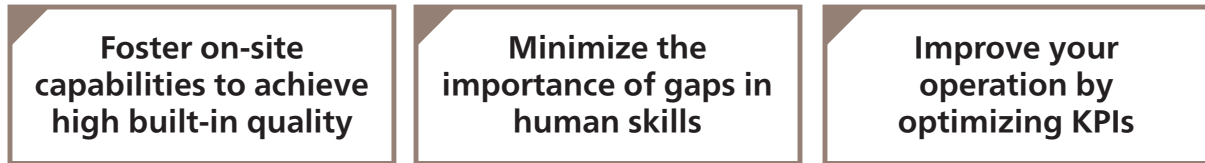# IoT Data-driven Manufacturing
- Smart Manufacturing Operations -
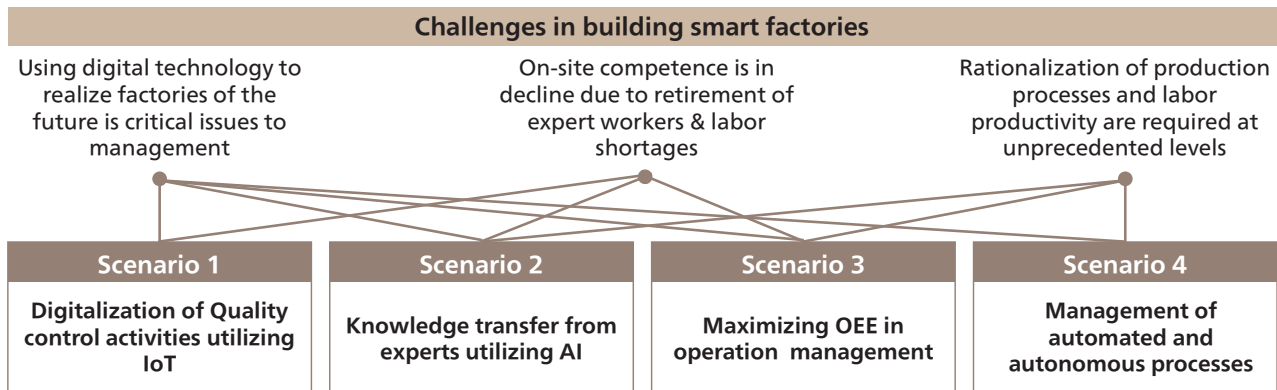
Improve process management and raise your KAIZEN level

Creating added value is becoming increasingly difficult in the manufacturing industry as quality requirements rise, delivery time shortened and workforces are reduced. There is also a need to respond to innovations in manufacturing arising from the digitalization of production processes, labor-saving and a general shift to automation.

