

3PL & 4PL for the Aerospace Industry

Logistics Challenges and
the Benefits of Outsourcing



thyssenkrupp

A Whitepaper by
thyssenkrupp Aerospace

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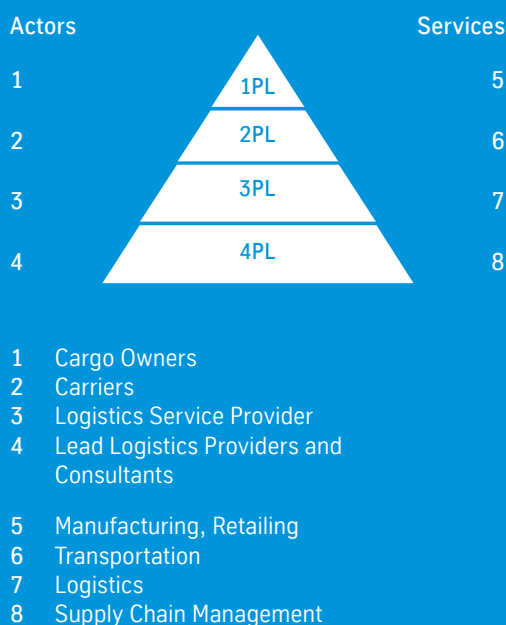


Why Logistics Partners' Involvement Could Make All the Difference

What are 4PL & 3PL?

Third-party logistics (3PL) describes a company's use of outsourcing partners to manage parts of warehousing, transport or fulfillment process. Those 3PL logistics service providers usually specialize in separate integrated logistics operations and include, for example, freight forwarding companies.

Fourth-party logistics (4PL) takes the 3PL outsourcing concept further by managing entire networks, including, for example, various 3PL companies, resources, or locations to develop and maintain fully integrated and optimized supply chain solutions. Even strategic supply chain consulting is possible. A special concept connected with 4PL is the Lead Logistics Provider (LLP), which usually consists of a control tower operation from which the provider manages (parts of) the company's supply chain network.



Source: supplychain247.com

Global trade and transport volumes have been growing rapidly for several decades. In recent years also the outsourcing of supply chain functions to different kinds of logistics service providers has become vital to improve top- and bottom-line results. Therefore, the make-or-buy decision – that is, to maintain logistics functions internally or to (sub-)contract them externally to partners – is a critical strategic consideration for companies. It has significant impacts on sustaining organizational competitiveness. And the aerospace industry is no exception.

In fact, aerospace supply chains are confronted with industry-specific challenges: In commercial aerospace, the long-term competitive outlook is forcing companies to manufacture new and improved products more frequently. In defense, the market is returning to growth after nearly a decade of declining defense budgets. These cases demand greater investments in development, capital expenditures, and inorganic growth opportunities.

- 1 Are there any existing solutions to meeting those challenges?
- 2 Can we spot trends that already shape the industry?
- 3 How important are 3PL and 4PL for global supply chains?
- 4 And what should companies know when choosing their external service partners?

The following whitepaper seeks to answer these questions. It discusses solutions and trends that are set to overcome concurrent challenges. The publication focuses on the potential roles of logistics providers (3PL, 4PL) in the aerospace industry and presents a case study for successful logistics partnering.

Risks & Challenges for Supply Chains

Companies must deal with fluctuations in global demand, exchange rates, or key commodity prices such as oil. Globalization and increasing uncertainties create constraints. In times of VUCA,¹ companies are faced with a high variety of challenges that have to be managed. Typical risks and challenges for supply chains include:



Technology and business disruptions encouraged by constantly increasing customer requirements in terms of price, safety, quality, speed, etc. and consequently ever shorter life cycles combined with higher product ranges.

Increasing dependencies and complexities from internal and external areas such as processes, networks or spare part varieties, or bottlenecks and operational inefficiencies caused by tier-x supplier shortages etc.

