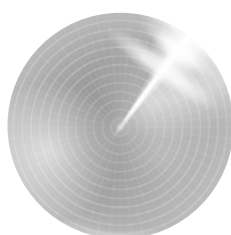


THE ADVANCED SERVICES GROUP AND DHL

SERVITIZATION AND SUPPLY CHAINS

**A DHL perspective on future
Engineering & Manufacturing Supply Chains**



Powered by DHL Trend Research

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FOREWORD

This is the first of a series of white papers by DHL in collaboration with The Advanced Services Group, part of the Aston Business School, on the topic of servitization. The objective of this paper is to illustrate the concept of servitization, to show how it is driven by global trends and highlight implications on supply chains. Future papers will discuss servitization in the context of value networks as well as supply chain strategies. The objective of these papers is to guide manufacturing companies through the supply chain transformational change process – from strategy articulation to process definition and decision enablement.

1 GLOBAL TRENDS AFFECTING MANUFACTURING

The need to increase competitiveness and profitability in manufacturing has never been greater. Competition from low cost economies, new high tech disruptors and the advent of new technological innovations such as Industrial Internet of Things (IIoT), Artificial Intelligence (AI) and 3D Printing have put enormous pressure on manufacturers to identify new and sustainable revenue streams. A report by The World Economic Forum (WEF, 2015) found that 73% of senior executives interviewed were convinced that the IIoT would prove disruptive to their businesses and industries. And almost 80% of those respondents thought the disruptions will occur by 2020.

INDUSTRIAL INTERNET OF THINGS



The global trends affecting the operations and performance of manufacturing organizations can be summarized as follows (DHL, 2015a):



Shifting Markets: Competition from lower-cost competitors and shifting demand patterns will shift the center of economic gravity to emerging markets. At the same time re- and near-shoring activities gain importance.



Volatility and Exogenous Threats: Commodity price volatility, greater political instability and an increased ecological risk lead to more uncertainty in planning, decision-making and revenue streams.



Customization and Convergence of B2B and B2C: Changing customer needs will drive customer-centricity and complexity through customized products, solutions, and processes inspired by B2C markets.



Labour Shortage: Greater competition for high-skilled workers will impact the productivity of businesses and their ability to implement new technologies and business models.



Compliance and Sustainability Requirements: Driven by demanding stakeholder expectations, customers will be increasingly challenged by requests in terms of compliance and sustainability.



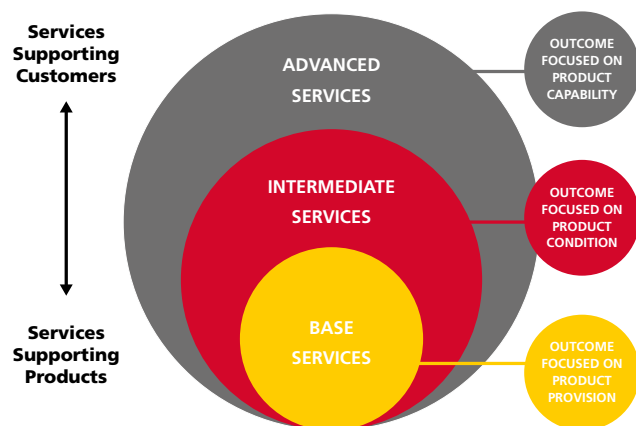
New Technologies: Technological innovations will provide opportunities for more sophisticated products and services with new (disruptive) players entering traditional markets.

2 WHY MANUFACTURERS ARE TURNING TO SERVICES

Manufacturers recognize increasingly that in order to leverage these trends, they need to find new ways of competing. Manufacturers' value propositions (or offerings) are changing from product focused to service focused. This places an emphasis on the customers achieving their business goals, as opposed to only focusing on product features.

A scale of types of services exists, with increasing levels of risk to the manufacturer, but also increasing potential to create competitive advantage.

