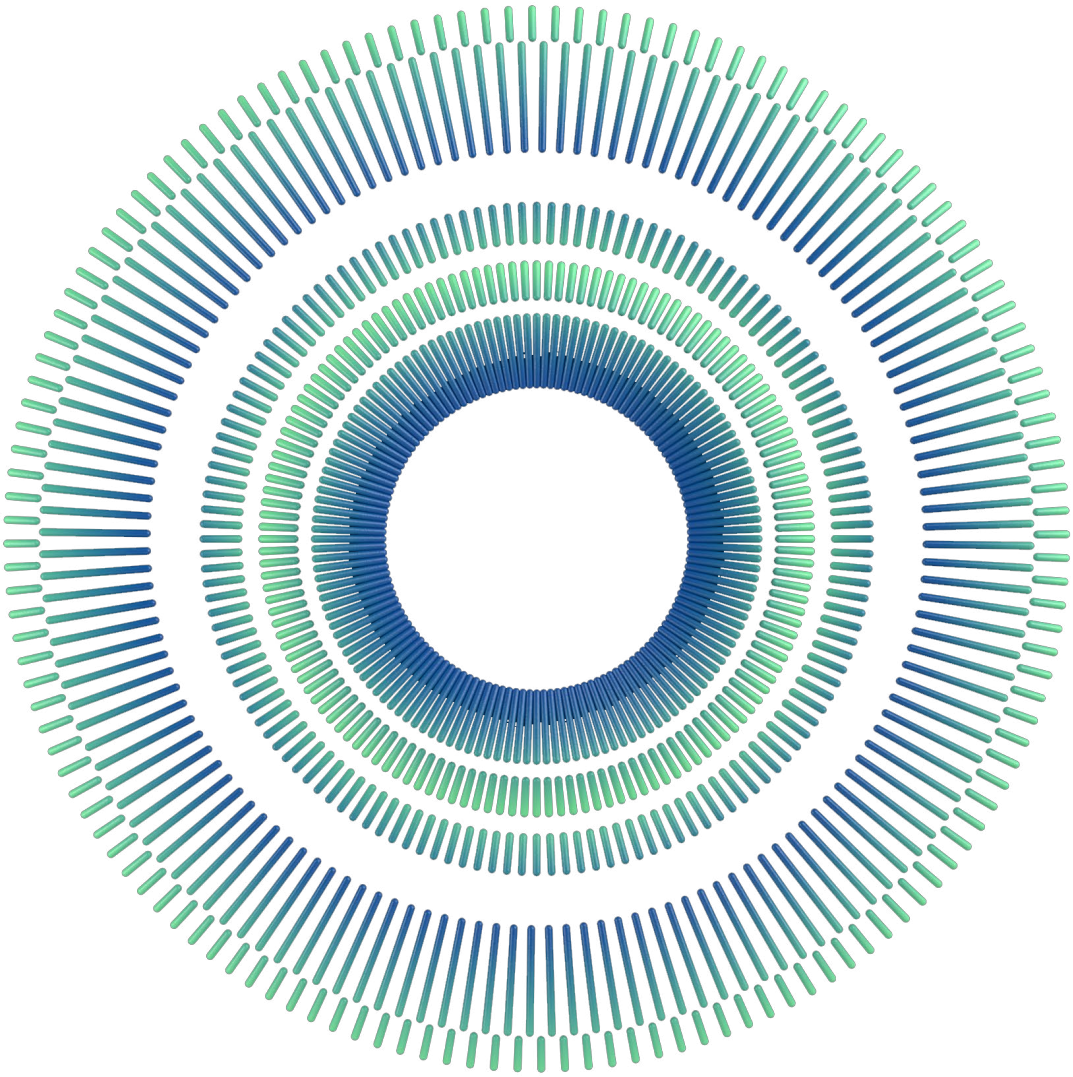


Linking Working Capital and Profitability

How traditional lean methods effectively increase enterprise value

Working Capital optimization as a driver for profitability

Increased inventory in a low interest environment – the hidden potential for liquidity and profitability

Before the economic slowdown in 2020, the German economy was enjoying a decade of growth with interest rates declining to a historically low level. This significantly decreased the cost of external funding and meant that there was no need for companies to manage their working capital professionally to invest and grow. While revenues increased between 2010 and 2019, profitability margins remained unchanged: a potential sign that companies have had less of a focus on liquidity and profitability.

Fig. 1a – Development of Gross Margin[1]

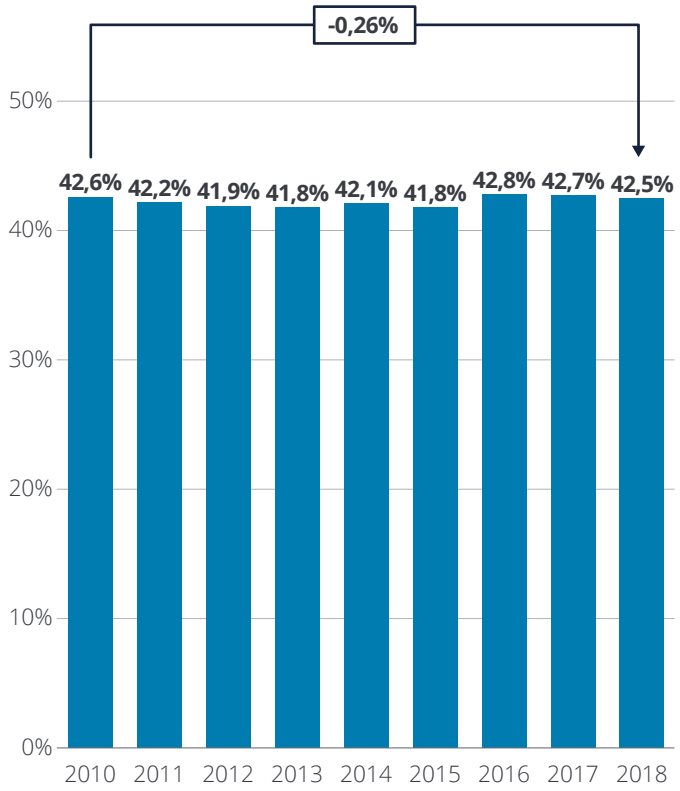
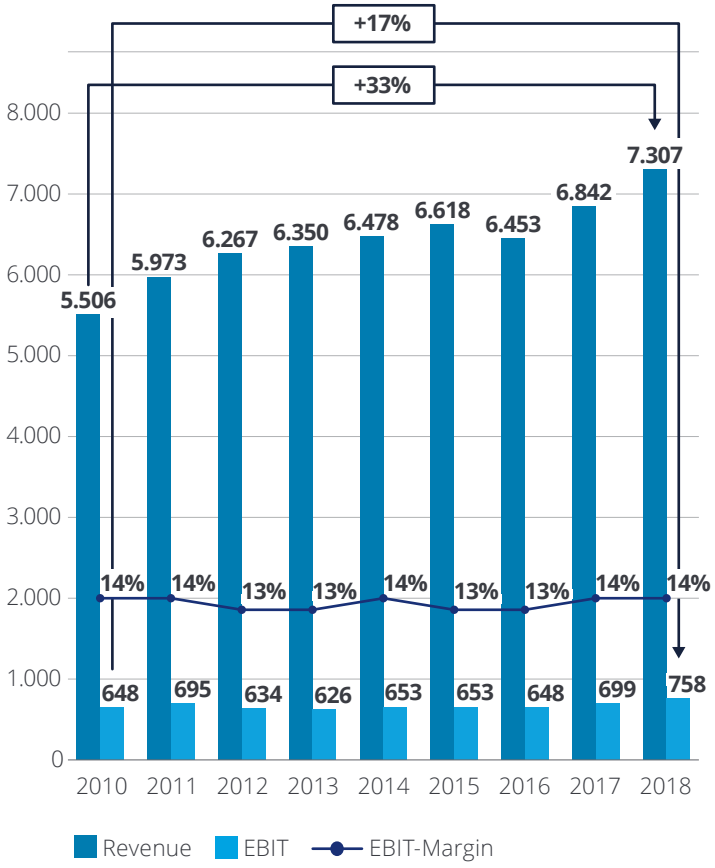


