Selected references

Layout optimization for a professional printing plant

Our approach

- Analysis of current layout, transport and product production quantities
- Planning principles:
  - Short ways,
  - No transport against flow direction,
  - No useless ways &
  - No temporary storage
- New layout planning according to different scenarios
- Assessment of the layouts

Results

- Synchronization of material flow and layout
- Creation of better reachable central warehouses and reduction of material reflow
- Expandable layout for production
- Decision papers

Optimized layout shortens transport routes

Reduction raw material warehouse -23 %
Reduction of transport routes/year -30 %
Reduction of more than 2000 transports and 1400 and lifting procedures of colour palettes through a colour dosage station
Selected references

**Analysis of industry-4.0-principles for turbo machinery manufacturer**

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**Our approach**

- Sector specific trend analysis and assessment for:
  - Industry-4.0-efforts in an international context
  - Reference architecture models
  - Development of enterprise software (ERP vs. PLM)
- Deductive analysis of the requirements for a new production control concept and assessment with real implementation examples
- Creation of case-related data flow models of a digital plant

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**Industry-4.0-conform roadmapping**

1. Trend analysis
2. Requirement specification
3. I4.0 Implication
4. Implementation
5. Roadmap

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**Ergebnisse**

- Analysis of international trends
- Appropriate reference models
- Requirement specific trends of enterprise software
- Production control concepts of the future
- Use-Case-related data flow models
- Appropriate Industry-4.0-roadmap
**Selected references**

**Quality planning improvement for the product creation process**

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**Our approach**

- (Quantitative) process analysis and identification of requirements along the product creation process by:
  - Shopfloor-inspection
  - Analysis of documentation (FMEA, CAQ, fault collection sheet, etc.)
  - Workshops
- Deduction of defined processes & testing procedures
  - Integration into existing system topographies
- Improvement of testing procedures on the shopfloor

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**Improved testing by integrating quality planning and product development**

**Results**

- Weak points analysis
- Specification sheet for a quality planning
- Specification sheet for a CAQ-module
- Lean testing procedures
- Testing plans
- Reduction of failure slippage
Selected references

Layout, process and quality planning (»Greenfield«)

Our approach

- Analysis of current processes in the mother plant
- Design of reference processes for
  - Production, painting & repair
  - Purchasing (Make-or-buy)
  - Logistics
  - Quality
- Development of layouts, investment plans, process flow diagrams, work and test schedules
- …

Results

- 3 alternatives for one flow-production line (concrete mixer, concrete pump and hybrid)
- Expand layout for production/quality assurance
- Reference processes for production and quality
- Investment plans for the factory expansion
- Layout of the testing procedures for incoming goods, outgoing goods and production

New production facilities
Selected references
Risk optimized assembly process for an automobile supplier

Our approach
- Project work based on lean and six sigma principles
- Project definition and requirements analysis
- Risk related survey and analysis of the assembly processes
- Development, assessment and direct implementation of actions for secured assembly processes
- Deduction of long-term recommendations for actions

Cost reduction through secured assembly processes

Results
- Comparison of current and reference assembly processes
- Analysis of assembly processes based on process related & technology specific criteria
- Risk & action assessment
- Roadmap for the actions
- »Lessons-learned« with effectiveness assessment
**Selected references**

**Risk analysis for the production of medical products**

**Our approach**

- Process mapping and analysis in terms of risks to patients
  - Shopfloor-inspection
  - Analysis of documentation (FMEA, CAQ, fault collection sheets, etc.)
- Risk identification and assessment
  - Assessment of absolute and relative risks
  - Assessment of the risk groups
- Definition of actions for the minimization of risks

**Results**

- Analysis of processes and documentation with respect to standard conformity and customer requirements
- Identification of impacts and risks related to danger to patients
- Absolute and relative assessment of top-risks
- Actions and action recommendations for the elimination of risks
Selected references

Assessment of process chains for the production of BLISKs

Our approach

- Holistic assessment methodology (economically, ecologically, technologically)
- Consistent process mapping
- Life cycle assessment if needed
- Framework conditions based on specific enterprise requirements:
  - »Open-countryside«-Concept
  - Capacity takeover / multi-machine operation
  - Overheads

Results

- Substantiated assessment of alternative production strategies with respect to the individual product
- Assessment of costs, resources and times down to single process steps
- Profitability calculations for different production quantities
Selected references

Resource efficiency optimization in automotive production

Our approach

- Mapping of process chains and resource consumption data
- Identification of relevant consumers
- Analysis of existing optimization potentials by means of consumption measurement, data analysis and benchmarks
- Elaboration of detailed actions to increase resource efficiency

Resource based analysis of potentials

Results

- Clear representation of resource value steam
- Transparency concerning the largest consumers
- Profitability calculations for different actions
- Action recommendations for the implementation of the identified actions
Selected references

Process chain planning for a gearbox manufacturer

**Our approach**

- Mapping of the new robot gearbox construction and the existing production resources
- Carrying out a process chain planning:
  - Specification analysis
  - Process chain development
  - Basic concept for the production & quality assurance
  - Cost-benefit-analysis
  - Detailed technological and economical assessment of different process chain

**Results**

- Specification list for new gearbox alternatives with respect to production and measurement processes
- Assessment of existing machinery
- Assessment of alternative technological process chains for gearbox manufacturing
- Cost-benefit-assessment of process chains
- Risk assessment for alternative process chains

**New production process chain**

- Purchased Parts
- Rough Machining
- Heat Treatment
- Hard Machining
- Assembly
- Measurement