of legacy providers. The remaining portion of €9.3 billion represents road forwarding business that follows a rather local, country-based, or continental logic, with the Asian and North American markets representing by far the most significant individual regions. In North America, for example, businesses like Uber Freight, Convoy, and Freightquote have advanced as serious challengers. Similarly, in Asia, there are new rising stars like Manbang in China that generate multiple hundred million euros in annual revenues. In contrast, the European market remains at a comparatively low level, with a total size of approximately €1.1 billion, or 6% of the overall share. The segment leaders include German companies Sennder and InstaFreight (both showing strong growth), with a whole batch of smaller players following suit.<sup>6</sup>

Competition within the segment is more open, particularly among air and ocean freight providers. Early pioneers have established competitive positions in the market on individual transport lanes. At the same time, legacy forwarders are also increasing their grip through digitalizing their customer frontends and operations. However, there is significant market potential

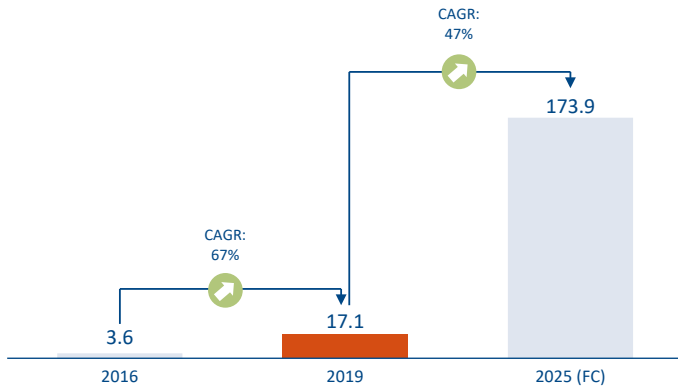
<sup>6</sup> Source: Arthur D. Little analysis

Figure 7: Service provider segment – key figures, 2016-2025 (forecast)



**Revenue growth 2016–2025 (FC)**

Global figures in billion euros, growth rates as CAGR in %, forecast is Arthur D. Little estimate, based on CAGR trend



Source: Arthur D. Little analysis

to gain as the overall penetration of digital businesses in the segment is still very low. In road freight, the situation is different, at least in the more mature markets such as North America. Here, early pioneers have established strong recognition and developed toward a true alternative to traditional forwarder offerings. This makes it more difficult for new entrants to succeed. In European road freight, the overall penetration remains low.

In global air and ocean freight as well as in European road, the position of suppliers and buyers remains strong. Due to the broad choice of traditional and digital forwarder offerings, the negotiation power of individual players is relatively weak – with only few exceptions such as in North American domestic road transportation, where leaders are in a strong position, particularly toward the supplier side.

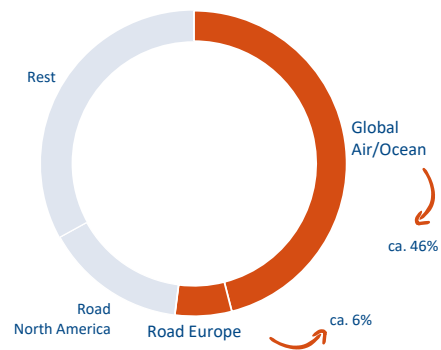
Profit margins of the fastest-growing digital service providers are often still negative. However, once the business model potentials are fully leveraged, margins should surpass those of legacy players.

Recommendations for leaders and challengers are similar. Both should:

- Continue to invest in their production capabilities. In the end, the ability to execute reliably under all conditions is critical. While some legacy players have existing assets and networks to leverage, many digital players start from zero. They need to build a competitive production model and

**Revenue shares by sub-segment in 2019**

Based on revenues of market participants by region, figures in billion euros



consider investments into assets or long-term strategic partnerships that provide unique selling points.

- Stay on top or advance toward high technological maturity and process digitalization to drive down production cost and increase decision-making quality. Both are key success factors in a highly commoditized market.
- Continue to work on brand positioning and key account management to break into or expand business with larger-scale enterprises and to attack new markets. To grow and create synergies, service providers are dependent on high and regular shipment volumes of large shippers as a baseload factor.

