EASY SOFTWARE
DIGITAL, BUT EASY

WHITEPAPER

From Industry 4.0 to Materials Management 4.0

How to lay the foundation for connected and automated production with clean material master data

What You Will Learn in this White Paper

- The optimisation potential that organisations can expect from the digitalisation and connectivity of production processes.
- Why clean material master data is a prerequisite for Industry 4.0 and the automation of business processes.
- The causes and consequences of poorly maintained material master data and why many companies underestimate the risks involved.
- How to create the foundation for successful digital transformation and Industry 4.0 with materials management.

5 Messages for Quick Readers

Industry 4.0 helps manufacturers become more efficient. A **productivity increase of 30 percent** can be achieved with the first wave of Industrial Internet of Things adoption.

At the same time, there is a latent risk of digitalisation via Industry 4.0: Without clean master data there is no digitalisation, and without digitalisation there is no automation.

Clean master data in production starts with the coordinated creation of a material master – a complex process that requires professional coordination.

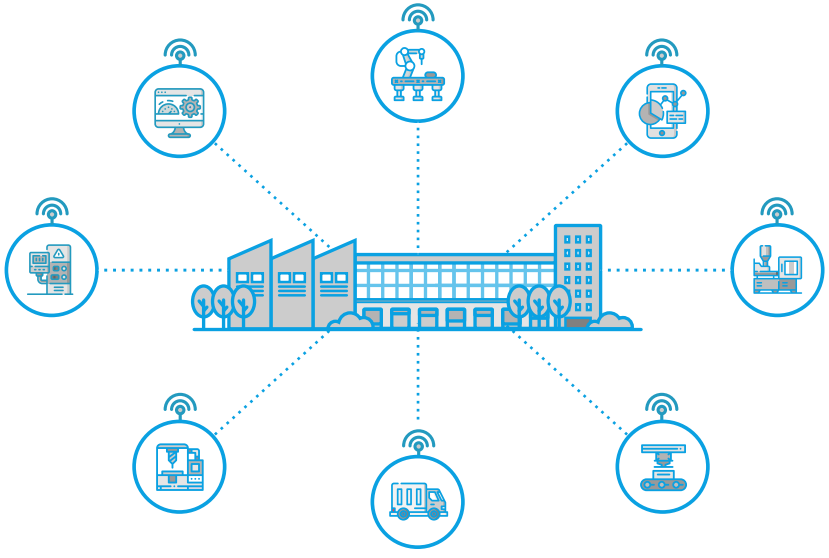
Professional master data management pays off. In most cases, the ROI for investments in materials management is achieved within one year.

A desired side effect: Those who invest in materials management and master data today lay the foundations for autonomous production – it's not that far round the corner!

Status Quo:
Great Optimism in the Digitalisation of Production

The digitalisation of industrial production is one of the most important future projects for manufacturing companies across the globe. The term ‘Industry 4.0’ says it all: we are experiencing none other than the fourth industrial revolution. From the moment the order is placed to the production and delivery, more and more companies are digitalising and automating many of their core processes.

Capacities can be optimally utilised through the intelligent control of processes. Automated analysis procedures reduce the risk of failure and the need for maintenance in production. At the same time, cross-company networking strengthens collaboration along the entire value chain. Coordination with suppliers, partners and customers run more seamlessly and collaboration becomes increasingly agile.



Industry 4.0 Is Changing Global Manufacturing Strategies

Industry 4.0 enables the end-to-end digitalisation of production processes. For most manufacturing companies, Industry 4.0 has left the early innovation phase and became a viable business strategy, delivering sustainable benefits and results:

Productivity increase:

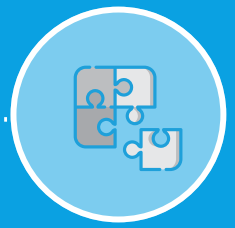
With the first wave adoption of Industry 4.0 and Industrial Internet of Things principles, a 30 percent increase in productivity combined with a 30 percent decrease in maintenance cost can be achieved.