Fragmentation of ownerships in supply chains due to outsourcing: Companies can benefit from partner competencies, but less vertical integration results in new requirements for strategic alignments across different external parties. This leads to resource-consuming orchestration efforts.

Sustainability and environment: not only considering increasingly extreme weather events that are occurring and disrupting SCs, sustainability across the different SC partners becomes critical.

Additional risks such as fraud, geopolitical challenges, terrorism, strikes, or cyber- and bio threats are finding an easy access to supply chains due, for example, to outdated and inflexible IT systems or inefficient data and communication processes.

¹VUCA is an acronym to describe four distinct types of challenges that companies have to respond to in today's worldmarkets. The four letters stand for volatility, uncertainty, complexity, and ambiguity. Further reading: Bennett, N., Lemoine, G.J. (2014): What VUCA Really Means for You, HBR.

Solutions & Trends in the Supply Chain Industry

Not surprisingly, the digital transformation is also a major disruptor in the supply chain industry. Concepts such as Logistics 4.0 are no longer buzzwords but provide proven benefits for supply chains across all industries.



The industry is successfully applying technology solutions such as IoT devices, cloud services, or big data and predictive analytics.

Automation or innovations are already providing fascinating business cases like autonomous logistics vehicles, AI support, exoskeletons, and 3D printing.

"Open data" concepts as well as crowd solutions and strategic collaborations are also at the center of attention.

Outsourcing is a relevant factor. 3PL revenues grew to \$869 billion in 2017 from \$804 billion YOY, resulting in a worldwide growth of 8.1 percent YOY across all major region.²

Approximately 90 percent of the interviewed 3PL clients in the study from Korn Ferry report that the partnerships have been successful and that the usage of 3PL services contributed to improving the service quality for their endcustomers.

All this makes it a necessity for companies to internally and externally integrate their supply chain processes and develop individual solutions to their specific challenges – often together with 3PL or 4PL logistics service providers.

²Korn Ferry (2019): Third-Party Logistics Study.

These Could Be Your Benefits from Logistics Outsourcing



Optimized information flow and (order) management should accordingly reduce delays and cycle/lead times



More reliable and integrated data management should lead, for example, to higher inventory and stock processing accuracy



Increased SC security via alternative supply sources or transport options and sharing of risks such as ForEx



Efficiency in operations and the elimination of waste and inefficiencies



Valuable insights into state-of-the-art logistics and development of a competitive advantage



More agile and dynamic SC in order to respond quickly in case of uncertainties (better SC contingency management)



Forecasting/planning competencies and sharing experiences about issues such as port operations or customs delays



A positive impact on the company's financial performance such as an increase in (inventory) turnover is a common result



Competitiveness and productivity gains can best be captured by a supply chain partnership approach

So, what can you expect from a logistics outsourcing project and what are reasons why so many companies engage in such a strategic partnership? There have been various studies³ that conducted research on the implications and benefits of logistics outsourcing that go well beyond the typical contributions, such as improved performance in the operations via reduced logistics costs or improved (end) customer service.

³Cf. e.g. Arif, J., Jawab, F. (2018): Outsourcing of Logistics' Activities: Impact Analysis on Logistics Service Performance.

How to Succeed with Logistics Outsourcing

Logistics outsourcing has a positive impact on the company's financial performance. However, a supply chain partnership also contains risks. Therefore, the following section provides recommendations for an optimal outsourcing outcome.

You have a strategic choice between 3PL and 4PL partners. But the two concepts are not always clearly distinguishable. The recommendations apply to both options.

If you opt for a 4PL partner, be aware that the provider is at the heart of the supply chain and acts as a central coordination point between various (logistics) partners. Therefore, the provider should ensure to offer neutral and independent services. Also, the company should have special skills in order to continuously supply value-based optimizations across the supply chain.

