



Industrie 4.0
Maturity Center

Status-quo report

Elcam Medical

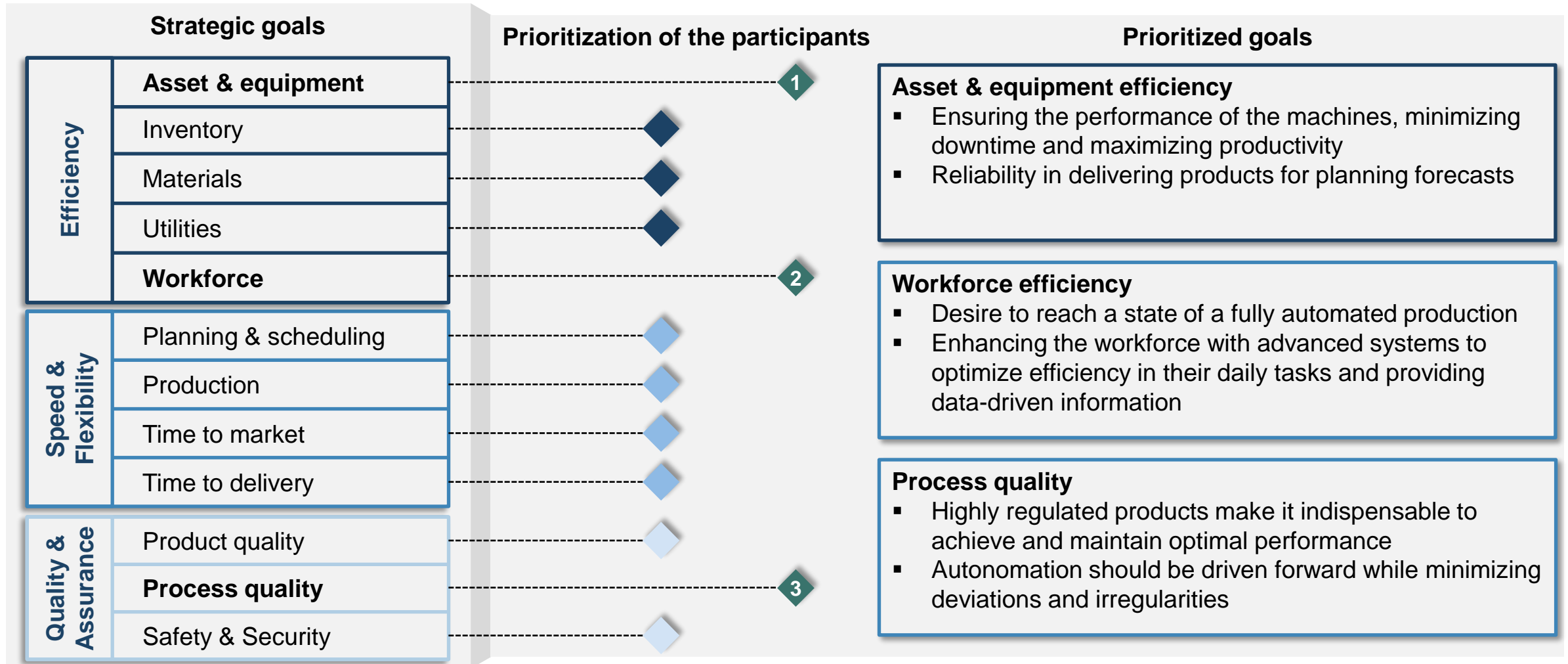
Sebastian Schmitz | Senior Manager

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- 1** **Management Summary**
- 2** **Why should Elcam implement I4.0?**
- 3** **How should Elcam implement I4.0?**
- 4** **What needs to be done?**
- 5** **Details**

- 1** Management Summary
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For Elcam, the Industrie 4.0 strategy focuses on improving asset, equipment & workforce efficiency and process quality in order to realize the potential most efficiently





Transparent Shop Floor

Enable traceability in the process by integrated quality results and better tracking of material movements

Make information available by one click by integrated information flow



Transparent Supply Chain

Connect and collaborate between all stakeholders across the entire supply chain

Leverage real-time data exchange, automation, and interconnected systems



Data Democratization






Improve overall productivity and quality by enabling a broad user base to access, analyze and visualize the relevant data sets of the company in a user-friendly and seamless way



Smart Collaboration

Improve workforce efficiency, by enabling a seamless digital communication in which knowledge automatically is extracted and managed

Process analysis - Cross-cutting problem of the lack of connectivity between various systems, both within the process and across different departments

Process	Maturity	Score	Process overview	
Injection molding		2,6	<ul style="list-style-type: none"> High level of automation Complete traceability throughout the value/supply chain of material and products Full digital access to shop floor 	<ul style="list-style-type: none"> Data collection in place with manual analysis Unstructured communication and knowledge exchange No direct connection with planning department
Assembly		2,6	<ul style="list-style-type: none"> High level of automation, with inline quality control MES as baseline for decision making High level of collaboration with quality & eng. 	<ul style="list-style-type: none"> Partly semi-automated processes High competencies needed from technicians but no concrete knowledge management available
Planning		2,0	<ul style="list-style-type: none"> Planning is based on stock with TOC Indirect collaboration with suppliers/customer No vertical integration with poor communication concerning sales, raw materials, POs & deliveries 	<ul style="list-style-type: none"> Usage of inconsistent KPIs across departments Highly manual process Production leaders control detailed planning
Engineering		1,7	<ul style="list-style-type: none"> Highly manual process No data analysis performed across the different machines or processes Unstructured communication within department 	<ul style="list-style-type: none"> Highly complex topics with nearly non structured knowledge exchange No data-based decision making, decisions are only made through experience
Logistics		2,1	<ul style="list-style-type: none"> Highly manual process Partly paper-based process with the need of manual transfer to ERP 	<ul style="list-style-type: none"> Low reporting functionalities with little insights in ERP activities No synchronization with sales and customer requests, especially packaging

Process analysis - Cross-cutting problem of the lack of connectivity between various systems, both within the process and across different departments

Process	Maturity	Score	Process overview	
Quality		2,0	<ul style="list-style-type: none"> High rate of defect detection of material problems after assembly Solely manual process with the wish to automate visual control till 2024 	<ul style="list-style-type: none"> Unstructured communication with customer Usage of traceability for LOTs but no further investigation of machine data Manual input of quality data
R&D		1,8	<ul style="list-style-type: none"> Highly manual process for documentation Unstructured approach of knowledge saving, especially in the context of meetings 	<ul style="list-style-type: none"> Inefficient vertical integration especially with customer requirement documents Partly manual transfer of research data
SC & Purchasing		2,1	<ul style="list-style-type: none"> Open culture due to always given contact High number of time-consuming functions and complex tasks within ERP, e.g. import & export Only manual retrieval of status updates 	<ul style="list-style-type: none"> No structured communication between purchasing, other departments or supplier Unstructured communication of quality issues
Sales		2,1	<ul style="list-style-type: none"> Communication is only based on email Complex and time-consuming ERP functions without structured knowledge sharing 	<ul style="list-style-type: none"> Sales forecast in place with input from customer, but without further analysis No interface between ERP and CRM

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Data Democratization & Smart Collaboration – Detailed epic description (1/3)



Data Democratization & Smart Collaboration

Improve overall productivity and quality by enabling a broad user base to access, visualize & analyze the relevant data sets of the company in a user-friendly and seamless way

Improve workforce efficiency, workforce flexibility & process quality by enabling a seamless digital communication in which knowledge is automatically extracted and managed



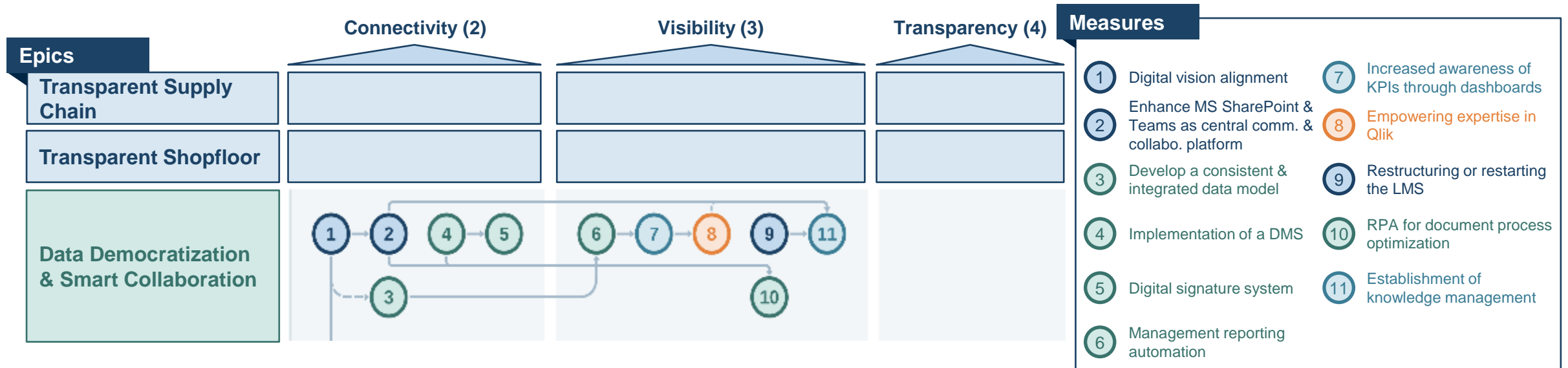
Data Democratization & Smart Collaboration – From ... To

From...

- process workarounds due to the phenomenon “Process follows IT”, ...
- unformal and company-wide not standardized processes such as continuous improvement, employee development, ...
- and a missing possibility to assess or further develop processes based on data, which leads to hidden potential für continuous learning and decision-making.

To...

- improved overall productivity and quality by a broad user based enabled to access, analyze and visualize relevant data sets,
- improved workforce by an enabled seamless digital communication, using defined departments and operator KPIs, and an in-depth Lean culture,
- Aligning different stakeholders and departments for a better communication and collaboration to drive the digital transformation.



Data Democratization & Smart Collaboration

Selected measures (1/3)

Measure	Status quo	Description	Struct. force	Target level
1 Digital vision alignment	<ul style="list-style-type: none"> Unclear cross-departmental vision for digital transformation Missing communication to employees Unstrategic ad-hoc digital initiatives 	<ul style="list-style-type: none"> Use this roadmap as a comprehensive digital transformation path Engage and communicate with the workforce Create a time plan and monitor progress 	Organization	Connectivity
2 Enhance MS SharePoint & Teams as central communication & collaboration platform	<ul style="list-style-type: none"> Internal information exchange is unstructured Exchange channels are mainly verbal or by WhatsApp/email No structured sharing and saving of documents 	<ul style="list-style-type: none"> Determination of the relevant technical processes & variables Consistent modeling across IT-system boundaries 	Organization	Connectivity
3 Develop a consistent & integrated data model	<ul style="list-style-type: none"> Currently isolated data models used in different IT systems due to missing interfaces Discrepancies in data from different sources, e.g. MES & ERP 	<ul style="list-style-type: none"> Monitor and control a process to ensure it operates within a specific performance range Requirements for: Data collection, Control charts, Statistical Analysis 	Information systems	Connectivity
4 Implementation of a DMS	<ul style="list-style-type: none"> Share folder with Word-documents in place Inefficient collaboration on documents Validation & verification process is handled outside of a system 	<ul style="list-style-type: none"> Assess document management requirements Define document management policies and workflows 	Information systems	Connectivity

Data Democratization & Smart Collaboration

Selected measures (2/3)



Measure	Status quo	Description	Struct. force	Target level
5 Digital signature system	<ul style="list-style-type: none"> High amount of print outs, manual and paper-based signature process Significant latency in the validation and verification Increased turnaround time for approvals 	<ul style="list-style-type: none"> Implementing a Digital Signature System Assess medical regulatory requirements and compliance guidelines Define standardized processes 	Information systems	Connectivity
6 Management reporting automation	<ul style="list-style-type: none"> Basic reports can be downloaded out of MES or Qlik Further reports are made manually in Excel 	<ul style="list-style-type: none"> Generate reports automatically in a dynamic form with up-to-date data Deliver information context related in a user-friendly manner 	Information systems	Visibility
7 Increased awareness of KPIs through dashboards for monitoring and analysis	<ul style="list-style-type: none"> Dashboards are already in place in control center KPI data is often stored in data silos, resulting in fragmented reporting Overarching KPIs are not visible 	<ul style="list-style-type: none"> Centralize KPI data and reporting Create a common dashboard design Provide training and adoption for stakeholder 	Culture	Visibility
8 Empowering expertise in Qlik	<ul style="list-style-type: none"> Limited utilization of the BI tool's Manual data manipulation and analysis outside of the BI tool Lack of alignment on KPIs within the BI tool 	<ul style="list-style-type: none"> Skill development and training 	Resources	Visibility

