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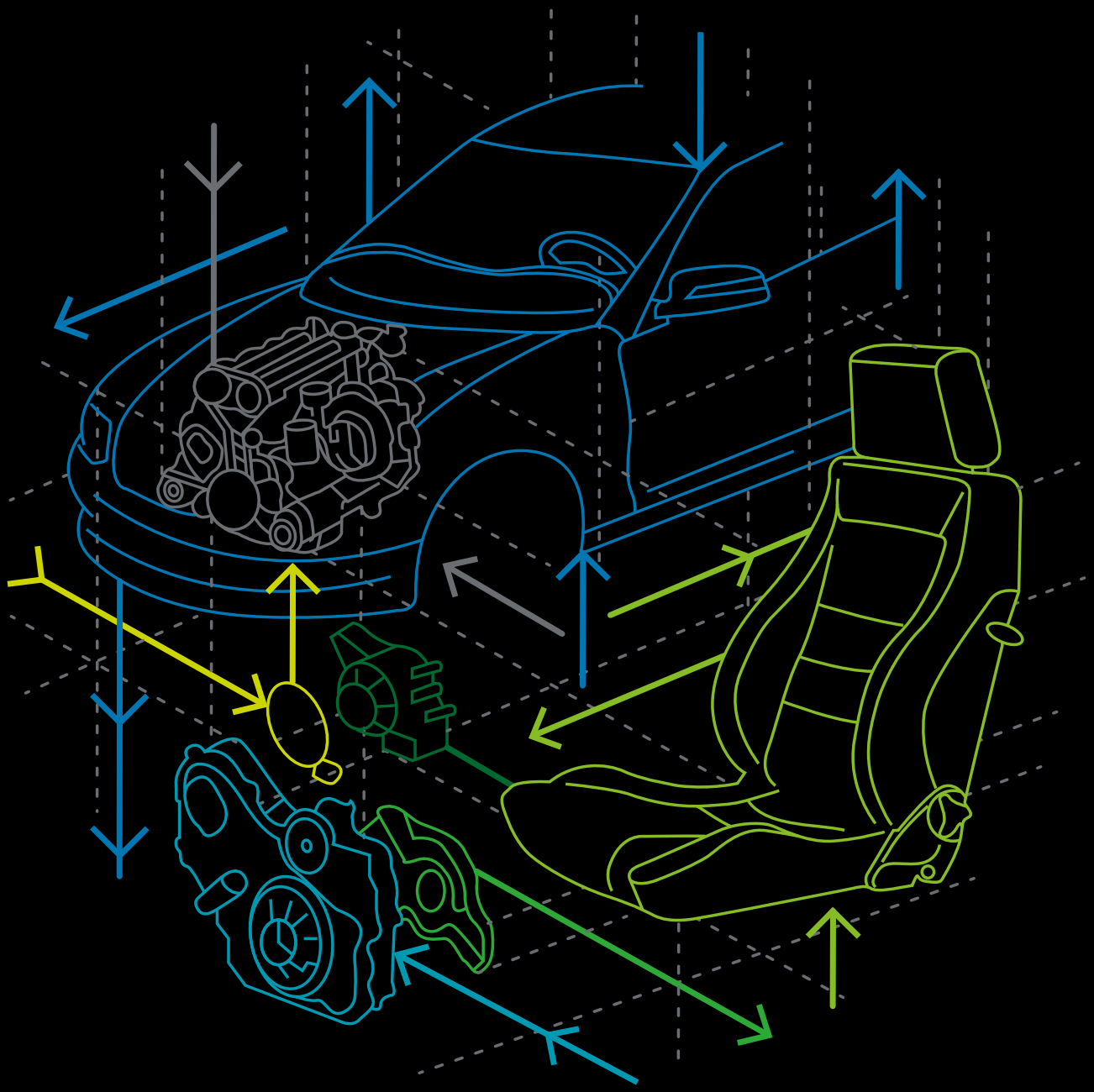

Sub-supplier Management

Directed Parts in the
Automotive Industry

Preface

Professional management of directed parts leads to more transparent and efficient supply chains in the automotive industry. Our study offers insights, leading strategies and measures for the successful management of directed parts.

The professional management of sub-suppliers and directed parts offers multiple **benefits** to OEMs, suppliers and sub-suppliers in the automotive supply chain:

- generating transparency in supply chains
- realizing volume bundling potentials
- ensure compliance with legal requirements

In this study we offer an overview of insights and leading practices of 108 automotive practitioners and experts from OEMs as well as suppliers.
The survey participants' answers clearly show a trend towards the usage of directed parts and an increasing share of directed parts in the corporate purchasing volume.

The study results allowed for the identification of the following major **trends**, which are responsible for the increasing share of directed parts in the automotive industry:

- realizing common part strategy
- ensuring high level of product quality
- complying with legal requirements for the product

Thus we find strong evidence for the increasing importance of directed parts in the automotive industry.

The questionnaire revealed the major **challenges** for players in the automotive supply chain:

- insufficient definition of roles and responsibilities in the sourcing process of directed parts
- unclear regulation of responsibilities in contract management
- tracking and reporting of directed parts

OEMs, suppliers and sub-suppliers can overcome those challenges by using the following appropriate **measures**:

- defining strategy and decision making process for directed parts
- specifying different business models such as Directed Buy or Provided Material and measures for directed parts
- formalize process requirements and responsibilities between involved parties
- tracking directed parts and enabling deployment control

We look forward to discussing leading practices in directed parts management with you.

Dr. Nikolaus Helbig
Partner

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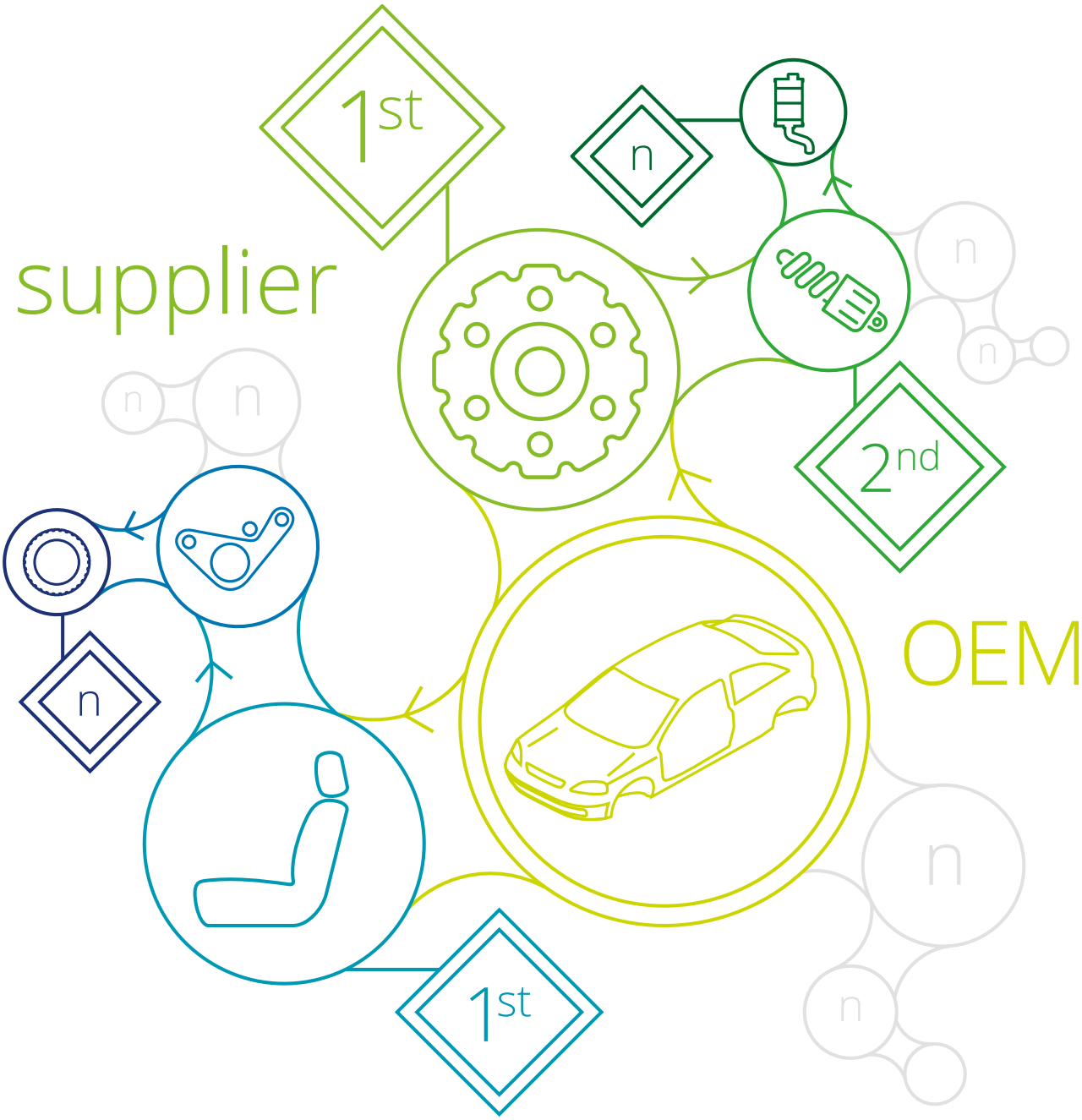

