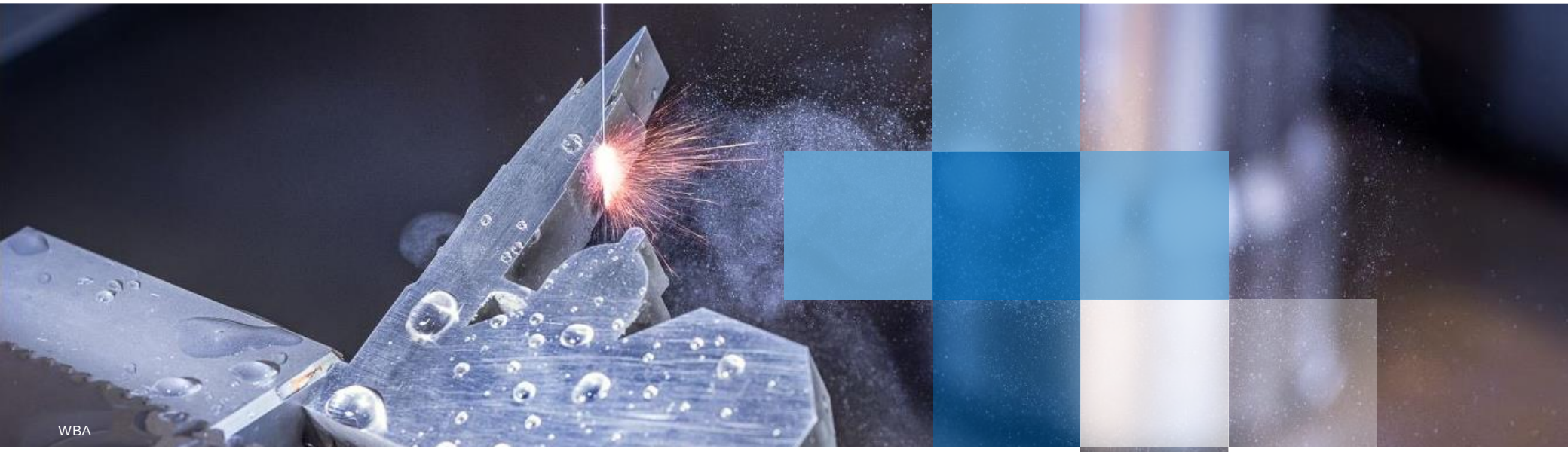
WBA
WERKZEUGBAU
AKADEMIE



WBA Aachener Werkzeugbau Akademie GmbH

References

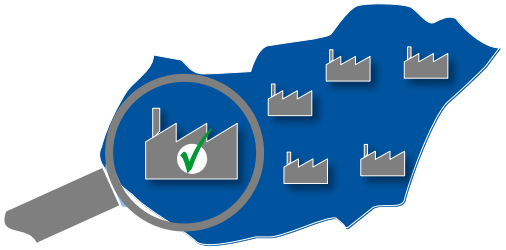
Version 28

Identification of new suppliers for the machining of large parts for the Audi Tool Room

Approach

- Design of a standardized requirements profile for new suppliers of the Audi tool room
  - Definition of a standardized requirements profile
  - Design of a questionnaire for the evaluation of suppliers
- Identification and evaluation of potential suppliers for the Audi tool room
  - Identification of potential suppliers in Central Europe
  - Mailing of questionnaires and support of suppliers
  - Evaluation of suppliers and documentation of competence profiles with regards to countries and companies

Audi Werkzeugbau



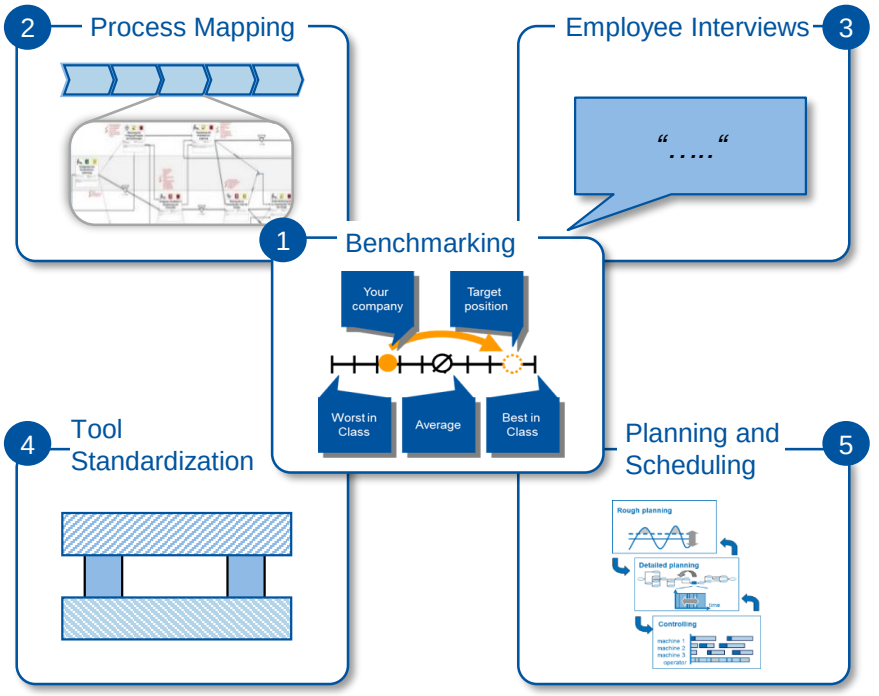
Result

► **“The systematic approach as well as excellent documentation of the WZL has increased our market knowledge and improved our supplier management.“** **Herbert Peierl (Audi Tool Room)**

Benchmarking and analysis of the BEKOMOLD internal tool room in Hungary

Approach

- Analysis of the organizational and technological performance in comparison to the competition
- Recording of the order fulfilment process from the order request to the tool delivery
- Interviewing of employees in order to verify and evaluate the benchmarking results
- Unveiling of strengths and potentials and derivation of action fields
- Recording and analysis of the level of tool standardization at BEKOMOLD
- Recording, analysis and structuring of the software landscape at BEKOMOLD



Results

► **Detailed organizational and technological benchmarking of internal processes**

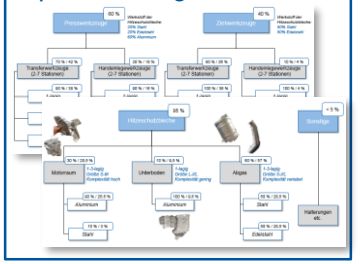
► **Derivation of action fields and development of a implementation roadmap**

Identification and assessment of potential customers for the tool shop of Bilsing Automation GmbH

Approach

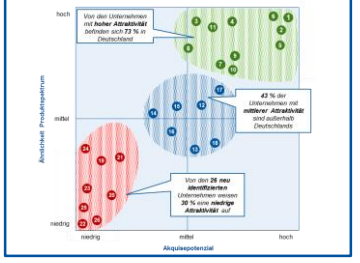
- Recording of the tool and product range of the tool shop of Bilsing Automation
- Identification of potential sales markets for tools for heat shield manufacturing
- Identification of potential customers for the tool shop of Bilsing Automation
- Assessment of identified companies regarding the potential of acquisition, accessibility of information as well as information regarding market competitors and size of order
- Assessment of attractiveness of identified companies depending on potential of acquisition and similarities regarding product ranges
- Preparation of company profiles of potential customers for the tool shop of Bilsing Automation

1 Tool and product range



2 Potential sales markets

3 Assessment of attractiveness



4 Company profiles

Findings

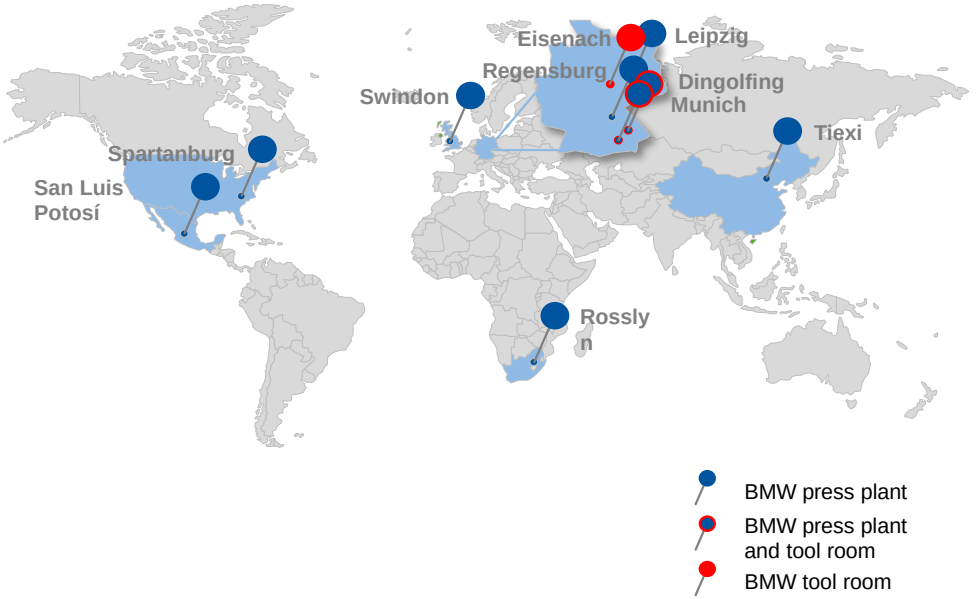
► **Identification of European sales markets for tools for heat shield manufacturing**

► **Company profiles of potential customers for the tool shop of Bilsing Automation**

Tool supply concept of the future for all international production sites

Approach

- Joint description of determining factors and prerequisites of the BMW Group
- Execution of international market surveys for the identification of eligible sourcing regions
- Execution of international market studies for the identification of potential supplying tool rooms
- Development of scenarios for future tool supply and correlation with the ideal internal tool room
- Drafting of a roadmap for the implementation of the tool supply concept of the future



Results

► **Development of a concept for the tool supply of the future for all international production sites**

► **Identification of potential tool rooms in international sourcing markets**

Benchmarking-study for the performance evaluation of tool making in China

Approach

- Project execution in cooperation with the companies BMW, Daimler and ZF
- Identification of potential tool shops with the requested product range
- Development of a benchmarking questionnaire for the collection of key figures
- Supervision of Chinese workers in the companies during the completion of the questionnaires
- Evaluation of key figures and on-site auditing of the best performing companies
- Determination of potential suppliers and future partner companies

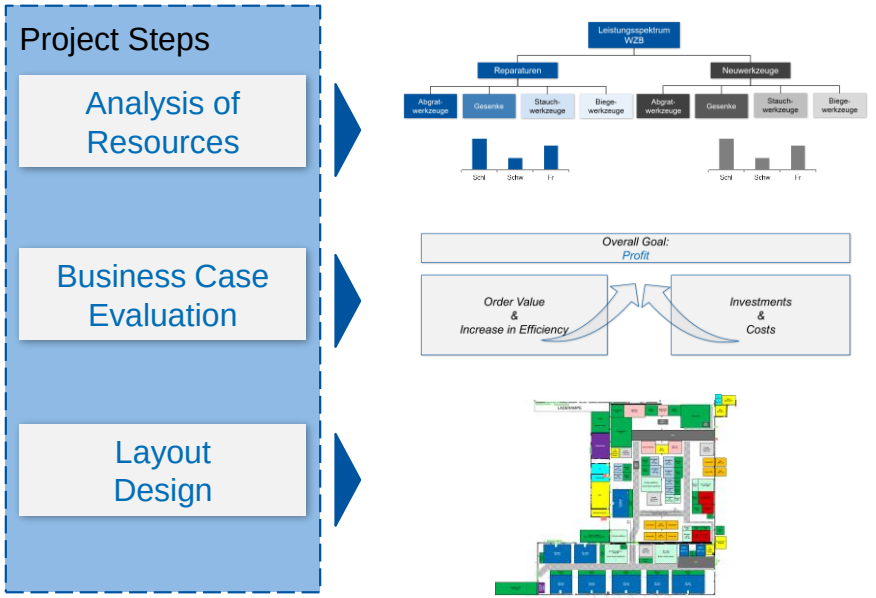
Results

- ► **Performance evaluation of tool makers in China**
- ► **Identification of potential suppliers and future partner companies**

Centralization of the tool shop and design of the new layout at Böhler Schmiedetechnik

Approach

- Analysis of the actual availability and demand of resources at the current tool shops as well as the calculation of the future demand of resources
- Quantitative and qualitative assessment of the tool shops' centralization within a business case and decision on the realization
- Development and design of a material flow oriented layout for the centralized tool shop
- Development of a detailed relocation plan for each resource
- Calculation of the saving potentials as well as the amortization of the centralized tool shop



Result

► **Centralized and optimized tool shop in terms of resources as well as layout design in consideration of budget restrictions**

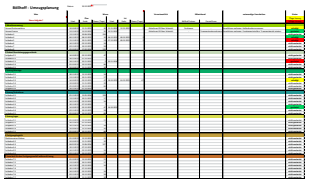
Relocation coordination and employee training for internal tool shop of the Böllhoff company

Approach

- Development of step-by-step relocation plan with detailed responsibilities as well as timing of relocation-related activities to minimize interruption of production
- Definition and acquisition of required new equipment as well as transportation services
- Coordination of relocation
- Implementation of developed layout at new site
- Training and motivation of employees for the change to the newly introduced production concept of “industrial tool making”

BÖLLHOFF
Joining together!

Relocation Planning



Relocation Coordination

Employee Training

Result

- ► **Relocation of tool shop with minimal interruption of production to production-technology-optimized factory**
- ► **Trained employees with improved understanding of industrial tool making**

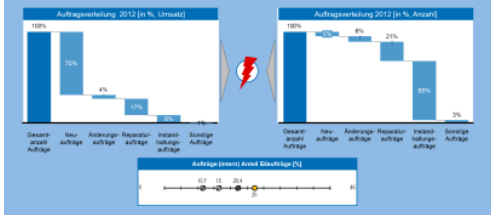
Conception of the internal tool making of Böllhoff

Approach

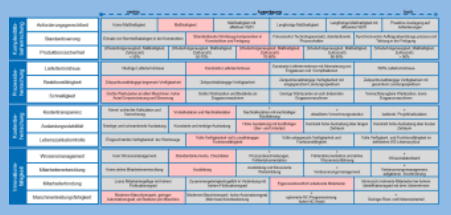
- Status-quo-analysis through a benchmarking
- Analysis of the process of internal order-processing and the range of offered services
- Definition of the new strategic orientation, including a new vision and mission
- Design of the future range of technology and depth of added value
- Determination of the future need for staff and machinery
- Designing a layout for a new production hall with special regard to the process flow

BÖLLHOFF
Joining together!

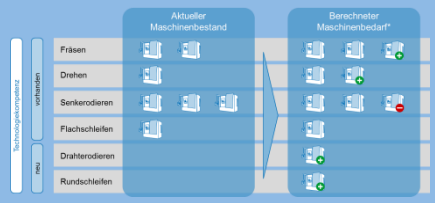
Status quo analysis



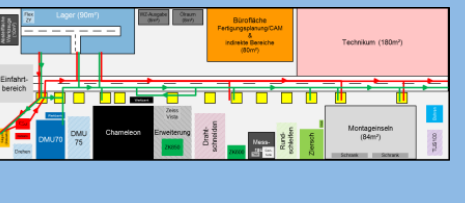
Strategical realignment



Design of tool shop 2020



Layout design



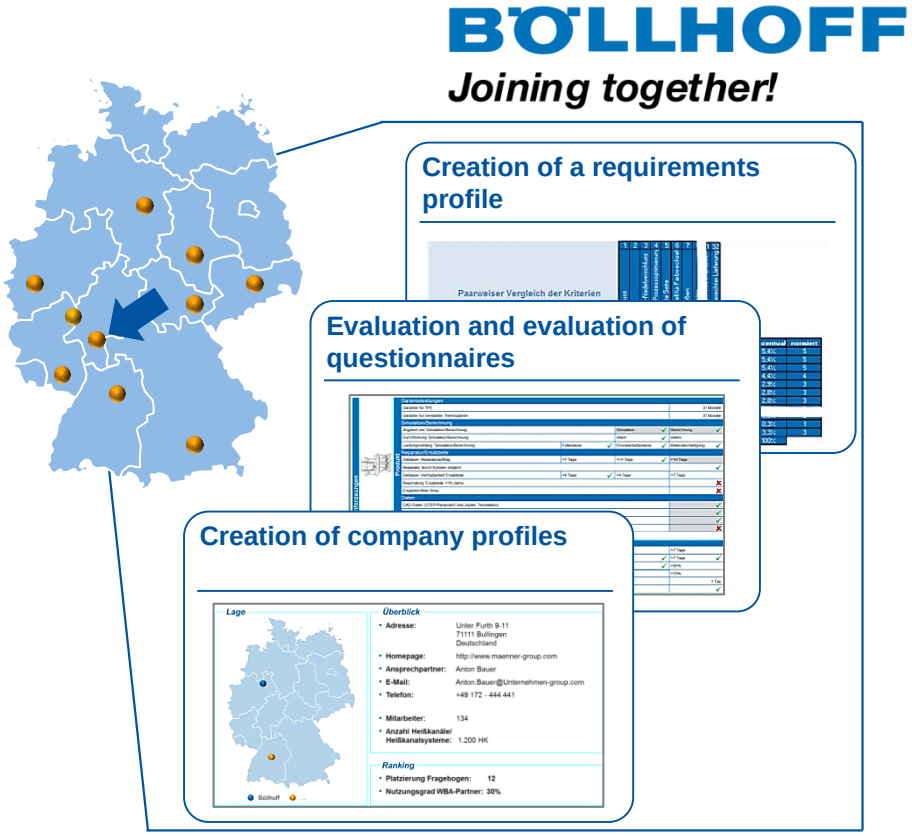
Results

- ► **Strategic realignment based on the future role of internal tool making**
- ► **Sustainable and competitive tool making and layout of production hall that ensures process flow**

Analysis of hot runner system providers for the internal tool room of Böllhoff

Approach

- Identification of hot runner system providers in the German-speaking region
- Creation of a company-specific requirement profile for the systematic evaluation of the suitability of the hot runner system provider
- Detailing and weighting of the defined requirements in terms of scope of services, use of technology, etc.
- Preparation and mailing of a questionnaire for the systematic collection of the relevant information from the hot runner system provider
- Validation of evaluation results through comparison with empirical values of selected partner companies and suppliers recommendation



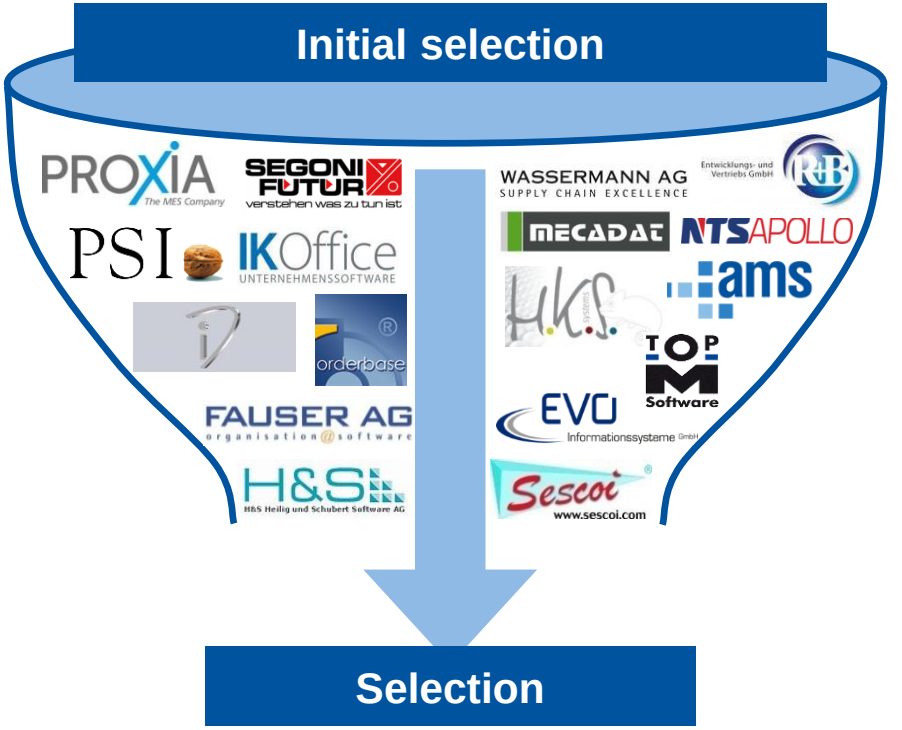
Results

- ► **Detailed profile of requirements for hot runner system suppliers**
- ► **Company profiles of the key players for hot runner systems in the German-speaking region**

Planning systematics and PPS software system selection in tool making

Approach

- Analysis of the planning system and derivation of a future planning system
- Creating specifications for a PPS software system
  - Identification of company specific requirements
  - Description of compulsory functions
- Selection of a PPS software system
  - Analysis of available PPS software systems
  - Definition of an evaluation scheme for PPS software systems
  - Evaluation of the analyzed PPS software systems



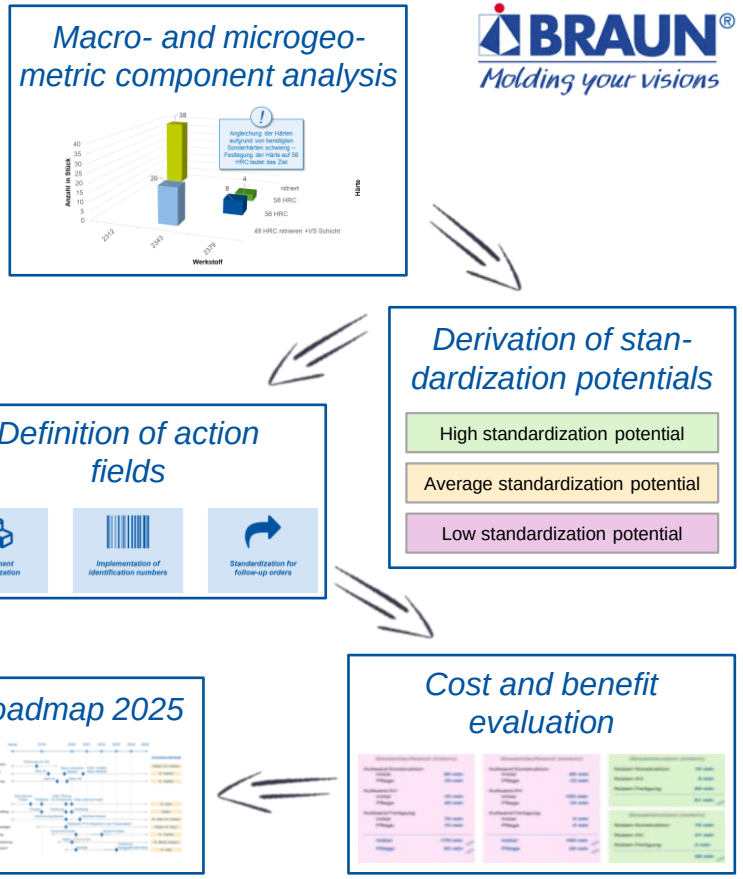
Result

► **Selection of a PPS software system to design a system supported planning system to improve both performance and competitiveness**

Implementation support for tool and process standardization at Braunform

Approach

- Analysis of the product and tool spectrum
- Execution of a macro- and microgeometric component analysis on the basis of 57 part lists
- Evaluation of the standardization potential of relevant components within a defined product and tool range
- Verification of the standardization potential by employees of different process steps such as design and work preparation
- Definition of fields of action for tool standardization:
  - Implementation of component standardization
  - Launch of identification numbers
  - Standardization for follow-up orders
- Cost and benefit evaluation of the overall tool standardization
- Derivation of a ‘Roadmap 2025’ in order to ensure and to synchronize the tool and process standardization



Result

- ► **Identified standardization potentials for a systematic tool standardization**
- ► **Concrete implementation support with a derived roadmap until 2025**

Benchmarking study for the evaluation of the performance of mould making in China

Approach

- Project realization in cooperation with B.Braun, Gerresheimer und HARTING
- Identification of 482 potential tool shops in the range of high precision and multi cavity mould making
- Creation of a benchmarking questionnaire for collection of specific performance indicators
- Provision of support to tool shops for filling out questionnaire by Chinese employees
- Evaluation of 132 tool shops based on performance indicators and auditing of most capable 13 tool shops on site
- Identification of potential suitable suppliers and future partner tool shops