Data Democratization & Smart Collaboration

Selected measures (3/3)



	Measure	Status quo	Description	Struct. force	Target level
9	Restructuring or restarting the LMS	<ul style="list-style-type: none"> Users are confronted with a high amount of content, making it difficult to keep them motivated Platform as itself is probably sufficient for the current use, yet missing some small features 	<ul style="list-style-type: none"> Streamlining and organizing content Restructuring of how the content is presented to the employee 	Organization	Visibility
10	RPA for document process optimization	<ul style="list-style-type: none"> Document process relies heavily on manual data entry and lacks standardization Manual nature of the process makes it time-consuming 	<ul style="list-style-type: none"> Conduct a process analysis Identify a potential RPA solution solutions that can automate data entry, document routing, and approval processes 	Information systems	Visibility
11	Establishment of knowledge management	<ul style="list-style-type: none"> Inefficient knowledge sharing and collaboration Risk of knowledge loss due to employee turnover Duplication of efforts and reinvention of the wheel Limited visibility into available expertise and skills 	<ul style="list-style-type: none"> Identification of relevant processes use cases in which documented knowledge could/would be used Selection of a knowledge management tool 	Culture	Visibility

Measure 1: Digital vision alignment

Epic Data democratization & Smart collaboration

Status quo

- Unclear cross-departmental vision for digital transformation
- Missing communication to employees
- Unstrategic ad-hoc digital initiatives

Description of measure

- Use this roadmap as a comprehensive digital transformation path
 - Align company goals to the strategic direction
 - Involve stakeholders for cross-departmental alignment
 - Identify specific objectives and potential benefits
- Engage and communicate with the workforce
 - Develop a communication plan to inform and engage employees
 - Clearly articulate the digital vision and its benefits
 - Encourage feedback and ideas from employees
- Establish cross-functional collaboration
 - Foster collaboration and knowledge-sharing among departments
 - Hold regular meetings to discuss digital initiatives and synergies
 - Form cross-departmental projects or task forces
- Create a time plan and monitor progress
 - Align the roadmap with time and financial resources
 - Track and evaluate digital transformation initiatives

ONE-PAGER IS
AVAILABLE FOR
EACH MEASURE

I4O
MC

Process: Overall

1

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Strategic direction streamlines initiatives and promotes optimized resource allocation and workflows
- Clear communication fosters collaboration, knowledge-sharing, and employee engagement
- Time plan enables informed decisions on budget, technology, and human resources

Implementation effort

Low

Medium

High

Efforts

- Internal stakeholder workshop to further discuss the implication of the roadmap
- Workshop with workforce to bring digital transformation to attention



Transparent Supply Chain

Increase planning & scheduling effectiveness, inventory efficiency, production flexibility & time to delivery through autonomously managing transport & production planning based on real-time data



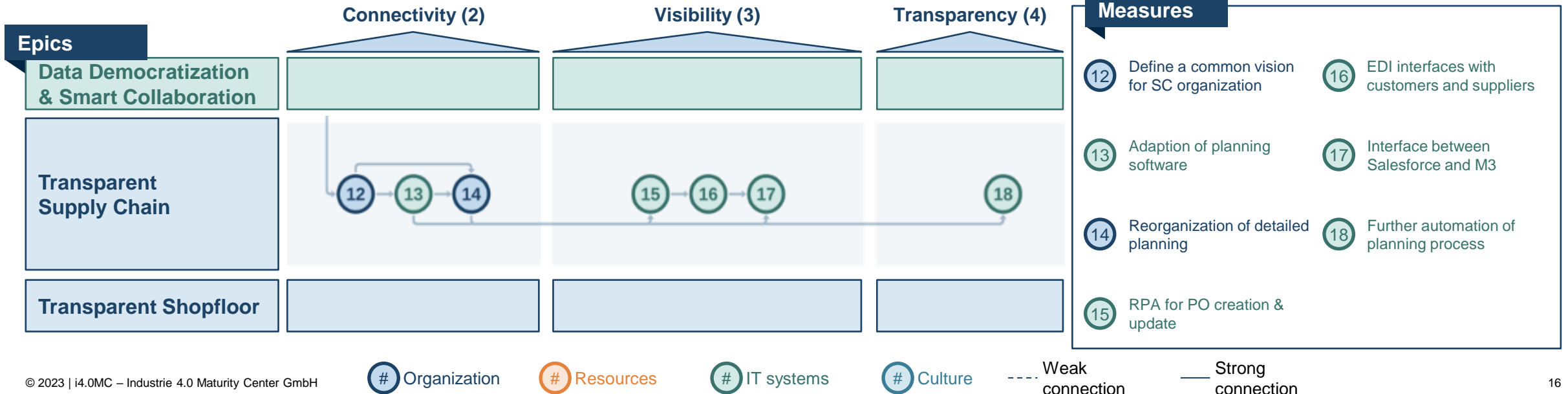
Transparent Supply Chain – From ... To

From...

- Processes along the supply chain and within production are not fully synchronized
- Supply chain activities leads to poor delivery reliability
- Many manual activities (PO creation for orders; Manual interfaces for CRM) make the process inefficiently and systematically learning is hardly be given

To...

- Full synchronization between all parties at the supply chain process
- Production planning, that is based on material availability and sales forecasts to focus more on existing constraints
- Systematic avoidance of manual and repetitive activities by better system availability and RPA



Transparent Supply Chain – Selected measures (1/2)



	Measure	Status quo	Description	Struct. force	Target level
12	Define a common vision for SC organization	<ul style="list-style-type: none"> Finance, purchasing, sales, and planning lack a cohesive framework for their collective operations Fin., purch. & sales act in conventional procedures Planning follows ToC without MRP 	<ul style="list-style-type: none"> Foster a shared understanding of the organization's strategic objectives and goal Facilitate cross-functional collaboration and communication 	Organization	Connectivity
13	Adaption of planning software	<ul style="list-style-type: none"> Current planning software Symphony is built on the theory of constraints ("Drum-Buffer-Rope") Lack of integrated forecast and raw material resource planning capabilities 	<ul style="list-style-type: none"> Enhance visibility of inventory levels and production capacity Implement integrated forecasting capabilities 	Information systems	Connectivity
14	Reorganization of detailed planning	<ul style="list-style-type: none"> Centralized planning process with limited visibility and collaboration between departments Reliance on daily meetings with production team leaders on day-to-day-planning 	<ul style="list-style-type: none"> Designate a dedicated "product owner" responsible for overall planning activities Integrate data sources and systems to enable real-time visibility 	Organization	Connectivity
15	RPA for PO creation & update	<ul style="list-style-type: none"> Highly manual process Information is delivered via email 	<ul style="list-style-type: none"> Analyze and automate the process Deploy and monitor RPA 	Information systems	Visibility

Transparent Supply Chain – Selected measures (2/2)

	Measure	Status quo	Description	Struct. force	Target level
16	EDI interfaces with customers and suppliers	<ul style="list-style-type: none"> Information exchange is unstructured and without templates Information is sent via email Highly manual process of updating data 	<ul style="list-style-type: none"> EDI implementation for suppliers and customers Manage the implementation with partners by identifying important partners and prioritizing them with collaboration channel 	Information systems	Visibility
17	Interface between Salesforce and M3	<ul style="list-style-type: none"> Lack of synchronization between CRM and ERP Limited visibility and accessibility of customer and sales data across departments 	<ul style="list-style-type: none"> Enable automatic and real-time updates of customer data, sales orders, and inventory between Salesforce and M3 Eliminate manual data entry 	Information systems	Visibility
18	Further automation of planning process	<ul style="list-style-type: none"> Planning process relies on Symphony but also has spreadsheets, and manual calculations Due to the lack of automation, process is more reactive 	<ul style="list-style-type: none"> Integrate advanced data analytics for informed decision-making Automate repetitive planning tasks using intelligent algorithms and machine learning 	Information systems	Transparency



Transparent Shopfloor

Increase planning & scheduling effectiveness, inventory efficiency, production flexibility through autonomously managing orders and material movements based on real-time data of orders, stocks and workstations



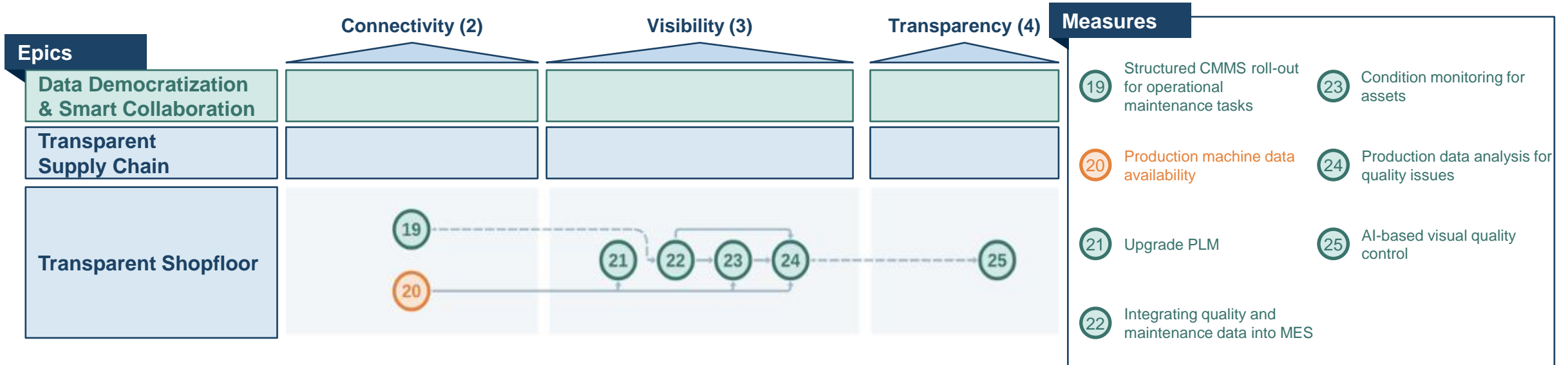
Transparent Shopfloor – From ... To

From...

- No availability of production data after 8 hours makes it difficult to analysis errors or machines failures, ...
- Missing CMMS data and PLM system with limited functionality leads to the use of different Excel solutions, ...
- No systematically analysis of errors or long-term failure prevention

To...

- increased uptime, performance and quality rate of production machines with a closed-loop asset management,
- fully integrated machines with modern and standardized SCADA interfaces,
- Update the PLM solution and integrate a CMMS solution into MES.



Transparent Shop Floor – Selected measures (1/2)

	Measure	Status quo	Description	Struct. force	Target level
19	Structured CMMS roll-out for operational maintenance tasks	<ul style="list-style-type: none"> Technicians are not supported by any system, decisions are only based on experience Unstructured communication of tasks or spare parts procurement 	<ul style="list-style-type: none"> Definition and revision of processes to be performed using CMMS Incorporating all relevant data Conducting the training & workshops 	Information systems	Connectivity
20	Production machine data availability	<ul style="list-style-type: none"> Overwriting of machine data after 8 hours Lack of long-term analysis and utilization of data 	<ul style="list-style-type: none"> Introduce a SCADA system to facilitate real-time monitoring and data acquisition Establish a centralized data repository or data lake for consolidating machine data 	Resources	Connectivity
21	Upgrade PLM	<ul style="list-style-type: none"> Suboptimal implementation of PLM system with limited functionality Currently mainly used as a share point with version control 	<ul style="list-style-type: none"> Implement key functionalities of a PLM for Elcam Consider presented topics if PLM should get changed or upgraded 	Information systems	Visibility
22	Integrating quality and maintenance data into MES	<ul style="list-style-type: none"> MES consists only of machine data No further analysis of the data is made possible within the system 	<ul style="list-style-type: none"> Develop data mapping and transformation rules Establish a cohesive connection between quality, maintenance, and production data 	Information systems	Visibility

Transparent Shop Floor – Selected measures (2/2)

	Measure	Status quo	Description	Struct. force	Target level
23	Condition monitoring for assets	<ul style="list-style-type: none"> Basic data analysis in place for e.g.: OEE, parameters & machine errors Manual conduction and upload with high effort for daily and weekly analysis 	<ul style="list-style-type: none"> Deploy advanced data analytics techniques Establish real-time asset health monitoring for proactive maintenance and performance optimization 	Information systems	Visibility
24	Production data analysis for quality issues	<ul style="list-style-type: none"> Lack of visibility and correlation between production data and quality issues Difficulty in identifying root causes of quality issues 	<ul style="list-style-type: none"> Establish data integration between the condition monitoring system and quality data sources Apply data analytics and statistical methods to analyze the production and quality data 	Information systems	Visibility
25	AI-based visual quality control	<ul style="list-style-type: none"> Current quality control process relies on visual inspection in a 4-hour cycle Undetected failures often occur, leading to issues identified only after assembly 	<ul style="list-style-type: none"> Implement AI-based visual inspection to enhance existing quality control Integrate the system with existing processes while ensuring regulatory compliance 	Information systems	Transparency