1st
supplier
n
2nd
OEM
n
1st

The active management of directed parts promises a more robust supply chain with minimized supply chain risks and the realization of bundling effects for all involved parties.

1. Directed parts are essential practice to manage the increasing complexity of automotive supply chains

Corporate supply chains have to adapt to business needs and external forces. The constant rise in competitive pressure in the automotive industry leads to outsourcing and a global sourcing of parts, which has created highly complex supply chain structures. The motives of automotive OEMs to create such complex vertical supply chain structures are manifold. Reasons for sourcing from multiple suppliers among others are to

- access additional resources
- create synergies
- gain cost and time savings
- improve product quality
- reduce development risks
- promote innovations

This increased complexity of the automotive supply chain also comes along with some disadvantages like a limitation of transparency for OEMs along the supply chain. The lack of transparency can have a negative impact on supply performance and proper supply chain risk management.

The better OEMs know their n-tier supply chain and the better they track potential risks in real-time, the earlier they can identify risks and plan alternative sourcing strategies.

Due to this the significance of a professional and efficient management of suppliers became a key factor in the automotive industry to strengthen competitiveness and to react to the challenge of managing complex supply chains.

OEMs have therefore extended their influence and collaborations to lower tiers in order to reduce cost and to intervene early. This is achieved by using the concept of directed parts to influence the parts supplied by lower tiers.

Definition of directed parts:

The customer directs parts from a sub supplier to be integrated into a system sourced from a different supplier. The supplier integrating the directed part is responsible for the quality of the directed part.

An overview of drivers and their relevance for OEMs and direct suppliers is shown in figure 1.

Sub-suppliers want to deepen their relationship with OEMs for a long-term business relationship and to generate higher revenues by obtaining a larger production volume awarded by the OEMs (see figure 2).

Fig. 1 – Reasons for directed parts by OEMs and direct suppliers
(from 1 – not important to 4 – very important)
The most important reasons for the use of directed parts are: following a common-part strategy, ensuring a high level of product quality, and complying with legal requirements.

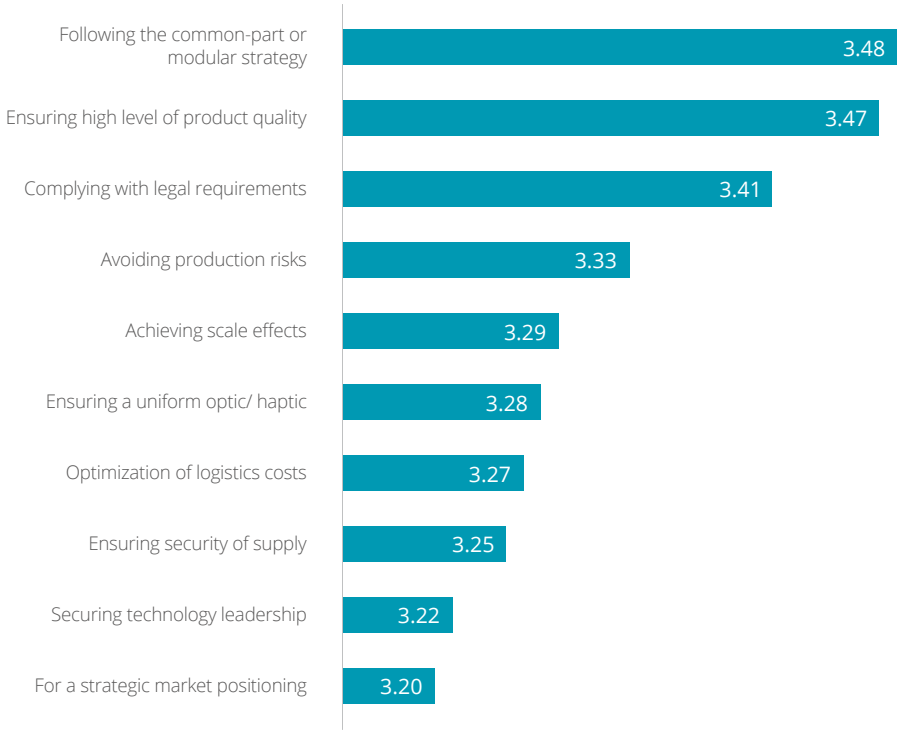
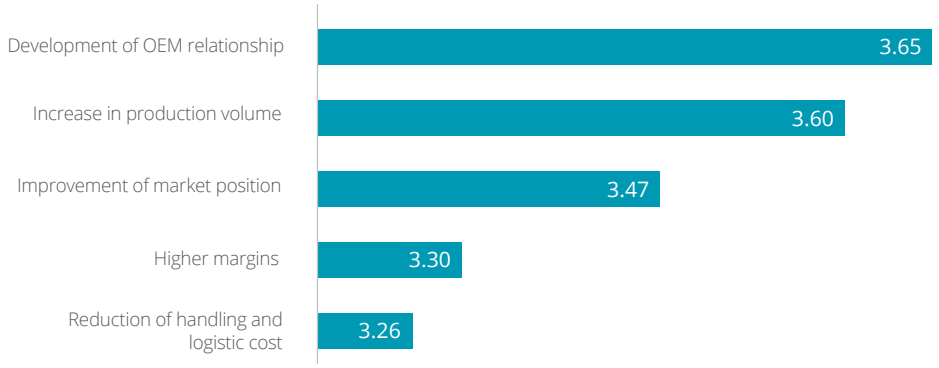


Fig. 2– Reasons for directed parts by sub-suppliers
(from 1 – not important to 4 – very important)
The main reasons and motivation for sub-suppliers (2nd tier and below) to provide directed parts are the development of a better OEM relationship and to increase their production volume through a higher order volume.