Fig. 1b –Development of revenue (€k) and EBIT-Margin[1]

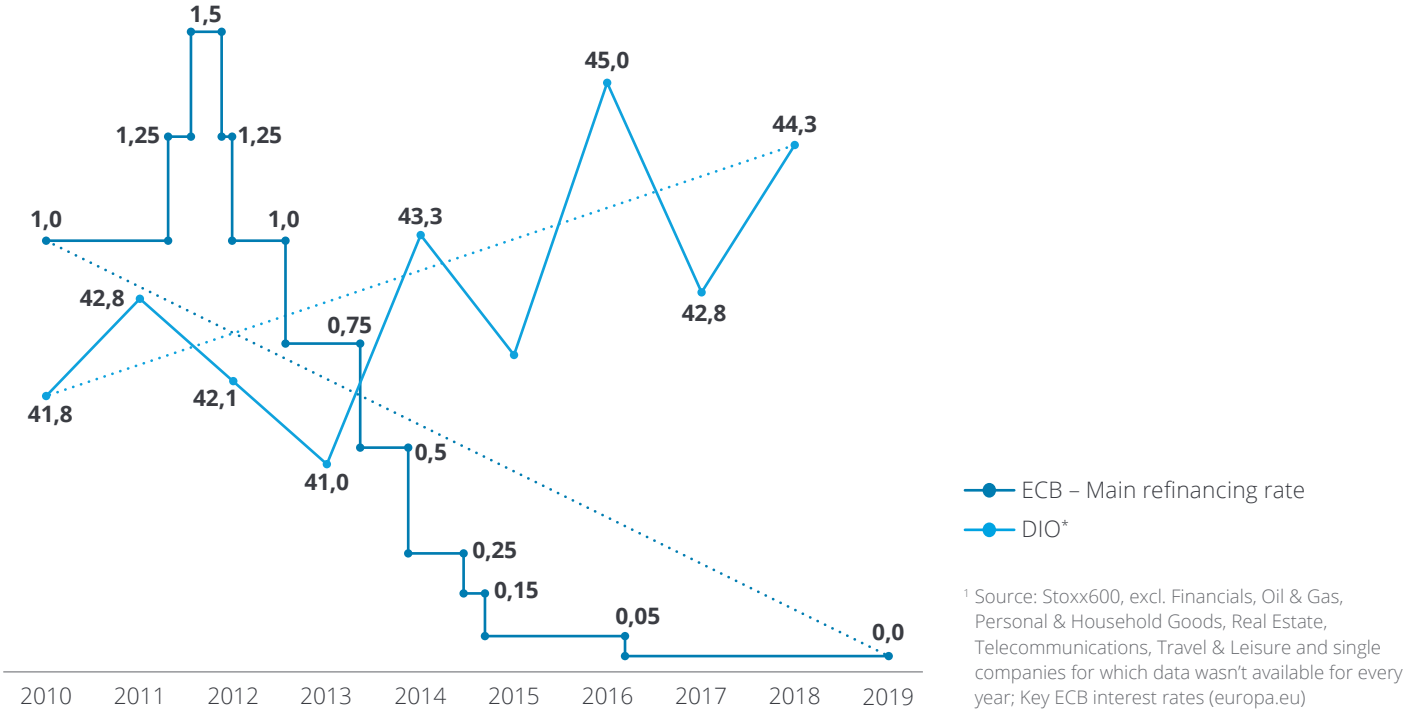


[1] Source: Data basis for the calculation of the DIOs, revenues, EBIT and gross margin includes companies in the STOXX600, excl. Financials, Oil & Gas, Personal & Household Goods, Real Estate, Telecommunications, Travel & Leisure and single companies for which data wasn't available for every year.

Historical data of Days Inventory Outstanding (DIO) for the largest 600 companies in Europe illustrates an increase over the last nine years while interest rates have steadily declined.

Manufacturing industries, industry-related services, and wholesale distributors in particular are noticing the economic cooldown. The trade conflict initiated by the US has affected the international exchange of goods and global investment activities, while the COVID-19 pandemic has further accelerated these developments. Companies now find themselves in exceptionally challenging times. But there are important lessons to be learnt from COVID-19. One of them is the need to refocus on internal financing power by freeing up working capital and optimizing inventory management. Applying these measures will not only increase companies' liquidity but also achieve a positive impact on profitability.