Industrie 4.0
Maturity Center

Managing Digital Transformation

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Enhance MS SharePoint & Teams as central communication & collaboration platform

Epic: Data democratization & Smart collaboration

Status quo

- Internal information exchange is unstructured
- Exchange channels are mainly verbal or by WhatsApp/email
- No structured sharing and saving of documents

Description of measure

- Provide Microsoft account with access to SharePoint & Teams chats to all employees
- Develop guidelines & structures on how to use Teams, e.g.,
 - Define the initial structure of groups & channels
 - Who can start a new group or channel?
 - Which editorial processes are necessary to capture knowledge from the communication
- Built-up workflows (e.g., via PowerApps) for repetitive information collection & exchange (e.g., for planning of production, maintenance, logistics)
 - Train key users / core team for workflow development and maintenance
 - Develop workflows, notifications and alerting
 - Built-up interfaces to relevant IT systems
- Record training / introduction videos on how to use Teams and on the usage guidelines in LMS
- Prepare & conduct internal communication (e.g., town hall meetings) for all employees to introduce the tool & to motivate for the usage
- For team leaders and managers: Consistently reject / ignore messages via other channels

Process:

2

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Secure communication channel
- Structured learning & knowledge management from the communication (e.g., on problems & resolutions) possible
- Automation of data collection & exchange

Implementation effort

Low

Medium

High

Efforts

- Microsoft accounts & trainings to all employees (usage of SharePoint, Teams & further connected tools)
- Development of usage guidelines & structures (incl. workflows etc..)

Develop a consistent & integrated data model

Epic: Data democratization & Smart collaboration

Status quo

- Currently isolated data models used in different IT systems due to missing interfaces
- Discrepancies in data from different sources, e.g. MES & ERP
- Cross-functional analysis based on a consistent data model and possible additional data points may bear significant potential
- Difficulties with the Kepware solution

Description of measure

- Determination of the relevant technical processes through which data are to be collected
- Determination of the relevant variables for processes, e.g. in the categories:
 - ID number (e.g. order number, batch number)
 - Process parameter
 - Quality parameters
 - Assets used, parts lists, plans, other documents
- Identification of all recorded data and documents with a unique ID number
- Consistent modeling across IT-system boundaries
- Assignment of the data to the individual systems
- Implementation of a consistent data governance concept

Process:

3

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Reduction of search times for data, higher data quality and automated linking of data ("single source of truth")
- Alignment of processes and basis for further decision automation

Implementation effort

Low

Medium

High

Efforts

- Mapping and design of the data model
- Adaptation of the data acquisition according to the data model

Implementation of a DMS

Epic: Data democratization & Smart collaboration

Status quo

- Share folder with Word-documents in place
- Inefficient collaboration on documents
- Validation & verification process is handled outside of a system

Description of measure

Assess document management requirements

- Conduct a comprehensive assessment of document management needs specific to the medical industry, considering compliance, security, collaboration, and workflow requirements
- Identify key document management challenges and areas for improvement within the organization
- Determine the necessary functionalities and features required for an effective document management solution
- Select a suitable DMS that meets requirements for document storage, version control, security, and compliance

Define document management policies and workflows

- Develop clear and concise document management policies and guidelines that align with regulatory requirements and industry best practices
- Establish standardized workflows for document creation, review, approval, and archival processes
- Define document naming conventions, categorization methods, and metadata requirements to ensure consistent and efficient document organization

Process:

4

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Efficient document organization and retrieval
- Enhanced collaboration and streamlined workflows
- Improved compliance and document security

Implementation effort

Low

Medium

High

Efforts

- Migrate existing documents, ensuring proper organization and metadata tagging
- Provide training on DMS usage, including document upload, version control, and collaboration
- Establish governance processes for access controls, permissions, and document lifecycle management

Digital signature system

Epic: Data democratization & Smart collaboration

Status quo

- High amount of print outs, manual and paper-based signature process
- Significant latency in the validation and verification process due physical routing of documents for signature
- Increased turnaround time for approvals and feedback

Description of measure

Implementing a digital signature system

- Assess medical regulatory requirements and compliance guidelines
- Select a suitable digital signature solution
- Define standardized processes for digital signature application and verification
- Provide training on digital signature usage and security
- Integrate the system with DMS, PLM and ERP
- Establish access controls and user permissions
- Document SOPs for digital signature use

Process:

5

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Improved validation and verification process, reducing signature collection time by automating workflows
- Enhanced data integrity and security, safeguarding sensitive information through encryption and digital certificate-based authentication

Implementation effort

Low

Medium

High

Efforts

- Initial investment in the digital signature system software and hardware, including licensing fees and infrastructure setup
- Training costs for employees to ensure proper usage and understanding of the digital signature system

Management reporting automation

Epic: Data democratization & Smart collaboration

Status quo

- Basic reports can be downloaded out of MES or Qlik
- Further reports are made manually in Excel

Description of measure

- Reports are automatically generated on a schedule/routine basis and distributed to users in a consumable form through a dashboard
- Reports are dynamic and can be adjusted to account for different factors and users
 - Definition of standard reports that can be implemented through an automation
- Reports are delivered in a user-friendly manner that meets the needs of different role types
 - Reports may be accessible through a BI tool such as Qlik or sent directly to users through a central dashboard
- The data has to be up-to-date therefore, it must be ensured beforehand that all data entries are always made directly
- Requires data, preferably from a centralized data source, prior to execution of project

Process:

6

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Increased accessibility to data to drive decisions
- Standardization of report formats resulting in increased data quality
- Removal of human error

Implementation effort

Low

Medium

High

Efforts

- Defining requirements for each standard report layout
- Determining the consumption method
- Building the reports and automation

Increased awareness of KPIs through dashboards for monitoring and analysis

Epic: Data democratization & Smart collaboration

Status quo

- Dashboards are already in place in control center
- KPI data is often stored in data silos, resulting in fragmented reporting
- Overarching KPIs are not visible

Description of measure

Centralize KPI data and reporting

- Consolidate KPI data from various sources into a centralized repository
- Establish data integration processes for automated data extraction, transformation, and loading
- Develop a unified reporting framework for comprehensive and consistent KPI reporting

Dashboard design and development

- Assess user requirements and design intuitive and visually appealing dashboards
- Incorporate interactive features for data exploration and customization
- Ensure real-time or near-real-time data updates for timely insights

Stakeholder training and adoption

- Provide comprehensive training on dashboard usage and interpretation of KPIs
- Conduct workshops to emphasize the importance of KPIs and data-driven decision-making
- Foster a culture of data adoption by showcasing success stories and value derived from KPI monitoring

Process:

7

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Higher transparency
- Responsiveness to events

Implementation effort

Low

Medium

High

Efforts

- KPI calculation scheme & dashboard development
- Screens & mobile devices for access
- Workshops on correct usage & interpretation of KPIs

Empowering expertise in Qlik

Epic: Data democratization & Smart collaboration

Status quo

- Limited utilization of the BI tool's capabilities due to lack of expertise
- Inefficient use of resources and time spent on manual data manipulation and analysis outside of the BI tool
- Lack of company-wide alignment on KPIs within the BI tool

Description of measure

Skill development and training

- Identify skill gaps and provide comprehensive training programs for Qlik expertise
- Offer hands-on workshops, online courses in LMS, and resources for proficiency in data analysis and dashboard creation
- Foster a continuous learning culture with ongoing training and development opportunities

Establishing a community of practice

- Promote company-wide accepted KPIs and standardized reporting practices
- Involve IT in the early stages of defining and designing new KPIs and measures to leverage their expertise in data architecture and system integration
- Create a dedicated forum for Qlik users to share knowledge and best practices
- Facilitate knowledge-sharing sessions and encourage collaboration through cross-functional teams

Process:

8

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Improved data analysis and decision-making
- Increased productivity and self-sufficiency
- Enhanced organizational alignment and performance tracking

Implementation effort

Low

Medium

High

Efforts

- Ensure necessary hardware, software licenses, and infrastructure are in place
- Allocate resources for training programs, workshops, and online courses in LMS

Restructuring or restarting the LMS

Epic: Data democratization & Smart collaboration

Status quo

- Users are confronted with a high amount of content, making it difficult to keep them motivated
- Platform as it self is probably sufficient for the current use, yet missing some small features

Description of measure

Streamlining and organizing content

- Conduct a thorough content review and categorization to eliminate redundant or outdated materials
- Develop a clear content structure with logical learning paths and modules
- Enhance content presentation with visual elements to improve engagement and understanding
- Incorporate interactive elements such as quizzes, assessments, or simulations to promote active learning
- Provide search and filtering functionalities to help users quickly find relevant content
- Implement a robust tagging system or metadata to facilitate content organization and discovery

Process:

9

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Streamlined and organized content improves user experience by enabling easy navigation and quick access
- Higher motivation of users to actively participate in their training

Implementation effort

Low

Medium

High

Efforts

- Content review and organization, including enhancing existing training materials and investing in content management tools
- Assessing and upgrading the platform infrastructure and integrating it with existing systems

RPA for document process optimization

Epic: Data democratization & Smart collaboration

Status quo

- Document process relies heavily on manual data entry, leading to potential errors and inconsistencies in the information recorded
- Process lacks standardization, resulting in variations in document formats, structures, and naming conventions
- Manual nature of the process makes it time-consuming

Description of measure

Process analysis and automation implementation

- Analyze the existing document process to identify repetitive and rule-based tasks suitable for automation
- Map out the workflow and document the specific steps and decision points involved
- Identify potential RPA solutions that can automate data entry, document routing, and approval processes
- Implement and configure the selected RPA tools to automate the identified tasks and integrate them into the existing document process
- Provide comprehensive training and support to employees involved in the document process
- Assess the impacted regulations concerning the medical sector

Process:

10

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Automation of manual tasks, reducing processing time and improving productivity
- Eliminating human errors and ensuring consistent and accurate document processing
- Reduced labor costs associated with manual document processing

Implementation effort

Low

Medium

High

Efforts

- Costs of analyzing and implementing suitable solution
- Training on how to use the RPA solution

Establishment of knowledge management

Epic: Data democratization & Smart collaboration

Status quo

- Inefficient knowledge sharing and collaboration among employees
- Risk of knowledge loss due to employee turnover or retirement
- Duplication of efforts and reinvention of the wheel
- Limited visibility into available expertise and skills within the organization

Description of measure

- Identification of relevant processes use cases in which documented knowledge could/would be used
- Inclusion of requirements for documentation and searchability of knowledge
 - Easy, universal access; structured, linked documentation; editable and dynamic processing
- Selection of a knowledge management tool
 - Here comparison with action "Use of a cross-departmental collaboration platform"
- Development of incentive systems and communities of interest to promote employee participation
 - Primary social incentive systems: reputation and performance systems, granting of privileges

Process:

11

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Reduction of knowledge outflow in case of employee changes
- Reduction of training time and search time for information

Implementation effort

Low

Medium

High

Efforts

- Definition of the workflow
- Selection of the tool
- Cultural establishment of the task among the employees

Define a common vision for SC organization

Epic: Transparent Supply Chain

Status quo

- Finance, purchasing, sales, and planning lack a cohesive framework for their collective operations
- Finance, purchasing and sales adhere to conventional procedures
- Planning follows ToC without MRP

Description of measure

Establishing a collaborative framework

- Foster a shared understanding of the organization's strategic objectives and goals
- Encourage regular meetings and workshops to discuss and align on SC vision, objectives, and KPIs
- Facilitate cross-functional collaboration and communication between finance, sales, and planning
- Implement a common SC management platform to enable seamless data sharing and process integration
- Establish cross-functional project teams to drive alignment and execute strategic initiatives

Process:

12

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Understanding and clarity of purpose, aligning all stakeholders towards a common goal
- Enabling easier prioritization of strategic initiatives and activities
- Cross-functional collaboration and synergy are promoted, breaking down silos and promoting a cohesive and integrated approach

Implementation effort

Low

Medium

High

Efforts

- Developing a shared vision and objectives through collaborative workshops and discussions
- Establishing effective communication channels and feedback mechanisms
- Implementing appropriate change management strategies and training programs