GERRESHEIMER

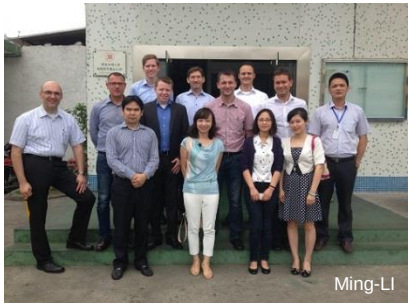
B|BRAUN SHARING EXPERTISE

HARTING Pushing Performance


Lead Mould


Ming-Li


Ming-Li


Ming-LI

Results

► **Evaluation of the performance of mould making in China**

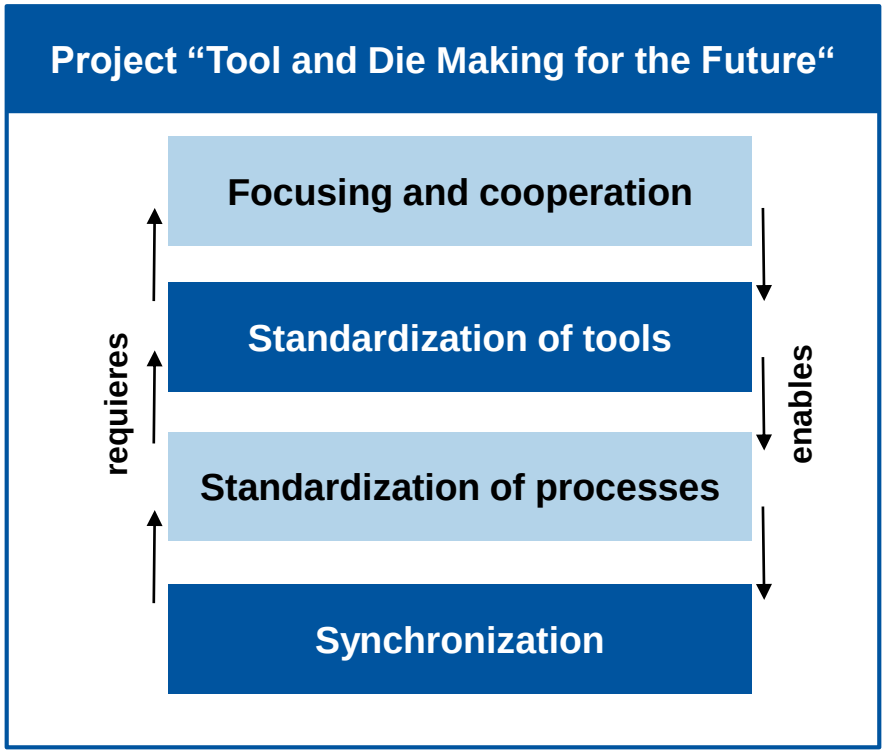
► **Identification of potential suitable suppliers and future partner tool shops**

Realignment and industrialization of the internal tool shop at the location Traunreut

Approach

- Positioning and realignment of the internal tool shop within the company
- Standardization of tools, modules and components
- Standardization of process sequences and work plans
- Segmentation of tool manufacturing and derivation of a planning procedure
- Implementation of synchronous manufacturing characterized by the flow principle

B/S/H/



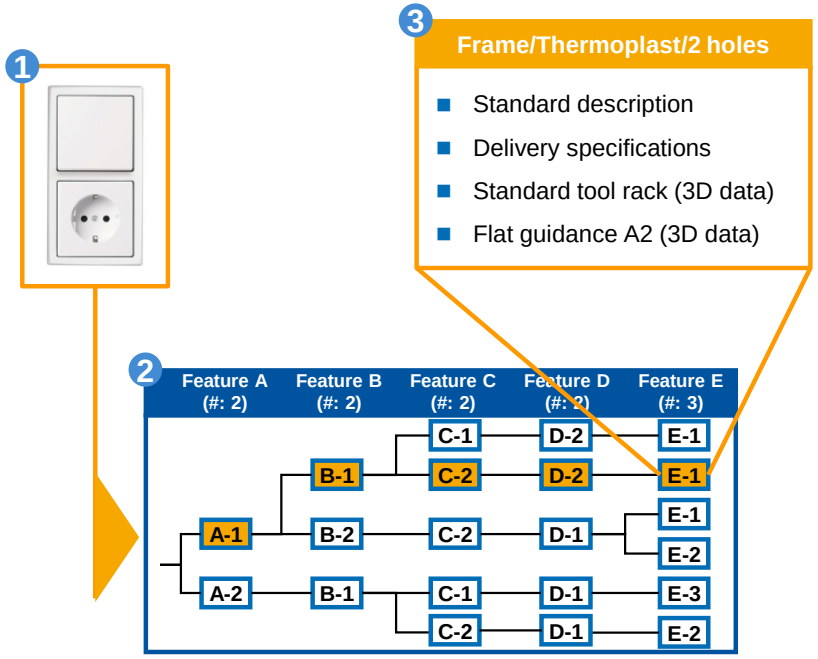
Results

- ► **Development and implementation of a sustainable tool manufacturing**
- ► **Continuous increase of productivity (20% over the period of four years)**

Revealing cost potentials by modularization and standardization of the tool program

Approach

- Quick check state of modularization
- Analysis of the product range
- Analysis of tool types
- Identification of potentials:
  - Tool modularization and standardization
  - Enhancement of the tool procurement process
- Derivation of measures



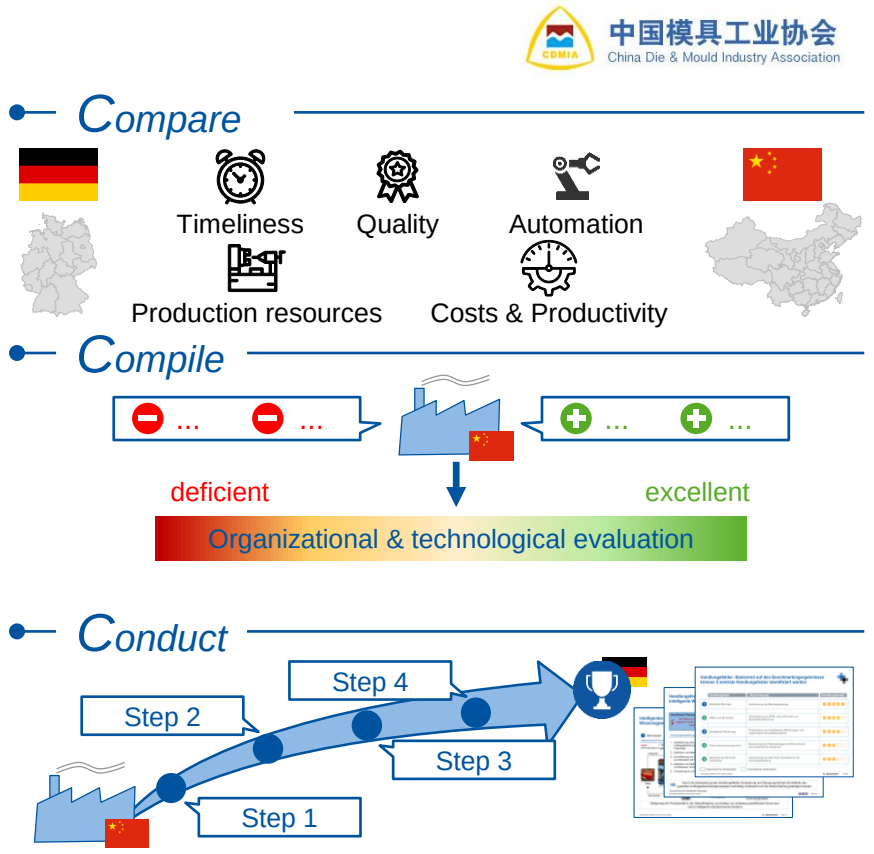
Results

- ► **Definition of 7 standard tool racks for thermoplast molds**
- ► **Definition of tool modules valid for all variants**
- ► **Conception of an IT tool to support the procurement of modularized tools**

Qualification of 10 toolmaking companies by benchmarking them against the best German-speaking companies

Approach

- Use of the 3C approach **Compare, Compile, Conduct** to qualify 10 Chinese toolmaking companies in cooperation with the Chinese toolmaking association CDMIA
- Company-specific assessment of more than 100 **organizational** and **technological figures**
- Systematic **evaluation** of the toolmaking companies based on the **figures** and an **on-site audit**
- Derivation of **action fields** to increase the performance of the Chinese companies
- Presentation of **German best practice examples** as a guideline for the implementation of the action fields



Results

- ► **Individually determined strengths and weaknesses for each company based on over 100 organizational and technological figures as well as an on-site audit**
- ► **Detailed action fields to increase cost efficiency, tool quality and adherence to delivery dates**

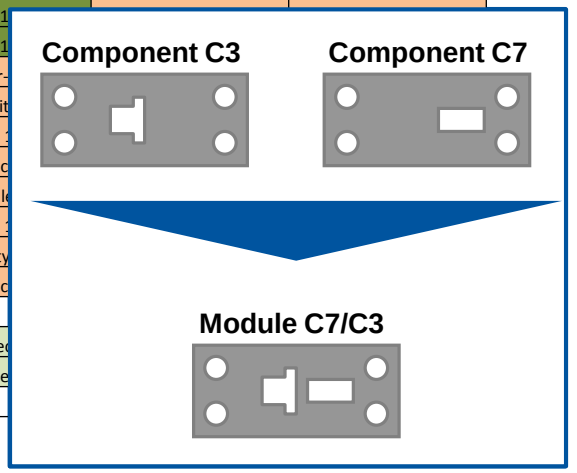
Enhancing the degree of standardization in the construction of special facilities (carriage devices)

CLOOS
Weld your way.

Approach

- Evaluation of the current status quo regarding the degree of standardization in the manufacturing of special facilities
- Identification of standardization potentials based on similarities and requirements
- Development of approaches for standardization in the pilot group carriages
- Definition of measures and development of a target process
- Evaluation of efficient production lot sizes by an estimation of costs

Function	Burner infeed	Burner infeed several positions, small distances	Burner infeed manually
Technological realization	pneumatics, ball/ roller-guide, small load rating	Servo motor, spindle, ball/roller-guide, small load rating	with spindle, roller-guide, small load rating
Simle definition of standards			
Description of component			
Base plate	Size 1b	Size 1b	Size 1b
Trolley plate	Size 1b	Size 1b	Size 1b
Bottom plate	Size 1		
Head plate	Size 1		
	ball/roller-		
	Quantit		
	Size		
	Distanc		
Guide rail	variable l		
	Size		
	Quantity		
Carriage	Distanc		
Gear rod, spindle or Cylinder	0		
Clutch/ Cylinder connection	Z-Conne		
Engine and pressure unit	Cylinde		
Clutch bell	0		



Result

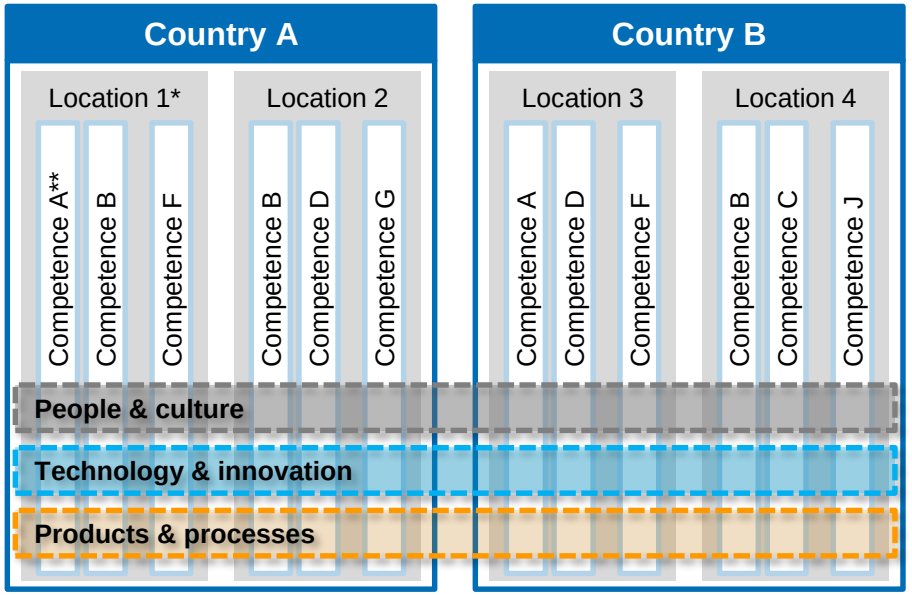
► **Evaluation and execution of standardization options with a pilot group and definition of a module roadmap including a target process for a further standardization**

Development of a concept to establish an internal value creation network

Approach

- Benchmarking of the technological and organizational performance
- Detailed analysis of the job spectrum and the order processing
- Definition of competence areas and core processes
- Development of a general vision, mission and strategic success positions
- Definition of requirements and framework conditions of a global site networking
- Creation of a roadmap for the implementation of the site networking concept

DAIMLER



*: Global lead site, **: Competence field leader

Results

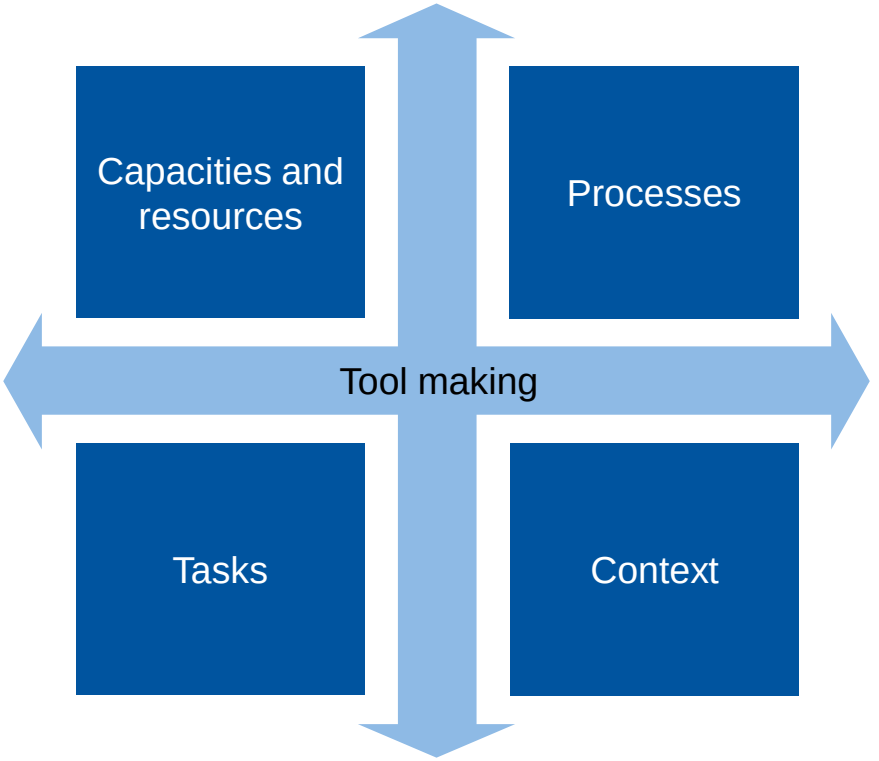
- ► **Strategic reorientation with fields of action and enhancement measures for several international equipment and tool making production sites**
- ► **Concept for a global networking of international equipment and tool making production sites**

Support of the Daimler-internal project “process analysis tool manufacturing for expanding the equipment department“

Approach

- Simulation of segmentation scenarios
- Definition of the manufacturing depth
- Distribution of resources/ factory layout
- Detailed development of the process steps
- Task description
- Integrating the segments in the context
- Definition of interfaces
- Industrialization of the tool introduction

DAIMLER



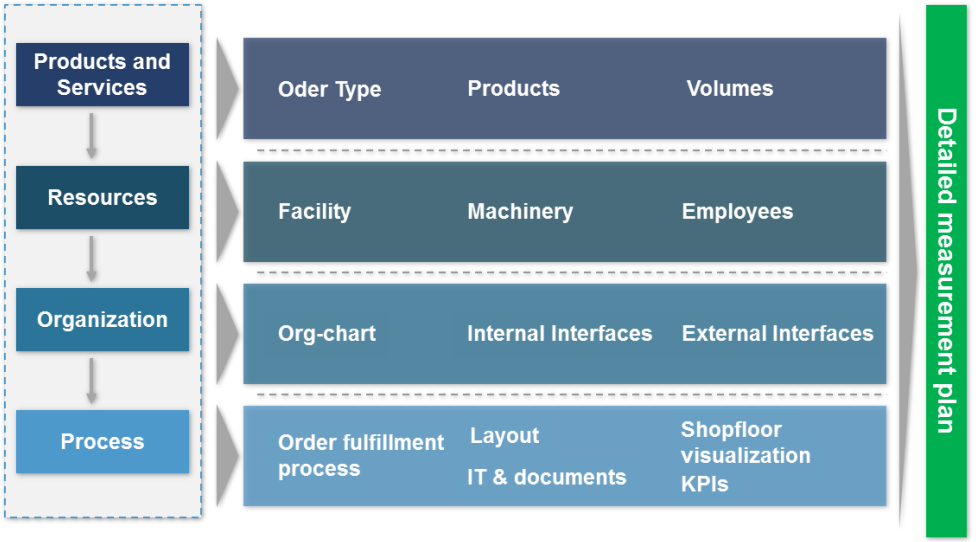
Results

- ► **Detailed concept draft for expanding and segmenting the tool manufacturing**
- ► **Concept for a standardized tool introduction**

Development of a concept for an internal equipment shop at Detroit Diesel (Daimler AG)

Approach

- Analysis of the internal order fulfillment process and the range of offered services
- Definition of the new strategic orientation, including strategic positions of success
- Development of the future product and service portfolio and the required technology variety
- Design of the future organizational structure
- Design of a new manufacturing layout with special regard to the process flow incl. detailed implementation plan



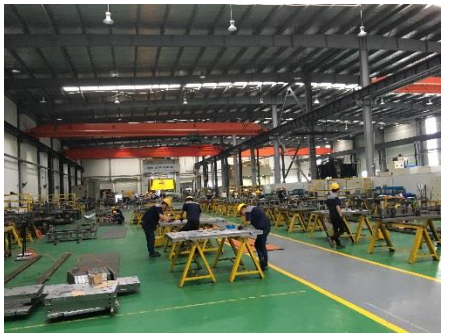
Results

- ► **Concept for the new design of the equipment shop at Detroit Diesel (Detroit, USA) with action fields and measures**
- ► **Concept for the integration into global equipment shop network of Daimler Trucks**

Systematic supplier identification and assessment in Europe and China for the tool supply of Diehl Metall

Approach

- Definition of the required supplier profile according to Diehl specific criteria
- Identification of 434 potential suppliers for sheet metal forming and hot forging tools
- Inquiry of specific key performance indicators for 100 companies based on a questionnaire
- Systematic evaluation of the tool shops und derivation of recommendations for Diehl Metall
- On-site auditing of potential suppliers in Europe and China
- Deduction of future steps for the development of suppliers and future partners



Results

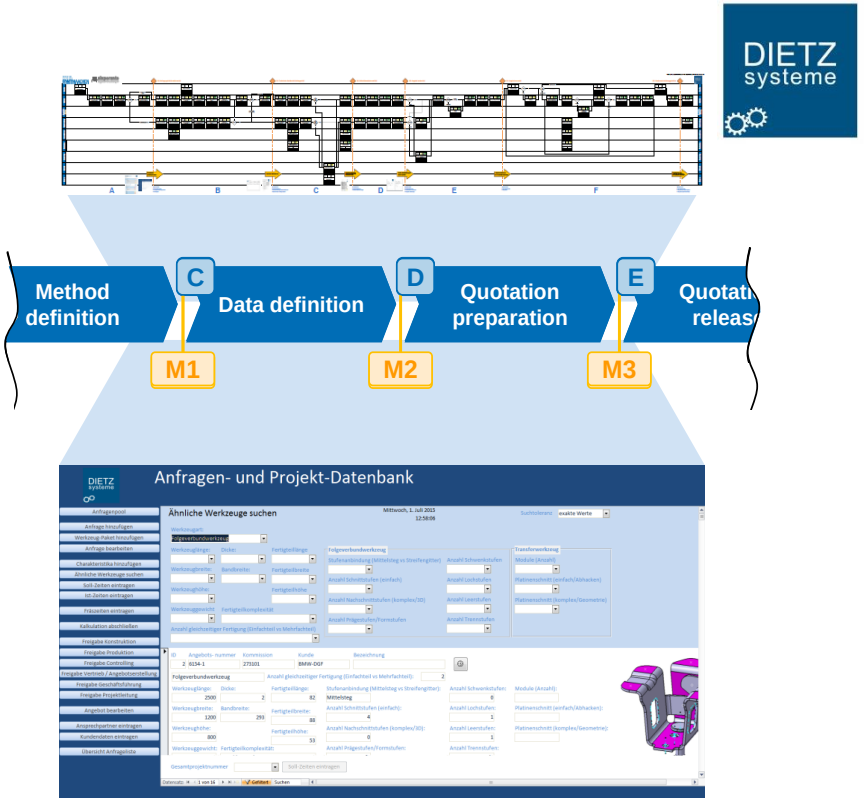
► **Identification of suppliers that are immediately suitable for outsourcing projects**

► **Strategic and operative action fields for systematic qualification of suppliers**

Optimization of the quotation preparation process and the calculation systematic at DMW

Approach

- Analysis of prepared quotes and realized orders regarding type of order and type of tool
- Definition of possible characteristics for a comparison
- Standardization of existing data and realized tool projects
- Derivation of a calculation systematic and implementation within the scope of a MS Access tool
- Status Quo analysis of the quotation preparation process including employee interviews
- Definition of a standardized quotation preparation process including the determination of milestones
- Derivation of a set of rules for the implementation



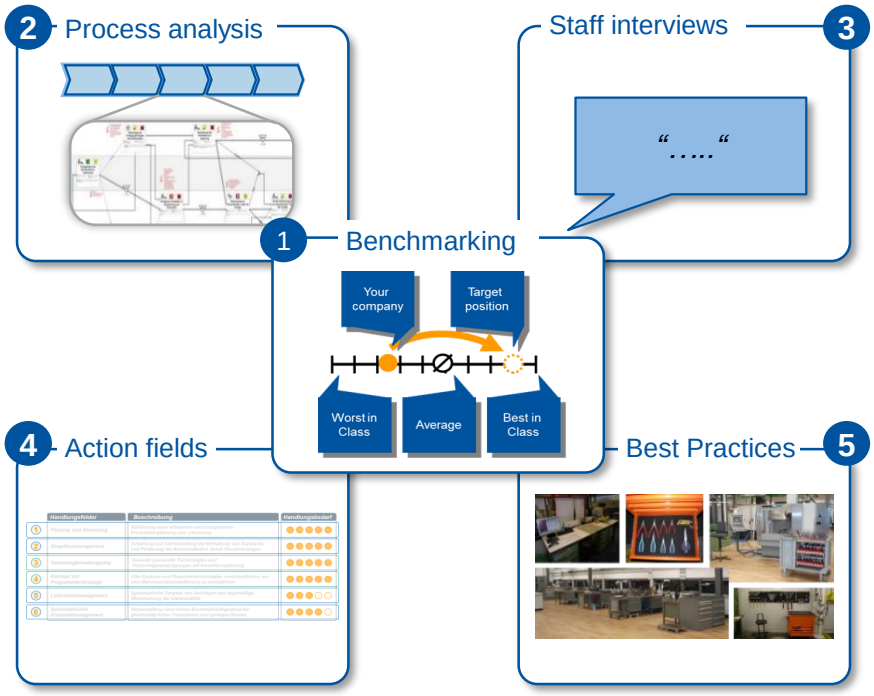
Results

- ► **Detailed quotation preparation process including determined milestones and a defined set of rules**
- ► **Inquiry and project databank including a calculation systematic based on Microsoft Access**

Benchmarking and process analysis for the tool shop of Dömer

Approach

- Analysis of the order fulfillment process for new tools as well as for repair and maintenance jobs
- Identification of weaknesses within the order fulfillment process through staff interviews
- Benchmarking of technological and organizational performance
- Derivation of action fields for a sustainable improvement of the tool shop performance
- Presentation of proposed solutions for the identified action fields and discussion of best practices



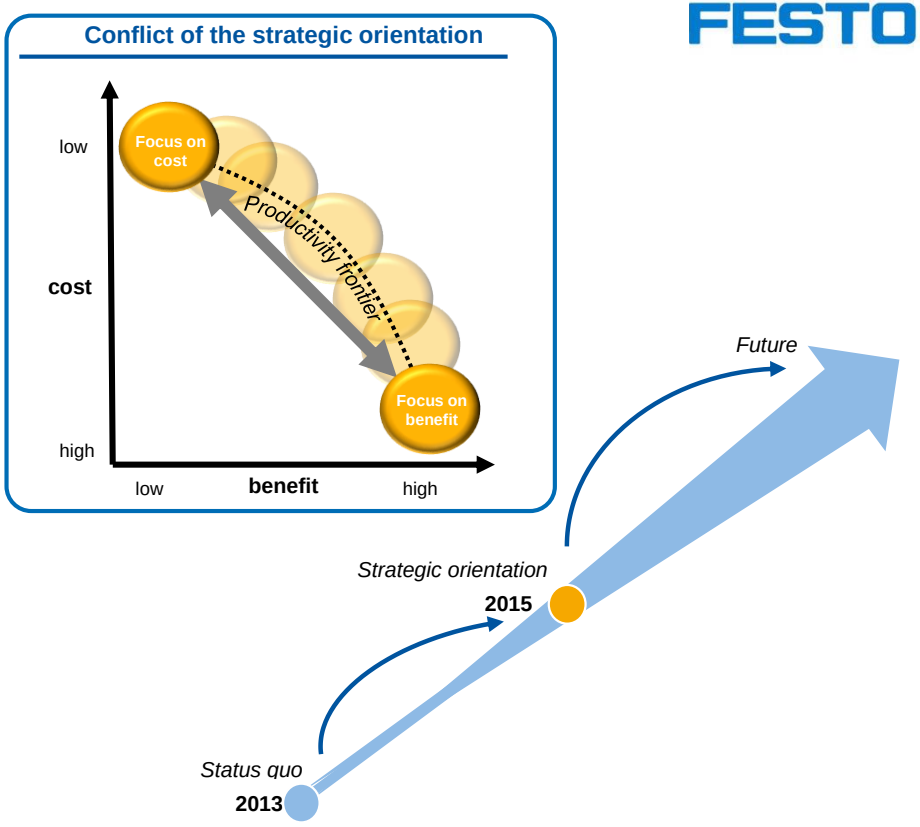
Results

- ► **Detailed technological and organizational benchmarking of the internal processes**
- ► **Derivation of potentials and specified action fields for performance improvements**

Analysis of the strategic alignment and development of a future strategy for the internal tool shop

Approach

- Status quo analysis of the market's competitive forces
- Analysis of the competitive position and performance of the tool shop
- Definition of strategic positions of success for the future tool shop strategy
- Elaboration of the future tool shop strategy in accordance with the company's strategy
- Derivation of a roadmap with timeline, measures and responsibilities for implementing the future strategy



