MoreSteam®

Continuous Improvement in the New Reality of Industry 4.0 (Part 2)

Alexander Silantyev, *Master Black Belt*

PwC Advisory, Belgium

pwc

About MoreSteam

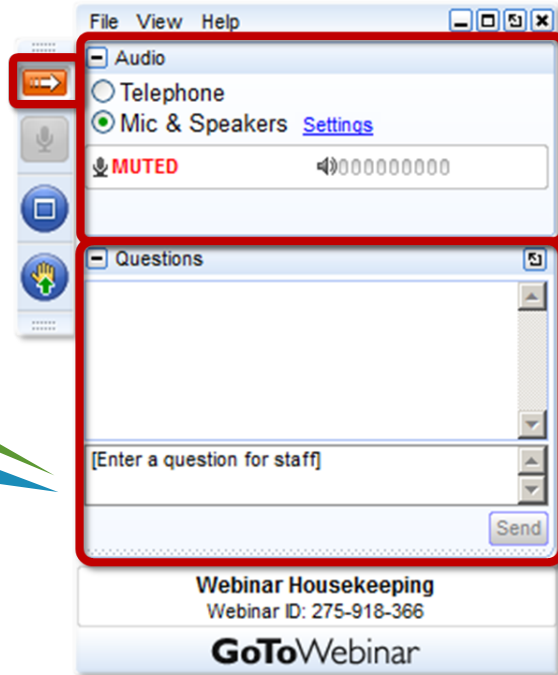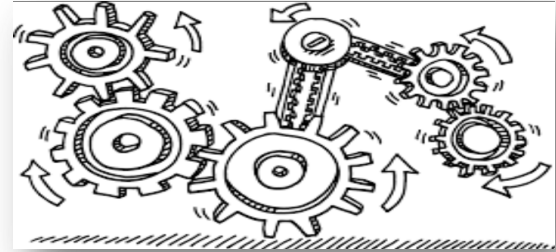*Enterprise continuous improvement from training to project completion*

577,000+

GoToWebinar Attendee Panel
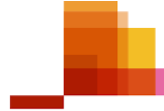
Something about me

Let's refresh the basic concepts!

What is Lean Six Sigma?

Lean

- **Improvement and problem solving methodology that strives to reduce or eliminate activities that don't add value to the customer.**
- Founded on two pillars – respect for people and continuous improvement.
- Never-ending elimination of waste
- Committed to total customer satisfaction
- Total commitment to quality
- Total employee involvement

Six Sigma

- **Problem solving methodology rooted in data.**
- Applied across organizations, large and small, and is heralded for its rigorous, data-driven approach to improving process performance and instilling continuous improvement.
- Heart of the Six Sigma methodology is the DMAIC roadmap
- DMAIC stands for Define-Measure-Analyze-Improve-Control.

Lean **+** Six Sigma **=** Continuous Improvement?

Industry 4.0 is not only about being digital, it is about integrating your business and removing silo's over the entire value chain
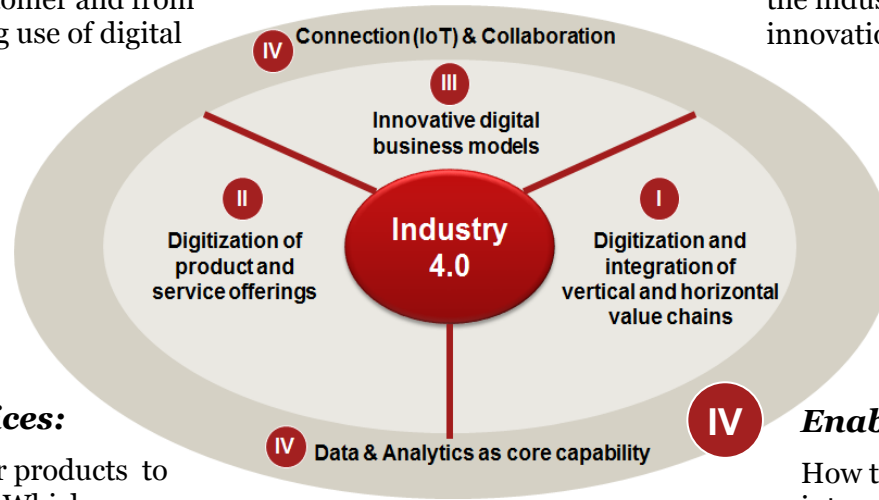
I *Integration:*

How to fully integrate all processes from supplier to customer and from R&D to sales, making use of digital technologies?

III *Business models:*

How to strengthen your position in the industrial ecosystem and grow by innovation?

IV Connection (IoT) & Collaboration

III Innovative digital business models

II Digitization of product and service offerings

Industry 4.0

I Digitization and integration of vertical and horizontal value chains

IV Data & Analytics as core capability

II *Products & services:*

How to innovate your products to solutions to services. Which new business can you develop with digital technology?

IV *Enabling layer:*

How to turn data into information into power by processes and technology?

*"**Digitisation** and **best-in-class** processes are the key enablers to reach **profitable business growth** in an Industry 4.0 era."*

What is Industry 4.0?

We analysed 250+ technologies to zero in on the 8+2 having the biggest business impact right now.

New User Interfaces

Robotic Process Automation

Drones

3D Printing

Cloud

Essential
8+2

Internet of Things

Augmented Reality

Virtual Reality

Artificial Intelligence

Blockchain

A new reality of Continuous Improvement

Continuous Improvement
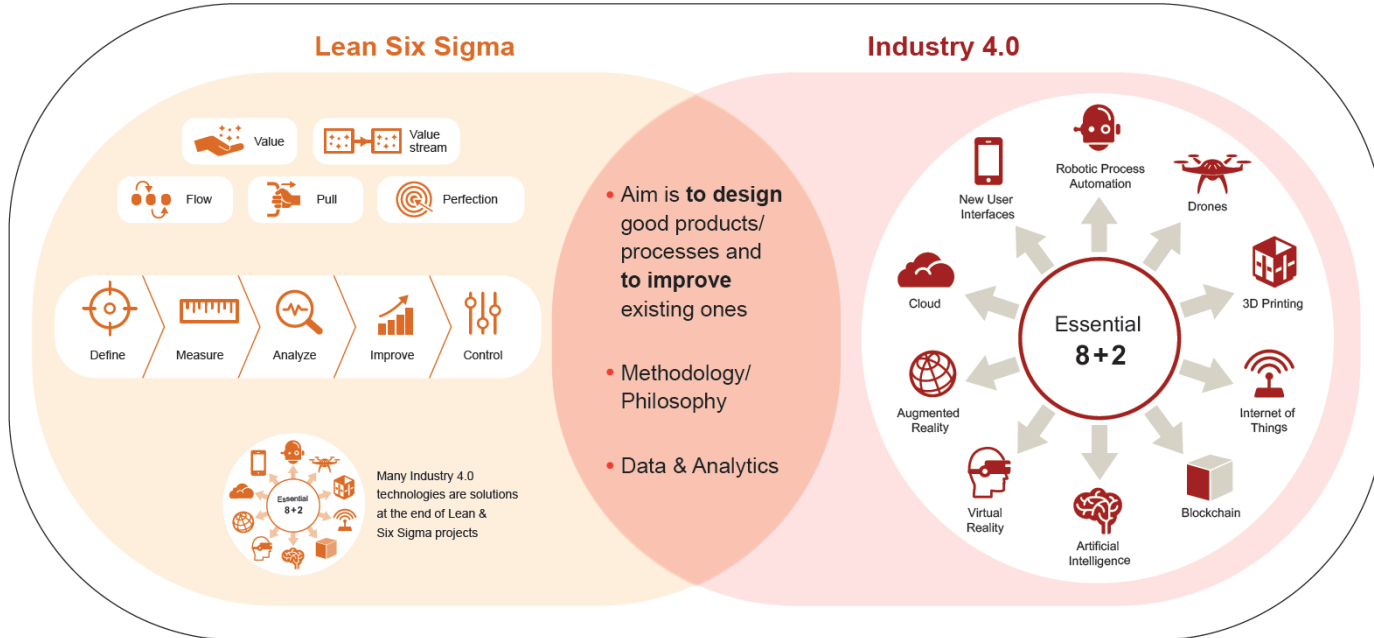
Lean Six Sigma

Value
Value stream
Flow
Pull
Perfection

Define — Measure — Analyze — Improve — Control

Essential 8+2

Many Industry 4.0 technologies are solutions at the end of Lean & Six Sigma projects

- Aim is **to design** good products/ processes and **to improve** existing ones

- Methodology/ Philosophy

- Data & Analytics

Industry 4.0

New User Interfaces
Robotic Process Automation
Drones
Cloud
3D Printing
Augmented Reality
Essential 8+2
Internet of Things
Virtual Reality
Artificial Intelligence
Blockchain

Industry 4.0 and Lean Six Sigma are both integral parts of Continuous Improvement today!

How can CI projects benefit from Industry 4.0?

Define	Measure	Analyse	Improve	Control

Measure

IoT provides data about various process parameters

Drones can be used to quickly scan large surfaces and get to difficult places to provide the images which can be translated to data using image recognition

Robotics (RPA) accelerate repeating operations of consolidation and reformatting of data coming from various sources for subsequent analysis. This is done with the support of **Machine vision** and **Natural Language processing** concepts

Process mining can be used to obtain objective process performance metrics

Analyse

Artificial Intelligence recognizes patterns in the data and helps draw the connection between inputs and outputs

Virtual Reality can provide insights into unfamiliar processes and situations

Augmented Reality can be used to visualize 3d graphs to gain additional insights from the data

Improve

Artificial Intelligence recognizes patterns in the data and helps draw the connection between inputs and outputs

Virtual Reality can provide insights into unfamiliar processes and situations

Augmented Reality can be used to visualize 3d graphs to gain additional insights from the data

Blockchain provides reliability to the processes ensuring full traceability

3D printing enables fast prototyping of new ideas

Robotics (RPA) optimize efforts and lead time and improve quality of repeating transactional processes

Control

Artificial Intelligence recognizes patterns in the data and helps draw the connection between inputs and outputs

Virtual Reality can provide insights into unfamiliar processes and situations

Augmented Reality can be used to manage process performance

Robotics (RPA) with the support of **Machine Vision** and **Natural Language processing** help to follow up on actions, SLAs etc. and proactively trigger counter-measures

Drones can be used to verify improvements achieved in the project by scanning the surfaces and providing before/after comparison

**Process mining** dashboards allow for continuous monitoring of processes

Cloud infrastructure serves as an enabler for most of the essential digital technologies

Question from the Webinar one:

"Could you please elaborate more about the process mining? I'm interested in what you mentioned about dumping SAP data and having a VSM as an output"

Process Intelligence | Traditional approach

Outdated information

Subjective information

Incomplete information
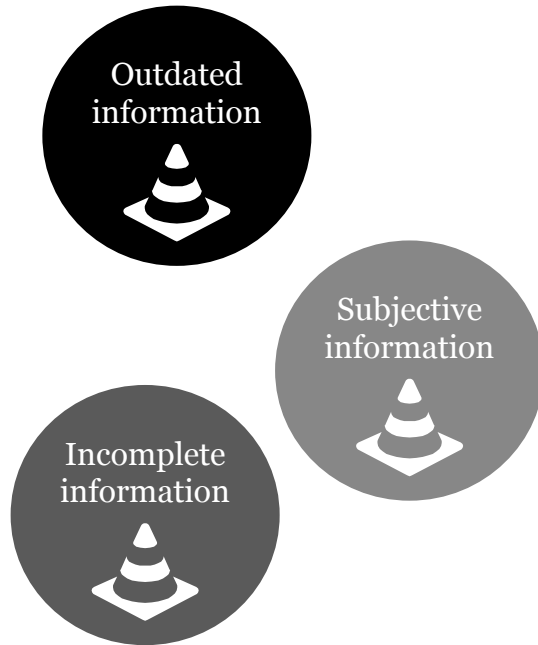
Workshops

Interviews

Observations

Document Analysis

Walkthroughs

Transaction sampling

There is often a gap between how business processes are intended to be and what the reality is.

