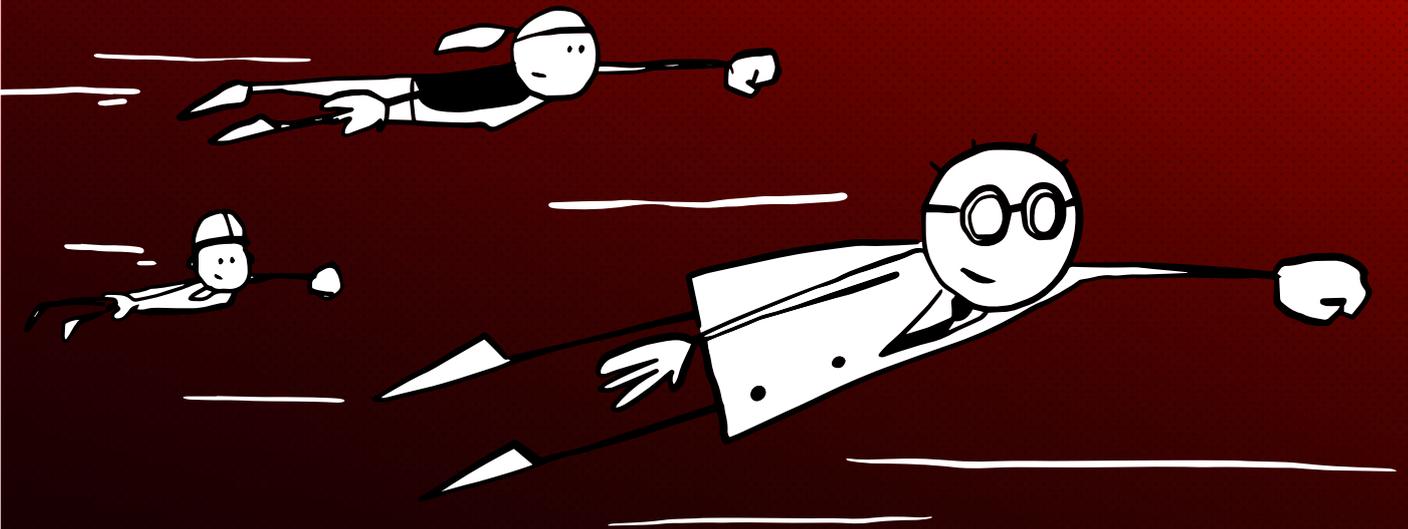


# HIGH SPEED ADAPTATION

*Success formula for customization  
to volatile industrial markets*



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EDITION  
#60

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The problem is not the crisis, but the uncertainty that precedes it. The ability to quickly adapt to volatile markets thus becomes a decisive competitive advantage.

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By Hans-Georg Scheibe,  
Managing Partner, ROI AG

# THE STORY OF FEAR

**„SO, FIRST OF ALL, LET ME ASSERT MY FIRM BELIEF THAT THE ONLY THING WE HAVE TO FEAR IS FEAR ITSELF“**

The words that Franklin D. Roosevelt chose on the occasion of his inauguration as US President, seem defiant at first glance. There were more than enough reasons for fear in March 1933: the USA suffered massively from the consequences of the economic crisis, while in Europe the political balance of power shifted, paving the way for World War II.

Compared to that, the situation today seems more than bright. And yet in many places, if not fear, there is at least widespread concern that the economic climate could deteriorate over the long term. And, as usual in such cases, it is accompanied by words like: Restraint, temporise or savings.

So it's worth looking at the second paragraph of Roosevelt's quote. In it, he describes the "nameless, unreasoning, unjustified terror which paralyzes needed efforts to convert retreat into advance"

In this issue, we would like to show you why it is important to respond appropriately and, above all, quickly, to change, rather than being dominated by the uncertainty that precedes it - and which approaches are best suited to it.

# ADAPTATION INSTEAD OF DEFEN- SIVENESS



## AFTER YEARS OF CONTINUOUS GROWTH, WE ARE HEADING TO TURNDOWN OF ECONOMIC DEVELOPMENT. INSECURITY IS SPREADING.

A turnaround in interest rates, geopolitical conflicts, the unpredictability of Trump's foreign policy and the trade war against China, Brexit and the strengthening of nationalism in many countries are slowing down growth. Is a recession imminent in Germany?

In addition to these external conditions, companies are also plagued by internal concerns. In recent years, massive investments have been necessary, above all in strategic digitization projects, smart technologies and initiatives to improve operational excellence. These have often not yet developed their rationalisation and growth impulses. The same applies to the transformation of organizational structures according to agile and lean principles.

In view of this supposedly imminent danger,

the question of preparatory measures is obvious. But that's exactly the problem. For it is not the crisis that must be feared, but the uncertainty that precedes it. By paralyzing companies, blocking critical investments and slowing initiatives - all at a time when customer demands, global competition and innovation cycles are accelerating.

Instead of prevention, the following section therefore deals with adaptation, i.e. the ability to adapt - especially one's own cost structures - to the changed framework

conditions. The situation today differs significantly from similar phases in the past in two respects: firstly, by the rapid pace at which industrial markets are changing today in view of technological leaps and the new business models based on them. On the other hand, because many of the classic cost-cutting levers, such as purchasing or automation, have already been fully exploited or are working too slowly due to constant optimization. In addition, in the age of a notorious shortage of skilled workers, personnel savings are hardly an option.

### **HIGH SPEED ADAPTATION THE ROI COST REDUCTION PROGRAM FOR VOLATILE INDUSTRIAL MARKETS**

In this situation, new methods for rapid adaptation to volatile market conditions are needed. The High Speed Adaptation ROI program is designed to address these issues and deliver fast acting approaches that can effectively reduce manufacturing, logistics and indirect costs:

#### **ZERO-BASED ORGANIZATION**

Organizations whose structures have grown over the years usually have three characteristics in common: they are complex, non-uniform and therefore inefficient. Unfortunately, there are no model solutions to overcome these deficits. Often only a radical new start can help to align the indirect areas leanly and cost-efficiently. Using the zero-based organization approach, ROI works with his customers in just 9 weeks to develop a roadmap for resizing their locations that optimally supports their value-adding processes. This allows up to 40% of the controllable indirect costs to be reduced. Global locations are consolidated, the Global Footprint becomes more efficient.

#### **140 INSTANT PAYBACK**

Quality fluctuations in manufacturing not only cost time, but also money. Even small errors in the manufacturing process often lead to the rejection of entire components. But how can quality-relevant disturbances in the manufacturing process be identified and eliminated? Our Instant 140 approach provides effective instant help based on Advanced Analytics. Within just six weeks, we develop a ready-to-use predictive quality data model that sustainably improves process stability and quality on the basis of plant, operating and quality data. By

simulating the manufacturing process in a predictive analysis model, potentials can be identified and improvements initiated both in manufacturing and in value stream management. In this way, we create a Quality Cost Cut that significantly reduces the reject rate and effectively lowers quality costs.

#### **OPEX FAST RAMP-UP**

If individual locations or the entire plant network are in a state of disrepair, companies must quickly take measures to reduce costs in direct and indirect areas. The ROI OPEX Fast Ramp-Up approach delivers a structured implementation roadmap that can be used to systematically identify and evaluate cost reduction potential within just eight weeks. Using a combination of various standardized assessment tools, we identify cost drivers and optimization levers across all value creation activities, determine their economic potential and derive suitable measures to realize this efficiently. This enables us to achieve savings potentials of up to 20 % across the entire plant network.

#### **INVENTORY COST PROGRAM**

Many companies need to improve their agility and cost structure in order to effectively counter increasing competitive pressure. One lever is the identification of intransparent costs and processes in the supply chain. The ROI Inventory Cost Program helps to reduce inventory costs quickly and sustainably and to release significant liquid funds for strategic and operational initiatives. The key lies in the combination of a redesign of supply chain processes, the introduction of digital planning and control methods, improved cooperation with suppliers and the anchoring of inventory management excellence in the management team. The Inventory Cost Program ensures a noticeable reduction in inventories in just a few months. A forecast-based inventory cost manage-

ment with continuous controlling up to the management level ensures maximum cost transparency.