Inventory management:

Industry 4.0 driven manufacturing strategies give supply chain planners the ability to track inventory levels in real time. The expected result: a 2.6 percent annual reduction in inventory levels.

Decision making:

83 percent expect data to have a significant impact on decision-making in 2020 whereas only about 50 percent are using data to drive decisions today.



Product offering:

Manufacturing companies anticipate annual revenue gains in the range of 440 billion euros through an Industry 4.0 optimised product and service offering.

Scepticism about digitalisation turns into optimism

With **72 percent**, the vast majority of global manufacturers envisage a high degree of digitalisation by 2020 – a significant increase compared to 2016 where only 33 percent of businesses perceived themselves as being highly digitalised. The planned investments in new applications, software and tools is predicted to grow by 118 percent in support of Industry 4.0 transformation.

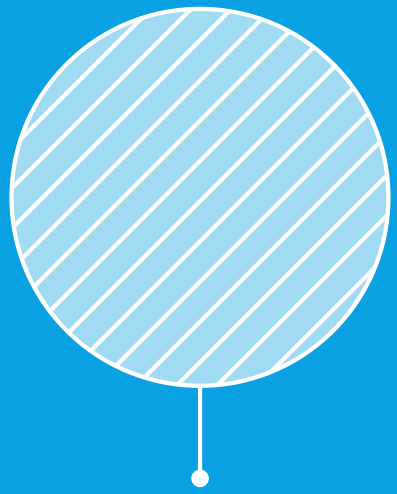
Industry 4.0 has become the de facto standard in digital transformation in manufacturing industries as manufacturers around the world have started to reap the benefits. The former scepticism has transformed into a readiness for digital transformation and a determined optimism towards digitalisation. However, there is still one question that needs to be answered: What is the situation regarding the basics required for networked and automated production?

Industry 4.0: A New Era in Global Manufacturing

72 percent

of global manufacturers expect to be highly digitalised by 2020

Source: Forbes



375 billion euros

in annual cost and efficiency gains through Industry 4.0

Source: PwC

2 years

the ROI period anticipated by manufacturers for Industry 4.0 investments

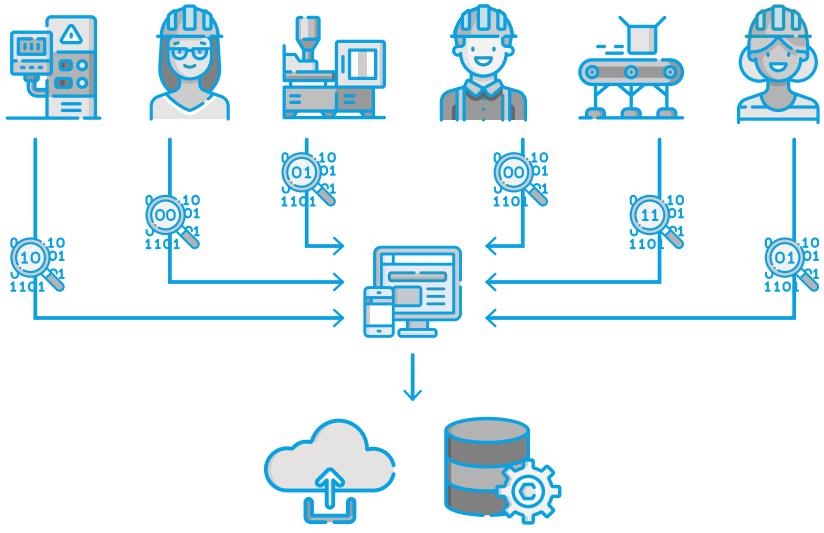
Source: World Economic Forum

Master Data Management Paves the Way for Industry 4.0

The two basic requirements for the successful digitalisation of manufacturing processes are a functioning materials management system and clean master data. If companies have incorrect material master data, it is impossible for them to attain the efficiency advantages expected from business process digitalisation and automation.