Promise
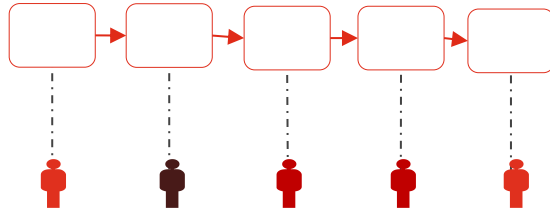
Reality
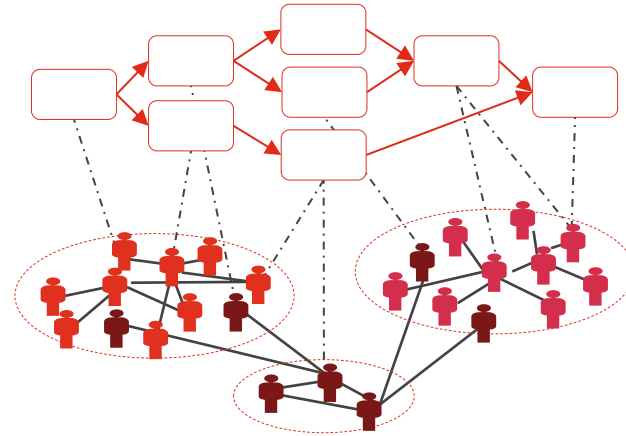
We need more data to discover how processes are executed in reality

Process Intelligence | Data enabled approach

Data logging

Certain systems store events in a data log

Event Log

- CASE ID
- ACTIVITY NAME
- USER
- TIMESTAMP

Transformations on the data allow the formation of an event log

Process mining analysis
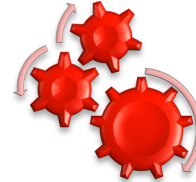
Event logs can be easily analysed using process mining technique

Visualise complex reality
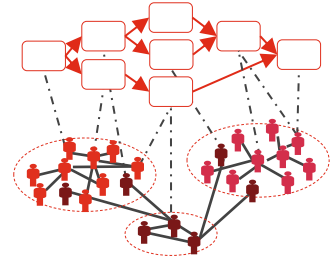
Process mining tools allow for a visual representation of the complex reality

Example use cases | Financial services

Change management

Assessment of throughput time and rework in a change management process and evaluation of conformance to process controls

Sales process

Identification of potential revenue leakage by reviewing the processes around discounts for customer and credit notes. Review of process compliance.

Loan application

Review of efficiency and effectiveness of loan application process in view of anticipated business growth.

Example use cases | Industry

Procurement

Analysis of purchasing process, identification of inefficiencies and gaps with defined procedures, including benchmarking of performance in different countries.
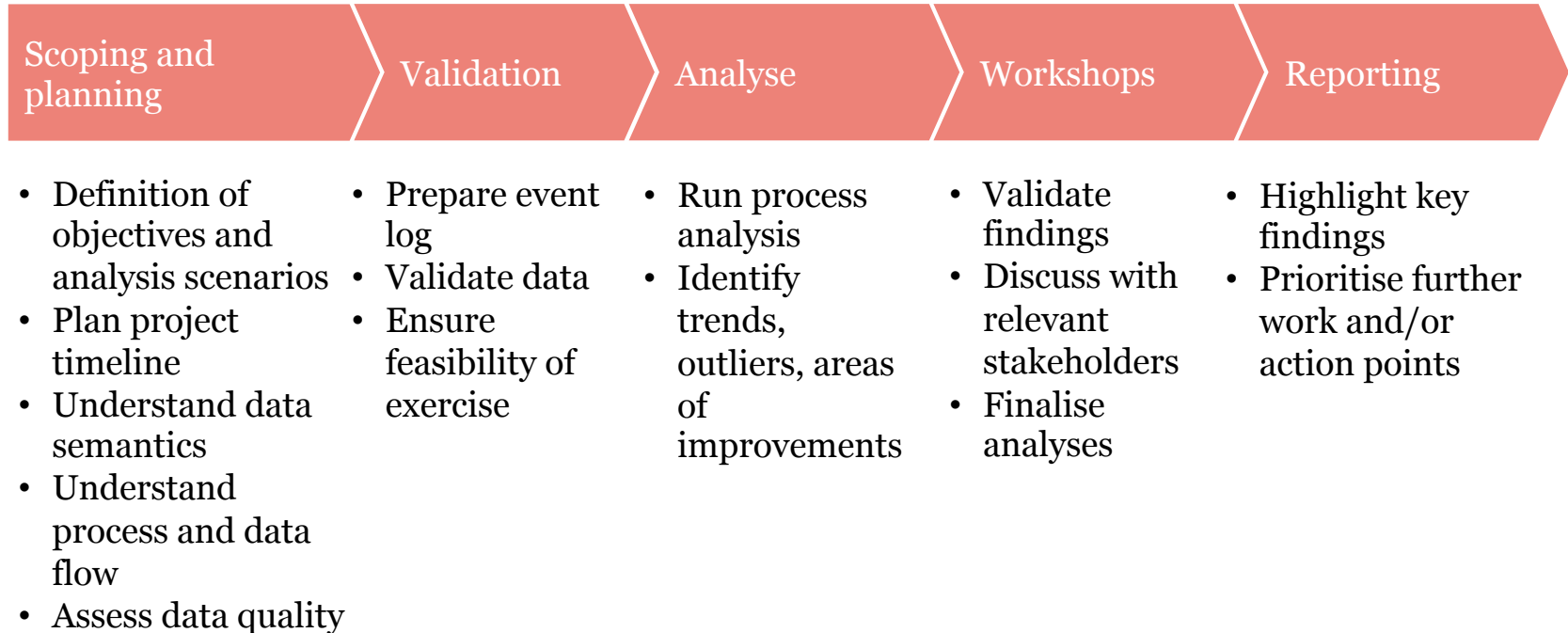
Transfer pricing

Tracing the flow of transactions to assess compliance with transfer pricing and VAT policies and to develop a monitoring dashboard

SSC

Evaluation of processes in different entities in order to define the to-be process for the shared service centre.

Typical project | Preferred approach

Scoping and planning	Validation	Analyse	Workshops	Reporting
• Definition of objectives and analysis scenarios • Plan project timeline • Understand data semantics • Understand process and data flow • Assess data quality	• Prepare event log • Validate data • Ensure feasibility of exercise	• Run process analysis • Identify trends, outliers, areas of improvements	• Validate findings • Discuss with relevant stakeholders • Finalise analyses	• Highlight key findings • Prioritise further work and/or action points

Feasibility | Is the process a good fit?

✓ Highly reliant on IT system

✓ High volume

✓ Complex

✓ Multiple systems

✓ Several users

✓ Access to underlying databases

✗ (Partially) paper based or informal

✗ No logging of information

✗ Very few activities/steps
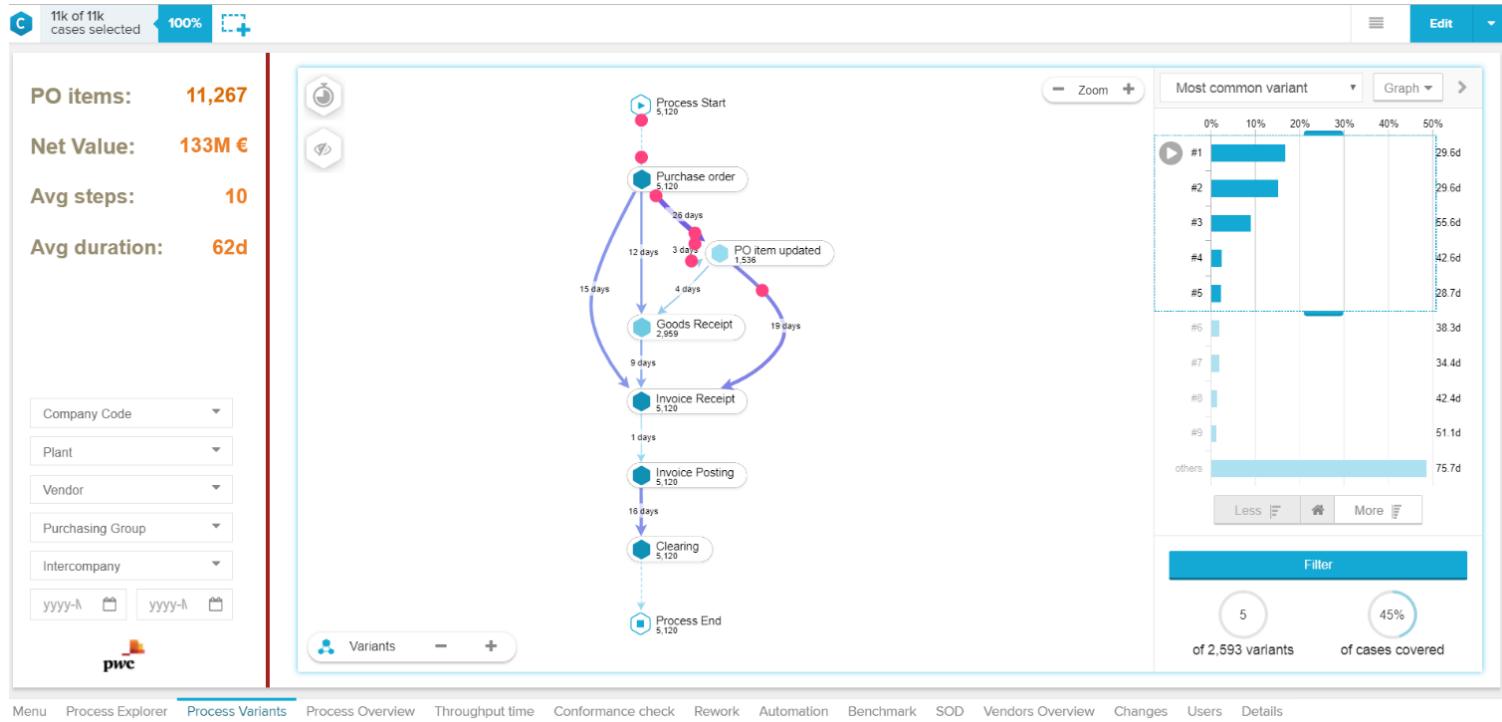
✗ Straightforward process (1-3 steps)