As services become more advanced, they change from being focused on the product (base services such as spare parts, and intermediate services such as break-fix) towards being focused on supporting the customer's key processes through the capabilities the product enables.



These are more sophisticated, higher-value contracts, based on outcomes.

EXAMPLES OF ADVANCED SERVICES



Rolls Royce's Power-by-the-Hour:

The pioneering engine solution which changed the deal with customers from a transactional purchase of equipment towards a ten-year contractual relationship guaranteeing operational time of the engine, or 'selling thrust'.



Xerox's Print Management:

Offers a bundle of services and copier and charges customers based on the number of sheets of paper they have copied or printed, as well as providing services to help better manage documentation.



MAN's Pay-per-Kilometre:

Offers comprehensive services around drivers' behaviour and fuel efficiency in order to help customers operate more efficiently, with charging based on the distance trucks are driven.



GE's Digital Solutions:

GE has started to transform from a company that sells sophisticated machines, to one that sells solutions and capabilities. They invested hugely in smart and connected industrial machines, and acquired ServiceMax, a cloud-based field service management company, to support their services. GE estimated a market-wide opportunity for capability-based service propositions of \$25 billion.

Delivering such advanced services requires fundamental changes in a manufacturer's operations, relationships and organizational structures. This process of transformation is known as **servitization**.

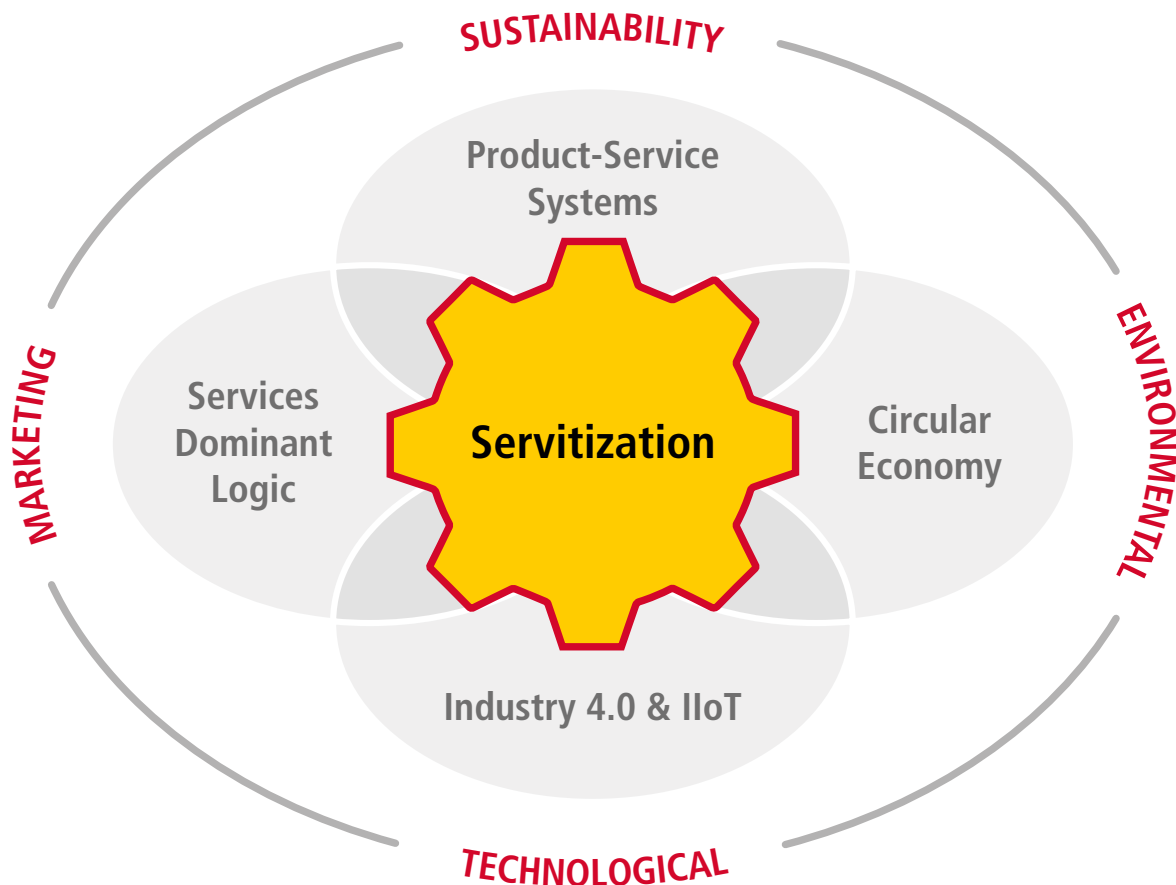
You may have heard of a number of terms that describe certain aspects of the full transformation picture, such as the 'circular economy', or 'services-dominant logic':