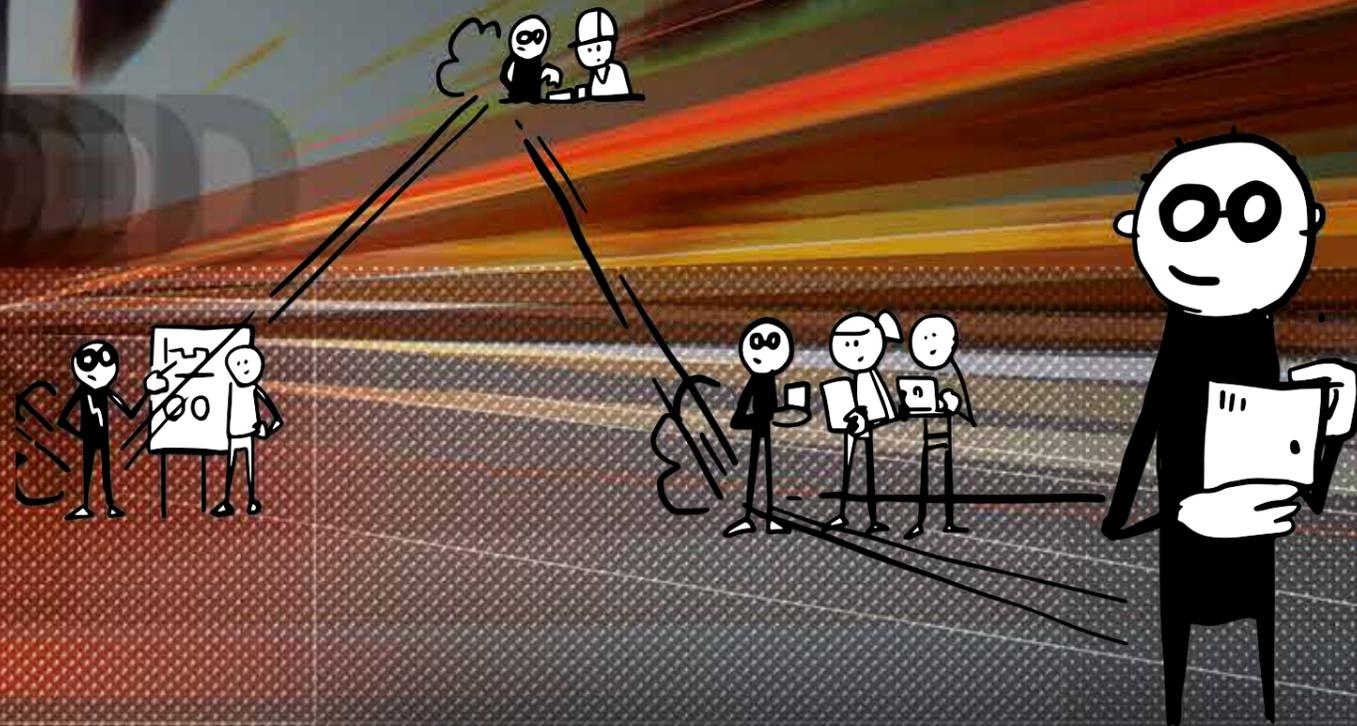
#### **MAINTENANCE EXCELLENCE PROGRAM**

If maintenance costs and OEE values differ significantly between individual plants, a comprehensive analysis and evaluation of all relevant maintenance elements ensures clarity. ROI Maintenance Excellence (RME) is a structured and standardized program for the rapid and holistic evaluation of a company's maintenance organization and the systematic identification of all existing savings potentials. After just a few weeks, RME creates the basis for optimal implementation planning and a transparent presentation of project progress. The results are a noticeable increase in OEE and a significant reduction in maintenance costs.

#### **VALUE & COST ENGINEERING**

Not letting costs arise at all is more effective than reducing costs. With Value & Cost Engineering, ROI offers a program for the immediate activation of cost reduction potentials through fast-acting optimization levers. Manufacturing costs are effectively reduced, time-to-market is shortened and change costs in the product development process are avoided. Through a mix of IT tools, FMEA analyses, external benchmarks and tests, we ensure that products are competitive in terms of manufacturing and follow-up costs. To directly optimize product costs, we rely on proven levers with potential for rapid cost reduction success, such as supplier workshops, should costing or cross-functional cost-out workshops. The time-to-market can thus be shortened considerably and material and production costs can be reduced significantly in just a few months.

# HIGH SPEED ADAPTATION



In increasingly volatile industrial markets, the ability to quickly adapt one's own cost structures is becoming a decisive competitive factor. ROI provides fast-acting approaches for reducing operating costs in various areas of industrial value creation.

We call this **HIGH SPEED ADAPTATION.**

# APPROACHES TO COST OPTIMISATION ALONGSIDE THE INDUSTRIAL VALUE CHAIN



## ZERO-BASED – ORGANIZATION

WITH THE PERFECT ORGANIZATION THE  
REDUCE INDIRECT COSTS



### INDIRECT AREAS



**PRODUCT DEVELOPMENT**

**INCOMING LOGISTICS**

**MANUFACTURING**

**MAINTENANCE**



### VALUE & COST ENGINEERING

WITH DESIGN-TO-COST MANUFACTURING COSTS  
ARE BEING REDUCED AND TIME-TO-MARKET IS  
BEING SHORTENED



### INVENTORY COST PROGRAM

LOWER STOCKS NOW AND  
REDUCE COSTS



### I40 INSTANT PAYBACK

REDUCE QUALITY COSTS WITHIN 6 WEEKS WITH  
PREDICTION MODELS



### MAINTENANCE EXCELLENCE PROGRAM

INCREASE YOUR OEE AND LOWER  
THE MAINTENANCE COSTS WITH THE  
RME PROGRAM



## THE SEARCH FOR POTENTIAL SAVINGS IN INDUSTRIAL COMPANIES IS OFTEN LIKE LOOKING FOR THE PROVERBIAL NEEDLE IN A HAYSTACK.

The more complex manufacturing systems, supplier networks or indirect areas are, the more difficult and time-consuming it is to identify hidden cost drivers and starting points for optimizing cost structures. Systematic assessment procedures based on the model of the raster search can change this.

In the search for wanted persons, such as terror suspects or kidnapped victims, time is often the decisive factor. Law enforcement authorities have developed specific methods and techniques for such purposes which allow them to quickly identify the information sought from a large number of persons or places. For example, in a grid search, certain characteristic values that apply or do not apply to the search criteria are used in order to gradually limit the number of potential sources. Data mining methods use similar techniques to extract usable information from large amounts of data.

### 30% OF OPERATING COSTS REMAIN UNDISCOVERED

Industrial companies looking for starting points to reduce their operating costs often face similar challenges when it comes to identifying hidden costs in their value creation processes. The more complex the processes at the respective location, the more diverse the possible factors influencing operating costs. In addition, there are regional differences and increasing product individualization, which make it difficult to compare cost structures across locations and product groups. As a result, up to 30% of the cost drivers in direct and indirect costs remain undiscovered on average. In order

to leverage this potential, new methods are needed to enable industrial companies to quickly and effectively identify hidden costs in their value creation processes.

### DETERMINE COST DRIVERS IN FOUR STEPS

With the OPEX Fast Ramp-Up approach, ROI has created an effective instrument for determining and evaluating potential cost savings, which forms the basis for quickly adapting its own cost structures to volatile market developments. The focus is on a multi-stage systematic assessment process that examines all direct and indirect areas of the

company. In accordance with the principle of the grid search, the potential influencing factors on the operating costs at the location are gradually narrowed down further, tak-

ing into account structured data, in order to derive the measures with the highest cost reduction potential. Deployment teams, consisting of several "cost profilers", carry

out the analysis on site over a period of 48 hours. Overall, the procedure comprises the following steps: (see Fig. 1 / page.12)

# RASTER SEARCH FOR HIDDEN COSTS

## YOUR EXPERT FOR OPEX FAST RAMP-UP

DR. KAI MAGENHEIMER has been working for ROI since 2014. He specializes in operational excellence, lean management, global manufacturing footprint and cost reduction programs.



Dr. Kai Magenheimer





**1. MISSION PREPARATION**

The optimal preparation of the teams on site is crucial for a quick and effective finding of the cost drivers. Only if they know exactly what has to be done at what point in time an effective assessment process can be ensured. To this end, ROI has developed a standard protocol that ensures that all on-site activities are interlinked and that no unnecessary time is lost. In two streams, the on-site intensive teams conduct structured investigations in direct and indirect areas. Standardized data templates ensure that all required data is captured completely.

**2. IDENTIFICATION**

In the first phase of on-site deployment, the teams explore the processes on site, identifying the areas with the greatest potential for cost savings. In doing so, they rely on an extensive set of standardized assessment tools and methods, such as the ROI OPEX Scan, value stream analysis or waste walks, with the help of which hidden costs or efficiency gaps can be reliably determined. Only where the initial examination reveals abnormalities or deviations are targeted, in-depth analysis are carried out afterwards. (see Fig. 2)

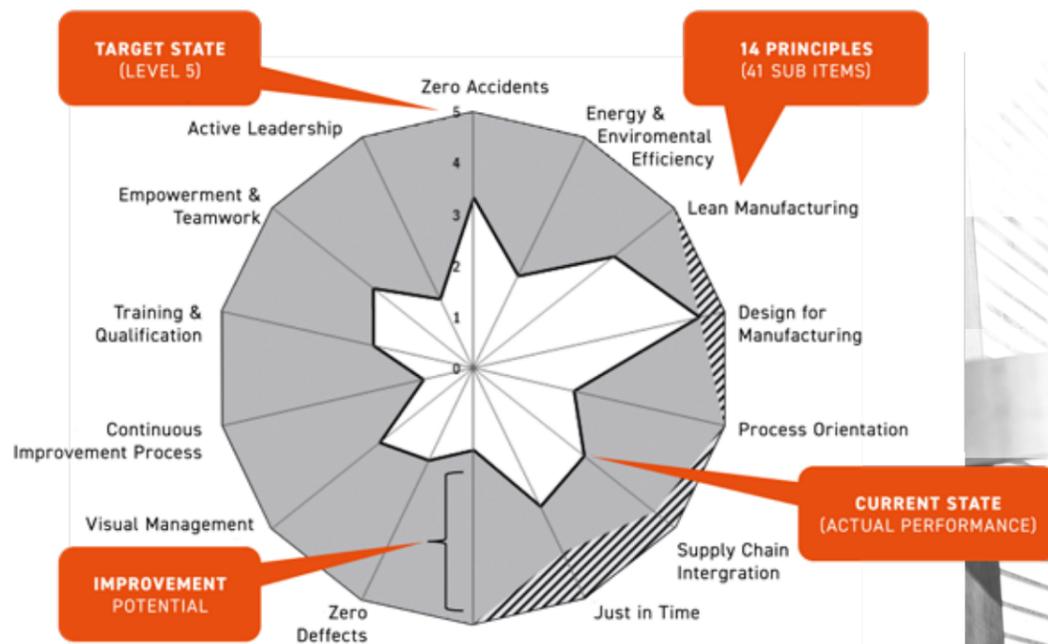


Fig.2

**3. DETERMINATION AND QUANTIFICATION OF POTENTIAL**

In the subsequent deep dives, the on-site intervention teams carry out further analysis to quantify the cost savings potential in the identified potential areas. These range down to the set-up times of individual tools. Using advanced methods such as Paper Kaizen, OEE, SMED or RME analysis and comparisons with internal best practices, the cost savings in the respective areas can be quantified in concrete terms, for example in the form of reduced lead times or reduced failure rates. (see Fig. 3)