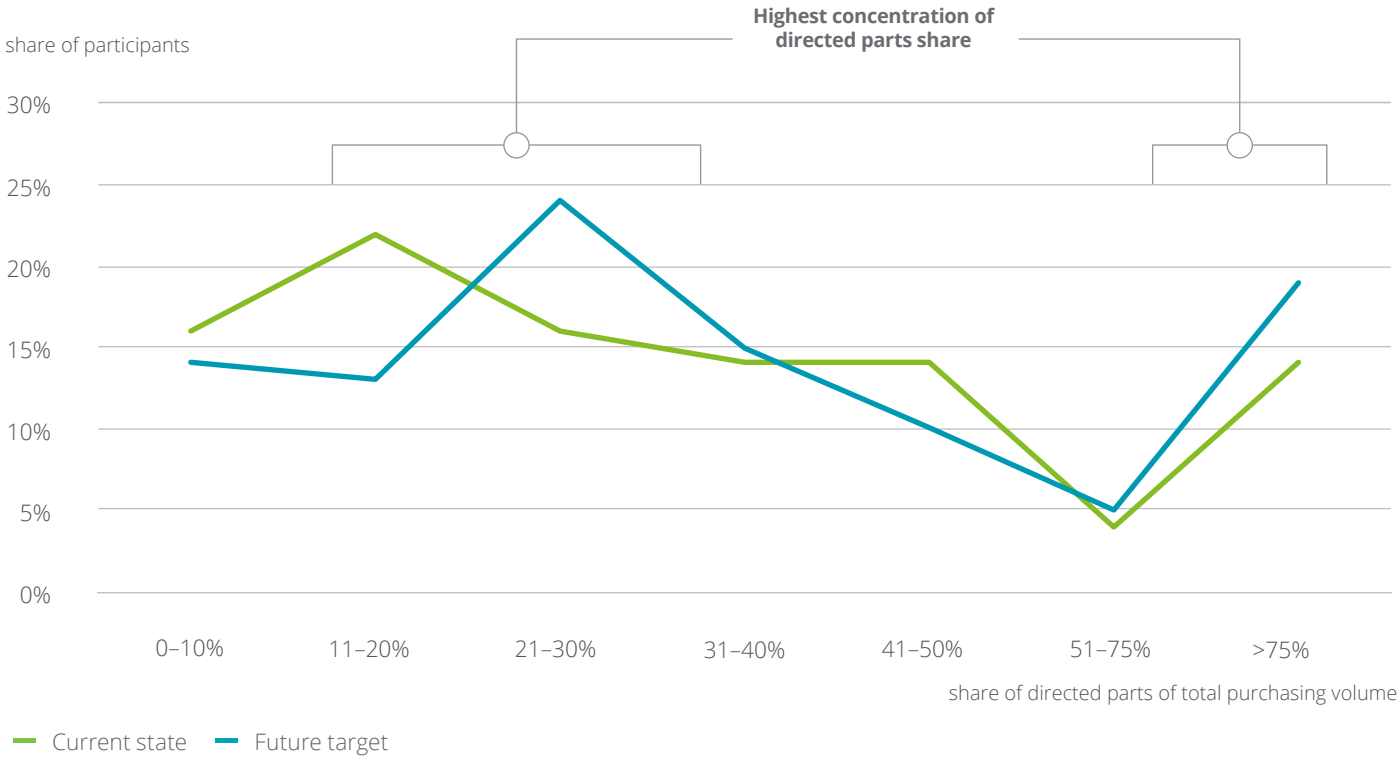


Nowadays directed parts already have a high volume in the automotive industry, ranging from 20% up to 75% of the total purchasing volume of OEMs and suppliers (see figure 3).

Our survey also indicates that the volume of directed parts in the global automotive industry is steadily increasing. This increase was observable throughout all participants for all geographies and suppliers and OEMs.

~90%
of the participants state a constant or increasing volume of directed parts.

Fig. 3 – Proportion of directed parts
(share of value in relation to total purchasing volume of directed parts)



2. Using directed parts causes challenges for OEMs, suppliers and sub-suppliers

Project experience and study feedback show that structured processes with clear roles and responsibilities in the awarding process for directed parts are lacking in many companies, despite the high volume of those parts. This also implies that no standardized decision model for directed parts is established considering relevant economic and technological aspects.

It is often unclear whether a part should be sourced as a directed part and which of the business models is appropriate and hence should be selected for the sourcing process.

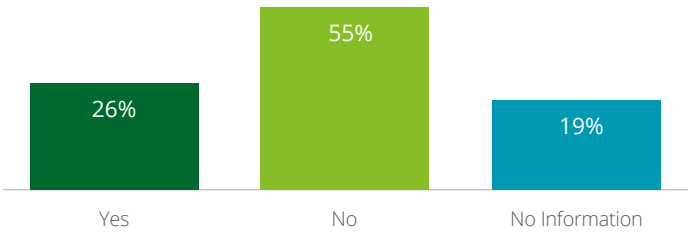
OEMs are partly too focused on procurement cost of dedicated parts, but not on "total landed cost" i.e. the logistic optimum over the whole n-tier supply chain, incorporating all involved commodities.

Once a business model is decided, it has to be verified by direct and sub-suppliers to guarantee a feasible and enforceable concept. The challenge of suppliers trying to avoid directed parts is shown in figure 4. In order to resolve potential conflicts upfront, OEMs have to get the buy-in from supplier stakeholders before they decide for an appropriate business model.

In addition, regulatory authorities are getting more restrictive regarding generating price transparency between suppliers. Hence, potential competitive constellation of direct suppliers and sub-suppliers have to be taken into account. OEMs and supplier have to imply compliant sourcing processes and business models.

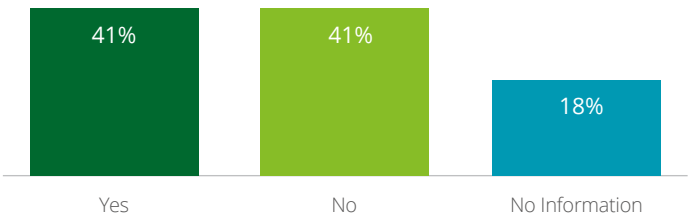
Fig. 4 – Direct supplier and directed parts suppliers perspective on directed parts handling
To resolve potential conflicts upfront, the OEM has to monitor the suppliers potential concerns and get the buy-in from supplier stakeholder in order to achieve a sufficient collaboration along the supply chain.

Do suppliers actively avoid or refuse directed parts from the OEM?



More than a quarter of the suppliers in our research actively seek to avoid or refuse directed parts from OEMs.

Is there a competitive position between direct supplier and directed parts supplier?



More than 40% of suppliers who participated in this study state that they have a competitive position in the constellation of direct supplier and sub-supplier (directed parts supplier).

Other challenges pointed out by study participants comply with our project experience. With more intervention at lower-tier suppliers, the responsibilities of the OEM increase in any business model for directed parts. Therefore, also the efforts for planning and execution of logistics and quality tasks increase and have to be included in budget planning and the business case, but need to be reflected against opposing potential of lower material cost or handling charges.
Furthermore, increasing intervention at lower-tier suppliers impacts tax and custom processes, as material potentially flows across countries and free trade zones in the n-tier chain. In this context, the optimization of customs and tax expenditures shall be considered in the business case for directed parts.

With multiplying number of contractual partners and contracts, the definition of responsibilities within the contract management gets more important the more parties get involved. Especially in the case of regress claims a clear definition of roles and responsibilities is essential.

A decision model which states clear guidelines, roles and responsibilities for the awarding process helps with the selection of the appropriate business model on a case by case basis. Calculation models for business case scenarios can be integrated into these concepts to support the decision process for an appropriate business model. The result of the business case will evaluate the cost optimization potentials against additional operational effort caused by more operational responsibility on the OEM side.

Furthermore, to achieve leading practices for supplier management and directed parts, the following key questions should be answered within the decision process:

- What are the legal implications of directed parts?
- What are the responsibilities of the OEM for warranty and product liability?
- What are the responsibilities of the OEM for development, integration, or assembly?
- What are the implications from a competitive perspective?
- What operational effort is caused by dependence on sub-supplier components with regard to quality, availability, and end-of-life?

By answering the questions within the decision process, solutions for potential competitive supplier constellation can be found. Additionally, implications of planning and execution of logistics as well as potential customs and tax optimizations are considered.

To build the necessary trust for smooth collaboration, the OEM needs to strengthen the relationship with the sub-supplier. The use of a PIA (see Performance Interface Agreement) can contribute to reducing uncertainties as it contains assigned responsibilities and liabilities between all parties involved. The allocation of process responsibilities within each process step for all participating parties in a PIA is decisive for an efficient collaboration between all involved parties. Process steps such as quality control, Incoterms, logistics, storage, handling, regress claims, or reporting structures shall be clarified within the contract agreement between all three parties.

By enabling the IT system landscape and by implementing IT tools for tracking of directed parts, a less time consuming supplier management and an optimized process for logistics and disposition in the n-tier supply chain can be achieved. Also the steering of product changes through the n-tier supply chain is massively benefitting from the increased transparency.

In order to achieve an active and structured management of directed parts, companies have to enable internal processes to realize an optimal handling of directed parts and their sub-suppliers.

Fig. 5– Main challenges for directed parts and n-tier management
We have summarized critical challenges for the management of directed parts and suppliers which have to be considered to optimize internal processes and procurement cost.