**Management software providers: mature market**

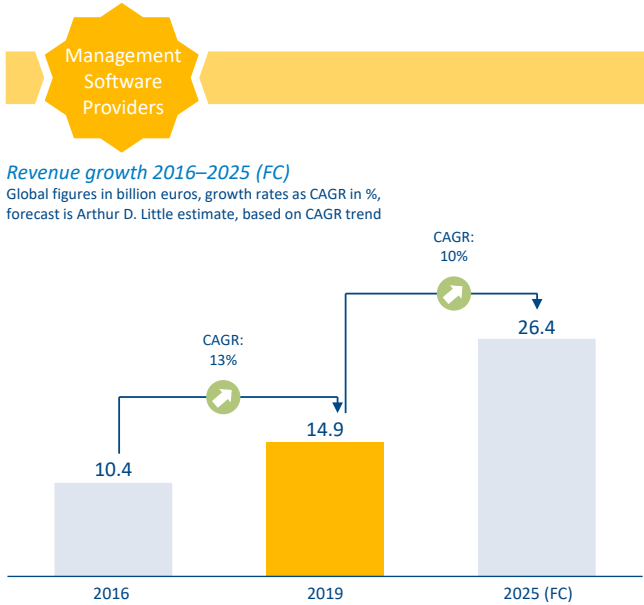
Last but not least, the comparatively mature management software segment shows a total value of approximately €14.9 billion in 2019 (see Figure 8). This estimate does not include specialist software and platforms (e.g., for billing). The segment CAGR has recently been around 13%. However, we expect the midterm growth to slow down to around 10% annually. This is due to the already-high penetration of management software in the large customer segment. There is room to grow, however, particularly in the small and midsized customer segments.<sup>7</sup>

The competitive situation in the management software provider market is moderate. Despite some consolidation in recent years, there is still a healthy number of global and regional champions that keep the market in balance.

7 Source: Arthur D. Little analysis, Gartner



Figure 8: Management software provider segment – key figures, 2016–2025 (forecast)



Source: Arthur D. Little analysis

Market incumbents benefit from high lock-in with existing customers. Even though this effect has been reduced due to the shift toward more flexible, cloud-based solutions, the global implementation and tailoring of a modern transport management system still requires significant efforts on various levels, leading to comparatively high switch costs. To win in the new customer segment, price, scalability, and automation effects are key decision criteria for clients.

Figure 9: Summary of business models, 2019–2025 (forecast)



Source: Arthur D. Little analysis

This offers an opportunity for new challengers that can put together a convincing product and have a sufficient financial backing.

As a result, profit margins of leading players are very healthy and can reside in the double-digit percentage area.

Leaders and challengers in the segment should:

- Create long-term incentives to existing (and potential new) customers (e.g., in the form of loyalty point schemes or the commitment to continuous productivity commitments for the business portfolio they entertain).
- Take a stronger grip on the transport value chain to expand their influence. This can be achieved through an evolution of the business model toward the service provider segment and through the investment into more freight forwarding-specific know-how and resources.
- Continue to innovate on the technology front to drive down direct costs, enable higher automation potentials, and facilitate implementation, usage, and scalability of products. This may allow incumbents and challengers to break even more effectively into the new client segment.

## 5. Strategic implications for market players: Still a lot to gain (or lose)

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### Digital business models will continue to evolve

Digital business models in freight have come a long way. With new technology trends and innovation potentials on the horizon, we expect this development to continue at a high pace. Over the next years, we foresee five key developments:

- 1.** Convergence will go on. Even though business models have already grown toward each other, there are still some unexplored “white spots” for further exploration. Overall, we predict the emergence of truly integrated digital freight ecosystems that seamlessly connect the various offerings of the digital world. Some players in the market are already well underway toward such a target positioning. Companies like Alpega, Transporeon, or TIMOCOM are establishing multi-offering universes and are starting to connect them in integrated ecosystems. At the same time, the simpler business model forms will slowly disappear. Matching marketplaces or digital storefronts, for example, may evolve toward those of more advanced peers to offer more client value and counter competitor attacks.
- 2.** Market participants may finally be able to innovate their commercial models, which have been rather stable in the past. We foresee business models that explore new ways of acquiring customers and breaking into segments that are currently dominated by a well-established market leader. This can include the more widespread use of freemium approaches, bonus and incentivization schemes, as well as gain- and pain-sharing models (i.e., in a “utilization-as-a-service”-type concept, possibly to be employed by marketplaces, where partner’s fees are linked to the success in providing attractive loads or capacities).
- 3.** We expect digital business models to more actively explore third-party channels and platforms to position their offerings and capture additional revenue streams. As an example, digital forwarders may more actively leverage freight marketplaces to position attractive spot rate offers.
- 4.** Players from the service provider and hybrid marketplace environments will likely further expand their own brokerage and production capabilities as well as their freight industry expertise. To further strengthen execution power, businesses will continue to acquire assets, build strategic partnerships, and hire qualified and trained freight-forwarding personnel. This will lead to further approximation of digital and legacy business models.
- 5.** Technology will continue to mature, with new use cases arising. At the user interface, “mobile first” will further evolve. Future business models may integrate their frontends more effectively with other ecosystems. For example, marketplaces may – in cooperation with OEMs – provide interfaces to trucker navigation systems or heads-up displays for more immersive load matching. On the data and intelligence front, even larger data pools will be available. AI implementations will further mature and develop more and more self-learning and prescriptive capabilities. This may, for example, simplify the identification of cross-shipment consolidation potentials and optimize pricing as well as lead to more reliable arrival time predictions under uncertain conditions. In addition, algorithms will allow for end-to-end solution building in more complex supply chains that involve various parties. Security may receive another boost through blockchain implementations enabling decentralized authorization of parties along the supply chain. From a connectivity standpoint, feature-based APIs will further evolve toward adaptive interfaces enabling co-development and easy integration of other data sources (e.g., from ports, weigh bridges). More and more core assets (e.g., truck fleets) will be connected via IoT and on 5G. Digital twins of network operations and smart beacons may help to see assets and capacities and to make better use of consolidation potentials in real time. On the architecture front, serverless computing and parallel processing (“true cloud”) will follow software as a service and microservices.

## Market: no “winner takes all” logic

Markets will continue to grow as we outlined in the previous chapter – but with huge differences in growth rates between segments. Nonetheless, tomorrow’s market potential will be significant, and cards will be reshuffled among incumbents.

From a competition standpoint, we foresee further consolidation within the marketplace and management system segment. On the service provider front, fragmentation will likely continue to grow for another couple of years, as entry barriers are low; the segment is still in an embryonic phase overall, and there is still lots of market share available. We foresee most of the legacy service providers entering the digital forwarder race and establishing their own digital customer interaction models. Not everyone will succeed though. At the end of the digital transformation process there will likely be a much more consolidated landscape, consisting of some legacy providers that successfully managed to digitalize and some digital pioneers that have established themselves as serious contenders in the freight industry.

Despite the long-term trend for convergence and consolidation, we do not expect a “winner takes all scenario” to occur like we have seen in some B2C-oriented industries. After all, business customers will likely not want to gamble on just one provider and may instead leverage their negotiation power to play competitors against each other to achieve better commitments, services, and costs. Instead, we predict an oligopoly-type environment in which a few large integrated platforms compete

with large and mid-sized stand-alone players and smaller segment specialist that focus on individual market niches or trade lanes. Also, we expect the entire future ecosystem to be much more interactive, with partnerships and collaboration initiatives between the various market participants – up to partially open ecosystems and joint ventures and alliances between subsets of players to boost market success.