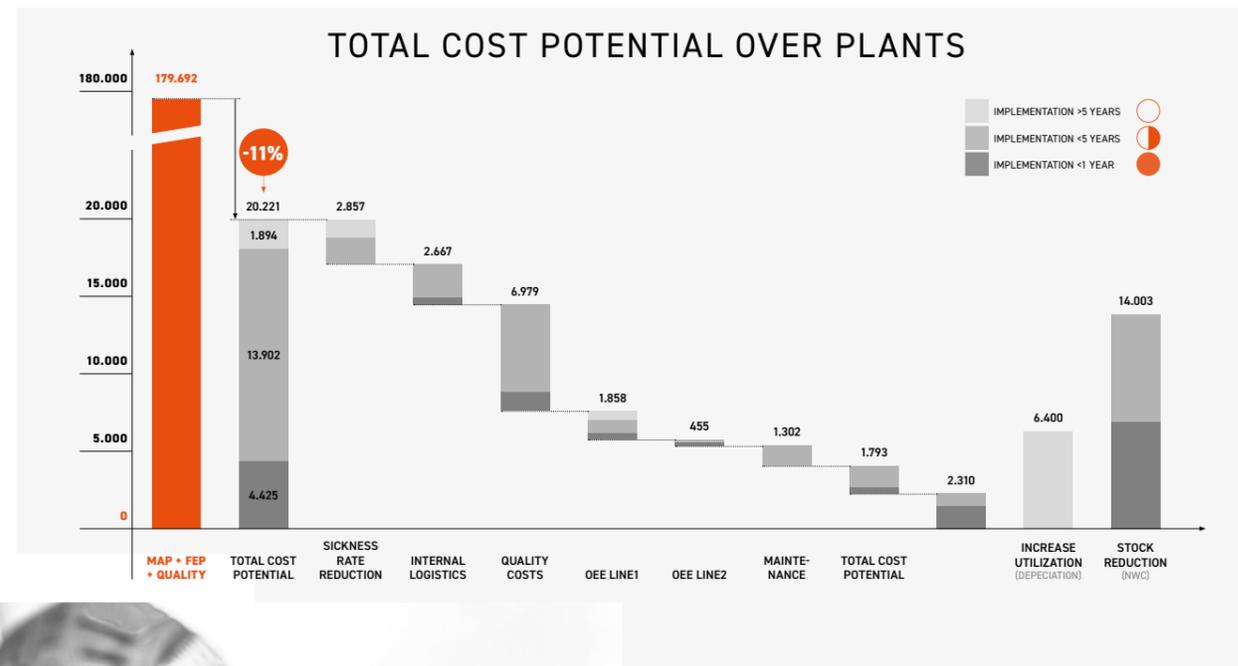


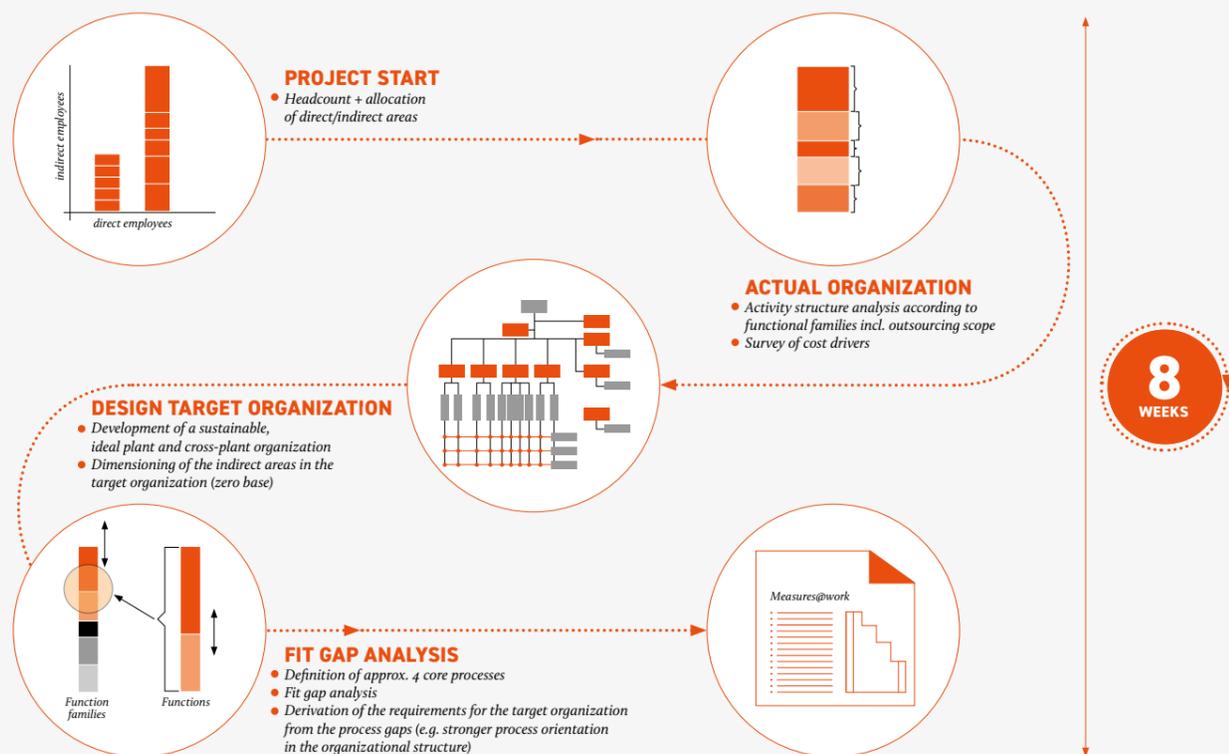
Fig. 3

**4. ACTION DERIVATION & ROADMAP DEVELOPMENT**

In the next step, concrete measures (counter-action) to reduce operating costs can be derived from the information obtained in this way. Due to the high level of detail of the previous analyses (deep dives), initial improvement measures, such as the automation of individual process steps, are already available after the analysis phase. These can be implemented immediately and immediate savings potentials can be leveraged. These can be combined into a plant-specific roadmap, which provides a detailed implementation plan for cost optimization at the respective site.



**ROI  
SWAT**



**8**  
WEEKS

# IN 8 WEEKS TO THE COST EFFICIENCY ROADMAP



With the action plan described in this way, a roadmap ready for implementation can be developed within a few weeks to raise the cost potential, which not only concentrates on identifying short-term cost savings, but also on the sustainable optimization of the value-added processes and thereby ensures long-term cost optimization.

### RASTER SEARCH

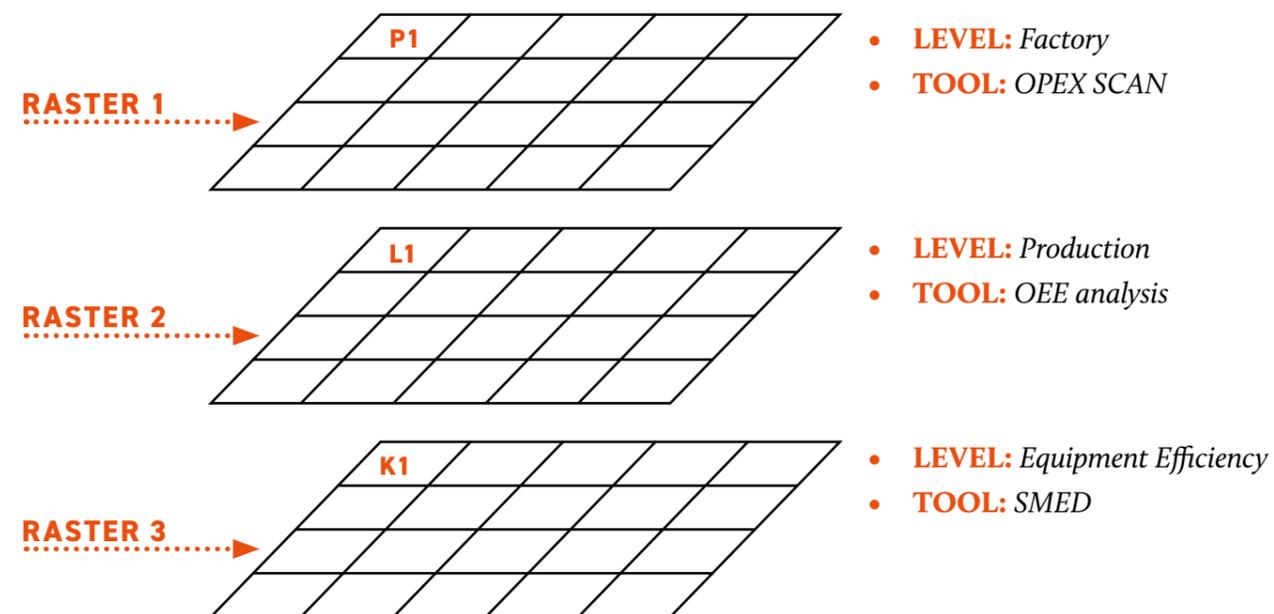
Multi-stage assessment process to quickly identify influenceable cost drivers within a large set of potential influencing factors using increasingly detailed search criteria. The prerequisite is a structured database using standardized assessment tools.

### COST PROFILER

Teams of experts to carry out cost assessments on site. You have a high methodological competence and experience in Lean Management. When they are deployed, they follow a strict schedule to efficiently complete all assessment stages.

### ASSESSMENT TOOL KIT

Comprehensive set of methods for the systematic identification and evaluation of potential cost drivers on site by cost profilers. A high level of standardised scans and tools to improve the comparability of data between plants or divisions.