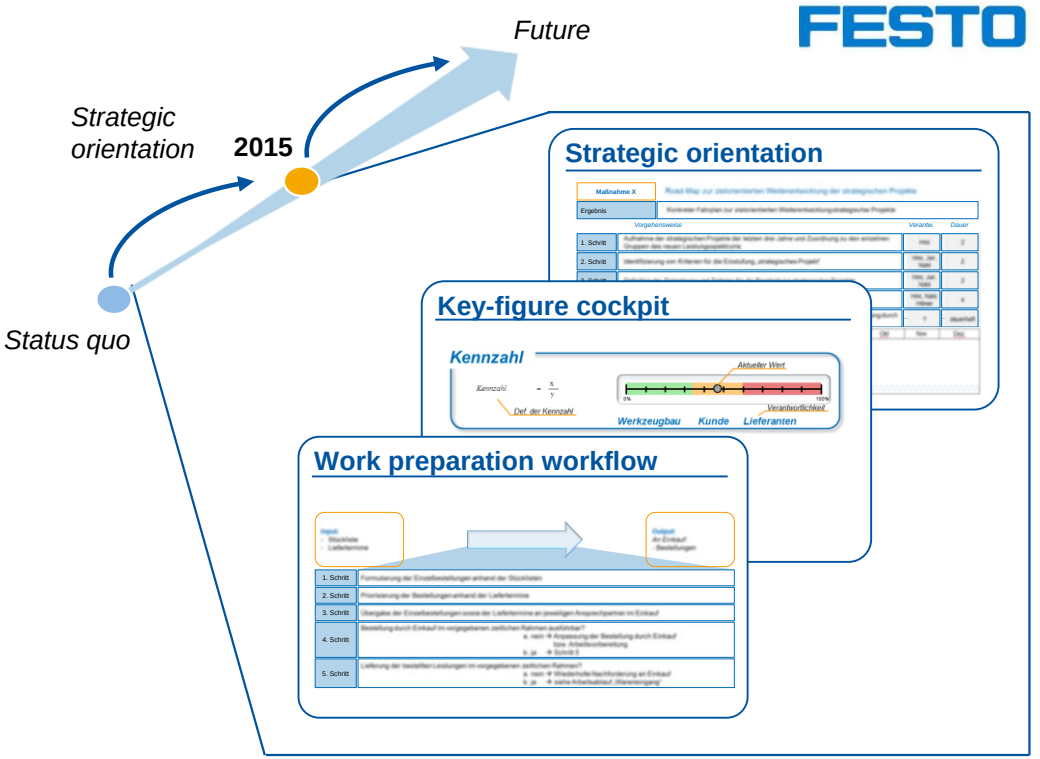
Results

- ► **Future strategies for the competitive orientation of the internal tool making**
- ► **Detailed roadmap for the implementation of future strategies**

Implementation support for the strategic alignment of the internal tool shop of FESTO

Approach

- Detailing of the defined strategic alignment
- Specification of measures and responsibilities for the holistic implementation of the strategic alignment
- Derivation of a key-figure cockpit to enable the assessment of the roadmap implementation and the tool room performance
- Definition of work preparation workflows for all relevant order types
- Definition of tasks and responsibilities for the workflow implementation into daily practices



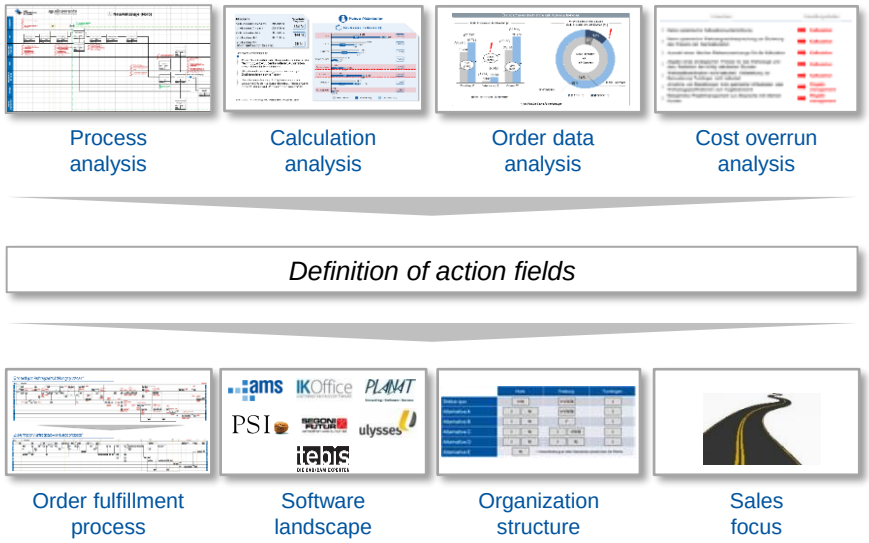
Results

- ► **Defined workflows for the work preparation process**
- ► **Detailed roadmap for the implementation of the strategic alignment**
- ► **Cockpit consisting of aggregated key figures to evaluate the performance**

Comprehensive analysis and definition of processes, software, organization and sales in the fischer tool shop

Approach

- Analysis of the current order fulfillment process in the fischer tool shop
- Detailed analysis of the applied calculation methods as well as order data and deduction of root-causes for exceeded cost and missed deadlines
- Definition of an efficient order fulfillment process and derivation of necessary measures for its implementation
- Optimization of the planning process and systematic selection of suitable planning software
- Evaluation of different options for organizing the fischer tool shop as well as deduction of a recommendation for segmenting the tool shop for new and repair orders
- Systematic definition of the future sales focus of the fischer tool shop



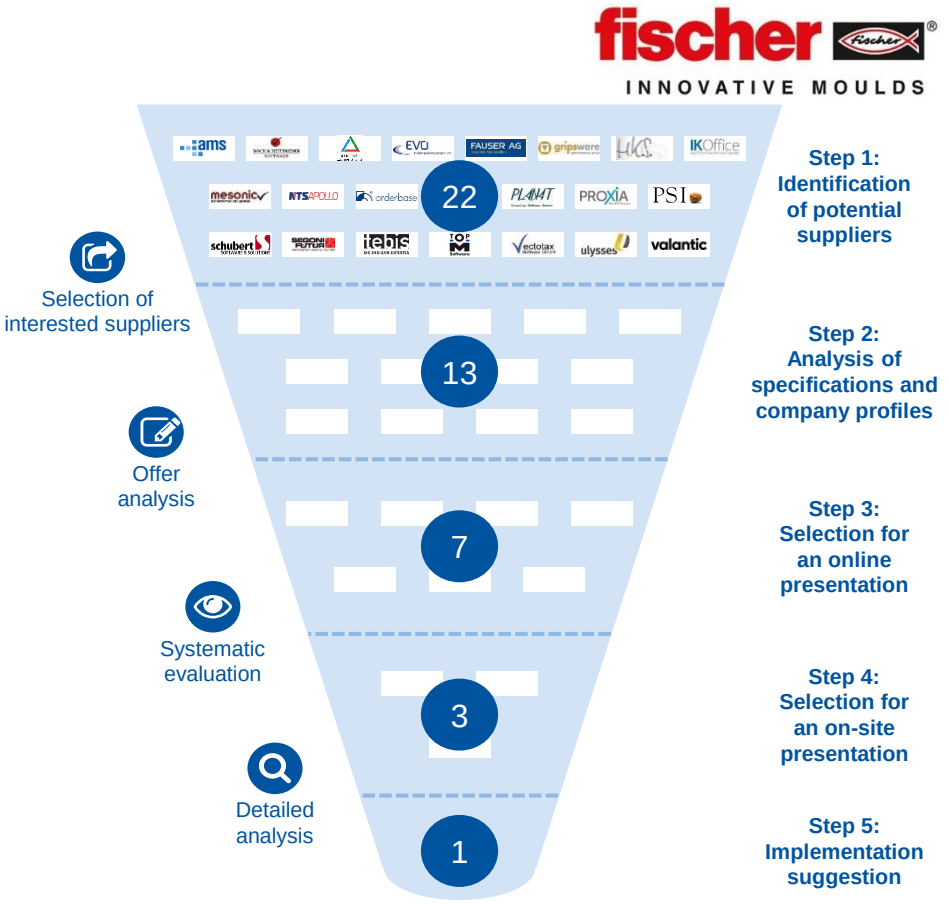
Results

- ► **Efficient and transparent order fulfillment process which is supported by a systematically selected planning software**
- ► **Systematic and sustainable alignment of the organizational structure as well as the sales focus**

Systematic definition of the planning process and selection of a suitable planning software for the fischer tool shop

Approach

- Analysis of the ongoing planning process and identification of interface problems
- Deduction of requirements for the planning process as well as a supporting software for interconnected planning in rough and detailed planning as well as scheduling
- Identification of relevant planning software suppliers and pre-selection based on specifications
- Detailed comparison of the software solutions based on online and on-site presentations of the suppliers and evaluation according to the requirements defined by the fischer tool shop
- Elaboration of a recommendation for the selection of a planning software in consideration of the option to optimize an internally developed planning software



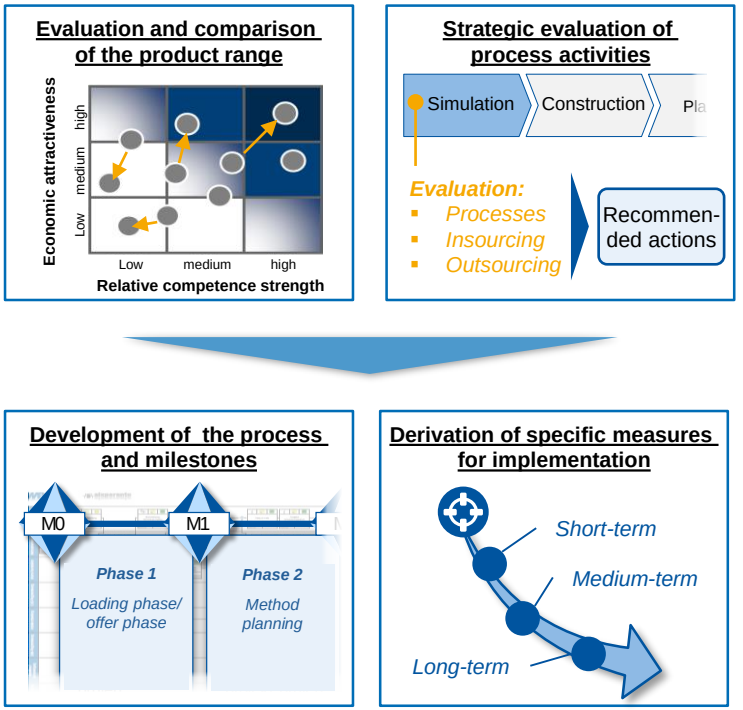
Results

► **Improvement of cost and due date reliability by optimizing the planning process with the support of a systematically selected planning software**

Optimization of the strategic direction and operational order processing at the Ford tool shop in Cologne

Approach

- Analysis of core competences of the Ford tool shop
  - Identification and analysis of existing competences based on interviews with employees and benchmarking data
  - Comparison of the competences of the Ford tool shop with market competitors
  - Derivation of measures in order to strengthen core competences and increase flexibility
- Conception of an order processing with reduced interfaces
  - Identification of required process interfaces for order processing and analysis of existing interface problems
  - Definition of a target process including responsibilities and defined handover processes
  - Development of an optimized organizational structure to realize an order processing with reduced interfaces



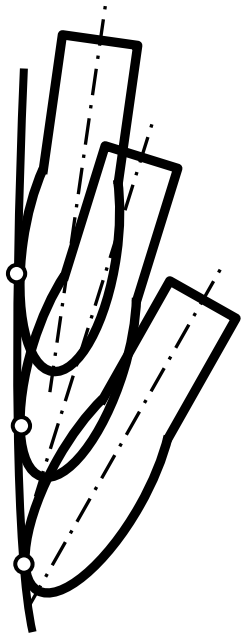
Result

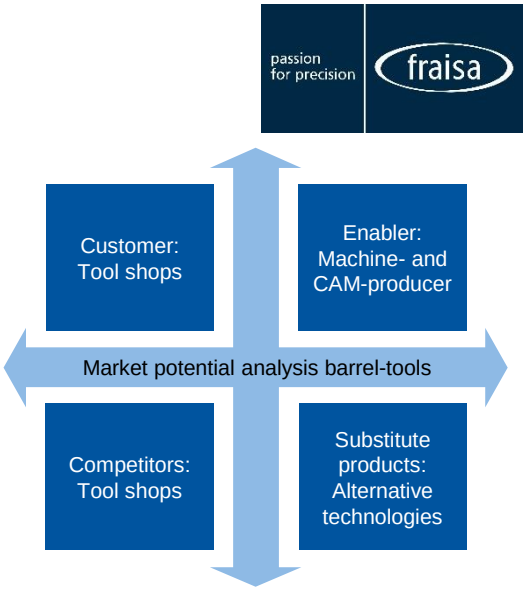
► **Approach for an efficient, profitable and capable tool manufacturing based on a strong focus on core competences and a reduced number of process interfaces**

Analysis of market potential for application of barrel-tools in the Tool and Die Industry

Approach

- Structuring of the analysis alongside the market forces of barrel-tools in the Tool and Die Industry
- Design and mailing of a questionnaire to tool shops for systematic identification of potentials in the sales market
- Interview of tool experts for detailing and validating the results of the analysis
- Design and mailing of a questionnaire to CAM-producers for systematic identification of potentials concerning the procurement market
- Detailed evaluation of the questionnaire results and interviews as basis for a decision concerning a market launch of barrel-tools





Results

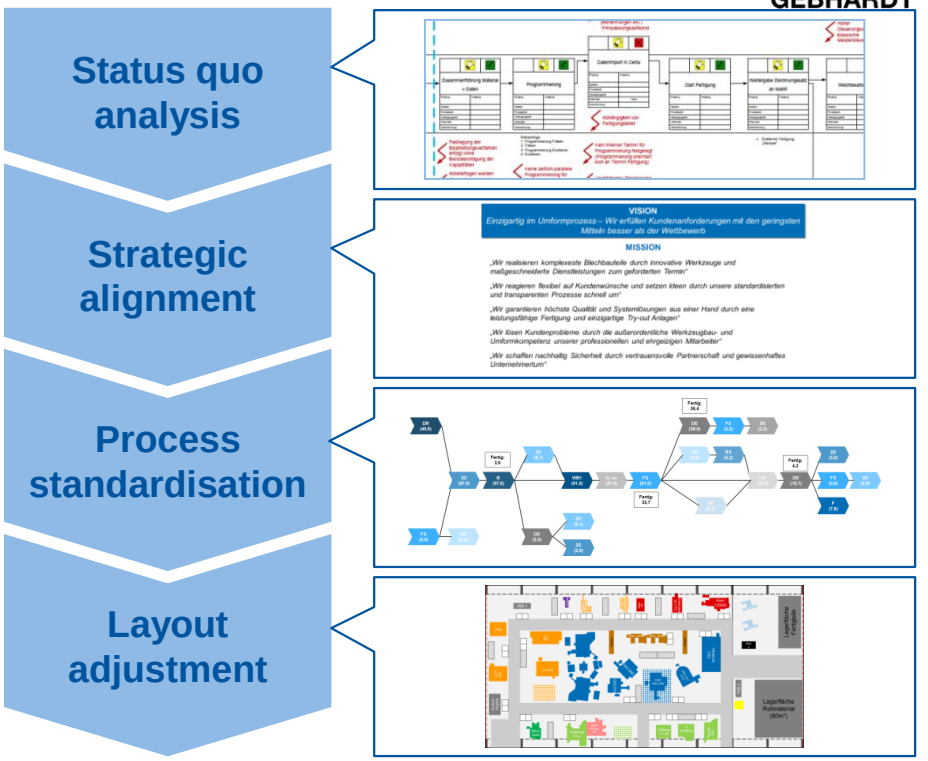
► **Detailed overview over the market potential of barrel-tools**

► **Basis for decision concerning a wide market launch of barrel-tools**

Redesign of the external tool shop of the Gebhardt Werkzeug- und Maschinenbau

Approach

- Analysis of strategic alignment, performance and the order processing of the tool shop
- Redesign of the strategic alignment by developing strategic success positions as well as a vision and a mission
- Design of a standardized order processing and identification of standard processes in the mechanical production
- Design of a segmented and material flow oriented tool making and elaboration of an implementation roadmap



Results

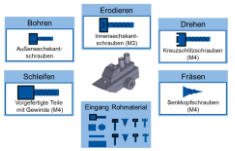
- ► **Transparency over actual organizational and technological performance**
- ► **Material flow oriented layout for standardized and transparent order processing**

Development of a shopfloor layout for the tool shop of a new production site at GIRA

Approach

- Sensitizing and mobilization of employees using an educational game
- Detailed analysis of manufacturing sequences
- Development of a roadmap for the standardization of manufacturing sequences for tool components within the entire tool spectrum
- Elaboration of rough and detailed layout options collectively with the employees
- Assessment of elaborated layout options with regards to defined target figures such as material flow and expandability
- Selection of a layout option for the GIRA tool shop

1 *Sensitizing & mobilization of employees*

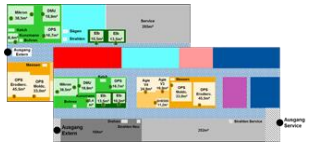


GIRA

2 *Analysis of manufacturing sequences*

3 *Standardization of manufacturing sequences*

4 *Elaboration of rough & detailed layout options*



5 *Assessment & selection of layout options*

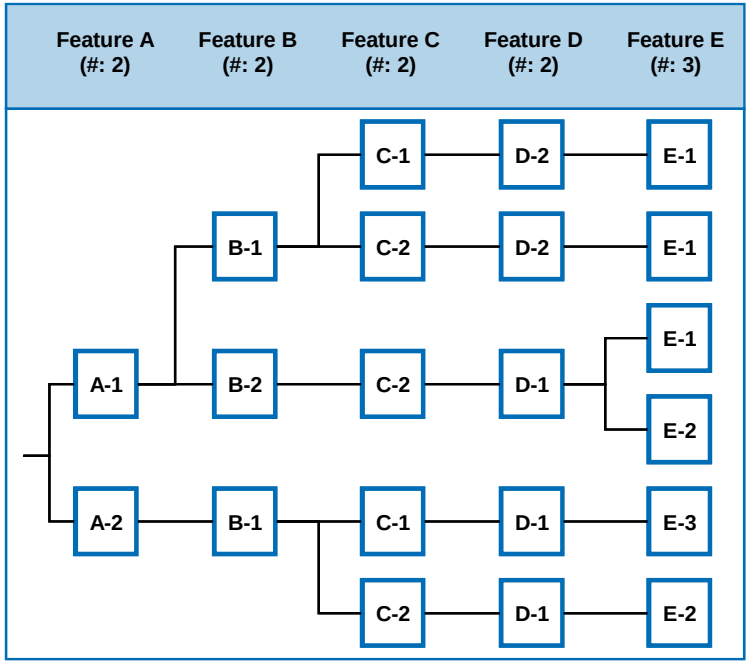
Result

- ► **Collectively developed, detailed shopfloor layout based on defined target figures**
- ► **Elaborated, standardized manufacturing sequences and roadmap for process standardization**

Revealing cost potentials by modularization and standardization in tool making

Approach

- Quick check state of modularization
- Analysis of the product range
- Analysis of tool types
- Identification of potentials for tool modularization and standardization
- Derivation of measures
- Prioritization of measures by costs and benefits



Results

- ► **Profile about strengths and potentials of the status quo in tool and process standardization**
- ► **Definition of tool modules valid for all variants**
- ► **Development of an implementation plan for the measures**

Strategic positioning of Haidlmair

Approach

- Identification and status-quo analysis of strategic success positions
- Status-quo analysis of activities, processes, resources, organization and competencies
- Definition of medium- and long-term goals of the tool shop
- Determination of future strategic success positions
- Definition of future of activities, processes, resources, organization and competencies
- Development of concrete measures to constitute the future tool shop

Results

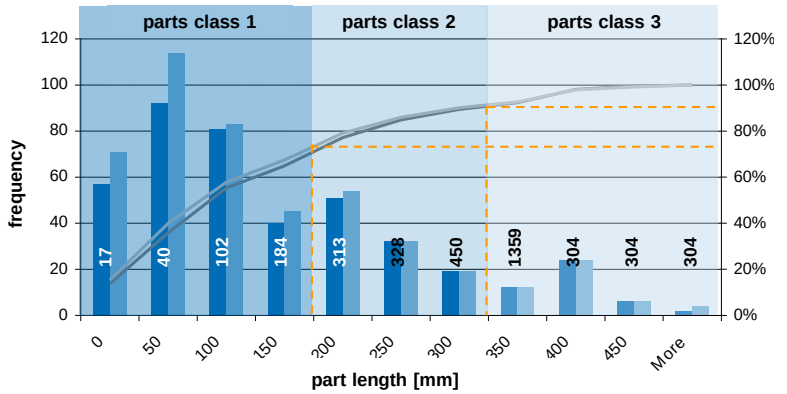
- ► **Status-quo analysis of the strategic position of the external tool shop**
- ► **Future strategic positioning with concrete measures for its realization**

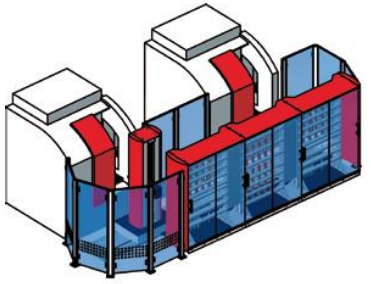
Milling department reorganization by manufacturing concept, machine selection and recommendation for automation

Approach

- Analysis of product spectrum and subsequent data consolidation as well as derivation of requirements
- Derivation of requirements for milling machines, clamping systems, CAx process chain and automation
- Development of manufacturing concepts and final concept selection by value benefit analysis and financial analysis
- Evaluation of an efficient automation level and development of an automation concept

Pushing Performance





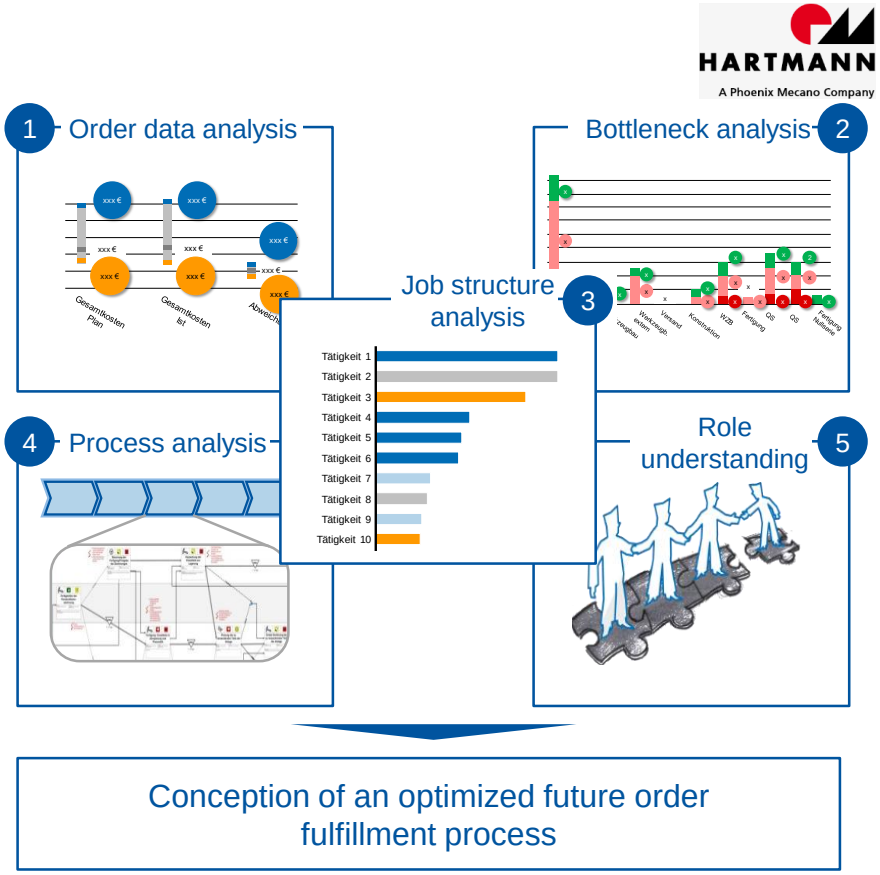
Results

- ► **Selection of milling machines considering current part variety**
- ► **Reduction of required milling machines by 25%**

Process analysis and process re-design for Hartmann Codier tool shop

Approach

- Quantitative analysis of order data regarding planned and actual values of lead times and costs
- Bottleneck analysis of current tooling projects in respect of processing status and delay
- Job structure analysis for a breakdown of activities in the tool procurement
- Analysis of the order fulfillment process in combination with employee interviews as well as an analysis of the role understanding in the tool shop
- Conception of an optimized future order fulfillment process



Result

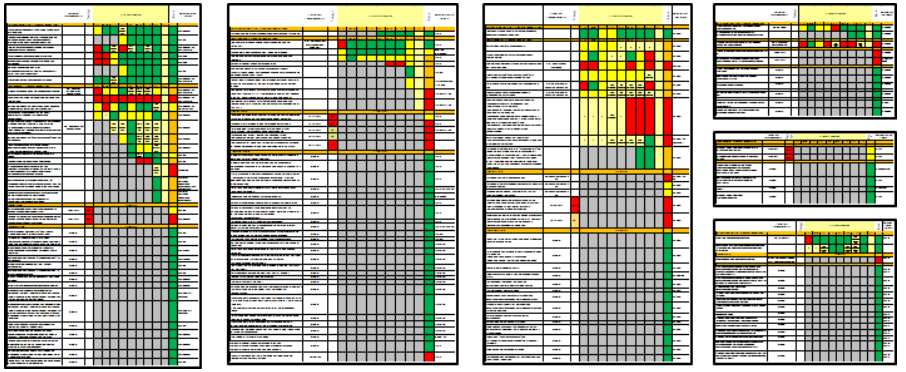
- ► **Identified potentials in the order fulfillment process in the tool shop**
- ► **Optimized future order processing process including defined milestones**