Fig. 2 – Development of ECB main refinancing rate and DIOs[1]



[1] Source: Stoxx600, excl. Financials, Oil & Gas, Personal & Household Goods, Real Estate, Telecommunications, Travel & Leisure and single companies for which data wasn't available for every year; Key ECB interest rates (europa.eu)

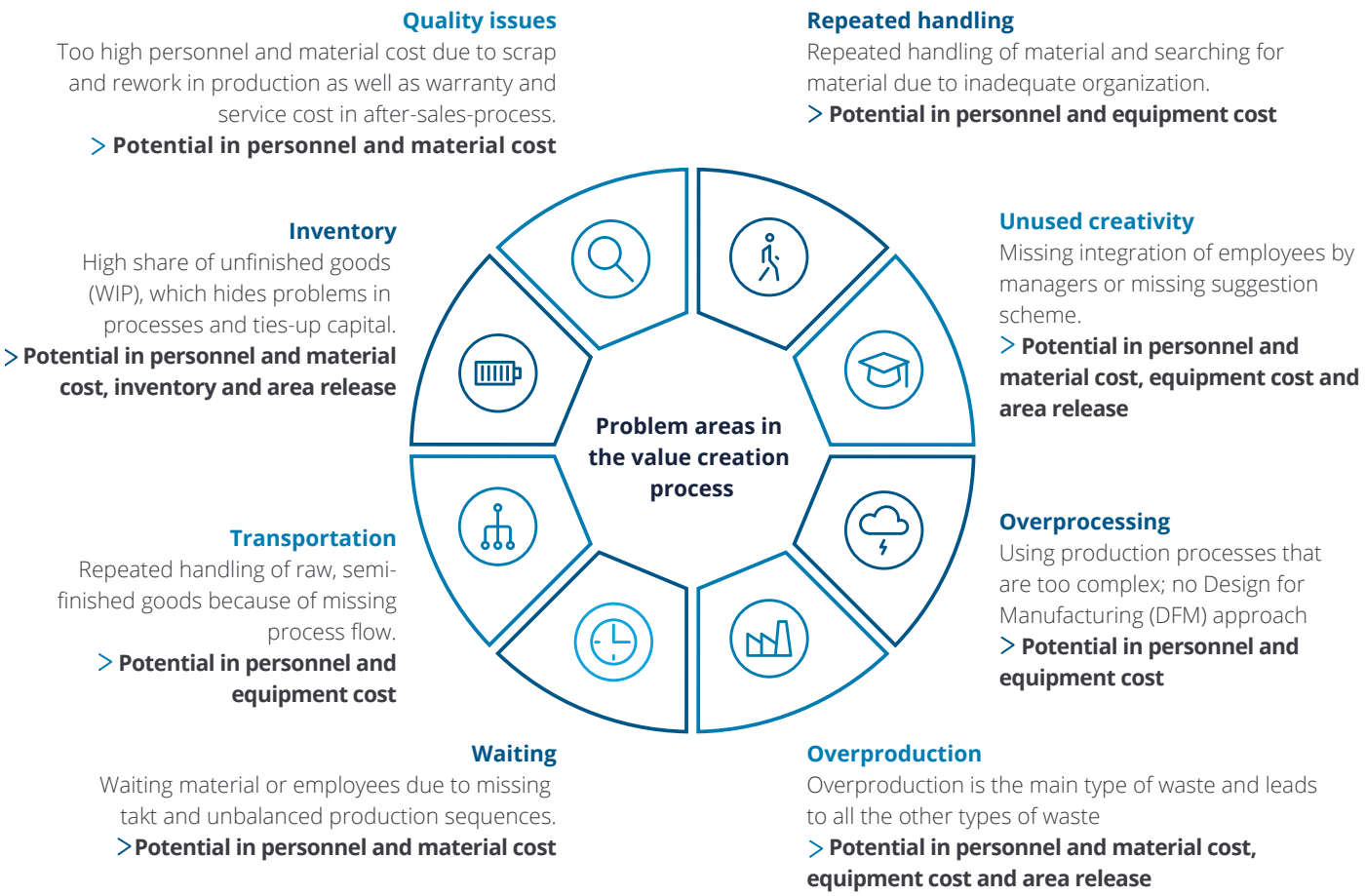
The gateway to profitability: tackling underlying processes with classical lean concepts

"Back to the roots" as a path to success

"Speed over perfection" should be the guiding principle for companies, especially in crises and when restructuring. Cleaning-up and challenging existent processes and structures against straightforward, well-proven best practices combined with a data-driven approach can generate rapid results. Lean processes create transparency, foster agile decision-making, and encourage faster execution.

Still, companies often do not recognize the operational advantage that an active and thorough inventory management provides. Many even perceive high inventory levels as an advantage, ensuring that they are prepared for (higher) demand and potential problems. However, there often is little or no awareness of where exactly inventory is tied-up within the supply chain. Nor are there any external benchmarks. Inventory reflects a company's process efficiency, profitability, and therefore enterprise value, yet many companies do not include inventory as an important KPI for management.

Fig. 3 – Seven types of waste according to Lean Management



Applying lean principles saves time, material, costs, and space

High inventory is the most severe of the seven waste categories because it hides problems in the underlying processes and leads to unbalanced workloads, quality issues, an increased effort for stocktaking, increased time spent searching for materials, machine downtimes and longer set-up times, all implying avoidable costs. It is therefore also a symptom of poor planning processes and a lack of transparency.

"'Inventory hides all sins' – this key lean quote and wisdom highlights the link between inventory and profitability and will regain tremendous significance in the future."

Oliver Boehner, Director | Deloitte Restructuring Services

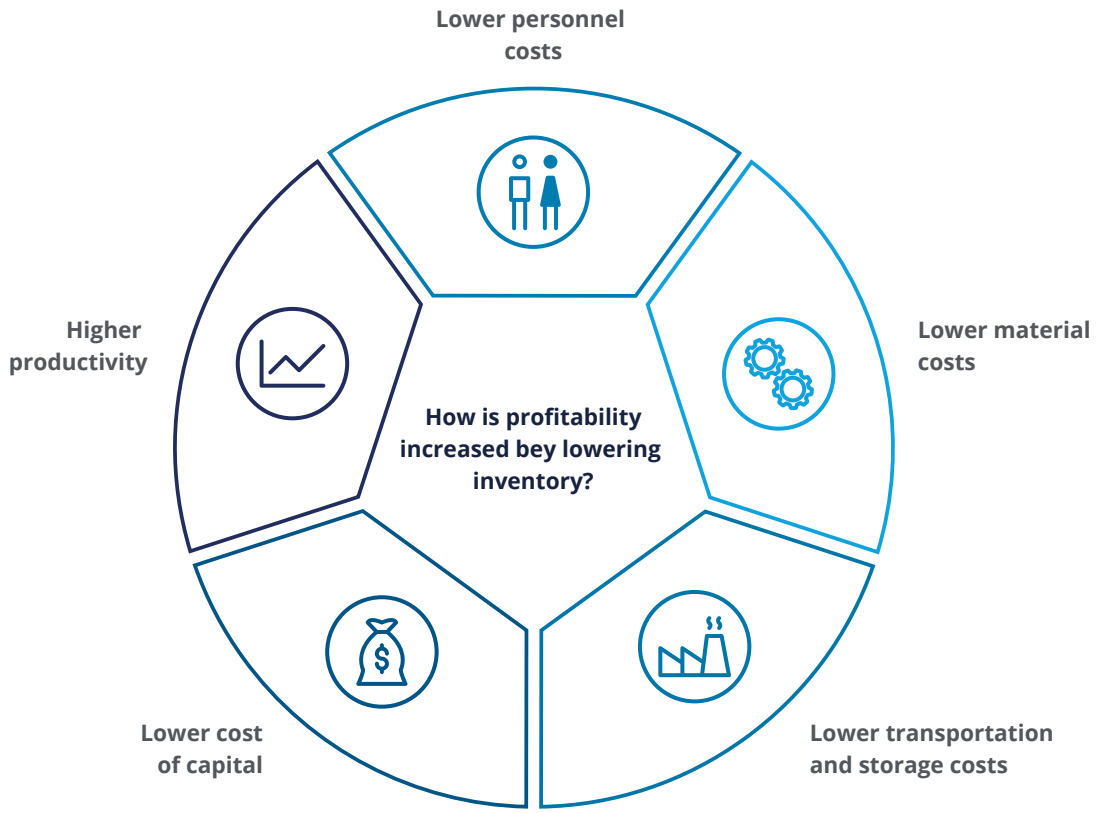
Root cause analysis based on two case studies – five significant profitability drivers