Adaption of planning software

Epic: Transparent Supply Chain

Status quo

- Current planning software Symphony is built on the theory of constraints ("Drum-Buffer-Rope")
- System supports both make-to-stock and make-to-order processes
- Lack of integrated forecast and raw material resource planning capabilities
- System relies on past actions to regulate itself

Description of measure

Enhanced forecasting and resource planning

- Improve raw material resource planning by integrating real-time data on material availability and supplier lead times
- Enhance visibility of inventory levels and production capacity to facilitate accurate resource allocation (First of "Five Focusing Steps")
- Implement integrated forecasting capabilities to better anticipate demand and align production accordingly
- Utilize advanced analytics and algorithms to optimize production planning based on demand fluctuations and resource constraints
- Enable scenario planning and what-if analysis to assess the impact of different demand scenarios on production plans
- Improve collaboration with production team leaders to facilitate day-to-day scheduling coordination

Process:

13

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Improved identification and management of production constraints
- Enhanced synchronization of production activities based on the "Drum-Buffer-Rope" concept
- Better alignment of production plans with customer demand

Implementation effort

Low

Medium

High

Efforts

- Investment in upgrading Symphony to enable seamless integration of real-time data, forecasting, and resource planning capabilities
- Potential resource reallocation and restructuring efforts to align with the enhanced planning system

Reorganisation of detailed planning

Epic: Transparent Supply Chain

Status quo

- Centralized planning process with limited visibility and collaboration between departments
- Reliance on daily meetings with production team leaders on day-to-day-planning
- Hierarchical decision-making structure leading to potential bottlenecks

Description of measure

Planning process ownership

- Designate a dedicated "product owner" responsible for overall planning activities
- Empower the product owner with the authority to make planning decisions
- Ensure the product owner has a comprehensive understanding of all activities and dependencies within the planning process

Integrated planning dashboard and collaboration

- Integrate data sources and systems to enable real-time visibility and access to accurate information
- Develop a user-friendly planning dashboard in Symphony for a comprehensive overview of production capacity, stock levels, and key metrics
- Enable real-time collaboration and communication between cross-departmental teams
- Facilitate seamless information sharing and decision-making for better alignment and coordination

Process:

14

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Streamlined communication and decision-making processes, reducing the need for time-consuming daily planning meeting
- Improved agility and responsiveness to changing production needs and customer demands
- Reduced complexity and improved clarity in the planning process

Implementation effort

Low

Medium

High

Efforts

- Redesign and implement new planning processes, including the role of the product owner and the elimination of daily planning meetings
- Implement dashboards into Symphony or tools that provide real-time data visibility, automation capabilities, and advanced analytics

RPA for PO creation & update

Epic: Transparent Supply Chain

Status quo

- Highly manual process
- Information is delivered via email

Description of measure

Analyze and automate the process

- Analyze the manual PO creation and update process within the M3
- Identify repetitive and rule-based tasks suitable for automation using RPA
- Develop RPA workflows for tasks such as data extraction, template population, and system record updates
- Configure the RPA bot to extract relevant data from incoming emails and populate it into M3
- Enable the RPA bot to update M3 records with accurate and consistent PO information
- Test and validate the RPA workflows to ensure accurate data extraction and system updates

Deploy and monitor RPA

- Deploy the RPA solution, integrating it with the M3 ERP system and email platform
- Schedule or trigger the RPA workflows based on events like email receipt or specific time intervals
- Monitor the RPA process to ensure smooth functioning and proactively address any exceptions or errors
- Ensure scalability and adaptability of the RPA solution to handle PO volume variations and future system upgrades
- Continuously evaluate the RPA solution's performance, collect feedback, and identify areas for further automation or improvement

Process:

15

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Streamlined processes with reduced manual effort
- Improved accuracy and data consistency
- Faster processing of purchase orders

Implementation effort

Low

Medium

High

Efforts

- Allocate resources for RPA development, including tools, licensing, and potential consultancy costs
- Invest time in analyzing the manual process, identifying automation opportunities, and designing tailored RPA workflows

EDI interfaces with customers and suppliers

Epic: Transparent Supply Chain

Status quo

- Information exchange is unstructured and without templates
- Information is sent via email
- Highly manual process of updating data

Description of measure

EDI implementation for suppliers and customers

- Assess EDI requirements
 - Identify required transaction sets and message formats
 - Understand industry-specific EDI standards
- Select and configure EDI solution:
 - Research and choose an EDI software compatible with M3
 - Configure mapping rules for data translation
- Establish trading partner relationships
 - Exchange EDI contact information and technical specifications
 - Collaborate on data exchange protocols and formats

Managing implementation with partners

- Identify the most important partner using an ABC analysis based on significance and transaction volume
- Prioritize implementation for A-class partners, establishing clear communication and collaboration channels
- Conduct thorough testing and validation with A-class partners, providing dedicated support and training
- Shift focus to B-class and C-class partners, maintaining open communication and developing implementation templates or guidelines
- Monitor performance and address concerns for all partners, proactively optimizing the integration process based on feedback and changing requirements

Process:

16

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Seamless data exchange, reducing manual errors and enhancing data accuracy
- Reduction of time and effort required for data exchange
- Real-time visibility into partner transactions, enabling better tracking of orders, inventory, and delivery status

Implementation effort

Low

Medium

High

Efforts

- Review and update contracts with partners to align with the changes in data exchange processes and responsibilities
- Provide comprehensive training to internal teams and partners

Interface between Salesforce and M3

Epic: Transparent Supply Chain

Status quo

- Lack of real-time data synchronization between the CRM and ERP
- Error-prone processes due to the need for manual data transfer and duplicate data entry in both systems
- Limited visibility and accessibility of customer and sales data across departments

Description of measure

Integration implementation

- Identify specific data elements to synchronize, such as customer information, sales orders, product catalog, pricing, and inventory data
- Evaluate available options, such as using APIs, middle-ware solutions, or custom development
- Define the data flow, communication protocols, and security measures

Data synchronization and process streamlining

- Enable automatic and real-time updates of customer data, sales orders, and inventory between Salesforce and M3
- Eliminate manual data entry and duplicate data handling by automating the transfer of information between systems
- Provide seamless access to customer and sales data across departments
- Implement data validation rules and checks to maintain data integrity and accuracy

Process:

17

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Consistent and accurate customer and sales data, reducing manual errors and discrepancies
- Access to consolidated, up-to-date customer insights across departments

Implementation effort

Low

Medium

High

Efforts

- Implement data governance to ensure correct handling of data
- Alignment of the departments within a workshop for uniform use

Further automation of planning process

Epic: Transparent Supply Chain

Status quo

- Planning process relies on Symphony but also has manual data entry, spreadsheets, and manual calculations
- Limited access to real-time production data, inventory levels, and demand information
- Due to the lack of automation, the planning process is more reactive

Description of measure

Advanced data analytics for informed decision-making

- Leverage advanced data analytics to analyze production data, customer demand, and market trends
- Utilize predictive analytics for accurate demand forecasting and proactive planning
- Implement TOC-driven intelligent algorithms that consider resource constraints, material availability, and production objectives
- Apply data-driven insights to optimize production schedules and resource allocation

Automation of planning tasks

- Automate repetitive planning tasks using intelligent algorithms and machine learning
- Streamline the planning process with automated workflows and decision support systems
- Enable real-time data integration for automated data updates and informed decision-making

Process:

18

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Reduced manual effort and streamlined process
- Real-time data integration for swift responses to changing demands and production constraints
- Advanced analytics and TOC-driven insights optimizing resource utilization, maximizing production capacity and minimizing bottlenecks

Implementation effort

Low

Medium

High

Efforts

- Developing and implementing automated planning algorithms and optimization techniques
- Investing in RPA tools and technologies
- Ensuring data integrity and quality

Structured CMMS roll-out for operational maintenance tasks

Epic: Transparent Shop Floor

Status quo

- Technicians are not supported by any system, decisions are only based on experience
- Unstructured communication of tasks or spare parts procurement

Description of measure

- Definition and revision of processes to be performed using CMMS, in particular:
 - Repair: creating notifications, assigning orders, feedback orders
 - Maintenance: creating maintenance plans, assigning maintenance orders, documenting and confirming maintenance orders
- Incorporating all relevant data e. g.:
 - Asset master data and documentation
 - Spare parts per asset
- Identification of current and future necessary users of the system
- Conducting the training and include training participation and active system use in target agreements

Process:

19

Maturity level



Contribution to business value

Low

Medium

High

Benefits

- Transparency regarding maintenance intervals and inspection
- Automated & accurate data collection on maintenance measures and performance
- Faster reaction on maintenance tasks

Implementation effort

Low

Medium

High

Efforts

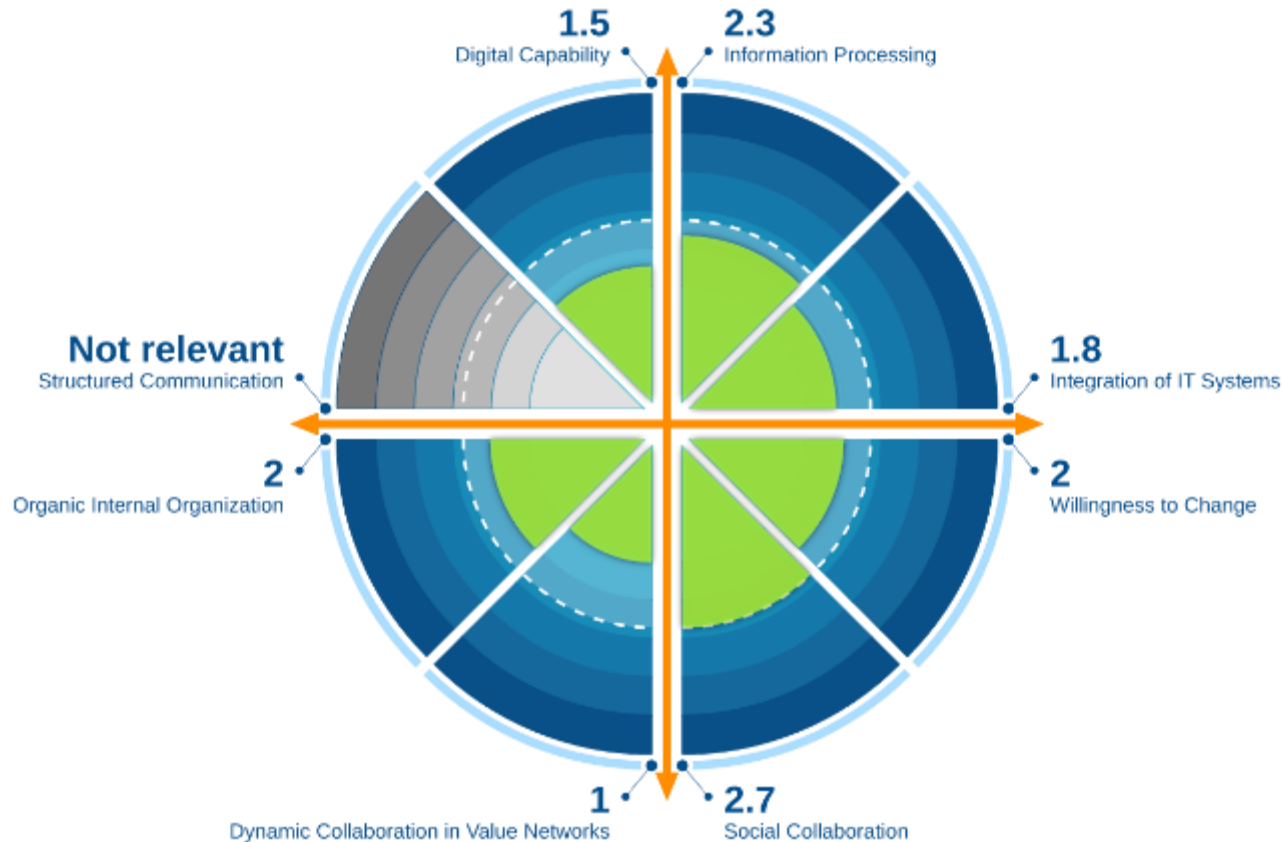
- Process analysis & target process design with process participants
- Maintaining asset data
- User training

- 1** Management Summary
- 2** Why should Elcam implement I4.0?
- 3** How should Elcam implement I4.0?
- 4** What needs to be done?
- 5** Details

Planning

Resources

Information Systems



- Planning is based on stock with TOC with the approach of “Drum-Buffer-Rope”
- Indirect collaboration with suppliers/customer
- No vertical integration with poor communication concerning sales, raw materials, POs & deliveries
- System integration to ERP and WMS is given but only partly used
- Usage of inconsistent KPIs across departments
- Highly manual process with lots of experienced based decisions
- Daily meetings with production leaders for detailed planning

Organizational Structure

Culture

Integration of IT systems

Horizontal Integration



“ Planning basically acts independent because they only focus on stocks. Further information on demand and fluctuations in sales are communicated unstructured

Data quality

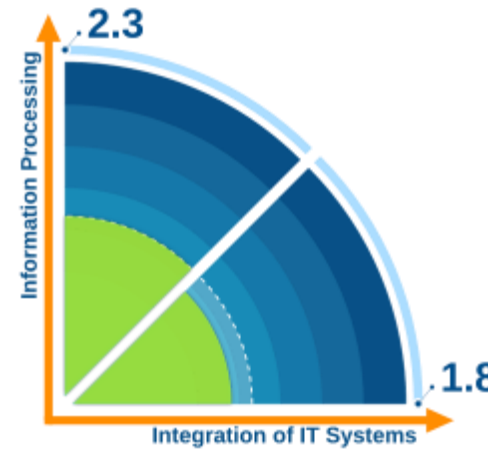


“ Data quality is sufficient to use

Vertical integration



“ No vertical integration, which transfer data between sales, available raw materials, production orders and deliveries



Information systems comprise all systems for the provision, processing, storage and transmission of data and information. This includes the creation of data value in order to generate high-quality knowledge from raw data and the degree of integration of the individual IT systems.