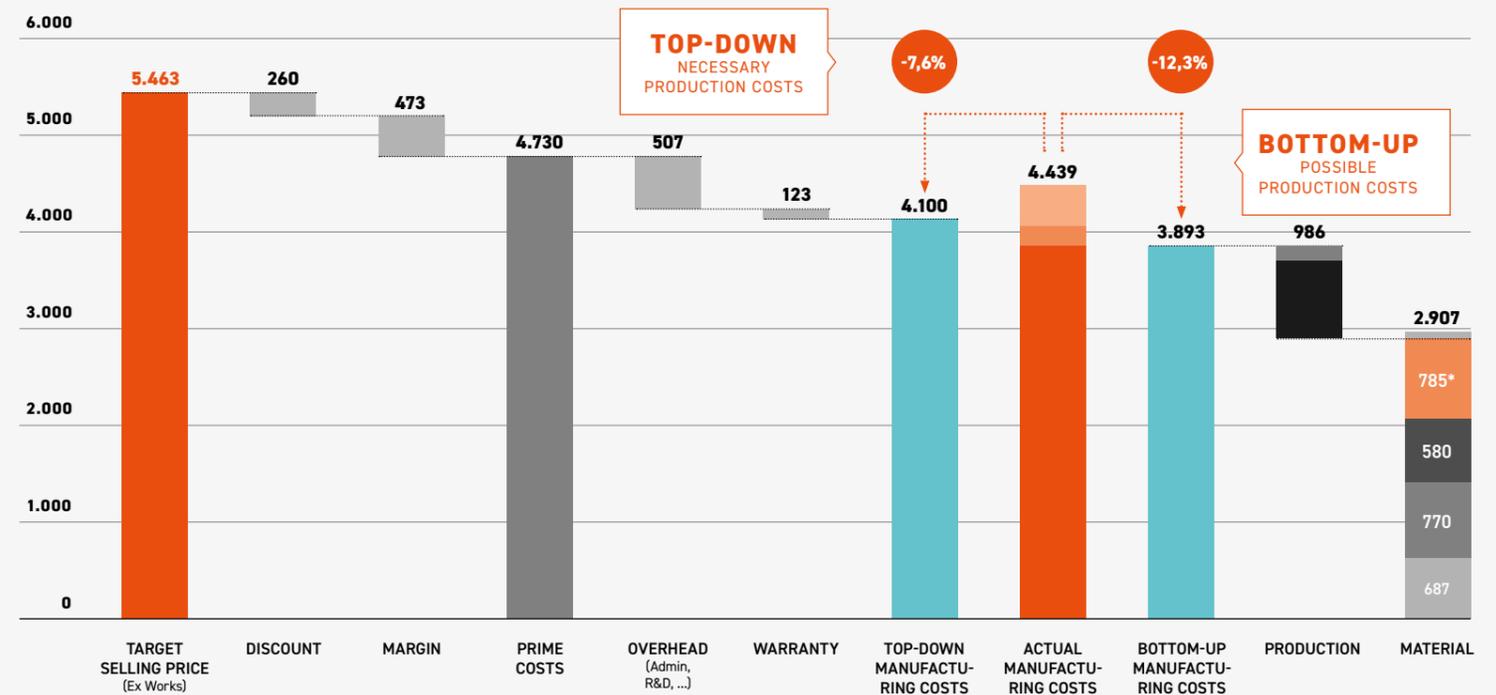




# VALUE & COST ENGINEERING

SURVIVAL OF THE FITTEST

## CUSTOMER EXAMPLE OF A TARGET COST MODELING (dual approach)



Hardly anything jeopardizes the economic success of a company as directly as products whose cost structure does not meet market requirements. As product cycles and global price competitions become shorter, there is an increasing pressure on companies to continually optimize their manufacturing and product costs. Value and Cost Engineering provides the ideal approach.

A modern myth says that NASA has developed a special “million dollar” space pen for its manned space missions because conventional ballpoint pens did not work in weightlessness. His mine consisted of a pressurized gas cartridge, inside of which a small metal cylinder pressed the special ink. The Russian cosmonauts, on the other hand, solved the problem in their own way – using pencils. Even if the story later turned out to be an invention of the media, it makes clear that a high degree of innovation alone is not always decisive for the success of products. Rather, they must meet the needs of customers, but at the same time must not be equipped with costly, superfluous functions that are not honored by the customer and thus represent a cost disadvantage to the competition. A holistic approach that develops strategies and requirements directly and across functions is therefore highly critical to business success. In addition, with accelerating innovation and ever-shorter product life cycles, the speed at which manufacturers are able to dynamically adjust their product costs is becoming increasingly important.

### COST CONSIDERATION MUST UNITE DIFFERENT PERSPECTIVES

This is precisely where Value and Cost Engineering (VCE) comes in. This is a cross-functional approach aimed at optimizing the relationship between product functions and costs, thereby increasing

the value of the product. This can be positively influenced either by the improvement of functions or the reduction of costs.

First, the requirements of the customers in the addressed target markets are clarified and then the suitable product functions are defined that are able to fulfill them. Based on this, cost management methods are applied which determine the best possible costs within the framework of a dual approach – top-down and bottom-up. In the top-down approach, the required manufacturing costs are derived from the achievable selling price, whereas the bottom-up approach shows the ideal manufacturing costs. By adding the actual costs, the cost deltas become visible.

### DECREASING ABILITY TO INFLUENCE COSTS IN THE PRODUCT LIFE CYCLE

In order to influence the manufacturing costs, different starting points can be used: Starting with the functional scope, through the production technologies to the suppliers. The following applies: the later the measures for product cost optimization take effect, the less influence can be exerted on these costs and thus on the savings potential. Basically, three starting points for VCE measures can be distinguished along the product life cycle. (see Fig. 1)

# APPROACHES TO COST REDUCTION AND PROFIT INCREASE ALONG THE PRODUCT LIFE CYCLE

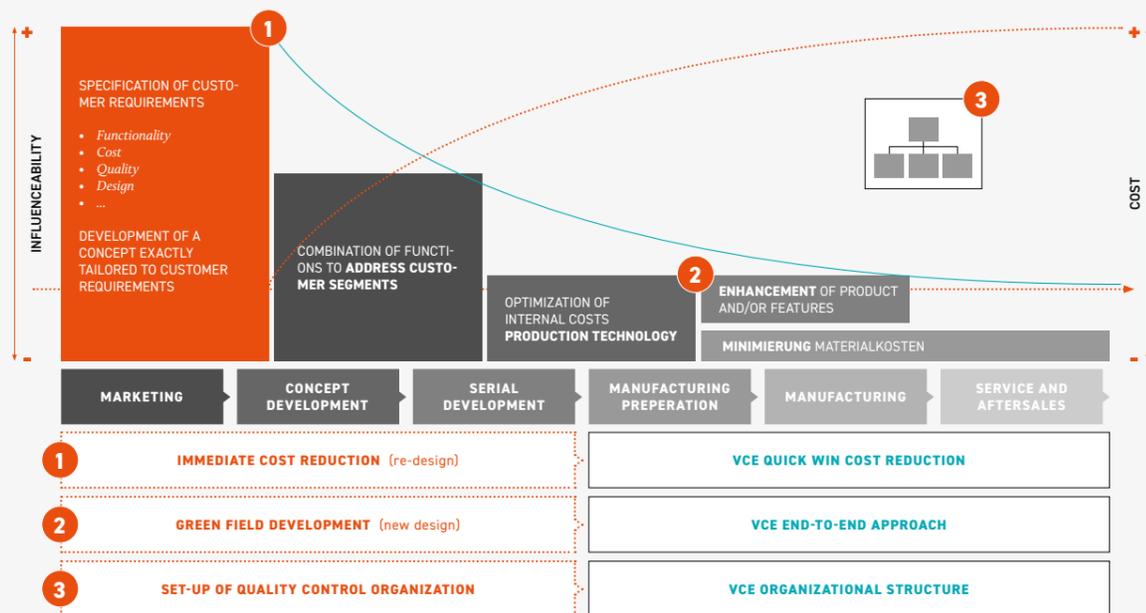


Fig. 1

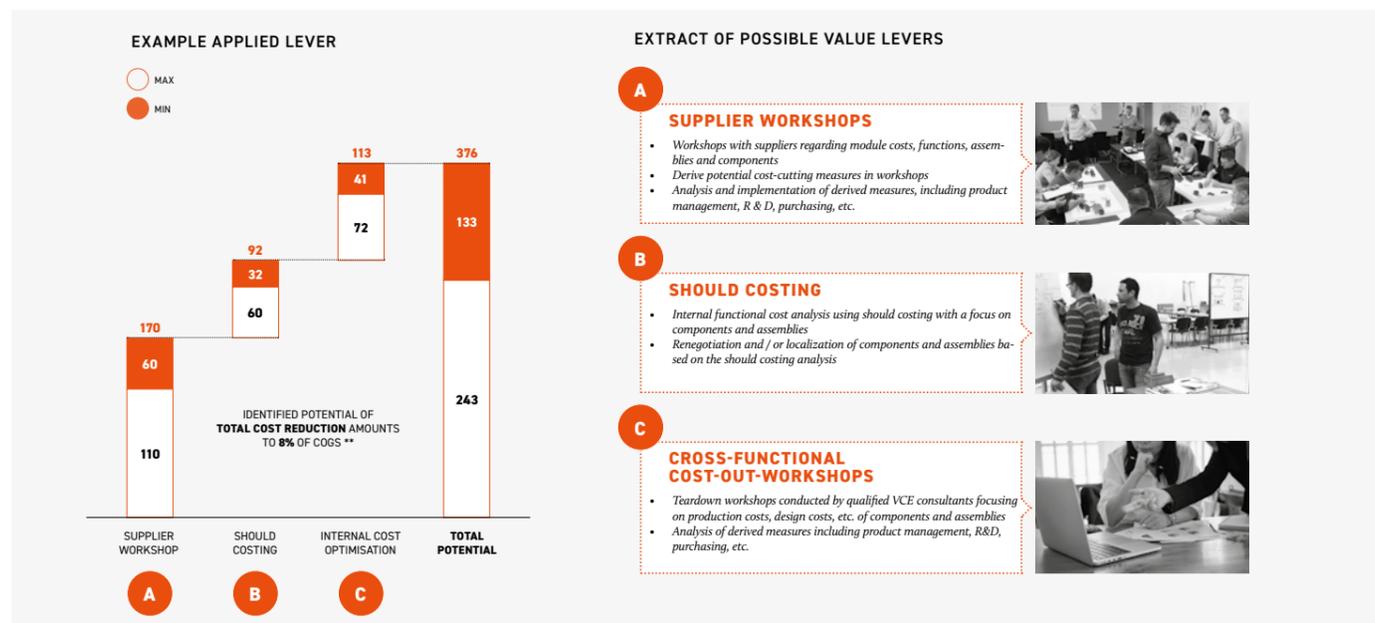
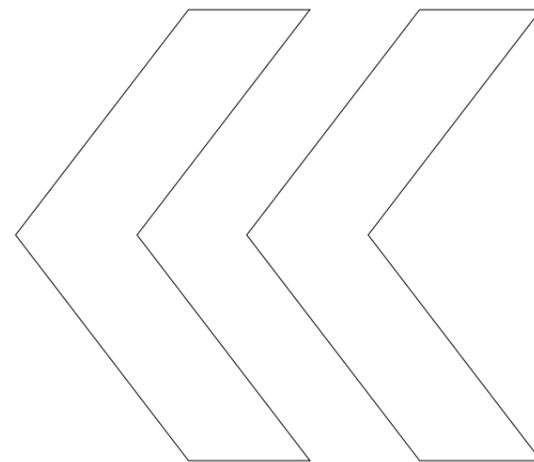


Fig. 2

## 1. VCE QUICK WIN COST REDUCTION

VCE Quick Win aims at the direct adaptation of the cost structures of products that are already ready for volume production (redesign) and uses proven levers to influence manufacturing costs that offer potential for rapid cost reductions, such as supplier workshops, should costing analyses or cross-functional cross-out workshops. (see Fig. 2).