DIO as a profitability-related indicator

DIO as a KPI mostly relates to liquidity; however, although this might not be obvious at first, it also impacts profitability. Deloitte analyzed the relationship between inventory development and five major areas based on the data of two companies within the consumer goods and industrial sector in Germany. We evaluated the data over a period of three and ten years, respectively, and conducted representative expert interviews with employees in executive positions within operations and finance to validate the findings.

We included the following five fields of analysis:

Fig. 4 – Five fields of analysis



A deep dive into the five profitability drivers

(1) Productivity: uncovering hidden problems to increase efficiency

Reducing inventory, especially work-in-progress (WIP), can reveal significant unexpected operational problems. Employees tend to assume that certain processes take a certain amount of time and overlook the significant amount of hidden unproductivity, while companies produce parts that are not immediately required and keep a high variant diversity, which leads to a cycle of increasing inventory and decreasing aggregated productivity.

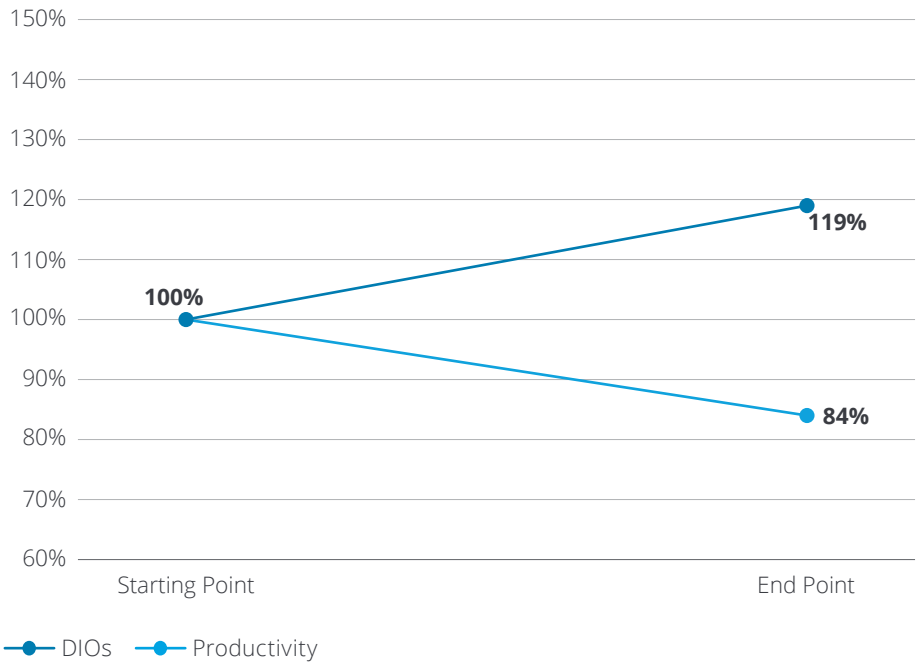
Our analysis indicates that the level of productivity (calculated as value added per employee) might be related to inventory. As illustrated in the figure shown below, productivity decreased by 16 percent in the relevant periods while inventories increased by 19 percent. The main reasons for this development are efficiency losses due to non-value adding activities and a lack of flow in production.

The main goal is to establish stable and transparent processes that keep inventory at an optimal low level. Applying the principles of "one-piece flow" and "takt" reduces the time spent waiting or searching as well as lead times and consequently increases overall productivity and enables higher output levels and profitability, which in turn has a positive impact on revenue.

(2) Personnel costs in the supply chain: reducing additional effort and overtime

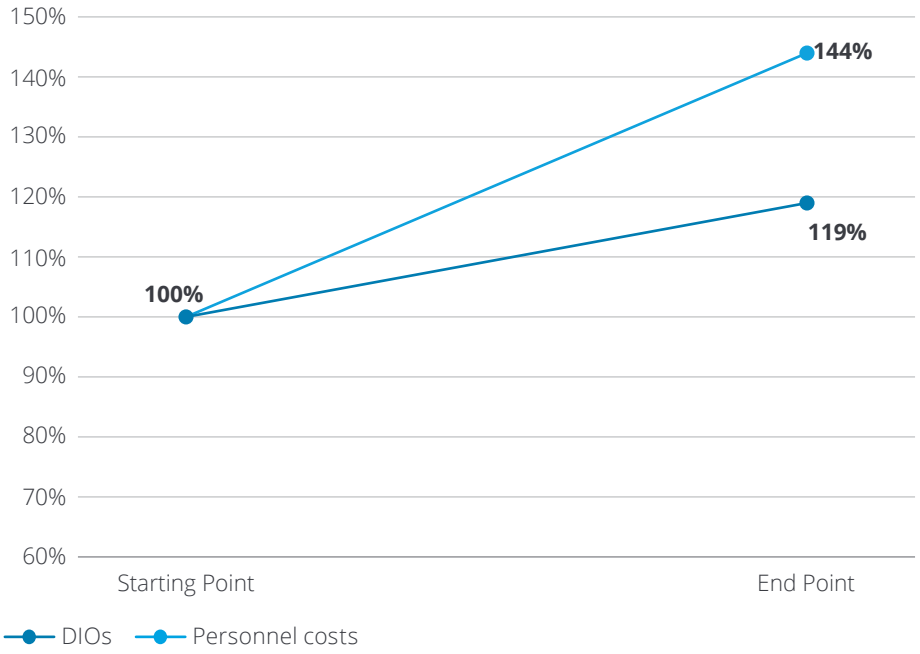
A reduction in inventory results in a reduction of additional effort and overtime in the short-term and creates potential for entire work packages to be slimmed down and, consequently, for resources to be reallocated to value-adding areas in the medium- to long-term. The data shows that personnel costs increase at a disproportionally high rate compared to the increase in inventory. By reducing inventory, companies can standardize, streamline, and balance logistics activities. Consequently, a reduction in inventory can have a disproportionate effect on profitability in the area of supply chain management.