Information processing

Resilience



“ Failures in the system are isolated as far as possible

User interface



“ Users are confronted with different systems. Especially Symfonie require explicit knowledge how to use

Data architecture



“ Data are available in real-time

Integration of IT systems

System interface



“ M3 interface with Smyphony, but no interfaces to sales process

Collaboration in IT

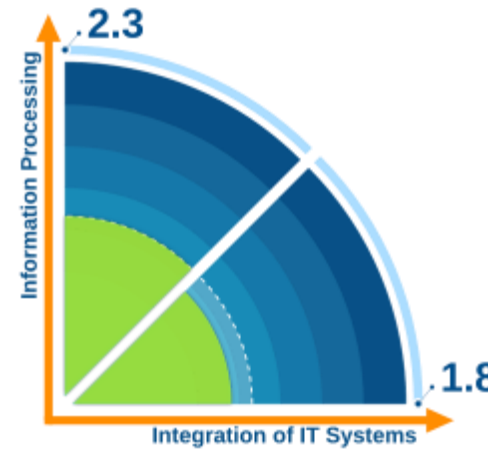


“ Only static IT-systems are available

Data model



“ Integrated data model by defined part numbers



Information systems comprise all systems for the provision, processing, storage and transmission of data and information. This includes the creation of data value in order to generate high-quality knowledge from raw data and the degree of integration of the individual IT systems.

Information processing

Available information/Information offering



“ Planning base is a buffer system, make to stock. Only historical data included. Not connected with the sales demand.

Provision of information

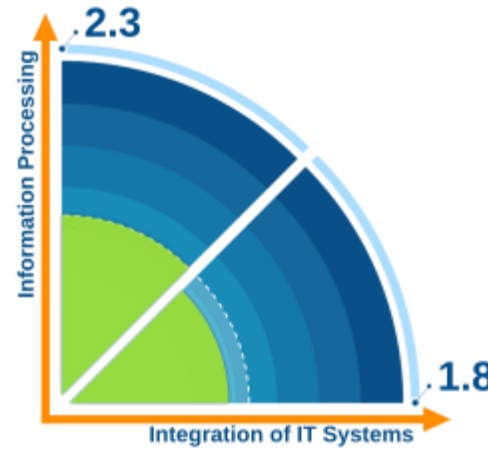


“ Users have to work in different IT systems

Data analytics



“ Buffers are analyzed by Symphony automatically, but only past perspective



Information systems comprise all systems for the provision, processing, storage and transmission of data and information. This includes the creation of data value in order to generate high-quality knowledge from raw data and the degree of integration of the individual IT systems.

Information processing

Data volume



IT structure unsuitable for large data

Automatic adaptation

“

Real time data volume with regular checks

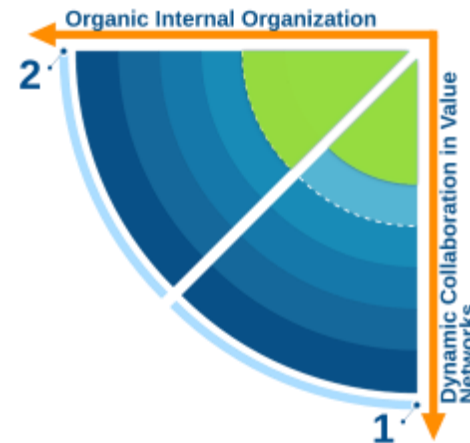
Planning - Organisational structure

Dynamic collaboration in value networks

Collaboration with suppliers



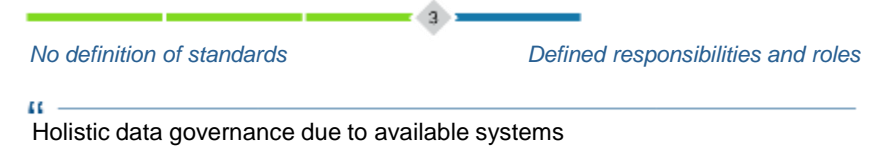
Collaboration with customers



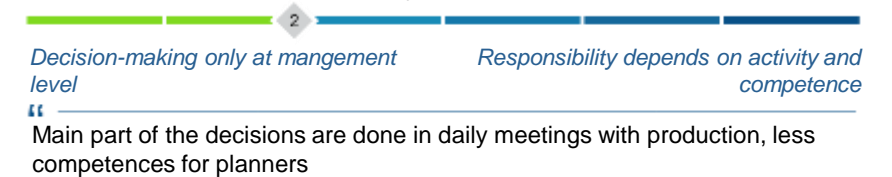
Organization describes the corporate structure, adaptability and regulations. In addition to the internal company organization, the exchange with external partners within the framework of a value creation network is necessary.

Organic internal organization

Data governance



Decision power and responsibility



Staff development





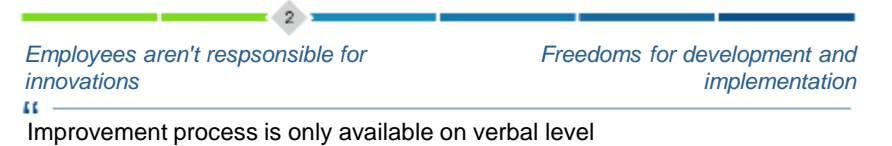
Organization describes the corporate structure, adaptability and regulations. In addition to the internal company organization, the exchange with external partners within the framework of a value creation network is necessary.

Organic internal organization

Collaboration within value-added networks



Improvement process



Digital capability

IT competencies of employees



Necessary operation of the system

Application of analytics

“

Necessary competences for using Sympony

Interdisciplinary skills of employees

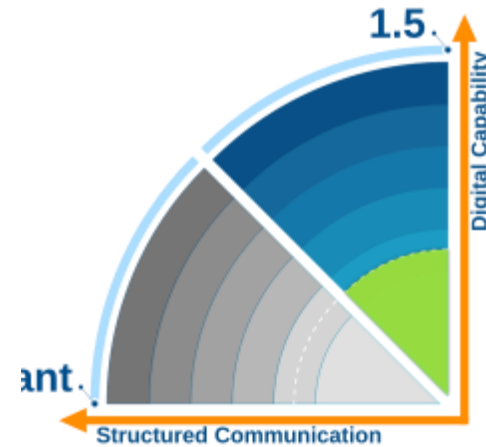


Focusing on specific questions and problems

Impacts of activities are known and considered

“

Planning is only focussing on production, less alignment with sales process



Resources describes the physical and non-physical production factors such as machines or personnel. In an industrie 4.0 environment, physical resources can be understood as smart objects with decentralized intelligence. The decisive factors here are the capabilities of the smart objects and the interaction with the environment.

Social collaboration

Communication culture



“ Weekly delivery meeting, but for delivery. In general not important for planning since its only about shipping

Use of IT systems



“ Jobs require the software, there is no option for a workaround.

Leadership style



“ Managers follow a hierarchical leadership style, with involvement of operational workers



Culture includes normative management, corporate culture, corporate affiliation and the influence on corporate development.

Willingness to change

Databased decision processes



“ Data are taken into account, but decision is based mainly on experience or information, that are not available in the systems

Culture of accepting mistakes



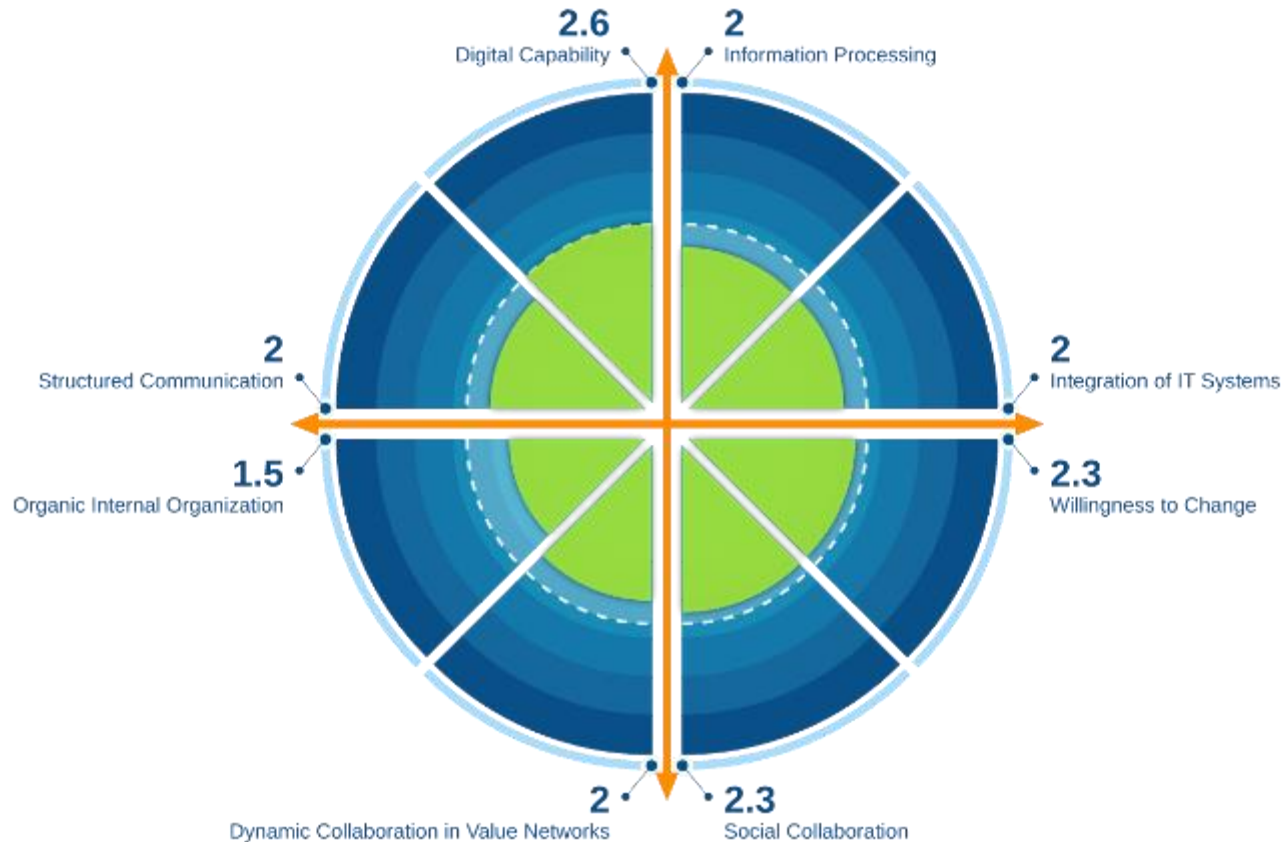
“ Mistakes are not used for a systematic improvement

Knowledge and knowledge responsibility



“ No further knowledge how to run the process is available

Resources



Information Systems

- Highly manual process within the IT systems
- Also, highly manual process for the material and production flow
- Partly paper-based process with the need of manual transfer to ERP
- Complicated communication process with externals (only email exchange)
- Low reporting functionalities with little insights in ERP activities
- No synchronization with sales and customer requests, especially packaging
- High level of employee skills with non-supporting systems

Organizational Structure

Culture

Information processing

Provision of information



“ Operators get a print-out as a picking list. WMS is connected with tablets on forklifts.

