Start

How digital partnerships can enhance end-to-end supply chain visibility in pharma

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Introduction

Global supply chains have witnessed significant disruption in the last few years, driven by world events such as a global pandemic, strained international relations, wars, and growing environmental disruptions. In EY's 2022 study **Pharma supply chains of the future**, leading innovative pharmaceutical companies – as represented by heads of supply chain from members of the Pharmaceutical Manufacturing Forum (PMF) – anticipated that global disruption is here to stay, which will cause lasting unpredictability in global shipping and logistics operations.[1] This unpredictability has also driven a significant uptick in transportation cost volatility, which companies will need to manage more dynamically to limit impact to revenue.[2,3] There are several solutions businesses can take to proactively address this disruption and cost uncertainty including: entering into digital partnerships, leveraging a broker platform, or employing contract restructuring strategies. The right solution(s) should be tailored to a company's value drivers and business needs.

Global trends:
causes and effects

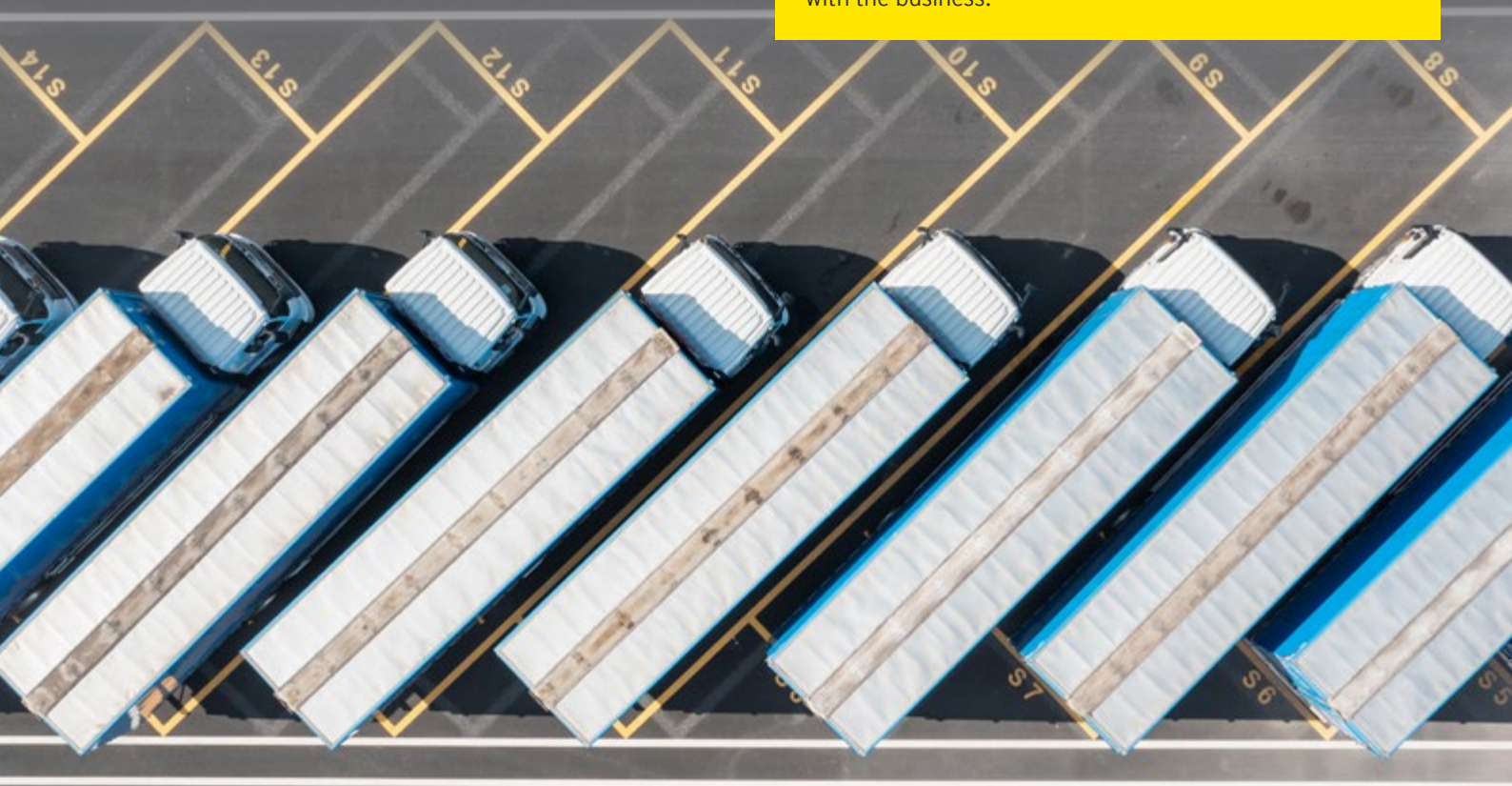
Key global trends point to persistent unpredictability in shipping and logistics. In the last three years alone, the world has endured several major global disruptions, including pandemics, trade restrictions and sanctions, cyber attacks, wars, and environmental events, which have forced companies to reassess their supply chain resiliency and rethink the downstream impacts of globalization.[4] These disruptions have led to choked ports, supply shortages, record freight rates, and heightened insurance issues and costs.[5]