Implementation coordination for process improvements in the tool procurement at Hartmann Codier GmbH

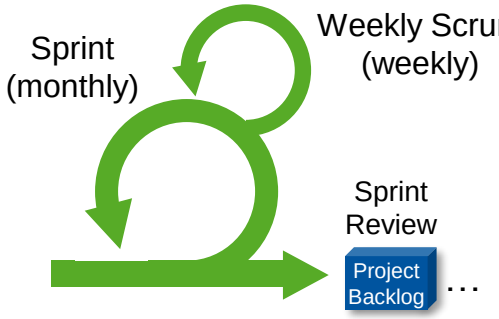
Approach

- Definition of six improvement projects:
  - Order fulfillment process optimization
  - Introduction of project planning and management
  - Supplier qualification
  - Unifying of quality assurance
  - Optimization of IT systems
  - Introduction of KPI tracking
- Introduction of an iterative project management procedure for the implementation of the improvement projects based on the Scrum approach
- Establishment of weekly coordination sessions within the project teams
- Conduction of monthly sprint reviews to review project progress and derive measures

CIP-measures-tool



Controlling of the projects according to Scrum procedure



- Monthly sprint reviews to define the action
- Weekly stand-up meetings for implementation support

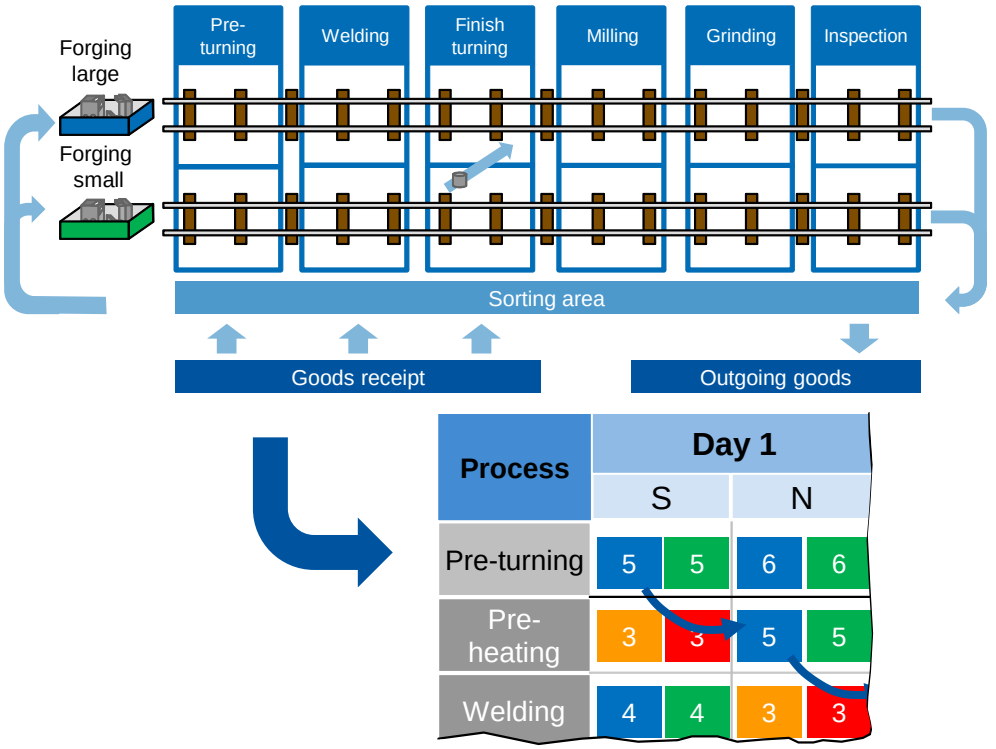
Results

- ► **Structured coordination of six improvement projects for process optimization**
- ► **Established system for continuous improvement in defined topics**

Conception of a productive and competitive industrial tool making

Approach

- Status quo analysis of the internal tool making
- Standardization of tool components and definition of manufacturing blanks
- Recording and analyzing process chains
- Definition of main process sequences
- Segmentation of the tool manufacturing
- Development of a process oriented manufacturing control concept
- Development of shaping options for the layout
- Frameworking the implementation



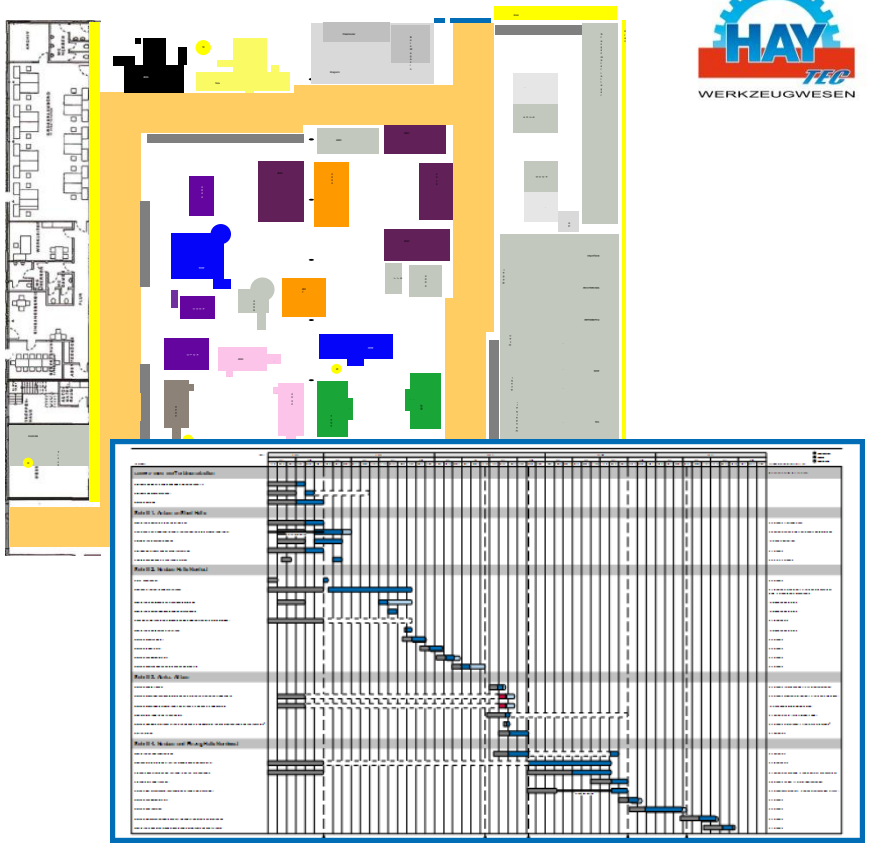
Result

► **Industrialization concept for the tool manufacturing with higher productivity and short processing times by a new manufacturing concept and higher degree of standardization**

Layout design and planning of the project management for a relocation of a tool shop

Approach

- Development of a project plan for the relocation with detailled tasks
- Precise definition of tasks, deadlines and responsibilities for over 70 sub-tasks
- Identification of sub-tasks on the critical path for the monitoring of the finish date
- Definition of measures to ensure the required infrastructure of the production facility on the relocation date
- Layout planning for an optimized process flow of all manufacturing segments



Result

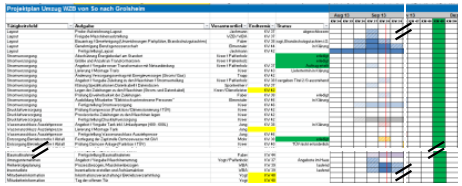
► **Detailed project plan for the systematic coordination of the individual tasks and progress controlling and development of an optimized layout for a new tool making site**

Relocation of the tool shop and efficiency optimization of the tool supply

Approach

- Project and cost controlling of the relocation of the tool making
- Identification of dispensable inventory through a 6S-Workshop
- Process orientated arrangement of the manufacturing areas and validation with regard to the lean principals
- Risk management ensuring a continuous tool supply
- Detailed planning of the implementation sequence and coordination of external service providers

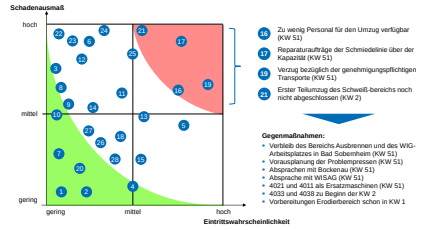
Project controlling



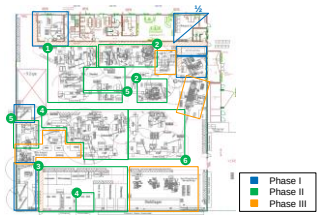
Cost controlling

Kostenposition	Plan	Ist	Maßnahme / Begründung	Diff.
IT / EDV	€ 30.000	€ 27.562	Kein eigener Server in GRO, direkte Anbindung an SO	€ -2.438
Transformator	€ 30.000	€ 18.902	Gebrauchter Transformator	€ -11.098
Maschinenumzug	€ 250.000	€ 198.000	Übernahme vieler Arbeitspakete durch WZB-Team (bspw. Regale durch eigenen LKW), kein Probelauf	€ -52.000
Paternoster	€ 15.000	€ 10.500	Paternoster benötigt (Lagermöglichkeiten ohne Paternoster durch teure Schränke)	€ -4.500
Tiefbau	€ 80.000	€ 64.925	Tieferung bis zum Gastank nötig, teurere Fundamente (Köcher) nötig, um Platz zu sparen	€ -15.075
Ausbau Sanitäranlagen / Umkleiden / Büromöbel	€ 106.000	€ 94.560	Verkleinerter Umfang Umbaubereich Damenumkleide, Büromöbel aus Insolvenz	€ -11.440

Risk management



Sequence planning



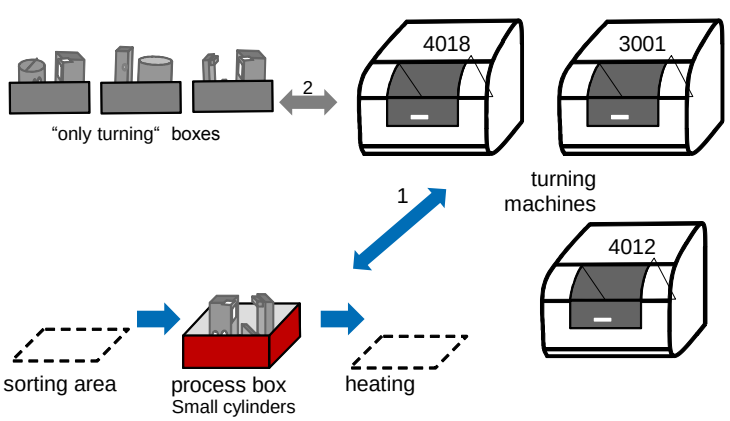
Results

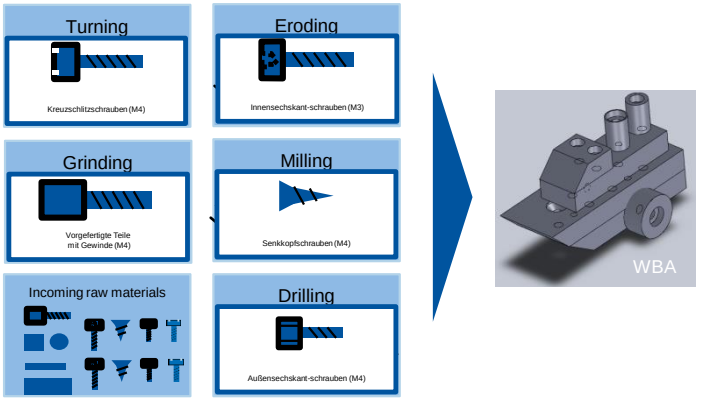
- ► **Reduction of the relocation period by 2 weeks through efficient project and risk management**
- ► **Reduction of the relocation costs by 21,5 % through stringent project and cost controlling**

Conception and introduction of a pilot line for clocked manufacturing of tools for massive forming

Approach

- Specification of a concept for clocked manufacturing in the process sequence
- Detailed planning of the introduction and implementation of the pilot line along with a specification of required infrastructure
- Staff training for the new manufacturing concept with an educational game which simulates the new manufacturing concept and clarifies uncertainties of the staff
- Supervision of the implementation of the pilot line and controlling of the impact on the key figures for production





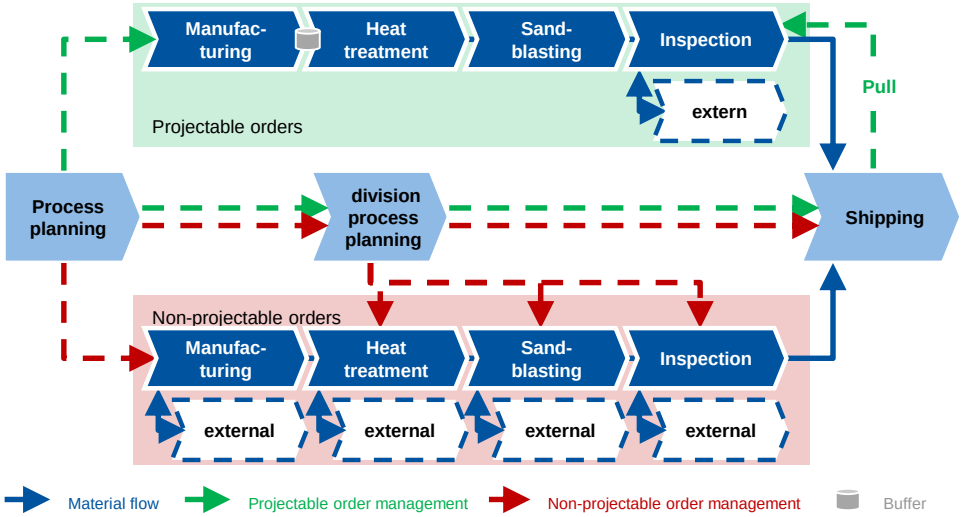
Result

► **Introduction of a clocked pilot line for tool making to reduce secondary process time and reduction of order lead time from 7 to 3.5 days**

Process examination and optimization in the quality control division in the massive forming industry

Approach

- Examination of the status quo process in quality control and bordering division
- Analysis of the capacity utilization along the process chain
- Analysis and assessment of the structure of activities
- Conception of a segmented quality control for standard and express orders
- Development and assessment of a set of measures along with an implementation plan for efficient execution of quality control



Result

► **Development of 22 measures for process optimization in context of increasing the production quality, segmented examination concept and single measures for cost reduction**

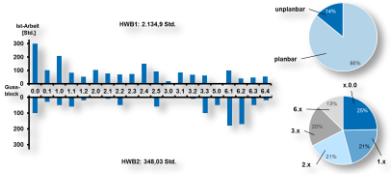
Layout design und relocation planning for the internal tool shop of Heinrich Huhn GmbH & Co. KG

Approach

- Analysis of tool range and manufacturing processes as well as verification of tool shop's segmentation based on conducted tool projects
- Recording and analysis of the general set-up of the new tool shop location
- Development and design of layout scenarios and their holistic evaluation conjointly with employees on the basis of defined criteria
- Planning and execution of preparatory measures for the realization of the operational relocation
- Development of step-by-step relocation plan with detailed responsibilities, external support as well as costs respectively estimates

Project steps:

Analysis of tools, processes and project data



Layout design

Relocation planning

Results

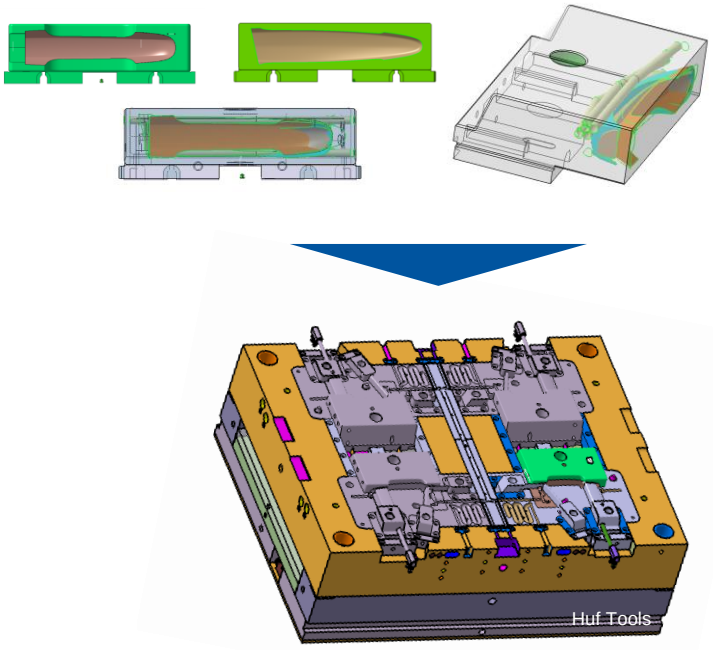
- ► **Material flow oriented layout for standardized and transparent order processing**
- ► **Detailed overview of necessary actions and activities including costs for the operational realization of the tool shop's relocation**

Increase of efficiency in the designing department by modularizing the tool structure

Approach

- Status quo analysis
- Structuring of the tool spectrum to standardize the design
- Determination of design standards and modules to maximize the number of identical parts
- Assistance of the implementation and change management

Huf Tools



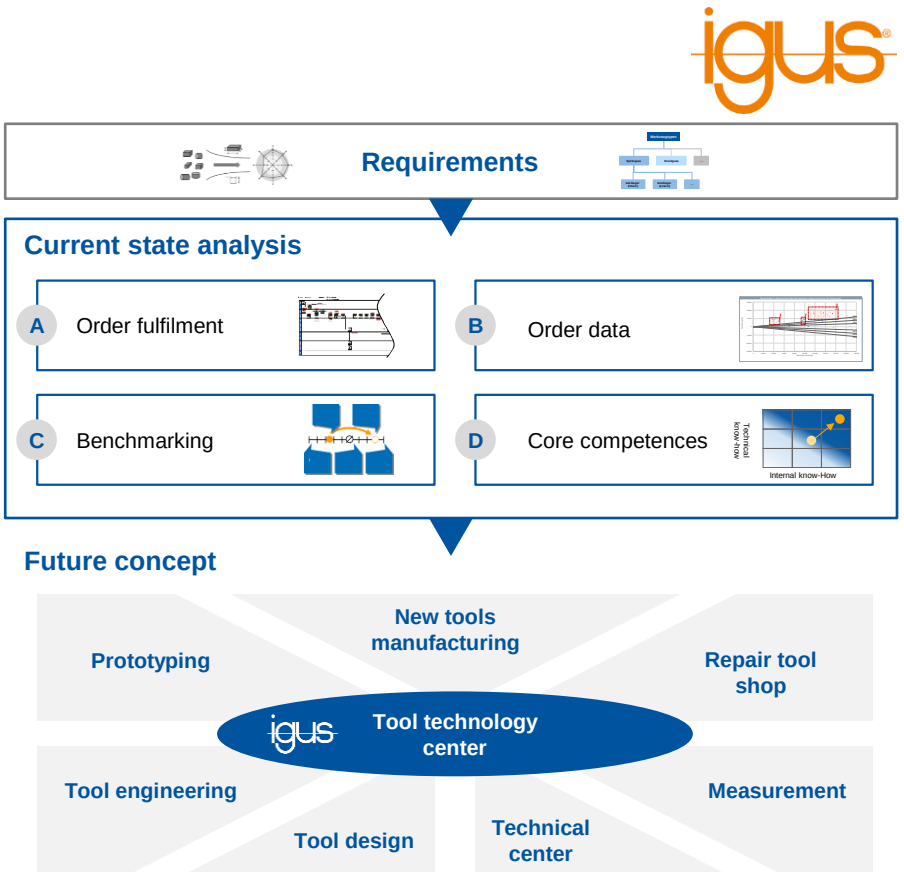
Result

► **Reduction of lead time from 18 to 12 weeks, which results of the process standardization, subsequent to tool standardization**

Implementation of a current state analysis and development of a future concept for the igus tool shop

Approach

- Development of a company-specific requirement profile
  - Definition of requirements regarding the customers, suppliers, product range and production processes
  - Classification of the igus tool spectrum
- Implementation of a current state analysis of the igus tool shop and derivation of a concept for a strategic redesign
  - Execution of an order fulfilment, order data and core competence analysis as well as a benchmarking for the documentation and evaluation of the current state
  - Development and validation of growth hypotheses to derive future tool-specific capacity requirements and a competence-based depth of value creation
  - Derivation of the necessary fields of action to fulfill the requirements



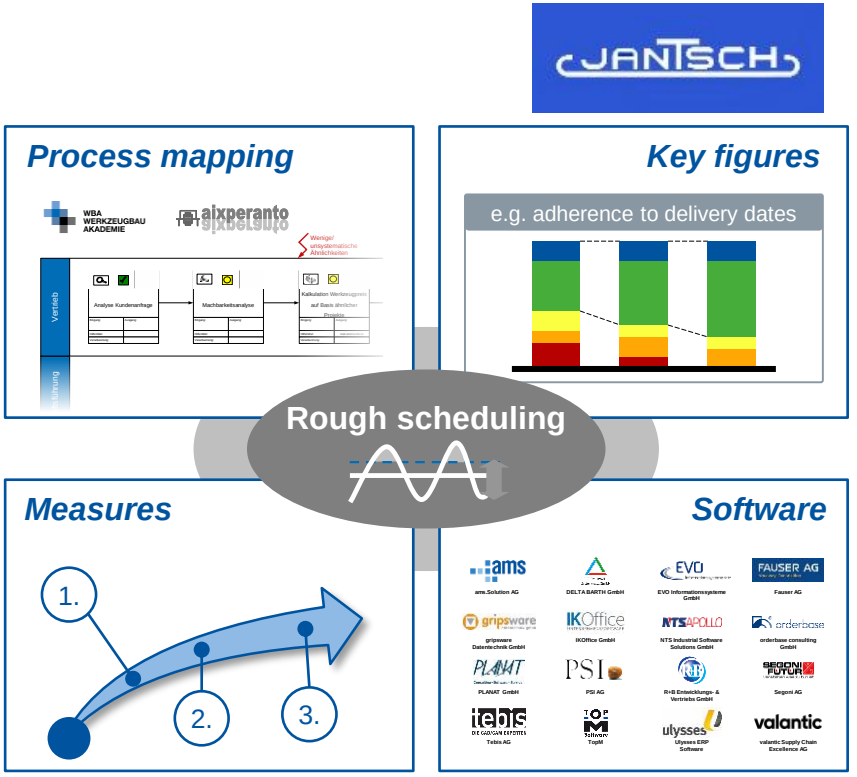
Result

► **Identified strategic fields of action and concepts for redesign of igus tool shop based on detailed growth forecasts and necessary capacity requirements**

Development of a rough scheduling process and selection of a scheduling system for the tool shop of Kunststofftechnik Jantsch

Approach

- Analysis and optimization of the order processing with a focus on cost calculation and rough scheduling
  - Analysis of the current approach on cost calculation and scheduling as well as identification of potentials regarding information exchange and documentation standards
  - Analysis of the cost calculation and scheduling performance by a comparison of KPIs with similar tool shops
  - Derivation of measures for the development of a scheduling process with increased efficiency
- Identification and evaluation of potential suppliers of software systems for calculation and planning
  - Presentation of relevant software systems for the support of cost calculation and scheduling processes
  - Evaluation of the systems based on the company-specific requirements



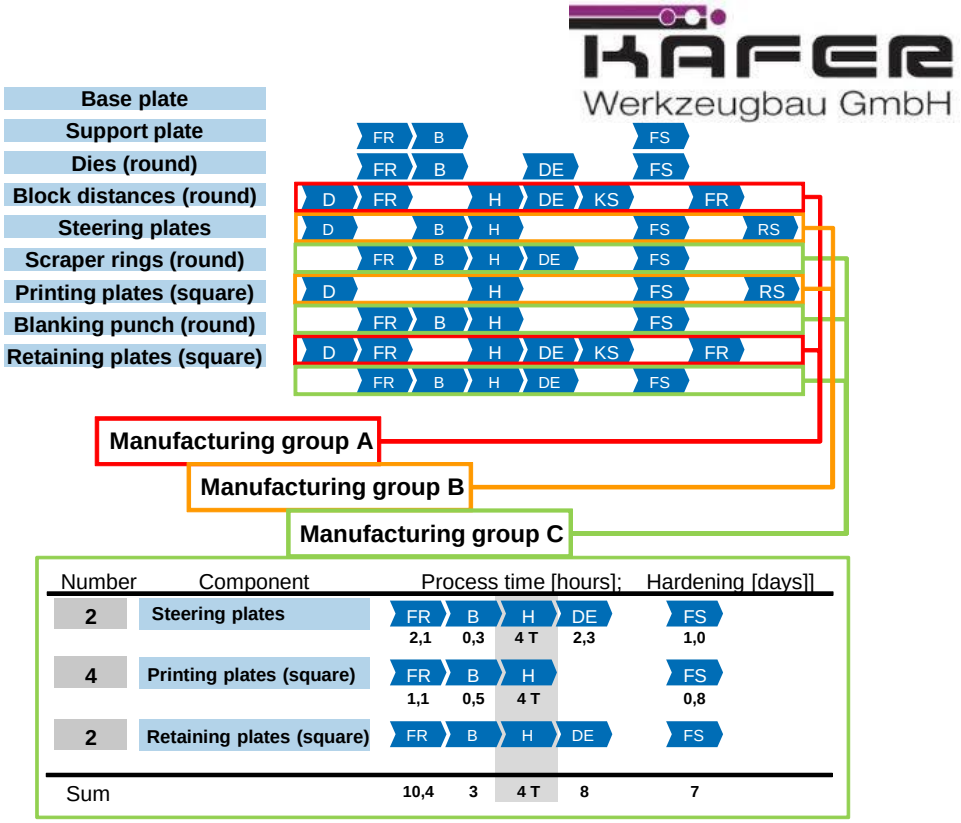
Results

- ► **Analyzed status quo and derivation of concrete measures for increased efficiency in cost calculation and scheduling in the tool shop**
- ► **Pre-selection of suitable software systems for a systematic cost calculation and scheduling**