So theoretically, we know which qualities a 3PL or 4PL service provider should have. But how does that look in practice? Do certain characteristics really contribute to successful logistics outsourcing? Does this help to achieve the advantages of cooperation with external partners? And can efficiency gains be verified in figures?

Let's look at a real case: thyssenkrupp Aerospace, a proven 3PL and 4PL partner, supports Rolls-Royce in optimizing its supply chain for aircraft engine components.



Quality and reliability are key criteria. Therefore, review certifications and track records of the company. Ask for references and contacts from other existing clients.



Efficiency should be in focus. Is the provider able to drive cost reduction and continuous optimizations?



Develop a thorough contract that outlines agreed specifications and clear Service Level Agreements (SLAs) such as expected lead times with clearly defined escalation processes and implications of nonconformance.



Seek strategic alignment: Both parties should have similar long-term ambitions and commitments for the partnership. Consider, for example, what kind of management level is involved.



Make sure the outsourcing partner is willing to expand the operations and invest in the partnership.



This links well with the required responsiveness to cope with possible uncertainties in the future.



Consider changing logistics needs and the portfolio of your chosen provider. Are special solutions supported?

Rolls-Royce or The Value of Working with thyssenkrupp Aerospace

As a 3PL and 4PL partner, thyssenkrupp Aerospace has all the qualities a service provider should have. Its global presence and network of 44 locations in around 22 countries is a key advantage. It allows close cooperation with customers, who benefit from the in-depth appreciation of their specific needs as well as from global logistics infrastructure and broad expertise.



Canada
United States
Brazil

United Kingdom
Spain
Portugal
Morocco
Netherlands
Belgium
France

Switzerland
Germany
Poland
Finland
Tunisia

China
Japan
South Korea
Hong Kong
India
Singapore

Challenges

thyssenkrupp Aerospace has experience in developing and implementing solutions for the specific logistics challenges of the aerospace industry. Typically, the industry battles with



unnecessarily high procurement costs,



stockpiling that ties up enormous amounts of capital,



a 5 to 10 percent transport cost share of procurement costs,



difficulties with supplies,



delayed production starts, reworking in series production or recalls, and



compliance failures, resulting in possible fines.

Projects

Not all of the challenges mentioned above apply to the customer Rolls-Royce, who tasked thyssenkrupp Aerospace with optimizing its supply chain for aircraft engine components. More specifically, the customer's goal was to increase the material flow and reduce inventory throughout its supply chain while enabling overhead cost reduction. Pain points to solve included

high levels of working capital,

a high percentage of lost or damaged parts, and

excessive expedite costs.

These challenges required individual solutions, tailored to the company's supply chain.

Goals

Achieve \$3M in cost savings (labor, facility space, inventory cost, administrative cost, etc).

Improve the logistic lead times by up to 50 percent (reduce touches and eliminate wasteful inventory movement)

Define a system that increases parts and material visibility as well as traceability.

Implementation

As mentioned in the paragraph "How to Succeed with Logistics Outsourcing", it is extremely important for the 3PL or 4PL partner to be able to react to changing and developing requirements. This was also a relevant issue in the cooperation between thyssenkrupp Aerospace and Rolls-Royce.

It initially started out on a small scale, with the specific objective of designing a VMI supply chain solution. This design later developed into a 3PL Request for Proposal (RFP), which thyssenkrupp Aerospace subsequently bid on and won. Over the course of several years, we implemented the changes with a phased approach adding more suppliers and part numbers.

In the end, a highly collaborative, cross-functional team of experts had addressed the most important aspects of the project, from supplier quality and demand management (for example, forecasting, smoothing) to IT and supplier collaboration. Business improvement and inventory optimization were central matters. In short: the 3PL partner established an integrated services value stream between suppliers and Rolls-Royce concerning inspection, storage, and kitting/packing with full inventory traceability.