These trends point to on-going disruptions to global operations and many industry leaders argue the disruption is here to stay.[1] These global trigger events will continue to cause 'whipsaw effects' seen during periods of cyclic disruption, where companies' shipping requirements change drastically to respond to these trigger events and result in a ripple effect where distribution companies must become reactive in their availability and pricing to meet these requirements.

These effects are especially felt across companies with complex and globalized supply chains which rely on multiple trading partner handoffs to complete the delivery amongst a disparate ecosystem of partners, systems, and data. It becomes difficult to trace performance, diagnose root causes, and optimize for future performance. There is added complexity when there is a need to fuse order, shipment, customer, and product handling unit data with new requirements for track and trace, serialization, and product integrity standards.[7] For high-value goods, especially those requiring temperature-controlled systems, time is money and variability in transit time means shipments are more susceptible to loss of product integrity and increased probability of discards due to temperature excursions. It is these risks that can explain why gaining end-to-end supply visibility was ranked as the top supply chain success factor in a recent survey by EY, and why 34% of supply chain operators are starting to digitally connect suppliers to their networks and build out advanced analytics.[2]

Solutions

Companies have several potential solutions within their D&L strategy to stay flexible amidst the unpredictability of future disruptive events and to recognize cost savings opportunities. The solutions vary in level of integration with the business.



Digital partnerships

The most end-to-end integrated solution a company can employ to proactively address future shipping disruption is by creating a digital partnership with carriers, agents, distributors, and 3PLs via a global, end-to-end, digital, control tower. This technology and solution includes: real-time tracking and alerts as supported by a service team, dynamic scheduling to enable real-time interventions to ensure delivery, and a shift to lower cost mode scheduling (e.g., air to ocean), as supported through these partnerships.

Pros

By providing two-way visibility of planned shipments (based upon agreed lane and contracts) and shipping capacity between the shipping partner and company, the shipping partner can more easily map available capacity to the company's planned orders. This allows for strategic partner management – a mutually beneficial opportunity to reschedule to optimize favorable rates, future space agreements, and identify collaboration or consolidation opportunities. This forecasting capability creates a management view into the potential risk of space availability, which drives revenue risk. Improved integration and prediction of shipping demand can help stabilize the supply chain.

The vertical integration within carriers and consolidation of shipping demand can also position companies to benefit in potential cost savings from disintermediation. Additional cost reduction opportunities exist in the control tower through actively addressing delays, monitoring adherence to defined quality parameters, and identifying mode deviation risks via rule-based, real-time automated event monitoring, notifications, and alerts.[7] Intervening early in the case of delays or temperature excursions can avoid increased costs and emissions from ocean to air mode conversions as well as product discards. Customers also benefit from the tracking visibility provided from pickup through to the end-recipient. Certain technology solutions offer proprietary SaaS programs to manage and track emissions in accordance with global emissions standards and to identify areas for ESG improvement in shipping routes.