Standard analysis | Process explorer

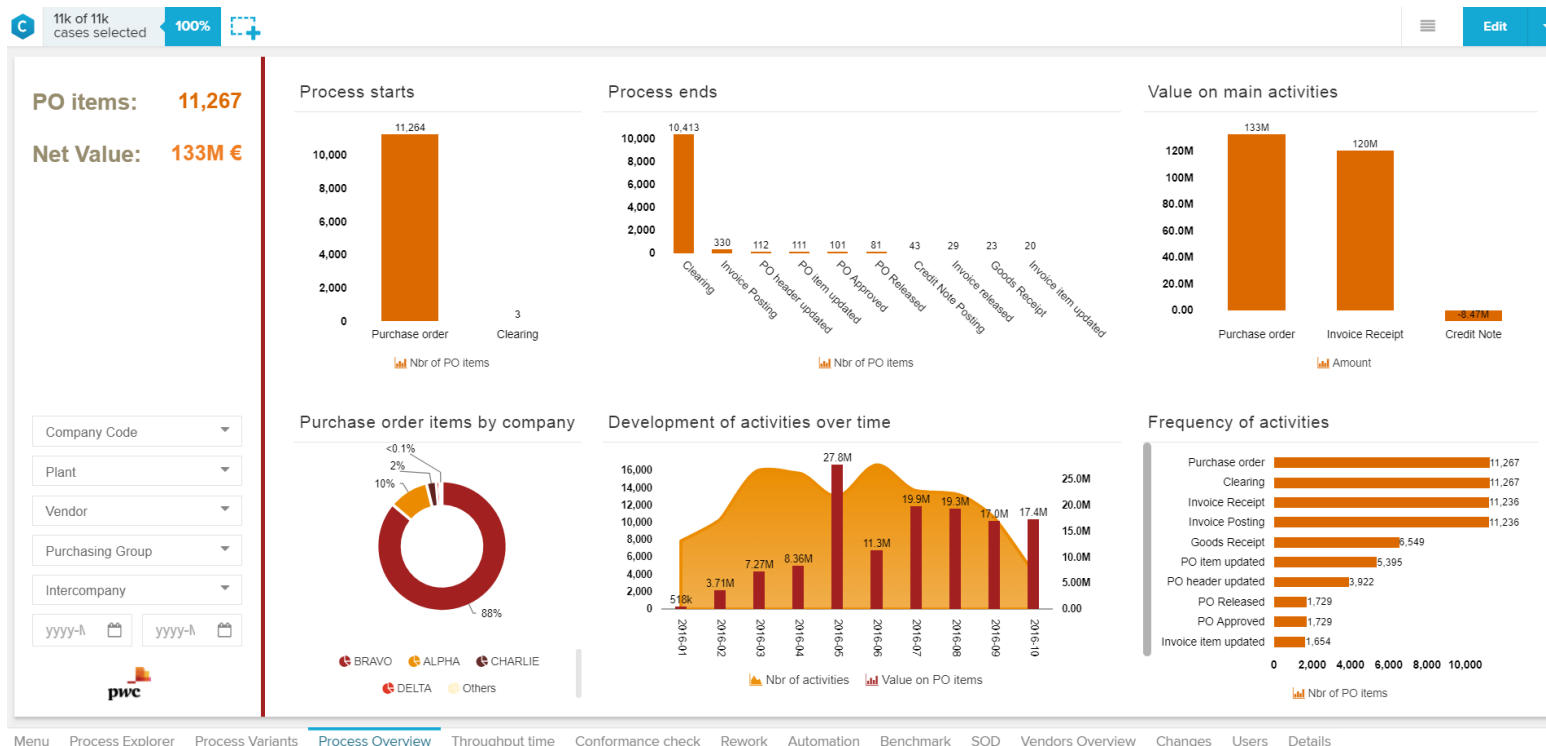## What does the process look like?
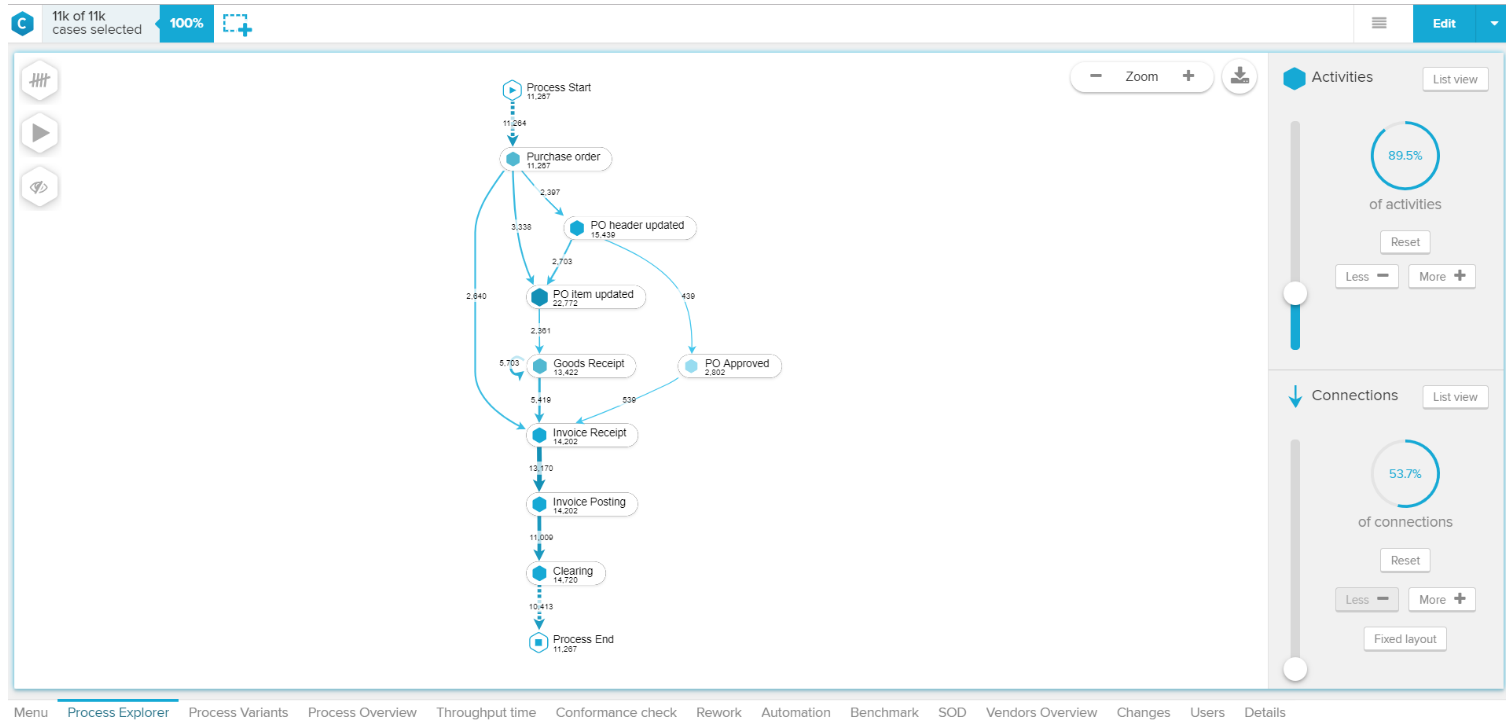
Standard analysis | Process variants

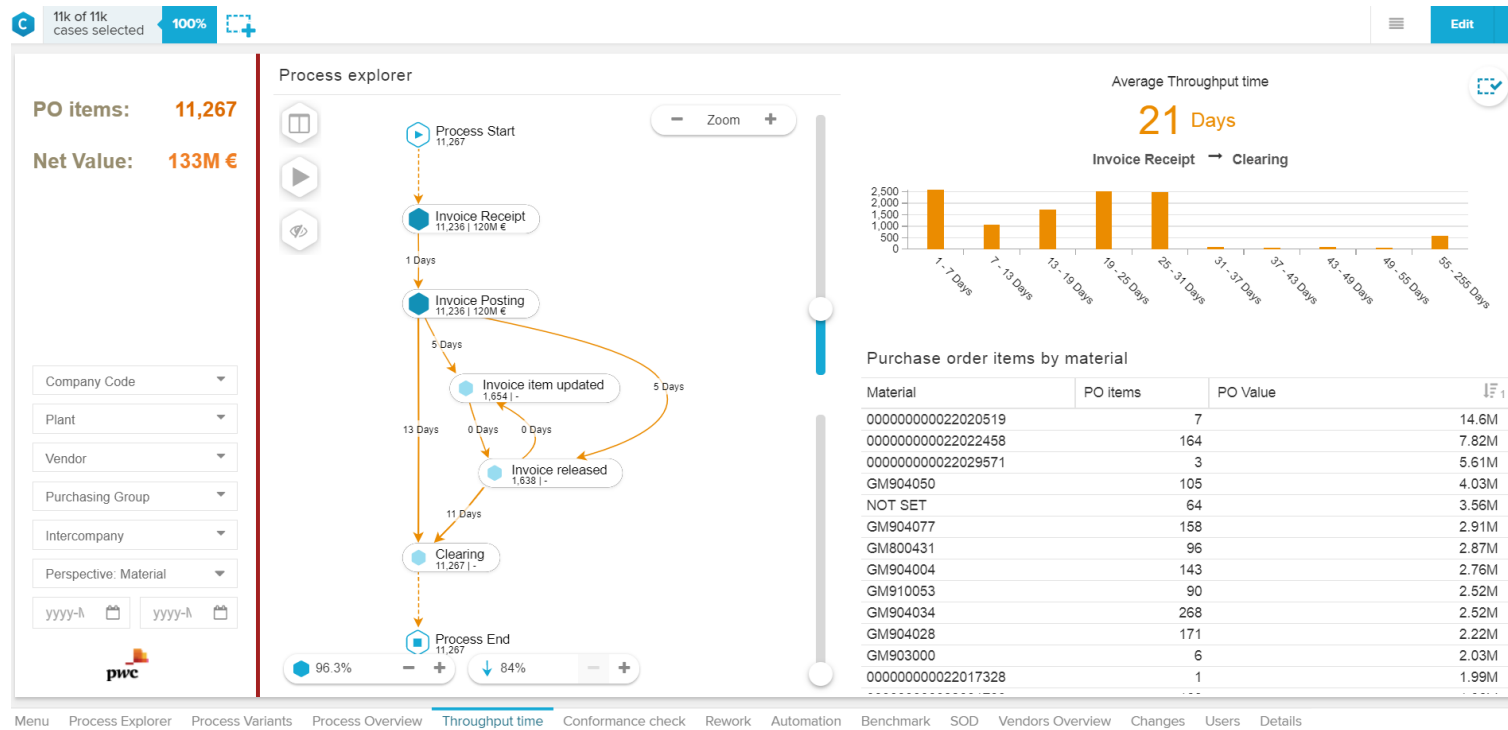**In how many different ways was the process executed?**

Standard analysis | Process overview
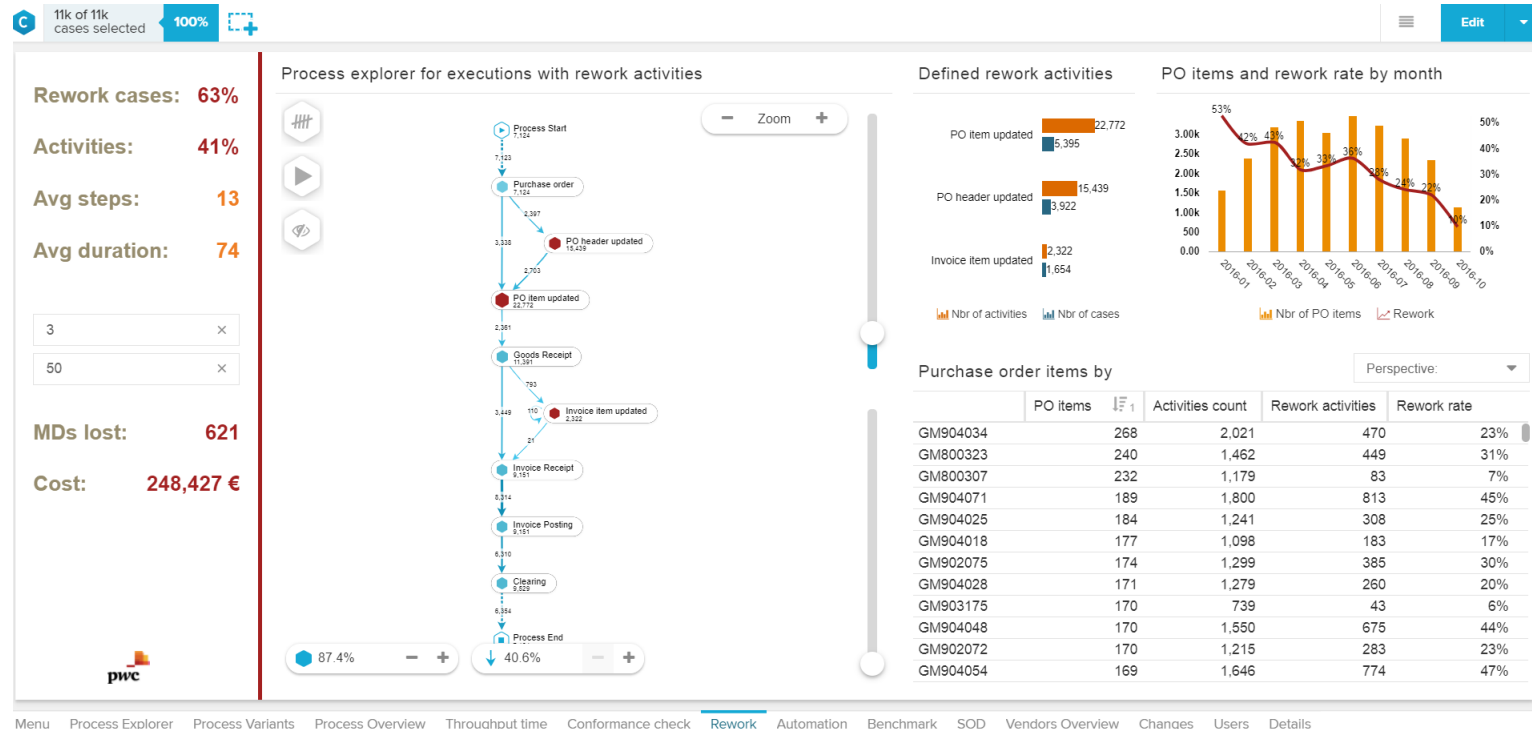
General statistics on the process

Standard analysis | Throughput time

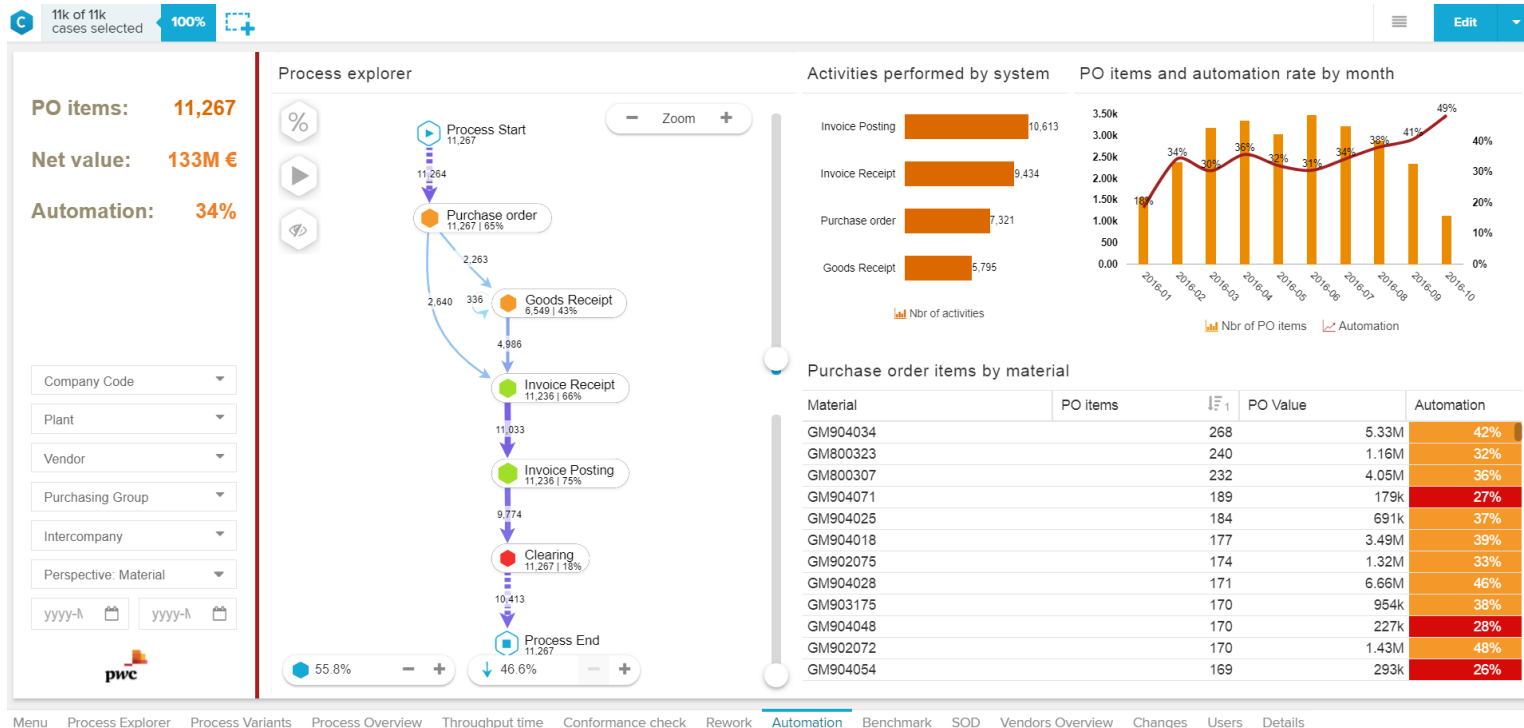## What is the throughput time between activities