In order to generate fast and measurable results, the VCE Quick Win approach follows a structured implementation plan with clear rules for the selection and prioritization of the measures to be implemented (see Fig. 3). This ensures maximum effectiveness of the measures implemented.



# DEPLOYMENT OF AN IMPLEMENTATION PLAN

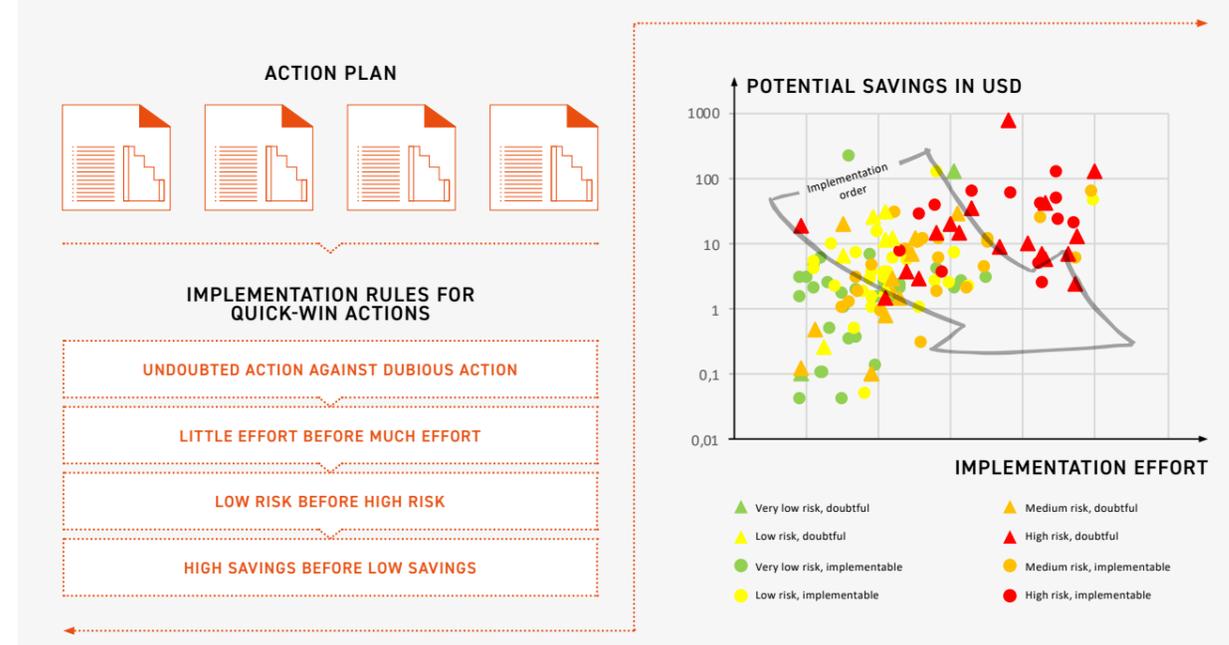


Fig. 3

## 2. VCE END-TO-END APPROACH

In comparison, the VCE end-to-end approach starts with the specification of customer requirements and describes continuous measures for the complete new development (Greenfield Development) of a product or product line up to the minimization of material costs in the after-sales area. Four elements are decisive for the success of the end-to-end approach:

- A deep understanding of target markets and customer requirements to evaluate product variants
- The derivation of suitable product functions to meet customer requirements, including a cost assessment

- The optimal design of the underlying value chain, taking into account make-or-buy scenarios, optimized manufacturing networks, integration of local R&D competencies as well as an exact supplier portfolio and logistics

- Concepts and methods for optimal planning and rapid adaptation of marketing and pricing activities

To ensure an optimal value and cost structure across all phases, the VCE end-to-end uses a comprehensive toolkit of proven VCE and procurement methods (see Fig. 4).



THE EXPERTS OF THE ROI SWAT TEAM SUPPORT YOU WITH FAST ACTING MEASURES TO ADAPT YOUR COST STRUCTURES.

# ROI SWAT

CALLING NOW

+49 89 1215 90-0

**YOUR EXPERT**  
FOR VALUE & COST ENGINEERING / INVENTORY COST MANAGEMENT

DR. MICHAEL BREITLING has been a partner at ROI Management Consulting AG, Munich, since 2019. His focus is on Cost Engineering (VAVE), Operational Excellence, Restructuring (including ODDs) and Industrial Masterplan.



Dr. Michael Breitling

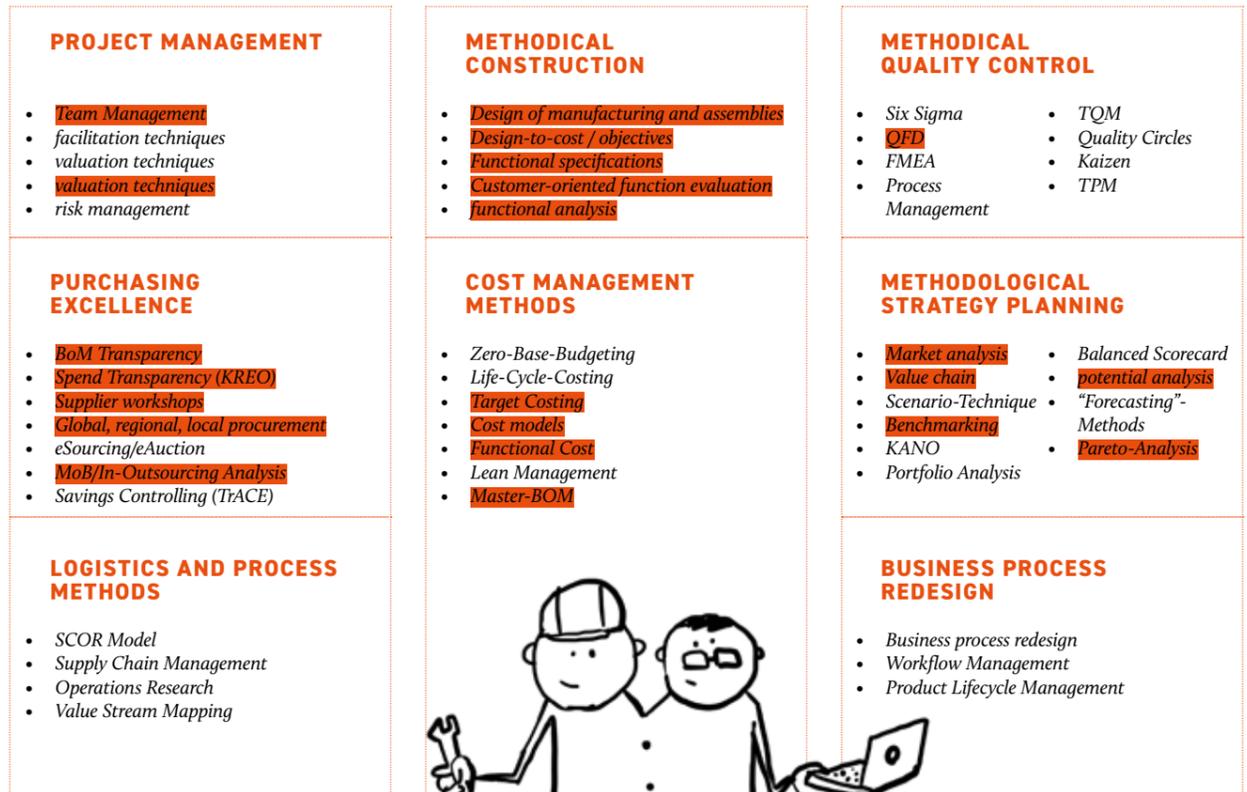


Fig. 5

### 3. VCE-ORGANIZATION

In addition to approaches aimed at redesigning the cost structures of individual products or product lines, the establishment of a VCE organization includes the development and integration of VCE measures into the product development process (PEP) as well as comprehensive empowerment of employees in the organization to ensure sustainable cost and value optimization.

#### PERMANENT PRODUCT COST OPTIMIZATION ALONG THE ENTIRE PRODUCT LIFE CYCLE

The increasing dynamism of volatile industrial markets is forcing companies to constantly adjust their product costs. Only those who have the tools to constantly review the cost structures of their own product portfolio and leverage to effectively reduce their manufacturing costs will survive in the high-speed logic of modern

industrial markets. Against this background, ROI's VCE approach provides an effective tool to enable an effective and, above all, rapid adjustment of product costs at all stages of the product life cycle. From Quick-Win to reducing manufacturing costs to end-to-end development of market-driven new products, to building a VCE organization that ensures sustained VCE optimization at every stage of the product development process. Especially against the background of ever-shorter product life cycles and aggressive global (price and quality) competition, these measures are becoming a decisive competitive factor.