Rolls-Royce or The Value of Working with thyssenkrupp Aerospace

Your challenges

Poor inventory visibility

Thousands of m² space full of parts and materials

Stuck and slow processes

Long lead times

Having the right parts, in the right place, at the right time

thyssenkrupp solutions

Inspection service and quality testing

Packaging and kitting

Demand management

Warehousing services

Direct line delivery of kitted parts

Improved metrics and reports for stakeholders

Vendor-managed inventory solutions

100 percent inventory traceability using advanced WMS technology

Optimized facility footprint and significantly improved lead times

Your value

Cost avoidance and reliability

Cash not tied up in obsolete or overstocked inventory

Faster and leaner processes

Reduced floor space footprint

Reliable production planning with ensured supply

Increased capital availability

Focus on core competence

Results

To put a number on it, the 3PL partnership resulted in:

a reduction of
200,000 SAP
transactions per year yielding
\$3.5 million in annual costs

approximately
2,000
(compared to 4,600+ parts)
part numbers shipping from
approximately 180 suppliers
(compared to 80)

**inventory
information**
readily available

a
\$2-million
inventory reduction

supplier
**defects
prevented**
from entering facilities

no delays
to assembly or customer

well-positioned
organization for flow line kitting

The advantages for the customer include, of course, general benefits such as improved performance in the operations via reduced logistics costs, and – last but not least – access to logistic know-how that a partner like thyssenkrupp Aerospace can provide.

Takeaways for Supply Chain Optimization with Strategic Partners

- 1** **External partners contribute valuable know-how for data analytics, solid IT tools, or process optimizations –** everything you need to lay a solid foundation for improvements and increase the flexibility of your supply chain. In the end, that is a major factor for profitable and sustainable growth.
- 2** **Companies need to further optimize their costs and enhance their efficiencies.** Together with the requirement for greater flexibility, this is a difficult task. That means your supply chain is tailored to be efficient but also future-fit and adaptable for coping with ever-changing circumstances. Supply chain outsourcing can be a valuable support in this regard.
- 3** **There is no simple one-size-fits-all solution.** So, external partners support you by individually examining and developing your approach on a case-specific basis. Experience proves that it pays off to focus on selected processes, high-level objectives, and key flows first.
- 4** **The human factor remains a key element for supply chain success,** both for internal and for external stakeholders. Yet technological approaches to optimize supply chains are a trend in which partners can provide intelligent support.
- 5** **Competition and competitiveness affect the supply chain including all partners and suppliers, not just the company itself.** Therefore, a holistic assessment of all potential vulnerabilities along the entire supply chain network should be executed. The goal is to enhance the overall supply chain resilience and robustness.
- 6** **Learning together for the future!** External supply chain experts can be a valuable source for the identification of past bottleneck situations and supplier disruptions.
- 7** **You can't really go wrong with a strategic partnership.** An experienced and reliable logistics service provider helps to tackle supply chain challenges and opens up opportunities from outsourcing. This partner should be aware of your industries' specific challenges.

About the Authors

Prof. Dr. Nils Finger

Prof. Dr. Nils Finger is a professor of Supply Chain Management at CBS International Business School. He links relevant theories from his studies in Germany, Australia, Hong Kong and the United Kingdom with best practices from his work experience in industries such as automotive, hightech and telecommunications. As Vice President for Innovation and Academic Affairs at his university, his current research focuses on innovations, digital transformations, and sustainability in supply chains.



Thomas Pingen

Thomas Pingen holds a Master in Engineering for Production Technologies and a Master in Economics focusing on Supply Chain Management. In his role at thyssenkrupp Aerospace he is responsible for Customers, Markets, and Development and strives together with the entire thyssenkrupp Aerospace organization to develop customized supply chain solutions providing specific and measurable value to all its customers.



Do you need a strategic partner for your 3PL and 4PL logistics requirements? Or do you want to learn more about the advantages of logistics outsourcing?

Get it touch with the thyssenkrupp Aerospace team:
aerospace@thyssenkrupp.com