ABeam Consulting strongly promotes digitalization **by involving not only Enterprise management but also manufacturing sites.** Utilizing the IoT solutions informed by extensive smart factory project experience, we support you in continuously **improving your product quality and productivity.**
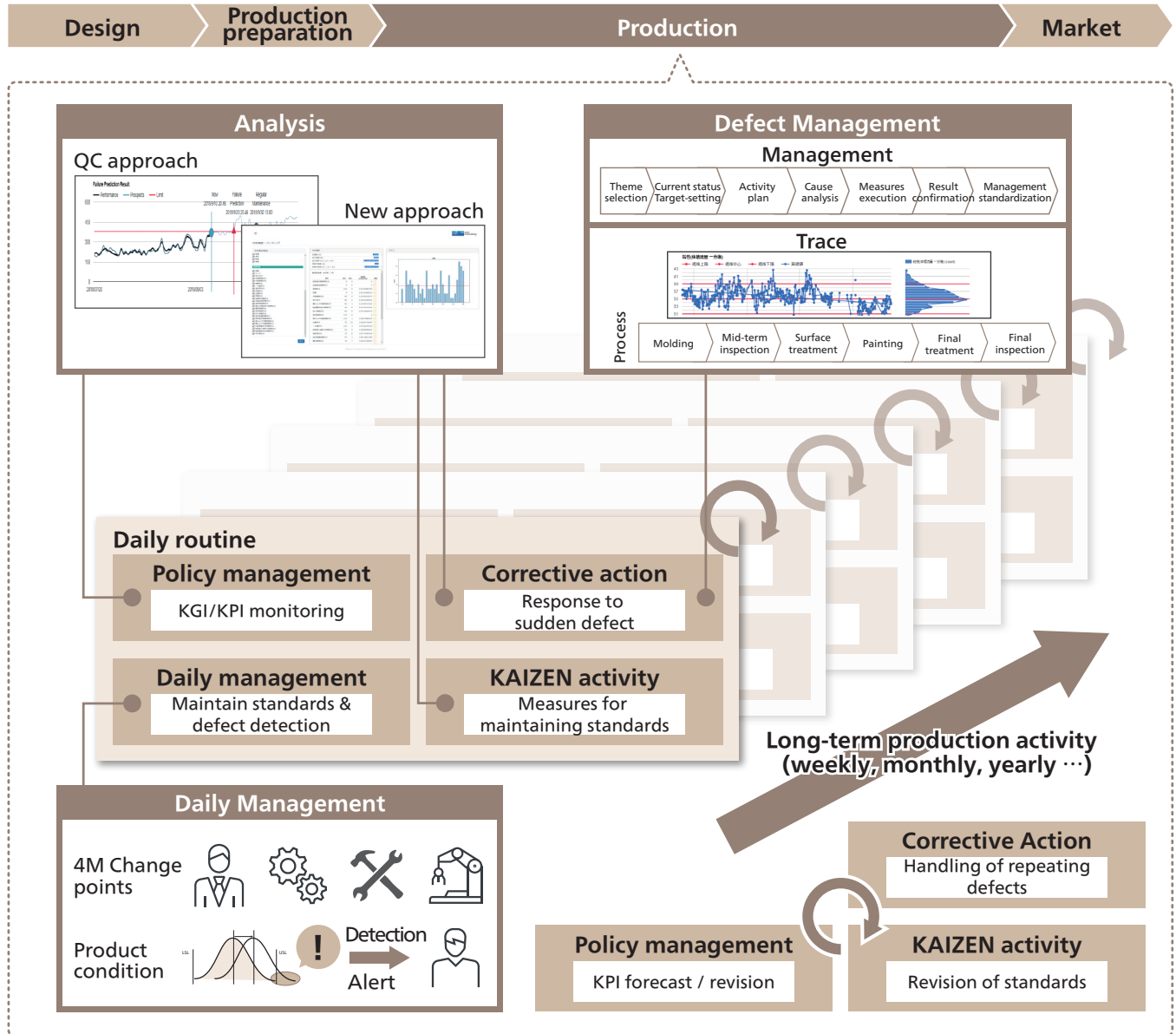
Foster on-site capabilities to achieve high built-in quality	Minimize the importance of gaps in human skills	Improve your operation by optimizing KPIs

Business Scenarios

Challenges in building smart factories

Using digital technology to realize factories of the future is critical issues to management	On-site competence is in decline due to retirement of expert workers & labor shortages	Rationalization of production processes and labor productivity are required at unprecedented levels

Scenario 1	Scenario 2	Scenario 3	Scenario 4
Digitalization of Quality control activities utilizing IoT	Knowledge transfer from experts utilizing AI	Maximizing OEE in operation management	Management of automated and autonomous processes

