

Digitally prepared?

A view on the industry's readiness for Industry 4.0, and Digitalization in the value chain



- The information provided in this document is based on the responses of the survey participants and does not necessarily reflect StepChange Consulting views
- StepChange Consulting is not in any way responsible for the survey results
- StepChange Consulting merely provides a summary of the survey results and an interpretation thereof



- Management consultancy specialized in the pulp, paper and packaging industry
- Focus on sustainable performance improvements
- Interdisciplinary and collaborative project approach
- International team of industry experienced consultants
- Primarily top tier paper & packaging companies among client base (>€ 1bn in revenue)
- Vienna office founded in 2006
- US operations started in 2010
- Projects in more than 30 countries



DRIVING CHANGE
TO DELIVER RESULTS

A view on the Industry's readiness for Industry 4.0

Digitalization in the Paper and Packaging value chain

Evaluate state of the industry regarding Industry 4.0 / Digitalization

- 1 Priority of Industry 4.0 / Digitalization on the agenda of companies
- 2 Readiness of the pulp, paper and packaging industry
- 3 Maturity level of Industry 4.0 / Digitalization projects
- 4 Perceived benefits and challenges related to the implementation
- 5 The PPP industry's performance compared to other industries

All results presented focus on answers from participants from the forest-based industry (>65%), unless otherwise stated. Results are compared to the study conducted in 2015 to show the development of the industry during the last two years.



Study results shall trigger action planning to leverage the vast unrealized potentials from the digitalization of industrial processes, products and services

Geography



- 85% of participants from Europe
- **12% of participants from Austria**
- 15% of participants from Americas, Asia, Australia and Africa

Participants by functions



- 35% Board members & C-level incl. General Manager
- 41% Department Manager
- 24% Other

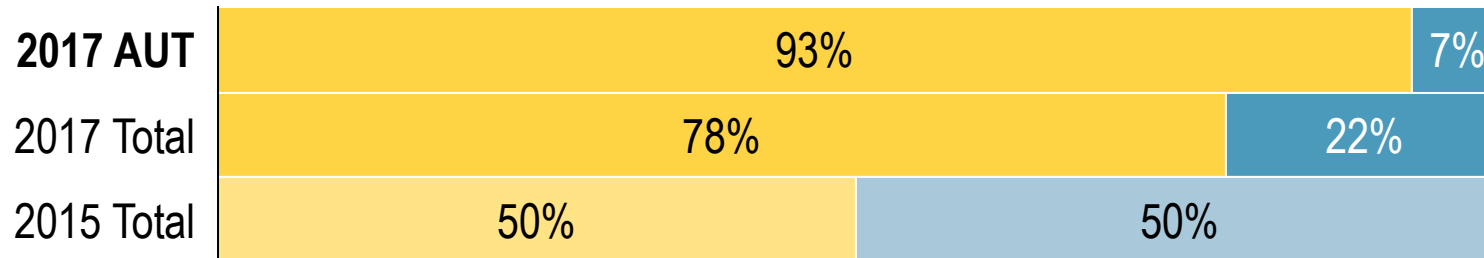
Participants by sub-industries



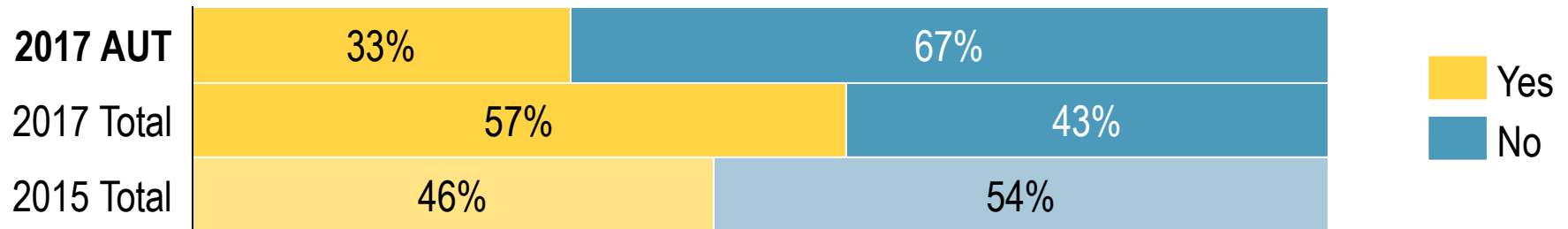
- 73% from the pulp, paper and packaging industry (PPP)
- 27% of participants from other industries (incl. FMCG, machinery & technical services, chemicals, IT, etc.)