Assignment of clear roles and responsibilities for the internal awarding process

Planning and execution of logistics

Regulation of responsibilities (RACI) within the contract management

Identification and tracking in the IT system

Optimization of customs and tax expenditures

Visibility and stability

Selection of an appropriate business model

Management of directed parts in competitive supplier constellation

Performance Interface Agreement (PIA)

Definition:

The performance interface agreement (PIA) integrates the requirements of all business partners involved in the supplier selection process and supplier management from a cross-departmental perspective. It regulates all relevant responsibilities of the OEM and the suppliers for all activities from the product development process to end-of-production and describes the interface activities holistically.

Objectives:

- Agreement for cooperation regarding parts supply by n-tier suppliers in agreed time, place and quantity
- Improvement and standardization of the interface between the OEM and suppliers
- Reduction of the workload and assignment of internal and external responsibilities
- Improvement and anchoring of the legally binding interface processes over the entire product life cycle

Benefits:

- Clearly defined roles and responsibilities to avoid confusion and disagreement between all parties
- Activities and responsibilities are binding and cost-effective
- The agreement can be used to enforce recourse claims against suppliers
- Regulates governance structures and escalation processes
- Determines applicable Incoterms and liabilities in case of part failures

3. Professional solutions for managing directed parts include adequate business models and effective measures

OEMs have various possibilities for designing their business processes for the sourcing of parts within their value chain. With the appropriate application of the different sourcing models for the various parts or commodities in the n-tier supply chain, substantial optimization potentials can be realized. Additionally, with a suitable process model for a specific part or commodity, strategic and tactical goals can be achieved for all involved parties.

As we were faced with multiple interpretations and so no common understanding about the concrete characteristics of the usual business models for directed parts, we distinguish in our study between three different basic business models (see also figure 6):

A

Sytem Leadership

System leadership is the standard business model for parts, that are not defined as directed parts. OEM purchases parts from the direct supplier. The direct supplier sources parts freely along the n-tier supply chain. The OEM has very limited visibility or influence on the lower-tier/ sub-supplier. The OEM is only in contact with the direct supplier, who is responsible for the management of the sub-supplier. Warranty and liability risks for the sourced system or part are with the direct supplier.

B

Directed Buy

The OEM nominates the sub-component and directs the 1st tier supplier to source this component as a directed part. The 1st tier supplier contracts the directed part supplier. The cost ob the directed part is usually defined by the OEM.However, the direct supplier coordinates independently from the OEM with the sub-supplier.

One common variant of this business model is known as Implicit Directed Buy. The directed parts are specified in such manner by the OEM that only one sub-supplier matches the requirements given by the OEM. This is usually realized within the specification sheet for the component of the direct supplier.

C

Provided Material

In the Provided Material business model the OEM purchases parts directly from the sub-supplier and provides them to his direct supplier for manufacturing the component or subsystem ordered. The key difference for the OEM is that it then owns the parts. The OEM takes ownership of the directed part before delivery to the 1st tier supplier.

In this model, we can differentiate between two basic variants:

C_1

Bailment

Material provided free of charge by the OEM to the direct supplier, without transfer of ownership.

C_2

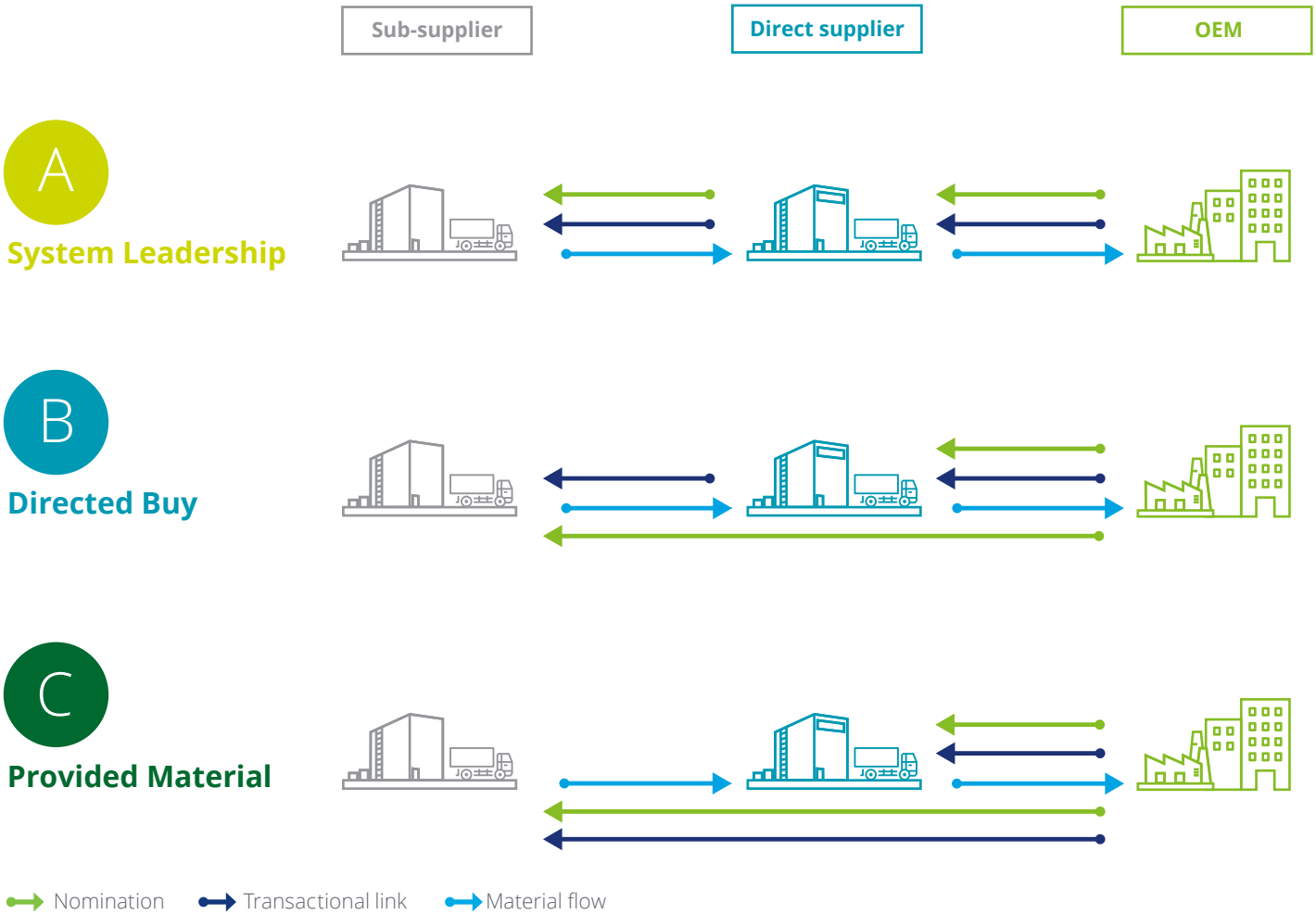
Resale

Material sold by the OEM to the direct supplier (liable to pay) with transfer of ownership.

The Provided Material business model offers some advantages for the OEM. It increases the visibility along the supply chain and enhances the influence on the price and quality of directed parts. Potential risks for the OEM such as supply shortages can also be better monitored along the supply chain.

The disadvantage is an increase of responsibilities and efforts, e.g. for quality control and logistics of the provided material.

Fig. 6 – Business Models for sourcing of directed parts
For sourcing parts, especially directed parts, we distinguish 3 basic business models



Within the automotive industry, Directed Buy is the most commonly used business model, followed by Provided Material. Other business models represent just a small percentage (see figure 7). Directed Buy is the preferred business model due to lower complexity and implementation effort in comparison to Provided Material. The implementation of other models requires comprehensive expertise, resources to adjust processes, and has to be investigated on an individual case basis. The transition can reveal cost optimization potentials or can be required to ensure compliance with legal requirements (e.g. competition law).

Decision on Business Models

The business models presented offer alternatives to current strategies and processes of OEMs and suppliers. The decision for a directed part assignment may be driven by different objectives, such as ensuring technical requirements, achieving cost optimization or ensuring a more robust supply chain.