Standard analysis | Rework

Which activities generate extra (re)work and how does it affect the process?
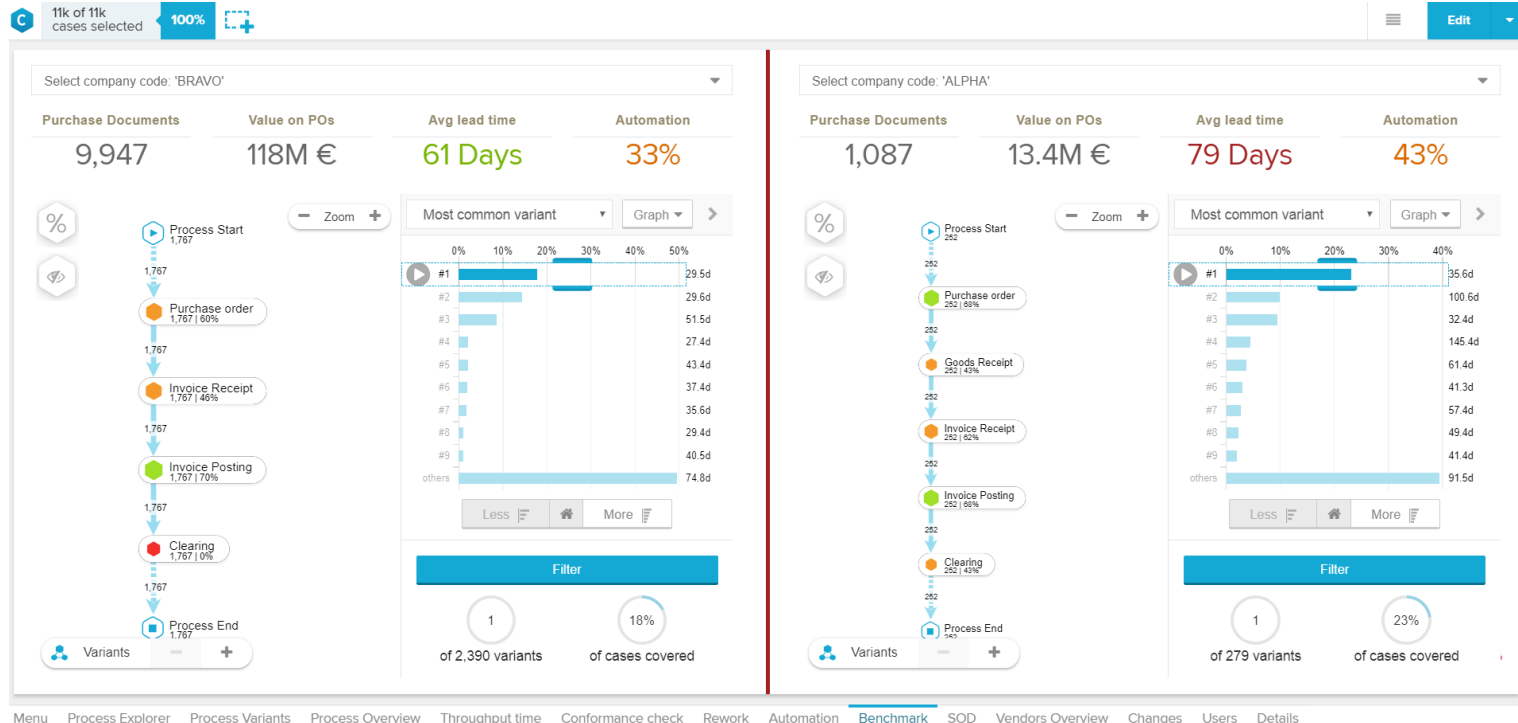
Standard analysis | Automation

How automated is the process?

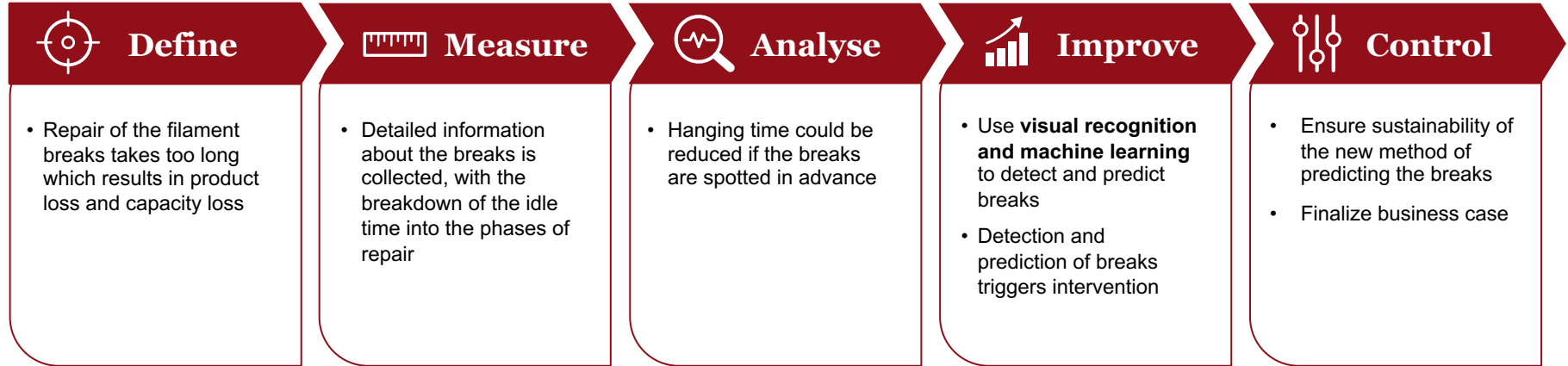# Standard analysis | Benchmark

How do countries / entities / business units compare with each other?

Case studies of CI implementations within Industry 4.0

Green belt project at client which used I4.0 techniques to reduce start-up time after filament breaks

Define
- Repair of the filament breaks takes too long which results in product loss and capacity loss

Measure
- Detailed information about the breaks is collected, with the breakdown of the idle time into the phases of repair

Analyse
- Hanging time could be reduced if the breaks are spotted in advance

Improve
- Use **visual recognition and machine learning** to detect and predict breaks
- Detection and prediction of breaks triggers intervention

Control
- Ensure sustainability of the new method of predicting the breaks
- Finalize business case

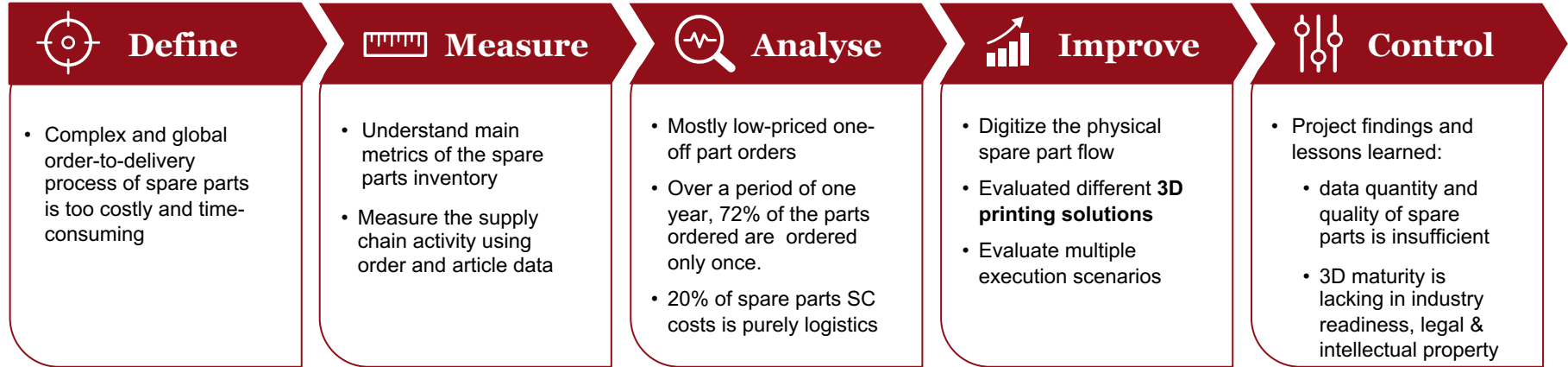Deep learning applied on video images to:
- Predict and detect process breaks
- Trigger intervention

… which results in less:
- Downtime
- Uncertainty
- Risk

Six sigma project including a business case assessment of 3D printing in the spare part supply chain of maritime shipping supplier
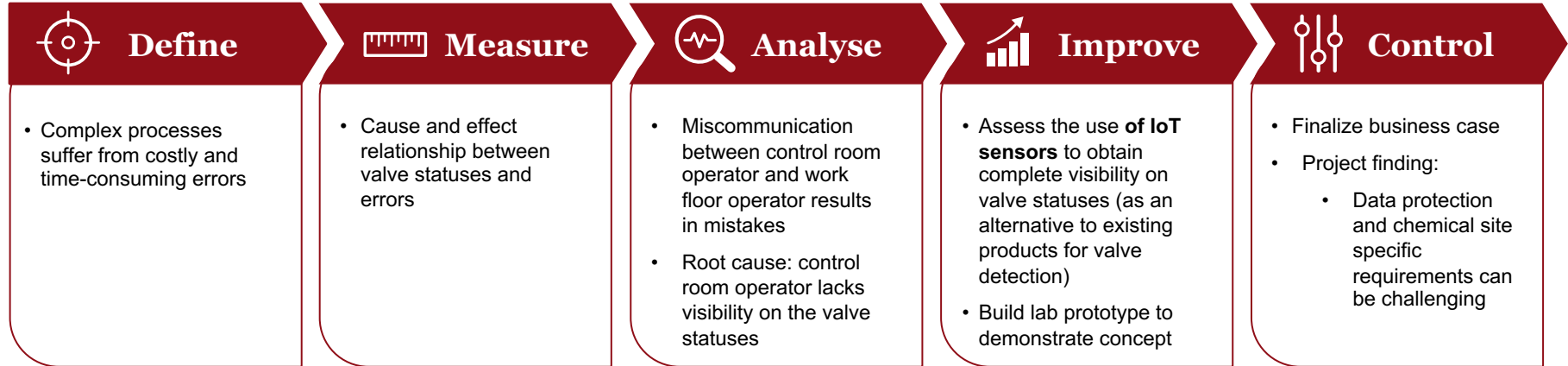
Define
- Complex and global order-to-delivery process of spare parts is too costly and time-consuming

Measure
- Understand main metrics of the spare parts inventory
- Measure the supply chain activity using order and article data

Analyse
- Mostly low-priced one-off part orders
- Over a period of one year, 72% of the parts ordered are ordered only once.
- 20% of spare parts SC costs is purely logistics

Improve
- Digitize the physical spare part flow
- Evaluated different **3D printing solutions**
- Evaluate multiple execution scenarios

Control
- Project findings and lessons learned:
  - data quantity and quality of spare parts is insufficient
  - 3D maturity is lacking in industry readiness, legal & intellectual property

3D – printing as a way to reduce:
- Time waste
- Transportation waste
- Inventory
- Batch size

On average
**29.553
unique parts per
ship**

**1,5
Million
spare parts**

Challenges

- Moving target
- High Supply chain costs
- Supply chain complexity
- Part lifetime vs ship lifetime