Fig. 5 – Development of productivity vs DIOs[2]



[2] Productivity calculated as (Sales – material costs) / # of FTE; starting and end point represent the first/ last year of the indexed time included in the analysis

Fig. 6 – Development of personnel costs vs DIOs[3]

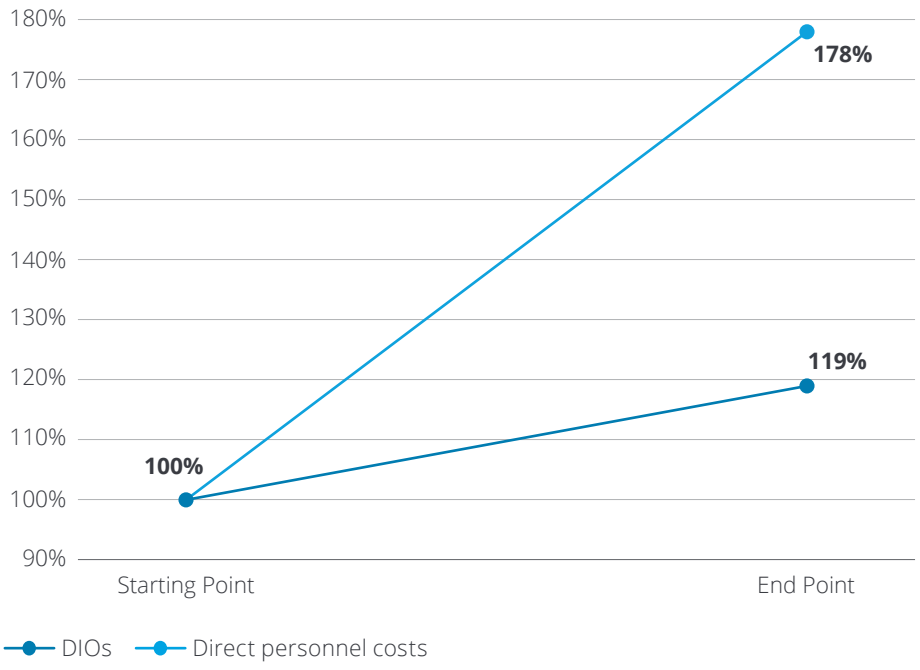


Direct personnel costs: Direct personnel costs are the major driver for the disproportionate development of personnel costs. Direct personnel in the supply chain includes employees that directly engage in material handling and transport as well as external transportation providers. We have identified three possible reasons for this effect:

- Employees lose track of materials, which leads to additional efforts such as time spent searching and increases waiting times.
- Longer distances, larger storage spaces and a higher need for rearranging materials mean more employees are needed to move materials.
- A lack of transparency and insufficient process stability negatively affect resource allocation, which again increases waste and unnecessary effort.

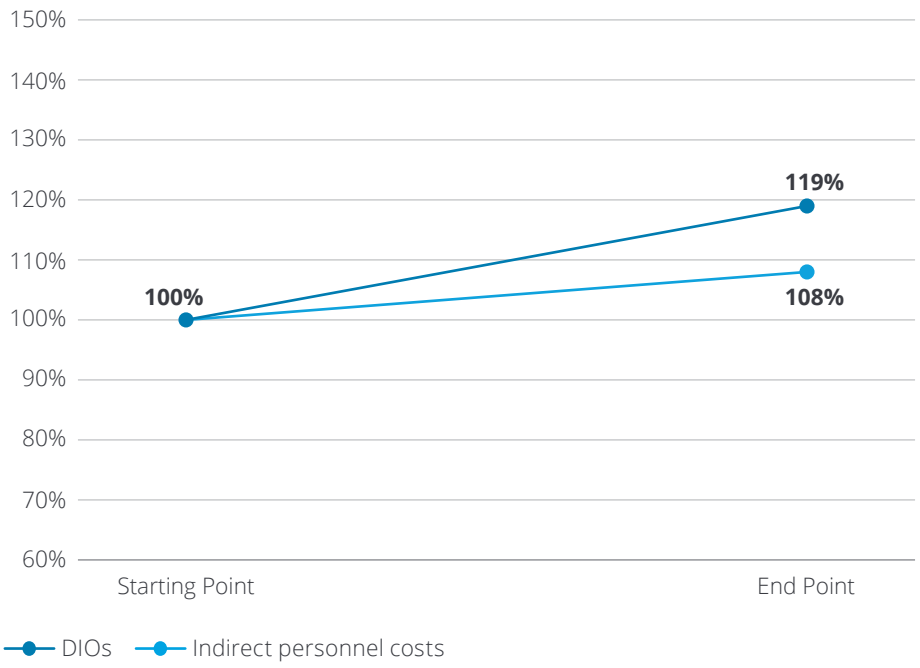
Indirect personnel costs: Indirect personnel costs increase at a disproportionally low rate. Increased process stability and transparency reduce the need for overtime and additional efforts. However, individual employees and systems within these departments are still capable of handling higher inventory levels. Inventory levels consequently affect the indirect personnel costs to a lower extent, as indirect employees still need to perform certain tasks.

Fig. 7 –Development of direct personnel costs vs DIOs[3]



[3] Personnel costs analyzed as a % of sales, starting and end point represent the first/ last year of the indexed time included in the analysis

Fig. 8 – Development of personnel costs vs DIOs[3]



[3] Personnel costs analyzed as a % of sales, starting and end point represent the first/ last year of the indexed time included in the analysis

(3) Material costs: scrap, rework and impairments as main drivers

Scrap and Rework: Scrap and rework costs increase in line with inventory for three reasons:

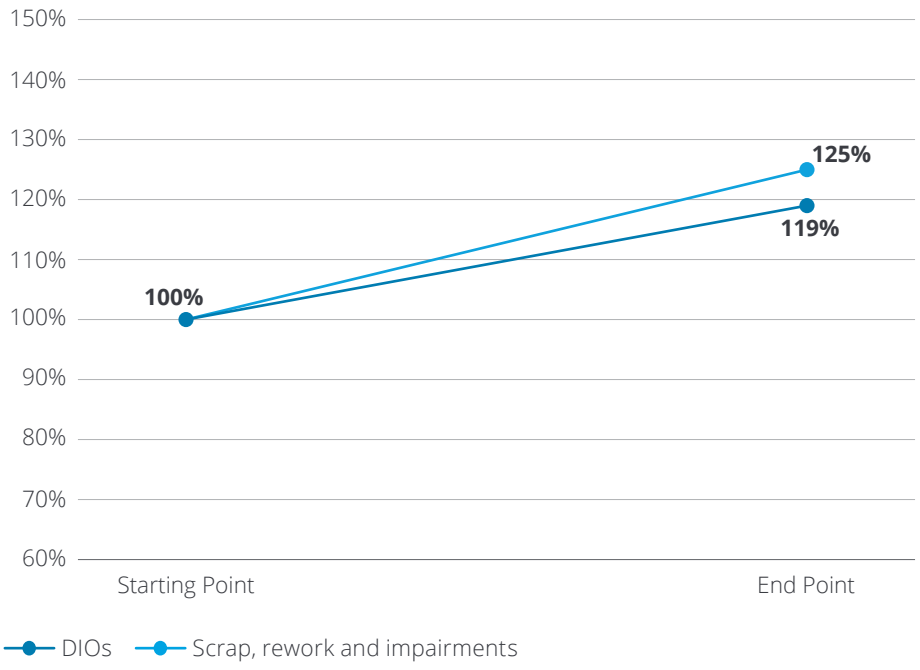
- High inventory leads to a shortage of space and repeated handling, which increases the risk of damage during transport.
- A lack of transparency increases the risk of the quality of materials deteriorating or inventory becoming unsuitable for production or sale.
- The lean principle of zero defects is very important. If production is not stopped as soon as a defect is detected, these issues will become visible at a later stage and will again affect scrap and rework.

Impairments: Impairments increased at a disproportionally high rate of 98 percent. There are three major reasons why insufficient inventory management can increase the risk of materials becoming obsolete:

- Changes in technology
- Changes in customer requirements regarding design and functionality
- Changes to regulatory requirements

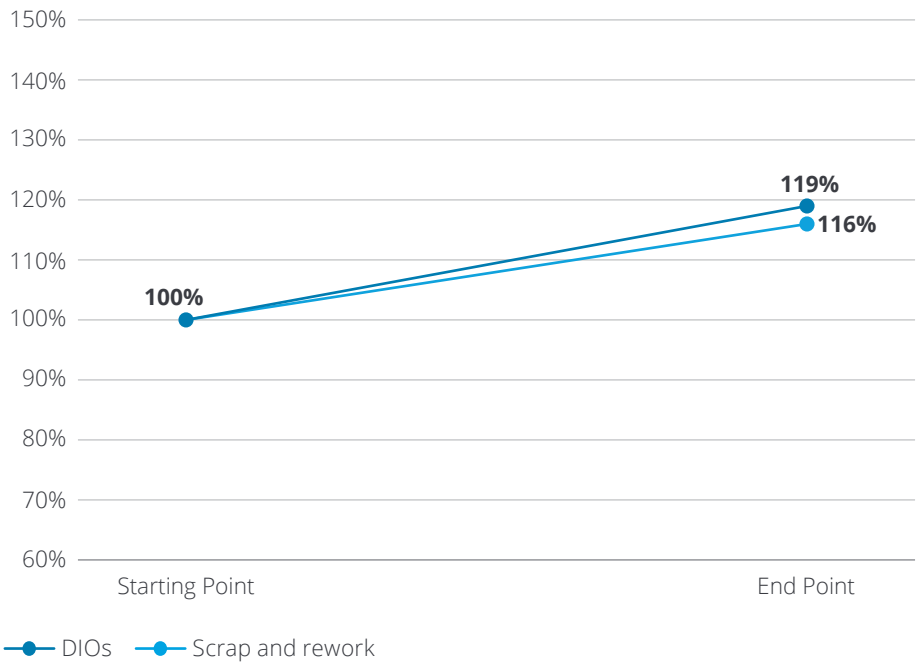
The extent of this effect depends on how durable goods in various industries and companies are. The period between the acquisition of materials and the recognition of their impairment losses in the P&L is generally very long. This lack of transparency represents a major challenge as it can hinder a profound understanding of the situation. Companies lack a structured, inter-divisional and collaborative approach that includes monitoring relevant KPIs.

Fig. 9 – Development of scrap, rework and impairments vs DIOs[4]



[4] Scrap, rework and impairments were analyzed as a % of sales; starting and end point represent the first/ last year of the indexed time included in the analysis

Fig. 10 – Development of scrap and rework vs DIOs[4]



[4] Scrap, rework and impairments were analyzed as a % of sales; starting and end point represent the first/ last year of the indexed time included in the analysis

(4) Transportation and storage costs: storage costs as potential stepped fixed costs

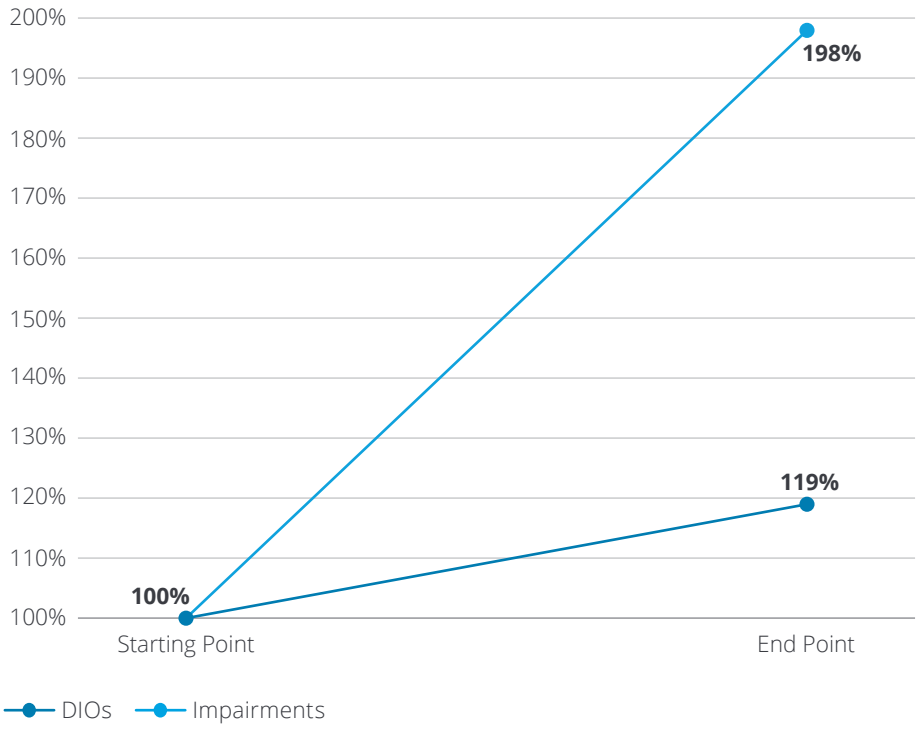
High inventory stocking levels increase the need for storage and warehouse space and internal logistics and cause higher freight costs. Again, leaner, more transparent processes and a subsequent reduction of WIP inventory reduces the amount of storage space and transportation efforts required.