Optimization of the internal order processing and tool calculation

Approach

- Analysis of the order processing and creation of strength/ potential profiles for the individual divisions
- Development of a concept for the reorganisation
- Implementation of a new calculation system
- Redefinition of the manufacturing planning by the flow principle
- Standardization of the processes in the work preparation
- Optimized ERP system use



Results

- ► **Significant enhancement of the productivity during the order processing**
- ► **Realization of a general planning and controlling system from the offer creation up to the produced tool**

Benchmarking and process analysis for KEBO

Approach

- Benchmarking of technological and organizational performance
- Analysis of order fulfillment processes and interviews with employees
- Recording of process chains and analysis of distances on the shopfloor
- Analysis of executed orders concerning time reports, lead times, adherence to delivery dates and costs
- Identification of strengths and weaknesses, derivation of potentials and cost drivers, definition of action fields
- Definition of internal project teams and measures to address action fields

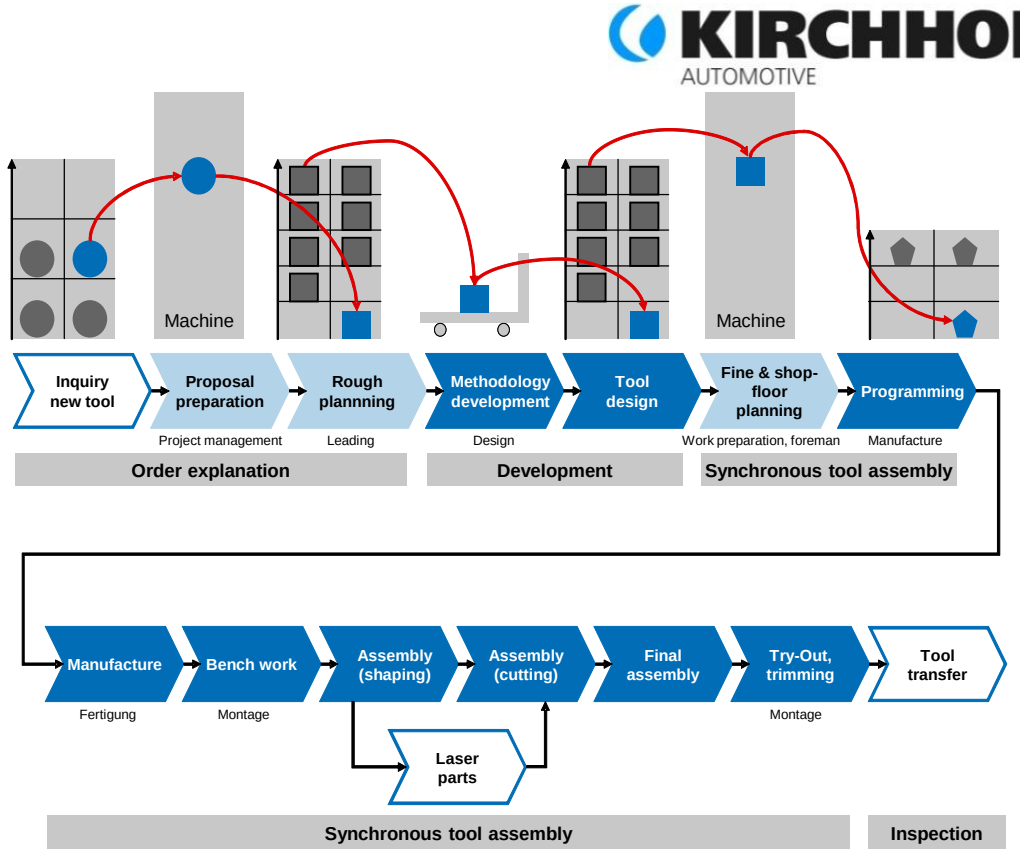
Results

- ► **Technological and organizational potentials, cost drivers and derived action fields**
- ► **Internal projects to address action fields including concrete measures**

Initiation of continuous improvement efforts for synchronous tool making

Approach

- Benchmarking of technological and organizational performance
- Process analysis of order processing
- Optimization of floor layouts
- Establishment of a milestone process
- Synchronization of workflows
- Adjustment of floor control
- Implementation of tool making wikis
- Support of the implementation and change management



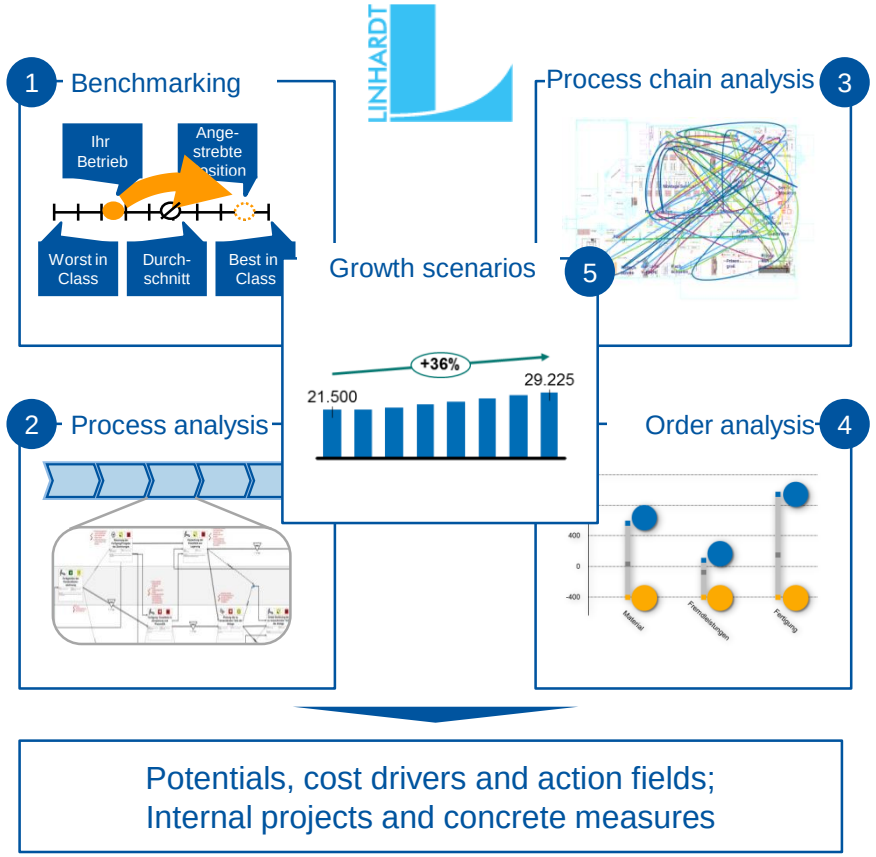
Result

► **Competitive, synchronous processes for manufacturing of new tools**

Benchmarking and process analysis for the LINHARDT Tool Room

Approach

- Benchmarking of technological and organizational performance
- Analysis of order fulfillment processes and interviews with employees
- Analysis of material flow on the shop floor
- Analysis of executed orders concerning time reports, lead times and costs
- Development of growth scenarios for the tool shop
- Identification of strengths and weaknesses, derivation of potentials and cost drivers, definition of action fields
- Definition of measures to address action fields



Results

- ► **Technological and organizational potentials, cost drivers and derived action fields**
- ► **Internal projects to address action fields including concrete measures**

Benchmarking und strategic positioning of MA Automotive's internal tool rooms

Approach

- Recording of order fulfilment processes at both MA Automotive's internal tool rooms located in Chivasso (IT) and Uitenhage (SA)
- Benchmarking and in-depth analysis of the organizational and technological performance of both sites in comparison to the international competition
- Derivation of location-specific strengths and potentials as well as definition of individual fields of action to optimize site-specific order processing
- Development of a holistic vision and strategic positioning as well as elaboration of an implementation road map

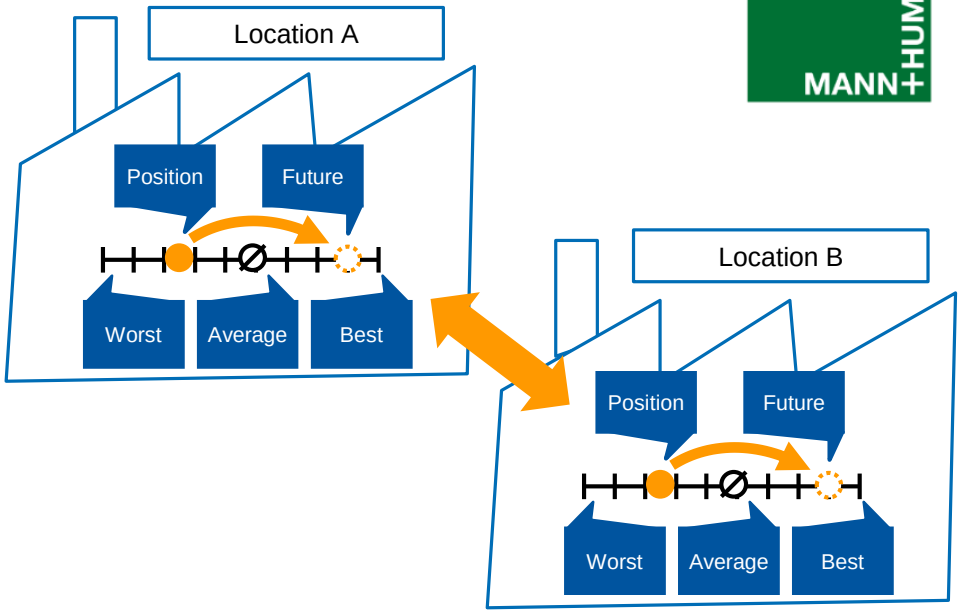
Results

- ► **Detailed benchmarking of organizational and technological performance**
- ► **Location-wide strategic positioning as well as roadmap for implementation**

Status quo analysis of the performance and development of a concept “Tool and Die Making for the Future”

Approach

- Benchmarking of technological and organizational performance of two tool shops
- On site status quo audit of the tool shop
- Key evaluation of organizational and technological performance compared to competitors
- Definition of recommendations for action to improve the performance
- Development of a concept "Tool and Die Making for the Future" at both locations



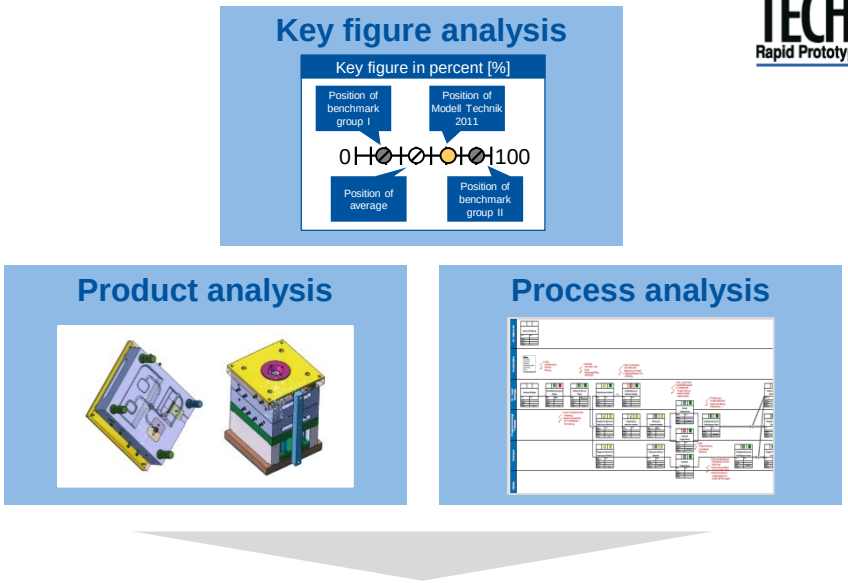
Results

- ► **Benchmarking analysis of the status quo performance of two tool shops**
- ► **Development of a concept “Tool and Die Making for the Future“ for both locations**

Determination of efficiency improvement potential in die making based on a status quo analysis

Approach

- Benchmarking of technological and organizational performance compared to competitors
- Examination of the range of services and analysis of product standardization potential
- Examination of the order processing and analysis of process standardization potential
- Definition of recommendations and measures to increase the efficiency of die manufacturing



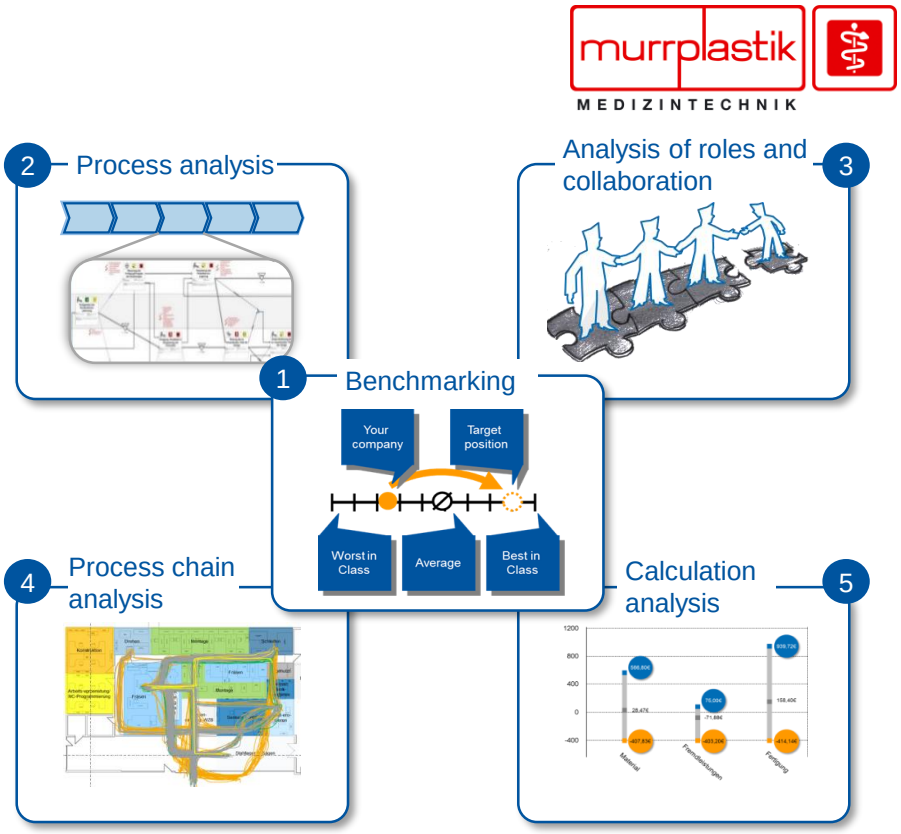
Results

- ► **Evaluated standardization potential in range of services**
- ► **Evaluated standardization potential in the order processing**
- ► **Derived fields of action and measures to increase the efficiency of die manufacturing**

Benchmarking and process analysis for the tool shop of Murrplastik Medizintechnik GmbH

Approach

- Analysis of the organizational and technological performance in comparison to competition
- Analysis of the order fulfillment processes
- Analysis and restructuring of roles and collaboration in the order fulfillment processes
- Recording of the process chains and analysis of the material flow on the shop floor
- Cost analysis of finished orders
- Identification of strengths and weaknesses and definition of future fields of action
- Development of specific recommendations to execute the identified fields of action



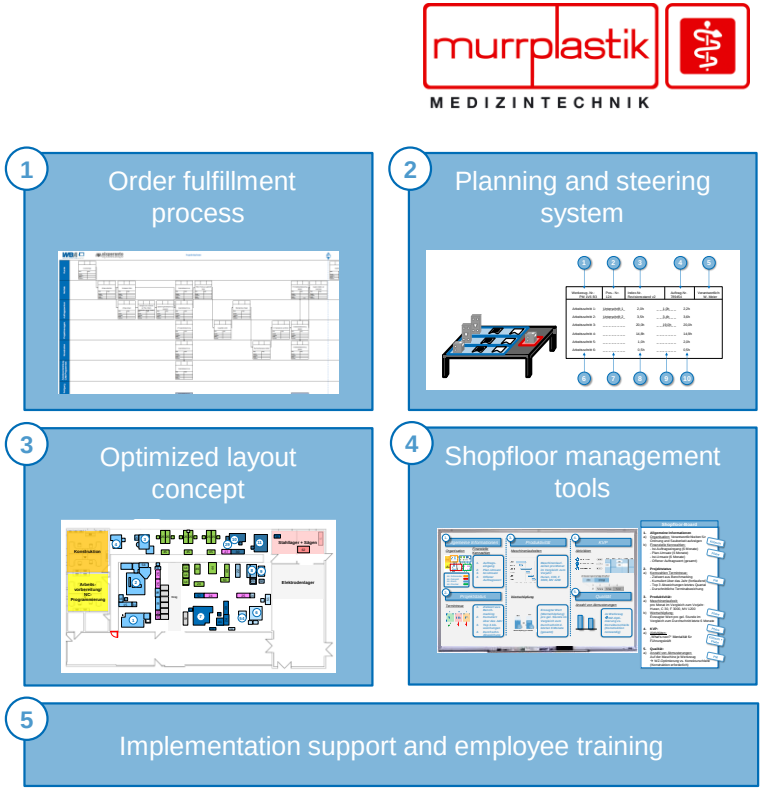
Results

- ► **Evaluated technological and organizational performance**
- ► **Derived fields of action and recommendations for their processing**

Redesign of tool shop of Murrplastik Medizintechnik GmbH

Approach

- Creation and implementation of an optimized order fulfillment process including defined milestones
- Development of a consistent system for rough and detailed planning as well as for production steering
- Implementation and visualization of planning and steering system in all departments involved and especially on the shopfloor
- Development of an optimized layout concept
- Design and elaboration of shopfloor management tools
- Conduction of trainings for employees
- Preparation of a detailed implementation roadmap



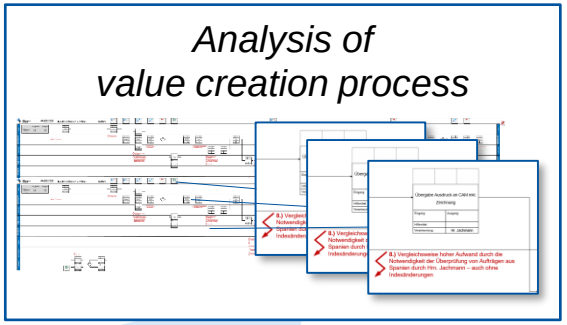
Result

► **Redesigned tool shop with optimized order processing, planning and steering as well as production organization for economical and efficient tool production**

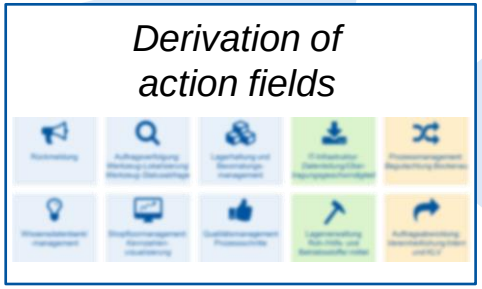
Development of an Industry 4.0-concept for tool shop of Musashi Grolsheim

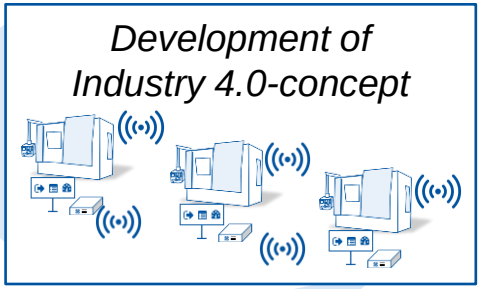
Approach

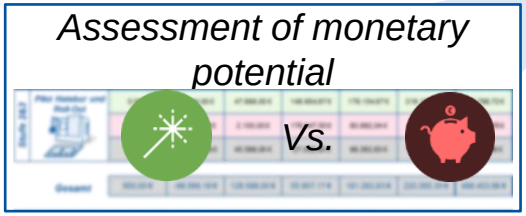
- Analysis of the order processing and identification of core potentials
- Derivation of action fields based on the compiled core potentials
- Research and elaboration of various Industry 4.0-solutions
- Development of an overall Industry 4.0-concept in order to comprehensively address the action fields and to increase the Industry 4.0-degree of maturity
- Assessment of the quantitative monetary potential of the Industry 4.0-concept with regards to cost and benefit
- Definition of an implementation roadmap including roles and responsibilities



MUSASHI GROLSHEIM







Result

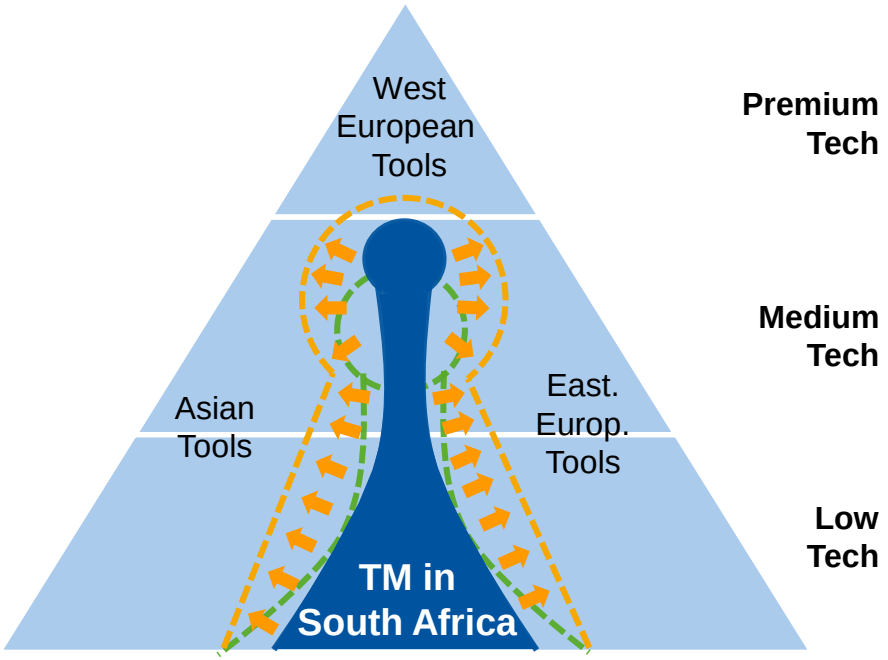
► **Viable Industry 4.0-concept based on current action fields**

► **Monetary assessment of the Industry 4.0-concept including an implementation roadmap**

Benchmarking of the capabilities of the South African Tooling Industry

Approach

- Identification of approx. 40 representative companies for the South African tooling industry
- Design and distribution of a standardized questionnaire validated in the German tooling industry
- On-site auditing of organizational and technological capabilities to verify data in questionnaire
- Quantitative evaluation of the capabilities of all companies and the South African industry
- Derivation of action fields for the future improvement of the capabilities of the companies



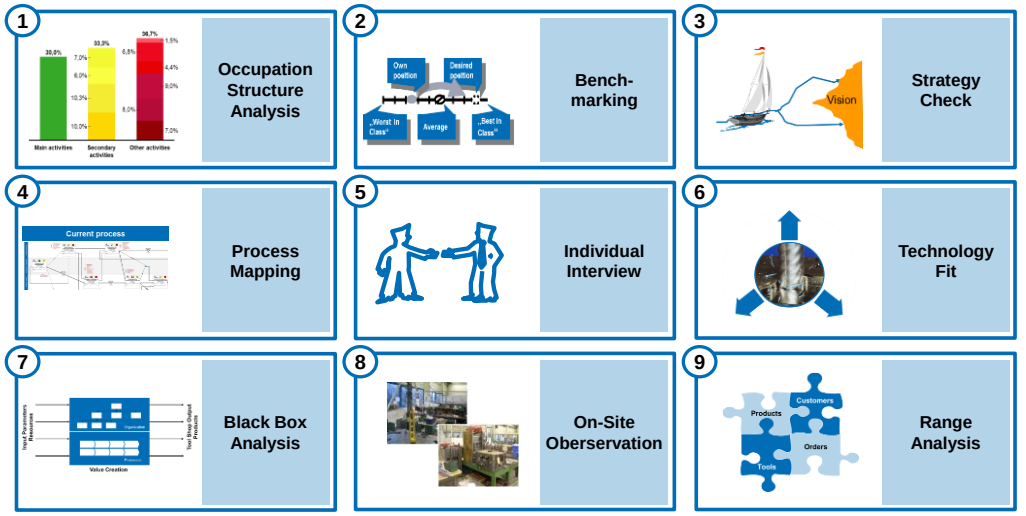
Results

- ► **Detailed quantitative evaluation of the capabilities of the South African industry**
- ► **Defined action fields for the future improvement of the capabilities of the South African industry**

Systematic support on the continuous improvement of the South African Tooling Industry

Approach

- Development of a north star as the “ideal“ South African tooling company
- Derivation of a comprehensive consulting approach for South African tooling companies
- Definition of specific analysis and improvement instruments for consulting in the South African tooling industry
- Target-orientated further education of tooling consultants of the NTIP
- Continuous collaborative consulting with the NTIP of selected South African tooling companies