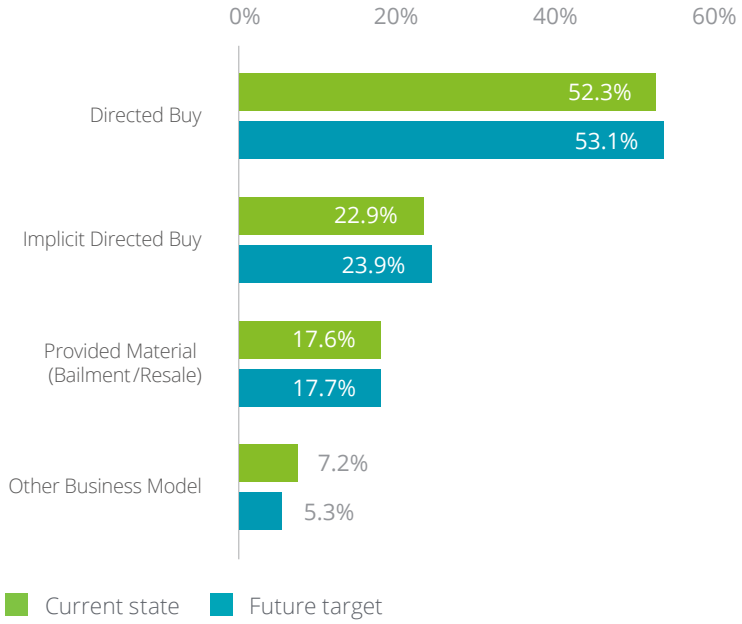
To make a profound decision regarding directed parts and the respective business model, further questions have to be considered:

1. Who generally decides on awarding directed parts and the best fit business model?

2. Which factors should be included in the decision process ?

3. How is the process implemented or mapped in the IT system landscape?

Fig. 7 – Business Models for directed parts (in %)
The majority of around 75% of the survey participants use (implicit) Directed Buy as the business model for directed parts. Provided material is the second most popular business model.

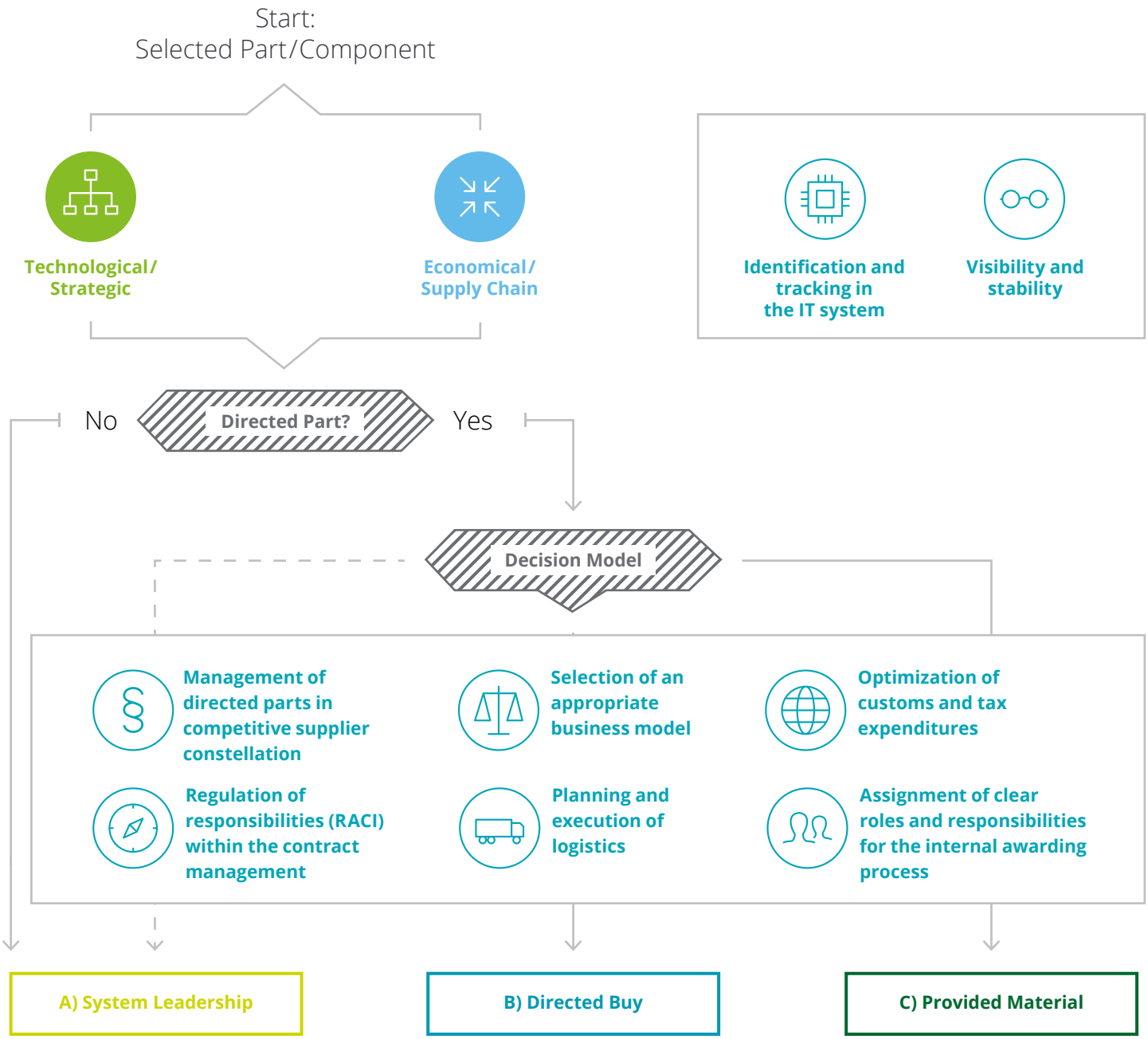


A structured decision, review and documentation process is needed for the selection of an optimal business model.

Figure 8 illustrates a high level concept of the decision model for directed parts. The first decision is taken on setting directed parts based on technical and economic criteria. On the second level the best fit business model is derived from a variety of economic, logistic and legal constraints.

In particular the OEM needs to take into account if the 1st tier and directed parts supplier are competitors. In this case competitve regulations and the separation responsibilites constrain suitable business models for directed parts management

Fig. 8 – Decision Model for directed parts
To face the respecting challenges of managing directed parts, they should be addressed on the appropriate step within the decision making process.



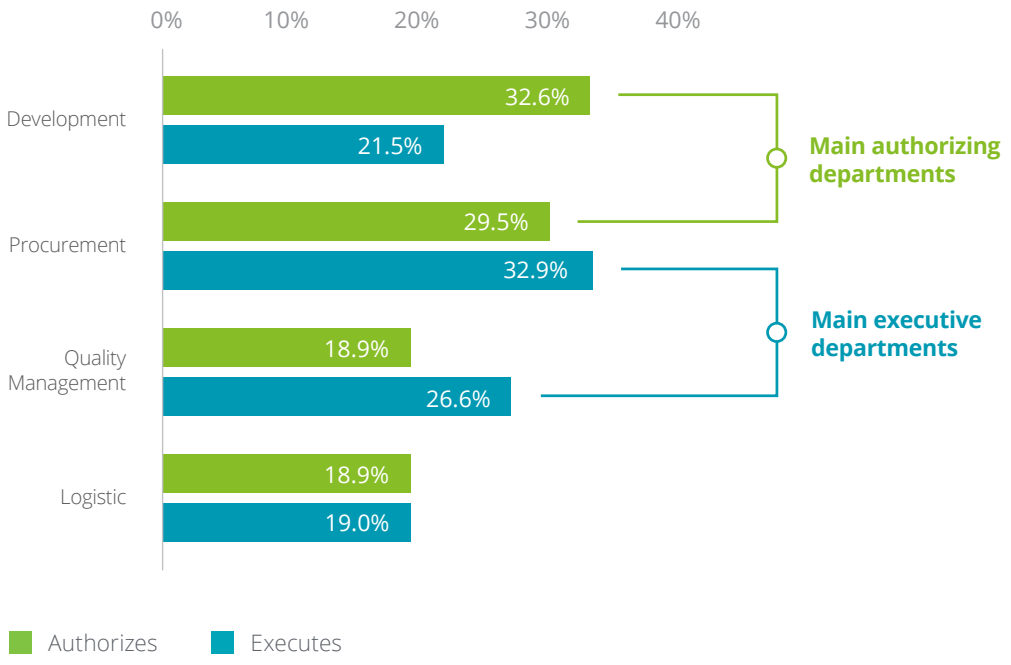
Directed Parts Assignment

The main drivers for directed parts decisions are product development and procurement.
The development department takes technical considerations into account, such as reduction of complexity, technology leadership and quality aspects.
Procurement is mainly driven by cost optimization potentials. This aspect shall be considered defining the target process and responsibilities for directed parts assignment.