Procurement

Supplier

Warehouse

**46
ships
worldwide**

Continuous improvement project at a chemical player assessed the use of IoT technology to improve visibility of valve statuses

Define
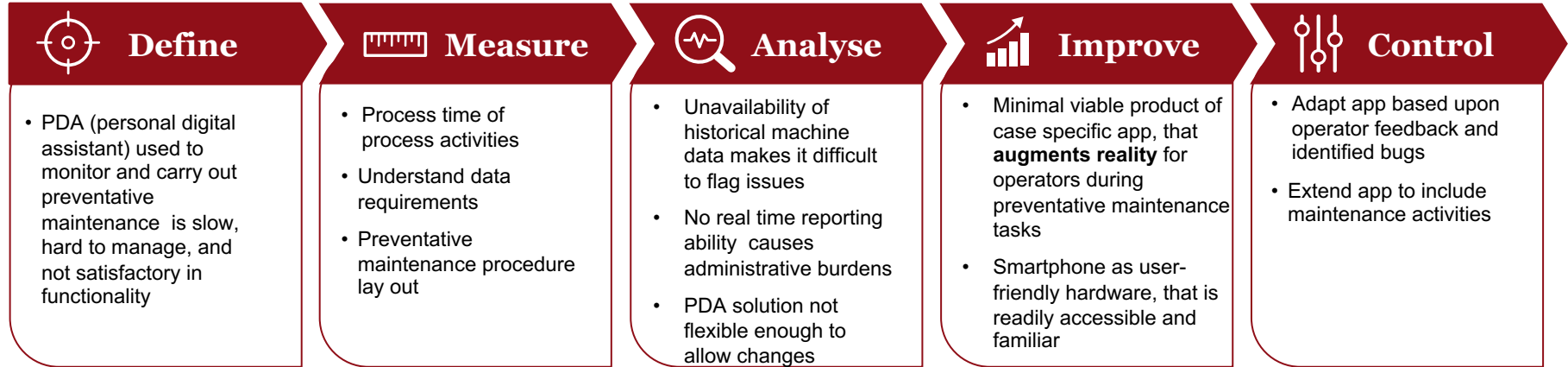- Complex processes suffer from costly and time-consuming errors

Measure
- Cause and effect relationship between valve statuses and errors

Analyse
- Miscommunication between control room operator and work floor operator results in mistakes
- Root cause: control room operator lacks visibility on the valve statuses

Improve
- Assess the use **of IoT sensors** to obtain complete visibility on valve statuses (as an alternative to existing products for valve detection)
- Build lab prototype to demonstrate concept

Control
- Finalize business case
- Project finding:
  - Data protection and chemical site specific requirements can be challenging

IoT as a way to:
- Gain visibility on the external environment
- Collect data

Cost insights:
- Final hardware is not expensive, but development costs are high (design build and program the final solution)
- Each business case has an individual approach

Implementation of wearables at Philips lighting in the context of its continuous improvement cycle aimed at operational excellence

Define
- PDA (personal digital assistant) used to monitor and carry out preventative maintenance is slow, hard to manage, and not satisfactory in functionality

Measure
- Process time of process activities
- Understand data requirements
- Preventative maintenance procedure lay out

Analyse
- Unavailability of historical machine data makes it difficult to flag issues
- No real time reporting ability causes administrative burdens
- PDA solution not flexible enough to allow changes

Improve
- Minimal viable product of case specific app, that **augments reality** for operators during preventative maintenance tasks
- Smartphone as user-friendly hardware, that is readily accessible and familiar

Control
- Adapt app based upon operator feedback and identified bugs
- Extend app to include maintenance activities

Augmented reality through the use of wearables ensures:
- Procedures and checklists availability
- Monitoring of the correct machine (QR code scanning)
- Immediate visibility of substantially changed parameters
- Improved reporting abilities (photographs of issues)
- Ergonomic use of the solution
- Real time administration

… which resulted in 6% savings in total utilities maintenance costs

How to get your organization started?

We believe that planning CI implementation should depend on current organisational maturity
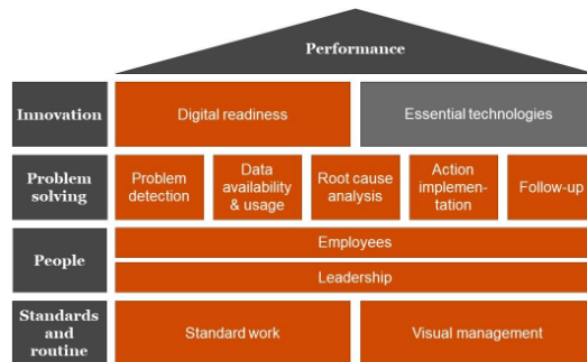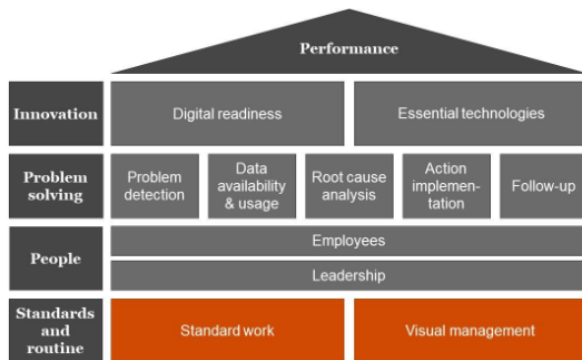
Recommended action sequence

1. Take a quick survey
2. Find out which support would be the most appropriate
3. Organise deeper diagnostics
4. Develop the roadmap and build strategy

CI maturity framework
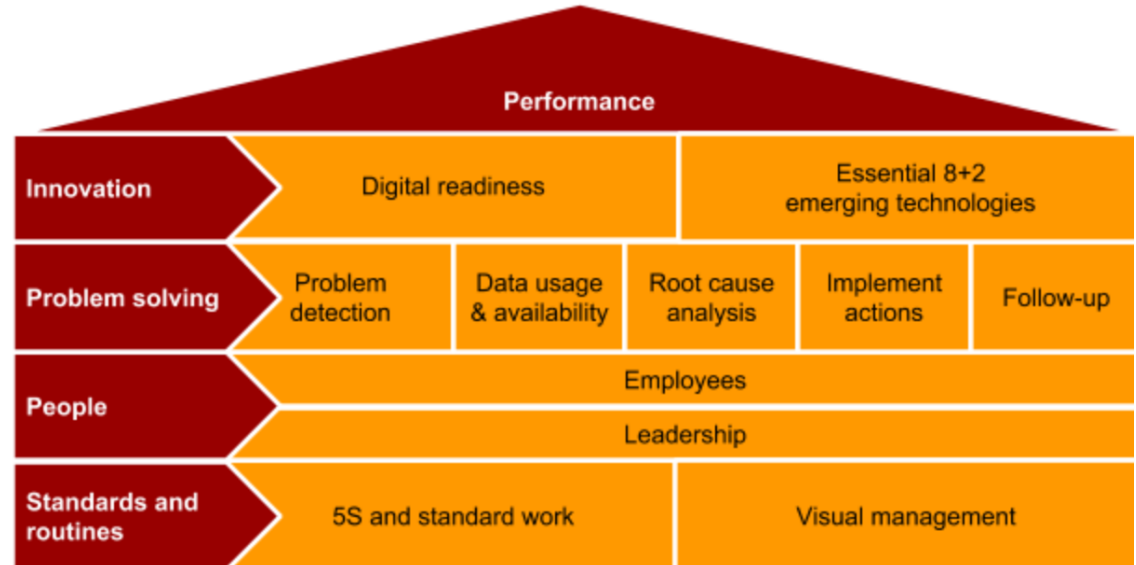
1. Online survey overview questions examples

How much is visual management used in your company?

○ Almost no KPI's in the company are displayed visually. There is no evidence of visual management on the shopfloor level

○ Progress of some KPI's is shown on the visual dashboards, however it is done inconsistently and only few decisions are made around these dashboards.

○ All important KPI's on all company levels are tracked in the visual dashboards which are used for performance management. However, the KPI's shown there may not be shown with graphs. The Continuous Improvement reports (A3, Kaizen etc.) are not regularly shown on the dashboards.

○ All important KPI's on all company levels are tracked in the visual dashboards which are used for performance management. The information shown there is always up-to-date and shown using graphics. It is immediately clear for each performance gap what investigation took place and what were the actions taken. Continuous Improvement reports (A3, Kaizen etc.) are prominently shown on the dashboards.

How do you assess the digital readiness of your organisation?

○ Very low - digitalization is not part of the culture and the strategy, and the employees and leaders don't feel comfortable in a digital environment. Day to day activities are mostly carried out without relying on digital solutions.

○ Quite low - digitalization is not yet part of the culture and the strategy, but some employees and leaders feel comfortable in a digital environment. Some day to day activities are already digitalized successfully.

○ Quite good - digitalization is part of the culture and the strategy, and most of the employees and leaders feel comfortable in a digital environment. Most of the day to day activities are digitalized successfully.

○ Very good - strategy of the company is built around the digital transformation, potentially with the company's business model changed as a result. Every major activity within the company is optimized using the digital technologies.

2. The survey will highlight potential level the company is at right now

Where would you position your company?

Decreasing performer

- You do not have a long-term vision on performance as you are too busy fighting various day-to-day problems
- CI is a concept that is unknown to most of your employees
- You do not have a clear view on all the problems that (will) arise within the organisation and how those are solved
- You are not aware of the parameters that may affect your performance or how you can control those
- There is no standard way of working or standard procedure for problem solving
- Employees are not involved in improvement programmes

Stable performer

- Average performance remains on the same level over time
- But regular peaks and downfalls in performance are experienced
- There is a basic knowledge of Continuous Improvement (CI)
- CI is not embedded in the culture of your company
- Problems are being resolved in an unstructured and unstandardized way
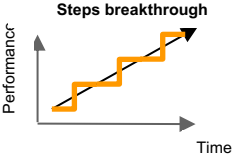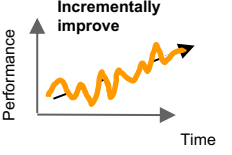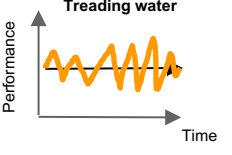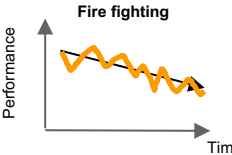
Incremental performer

- Your performance keeps on improving but you do not leverage the full potential of your employees ideas.
- A big part of your employee has a good knowledge in CI.
- CI is growing its importance within the company. It is closely getting part of your corporate culture as pushed by the top management.
- Problems encountered in the company are solved quickly and efficiently.
- You sometimes miss to foresee coming problems and would like to improve on that.
- You have a strong Knowledge Management system that enable you to analyse quickly the problems encountered.

Excellent performer

- Your performance keeps only on making big improvement steps
- All your employees (from the shopfloor to the top management) have a very strong knowledge in CI.
- CI is part of your culture and is a clear pilar within your strategic goals.
- You are fully in control of all the parameters that may affect your performance which enables you to foresee and avoid all problems.
- Your employees innovative ideas enables you to improve faster than your competitors.
- Your database and Knowledge Management System is robust and complete.