As a specialist in data and information management with over 20 years of experience, we know that poorly maintained material master data is far from uncommon. In addition, it is one of the main underlying causes behind the failure of digitalisation projects.

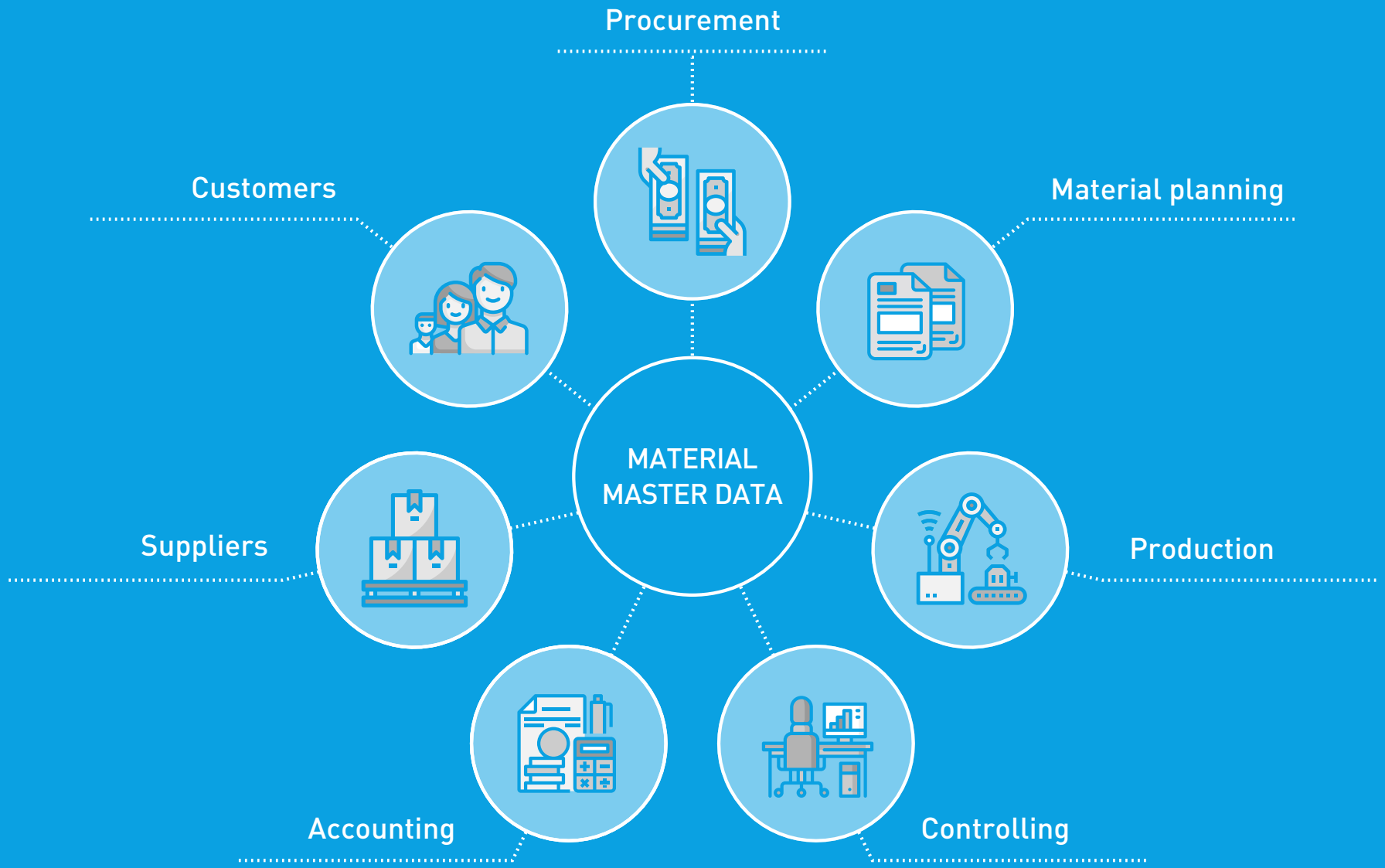
Many companies are apparently aware of this reality: According to a study conducted by the Business Application Research Center (BARC), data quality and master data management rank high on the list of priorities of employees and decision-makers who deal with the topic of data in companies.