User interface

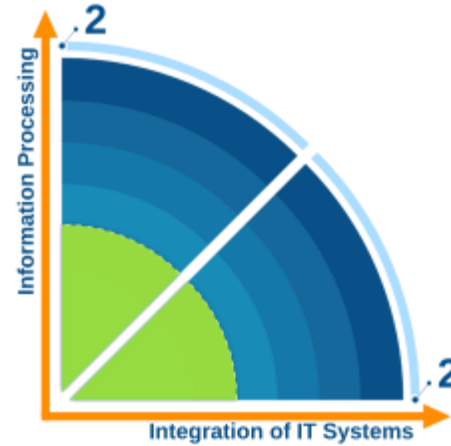


“ Users are confronted with ERP system and papers.

Data analytics



“ No data analytics



Information systems comprise all systems for the provision, processing, storage and transmission of data and information. This includes the creation of data value in order to generate high-quality knowledge from raw data and the degree of integration of the individual IT systems.

Integration of IT systems

System interface



“ No interface available to demand planning in MES/symfony

Collaboration in IT



“ Outlook is used as calendar. In appointment invitation further details are noted.

Vertical integration



“ Excel lists are sent inbetween departments for demand.

Information processing

Available information/Information offering



“ Employees are given information about whereabouts of material

Data volume

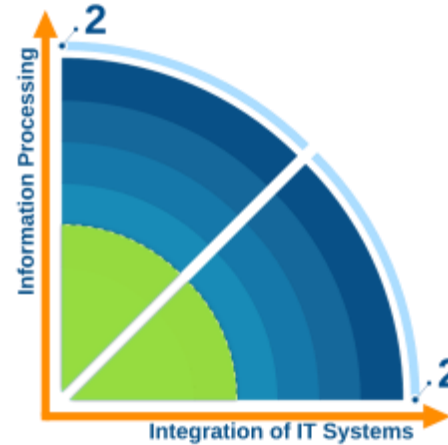


“ Real time data volume with regular checks

Data architecture



“ Data are available for logistic issues in real-time



Information systems comprise all systems for the provision, processing, storage and transmission of data and information. This includes the creation of data value in order to generate high-quality knowledge from raw data and the degree of integration of the individual IT systems.

Integration of IT systems

Horizontal Integration



“ The exchange of information is organized in an unstructured way

Data quality



“ Data of logistics are in a very high quality

Data model



“ Scanning operations of goods are connected with locations. Goods have to be scanned when arriving at different stations.

Information processing

Resilience

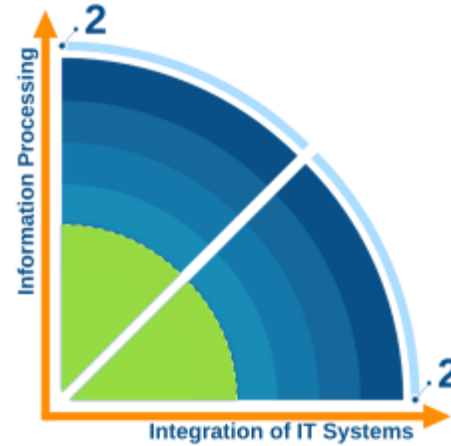


IT systems are not reproducibly configured

Dynamic IT infrastructure

“

Failure of single system is isolated



Information systems comprise all systems for the provision, processing, storage and transmission of data and information. This includes the creation of data value in order to generate high-quality knowledge from raw data and the degree of integration of the individual IT systems.

Digital capability

Identification of material



“
Barcodes on all raw materials

IT competencies of employees

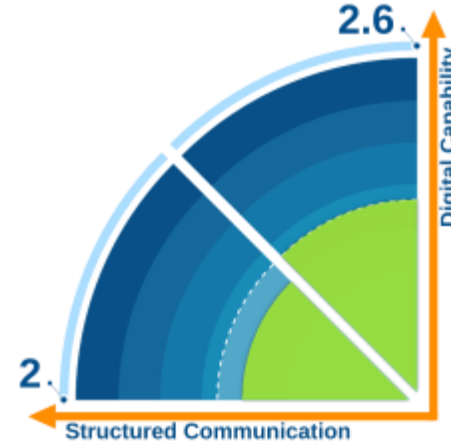


“
Employees can use the main IT system

Interdisciplinary skills of employees



“
No changing of employees in "mini" departments like packaging.
Management wants to train them to experts of the process



Resources describes the physical and non-physical production factors such as machines or personnel. In an industrie 4.0 environment, physical resources can be understood as smart objects with decentralized intelligence. The decisive factors here are the capabilities of the smart objects and the interaction with the environment.

Structured communication

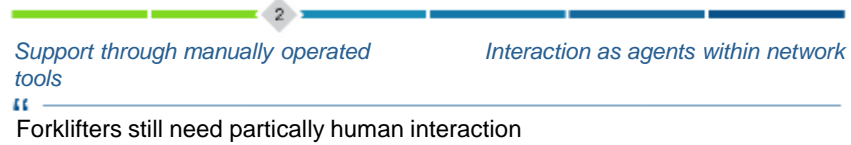
Communication interface: Human/Human



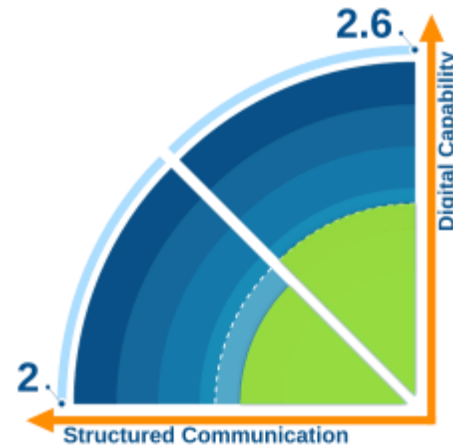
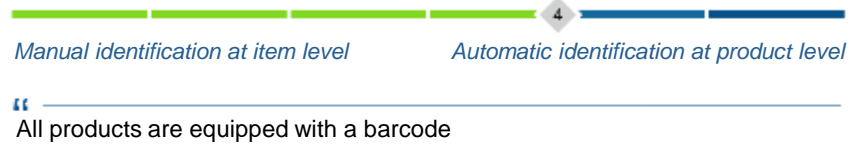
“
Access to shared technology

Digital capability

Human-machine collaboration



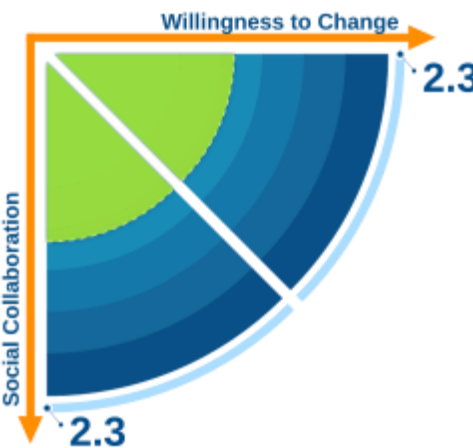
Identification of (intermediate) products and assemblies



Resources describes the physical and non-physical production factors such as machines or personnel. In an industrie 4.0 environment, physical resources can be understood as smart objects with decentralized intelligence. The decisive factors here are the capabilities of the smart objects and the interaction with the environment.

Social collaboration

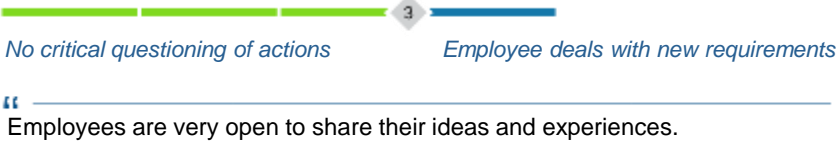
Communication culture



Culture includes normative management, corporate culture, corporate affiliation and the influence on corporate development.

Willingness to change

Kaizen/CIP



Organic internal organization

Collaboration within value-added networks



“ Less exchange between the subdepartments

Staff development

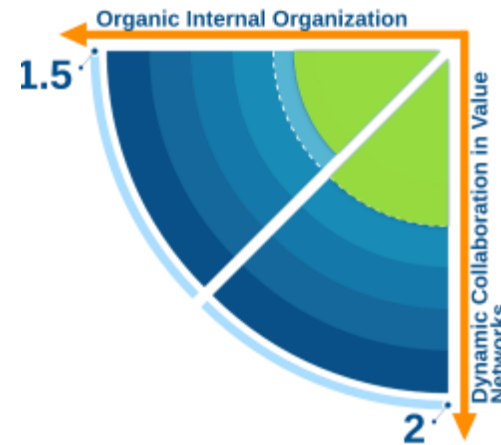


“ Yearly planning of further development of employee capabilities consolidated with HR.

Target systems



“ No specific targets for logistics



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Dynamic collaboration in value networks

Capacity management (purchase)



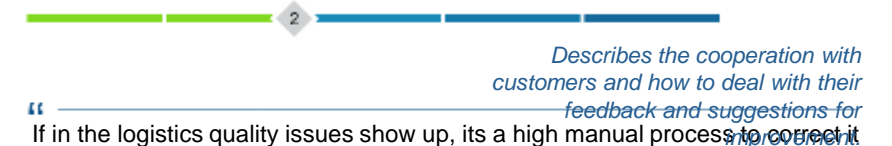
“ Exchange of operators from the other plant in demand changes

External knowledge exchange



“ External knowledge management is partly organized

Collaboration with customers



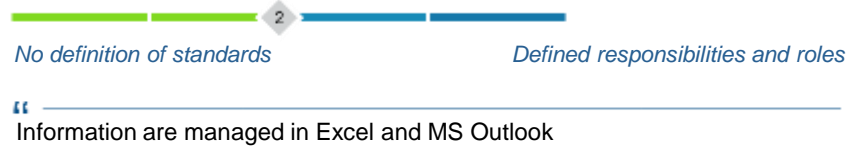
“ If in the logistics quality issues show up, its a high manual process to correct it

Organic internal organization

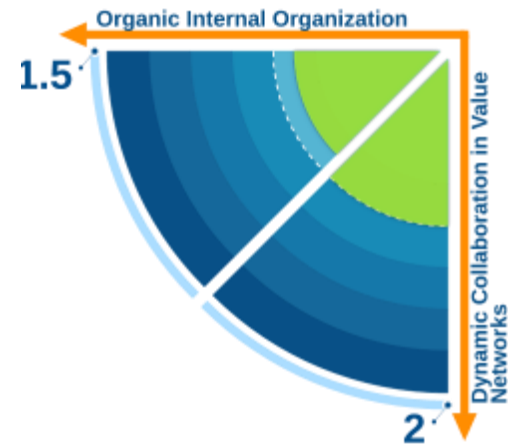
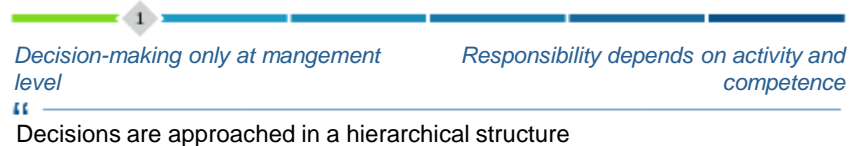
Improvement process