Cons

Digital partnerships are a robust approach to increase shipping agility. However, companies should consider the process redesign and change management involved (e.g., shipping sites which would lose some autonomy for order release and transportation planning) and up-front cost required for implementation as part of the overall business case. This approach implies a higher demand for master data accuracy and process adherence; failure of which can derail the effort. There is a risk of over-engineering the solution by aggressively implementing all the latest technology so a data-driven, strategic solution aligning to company goals is ideal.

Broker platform

An alternative solution to enhance D&L strategy is through use of a broker platform. The broker platform allows for digital brokers (forwarders) to see incoming demand. This solution has grown in use over the last 5 years.[8]

Pros

Broker platforms help to consolidate shipments, which is efficient and cost-effective for the shipper. For companies, the platform acts as an integrated service offering with visibility into availability, tracking, and pricing. The platform also typically integrates trade management support, a solution which has traditionally been offered independently and can add complexity to preparing shipment orders. For smaller businesses, this solution provides opportunities to do business with large, reputable ocean carriers which would otherwise be difficult to secure.

Cons

Contrary to the full end-to-end digital logistics solution, digital brokers cannot see future demand, and is one-directional in information. This solution can offer limited ESG capabilities in an outsource model.

Indexing and contract structuring

A third solution to add resiliency to a company's D&L strategy is through contract structuring strategies. Contracts are negotiated to hedge their positions on shipping rates and volumes and create blocked space agreements. Indices, such as the NYSHEX, allow these shipping contracts to be traded on the open market, allowing for further liquidity and convergence of shipping rates to the fair 'market price'.

Pros + Cons

Contract structuring provides increased price transparency, which is especially beneficial for smaller companies. It also provides access to competitive pricing and visibility to lower trafficked lanes. It can also smooth out a company's shipping costs when contracts are hedged properly. However, this takes sufficient research and planning ahead of the RFQ period. Companies must be prepared for potential downside of locking in higher prices than the spot rate if hedge predictions end up inaccurate during periods of unforeseen volatility. Similarly, the value of this solution is dependent on how well volume agreements are adhered to; companies must factor in their cost obligations if the minimum volumes are not met.

Wrap-up and conclusion

Global supply chains will continue to experience disruption; it is critical for companies to invest in the right technologies or solutions to strengthen the resiliency of their distribution and logistics strategy. Several options exist, including digital collaborations, broker platforms, and indexing and contract structuring. The right solution will vary for each company based on: size, cost or profitability model and scale of the business; complexity of the current supply chain and products; the major pain points the business is facing in their distribution and logistics; the time horizon to implement; and the corresponding profitability or revenue risks.