Directed Parts Execution

Main focus on directed parts execution is tied to procurement and quality management. Thus it is a critical success factor to create a setup enabling quality management to execute directed parts management throughout the n-Tier supply chain.

Fig. 9 – Distribution of responsibilities for the directed part decision by functional areas (in %)
The responsibility for the directed part authorization lies primarily with the development and procurement departments, while execution mainly belongs to the procurement and quality management department.



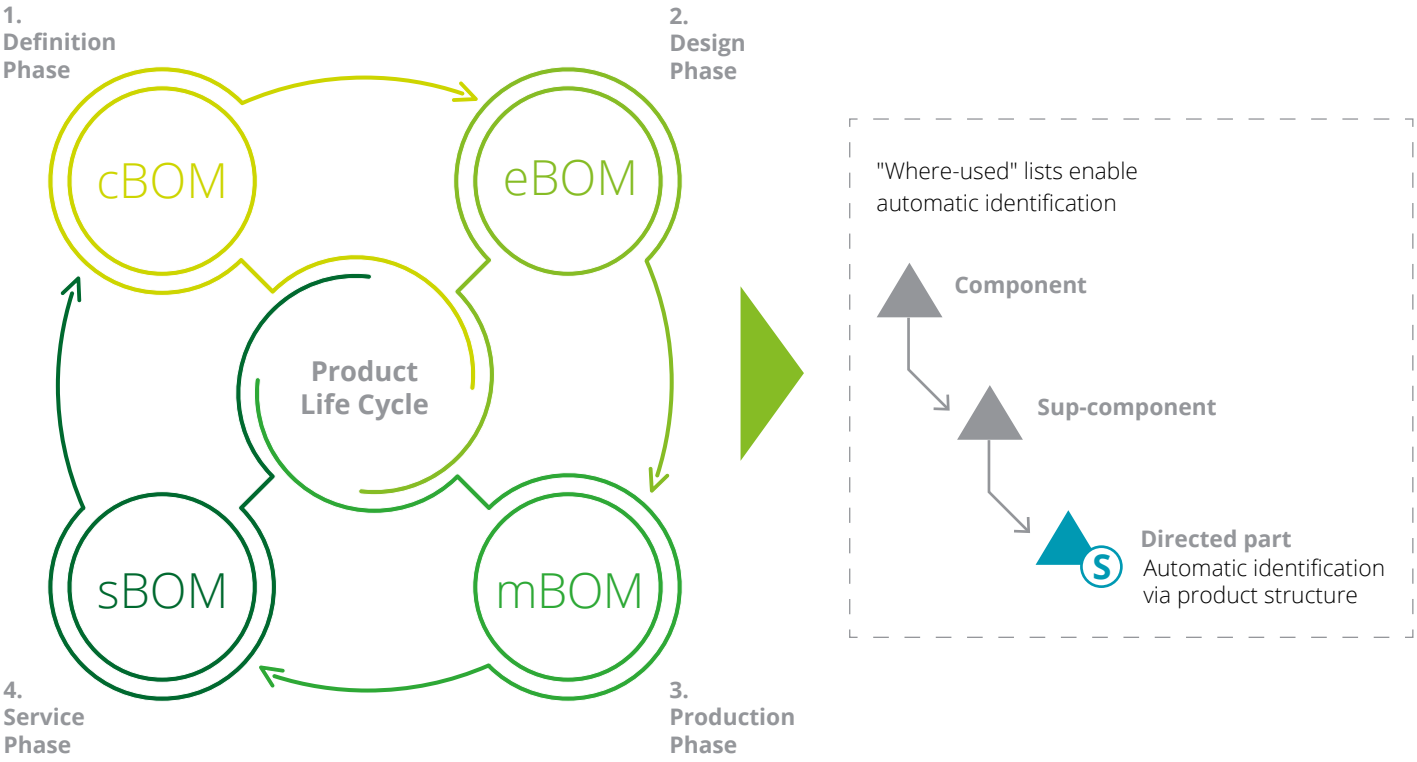
Tracking and reporting of directed parts

A sound database of directed parts is key to their efficient management. Information in the product structure about directed parts and where they're used allows for a clear and efficient deployment control.
The integration into the IT system of such information enables the generation of "where-used" lists and reports, which enable an easy tracking and management of those parts across the company.

In large organizations the nomination of directed parts and the usage of such parts in externally sourced assemblies is often assigned to separate organizational units. The split of responsibilities in product development, procurement and on the supplier side requires an easy tracking of directed parts in the product structure.

Fig. 10 – Approach for identification, tracking and reporting of directed parts
The efficient management of directed parts is only possible through a sound database which can be transferred into a reporting dashboard for the management.

Tracking and Reporting



BOM = Bill of Materials (c=concept, e=engineering, m=manufacturing, s=sales)

Benefits of Tracking and Reporting

Enables strategic decision on directed parts and an optimal business model

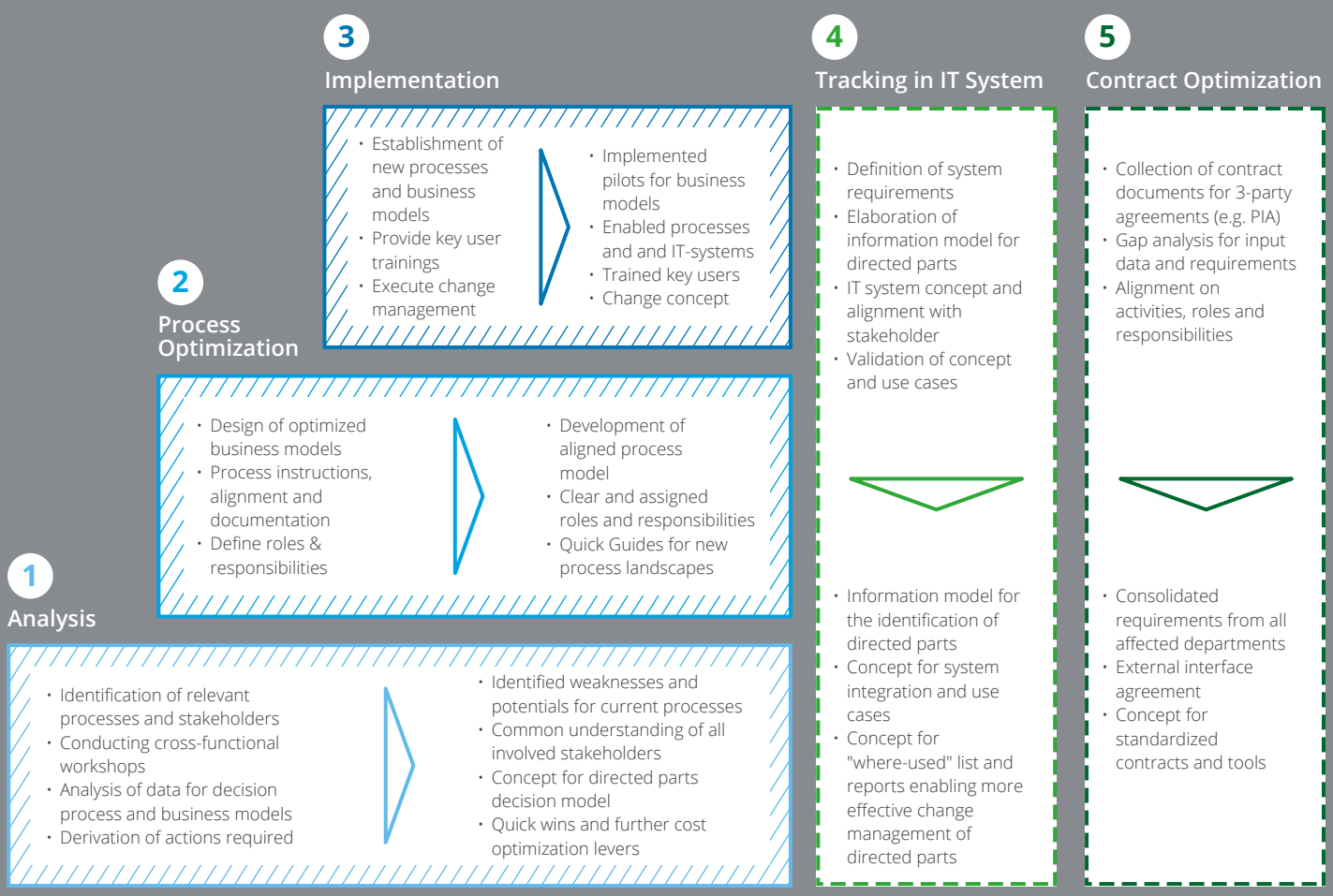
Better controlling of effects of changes in directed parts, leading to lower risk of supply shortages