## NORTH STAR FOR THE GLOBAL ORGANIZATION

**SUCCESSFULLY STREAMLINING INDIRECT AREAS WITH ROI'S ZERO-BASED APPROACH.**

Champions do not rest on their laurels, but always keep an eye on the next stage goal. A technology group, whose approximately 20,000 employees at more than 16 locations worldwide already generate a turnover of more than two billion euros, also oriented itself towards such a „North Star“. Its starting points: an operations strategy and the initiatives derived from it, which should be implemented at every location in order to make it even more efficient. In addition to the OPEX topics, the company, together with ROI, realigned the organization of all production sites according to the „zero-based organization“ approach.

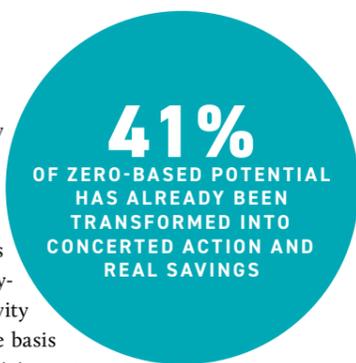
Anyone who manages highly heterogeneous manufacturing networks with different languages, work processes and (organizational) cultures is constantly on the lookout for standardization and potential for improvement: Why don't locations achieve their efficiency targets even though classical productivity is extremely high? Are there too many or too few indirect employees? How can the organization be adapted to the processes optimally? And how can management control and steer this at more than ten locations without having to put themselves in each organization's shoes each time all over again? The technology group was also confronted with precisely these challenges. For its "zero-based" project, it therefore pursued very concrete objectives: in the end, not only

should the status quo of the organization be clearly mapped, but also the future, ideal setup for all locations should be defined. Already on the way there, it became apparent that 41% of the potential could be converted into coordinated measures and actual savings.

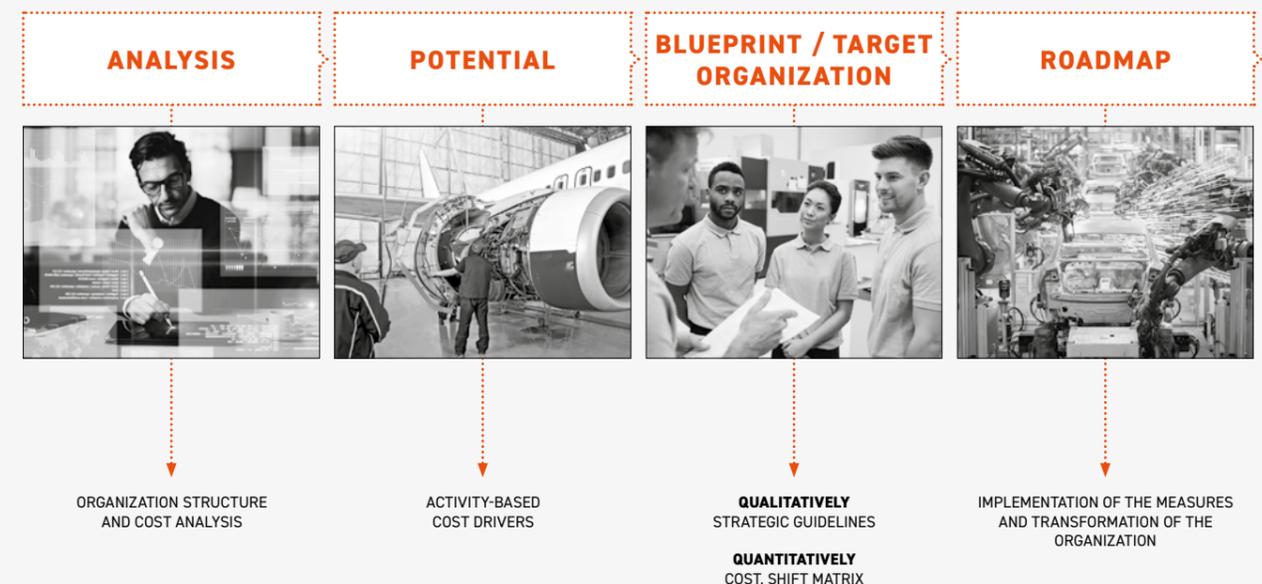
### ROI ZERO-BASED APPROACH

Together with ROI, the company identified the gaps between the status quo and the future ideal of the "zero based north star". Using ROI's own zero-based approach, the project team was able to develop a standardized, scalable and more efficient organ-

ization step by step. Four project phases are particularly important this way: the analysis of the activity structure on the basis of the ROI activity catalogue, the determination of potential, the development of a Blueprint of the organization including dimensioning as well as the approach to implementation (Roadmap).



# ZERO-BASED ORGANIZATION



### YOUR EXPERT FOR ZERO-BASED ORGANIZATION

**DR. THOMAS TROLL** has been project manager since 1999 and since 2006 partner at ROI Management Consulting AG, Munich. His focus is on the holistic optimization of production and logistics systems, starting with the strategic alignment of production networks (Global Manufacturing Footprint), reorganizing individual sites and optimizing production and logistics processes.



Dr. Thomas Troll

### ANALYZE STRUCTURES

How many capacities flow into direct activities today, how many into indirect activities? ROI follows a strict definition: Only activities that are reflected in the production times (te and tr) are directly value-adding.

**> 95%**  
THE ROI CATALOG COMES AS STANDARD WITH SITE ACTIVITIES

All other activities are indirect, including logistics, quality assurance and maintenance. Transparency is the key to the overall success of the initiative: Who really does what? This is because department allocations do not say anything about the actual activities. Is maintenance now responsible for machines and buildings or only for machines?

In the first phase of the project, the team concentrates primarily on the current activity and organizational structure. It assigns 100% of the working time of all employees to specific, predefined activities. ROI brings with it a proven catalogue of activities, which usually covers 95% with around 100 activities. The rest is completed customer-specific.

### DETERMINE POTENTIALS

The activity structure must now be interpreted correctly. Where are signs of potential, where does the organization already appear lean? First of all, benchmarks are very helpful, which the project team devotes itself to in the next phase: in internal benchmarks, it compares the same activities across several plants and departments of the company. This is extended with an external perspective, i.e. with industry and function benchmarks that use empirical values and best practices from over 20 years of ROI project experience. And: benchmarks must always take into account the nature of the business (e.g. mass production vs. individual orders).

**20 YEARS**  
PROJECT EXPERIENCE FLOW INTO THE INDUSTRY AND INDUSTRY, FUNCTION BENCHMARKS OF ROI

It is not enough just to determine the potential, but it must also be possible to explain it to the employees via improvement levers in the process, organization or service portfolio - for example, the benchmark in order processing shows greater potential. At the same time, there are many interfaces in the process, duplicate tasks and poorly used IT systems are identified. According to ROI experience, 80% of the cost reduction potentials refer to inefficient processes, about 20% can be tapped through purely organizational changes.

### CREATE BLUEPRINT AND DIMENSION TARGET ORGANIZATION

The following project sections focus on how these potentials can now be activated in practice. Here the project team "designs" the ideal organizational structure. To this end, it defines design guidelines (e.g. number of management levels and management ranges), determines the right level of central and decentralised functions and determines the optimal dimension of the organization. At the end the Blueprint organization is summarized in a standardized and scalable organizational structure.

**80%**  
COST REDUCTION POTENTIAL LIES IN THE IMPROVEMENT OF PROCESSES, 20% IN AN ORGANIZATIONAL CHANGE

### IMPLEMENT TARGET ORGANIZATION

Once this objective has been clarified, the "how" follows the implementation. Depending on the location, for example, a works council must be involved or country-specific requirements must be observed - this makes individual transformation paths necessary. With ROI, the technology group also developed its own concept for the implementation of each location - with the path from the current state to a target image that comes very close to the "zero-based north star". With two years, the company calculated a realistic time frame from project start to roll-out in all locations. A decisive success factor in the implementation was working with the plant managers on site.

## AT A GLANCE ROI EXPERT TIPS FOR ZERO-BASED PROJECTS

**CONSISTENTLY FRAME / DON'T BE CONFUSED**

- Clean, comparable activity analysis is half the battle
- Without internal / external benchmarks the jump becomes too small
- External moderation is extremely helpful in this situation.

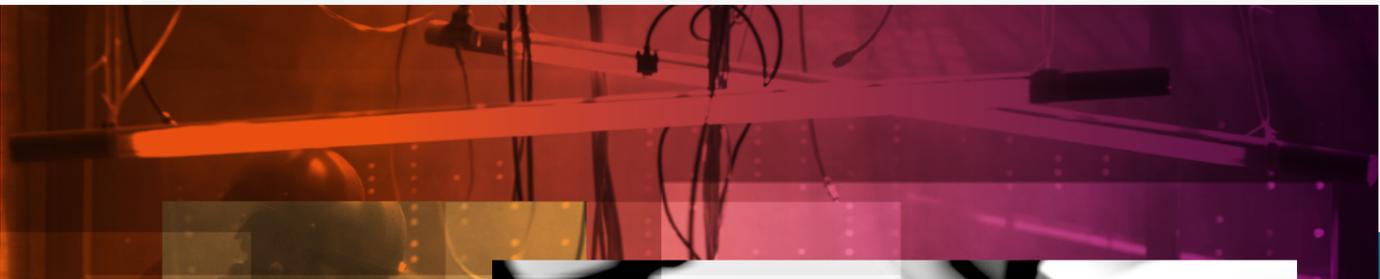
**SAME GOAL FOR ALL LOCATIONS / INDIVIDUAL ROADMAPS**

- Set ratio as target, e.g. 1 : 2.5 or scalable target organization
- Giving enough time
- Consider restrictions of the locations (e.g. fluctuation)

**TRANSFORMATION IS WHAT COUNTS**

- Shift burden of proof
- Consistent integration of personnel requirements
- Offer help in improving processes

**2 YEARS**  
ARE A REALISTIC TIMEFRAME FOR THE GLOBAL IMPLEMENTATION OF A ZERO-BASED ORGANIZATION





# MAINTENANCE EXCELLENCE IN JUST A FEW MONTHS

A specialty chemicals group with 14 plants in 9 countries faces enormous challenges when it comes to plant availability: The deficits in overall plant efficiency not only endanger the company's growth targets, but also its reputation as a premium supplier to the energy industry. In order to improve the availability of manufacturing facilities in the global plant network, ROI set up a comprehensive program to introduce a central maintenance organization consisting of three workstreams that build on each other. An excerpt from the project report...