Citations

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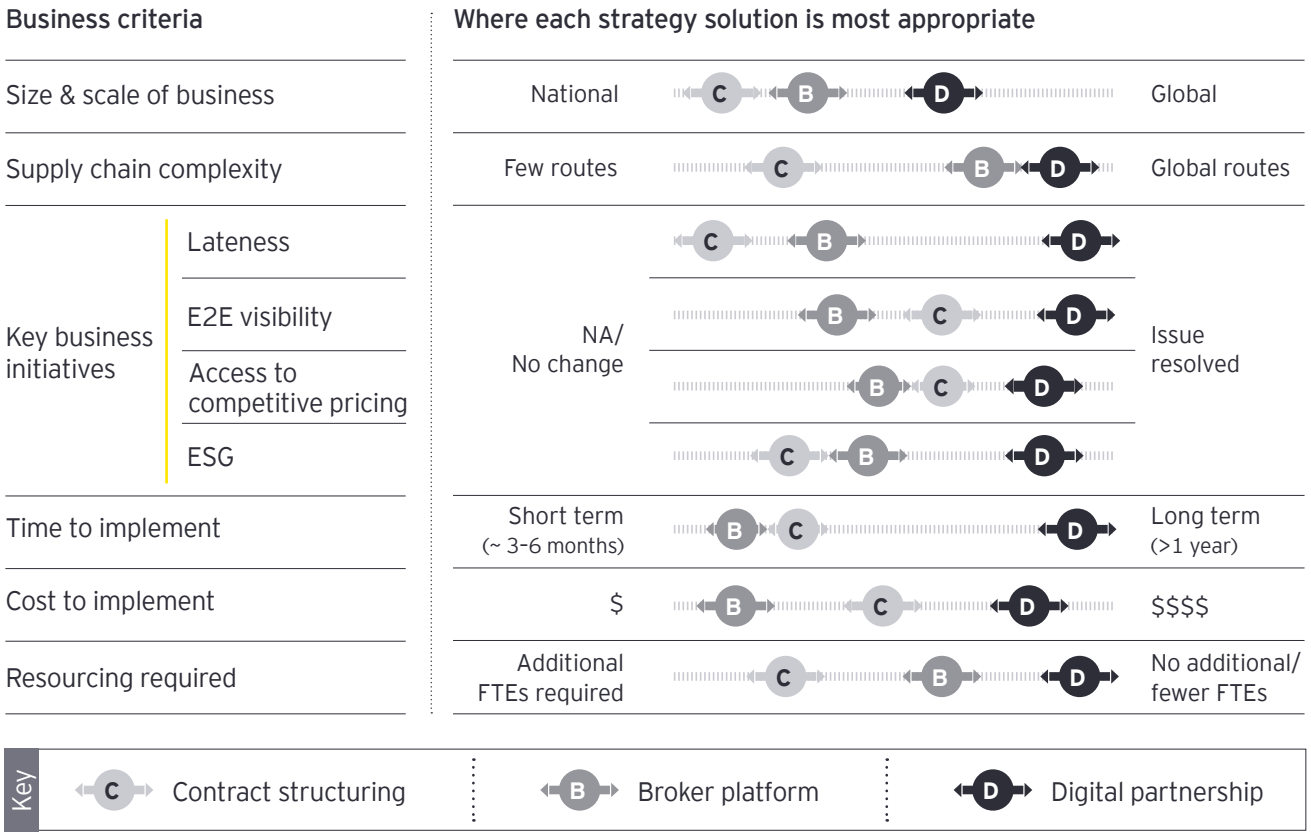
8. https://www.supplychaindive.com/news/digital-broker-tms-integrations-api-supply-chain-transportation/599477/

Figure 1: Which distribution and logistics strategy is right for your company



Case Study in the Successful Implementation of a Digital Partnership to Improve E2E Supply Chain Visibility

As noted in EY's 2022 study **Pharma supply chains of the future and 2023 article Why digital supply chain visibility should be a pharma priority**, end-to-end supply chain visibility will become of critical importance across all the disparate nodes of the industry's supplier, manufacturing and distribution networks — and digital enablement will be a key element of this end-to-end connectivity. Here we share a case study of a large pharmaceutical company (**Merck & Co., Inc., Rahway, NJ, USA**) implementing a digital partnership with a solution provider (**TransVoyant, Inc.**) to provide end-to-end visibility on their downstream supply chain. The digital partnership included a two-phase roll-out of real-time track and trace, and subsequent shipping partner collaboration, via the integration of key systems and tools with carriers and the digital partner.

This pilot digital partnership has already proven its value, with a positive return on investment and forecasts suggesting significant distribution and logistics cost reductions and cost savings in subsequent phases.