Material master data affects the entire company

Master data is the foundation for all processes in a company. All procedures that are controlled with the help of a central ERP system and connected applications are based on material master data. Like red blood cells, they supply information to business processes in a company.

Numerous departments within the company are involved in the processing and maintenance of this data – increasing connectivity means that more and more suppliers and customers are also involved. If the material master data is correct, all participants benefit from seamless processes and efficiency gains. However, because data is continuously updated and new data records are added on an ongoing basis, coordination between all parties involved poses one of the greatest challenges in materials management.


Procurement
Customers
Material planning
MATERIAL
MASTER DATA
Suppliers
Production
Accounting
Controlling

Interview: “There can be no digitalisation without clean master data – and no automation without digitalisation.”

In an expert interview, Antonio Del Negro, Head of SAP Consulting at EASY SOFTWARE, reports on the typical causes of bad material master data and the consequences it can bring for companies.

EASY: Manufacturing companies have invested a lot of money in ERP systems. Doesn’t this solve the issues relating to master data?

Del Negro: I’m afraid not. Companies manage their business processes with the help of ERP systems. However, SAP and other ERP applications can only be fully effective if the underlying database is correct. After all, there can be no digitalisation without clean master data – and no automation without digitalisation. Building this database cleanly might sound like a trivial matter, but that couldn’t be further from the truth.

EASY: Let's talk about the ERP market leader. How complex is master data maintenance in SAP?

Del Negro: A material master data record in SAP MM has up to 600 individual fields. Depending on the size of a company and its organisational structure, up to a dozen departments can be involved in processing these fields. If you multiply the number of fields by the number of processors, you will get a good idea of the potential for errors in this area.

EASY: What options do companies have to optimise the maintenance of their master data?

Del Negro: One of the keys to success is certainly digitalisation. However, it is clear that digital transformation does not work without focus and sufficient prioritisation. For this reason, we recommend that companies incorporate data management into their corporate strategy as a mission-critical task. It's then a matter of digitalising every single step in materials management, starting with the application for new

materials. In the end, the entire process should be transparent and comprehensible.

EASY: Is all this effort even worth it?

Del Negro: With our EASY materials management solution, we typically achieve a 100% return on investment (ROI) within a year or less. However, this is not the only point that needs to be considered in the profitability assessment. Indirect costs caused by errors and duplicates in master data are incredibly high. We have talked about this before: Although companies have invested in ERP systems, these investments only pay off in full when the database is correct. Against this backdrop, a project to ensure master data maintenance in materials management is definitely worthwhile!

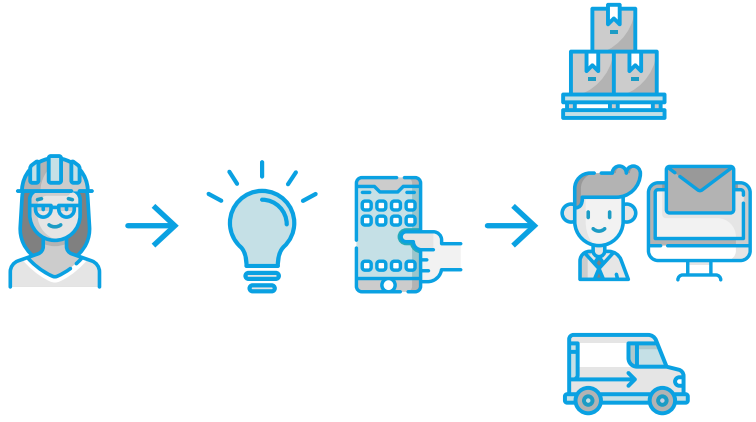
EASY: What future challenges do you foresee for materials management?