## WEEK 4

About four weeks after the start of the project, the analysis of the existing basic data and already known availability problems in the individual plants has been completed. Together with the customer's project managers, a set of key figures/KPIs was also defined for evaluating the OAE, including OEE, MTR/MBR or TMC. In the meantime, the assessment phase has started in all plants. First, the maturity level of the maintenance organization is determined with the help of the ROI Maintenance Excellence Scan. The project team then uses the ROI OAE Check to document machine downtimes and thus determine the optimization potential of the planned maintenance measures. In addition, the consultants collect and document best practices at the various locations so that they can later share them with other plants.

## WEEK 12

After completion of the assessment phase, the results were discussed in a management workshop. Six plants showed particularly high deficits in machine availability and maintenance maturity. In these "focus plants", ROI consultants are currently conducting one-week "deep dive assessments" in which they examine the causes of efficiency losses and the status quo of maintenance processes together with the experts on site. The previously collected data is supplemented by on-site observations and impressions in order to arrive at a comprehensive and meaningful evaluation of the maintenance activities in the respective plant.

## WEEK 17

Based on the insights gained from the assessments, the ROI experts have compiled a tailor-made tool kit that is ideally tailored to the requirements of the individual focus works in recent weeks. It contains various tried and tested maintenance tools, project management tools and problem solving techniques to enable local managers to take measures to reduce waste. A one-week training course is currently taking place in the ROI learning factory in Prague to ensure that these so-called "task force managers" have the necessary know-how to successfully use the tools. There they not only learn the basics of lean maintenance, but also define the joint procedure for implementing measures at the respective locations. For the first time, a company-wide maintenance network and professional exchange across the various plants will be created.

## WEEK 21

Back at the plants, the task force managers have started to implement the 10-week optimization program. Initially, further inventory analyses were carried out and cross-functional project teams put together. The measures derived from the root cause analyses will be implemented in the coming weeks. Centralized project management and standardized tools and templates ensure comparability of implementation progress and optimal know-how transfer across all plants. At the same time, a

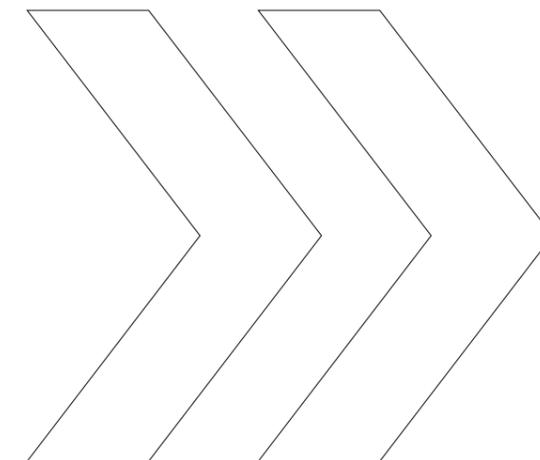
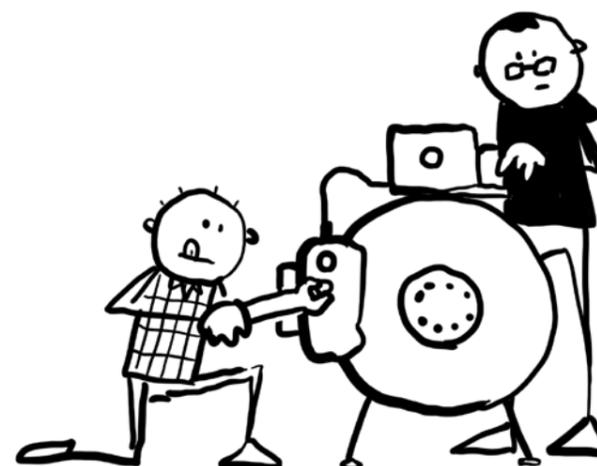
comprehensive Maintenance Excellence Program is being set up to ensure that the Group-wide maintenance organization is anchored and further developed on a sustainable basis. In a joint workshop with the ROI experts, maintenance strategies and guidelines for selected lines and components were defined and instructions with the corresponding machine classifications, key figures and process descriptions were developed.

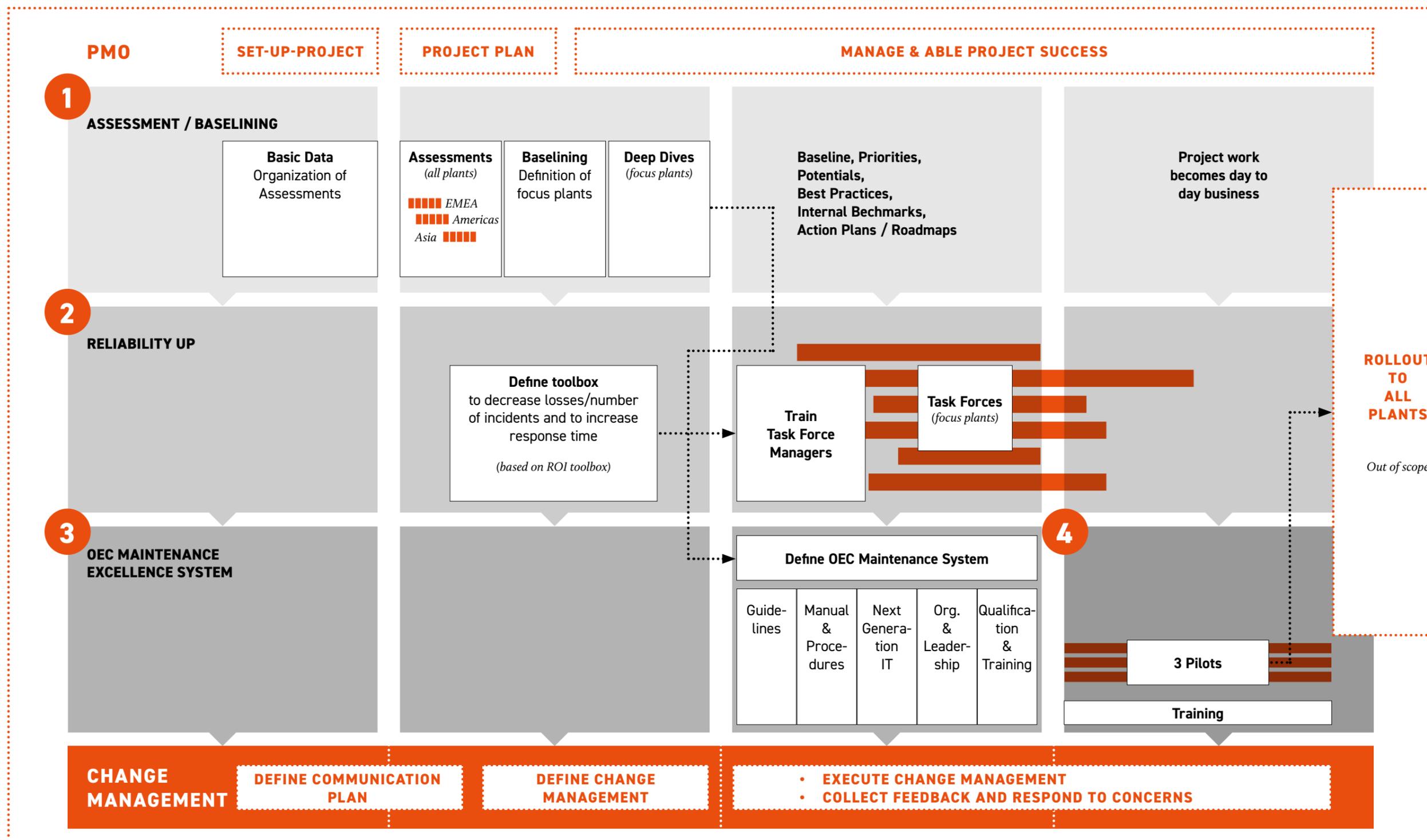
## WEEK 28

The task force deployment is completed after 10 weeks. The first measures are already being implemented and their progress is regularly reported. The first successes have already become visible. Now the rollout begins in further areas or lines; the task managers hand over the control and monitoring tasks to the regular maintenance and reliability managers. At the same time, the establishment of a comprehensive Maintenance Excellence System is progressing by creating the technical, organizational and personnel prerequisites for a locally controlled but globally coordinated maintenance organization. On the one hand, this includes a future-proof IT infrastructure geared to maintenance processes, which supports real-time-based maintenance processes through a modern MES architecture and Smart Data Analytics. Secondly, organizational structures and management processes as well as a training and qualification concept at all levels that ensures sustainable implementation.

## WEEK 70

One year after completion of the planning phase, the Maintenance Excellence System has been rolled out in large parts of the Group and is being applied successfully. ROI experts accompanied the pilot phase as trainers and sparring partners and helped prepare the rollout. The regular reports show that the OAU has now risen from 77% to over 85%. As a result, the maintenance costs could be reduced considerably within one year.





**YOUR EXPERT FOR MAINTENANCE EXCELLENCE PROGRAM**

JOACHIM KROHN is Principal at ROI Management Consulting AG. His focus is on the development and implementation of operational excellence systems to improve performance along the entire value chain.