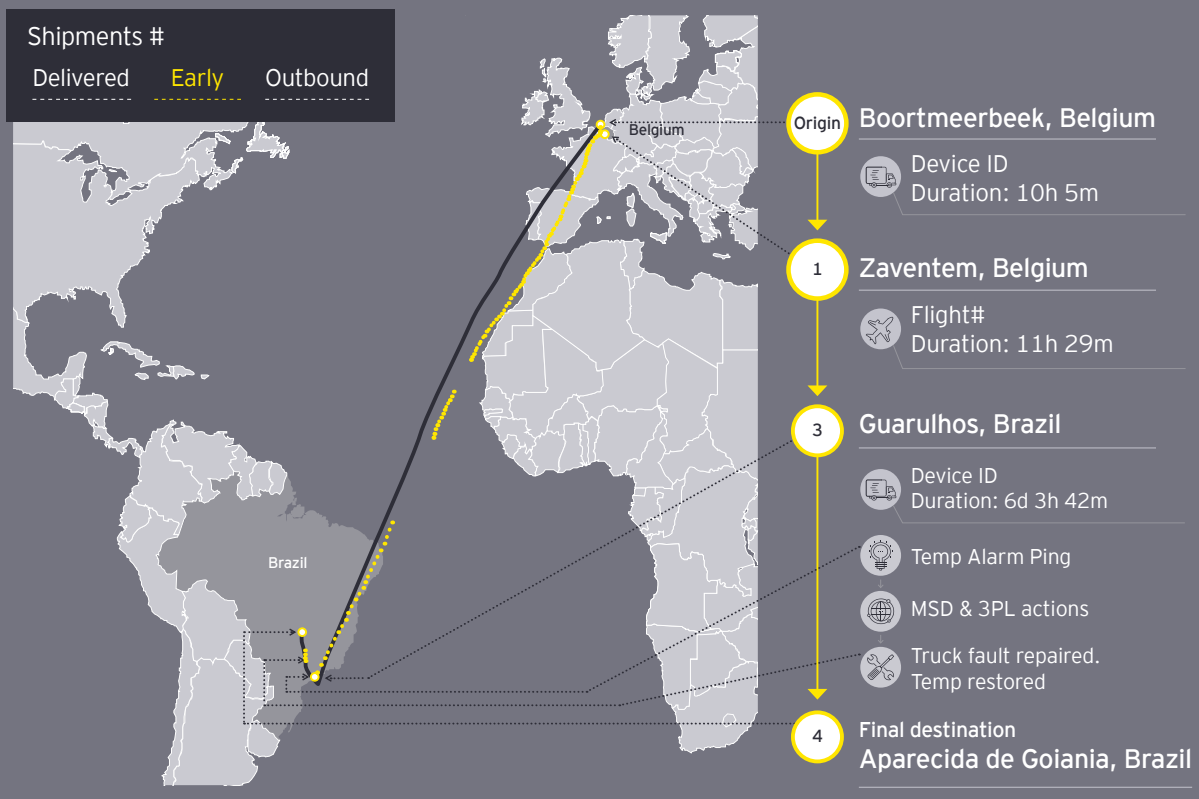
The Phase 1 pilot of the digital partnership roll out began pre-pandemic. The first phase included pairing internet of things (IoT) real-time alarms on a subset of shipments with the digital partnership technology, to increase situational awareness on shipments and decrease reaction time. Roughly 10% of those monitored shipments triggered alarms, and about 20% of those alarms required intervention to mitigate product loss. Based on sample data, this implies savings of between 1% to 2% of total annual shipment value for this company.

Not only did this technology enable rapid intervention to avoid the added cost of mode changes during shipment, the interventions also significantly reduced the number of discards required. Millions of dollars per year are set aside for discard budgets and, based on the statistics mentioned above, the potential cost savings of these successful interventions alone could equate to tens of millions in invoice value and the avoidance of millions in inventory discards for a large pharmaceutical company. Within the first few months of implementation, the partnership had effectively paid for itself in cost savings and was being scaled up as a standard process to cover all high value products and shipments.

What is a real-time intervention?

A process to correct deviations in shipping execution that protect product quality and security (see chart 1 for process)

Consider the scenario of a high-value, temperature-controlled air shipment of a cancer therapeutic from a warehouse in Belgium to market in Brazil. Once the product landed in Brazil, it was left sitting out of refrigeration for a period of time, causing the temperature to rise above the allowable threshold. The technology of the digital partnership was able to trigger an intervention by detecting the temperature deviation (Figure 1). A notification was sent to inform the appropriate parties to request action be taken to protect the product on the relevant pallets. Because of the rapid intervention, millions of dollars in discards were avoided.