Theme for each business scenario

		Visualization	Judgement	Prediction	Autonomy
Theme	**Quality**	■Accurately grasp variations in product quality by numerical value ■Strengthen the focal points for KAIZEN	■Detect deviations from KPIs ■Ensure on-site and process capabilities to achieve high quality	■Propose dynamic KPIs according to 4M change points ■Minimize defects due to differences in human skills	■AI learns quality control in accordance with 4M change points to become automated, and finally autonomous
	Productivity	■Accurately grasp operational process status by numerical value ■Understand bottlenecks	■Detect equipment abnormalities and failures to minimize production loss Scenario 2	■Forecast equipment failure to minimize production loss ■Minimize influence on maintenance due to gaps in human skills	■AI learns required equipment conditions to interact with equipment automatically and autonomously
	Management	■Accurately grasp management status (KGI/KPI) at each factory by numerical value Scenario 1	■Detect factors that hinder KGI/KPI goal achievement	■Propose measures to achieve targets by predicting targets' likelihood of success Scenario 3	■Define KPIs & processes able to control autonomous and automated production processes Scenario 4

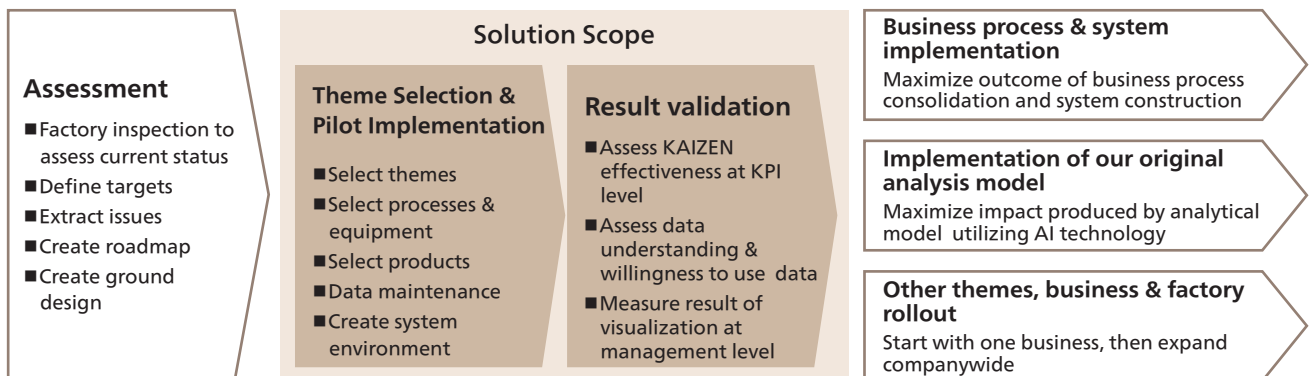## Utilizing our functions in your daily production work:

Accumulated data can be used not only for daily work but for weekly, monthly and even yearly production.

Engineering chain

Design	Production preparation	Production	Market

Analysis

QC approach

New approach

Defect Management

Management

Theme selection	Current status Target-setting	Activity plan	Cause analysis	Measures execution	Result confirmation	Management standardization

Trace

Process

Molding	Mid-term inspection	Surface treatment	Painting	Final treatment	Final inspection

Daily routine

Policy management
KGI/KPI monitoring

Corrective action
Response to sudden defect

Daily management
Maintain standards & defect detection

KAIZEN activity
Measures for maintaining standards

Long-term production activity (weekly, monthly, yearly …)

Daily Management

4M Change points

Product condition

Detection

Alert

Corrective Action
Handling of repeating defects

Policy management
KPI forecast / revision

KAIZEN activity
Revision of standards

Implementation Approach

Our specialists use the latest analytics, IT/OT technology and manufacturing knowledge to build analytical models corresponding to our customers' products and production processes. We also create mechanisms to utilize this data in order to support you in firmly establishing your operations.

Assessment
- Factory inspection to assess current status
- Define targets
- Extract issues
- Create roadmap
- Create ground design

Solution Scope

Theme Selection & Pilot Implementation
- Select themes
- Select processes & equipment
- Select products
- Data maintenance
- Create system environment

Result validation
- Assess KAIZEN effectiveness at KPI level
- Assess data understanding & willingness to use data
- Measure result of visualization at management level

Business process & system implementation
Maximize outcome of business process consolidation and system construction

Implementation of our original analysis model
Maximize impact produced by analytical model utilizing AI technology

Other themes, business & factory rollout
Start with one business, then expand companywide

Contact
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