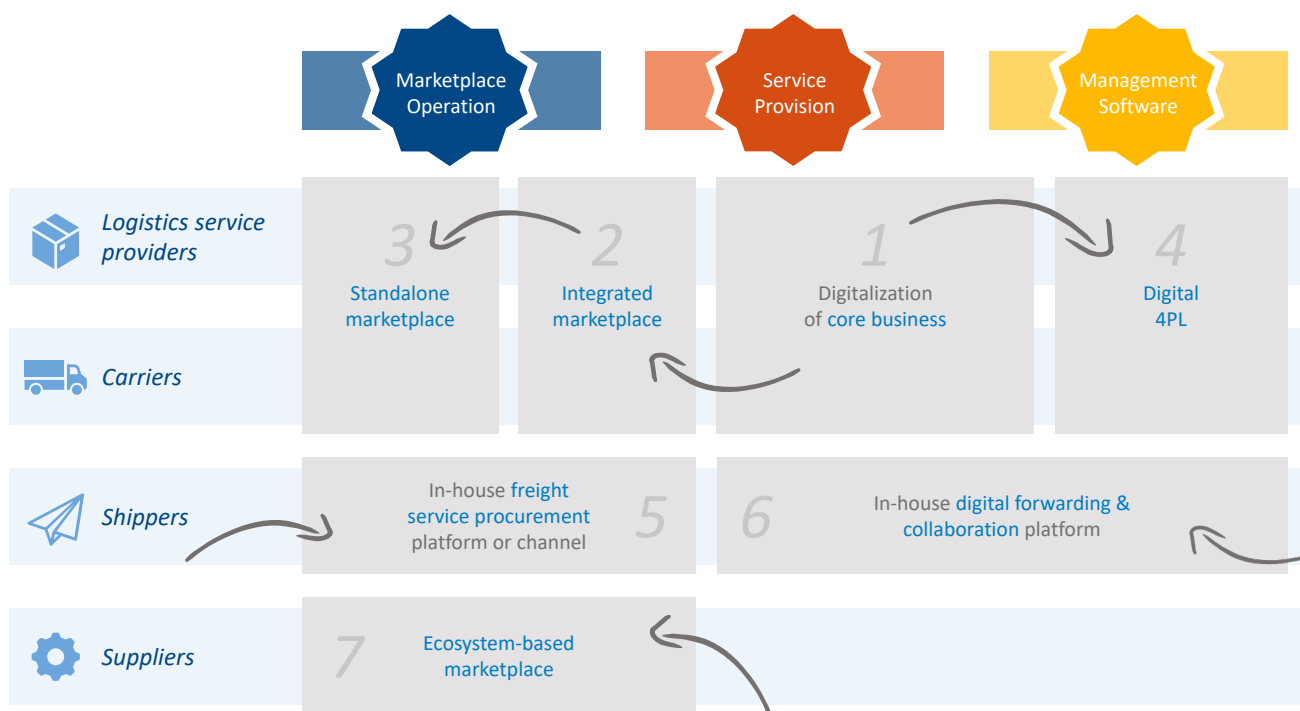
## Strategic options: threats and opportunities for both legacy and digital players

We firmly believe that the future of digital business models in freight is bright. It will offer threats to established players, but also large-scale opportunities for the entire industry to become more customer-oriented and more efficient. The next iteration in freight forwarding has not yet been determined, but some players have successfully started to brace themselves for the future. Thus, market players should carefully assess their ambition, current situation, and capabilities to derive the right strategic implications for the future as wrong movements can prove costly.

Legacy players face a multitude of strategic options in the digital freight arena:

For **logistics service providers (LSPs)** and **carriers**, the service provision segment represents the natural habitat to explore future opportunities and counter attacks from competitors and new entrants (see Figure 10). A digitalization of the internal core business and operating model (i.e., the production or packaging

Figure 10: Strategic options for legacy players



Source: Arthur D. Little analysis

of one's own freight services) is inevitable for LSPs and carriers to remain competitive in the digital age. Besides a clear focus on the right technologies, LSPs and carriers need to transform their governance, structures, processes, and (legacy) IT landscape to have the appropriate basis in place – essential groundwork that puts the preconditions for an effective digital transformation in place.