Data governance



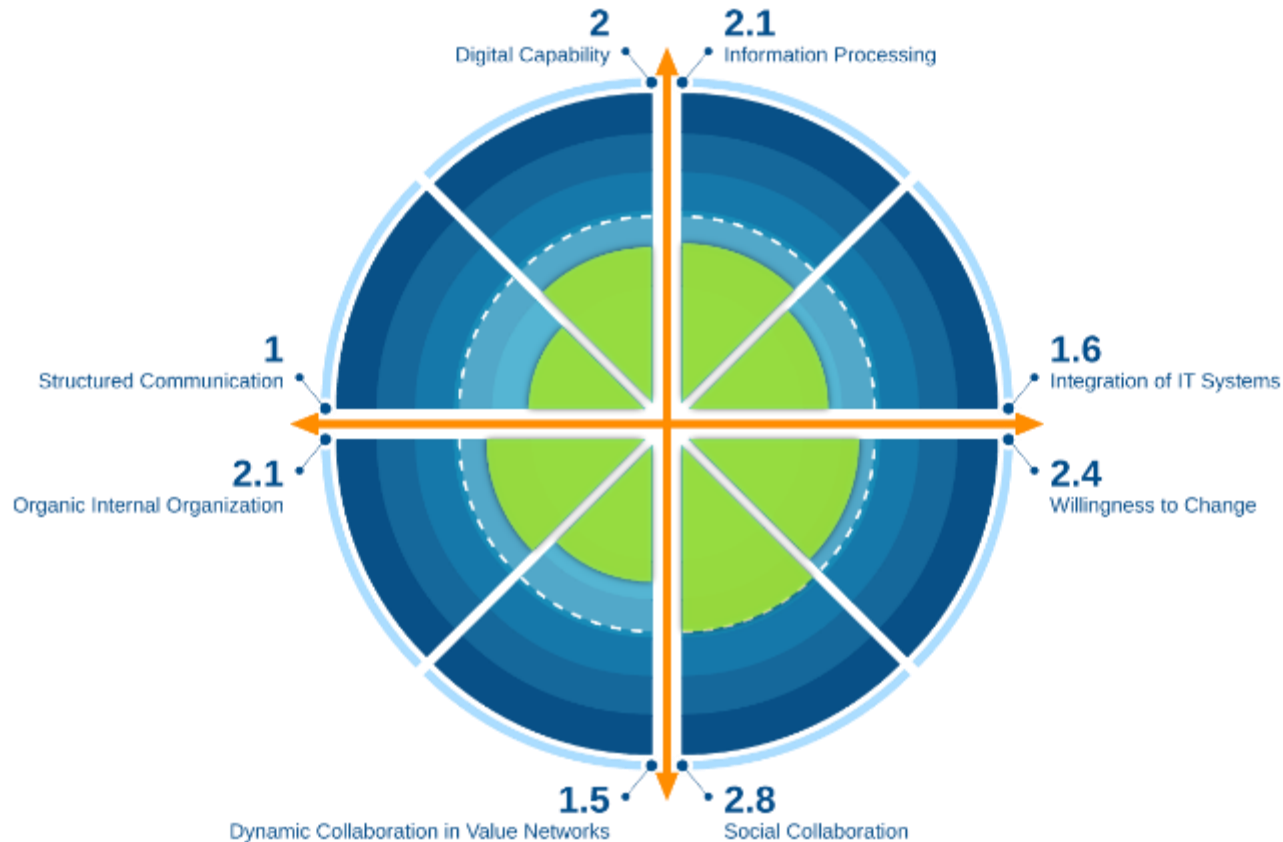
Decision power and responsibility



Organization describes the corporate structure, adaptability and regulations. In addition to the internal company organization, the exchange with external partners within the framework of a value creation network is necessary.

Resources

Information Systems



- Open culture due to always given contact
- Yet exchange of information is only verbally and not saved or documented
- No structured communication between purchasing, other departments or supplier
- High number of time-consuming functions and complex tasks within ERP, e.g. import & export
- Only manual retrieval of status updates
- Unstructured communication of quality issues
- Highly time-consuming supplier contract update and creation

Organizational Structure

Culture

Information processing

Data architecture



“ Data are available in real-time

Resilience

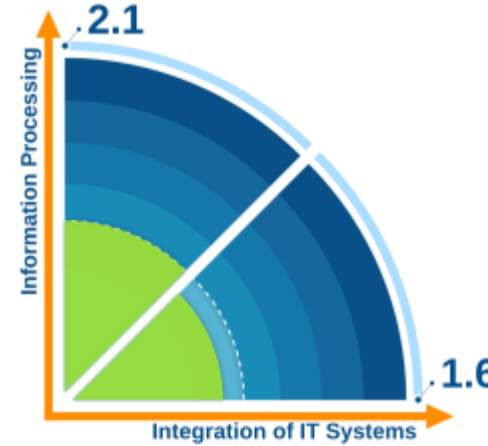


“ Failure of single system is isolated

Data volume



“ Real time data volume with regular checks



Information systems comprise all systems for the provision, processing, storage and transmission of data and information. This includes the creation of data value in order to generate high-quality knowledge from raw data and the degree of integration of the individual IT systems.

Integration of IT systems

Collaboration in IT



“ No structured communication between purchasing, other departments, or suppliers

Data quality



“ A lot of manual work with time consuming work, but with automatic checks. He states no errors.

Data model



“ Overall data model in M3

Information processing

Available information/Information offering



“ Information for purchasing is mainly available in the system

Provision of information

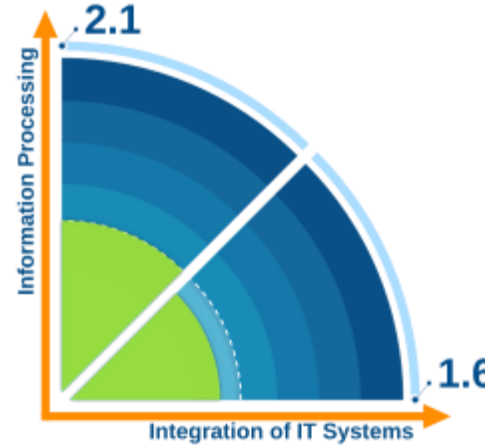


“ Status of delivery orders is provided in a unstructured way

Data analytics



“ Supplier analysis is calculated on excel and information needs to be retrieved from different sources



Information systems comprise all systems for the provision, processing, storage and transmission of data and information. This includes the creation of data value in order to generate high-quality knowledge from raw data and the degree of integration of the individual IT systems.

Integration of IT systems

System interface



“ No interfaces to suppliers

Horizontal Integration



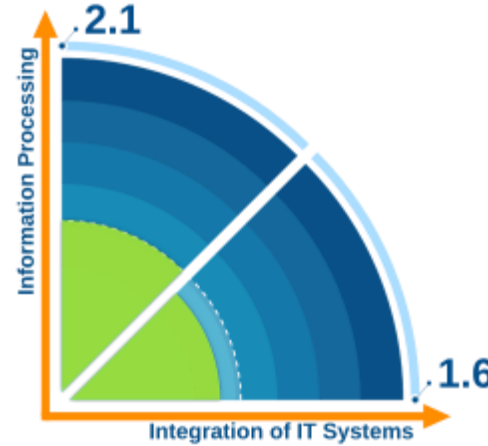
“ Exchange takes place manually to every stakeholder

Information processing

User interface



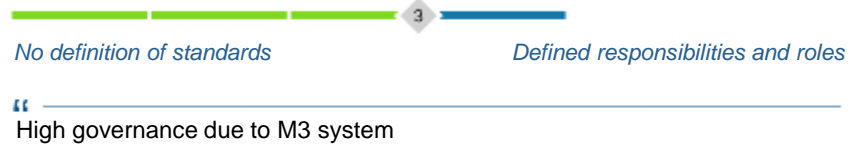
“
Use of complex ERP



Information systems comprise all systems for the provision, processing, storage and transmission of data and information. This includes the creation of data value in order to generate high-quality knowledge from raw data and the degree of integration of the individual IT systems.

Organic internal organization

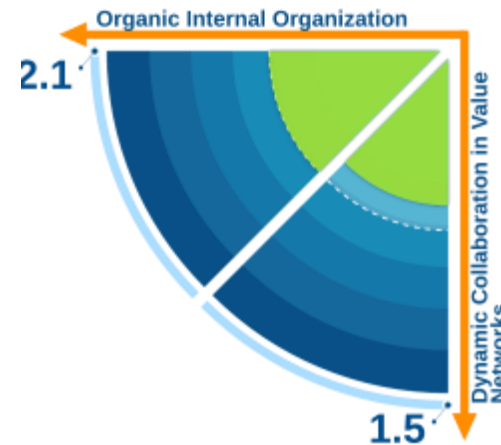
Data governance



Target systems



Project management



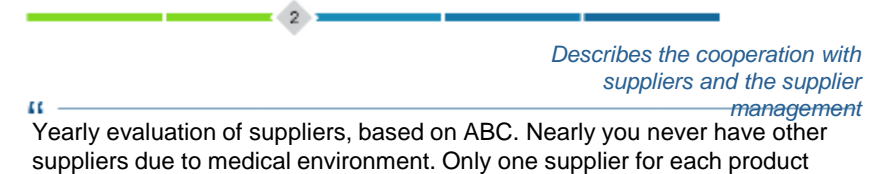
Organization describes the corporate structure, adaptability and regulations. In addition to the internal company organization, the exchange with external partners within the framework of a value creation network is necessary.

Dynamic collaboration in value networks

Collaboration with customers



Collaboration with suppliers



Organic internal organization

Collaboration within value-added networks



“ Buyers are separated to different departments, but for every buyer there is a backup.

Decision power and responsibility

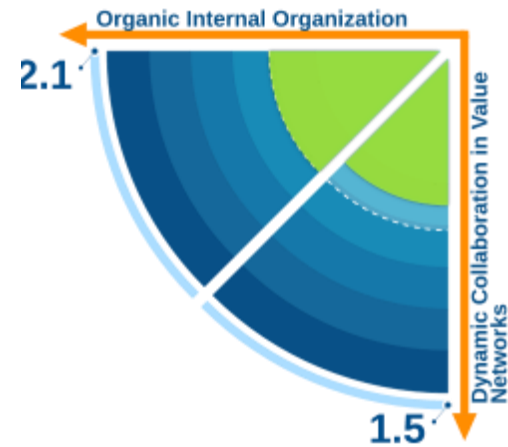


“ Decision for prices are only on management level. Buyer has very little decision power

Innovation process



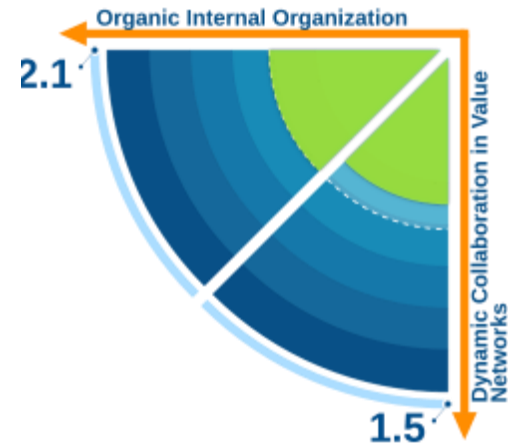
“ Initiative to collect ideas from the employees. Sometimes people come by them self



Organization describes the corporate structure, adaptability and regulations. In addition to the internal company organization, the exchange with external partners within the framework of a value creation network is necessary.

Organic internal organization

Staff development



Organization describes the corporate structure, adaptability and regulations. In addition to the internal company organization, the exchange with external partners within the framework of a value creation network is necessary.

Social collaboration

Incentive systems



“ Bonus system only company wide, evaluation based bonus as well

Leadership style

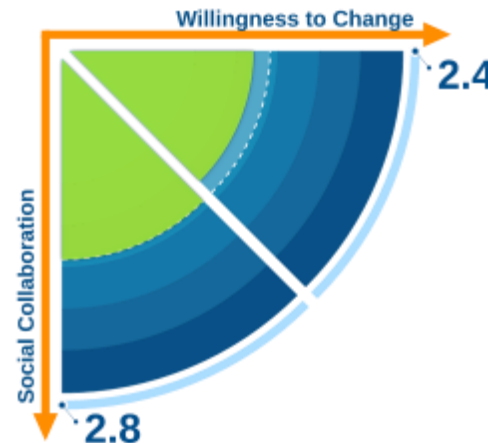


“ Managers follow a hierarchical leadership style, with involvement of operational workers

Use of IT systems



“ Not possible to not use the system



Culture includes normative management, corporate culture, corporate affiliation and the influence on corporate development.

Willingness to change

Knowledge and knowledge responsibility



“ Discription of knowledge management is updated in case of changes

Databased decision processes



“ Decisions about mode of transportation is mainly based on experience

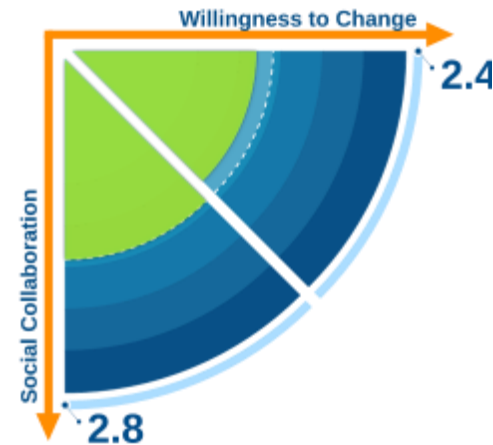
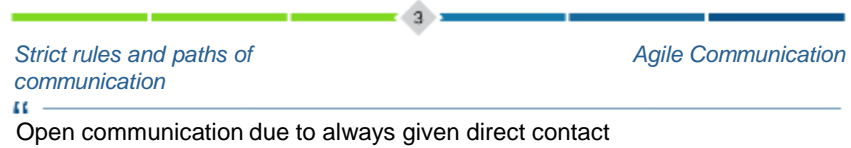
Kaizen/CIP



“ Improvements are only rarely submitted, just by certain employees

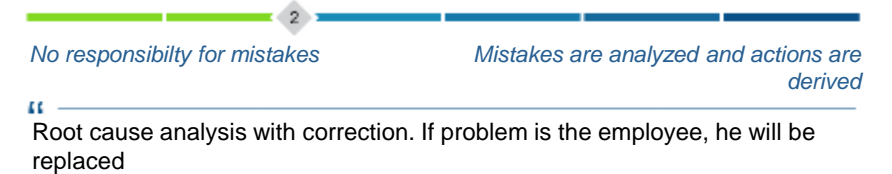
Social collaboration

Communication culture

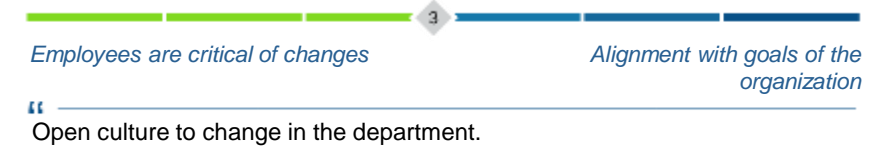


Willingness to change

Culture of accepting mistakes



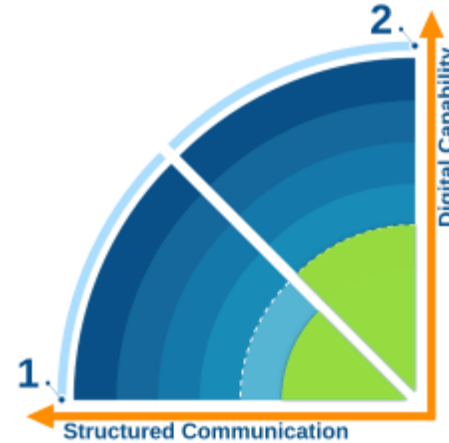
Change management



Culture includes normative management, corporate culture, corporate affiliation and the influence on corporate development.