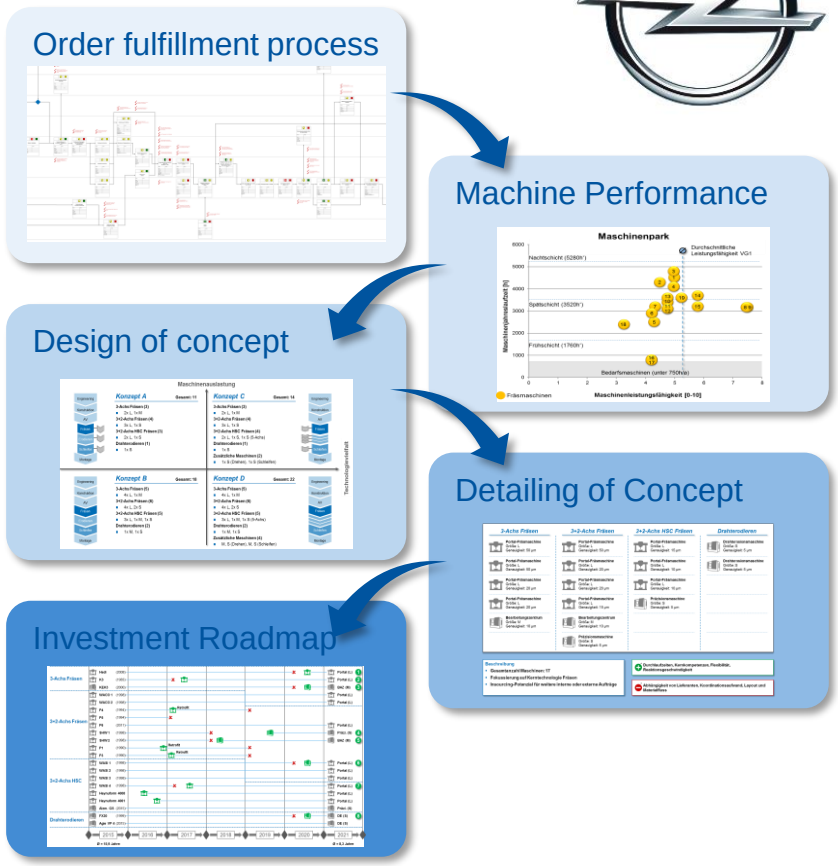
Results

- ► **Stringent consulting concept of international best-practice standard for the South African industry**
- ► **Continuous training of tooling consultants for the South African industry**

Process Analysis & Selection of manufacturing concept and resources for internal tool room of Adam Opel AG

Approach

- Analysis of order fulfillment process, technological performance, work piece requirements and process chains
- Derivation of technological and organizational action fields and definition of improvement measures
- Analysis of future capacity demand and development of four different manufacturing concepts regarding machine utilization and number of in-house manufacturing technologies
- Evaluation of the derived concepts and selection of the concept with the best fit for the tool room of Opel
- Derivation of necessary machinery for the year 2021 under consideration of all strategic restrictions
- Derivation of a roadmap for execution of necessary changes in machinery and investment recommendations for specified machinery



Results

- ► **Identification of action fields for improvement of organizational and technological performance**
- ► **Investment roadmap for realization of a future oriented machinery selection until year 2021**

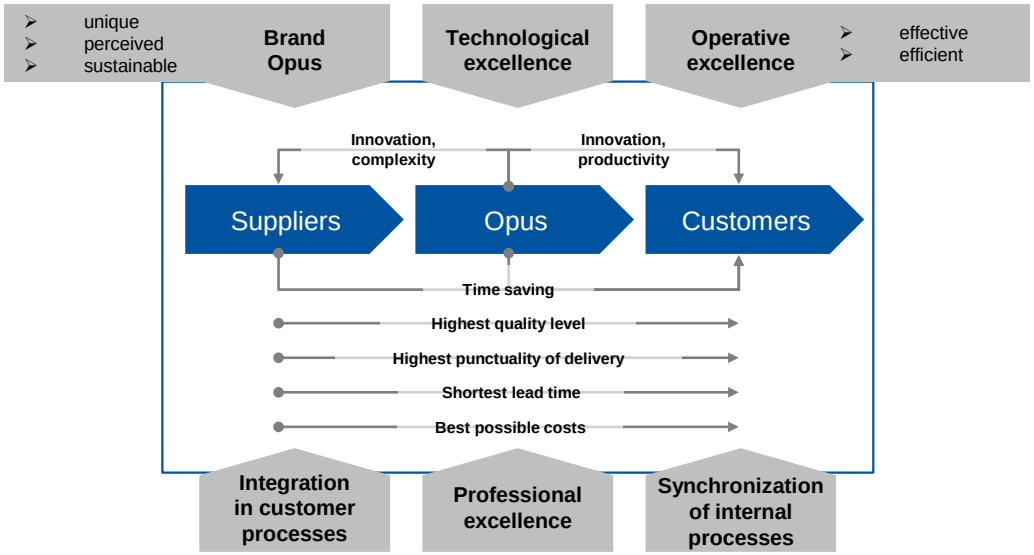
Realization of an audit in order to execute a strategic positioning in the Die Industry

Approach

- Benchmarking the technological and organizational performance
- Specification of the inspection area
- Analysis of the competitive arenas (acc. to Porter)
- Determination of strategic success positions
- Analysis of the process landscape
- Evaluation of the core processes
- Derivation of process strategies
- Derivation of areas of action
- Planning the implementation

OPUS FORMENBAU

Model strategic positioning



Result

► **Confirmation of the current market gap strategy and measurement planning in the areas of action “Brand Image“, “Industrialization“, “Autodidactic Tool Manufacturing“ and “Employee qualification“**

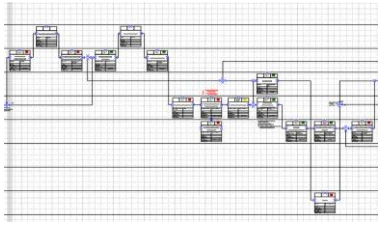
Layout and process design for OPUS Formenbau

Approach

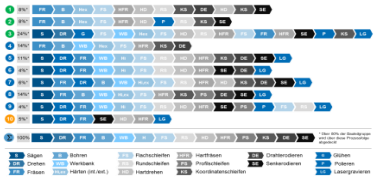
- Analysis and optimization of the entire order fulfillment process
- Recording and analysis of the tool manufacturing process steps
- Identification of the material flow and development of a flow-oriented layout design
- Identification of the information flows and conception of an administrative building
- Definition of KPIs and elaboration as part of a leading on-site concept
- Development of a visual management in course of a shop-floor management

OPUS FORMENBAU

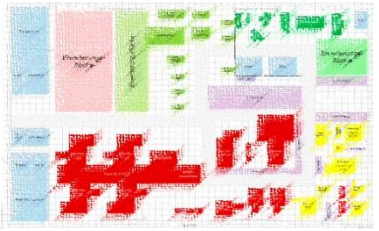
1 Analysis of order fulfillment process



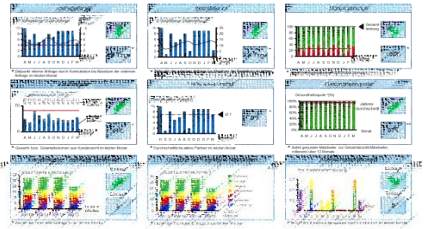
2 Analysis of manu-facturing process steps



3 Development of a layout design



4 Development of shop-floor management



Results

- ► **Material flow oriented layout design and information flow oriented administrative building**
- ► **Optimized order fulfillment process and individual shop-floor management**

Conception of a strategic orientation for internal tool making

Approach

- Benchmarking of the technological and organizational performance
- Detail analysis of the order processing as well as the range of products and services
- Definition of competences required for efficient tool making
- Classification of the status quo of the efficiency of tool making
- Derivation of boundary conditions for the strategic reorientation based on a defined target state
- Definition of measures to reach the target state

OSKARRÜEGG
schneller perfekt

Complexity-control — *»The complexity-control demonstrates the know-how in tool making for qualification of series production«*

- Integration of service
- Appropriateness of requirements
- Capability of innovation
- Reliability of production

Process-control — *»The process-control in tool making demonstrates a high organizational performance«*

- Responsiveness
- Adherence to schedule

Cost-control — *»The cost-control is a necessary condition for a sustainable economic business activity«*

- Utilization stability
- Life cycle control
- Cost transparency
- Appropriate market price

Employee development

Legend: E & C = Engineering & construction; P = Preparation; M = Manufacturing; A = Assembly; TO = Try out

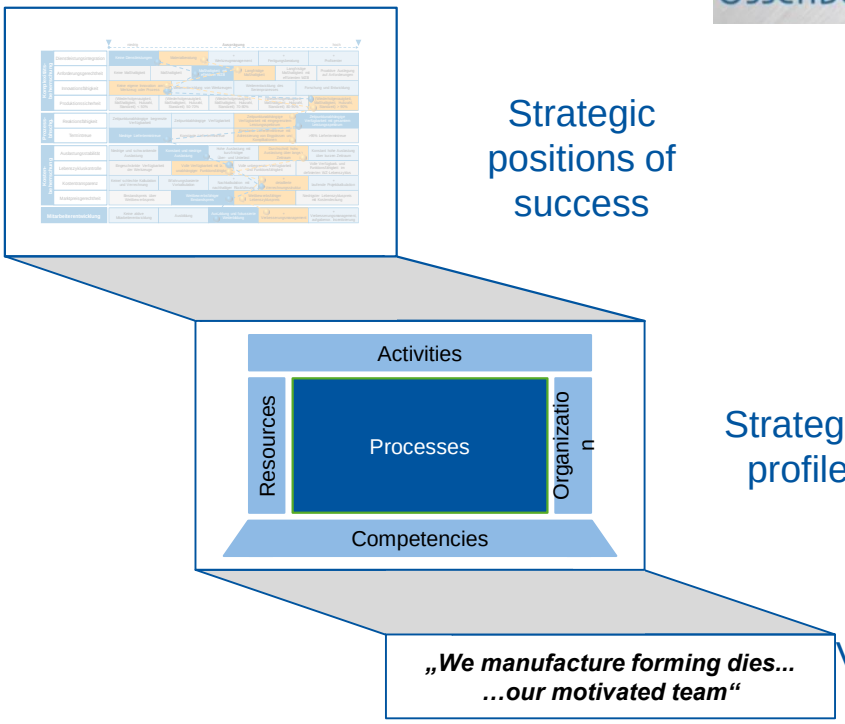
Results

- ► **Required competences for efficient tool making**
- ► **Company-specific boundary conditions based on the target state**
- ► **Roadmap and measures to reach the defined target state**

Development of a strategy for Ossenberg tool making

Approach

- Analysis of central customer-benefit-features and position in the competitive environment
- Definition of current and future strategic positions of success
- Analysis of the status quo and strategical interpretation of activities, organization, competencies, resources and processes (strategic profile)
- Development of a specific vision and mission for Ossenberg tool making
- Definition of measures for the operative implementation of the vision and mission



Results

- ► **Detailed strategic profile as well as specifically defined vision and mission**
- ► **Precise measures for the implementation of determined goals**

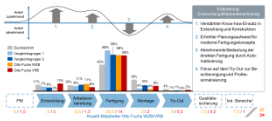
Common conception of the internal tool making department and the jig manufacturing department of Otto Fuchs

Approach

- Comparison of the two departments in relation to a process analysis as well as an evaluation of synergy potentials
- Identification of product specific competence fields of the two departments
- Analysis of the manufacturing process chains and evaluation of the possibility for a segmentation
- Design of a common strategy for the new department with the internal customers
- Conception of shop floor layout scenarios for a efficient flow of material
- Development of a planning framework

Analysis phase 1

Benchmarking



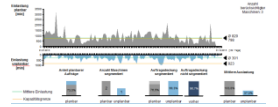
Processes

Analysis phase 2

Competences

Process chains

Segmentation

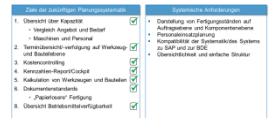


Design phase

Strategy

Shop floor layout

Planning



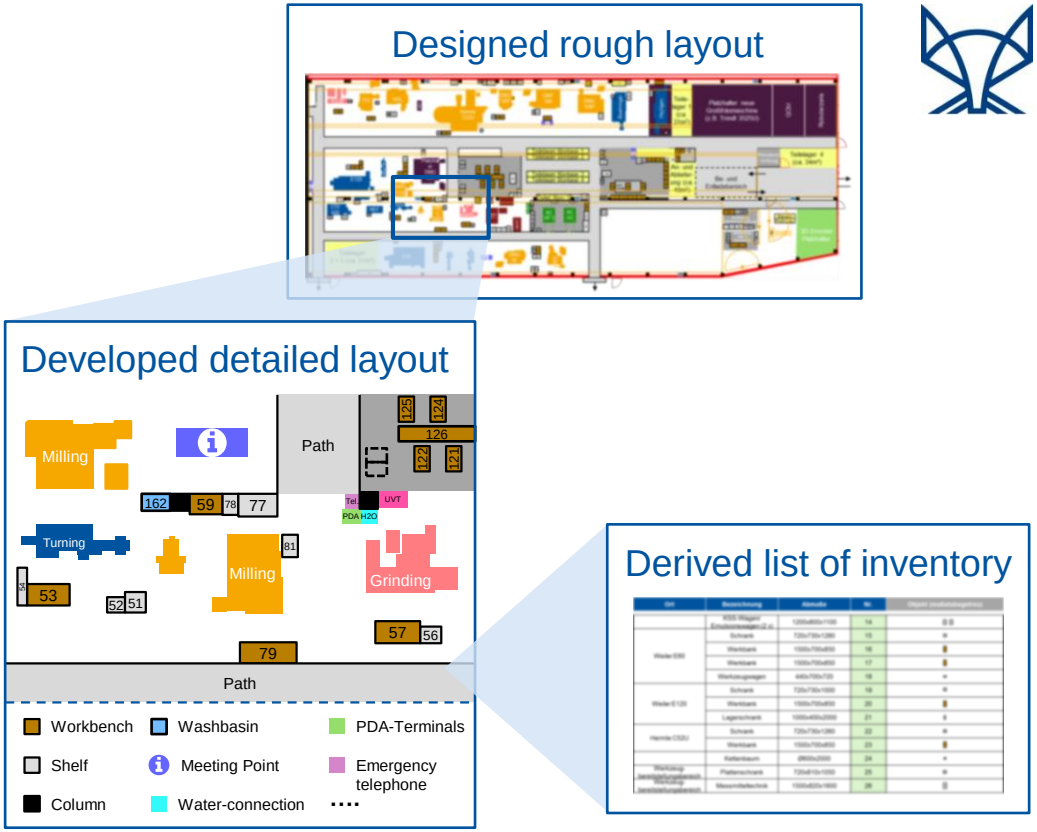
Results

- ► **Evaluated synergy potential for a centralization of the two departments**
- ► **Suitable constructed tool and jig making department with an efficient shop floor layout**

Layout detailing for the tool shop of Otto Fuchs KG

Approach

- Design of the rough layout based on the manufacturing workflow and the frame conditions given by the plant structure planning
- Development of the detailed layout considering the footprint for shelves, workbenches, goods receipt, goods issue, meeting points as well as the positioning of media connections
- Arrangement and specification within designated areas, such as assembly and warehouse areas as well as areas for tooling issuance
- Verification of the detailed layout by involving a large number of employees



Results

- ► **Comprehensive and future-proof rough and detailed layout of the new tool manufacturing hall as supporting input for the final construction planning**
- ► **Inventory and purchase list enabling a structured relocation to the new tool manufacturing hall**

Common conception of the internal tool making department and the jig manufacturing department of Otto Fuchs

Approach

- Comparison of the two departments in relation to a process analysis as well as an evaluation of synergy potentials
- Identification of product specific competence fields of the two departments
- Analysis of the manufacturing process chains and evaluation of the possibility for a segmentation
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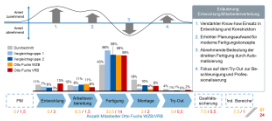
Analysis phase 1

Benchmarking



Processes

Analysis phase 2

Competences

Process chains

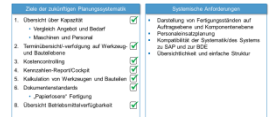
Segmentation

Design phase

Strategy

Shop floor layout

Planning



Results

- ► **Evaluated synergy potential for a centralization of the two departments**
- ► **Suitable constructed tool and jig making department with an efficient shop floor layout**

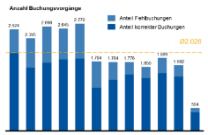
Development of an efficient order fulfillment process in the internal tool shop of Procter & Gamble

Procedure

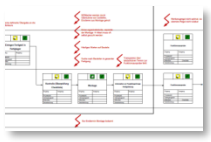
- Analysis of the status quo analysis in different areas of order processing:
  - Projects
  - Tools and tool components
  - Order fulfillment processes
  - Planning & scheduling
- Development and definition of the central fields of action planning, scheduling and order fulfillment process
- Support for operational implementation, e.g. development of a tool for rough planning of projects
- Derivation and evaluation of measures for future implementation

Status-quo analysis

Projects

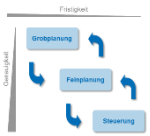


Process mapping



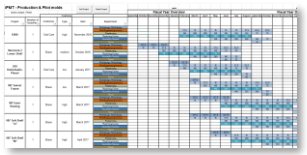
Tools and components

Planning & scheduling



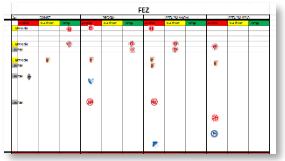
Development of fields of action and operational implementation

Planning



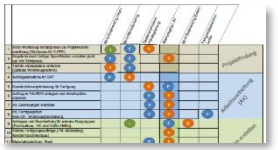
e.g. development and use of a tool for rough planning

Scheduling



e.g. implementation of a scheduling approach alongside the process chain

Order fulfillment process



e.g. updating and redefining responsibilities and tasks

Derivation and evaluation of measures

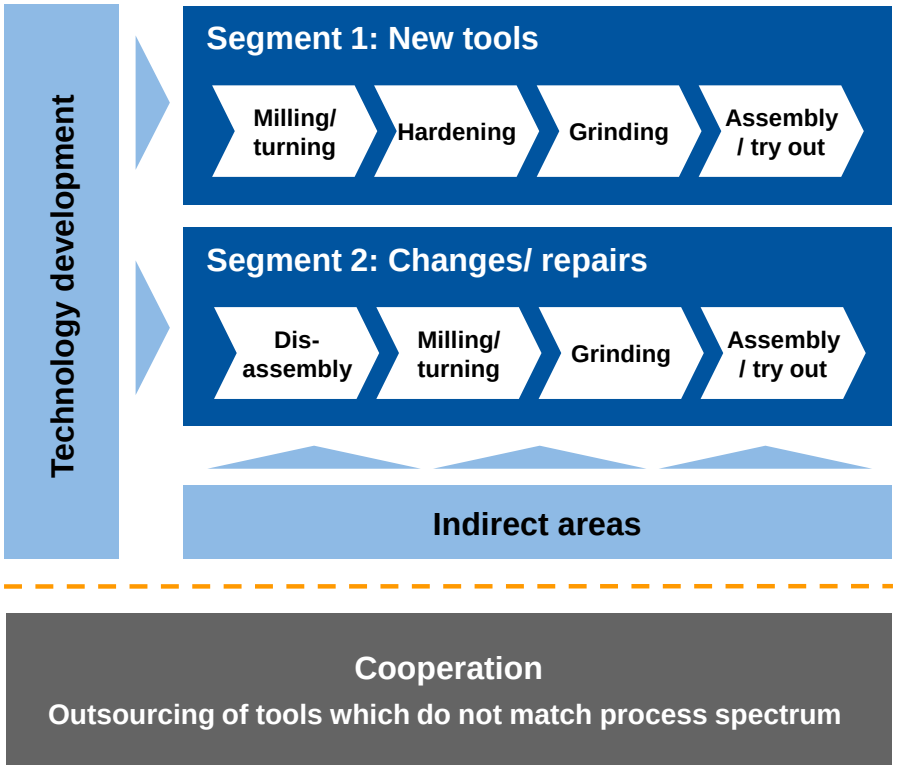
Results

- ► **Systematic for the planning and scheduling in the internal tool shop incl. rough planning tool and implemented scheduling approach alongside the process chain**
- ► **Detailed overview of measures to be executed for an efficient order fulfillment**

Industrialization of an internal tool shop

Approach

- Benchmarking with competitors
- Detailed analysis of order processing
- Preparation of the strengths/ potential profiles for each organizational unit in tool making
- Development of a concept for industrialization focusing on segmentation of the tool shop in process-oriented manufacturing lines
- Support of implementation and change management



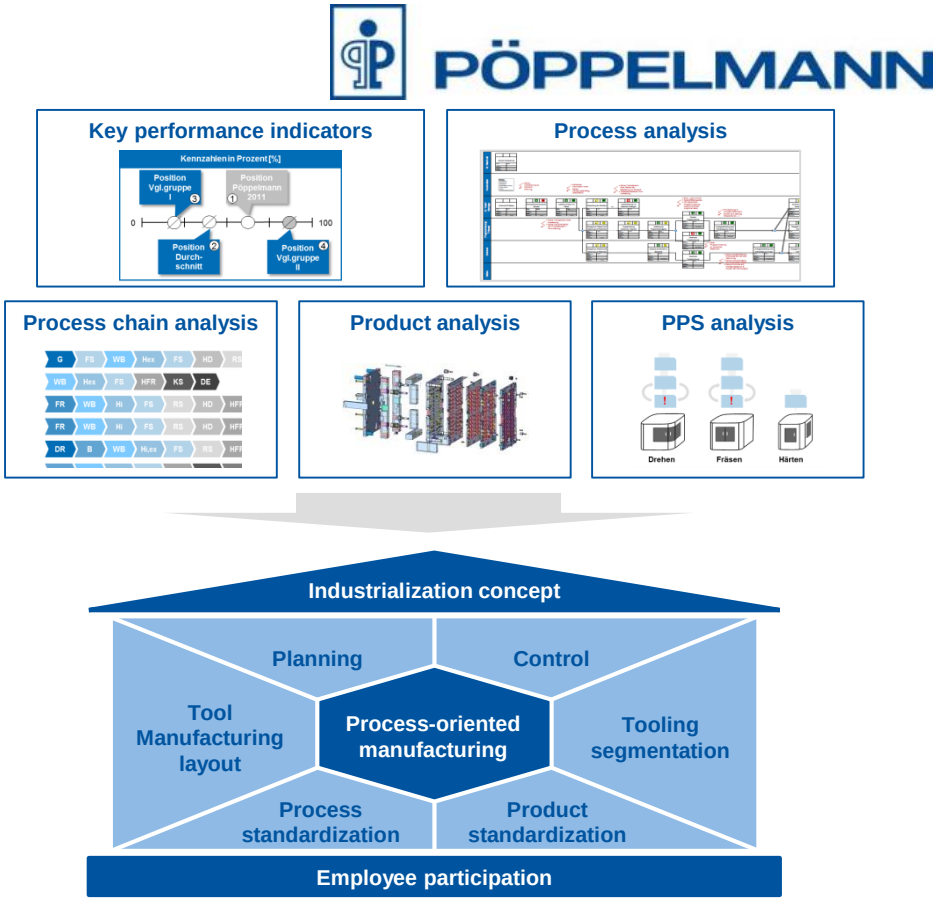
Result

► **Implementation of an industrial tool shop which is oriented on customer benefits and segmented into process-oriented organizational units**

Concept for an industrial tool manufacturer Pöppelmann at the site Lohne

Approach

- Status quo analysis of the internal tool making
  - Performance benchmarking
  - Analysis of the order processing and process chains
  - Analysis of the product variety
  - Analysis of the planning and controlling divisions
- Conception of an industrialized tool making
  - Definition of main process sequences
  - Simulation of segmentation scenarios
  - Conception of a segmentation
  - Development of shaping options for the layout



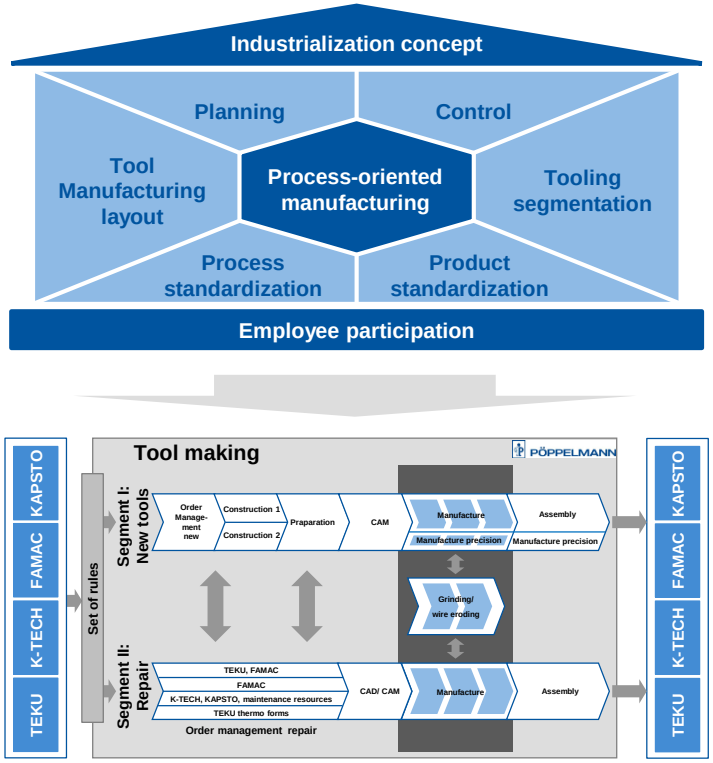
Result

► **Concept to create an efficient, profitable and productive tool manufacturing by industrialization**