34

2. Implemented CI toolkit must depend on the maturity of the company

|		Knowledge, Skills & Behaviour	Processes & Tools	Organisation Structure
Excellent performer	Steps breakthrough	• Design of experiment • Design thinking • Design for Six Sigma • TRIZ	• Office TPM • Autonomous Maintenance • Predictive Maintenance • Industry 4.0 management system	
Incremental performer	Incrementally improve	• Green Belt (GB) training • Black Belt (BB) training • Coaching • Transactional lean training	• Improvement Projects (Lean Six Sigma, DMAIC, PDCA) • Changeover Management (SMED) • Integrated performance management system • R&D projects	• CI program management • Project Management of LSS projects • Embed a CI culture
Stable performer	Treading water	• Yellow Belt (YB) training • Green Belt (GB) training • Coaching • Embed a CI culture	• Kaizen • Routine problem solving • Statistical analysis	
Decreasing performer	Fire fighting	• White belt (WB) training • Yellow belt (YB) training • Lean methods • Leadership champion	• Visual management • 5S • Standardised work • Value stream mapping • Gemba performance management system	

35

3. For building a robust roadmap, diagnostics of company processes are needed, in combination of top-down and bottom-up
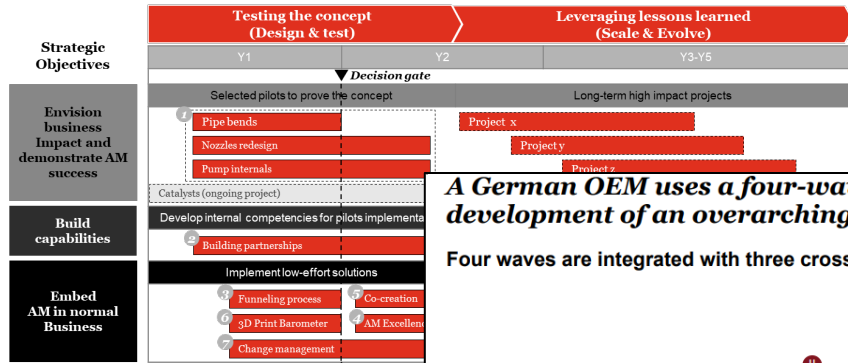
ILLUSTRATIVE

Top-down approach
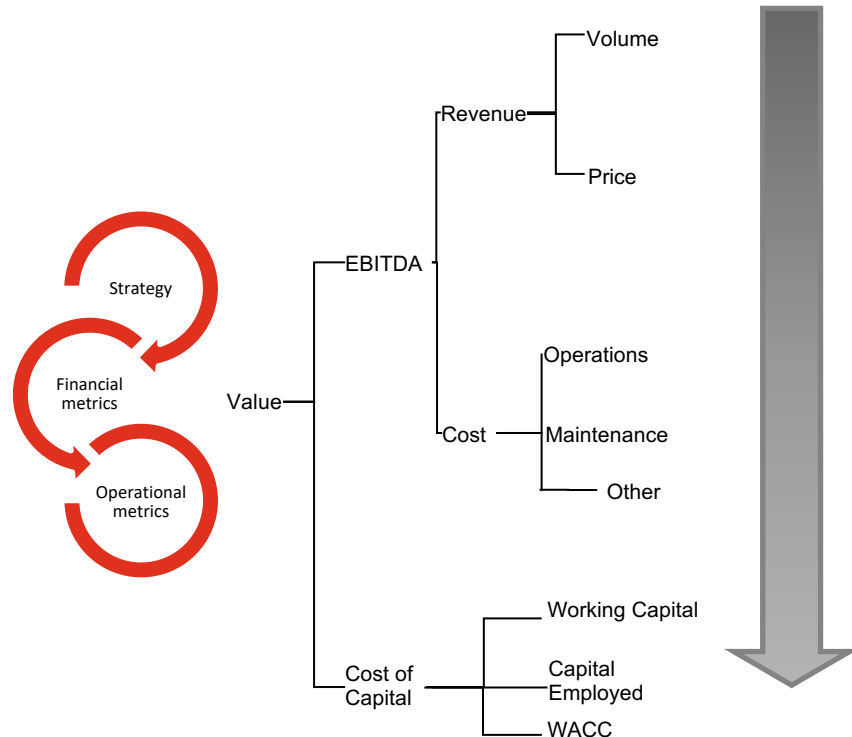
Bottom-up approach
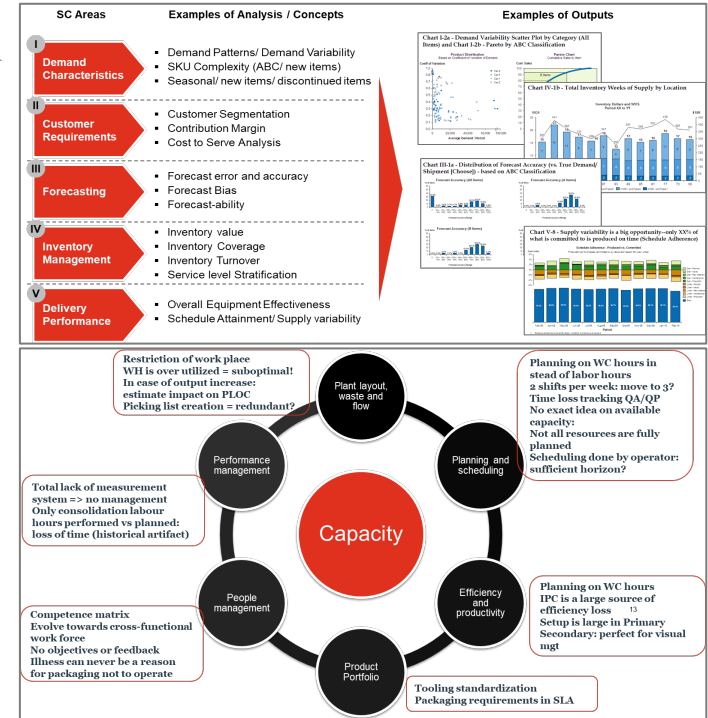
4. The roadmap and implementation strategy could be defined after the diagnostics
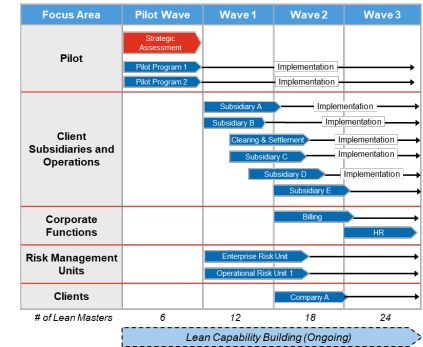
ILLUSTRATIVE

The way forward focuses on building partnership and executing selected proof of concepts in the short term

Strategic Objectives		Testing the concept (Design & test)		Leveraging lessons learned (Scale & Evolve)
		Y1	Y2	Y3-Y5
			Decision gate	

Envision business Impact and demonstrate AM success

Build capabilities

Embed AM in normal Business

Selected pilots to prove the concept / Long-term high impact projects
- Pipe bends
- Nozzles redesign
- Pump internals
- Project x
- Project y
- Project z

Catalysts (ongoing project)
Develop internal competencies for pilots implementation
- Building partnerships
Implement low-effort solutions
- Funneling process
- 3D Print Barometer
- Change management
- Co-creation
- AM Excellence

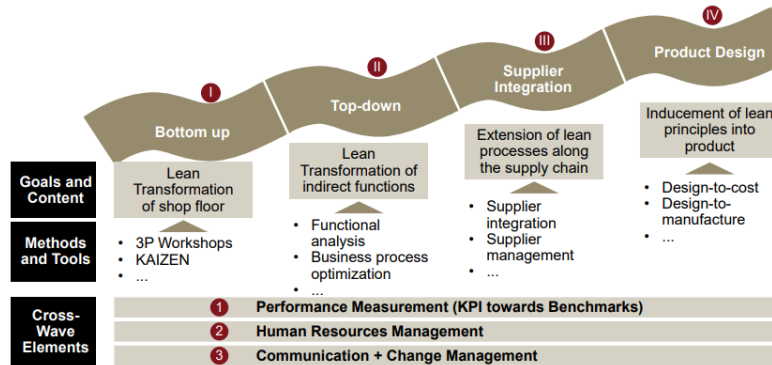## Client will embark on a multi-phase Lean journey starting with two Pilots and a Strategic Assessment

Lean Journey
- Lean is a multi-year journey to transform the entire organization, building Lean capabilities and culture change throughout
- An initial Assessment in conjunction with two Pilots will determine an enterprise wide Lean roadmap
  - Conduct a Strategic Assessment to put a program structure in place and set initial hypotheses on Lean waves
  - Execute Pilots to provide broader insight into potential impact
  - Build understanding of Lean scope and duration

Lean Enterprise Execution Roadmap

Focus Area	Pilot Wave	Wave 1	Wave 2	Wave 3
Pilot	Strategic Assessment / Pilot Program 1 / Pilot Program 2		Implementation / Implementation	
Client Subsidiaries and Operations		Subsidiary A / Subsidiary B / Clearing & Settlement / Subsidiary C / Subsidiary D / Subsidiary E	Implementation / Implementation / Implementation / Implementation / Implementation	
Corporate Functions			Billing	HR
Risk Management Units			Enterprise Risk Unit / Operational Risk Unit 1	
Clients				Company A
# of Lean Masters	6	12	18	24

Lean Capability Building (Ongoing)

A German OEM uses a four-waves approach for a corporate development of an overarching Lean & CIP capability

### Four waves are integrated with three cross-wave elements

	Bottom up	Top-down	Supplier Integration	Product Design
Goals and Content	Lean Transformation of shop floor	Lean Transformation of indirect functions	Extension of lean processes along the supply chain	Inducement of lean principles into product
Methods and Tools	• 3P Workshops • KAIZEN • ...	• Functional analysis • Business process optimization • ...	• Supplier integration • Supplier management • ...	• Design-to-cost • Design-to-manufacture • ...
Cross-Wave Elements	❶ Performance Measurement (KPI towards Benchmarks)			
	❷ Human Resources Management			
	❸ Communication + Change Management			

KPI: Key Performance Indicator
Source: Strategy&

37

Do you need to already be mature to start implementing Industry 4.0?

…Not if you use **Agile** approach!

1. Select the "low hanging fruit" (process that is ripe for change)
2. "Lean out" the process
3. Optimize it further with Six Sigma and Industry 4.0 tools
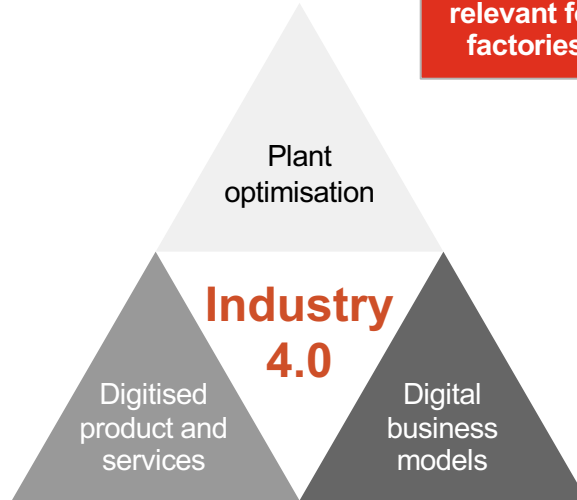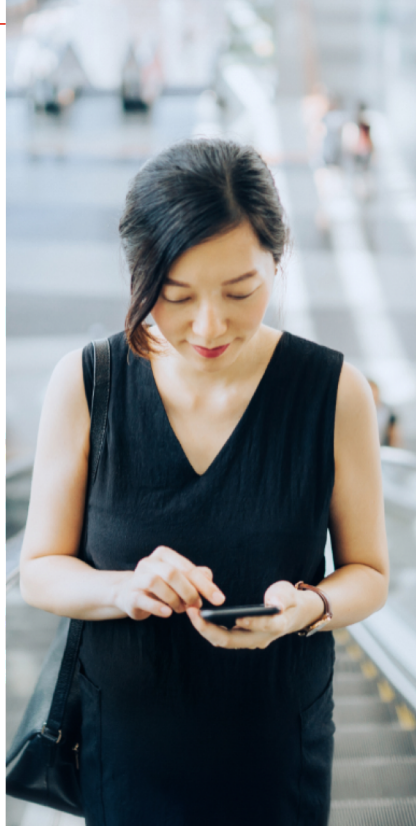4. Use "Lean lighthouse" approach
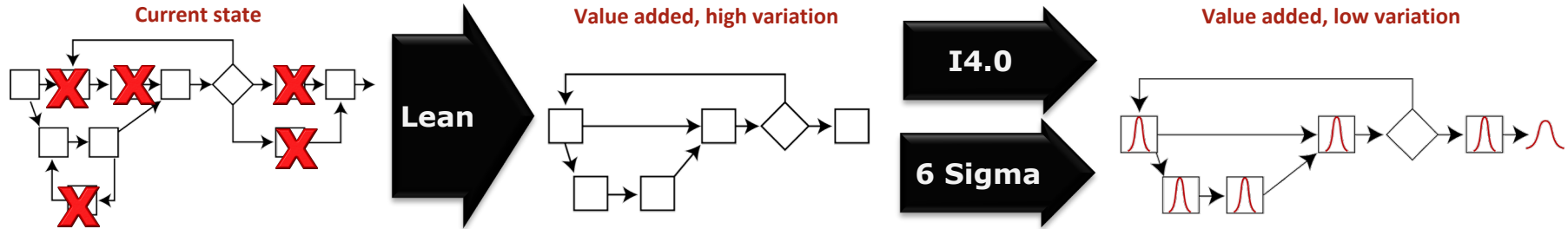
Why would you go digital?

"My dear, here we must run as fast as we can, just to stay in place. And if you wish to go anywhere you must run twice as fast as that."

— Lewis Carroll, Alice in Wonderland

Industry 4.0 impacts your entire value chain and processes

Plant optimisation

Industry 4.0

Digitised product and services

Digital business models

Most relevant for factories

1

Plant optimisation

How to fully integrate and optimise all processes from supplier to customer and from R&D to sales, making use of digital technologies?