Transportation costs: Transportation, which includes both inward and outward freight costs as well as additional transportation costs, is a key lever for several reasons:

- The more materials are ordered and stored, the higher the potential for unnecessary transportation.
- An increased level of scrap and rework, caused by inefficient inventory management, also increases the need for special deliveries and leads to freight surcharges.
- A good bargaining position in procurement is important in order to combine the negotiations of the total annual quantities with the logistics and delivery concepts. A close collaboration between those departments is therefore necessary. But both companies in our case study lack a holistic, end-to-end perspective on interdivisional collaboration.

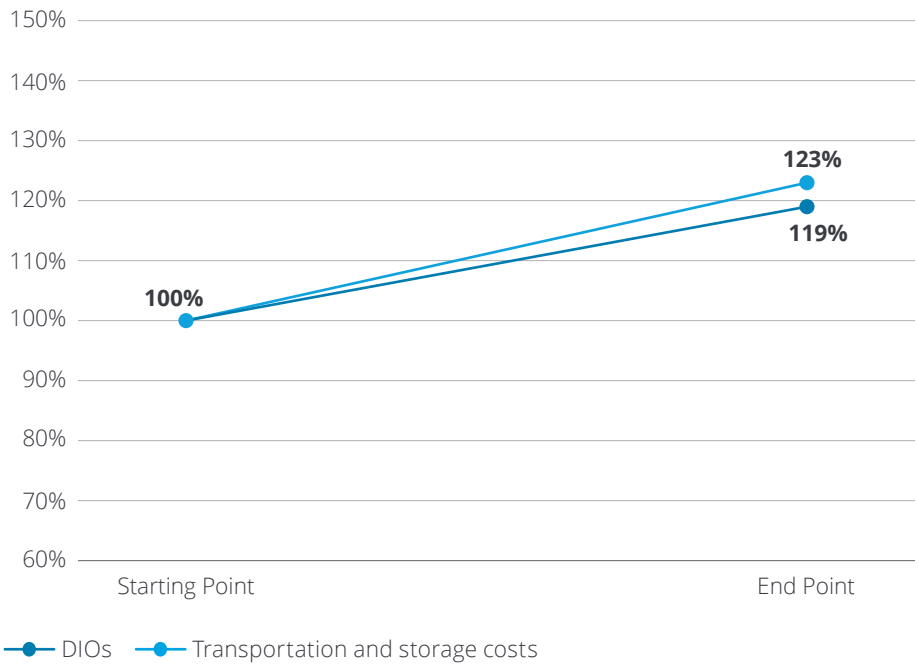
Storage costs: Storage costs may not immediately increase in line with inventory if the company still has free storage space available. Similarly, if the company is renting additional storage space for a fixed term, storage costs may not immediately drop when inventory is reduced. Due to the fixed cost characteristics, storage costs grew at a disproportionally low rate compared to the increasing inventory levels in our analysis. The main driver for the increase was the rental of an additional warehouse in one of the companies.

Fig. 11 – Development of impairments vs DIOs[4]



[4] Scrap, rework and impairments were analyzed as a % of sales; starting and end point represent the first/ last year of the indexed time included in the analysis

Fig. 12 – Development of transportation and storage costs vs DIOs[5]



[5] Transportation and storage costs were analyzed as a % of sales; starting and end point represent the first/ last year of the indexed time included in the analysis

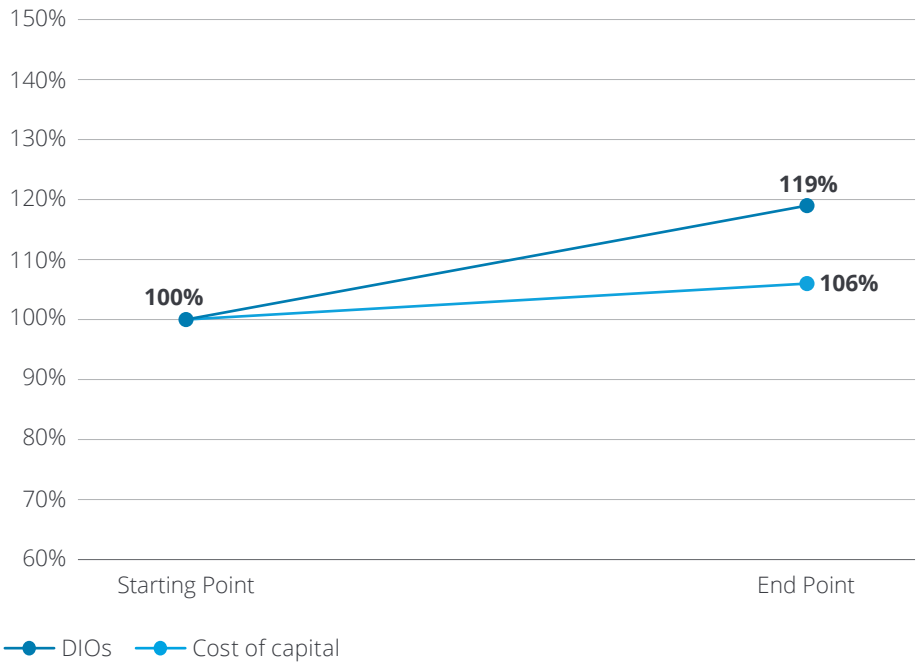
(5) Cost of capital: opportunity costs as a further profitability driver

Although only the "tip of the iceberg", the cost of capital is an opportunity cost with a further impact on profitability:

- By lowering inventory stocking levels, companies can free up capital for investments and innovations and may no longer need to use financing solutions such as factoring to generate liquidity. The use of internal financing potentials reduces net debt, which improves the credit rating. This could lead to better financing conditions and increased equity value.
- Companies with lower inventory and smaller order volumes have more liquidity available to schedule early payments and get discounts.
- Companies also reduce the risk of breaching financial covenants by freeing up liquidity. If a company is highly indebted and has low liquidity levels, it is at risk of contract breaches. This can compromise financial feasibility and drastically reduce investments.

Our analysis shows that the impact a reduction in inventory can have on the cost of capital can vary between different companies, e.g. due to operating loans from company groups or the relative amount of debt financing.

Fig. 13 – Development of cost of capital vs DIOs[6]



[6] Cost of capital include interests and similar expenses and were analyzed as a % of sales; starting and end point represent the first/last year of the indexed time included in the analysis

Implementing lean processes in 2020 to boost liquidity and profitability

Major findings

- A reduction in inventory can reveal potential problems within supply chain-related processes such as bottlenecks and quality problems. Professional working capital management can stabilize processes, eliminate inefficiencies, and increase productivity.

- The reduced need for inventory handling can initially lead to a reduction in additional effort and overtime, which releases bundling potential to reduce work packages and can subsequently result in a decrease in FTEs in the supply chain. This would require a shift of work resources during implementation.