Del Negro: To put it simply, the complexity of master data management is increasing rather than decreasing. Just think of the many new data points created by the growing connectivity of the Internet of Things (IoT). More and more data is being processed in a shorter time - not least thanks to artificial intelligence and machine learning. I think it is obvious that even the smallest error in the master data would lead to a chain reaction, the extent of which would only increase as connectivity and Industry 4.0 grow.

EASY: Thank you for the interview!

Enormous Coordination Effort, High Error Potential

The creation of material master data is not a self-generating process - it requires conscious input. Depending on the size of the company and its organisational structure, up to a dozen departments and numerous employees may be involved. ERP applications such as SAP are also complex and do not offer a standardised process for creating master data.



Depending on the number of production sites, plant-specific material master views also increase the complexity levels. Not only is the coordination effort required for data creation enormous, the potential for errors is also extremely high. We have summarised seven typical challenges that companies face when creating master data in materials management:

1. Long processing times: When creating a new material master data record, numerous departments are involved within the company. Design, purchasing, warehousing, production, sales, and accounting all contribute valuable information to the master data record, but the entire process takes a long time.

2. Complex ERP systems: The material master system in ERP systems is not a self-propelled product. For

example, a material master data record in SAP MM comprises up to 600 individual fields. Since up to a dozen departments of a company can be involved in its maintenance, the entire process becomes very complex.

3. High coordination effort: Communication during updates and data changes is often uncoordinated and sometimes chaotic due to the large number of people involved. Because a standardised workflow is missing, countless emails, documents and telephone calls are required and the coordination effort increases.

4. Lack of any standards: Even market-leading ERP systems such as SAP do not offer a standard process for creating material master data. For example, SAP offers master data management (MDM), an additional solution for data management. However, this application is complex and burns a hole in your pocket.

5. Numerous media disruptions: Coordination via different communication channels prevents a seamless flow of master data creation and updates. Information and documents are exchanged "on demand" and the process quality suffers from too many media disruptions.

6. Lack of transparency: Due to the lack of both workflow support and of continuous digitalisation of the master data creation and maintenance process, the current status is not immediately visible to all participants. In turn, this lack of process transparency can lead to unwanted delays.

7. High susceptibility to errors: The sometimes chaotic coordination between all parties involved, the communication via numerous channels and the uncoordinated exchange of documents hold an enormous potential for errors. Unfortunately, incorrect information and duplicates in the master data are the norm rather than the exception.

How it works: 7 Building Blocks for Materials Management 4.0

1. Make master data management a top priority:
In order to achieve optimum data quality, you should integrate data management into your corporate strategy as a critical success factor. Correct data is not an optional extra - it is decisive for ensuring your company can act and remain agile in times of digital transformation.

2. Enforce a ‘single point of truth’:
To increase confidence in your materials management and master data, you should focus on building a common database across the entire organisation. You will only be able to maintain an overview and minimise the risk of isolated data silos when you have a single point of truth.

3. Establish data governance as a process:

A standardised data governance process ensures that master data in the company is checked for availability, integrity, and security. In addition, it guarantees that data maintenance is continuously monitored and that procedures for higher data quality are implemented - all of which are indispensable for maintaining high data quality in the long term.

4. Complete digitalisation of materials management:

If you want to avoid media disruptions in materials management, start with the application process and provide applicants with a self-explanatory input screen. This means that the first data is transferred to the central system right from the outset and can be further processed from there – 100% digital from start to finish.

5. Create ongoing transparency:

Applying for materials is followed by process steps such as testing and approval procedures, all of which involve numerous departments in your company. It is only possible to continuously monitor and control all processes if you map each individual process step in a comprehensible and digital manner.