Industry 4.0 has become a well known term. The majority of Austrian participants do not see Industry 4.0 as game changer

Q: Have you heard the term Industry 4.0? [%]



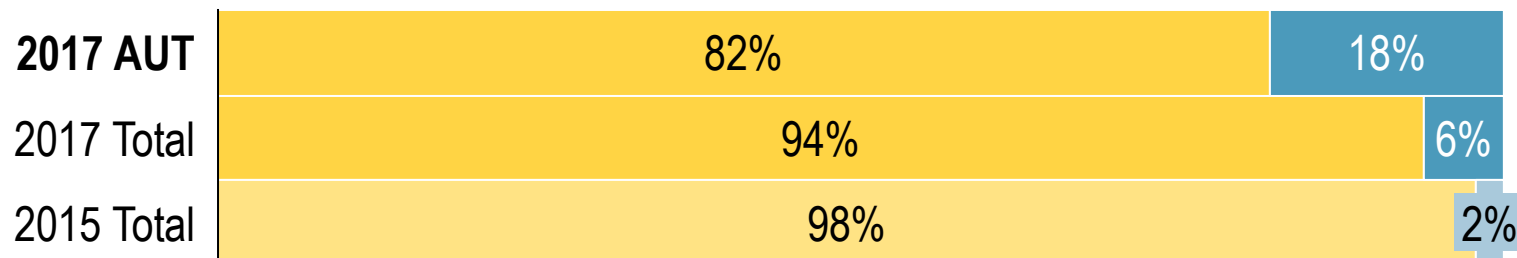
Q: Do you expect Industry 4.0 to be a game changer for your company? [%]



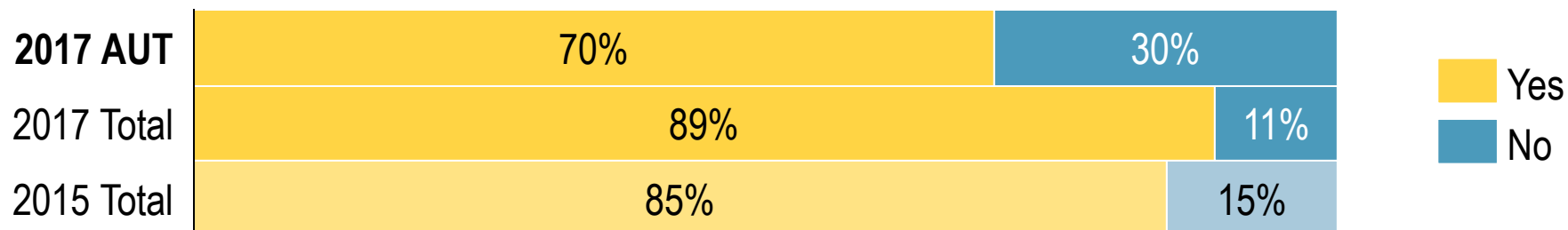
In 2017, two thirds of Austrian respondents do not expect Industry 4.0 to become a game changer, while the majority of global respondents expects it to become a game changer

Austrian respondents expect less industry impact and less supply-chain impact by Industry 4.0, compared to the total

Q: Do you expect Industry 4.0 to impact your industry? [%]



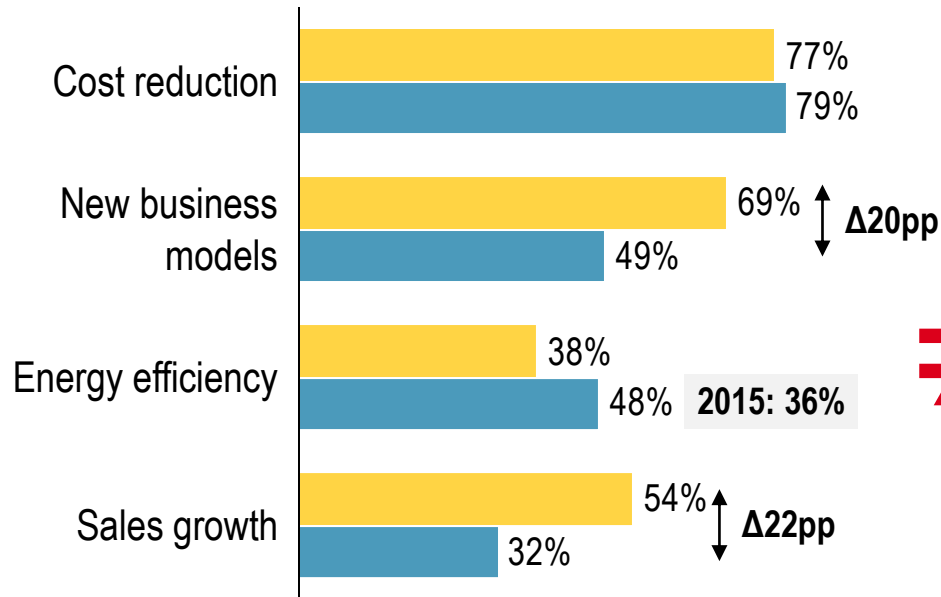
Q: Do you expect Industry 4.0 / digitalization to transform your supply-chain? [%]