Joachim Krohn

# FROM LIGHTHOUSE PROJECT TO COST CUTTER



INDUSTRY 4.0 HAS LONG BEEN A STRATEGIC CORPORATE OBJECTIVE WITH A LONG-TERM CHARACTER FOR COMPANIES IN THE MANUFACTURING INDUSTRY. IN THE AGE OF VOLATILE MARKETS, THE QUESTION OF THE “RETURN ON I40” IS INCREASINGLY COMING TO THE FORE. BUT ARE TODAY’S INDUSTRY 4.0 SOLUTIONS SUITABLE TO ACHIEVE SHORT-TERM COST REDUCTIONS AT ALL?

Interview with Prof. Dr.-Ing. Werner Bick, Chief Representative, ROI Management Consulting AG

## How mature is Industry 4.0 in Germany at the moment?

Looking at Industry 4.0 as a product development process, I would say that we are currently in the rollout phase. This means that the necessary basic principles and technology modules are largely known to companies and relatively cheaply available. Many of them have already carried out successful pilot projects and gained initial experience. Now we can see how these companies are establishing their industry 4.0 solutions across the board and how small and medium-sized companies are also getting involved in the topic. At the same time, the degree of maturity of the solutions is also increasing, as the winners of last year’s Industry 4.0 Awards show.

Given this progress, how do you explain the fact that labour productivity in a sector such as mechanical engineering has not increased but decreased<sup>1</sup> since 2005?

There can be many reasons for this. On the one hand, it should not be forgotten that many companies are still going through a learning process, for example, when it comes to the question of which instruments suit them best or how they have to align their organization accordingly. On the other hand, the complexity of products has increased many times in recent years. A higher level of product individualization, as made possible by industry 4.0, for example, is often at the expense of productivity. In some cases, the immediate efficiency-enhancing effect can therefore not be felt for the time being.

Against this background, are industry 4.0 technologies suitable as short-term cost-cutting measures at all?

Absolutely. There are two main cases in industry today: On the one hand, there are companies that have to invest first and for whom the payback may take longer as a result. On the

other hand, you have companies that manage to directly and immediately save costs with simple, scalable solutions without major initial investments. Basically, in order to shorten the time to “Return on I40”, the appropriate instruments in combination with a procedure adapted to the specific requirement are needed.

## What does it look like?

Many companies think Industry 4.0 very strongly in terms of the target image of the completely smart factory, in which all elements of the value chain are continuously networked and all information flows together in real time.

This is fundamentally sensible and correct, and does not help those who need to quickly optimize their cost structures in assembly or in their supply chain until they find applications where they can use this knowledge to reduce lead times and increase plant availability, for example. In concrete terms, this means that the major six-year programs must be supplemented by smart

six-week projects that enable quick wins and rapid savings effects. These so-called Instant I40 solutions, comparable to Point-Kaizens, are applied at individual points in the value chain and create selective improvements with a direct economic effect.

Does this mean that companies should concentrate only on those measures that bring immediate benefits?

Not exclusively, of course. The systematic development and expansion of an I40-compatible infrastructure, such as the integrated networking of machines, operating resources and products, is an essential prerequisite for being able to exploit the full potential of more complex industry 4.0 solutions at a later date. It must never be neglected in favour of short-term efficiency gains. The good news is she doesn’t have to. Rather, it is a matter of identifying quick wins along the overriding industry 4.0 roadmap and implementing them quickly and efficiently.

## What could those be?

Basically, these can be all solutions that use industry 4.0 elements to leverage cost savings along the industrial value chain. They often build on existing lean processes, as in the case of digital shop floor management, where existing lean management practices are extended by digital elements to create tangible added value. Another example is the use of advanced analytics to implement a predictive analysis model in manufacturing. This enables companies to develop a digital twin for particularly quality-critical production processes within a six-week sprint in order to sustainably improve process stability and quality.

Thank you for the interview.

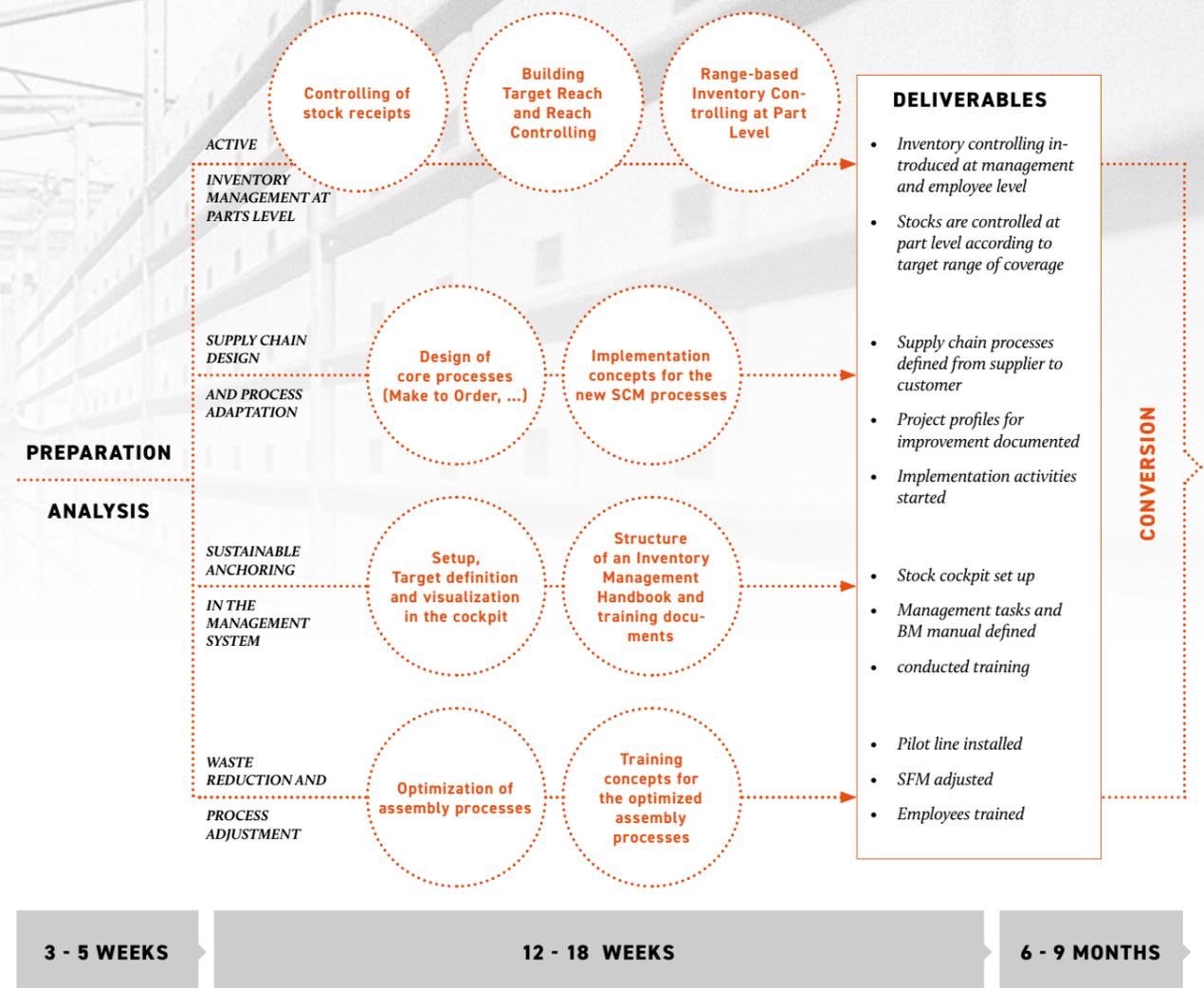


<sup>1</sup><https://www.zew.de/forschung/produktivitaetsparadoxon-im-maschinenbau/>

By Dr. Michael Breitling,  
Partner, ROI Management Consulting AG

# THE FLEXIBILITY PARADOX

## PARALLEL PROCEDURE FOR MAXIMUM SPEED



If you want to save costs and ensure high delivery reliability at the same time, you need a systematic approach to dealing with inventory costs.

### ROI INVENTORY COST MANAGEMENT RELIES ON A MULTI-LAYERED APPROACH FOR THIS PURPOSE.

Camps are amazing places. They manage to secure and destroy flexibility at the same time. On the one hand, the inventories in these areas create flexibility by helping to decouple supply and demand, cushion the resulting fluctuations and protect against excessive supplier power. On the other hand, they also steal flexibility by tying up significant liquid funds, which are then no longer available for strategic and operational initiatives. From a cost perspective, it is therefore clear that the best bearing is not a

bearing. However, if you want to guarantee entrepreneurial flexibility and a high level of supply security and delivery reliability at the same time, you must not simply reduce stocks across the board, but reorganize your inventory management according to lean principles. The key to this lies in the combination of a redesign of the supply chain processes, the introduction of digital planning and control methods, improved cooperation with suppliers and the anchoring of inventory management excellence in the

management team. With the Inventory Cost approach, ROI has created a fast-acting approach for effectively minimizing inventories on the one hand and reliably securing delivery reliability on the other. For the most time-consuming implementation possible, it relies on the parallel optimization of four central workstreams.



# *building industrial future*

As an expert in R&D, Manufacturing and Industry 4.0, ROI helps industrial companies worldwide optimise their products, technologies and production networks as well as harness the power of digitization for more efficient processes and smart products. Operational excellence and quantitative, sustainable results are the goals by which ROI wants to be measured. ROI has won numerous major awards, such as the 'Best Consultant' award by 'brand eins' and the 'Best of Consulting' by 'WirtschaftsWoche' and earned top rankings in the study 'Hidden champions of the consulting market' of the WGMB.

In order to make the multi-faceted topic of Industry 4.0 tangible and effectively usable in corporate practice, ROI runs an Industry 4.0 learning factory in which the technological foundations and principles of digitization are combined with the lean production approach and conveyed in a practical way. As initiator and co-organizer of the Industry 4.0 Awards, which were first presented in 2013, and 2017 in China, ROI actively promotes the development of technological innovation in Germany. Established in Munich in 1999, ROI-EFESO employs around 500 people at 30 locations worldwide. The spectrum of customers ranges from well-known, medium-sized companies to Dax-listed corporations.

#### **IMPRINT**

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