- **Product-Service Systems** focus on the business model that combines delivery of products and services for environmental benefits. A new business model is one aspect of the servitization transformation
- The **circular economy** looks at how to extract maximum use from products and then repurpose and recycle them. It relates to servitization in terms of the environmental sustainability of manufacturers taking on the responsibility for making products that last longer, and having to dispose of them
- **Industry 4.0 and the IIoT** focus on the data and information technology aspect of servitization

- **Services-Dominant Logic** comes from marketing scholars, and it removes the product-service distinction, and represents all markets in terms of service-for-service exchange

It is important to remember that, although these terms and trends are commonly used at the moment when talking about the future of the industry, none of them alone provides the full picture of the scope and scale of societal and organisational change currently taking place. Adopted in isolation, a new business model, use of digital technologies, reduction in raw material consumption or the growth in exchange of services will not be enough to make a manufacturing company resilient and successful in the changing market.

Servitization combines all of these aspects, along with the organisational change in terms of structure, processes, staff skillsets, resources, facilities and fundamental organisational mind-set, that also need to be changed in order for a manufacturer to compete successfully through advanced services where they really focus on delivering outcomes for customers.



3 HOW SERVITIZATION HELPS MANUFACTURERS TO STAY COMPETITIVE

Shifting Markets



Manufacturers need to find new ways to gain and retain customers in an increasingly competitive global market with regional differences, and advanced services help them to do this in a number of ways. They enable competitive advantage through differentiation from low cost competitors and reduce imitation because services are more difficult for competitors to replicate than products. They also allow manufacturers to exploit their unique knowledge and IP about their products, rather than allowing third parties to generate revenue by providing services and spare parts for the manufacturer's products. Finally, they increase customer loyalty to the point where the customer can become dependent on the manufacturer.

“When you have invested £ hundreds of millions in developing a new product you want to ensure that you capture the service revenue from keeping it in operation. As the original equipment supplier you can exploit your unique product knowledge to provide better support than a 3rd party provider. Additionally through long term advanced service agreements and/or ownership of the maintenance facilities you can also regain control of the service sourcing decisions.”

Customization and Convergence of B2B and B2C



Manufacturers should meet and exploit their customer's demand for an improved customer experience based on services. Manufacturers can take advantage of this, creating new revenue streams by developing new services offerings whereby the manufacturer takes on some of the risk that the customer is exposed to if the product doesn't function as intended. An example might be an engine manufacturer that compensates the airline if journeys are cancelled due to a fault.

“Customers want functional outcomes, not the ownership of expensive assets and any incumbent risks of products failing to perform as required. Under long term service agreements we guarantee useful hours of flying, because that's the basis on which we are paid. Variation in the cost of keeping engines working is now our risk so optimising reliability, availability and cost of ownership are in both our customers and our own best interest.”



Andy Harrison, Rolls Royce

Compliance and Sustainability Requirements



Customers are increasingly challenged by requirements for compliance with legal, safety and environmental standards.