Due to the impressive results in the Phase 1 pilot, Phase 2 was implemented shortly thereafter. Phase 2 built on Phase 1 by layering in ERP (Enterprise Resource Planning) integration with the company's Transportation Management System (TMS) to further extend this digital partnership to shipping providers. Where Phase 1 was focused on intervention management and shipping tracking, Phase 2 would pivot to focus more on situational awareness via mode planning, mode adherence, and monitoring mode conversion. By mitigating the cost of poor quality, the benefits of Phase 2 shipper integration was focused on reduction in the number of up-front planning inefficiencies and a reduction in the need for ongoing vendor communications to negotiate and book shipments. Benefits would be realized from both a reduction in shipping costs via optimized rates and a lower resource requirement for booking management.

Another prospective benefit of the digital partnership technology aside from product discard savings is the direct impact it can have on a company's balance sheet through optimizing shipping costs and through integration of proprietary ESG tracking technology. Assuming a 5–15% reduction in ocean shipping rates with partners participating in a digital partnership, it would yield hundreds of thousands of dollars in annual cost savings for a large pharmaceutical company. From an ESG perspective, identifying opportunities to move from air to ocean can help reduce the carbon footprint, and the tracking technology can bring enhanced awareness.

What is a digital partnership?

A digital partnership is the system integration between a shipping vendor and a pharmaceutical client.

Consider a hypothetical scenario where the digital partnership's control tower, i.e., the centralized data system, could direct shipments to alternate, favorable, transportation modes, when faster modes are not required. In this scenario, if 5% of the company's total air shipments were converted to ocean transportation, this mode conversion could again save upwards of hundreds of thousands of dollars in shipping costs for a large pharmaceutical company.

Implementation of a digital partnership is expected to increase the quality of service provided by reducing or eliminating iterative planning activities. By implementation of digitalized solutions, fewer planners would be required at planning hubs, which would equate to further annual overhead savings in the company's supply chain budget.

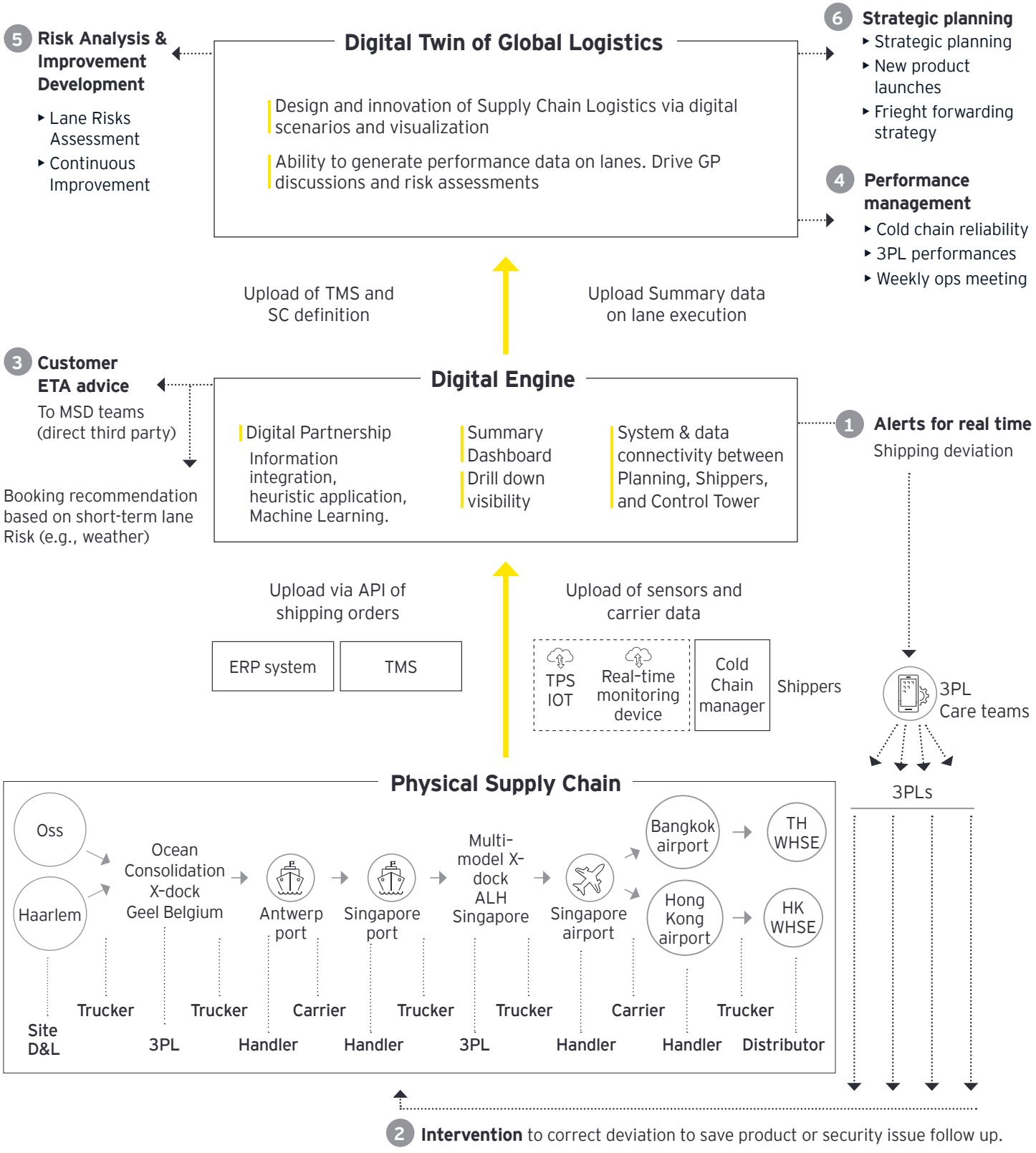
There are many other added benefits of a digital partnership which serve as knock-on effects of increased supply chain visibility. For example, increased visibility would drive a reduction in insurance claims and insurance premium costs. Consider also the enhanced customer sales relationship, reduction in lost business due to supply constraints, and the need to carry less replacement stock in their inventory due to lower expected discard rates. Brand reputation may also improve through the visibility provided to the customer on real-time shipment updates and delivery expectations.