Implementation of the industrial tool making concept of Pöppelmann in Lohne

Approach

- Configuration of an industrial tool making company
  - Detailling of layout of the industrial tool making company
  - Definition of rough and detailed planning instruments
  - Creation of a rulebook for segmenting
  - Development of a concept for the integration of all employees
- Implementation of industrial tool making
  - Realization of employee workshops
  - Relocation of machine resources
  - Implementation of a rough and detailed planning
  - Introduction of a segmented tool manufacturing



Result

► **Industrialized tool making based on standardized products and processes, segmented and material flow oriented manufacturing as well as effective planning and control**

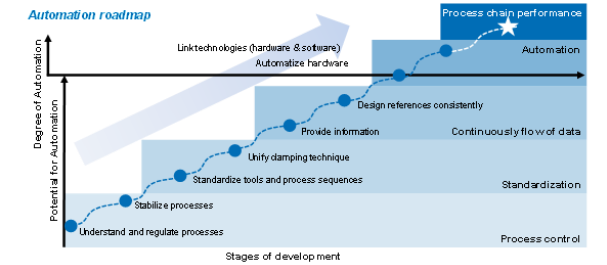
Identification of the automation potential of the tool shop in Lohne

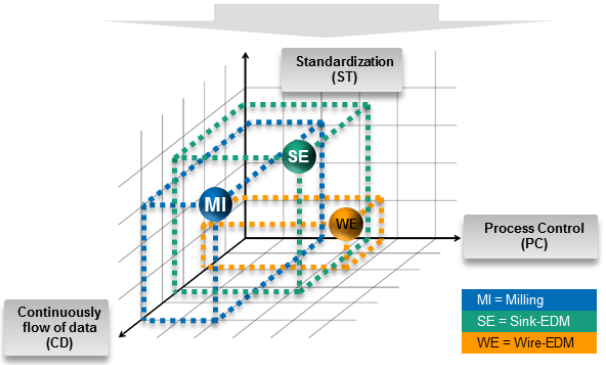
PÖPPELMANN

Approach

- Status-quo analysis of the automation requirements
  - Identification of existing preconditions for automation of the tool shop
  - Identification of the consequences for the automation concept
  - Analysis of the mechanical production in relation to the areas process mastery, standardization and data consistency
  - Derivation of fields of action for the attainment of technologically essential requirements

- Workpiece analysis
  - Collection, analysis and validation of a representative samples with regard to macro and micro geometric properties, material technological characteristics and process-related key figures





Result

► **Detection of technological-economical rationalisation possibilities within the industrialized tool making through automation in production**

Industrialization of tool making and set-up of structures for transfer from cost- to-profit-center

Approach

- Analysis of processes and responsibilities along the entire process chain
- Derivation of strengths and potentials with regard to all organizational and technological aspects
- Definition of future concept of strategic positioning and organizational structure
- Set-up of a detailed plan of measures for development towards the future concept
- Support of the execution of measures

RAMSAY PRODUCTION ENGINEERS
INNOVATIVE · RELIABLE · RESPONSIVE

Future concept

	Quick-win	*Mid-term*	*Long-term*
	Organisation of tooling division	**Separation of tooling center**	**Implementation of profit center**
Organizational structure	Quick-win measure 1	Mid-term measure 1	
Process	Quick-win measure 1	Mid-term measure 2	
Responsibilities	..	..	
Quality	..	..	
Planning	..	..	
Employee distribution	..	..	
Machines	..	..	
Quoting	..	..	
Continuous improvement	..	..	
Transparency	..	..	
Suppliers	Quick-win measure n	Mid-term measure n	

Results

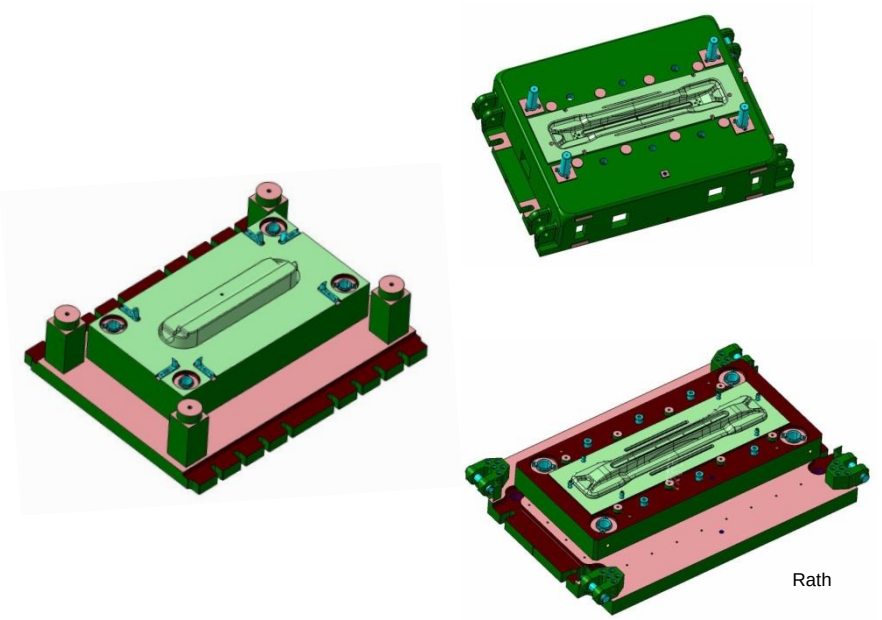
► **Established structures to develop from a cost-center towarads a profit-center**

► **Increased competitiveness through process efficiency, due date reliability, and capacity utilisation**

Enhancing the order processing efficiency by modularizing the tool design

Approach

- Analysis of the tool range for the single customer groups
- Selection of a main customer as a reference
- Modularization and standardization of the main customer‘s tool type
- Employee training about the construction standards
- Development of standard work plans by the work preparation



Rath

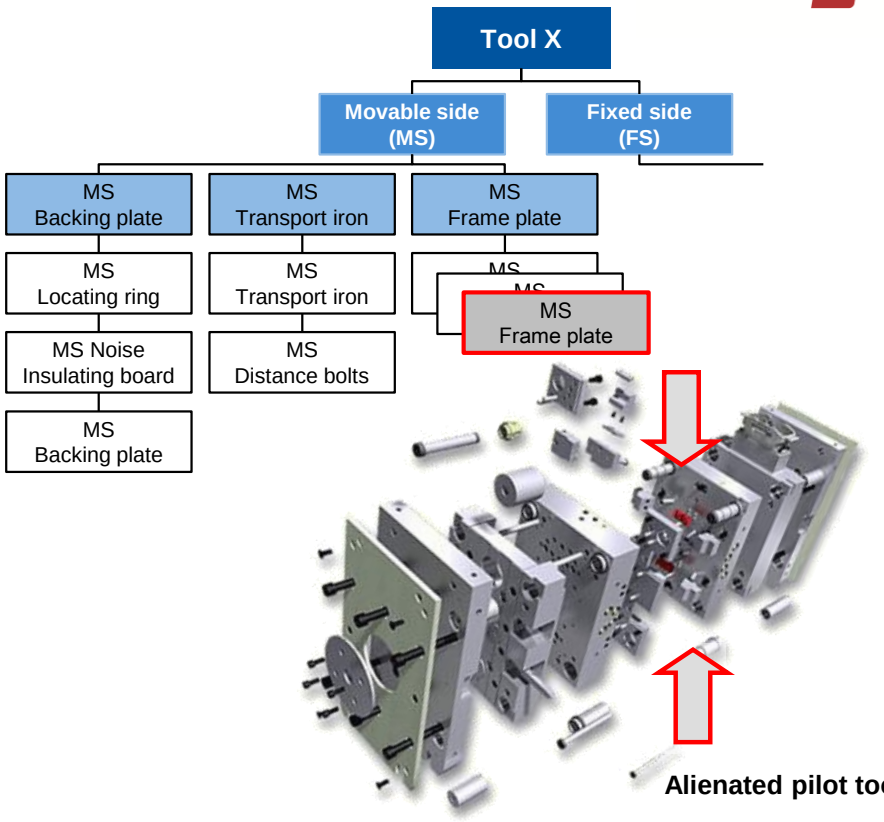
Result

► **Significant reduction of the processing time for drawing tools by modularization and standardization**

Initiating the industrialization of tool making through product and process standardization

Approach

- Selection of a pilot tool
- Analysis of tool spectrum
- Identification of standardization potential in regard of the pilot tool
- Process standardization for the pilot tool
- Process synchronization for the pilot tool



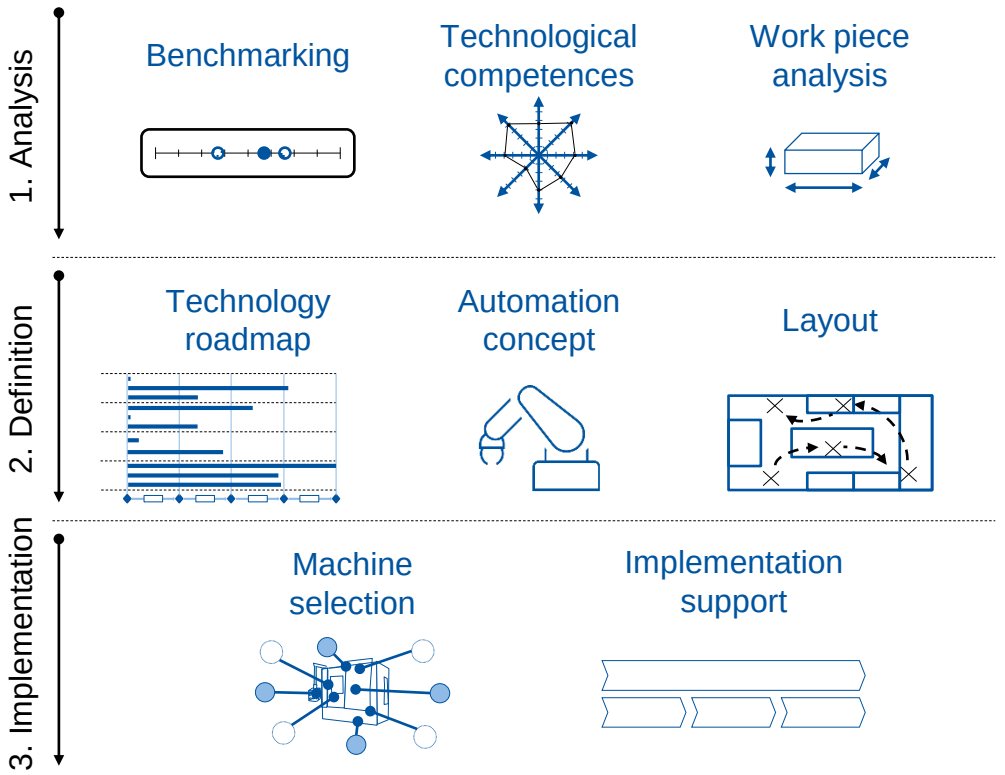
Result

► **Successful product and process standardization for manufacturing of a pilot tool, providing the foundation for industrialized and synchronous tool making**

Automation and layout design for the implementation of a modern production at ruwido austria gmbh

Approach

- Identification of the current technological performance of tool making by benchmarking and work piece analysis
- Derivation of requirements from the company strategy to the manufacturing technology of internal tool making
- Definition and elaboration of three fields of action:
  - Technology roadmap
  - Automation concept
  - Layout (new plant)
- Support of the operational implementation phase



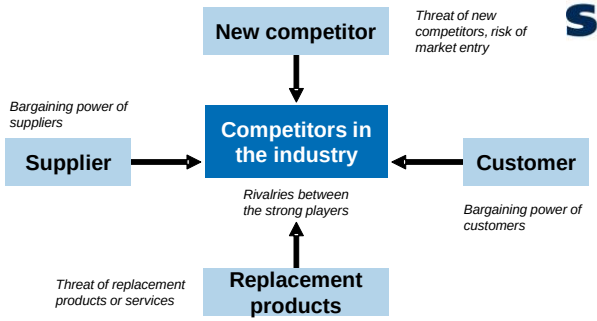
Results

- ► **Technology roadmap and automation concept based on the product spectrum and the strategic goals**
- ► **Layout concept for the new production plant and support in the machine selection**

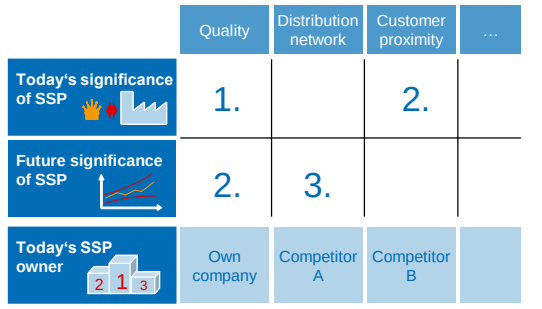
Strategy development in the tool and die making in six steps

Approach

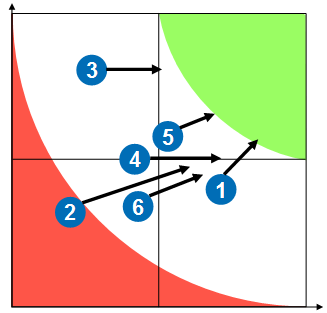
- Analysis of Porter‘s 5 competitive forces
- Determination of strategic success positions
- Conception of a strategic program
- Derivation of the management profile
- Identification of the core processes
- Definition of an measures



Porters Five Forces



Strategic success positions



Process strategies

Result

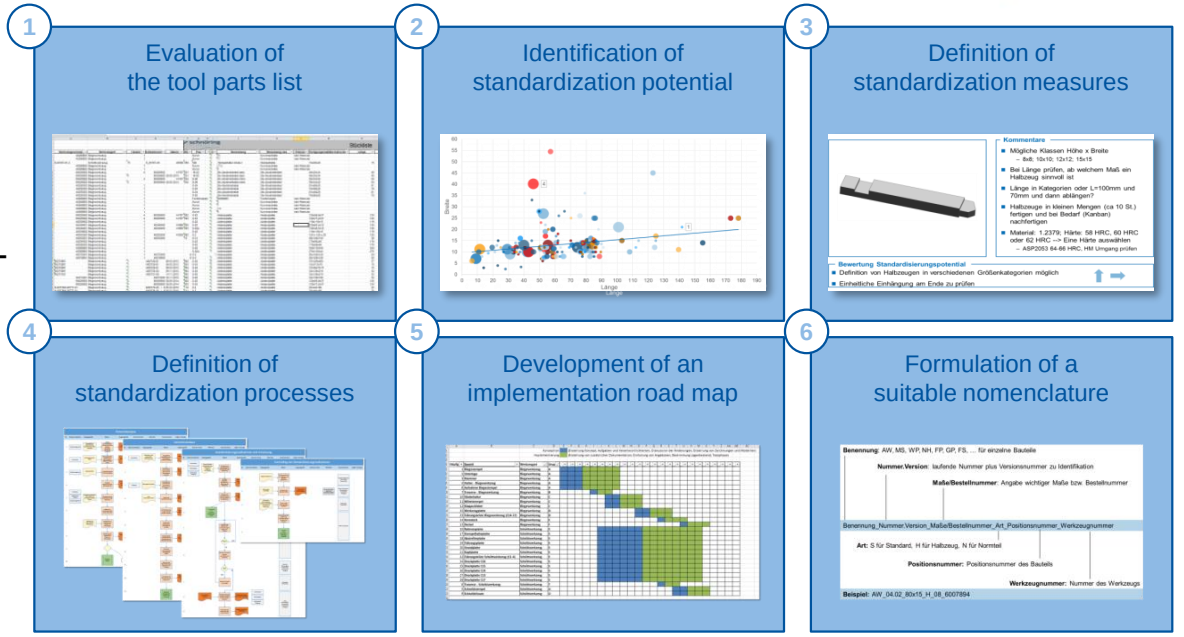
► **Differentiation and reorientation of the business areas of the tool manufacturer towards a strategy of a system provider in tool making**

Increase of efficiency by tool-standardization

Approach

- Analysis of 4,895 components, 11,914 spare parts and 3,584 standard components
- Evaluation of 218 different component groups
- Identification of the standardization potential and definition of measures for the standardization of single component groups
- Definition of standardization processes for long-term implementation
- Development of an implementation road map and definition of a suitable tool nomenclature

schnöring
WIRE & BENDING SYSTEMS
Dynamik die bewegt



Results

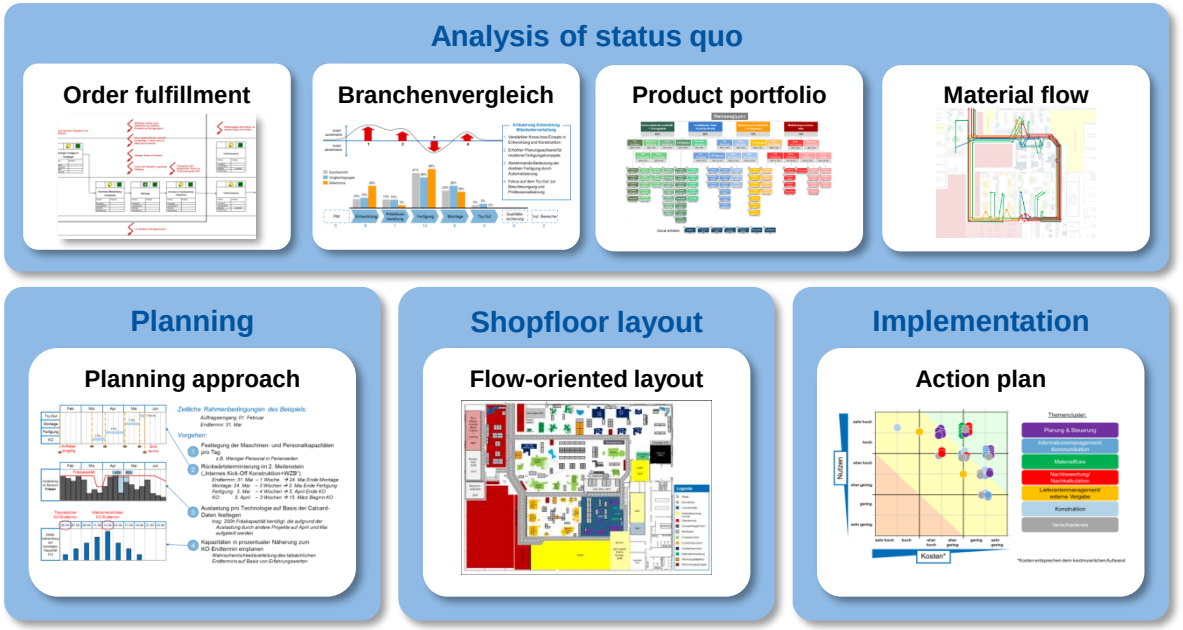
- ► **Lead time and production cost reduction by the standardization of components**
- ► **Standardization processes for sustainable long-term implementation of standardization**

Reconception of the internal tool shop of Selectrona

Approach

- Analysis of the internal order fulfillment process
- Conduction of a benchmarking
- Analysis of the existing product portfolio
- Definition of main process sequences
- Development of an individual planning approach
- Design of a flow-oriented shopfloor layout
- Development of a detailed implementation plan

selectrona
performance by integration



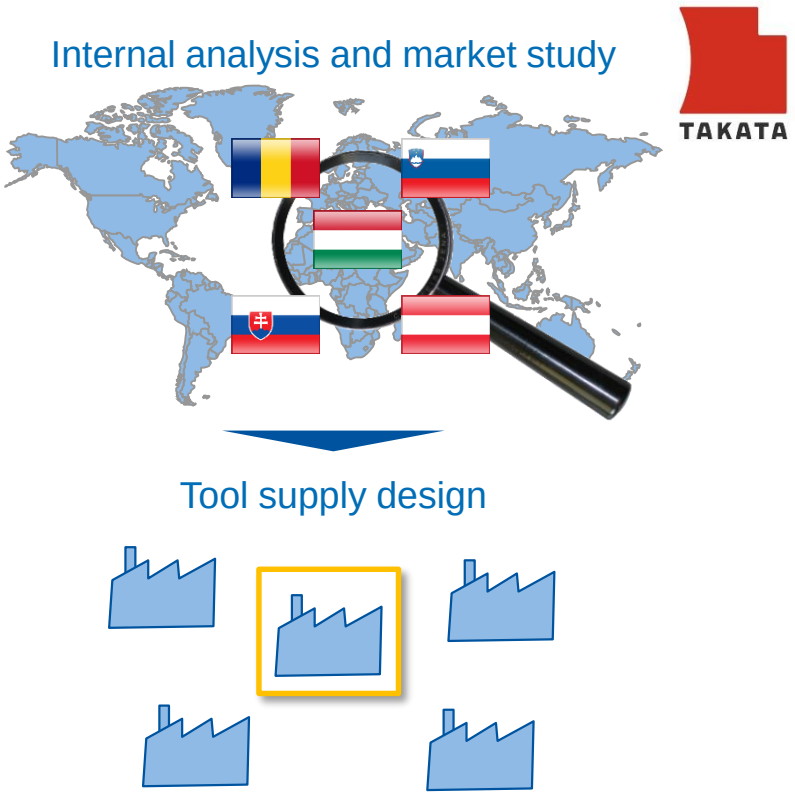
Results

- ► **Standardized processes and an individual and aligned planning approach**
- ► **Process-oriented shopfloor layout including a detailed implementation roadmap**

Design of the tool supply for a new location in the value-added network of Takata

Approach

- Analysis of the series production planning and derivation of tool demands for the new location in Hungary
- Internal analysis and benchmarking of internal Takata tool shops in Germany and Romania
- Market study in Eastern Europe to identify potential suppliers for the location in Hungary
- Design of the tool supply for Hungary with an internal tool manufacturing, suppliers and internal tool shops
- Roadmap for the gradual realization of tool supply in Hungary



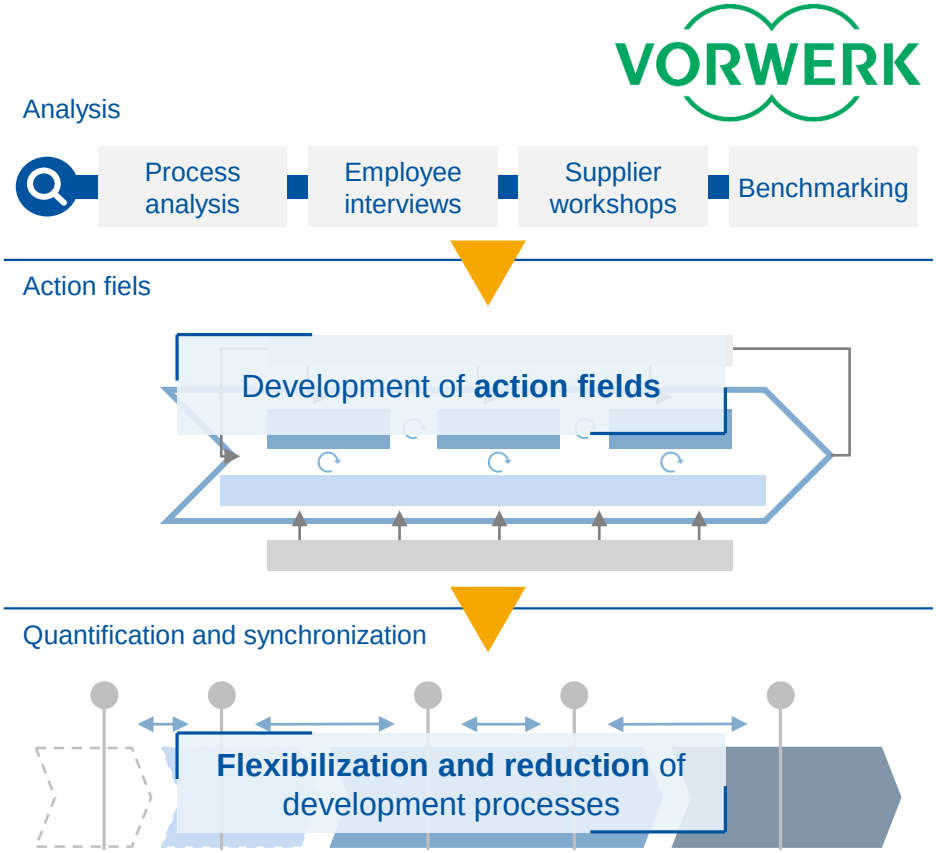
Results

- ► **Substantiated market intelligence regarding the design of tool supply for maintenance, repair and new tools**
- ► **Defined tool supply with internal tool shops, suppliers and internal networking**

Determining the potential of an agile tool development and supply process at Vorwerk

Approach

- Analysing the actual state of the tool development and supply process supported by a quantitative process data analysis
- Development of a target state with detailed action fields for a synchronized tool development and supply process that is coordinated with the product development process:
  - Definition and development of action fields with regard to increasing process flexibility and decreasing lead time of product development
  - Quantification of the identified potentials with regard to the reduction of development lead times and cost reduction
  - Development of technical concepts for the use of prototype tools for early process assurance



Result

► **Detailed analysis and evaluation of the actual situation as well as derived and rated fields of action to reduce lead times for tools and revise procurement more flexible**

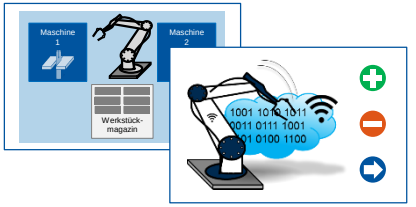
Technical investment planning in the manufacturing area and optimization of planning and scheduling at weba

Approach

- Detailed analysis of the component spectrum as well as of the process sequences and lead times
- Investigation of technological potentials and definition of future manufacturing technologies including automation and Industry 4.0 concepts
- Analysis of future capacity requirements and comparison with currently available machine capacities for deducing an investment roadmap
- Mapping and assessment of the planning and scheduling process
- Definition of a target state for planning and scheduling including an action plan for realization