More robust, efficient and automated change control for directed parts in n-tier supply chain

Use case: European Automotive OEM

Challenge – Ineffective management of sub-suppliers delivering directed parts
Our client is a leading automotive OEM who faced many challenges managing directed parts in the n-tier supply chain. Due to process & IT restrictions the number of applicable business models for directed parts management is limited. The responsibility of the OEM, the supplier and the sub-supplier was not clearly defined. Thus the execution of directed parts management required significant changes in the OEM organization and processes. Additionally, no fitting business models were established for all existing n-tier situations. Issues with recourse claims, unclear roles and responsibilities during the sourcing process were symptoms of the quality of his sub-supplier management. Directed parts distort the regular procurement and logistics processes at this OEM, e.g. sourcing, liability, recourse, quality assurance etc. Hence, more effective sourcing and procurement business models had to be designed and implemented.

Solution
For developing sub-supplier management solution for directed parts, our project team developed a five step solution approach.



Impact
The project was able to establish a common understanding of directed parts and n-tier supply chain throughout the client's organization. The project established well-defined and documented business models and detailed information on implementation efforts. The corresponding requirements were stated through communication between procurement, logistics, development, tax and legal departments. Best fit business models for directed parts were evaluated and selected for a variety of use cases in different procurement departments. Optimized processes and clear responsibilities improve the collaboration of OEM, 1st and 2nd tier suppliers. Step1, 2 and 5 already lowered the overall risk in the supply chain and improved the collaboration, while ongoing step 3 and 4 will finally minimize the supply chain risks and remove inefficiencies.

Conclusion

The professional management of directed parts enables stable and efficient automotive supply chains. Defining sourcing processes and clear roles and responsibilities allow for the effective coordination of all parties along the automotive supply chain.

Our study results clearly show that directed parts have and will further gain importance for the effective management of automotive supply chains.

The major motives behind the increased usage of directed parts such as

- complexity management and fast adaption of new technologies
- bundle purchasing volume
- compliance with quality and legal requirements

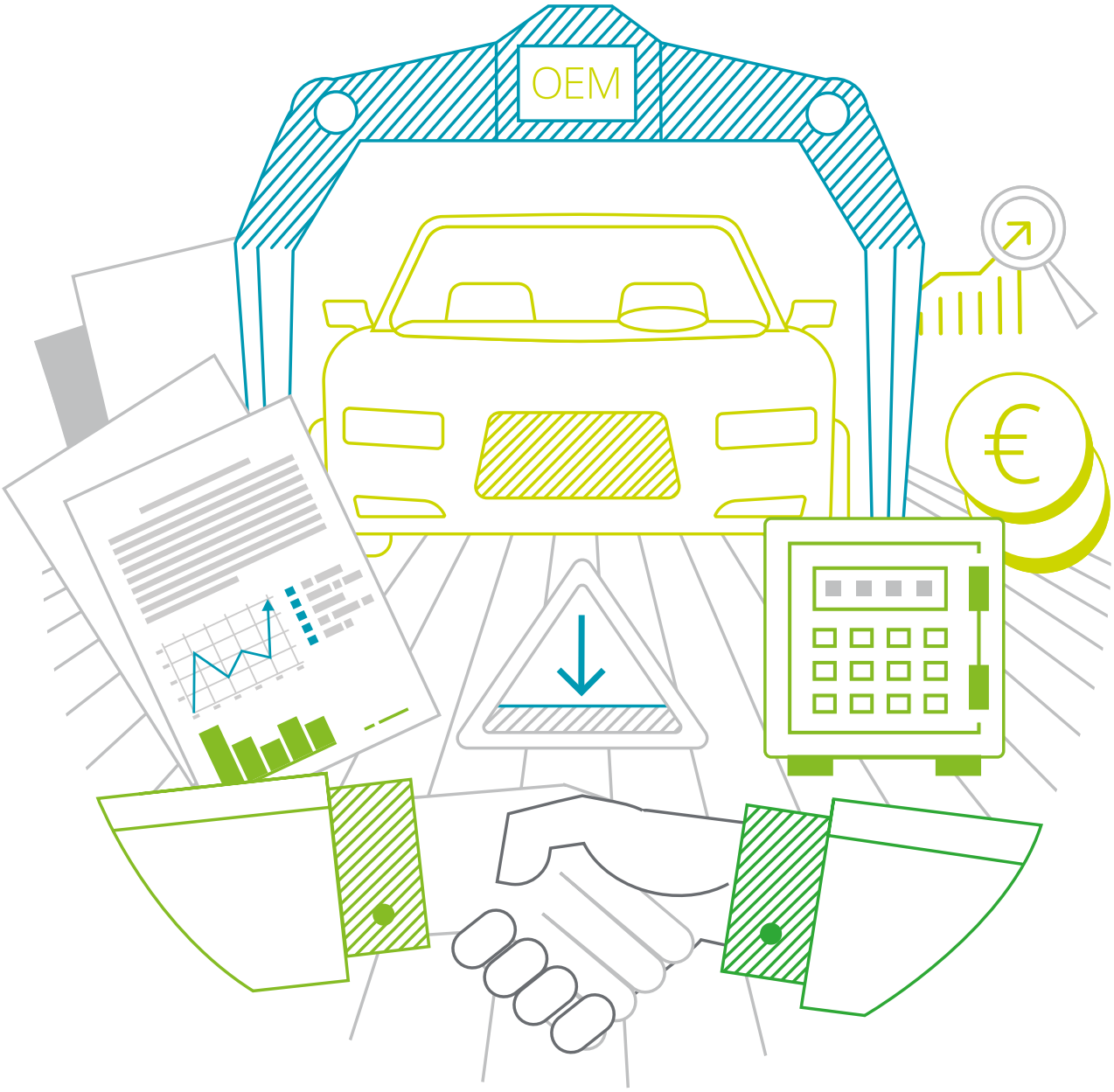
Despite such benefits directed parts also generate irregular effects in the automotive supply chains for OEMs and suppliers. Disputes on procedural and organizational issues, unclear recourse claims and liabilities as well as legal risks are the effects of those irregularities in the automotive supply chain. The benefit of directed parts are tied to negative effects in the supply chain.

Companies acknowledge the benefit and increasing use of directed parts but also the challenges managing them. However, they mostly lack solutions to address these challenges. Our study findings recommend that awarding parties of directed parts, such as OEMs, should establish a formalized and standardized process for the directed part decision process.

OEMs and suppliers who endorse the active management of their (sub-)suppliers and directed parts can achieve technology leadership, major cost savings while reducing supply chain risks at the same time.

- Optimization of the supply chain with more stable processes can significantly reduce the risks of production stops or additional effort for inbound logistics and quality assurance.
- Obtaining a higher transparency along the n-tier supply chain, OEMs engaging in this topic can identify many optimization levers in the area of logistics and procurement.
- The efficient management of all parties along the automotive supply chains needs to be enabled with clear roles and responsibilities.
- Performance interface agreements are an effective tool to ensure process compliance of all involved parties.
- Required visibility and transparency along the n-tier supply chain must be enabled by a sound tracking and reporting of directed parts in bill of material in corresponding IT-systems.
- Achieving legal compliance with competition laws.