- Scrap and rework decrease due to less material handling, cleaning, and reconditioning. Better management and increased transparency can reduce the risk of materials becoming obsolete and thus prevent impairment losses.

- Lower inventory levels may also limit unnecessary transportation and avoid costs for additional storage space.

- By reducing inventory, companies reduce their financing costs, which may be significantly higher in distressed situations. More liquidity enables companies to settle payments earlier and therefore get price discounts. Faced with an economic downturn and even a growing economic crisis, having more liquidity available can reduce the risk of breaking financial covenants.

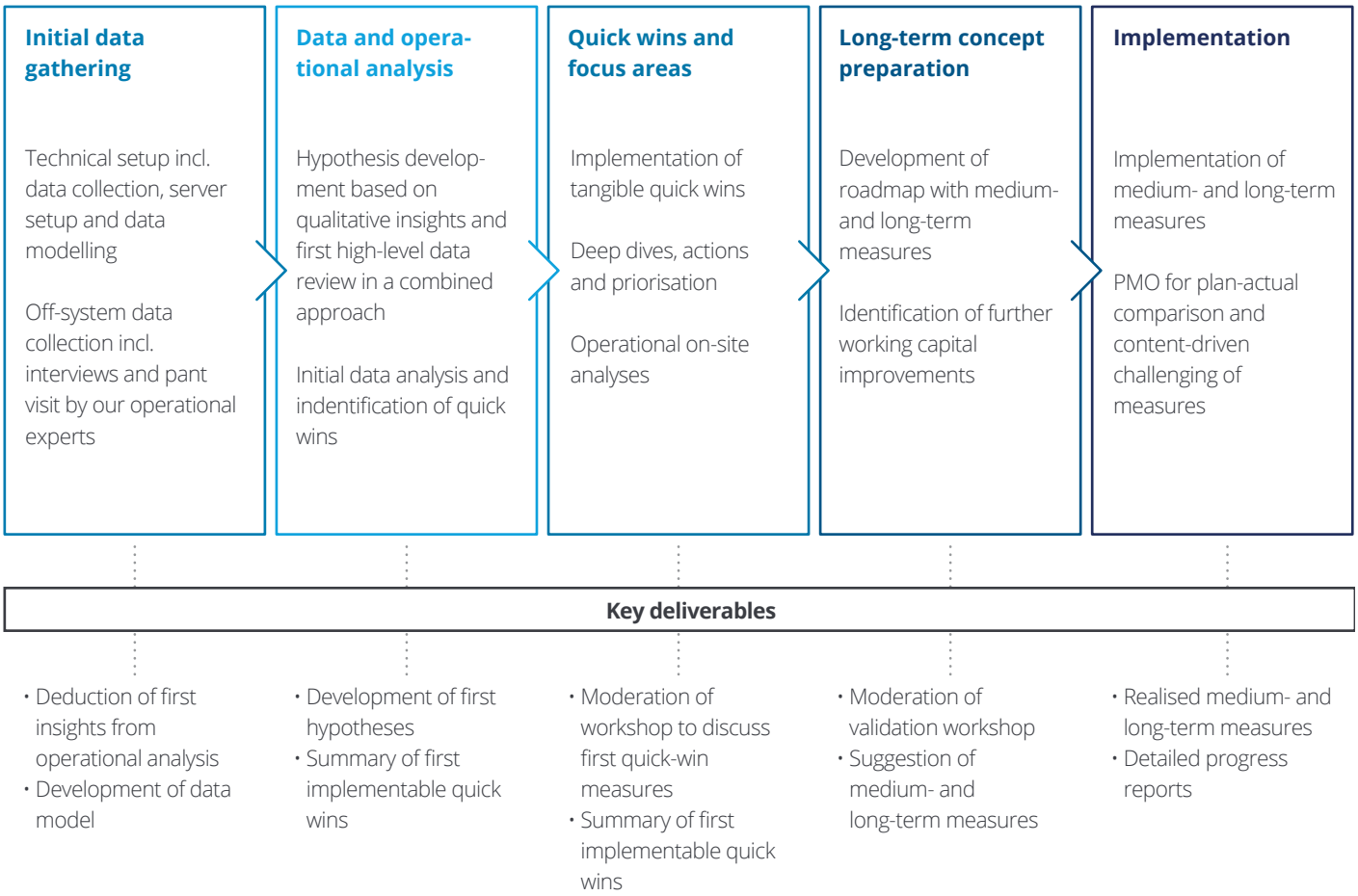
The best way to tackle the investigated areas is to clean the data, link operational and financial KPIs, develop a bottom-up approach and implement pragmatic and simple lean principles. Despite affecting process efficiency, profitability, and therefore enterprise value, inventory is often either not considered a relevant KPI for companies or is only included when looking at liquidity. This results in a lack of transparency, slow decision-making, and tardy execution, as many companies have still not achieved a holistic implementation of "old-fashioned" lean production.

Deloitte combined approach: analysis based on AI generated data – implementation by operational experts

Addressing issues with inventory achieves quick wins from day one and builds the foundation for successful and sustainable growth. Processes must be guided by the principle of "speed over perfection", especially when they are being restructured. Instead of justifying processes based on previous experiences, they should be challenged with new ideas, ideally by a third party providing financial and operational expertise as well as the relevant tools.

Deloitte can offer a tailored approach to each company's individual situation, combining modern analytical methods and tools with operational and financial expertise and ensuring a quick and thorough analysis. A variety of Artificial Intelligence tools such as "Cash Detector" or "Trufa", process analysis with the help of process mining, and data visualization applying business intelligence tools ensure efficiency and effectiveness throughout the analysis phase. The tools help us to clean data as well as implement and monitor the relevant KPIs that were previously overlooked. Based on objective and exhaustive data, our senior operational and financial experts then derive restructuring measures and implement them in close collaboration with Management. We apply hands-on expertise in all of the relevant fields in order to put the derived measures into practice. This approach ensures the mitigation of risks, the avoidance of mistakes and increased acceptance and thereby guarantees the best possible outcome.

Fig. 14 – The Deloitte combined approach



"To ensure a holistic and efficient approach, we combine operational expertise with data-driven and AI-supported analyses."

Dr. Philipp Kinzler, Partner | Deloitte Restructuring Services

Contact us

Dr. Philipp Kinzler
Partner
Restructuring Services
Tel: +49 89 29036 6782
pkinzler@deloitte.de

Claudio Mager
Director
Restructuring Services
Tel: +49 151 17146362
cmager@deloitte.de

Magdalena von Grotthuss
Consultant
Restructuring Services
Tel: +49 89 29036 7731
mvongrotthuss@deloitte.de

Deloitte.

Issue 01/2022