Analysis of process sequences

Identification of technological potentials



Capacity analysis and investment roadmap

Optimization of planning and scheduling

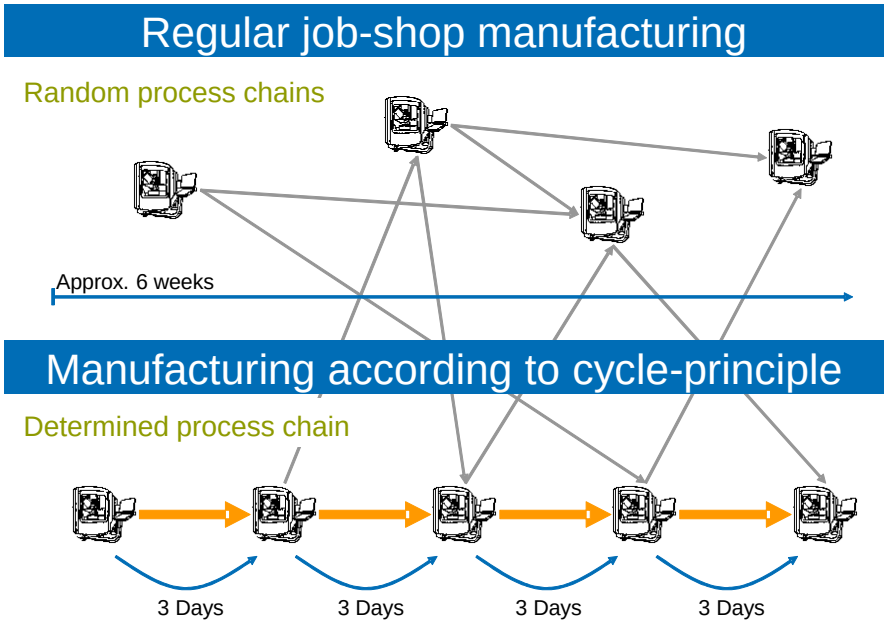
Results

- ► **Concept for future-oriented, efficient manufacturing including defined investment roadmap**
- ► **Optimized planning and scheduling including an action plan for realization**

Increasing the effectivity of the order processing by synchronizing the single manufacturing steps

Approach

- Analysis of the order processing and creation of strength/ potential profiles for the individual divisions
- Development of a concept for the reorganization
- Establishment of a milestone process to structure a comprehensive order processing
- Analysis of the process chain in manufacturing
- Definition of a pilot synchronized production line and determination of the synchronization



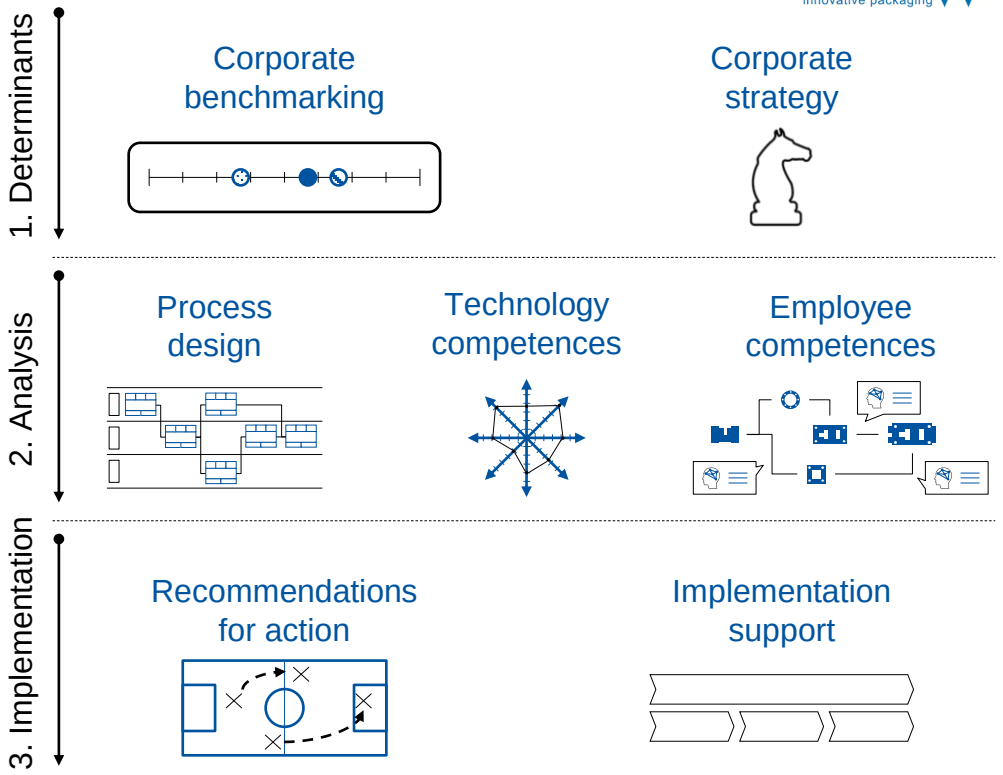
Results

- ► **Realization of a continuous production flow and increasing both transpareny and predictability of the completion dates**
- ► **Reduction of the required manual control**

Development of measures adopted by Weener corporate strategy and support of implementation process

Approach

- Identification of current tool shop performance through corporate benchmarking
- Derivation of requirements of corporate strategy for the tool shop
- Linkage of current tool shop performance and future requirements to analyze effects in three major dimensions:
  - Order processing process
  - Technology competences
  - Employee competences
- Derivation of action fields and support of the implementation process



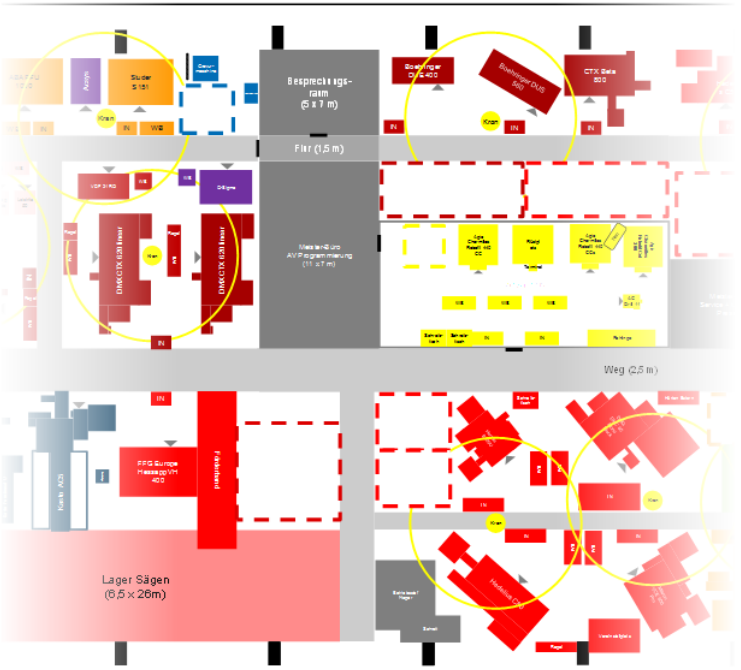
Results

- ► **Determined effects of corporate strategy and current tool shop performance to the dimensions order processing process, technology competences and employee competences**
- ► **Derived action fields adopted by corporate strategy and support of implementation process**

Development of a flow-oriented tool room layout

Approach

- Analysis of organizational and technological performance as well as deduction of strengths and potentials
- Display of current layout as well as mapping of current material flows and surface area utilization
- Definition of standardized target processes and deduction of ideal material flows
- Design of a flow-oriented tool room layout capable of further growth
- Allocation of machine resources, demarcation of storage areas and spaces for goods in- and outwards
- Continuous recording of employee requirements and suggestions with regards to the layout design



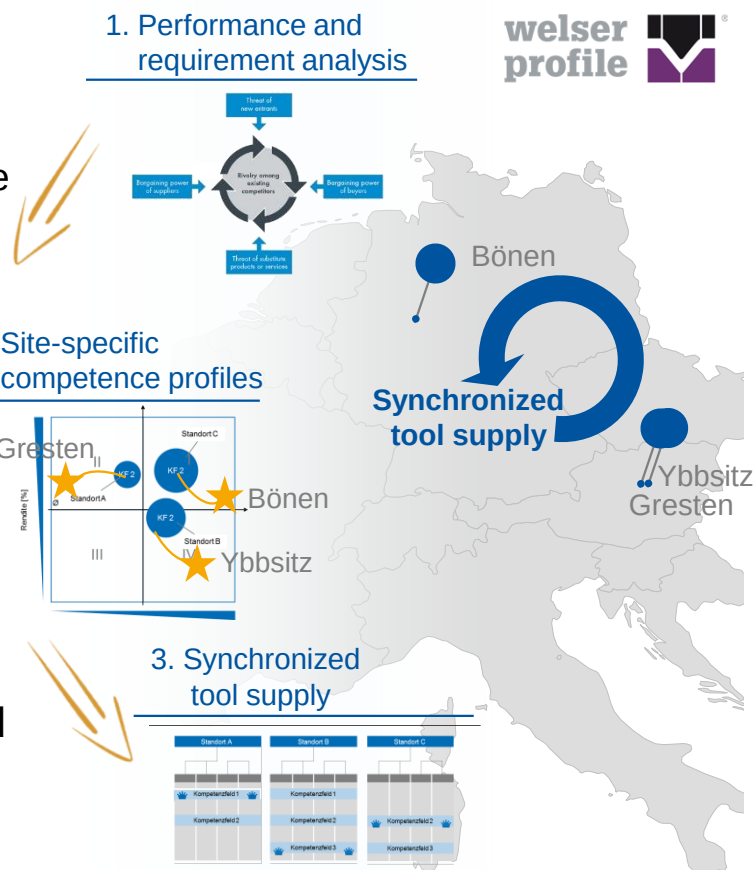
Results

- ► **Flow-oriented tool room layout capable of further growth**
- ► **Optimized material flows as well as internal logistics and standardized machining sequences**

Strategic Alignment of the Global Tool Supply of Welser Profile GmbH

Approach

- Performance and requirement analysis of tool supply
  - Benchmarking of the organizational and technological performance of both tooling sites Ybbsitz and Bönen
  - Detailed analysis of the order spectrum
  - Determination and analysis of customer requirements
  - Identification and analysis of European competitors
- Determination of site-specific competence profiles, derivation of the order spectrum per site and definition of a comprehensive lead structure for future tool supply
- Definition of vision, mission and strategic action fields incl. measurable goals and measures for further development and synchronization of tool supply



Results

- ► **Detailed performance and requirement analysis of tooling sites of Welser Profile GmbH**
- ► **Derivation of the site-specific order spectrum and definition of a synchronized strategy**

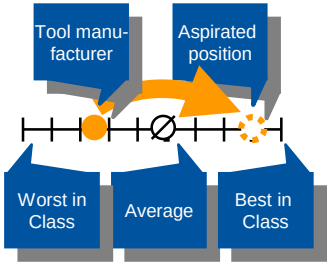
Benchmarking and analysis of the planning and control processes of the Wöhrle Tool Shops

Approach

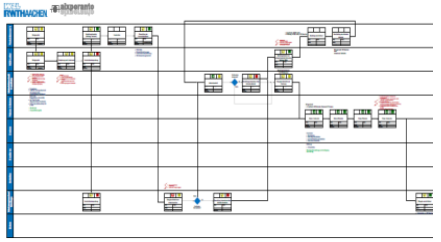
- Detailed technological and organizational benchmarking and derivation of a competence profile for two Wöhrle tool shops
- Detailed analysis of the manufacturing processes and the process chain, especially regarding the status quo of planning and control
- Examination of cross-location activities and their impact on planning and control processes
- Development of measures regarding the future technological and organizational focus as well as the future planning and control processes

Wöhrle
Wir haben die Lösung

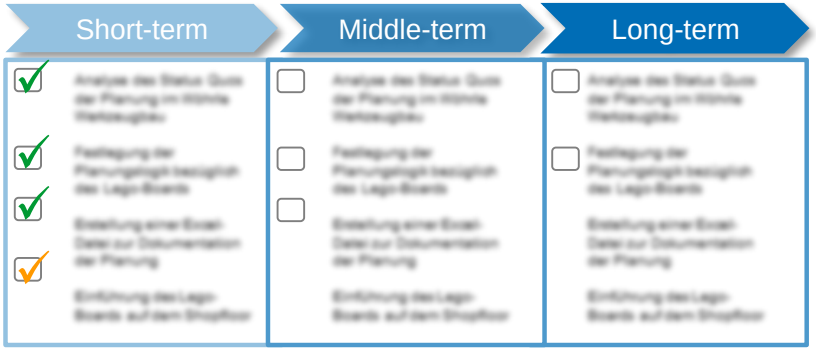
Benchmarking



Process analysis



Guidance and measures



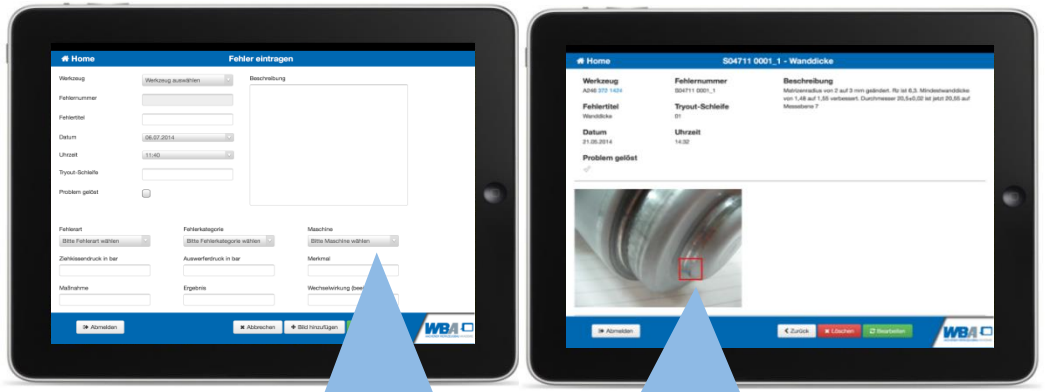
Results

- ► **Detailed technological and organizational benchmarking of two Wöhrle tool shops**
- ► **Measures regarding the technology, organization, planning and control**

Development of the tablet-application “IDA – Information Digitalization Application“

Approach

- Joint analysis of requirements regarding a knowledge transfer application
- Definition of a concept for the application and determination of the operational environment
- Programming of the application and development of a back-end for the app configuration as well as a server infrastructure
- Testing of a pilot by participants of the consortial project
- Application adjustments and finalization as well as handover to the participants



Company-specific categorization of errors as preparation for an error analysis

Visualization of errors by using photos and tags

Project consortium

Results

- ► **Tablet-application for error recording and knowledge transfer**
- ► **Server-infrastructure and back-end as configuration environment for the application**

Check-up of the status quo of industrialization within an external die shop

Procedure

- Analysis of the status quo analysis in different areas within the die shop:
  - Analysis of project data and execution of comparisons for several KPI‘s
  - Analysis of order fulfillment process
  - Analysis and evaluation of tools, tool components and manufacturing processes
  - Analysis of planning and scheduling
  - Visualization of material flow on the shopfloor
- Definition of the current degree of implementation in the different fields of industrialization
- Development of five action fields to implement a holistic industrialization in the die shop

Fields of industrialization in tool and die making

Development of action fields, approaches and an overall roadmap

Standardization of tools and tool components
- Standardization of tools for product categories and variants
- Exploitation of economies of scale through defined size ranges

Standardization and synchronization of processes
- Reduction of the current amount of manufacturing process chains
- Synchronization of interfaces between the different departments

Holistic planning and scheduling
- Approach for planning and scheduling in assembly and try out
- Improvement of planning and scheduling in manufacturing

Market intelligence and supplier management
- Identification of suppliers for cavities and manufacturing technologies
- Systematic qualification and further development of specific suppliers

Material flow orientation and segmentation of shopfloor
- Optimization of the current layout to increase transparency
- Improvement of current segmentation of machinery

Results

► **Status quo within the eight fields of industrialization in tool and die making incl. a description of strengths and potentials alongside the order fulfillment process**

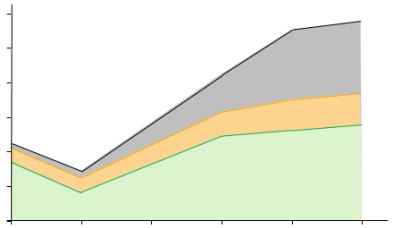
► **Action fields incl. an overall roadmap for the holistic implementation of industrialization in the die shop**

Conception of an international tooling footprint with internalized mold making competence in the electronic industry

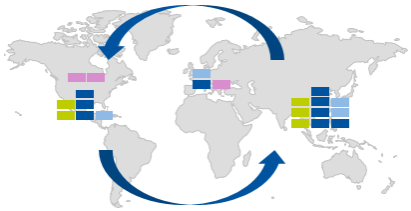
Approach

- Analysis of past mold demand and forecast of future mold demand for series and prototype molds
- Development of 7 different scenarios for internalizing mold making and setting up an international tooling footprint for repair and maintenance as well as new mold making for series and prototype molds
- Evaluation and selection of preferred scenario by conducting a detailed decision analysis including an extensive calculation of ramp up and running costs
- Conception of future overall mold development process and future organization for molding department as well as development of an implementation plan with the overall goal of significantly accelerating mold development

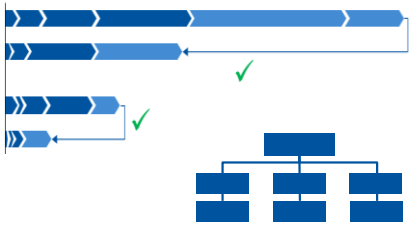
1) Future mold demand



2) Footprint scenarios



3) Process & organization



4) Implementation plan

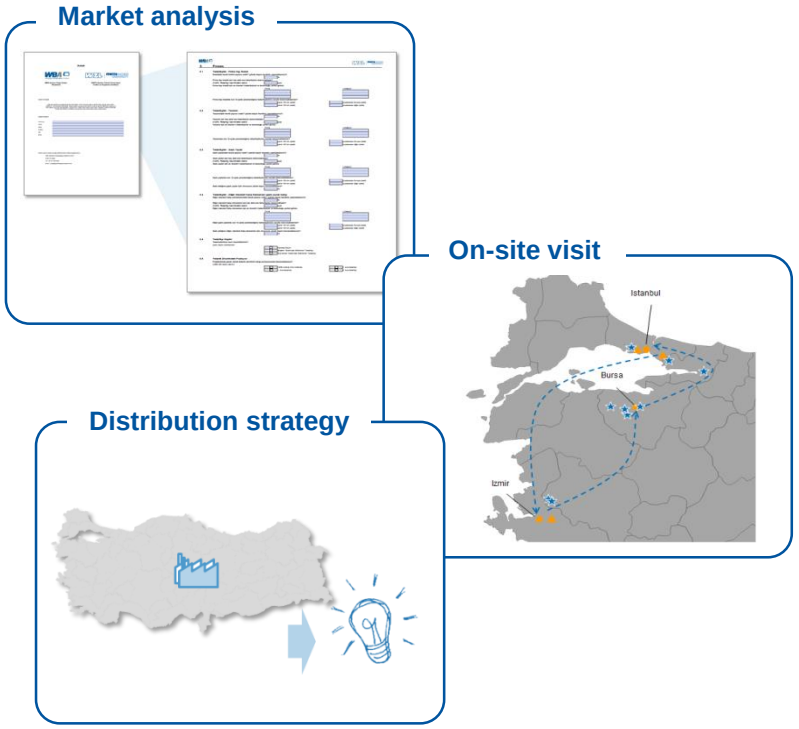
Results

- ► **Concept of an international tooling footprint for series molds and prototype molds**
- ► **Defined overall mold development process, organization and implementation plan**

Market study of tool shops in Turkey and development of the future distribution strategy for a manufacturer of standard mold units

Approach

- Commencement of general framework and requirements for the distribution of standard mold units in Turkey
- Identification of toolmaking companies as potential customers and as relevant competitors
- Implementation of a quantitative market and a competitive analysis by means of questionnaires in local language
- Validation of the market and the competitive analysis by means of on-site visits of toolmaking companies in Turkey
- Development of a distribution strategy including an implementation roadmap for the market in Turkey



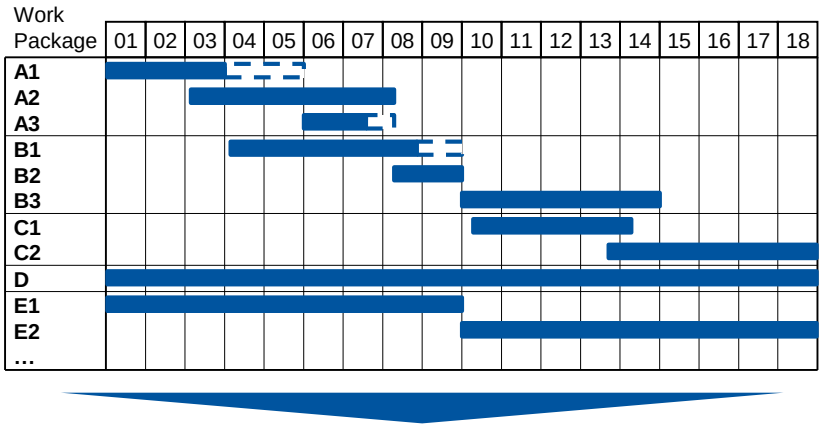
Results

- ► **Detailed analysis of the tool shops in Turkey and their supplier structure**
- ► **Derived specific distribution potential for the company in Turkey**
- ► **Distribution strategy and und implementation roadmap for the market in Turkey**

Project planning for technical due diligence of tool shop acquisition for an international automotive OEM

Approach

- Due diligence planning of a multi million Euro tool shop acquisition for an international automotive OEM
- Development of a detailed project setup including schedule, tasks and deliverables
- Analysis of potential overall project risks considering environmental, operational, legal and general factors
- Definition of a detailed RASI-Matrix as a framework for allocation of project responsibilities
- Involvement of all necessary business functions including tool shop, press plants, body in white, purchasing, corporate properties, IT, finance, legal, tax, human resources, corporate strategy and board of management



	Responsible	Accountable	Supporting	Informed
A1	Press Plants	Corporate Strategy	HR	Board of Management
A2	Body in White	IT	Tax	Legal
A3	Corporate Strategy	Finance	Corporate Strategy	Purchasing, Corporate Properties
B1	IT	HR	Corporate Strategy	Finance
…	…	…	…	…

Result

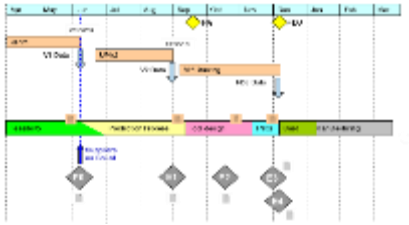
► **Detailed technical due diligence project plan including schedule with tasks, deliverables and responsibilities as well as a holistic risk analysis**

Strategic development of the tool supply of a European automotive OEM incl. the design of a “Tooling & Launch Center”

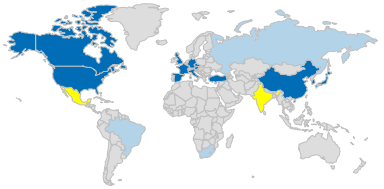
Approach

- Analysis of the tool procurement process for the supply of tools for all car body manufacturing plants
- Analysis of the current supplier network
- Analysis of the past tool demand and the calculation of future tool demand for the years 2017 to 2029 for all current and planned derivatives
- Development of scenarios and design of future production strategic tool supply for all car body manufacturing plants
- Design and business case calculation of a “Tooling & Launch Center” for the production of tools as well the achievement of a shorter ramp up phase of procured tools

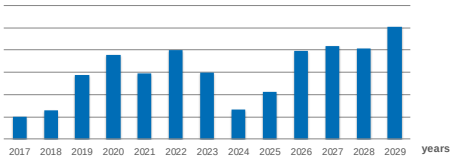
1. Analysis of the tool procurement process



2. Analysis of the global supplier network



3. Analysis of the tooling requirement



4. Development of scenarios and evaluation of the tool supply

5. Design of a “Tooling & Launch Centers”

Result

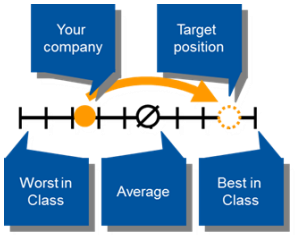
- ► **Strategically designed tool supply for the car body manufacturing for all plants**
- ► **Developed “Tooling & Launch Center” for the prod. and launch of car body tools**

Benchmarking and development of a market strategy for the internal tool making division of a South Korean OEM

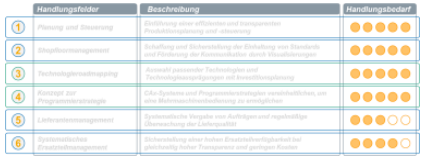
Approach

- Benchmarking of the organizational and technological performance of an internal tool making division with regard to the competition
- Creation of a strengths and weaknesses profile and identification of fields of action in order to increase performance
- Development of an action plan in order to realize the identified potentials
- Development of a market strategy to extend tooling services beyond the parent company in order to increase internal capacity utilization
- Identification of potential markets, sectors and products for a structured new customer acquisition

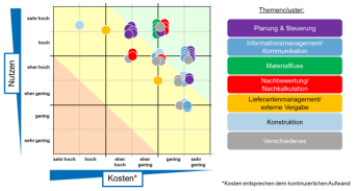
1. Organizational and technological benchmarking



2. Identification of fields of action



3. Development of action plan



4. Development of a market strategy

Result

- ► **Evaluated organizational and technological performance including action plan development**
- ► **Developed market strategy for the supply of tool making services on the open market**

The WBA Tooling Academy
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IMMOFINANZ / Henn Development / Henn Architekten


WBA


WBA

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