Digital partnerships in the pharmaceutical industry may also provide additional benefits that can help directly or indirectly to save human lives. For life- saving medicines that are supply-constrained, it is especially critical to avoid discards. Real-time monitoring can maintain quality assurance standards, resulting in more patients receiving the drug, and sooner.

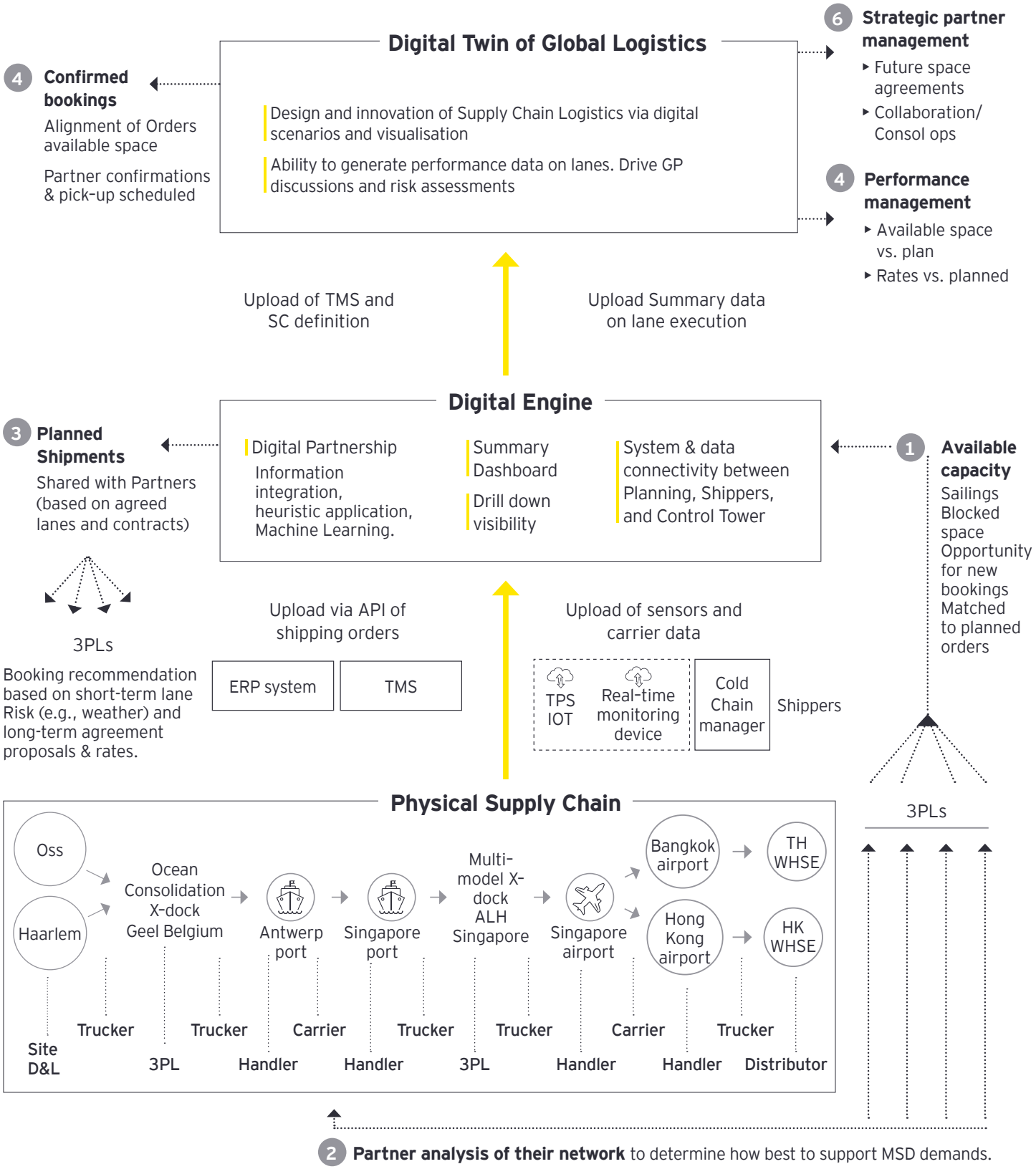
For an average large pharmaceutical company, we can offer a preliminary assessment of the additional cost savings from a digital partnership, when considering the effects of limiting mode conversions and staffing reductions in the planning space as reviewed above. Overall, the estimated ROI can be as significant as five times or more greater than the original investment (however, ROI is dependent on many factors, including company size, sector, economic conditions, etc.). This is not including the added human benefits of reduction in ESG emissions and the life-saving potential of more efficient shipping with reduced waste. The below diagram illustrates the digital logistics transformation between today's current state and the proposed future state.

The below diagram illustrates the digital logistics transformation between Phase 1 and Phase 2.

Phase 1: generating and applying insights → intervention



Phase 2: generating and applying insights → planning and collaboration



*Source of above diagrams: Merck & Co., Inc., Rahway, NJ, USA Martin Khun AVP Supply Chain

Given the proven cost savings, cost reduction, ESG benefits, and increased quality of service and agility that the company in this case study was able to achieve, the digital partnership and related technology has evident potential as a long-term investment, offering a strong business case and short-term payoff.

There are several lessons learned from the pilot program for the industry to understand if considering this solution. First, this implementation was intentionally supplier agnostic and was rolled-out across multiple products portfolios across the organization. This ensured the company would not be stuck with a non-expandable solution. A competitor attempted to outsource a digital partnership but used a specific solution which was not extendable across the product portfolio, which severely limited its value proposition. Secondly, this pilot was started with high risk or high benefit areas. In this case, the value was able to be seen early on, despite initial roll-out frictions. Once the pilot had established itself in this subset of product areas, then the deployment costs were assessed for easier product areas where implementation was minimal and paid for itself.

Overall, this case study shows that digital partnership solution has significant potential to address end-to-end supply chain visibility concerns, while also delivering cost savings and a range of added benefits.

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EYG no. 003486-24Gbl

BMC Agency
GA 201735336

ED None

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