2

Digitised Products & services

How to innovate your products to solutions to services. Which new business can you develop with digital technology?
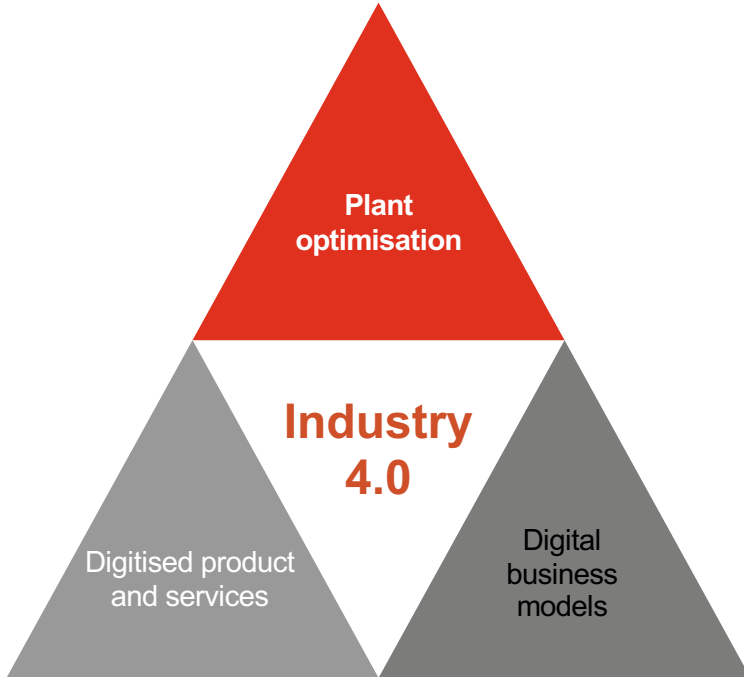
3

Innovative Business models

How to strengthen your position in the industrial ecosystem and grow by innovation?

Digitalisation and **best-in-class** processes are the key enablers to reach **profitable business growth** in an Industry 4.0 era.

Digital is a new enabler to achieve the next level for typical plant objectives

Industry 4.0 triangle — Plant optimisation (top), Digitised product and services (bottom left), Digital business models (bottom right)

Operational
- Efficiency and cost
- Safety
- Quality
- Utilization
- Output

Customer
- Flexibility
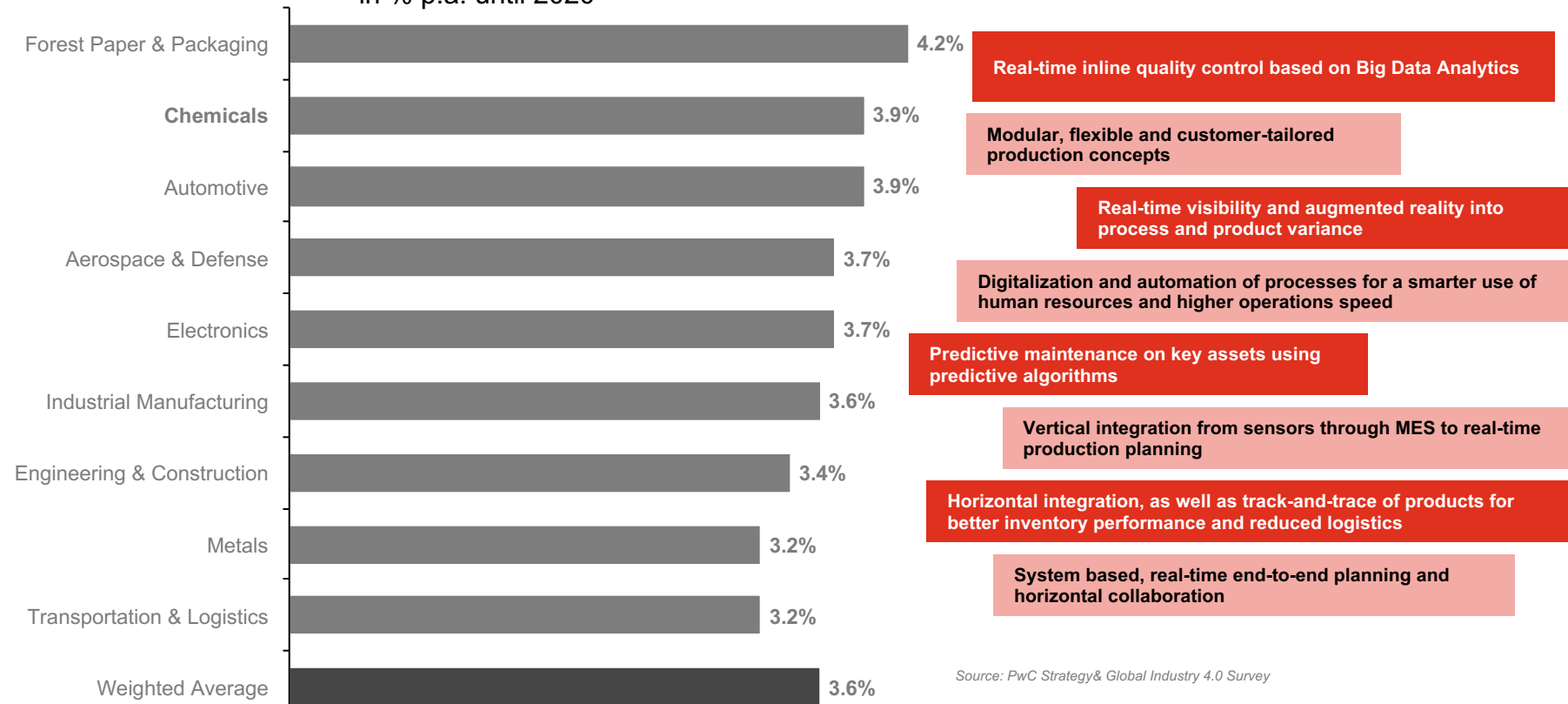- Responsiveness
- Customer Service
- Customer intimacy

Employee
- Employee satisfaction
- Employee added value
- Company culture
- Safety

Research shows that on average companies reduce cost by 3.9% per year by digitizing their operations

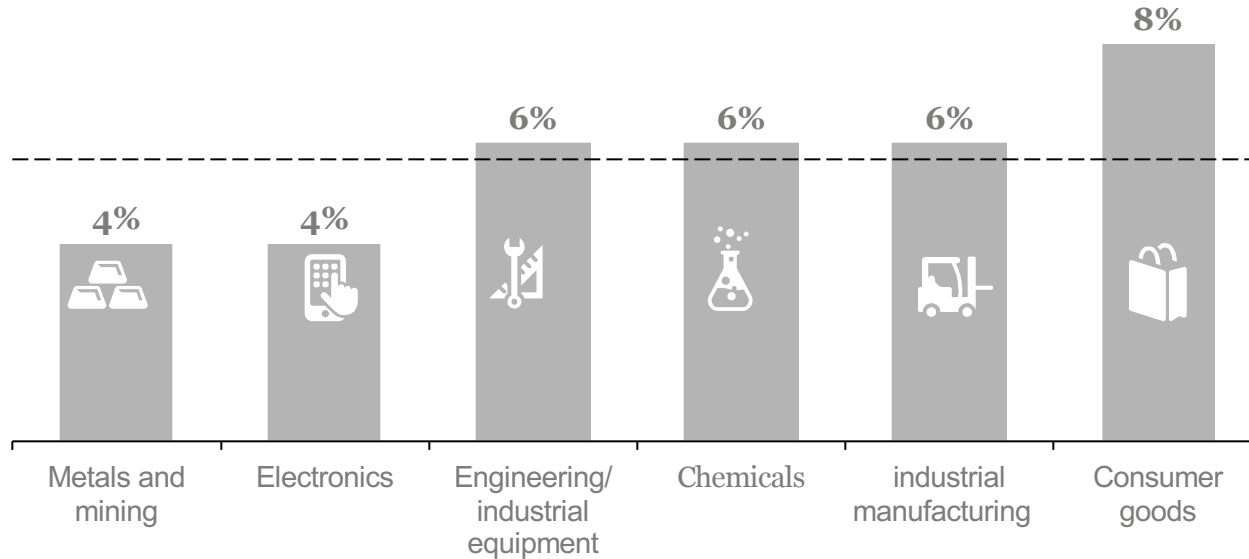## Cost reduction by Industry
in % p.a. until 2020

Industry	Cost reduction
Forest Paper & Packaging	4.2%
Chemicals	3.9%
Automotive	3.9%
Aerospace & Defense	3.7%
Electronics	3.7%
Industrial Manufacturing	3.6%
Engineering & Construction	3.4%
Metals	3.2%
Transportation & Logistics	3.2%
Weighted Average	3.6%

Sources of lower cost and higher efficiency

- Real-time inline quality control based on Big Data Analytics
- Modular, flexible and customer-tailored production concepts
- Real-time visibility and augmented reality into process and product variance
- Digitalization and automation of processes for a smarter use of human resources and higher operations speed
- Predictive maintenance on key assets using predictive algorithms
- Vertical integration from sensors through MES to real-time production planning
- Horizontal integration, as well as track-and-trace of products for better inventory performance and reduced logistics
- System based, real-time end-to-end planning and horizontal collaboration
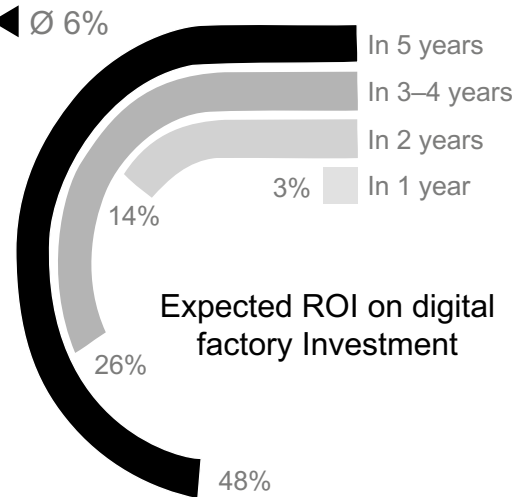
Source: PwC Strategy& Global Industry 4.0 Survey

42

Companies invest on average 6% of revenues for the coming 5 years with average payback of 3 - 5 years

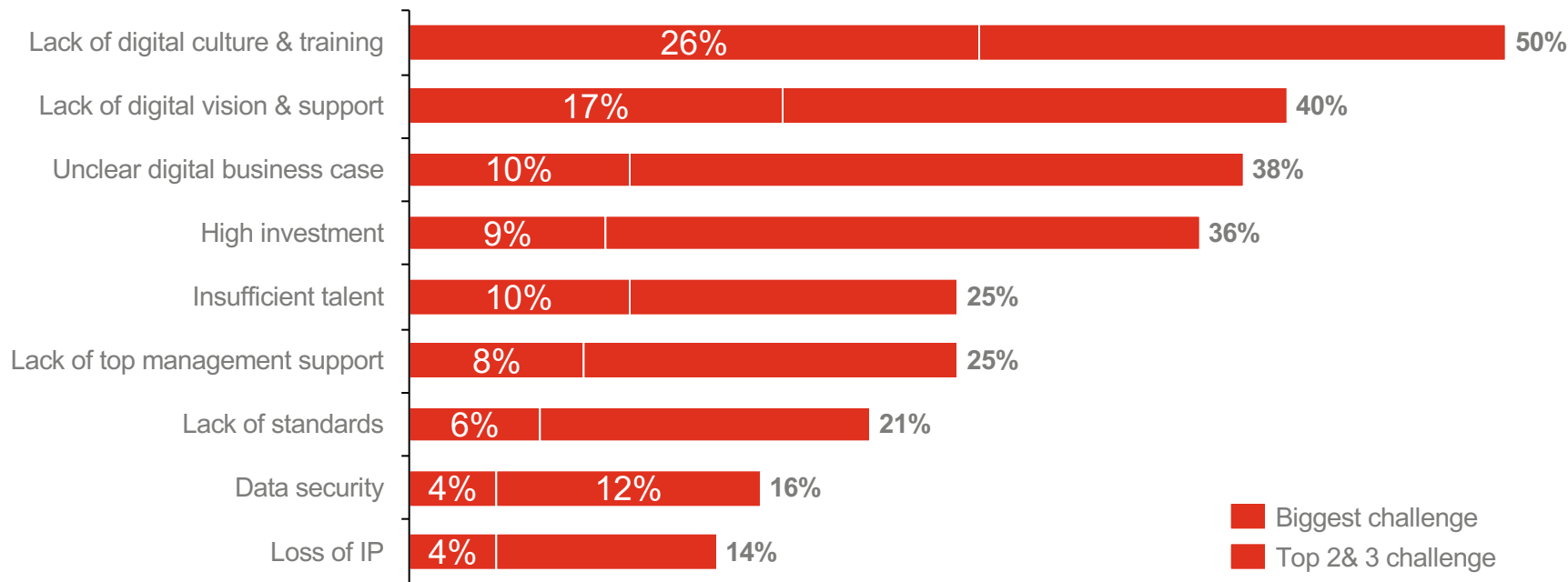**Average Investments in Digital Factories**
in % of annual revenues

Average Payback period
in amount of years

4%	4%	6%	6%	6%	8%
Metals and mining	Electronics	Engineering/ industrial equipment	Chemicals	industrial manufacturing	Consumer goods