Manufacturers can use this as an opportunity to provide services that guarantee such compliance on behalf of their customer since the manufacturer, not the customer, is the expert who understands how the product was made and how to operate it most efficiently. An example would be a packaging manufacturer that uses its expertise to specify and build packaging on behalf of its customer, and that provides documentation to certify that the packaging meets compliance regulations and stakeholder requirements in terms of sustainability. It can also use its expertise to help customers to operate in more sustainable ways, through greater energy efficiency or a reduction in raw materials.

Volatility and Exogenous Threats



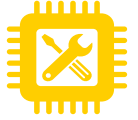
Due to the increasing uncertainty manufacturers are looking to develop new, more resilient and predictable ways to generate revenue and profit; services provide one such source of revenue. For manufacturers with large installed product bases, service revenues can be one or two orders of magnitude greater than new product sales. In addition, services are less susceptible to price competition than products, because they are sold at a value-based price.

Labour Shortage



Customers often do not employ people with the skills to maintain and repair equipment to ensure uptime. Manufacturers can employ their knowledge of how their products should be maintained and operated for best results to offer this as a service.

New Technologies



Competing through services can enable manufacturers to exploit their product knowledge to its full potential and fend off threats from technology-based market disruptors. Manufacturers are best-placed to offer services around their products because they hold the product IP and can use the data they gather to re-engineer products and best support their service. The knowledge gained from data capture, combined with product innovation capabilities, can help manufacturers prevent competition from market entrants if they use it to develop successful new value propositions.

“The technology change brought about a new realization that we had to change ... it was no longer enough for us to say this is the product, this is the component, this is the features and the benefit, we had to start proving the performance.”



Des Evans, ex-CEO MAN UK

4 SUPPLY CHAIN IMPLICATIONS



Introducing advanced services comes with a number of implications for supply chains. In order to leverage the full potential of servitization supply chain concepts

have to be adapted and even redesigned. The table below summarizes these implications and provides recommendations for supply chain leaders.

IMPLICATIONS	RECOMMENDATIONS
Focus of manufacturing companies shifts from product provision to product capability and the associated service provision	Centralize production, but customize services <ul style="list-style-type: none"> ■ Increase standardization of products, but differentiate yourself with customized services ■ Be “less agile” for products (streamline products to benefit from economies of scale), but be very agile for advanced services (invest into more agile after-market systems)
Availability and distribution of spare parts becomes more critical to service provision	Redesign spare parts network <ul style="list-style-type: none"> ■ Review positioning of the inventory to guarantee quick spare parts delivery, evaluate opportunities for inventory pooling ■ Co-locate workshops, service centres and field service technicians with customer operations ■ Redefine aftermarket supply chain setup to ensure delivery of customer promise ■ Evaluate whether 3D printing is an option for spare parts management
Roles and requirements for workforce change	Review workforce <ul style="list-style-type: none"> ■ Revisit number of field engineers, and skills they need to have to work more closely with customers ■ Position staff as relationship builders who are flexible to their customers’ needs ■ Review best strategy for how to leverage dealer/distributor network to provide services or where it might be better to sell to customers directly
The provision of a continuous flow of services is necessary to avoid revenue risks	Handle risk management <ul style="list-style-type: none"> ■ Setup a resilient and more reliable supply chain to support assets in the field ■ Improve demand planning and inventory management in particular for the aftermarket / spare parts network ■ Enhance the visibility of supply chain by refining preventive and predictive maintenance (expertise in big data necessary)
Manufacturing companies can sometimes remain the owner of the product	Consider circular economy <ul style="list-style-type: none"> ■ Take responsibility for reverse logistics and waste management in cases where the product still remains in the manufacturer's ownership and responsibility

5 GETTING STARTED WITH SERVITIZATION

Transforming a manufacturing business to compete through advanced services is a long and highly complicated process, and this scale of organizational transformation cannot be achieved quickly.