However, legacy players are not tied to the service provider segment. They may also diversify and explore opportunities and synergies with other business model families. Both LSPs and carriers may leverage a marketplace setup to effectively procure loads and capacities in order to utilize their own network operations, essentially moving toward a hybrid forwarder (or carrier) model. They may also explore the option of building a stand-alone neutral marketplace – possibly under a different brand setup and in very much a neutral setting, without any vested interest and without an active role in the matching and deal-making process. Players may establish their own marketplace or cooperate with peers and partners to achieve bigger traction faster.

Last, LSPs and carriers may also diversify toward the management software segment by positioning an internal digital fourth-party logistics (4PL) offering with the intention to claim back or remain at the top of the customer interface and on a longer-term basis – a potential, but probably more difficult, strategic option for legacy players.

Also, **shippers** may find their own playing field in the digital freight universe. In today's rather analogue world, shippers usually refrain from taking an active role in the freight industry, with the exception of in-house logistics service providers such as Volkswagen Group Logistics or CAT Logistics. Amazon, with its multi-business ecosystem, is another example of a player that continues to expand its foothold in the freight industry with its own logistics arm.

The digital transformation of the freight industry is an opportunity for shippers of all kinds to build an internal logistics capability. First and foremost, shippers may decide to establish their own marketplace environment to procure freight space themselves on the open market (e.g., in form of larger-scale tenders or for spot shipments with high attractiveness for carriers and forwarders). Depending on their negotiation power in the market, shippers may establish a one-sided (individual) or multisided (cooperation-based) marketplace. Additionally or alternatively, shippers may also explore the option of digitalizing their existing platforms or build up an internal digital forwarding arm to effectively serve the core business with freight services and potentially use remaining capacities to offer them to the open market. Even though more far-fetched, such an option is not totally out of the question for larger-scale shippers.

Finally, **suppliers** such as truck OEMS, may also assess their opportunities in the marketplace segment as players like MAN have done in the past. Building around their asset base (e.g., truck fleet), they may explore the option of establishing an own ecosystem-centric marketplace that provides superior efficiency and transparency (e.g., through smart integration of IoT).

**Digital players** need to anticipate the arrival of legacy players into the digital world. They need to prepare for intensified competition not only by other digital players, but also legacy players that are entering the digital freight arena. In order to stay ahead of the game, digital players must leverage their digital skills while matching competencies of legacy players. For example, digital service providers could invest in freight expertise and their own assets to ensure high-quality and reliable delivery. While no single dominant strategy for digital players exists, one thing is sure: Agility and the ability to constantly evolve are key ingredients for success.

**How far are you on your digital freight journey?**

Some players have progressed far on their journey while others are just getting ready. There is still a lot to play for in the digital freight arena: with the right recipe. Where do you stand?

We believe an effective digital freight strategy is built on three cornerstones:

- A clear vision and ambition for digital freight business models.
- A masterplan defining the path into the digital world and the desired positioning.
- Structures and capabilities to master digital freight.

We invite you to assess your position on the journey towards a strong digital offering by completing our short confidential self-assessment. Please click on the link or scan the QR code below.

[www.adlittle.com/digitalfreightsurvey](http://www.adlittle.com/digitalfreightsurvey)



In addition, we are happy to discuss and challenge your situation, strategies, and potentials.

Arthur D. Little works at the forefront of innovation and digitalization in the logistics industry worldwide. We welcome you to contact us.

# Notes

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### Digital business models in freight

A fresh perspective on the hypes, realities, and opportunities in the market

### Arthur D. Little

Arthur D. Little has been at the forefront of innovation since 1886. We are an acknowledged thought leader in linking strategy, innovation and transformation in technology-intensive and converging industries. We navigate our clients through changing business ecosystems to uncover new growth opportunities. We enable our clients to build innovation capabilities and transform their organizations.

Our consultants have strong practical industry experience combined with excellent knowledge of key trends and dynamics. ADL is present in the most important business centers around the world. We are proud to serve most of the Fortune 1000 companies, in addition to other leading firms and public sector organizations.

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