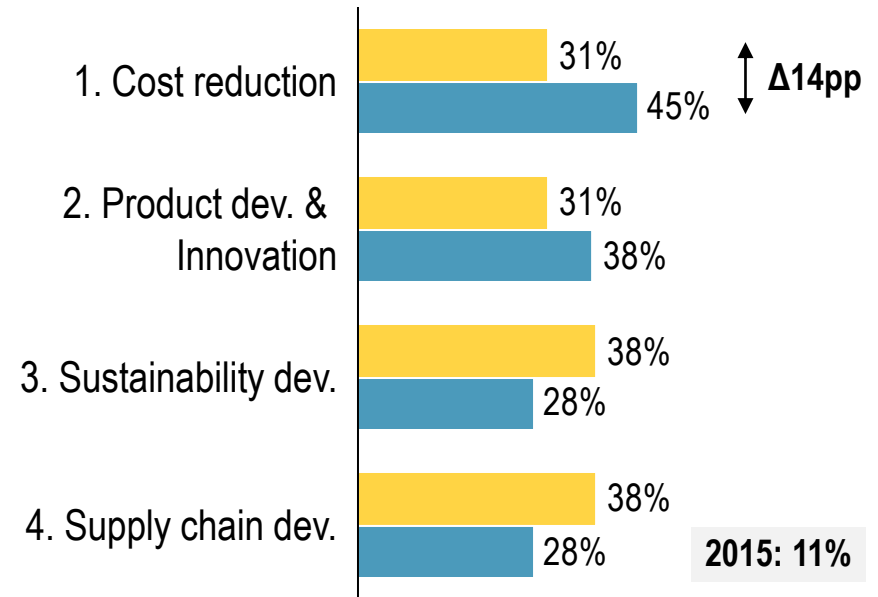
89% of the respondents expect Industry 4.0 to transform their supply-chain, Austrian participants are less determined with 70%

High expectation on benefits from Industry 4.0, but low priority

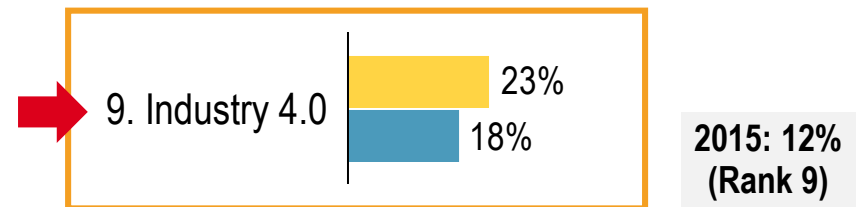
Q: Industry 4.0 Benefits



Q: Industry priorities



Low priority



2017 AUT 2017 Total



Cost reduction is perceived as the highest benefit from Industry 4.0 by almost 80%. However, Industry 4.0 is still not among top industry priorities. Risk of missing the opportunity?

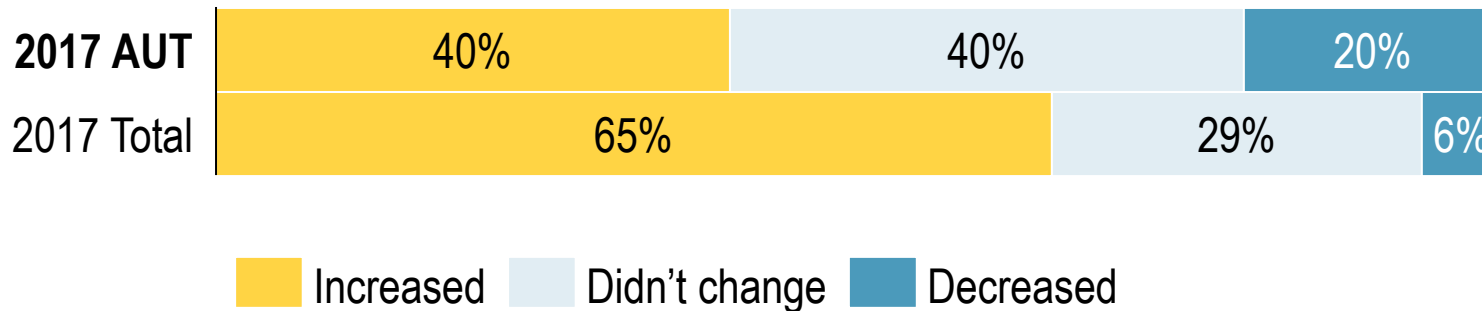
Results show Pulp, Paper & Packaging Industry (PPP) participants viewpoint. Multiple answers possible.

