3PL & 4PL for the Aerospace Industry
Logistics Challenges and the Benefits of Outsourcing

A Whitepaper by thyssenkrupp Aerospace
Introduction

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 – i.e. 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 organisational 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 & 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.

The following whitepaper seeks to answer these questions. It discusses solutions and trends, which 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.

Why Logistics Partners‘ Involvement Could Make all the Difference

What is 4PL & 3PL?

Third-party logistics (3PL) describes a company’s use of outsourcing partners to manage parts of their warehousing, transport or fulfilment processes. 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 e.g. various 3PL companies, resources or locations to develop and maintain fully integrated and optimised 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.

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1. Are there any existing solutions to meet 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?

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

- **Increasing dependencies & complexities** from internal & external areas such as processes, networks or spare part varieties or bottle-necks & 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 & environment**: Not only considering increasingly extreme weather events that are occurring & 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 to e.g. outdated and inflexible IT systems or inefficient data and communication processes.

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 or 3D printing.

- “Open Data” concepts as well as crowd solutions and strategic collaborations are also at the centre of attention.

- Outsource is a relevant factor. 3PL revenues grew to 869 billion Dollar in 2017 from 804 billion Dollar yoy, resulting in a worldwide growth of 8.1 percent yoy across all major regions\(^2\).

- Approximately 90 percent of the interviewed 3PL clients in 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 end-customers.

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 logistic service providers.

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\(^1\)VUCA is an acronym to describe four distinct types of challenges that companies have to respond to in today’s world-markets. 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.

This Could be Your Benefits from Logistics Outsourcing

- **Optimised information flow & (order) management** should accordingly reduce delays & cycle-/lead-times.
- **More reliable & integrated data management** should lead to e.g. higher inventory & stock processing accuracy.
- **Increased SC security** via alternative supply sources or transport options & sharing of risks such as ForEx.
- **Efficiency in operations & the elimination of waste & inefficiencies**.
- **Valuable insights** into state-of-the art logistics & develop a competitive advantage.
- **More agile & dynamic SC** in order respond quickly in case of uncertainties (better SC contingency management).
- **Forecasting/planning competencies & sharing experiences** around e.g. 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 & what are reasons why so many companies engage in such a strategic partnership? There have been various studies⁴ that conducted research on the implications & benefits of logistics outsourcing that go well beyond the typical contributions as improved performance in the operations via reduced logistics costs or improved (end-)customer service.

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 or 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 their 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 non-conformance.

- Seek strategic alignment: Both parties should have similar long-term ambitions and commitments for the partnership. Consider e.g. 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 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.
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
- 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
- expensive finished parts
- a high percentage of lost or damaged parts
- excessive expedite costs.

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

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 corroborative, cross-functional team of experts had addressed all aspects of the project, from logistics, supplier quality, and purchasing to finance, IT and transportation. Business improvement and quality assurance were central matters. In short: The 3PL partner established an integrated services value stream between suppliers and Rolls-Royce, concerning inspection, storage, kitting/packing, and POU delivery.
Rolls-Royce or The Value of Working with thyssenkrupp Aerospace

Your challenges

Costs that occur to replace thousands of m² space full of parts and materials

Stuck and slow processes
Having the right parts, in the right place, at the right time

thyssenkrupp solutions

Inspection service & Quality Testing
Warehousing Services
Vendor Managed Inventory storage

Packaging & kitting
Direct line delivery of kitted parts
Full barcode identification

Demand Management
Improved metrics and reports for stakeholders

Your value

Cost avoidance & Reliability
Reduced floor space footprint
Focus on core competence

Faster and leaner processes
Reliable production planning with ensured supply
Increased capital availability

Cash not tied up in obsolete or overstocked inventory
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** annual cost
- a **two-million-dollar** inventory reduction
- approximately **2,000** (compared to 4600+ parts) part numbers shipping from approximately 180 suppliers (compared to 80)
- **supplier defects prevented** from entering facilities
- **no delays** to assembly or customer
- **well-positioned** organization for flow line kitting
- **inventory information** readily available

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 – an 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 optimisations** – all those things 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 optimise 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 on a case-specific basis. Experience proves that it pays off to focus on selected processes, high-level objectives as well as key flows first.

4. **The human factor remains a key element for supply chain success,** both for internal and external stakeholders. Yet technological approaches to optimise supply chains are a trend where 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

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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 & England with best practices from his work experience in industries such as automotive, high-tech & telecommunications. As Vice President for Innovation & Academic Affairs at his university, his current research focuses on innovations, digital transformations as well as sustainability in supply chains.

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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 values to all its customers.

Do you need a strategic partner for your 3PL and 4PL logistics? Or do you want to learn more about the advantages of logistics outsourcing? The thyssenkrupp Aerospace team will get in touch with you:

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