Building leading management solutions for directed parts today significantly contributes to the stability of the future automotive supply chains.


OEM

Appendix

The objective of our study is to capture the landscape of supplier management along the whole automotive supply chain. As our focus lies within the automotive industry we focused on experts in this field who are working mainly in the areas of product development, sales and sourcing & procurement.

As figure 11 shows, most study participants are working at OEMs and direct suppliers (1st tier), while the group of directed parts suppliers (2nd, n-tier) is the smallest group in the study with 17.8%.

The majority of the study participants (65.8 %) represent product development, sales and sourcing & procurement departments.

Fig. 11 – Composition of Study Participants (in %)

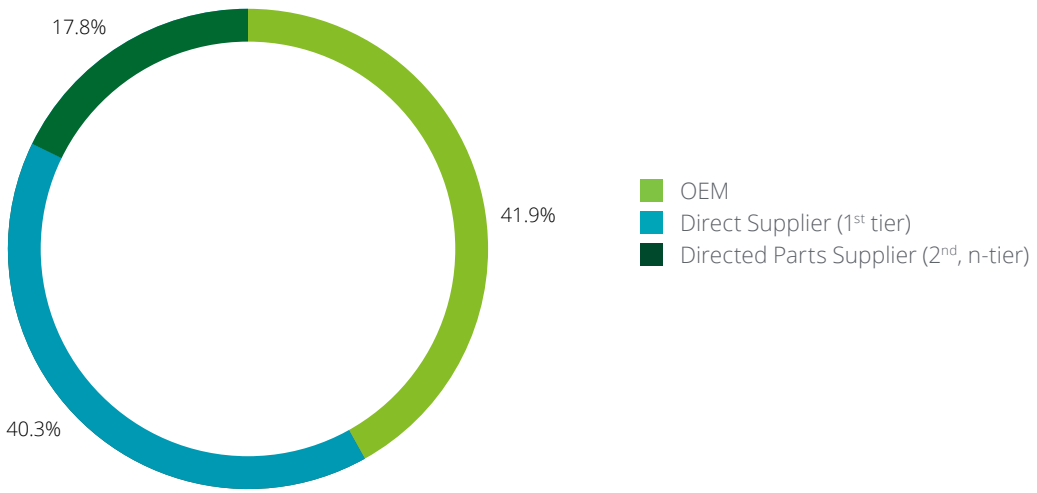


Fig. 12 – Functional Department of Study Participants (in %)

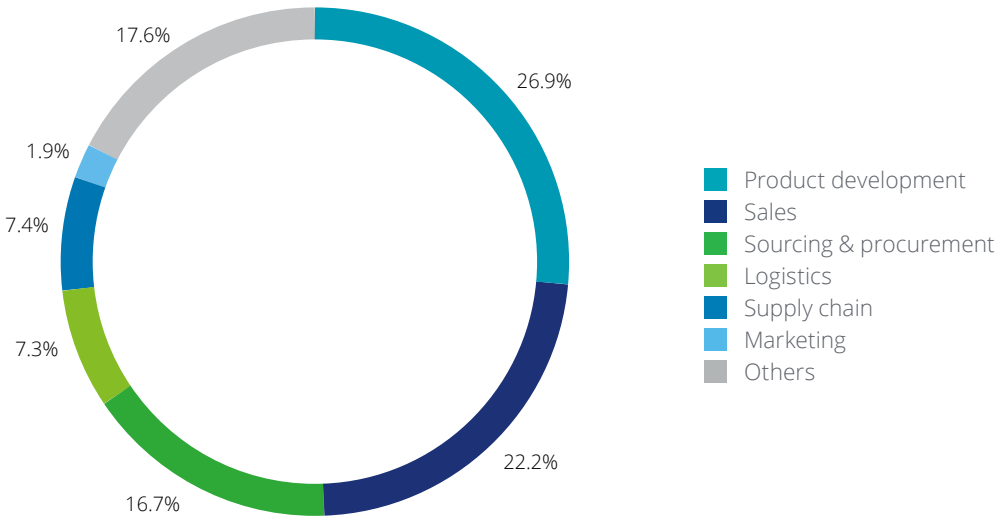
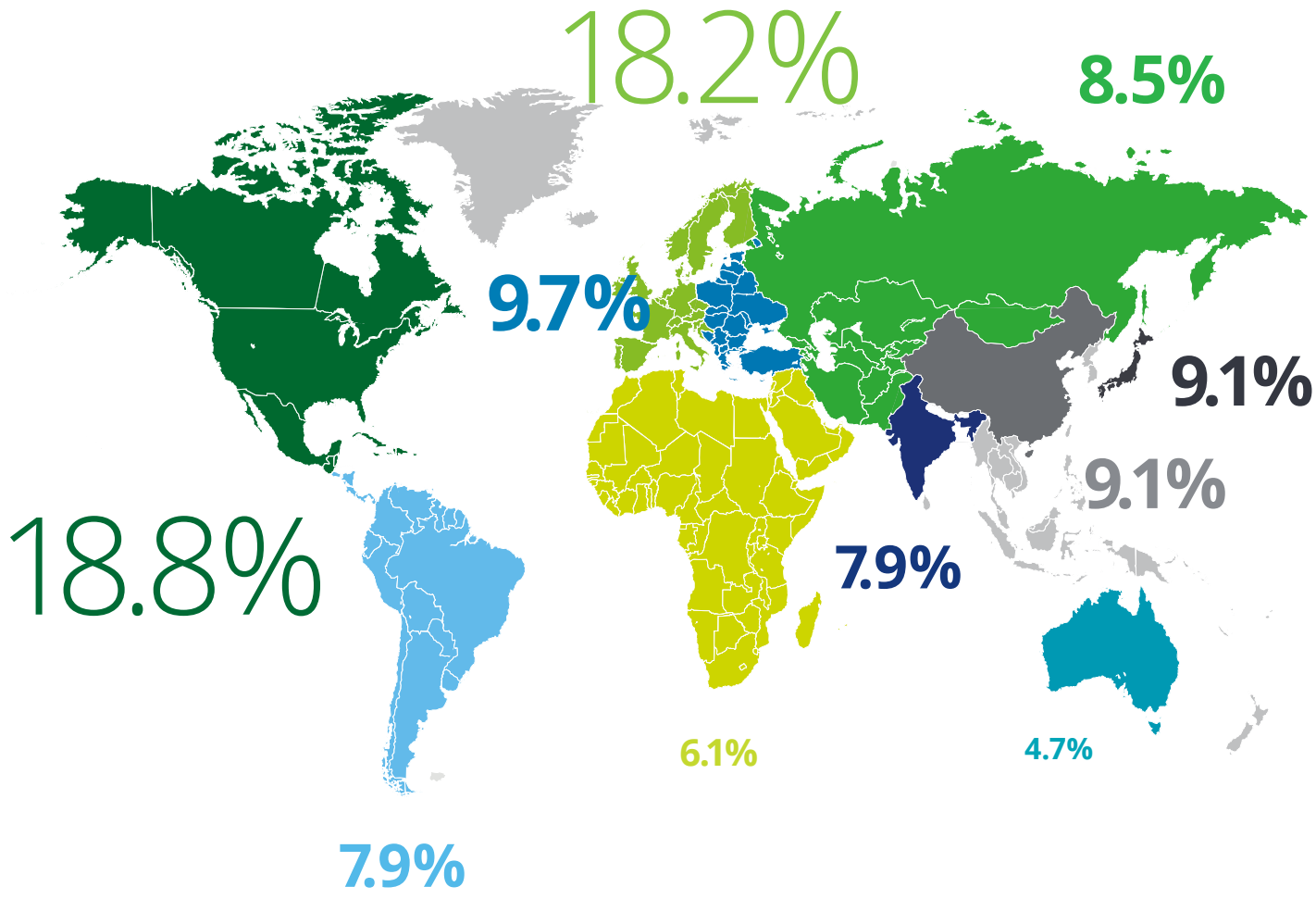


Fig. 13 – Geographical Distribution of Operational Activity (in %)
The main focus of operations by the study participants is in North America and Western Europe.
All other operational activities are almost evenly distributed around the world.



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