Ø 6%

In 5 years
In 3–4 years
In 2 years
In 1 year

3%
14%
26%
48%

Expected ROI on digital factory Investment

... but digital operations is not only about technology

Challenges in digitization

Challenge	Biggest challenge	Top 2 & 3 challenge	Total
Lack of digital culture & training	26%		50%
Lack of digital vision & support	17%		40%
Unclear digital business case	10%		38%
High investment	9%		36%
Insufficient talent	10%		25%
Lack of top management support	8%		25%
Lack of standards	6%		21%
Data security	4%	12%	16%
Loss of IP	4%		14%

■ Biggest challenge
■ Top 2& 3 challenge

We developed an overall site digital vision at a large chemical player

1 **High level WHY**

A **High level digital vision statement** for the site (WHY), aligned with all stakeholders
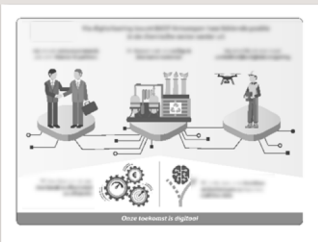
2 **High level WHAT**

The **keywords of the vision** statement are detailed into **themes** to explain more in depth what it means
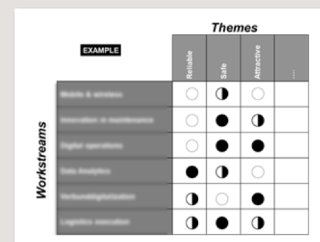

3 **Ambition levels & benefit cases**

A tailored digital maturity model was created, where the experienced management decided on the **AS-IS & TO-BE** of the site
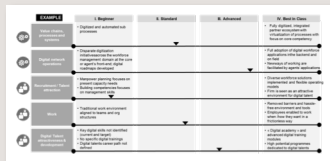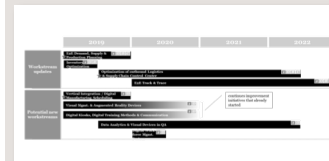

4 **Assessment of A4.0 activities**

The **current A4.0 activities are assessed** in light of this vision and ambitions and **potential gaps** will be evaluated

5 **Action plan**

Gap closing initiatives are defined and consolidated into an actionable plan
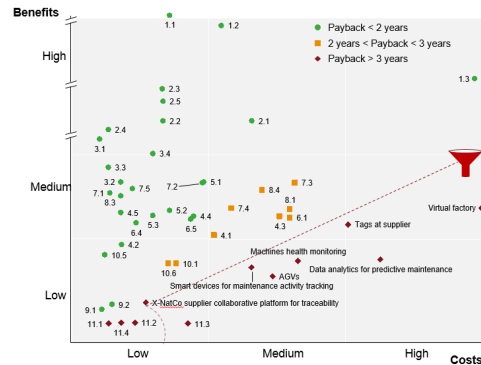

The digital site vision

Compelling storyline for current and future employees

Defining the digital ambition

We supported a process company prioritizing initiatives on impact and feasibility to design their Industry 4.0 roadmap
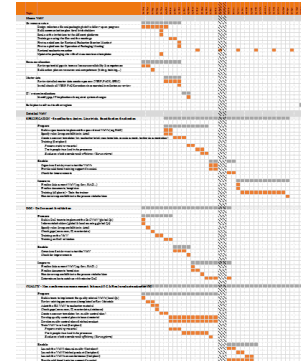
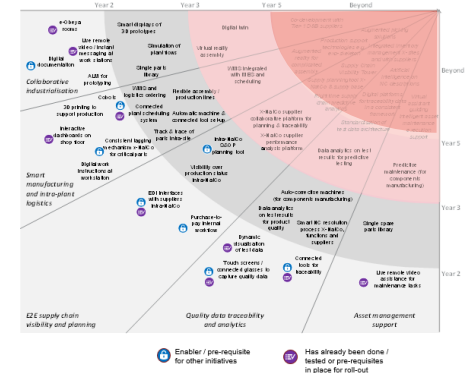**1** **Prioritizing initiatives based on Cost-benefit ranking**

2 **Completing project charter for selecter initiatives**

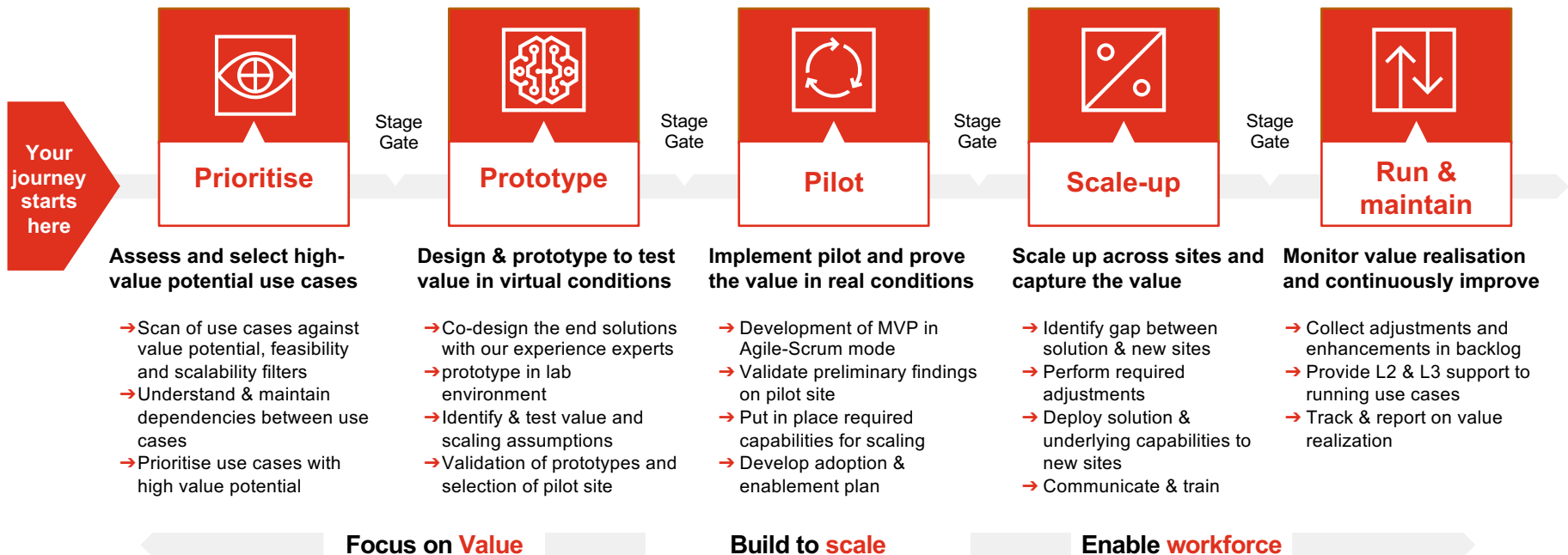**3** **Set timelines to balance workload and costs**

4 **Visualize roadmap in years and functional domains**

We helped a global chemical company to design and execute the transformation with our proven approach to develop use-cases, where Value, Scalability and Adoption are core

Manage & steer program / value tracking

Your journey starts here

Prioritise	Stage Gate	Prototype	Stage Gate	Pilot	Stage Gate	Scale-up	Stage Gate	Run & maintain

Assess and select high-value potential use cases

→ Scan of use cases against value potential, feasibility and scalability filters
→ Understand & maintain dependencies between use cases
→ Prioritise use cases with high value potential

Design & prototype to test value in virtual conditions

→ Co-design the end solutions with our experience experts
→ prototype in lab environment
→ Identify & test value and scaling assumptions
→ Validation of prototypes and selection of pilot site

Implement pilot and prove the value in real conditions

→ Development of MVP in Agile-Scrum mode
→ Validate preliminary findings on pilot site
→ Put in place required capabilities for scaling
→ Develop adoption & enablement plan

Scale up across sites and capture the value

→ Identify gap between solution & new sites
→ Perform required adjustments
→ Deploy solution & underlying capabilities to new sites
→ Communicate & train

Monitor value realisation and continuously improve

→ Collect adjustments and enhancements in backlog
→ Provide L2 & L3 support to running use cases
→ Track & report on value realization

Focus on Value   **Build to scale**   **Enable workforce**

Digital is a new enabler to achieve the next level for typical plant objectives

Connect digital to the business imperatives

Based on the CI maturity and company culture

- Efficiency and cost
- Safety
- Quality
- Utilization
- Output

Operational

- Flexibility
- Responsiveness
- Customer Service
- Customer intimacy

Customer

- Employee satisfaction
- Employee added value
- Company culture
- Safety

Employee

+

Digital for the happy few

versus

Digital for all, by all

Organisations need to create the right mix of skilled and adaptable people to thrive in a digital world

Upskilling: Building blocks

| Assess current environment & identify skills gaps and mismatches	Build a future-proof skills strategy	Lay the cultural foundation	Develop and implement upskilling	Evaluate return on investment
Define future workforce and understand impact of automation	Rapidly review and refresh upskilling strategy	Create a cultural shift and the right behaviours	Create buy-in and align rewards and incentives	Measure Return on Learning investment
Assess current workforce capabilities	Make inclusion a priority	Inspire citizen-led innovation	Free up time for learning	Track Employee Engagement
Understand the organisational culture	Improve effectiveness of Learning Organisation & Tech	Nurture physical vitality and mental wellbeing	Design for an engaging learning experience	Benchmark the L&D function
Identify skills gaps, mismatches and role adjacencies	Test strategic alternatives and scale best-performing programmes		Build digital understanding **1**	
Validate the case for change			Focus on targeted personal transformation journeys	
			Deliver training **2**	

1 Digital fitness app **PwC**

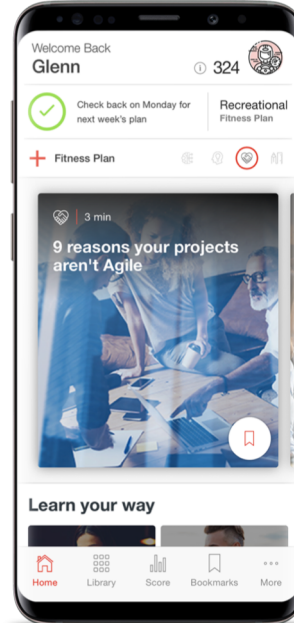**2** Blended learning **Moresteam**

Digital Fitness App Snapshot

9
Countries
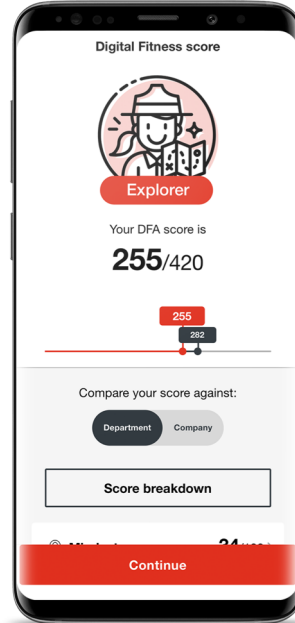
40
Organizations

153,000
Registered Users

Assess

Answer a few questions about your digital knowledge and behaviours to understand your strengths and weaknesses in the digital world, and see how you stack up against your peers.

Learn

Choose a fitness plan that works for you. Learn through short, bite-sized content. Explore content from trusted sources. Gain knowledge from over 60 topics and 300 artifacts.

Grow

Watch your digital fitness score rise. Stay on track with a customized plan every week and watch your digital skills improve.

PwC Digital Workforce Transformation
Confidential information for the sole benefit and use of PwC's client.

50

Understand how digitally fit your organisation really is!

What areas of your business need a talent injection? Which of your teams doesn't know their Machine Learning from their AI? What digital topics are your people desperate to learn about? What are you organisational gaps? Which of your teams are engaged the most?

DFA can help you understand

If your investments in digital learning working

Low and high performing teams by area

Additional training requirements

Your benchmark score against industry averages and competitors

Investing in employees leads directly to an increase in customer satisfaction and profits.

15x

Consumption of digital content through our LMS system has increased by 15 times since the launch of DFA in 2017, with +1,500 downloads of digital content in Sep'18.[*]

50%

Digital culture is the top consumed category within the DFA app with more than 22% of users learning about it. Consumption via video content is more than 50%.[*]

20%

PwC has improved total workforce productivity by close to 5% in 2018 and is projecting increased productivity further up to 15% as a result of our Digital Upskilling journey.[*]

* PwC Internal Stats

52

Blended learning increases speed and quality of competence building

E-learning

- Theoretical background through E-learning module in partnership with **MoreSteam**
- Online (e.g.Webex) sessions for Q&A and sharing

Class room (on site)

- Practical examples specifically from clients to test
- Simulations and games (potential usage of the PwC Experience Center)
- Experience sharing between peers

On the job

- Coaching for support, evaluation and direction
- Shadowing on the job for immediate feedback and support

Keep in Touch

Alexander Silantyev
alexander.silantyev@pwc.com

Ellen Milnes
emilnes@moresteam.com

Next Webcast: Ruben Del Toro - Southwest Airlines
Thursday, January 30, 2020 @ 11:00 AM EST

The future of continuous improvement is calling!

Are you ready?