6. Build on existing ERP systems:

Like most companies, you've probably invested in ERP systems like SAP. However, ERP systems only become fully effective when the underlying database is accurate. With the help of an integrated solution for materials management and master data maintenance, you can get more out of your ERP investments.

7. Use special tools for data management:

Well-established ERP systems are usually complex and overwhelm casual users. On the other hand, specialised software solutions for data management have both an easy-to-use user interface and automated processes that support your digitalisation and help your employees maintain data.

Materials Management 4.0 with the EASY Solution for SAP

Unfortunately, errors when creating material master data in SAP MM are more the norm than the exception. The **EASY solution for materials management** enables efficient material master data maintenance with SAP integration, allowing you to achieve your cross-company goals.

360° process transparency

Process statistics show the real-time status of a process and reveal optimisation potential: In which departments are the processing times high? In which areas do employees experience difficulties and need training?

Reduction of media disruptions

The simple process control ensures a fast and seamless workflow, which considerably reduces processing times and accelerates material procurement. In addition, all documents are part of the process right from the outset, thus avoiding media disruptions.

Improvement of data quality

The process interface is aligned to the internal quality standards of the company and to the needs of the users, which noticeably reduces the error rate and improves the data quality.

Optimisation of user experience

Easy usability and process control reduce the resource requirements of the employees involved, as they no longer have to deal with the complex user interface and coordination, but can instead concentrate on their individual tasks.

Push the SAP technology strategy

The process is 100 percent integrated into SAP and thus supports the IT platform strategy of representing as many business processes as possible in one system. A homogeneous IT and process environment should minimise technical and organisational problems with interfaces and thus significantly reduce operating costs.

Would you like to learn more about the EASY solution for materials management? Please request a demo with our team.

Request demo

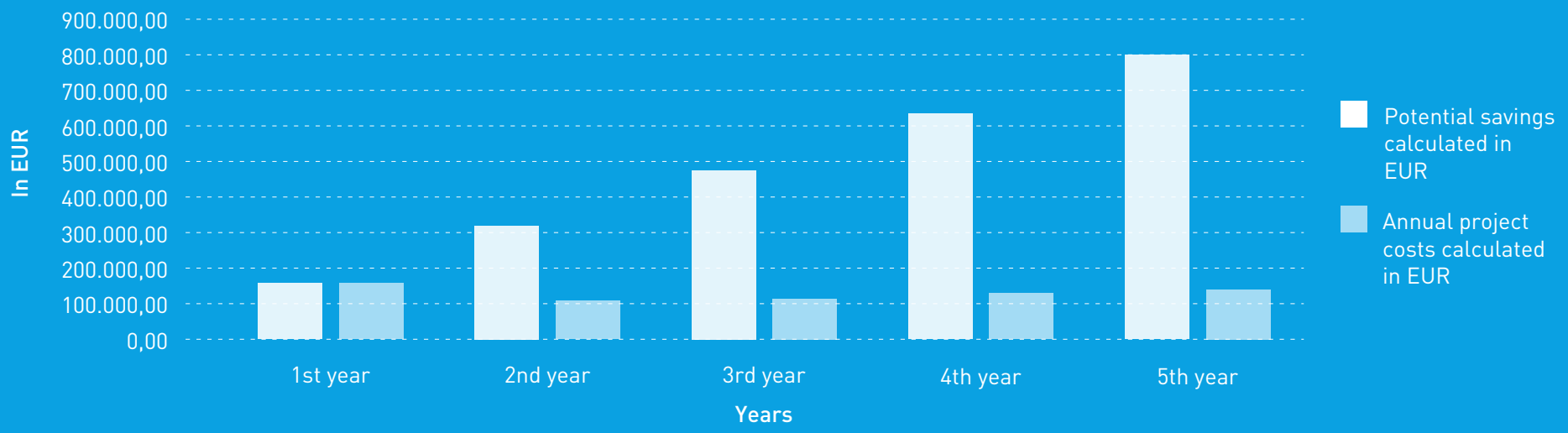
A Question of Profitability – ROI in less than a Year

If you establish order in materials management, you are laying the foundation for the successful digitalisation of all your business processes. The many benefits your company reaps can also be financially substantiated within the framework of an ROI analysis.