Nevertheless, here are five key pointers that should help you to get started with exploring advanced services and what they might mean for your company:



1. Get to know your customers better, and learn about their own customers



- Service offerings should help your customer to be more successful in their own operations and grow their own business
- Develop a close understanding of what your customer is trying to achieve and how you can use your expertise to help them with it
- Develop strong relationships and find individuals who want to collaborate to find mutually-beneficial outcomes

2. Understand the services business landscape



- Work out the potential market and the level of costs and risk involved with offering advanced services
- Review existing evidence of your current aftersales activity, and any unexpected service interactions

3. Benchmark what others are doing



- Well-established advanced services offerings exist in a range of industries; find out what these manufacturers have done, and how and why it is successful in order to help generate your own ideas

4. Ensure existing products and services are fit for purpose



- You cannot deliver advanced services if your existing products are not reliable and your current services offerings (e.g. spare parts and maintenance) are not responsive
- Ensure your products and services are good enough to support the advanced services offer before you proceed
- Start to gather systematic data on their performance if you do not already

5. Understand your value network



- Delivering services is different to delivering products; you need to understand which existing partners you should and shouldn't work with
- Assess whether you need new partners, with other capabilities (e.g. data capture and analysis), in order to deliver services
- Based on this assessment of your value network and your business priorities, you might start reconsidering your supply chain strategy

The authors will shortly publish follow-up perspectives on Engineering & Manufacturing supply chains in the next paper focusing on value networks.

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The Advanced Services Group is a research center of excellence at Aston Business School in Birmingham, UK. It specializes in equipping industry professionals with the knowledge and skills to lead an organizational transformation towards advanced services www.advancedservicesgroup.co.uk

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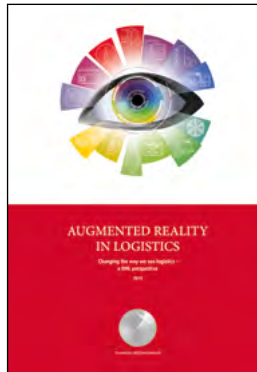
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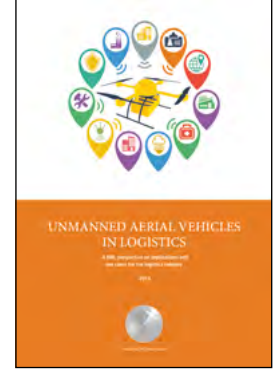
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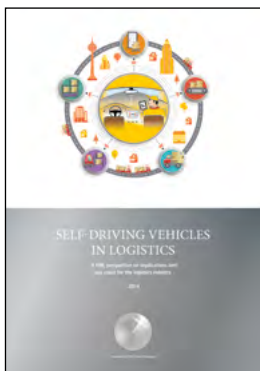
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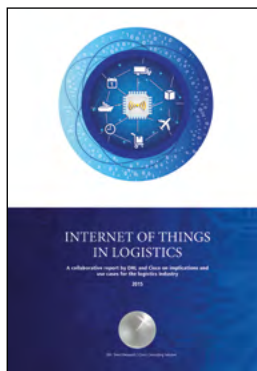
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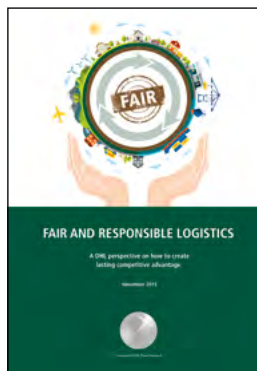
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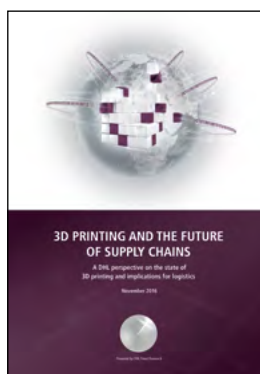
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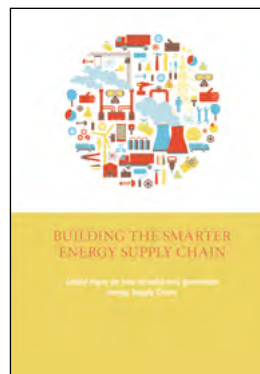
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