Structured communication

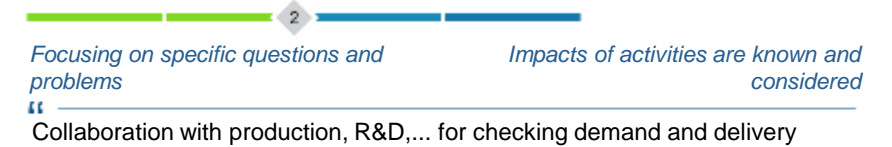
Communication interface: Human/Human



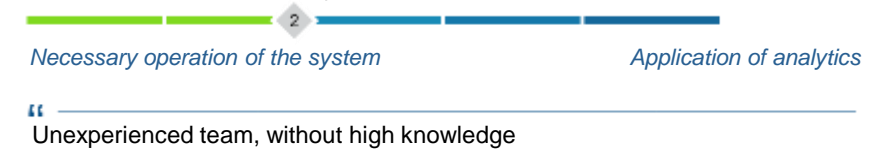
Resources describes the physical and non-physical production factors such as machines or personnel. In an industrie 4.0 environment, physical resources can be understood as smart objects with decentralized intelligence. The decisive factors here are the capabilities of the smart objects and the interaction with the environment.

Digital capability

Interdisciplinary skills of employees



IT competencies of employees



Sales - Organisational structure

Organic internal organization

Collaboration within value-added networks



“ Key accounts are aligned to a specific region

Target systems

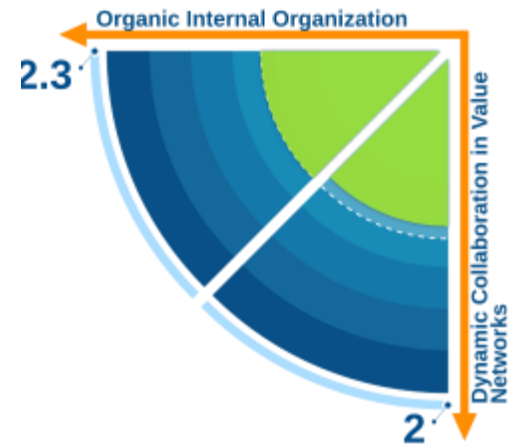


“ No specific departmental target systems

Innovation process



“ There are improvement ideas for the system, but they are not always forwarding them.



Organization describes the corporate structure, adaptability and regulations. In addition to the internal company organization, the exchange with external partners within the framework of a value creation network is necessary.

Organic internal organization

Decision power and responsibility

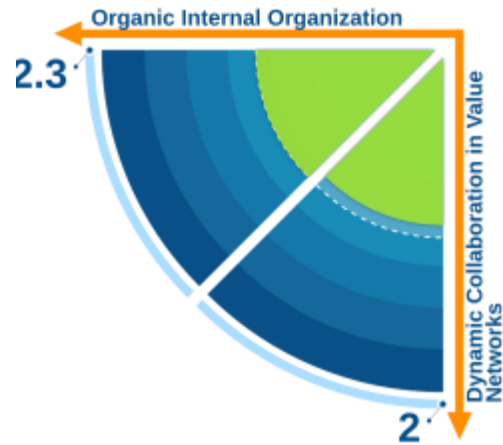


Decision-making only at management level

Responsibility depends on activity and competence

“

Price guideline is in place but mainly decided by manager



Organization describes the corporate structure, adaptability and regulations. In addition to the internal company organization, the exchange with external partners within the framework of a value creation network is necessary.

Digital capability

IT competencies of employees



Necessary operation of the system

Application of analytics

“ Knowledge of employees is sufficient, yet M3 is quite difficult

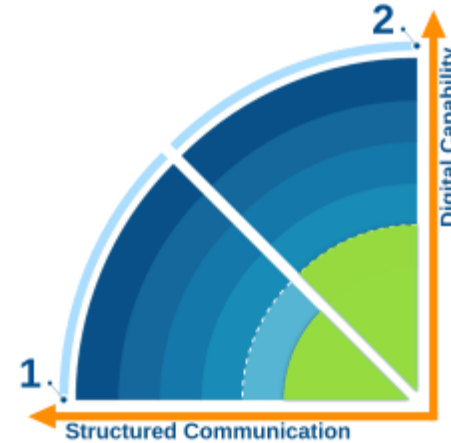
Interdisciplinary skills of employees



Focusing on specific questions and problems

Impacts of activities are known and considered

“ Supervisors know the process steps of other departments



Resources describes the physical and non-physical production factors such as machines or personnel. In an industrie 4.0 environment, physical resources can be understood as smart objects with decentralized intelligence. The decisive factors here are the capabilities of the smart objects and the interaction with the environment.

Structured communication

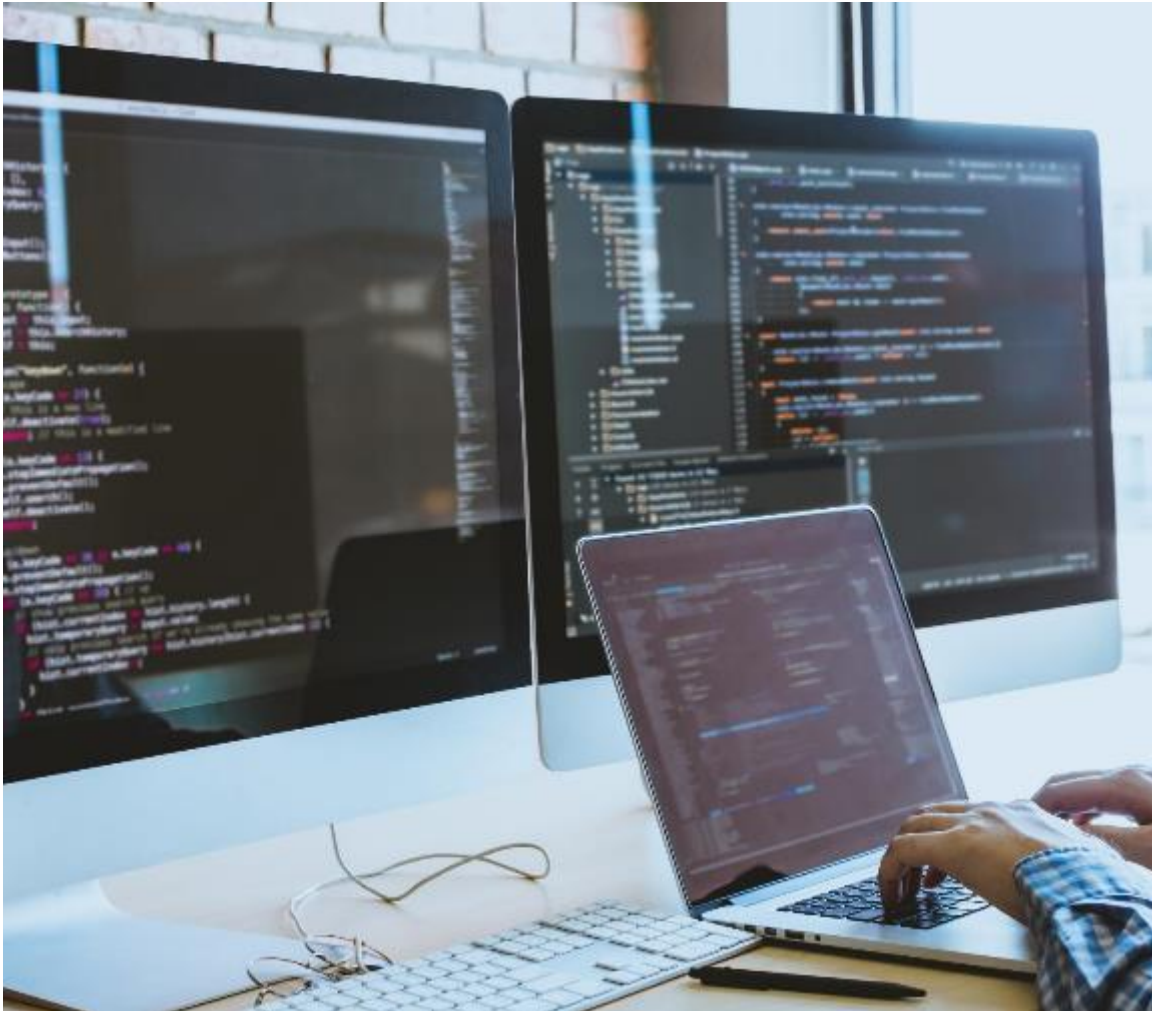
Communication interface: Human/Human



Bilateral exchange of information

Demand-oriented exchange of information

“ Information are shared verbally



- 11 + 1 employees managing 24/7 operations and 37 open optimization tasks
- Systems & interfaces
 - Outdated ERP (M3) with satellite interfaces to MES, WMS, CRM, Symphony, and QMS
 - ERP can only be upgraded with external software
 - New QMS focused on CAPA & customer relations
 - Problems with the Kepware software connecting the data model
- Data
 - Server in Italy, daily backup; VPN connects global sites
 - Data warehouse updated daily
- Tools
 - Qlik for BI, designated responsible but also self created PowerBI solutions within Elcam
 - Helpdesk (SysAid) for tickets; yet WhatsApp for mostly everything
- Forward-looking strategies
 - Cloud and mobile solutions, especially ERP/MES
 - New functionalities instead of new software (Consolidation with software providers)
 - More sophisticated data analysis, e.g., predictive maintenance



- Managing financials and stock levels, though struggling with system support and interconnectivity
- Key issues: Cash flow visibility, KPI-alignment, problematic ERP-Qlik data integration, and separate systems
- Software usage
 - Primarily ERP and Qlik with extensive manual Excel use even with new supplier invoice system
 - Discrepancies in data interpretation
 - No direct WMS connection
 - Manual ERP to Qlik data integration
 - Qlik utilized to monitor workforce finances and payroll, yet issues persist due to system separation
 - Employees still use many self-made solutions instead of Qlik
- KPIs
 - Cash flow is not transparent, with little possibility to forecast it
 - OTIF, as really bad performing KPI, yet in other departments calculated differently
 - Costing calculation is not transparent with precalculated costs from ERP
- Forward-looking strategies
 - Better reporting and visualization options
 - Enhanced collaboration with IT to introduce further analysis in Qlik



- HR manages competencies, training, onboarding, bonus system, and salary budgeting in collaboration with Finance.
- Key issues: employee dissatisfaction with overwhelming onboarding process, lack of structured IT system training & errors in salary budgeting
- System usage:
 - LMS - Learning Zone: Unintuitive, hosts all trainings
 - Payroll software: Poor performance, used for feedback evaluation
 - Excel: Overused for bonus calculations, leading to potential errors
- Culture & communication:
 - A general culture of withholding company decision information
 - Limited interdepartmental communication and transparency
- Forward-looking strategies:
 - Adoption of AI-powered visual animations for training
 - Implementation of digital signature systems for course participation
 - Exploration of superior feedback and payroll software
 - Development of structured IT system training
 - Fostering a more open culture for information sharing
 - Enhancing IT system integration
 - Implementing structured onboarding processes