Does your company suffer from high indirect process overheads caused by many costly errors in master data maintenance? If so, we estimate that the cost of digitalisation will pay for itself within a year. Other key factors that you should evaluate when considering profitability are the number of processes and the number of locations.

For example, a plant manufacturer can quickly create up to 5,000 new material master records per year. If the company has numerous production sites for which different material views have to be created, the process costs for manual processing go through the roof. This is where you can achieve a fast ROI through digitalisation and automation.

ROI analysis using the example of a plant manufacturer with 5,000 new material master records per year



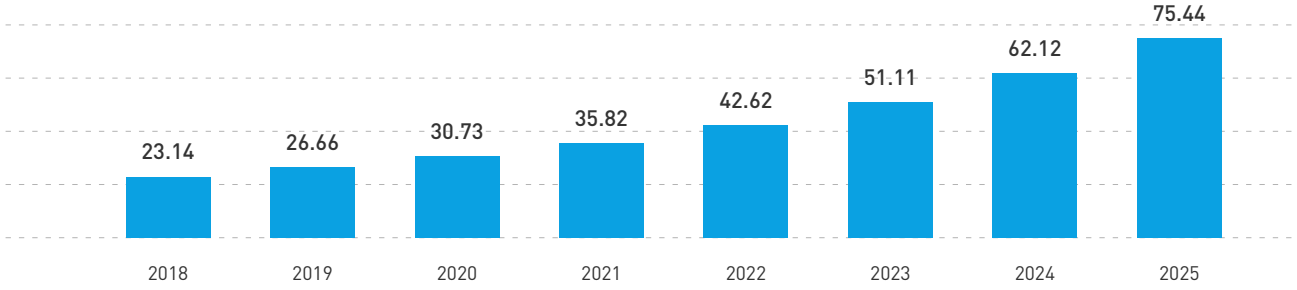
Typical factors that lead to a fast ROI:

Lots of master data creation processes and updates	Many production sites with plant-specific material master views	Long processing times and high manual coordination effort	High indirect costs for incorrect data and duplicates

Growing IoT Connectivity: New Potential, New Challenges

With the rapidly growing connectivity of production processes and business processes, the requirements for master data management continue to increase. The Internet of Things (IoT) is moving into industrial manufacturing. With the help of connected sensors, physical and digital worlds are merging and interweaving to form a digitally integrated ecosystem.

Artificial intelligence and machine learning independently evaluate material demand patterns - industrial artificial intelligence is becoming a reality and thus the way is clear for the completely autonomous control of material procurement and production processes. The next expansion stage of Industry 4.0 is certainly within reach.



Number of IoT devices used worldwide

Source: Statista 2018

Volume of data generated worldwide set to double in the next ten years

The Internet of Things has many new challenges in store for materials management and master data maintenance. You will get a rough idea of the challenges facing data management by realizing that increasing IoT connectivity will mean the amount of the data generated worldwide will double in the next decade.

The complexity of data management will continue to increase, the demands on process speed will grow and the tolerance for erroneous data will radically shrink. This is why now is the ideal time to invest in Materials Management 4.0.

Read our EASY blog for further information on how the Internet of Things presents a challenge to master data and materials management both now and in the future.

Go to EASY blog

About EASY

EASY SOFTWARE AG, with its headquarter in Mülheim an der Ruhr, Germany, is developing intuitive and customised software products and services for customers for the digitisation of business processes for since 1990. These products can be seamlessly integrated into existing systems and automate, mobilise, and optimise their customers' workflows worldwide. EASY provides these solutions on-premises, in the cloud and mobile.

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