Almost 75% of the Austrian respondents don't have a clear digitalization strategy, which is reflected in IT budgeting as well

Q: Does your company have a clearly formulated strategy for Industry 4.0 / digitalization? [%]



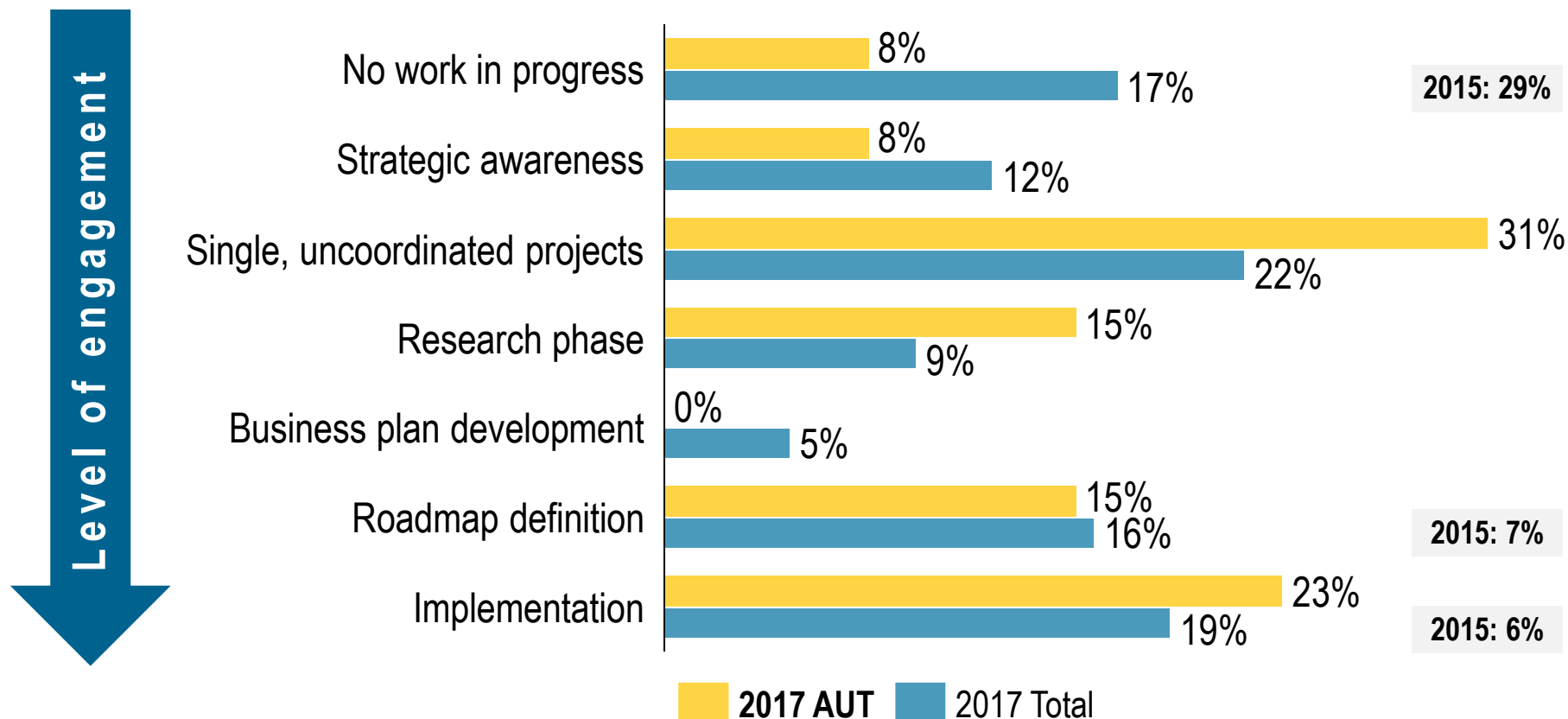
Q: How did the IT budget of your company change during the last two years? [%]



60% of Austrian respondents reported decreasing or unchanged IT budget, while over two thirds of the respondents in total having increasing IT budgets. Risk of falling behind?

Mixed view on the level of engagement with Industry 4.0, but significant improvement since 2015

Q: How is your company currently engaged with Industry 4.0? [%]

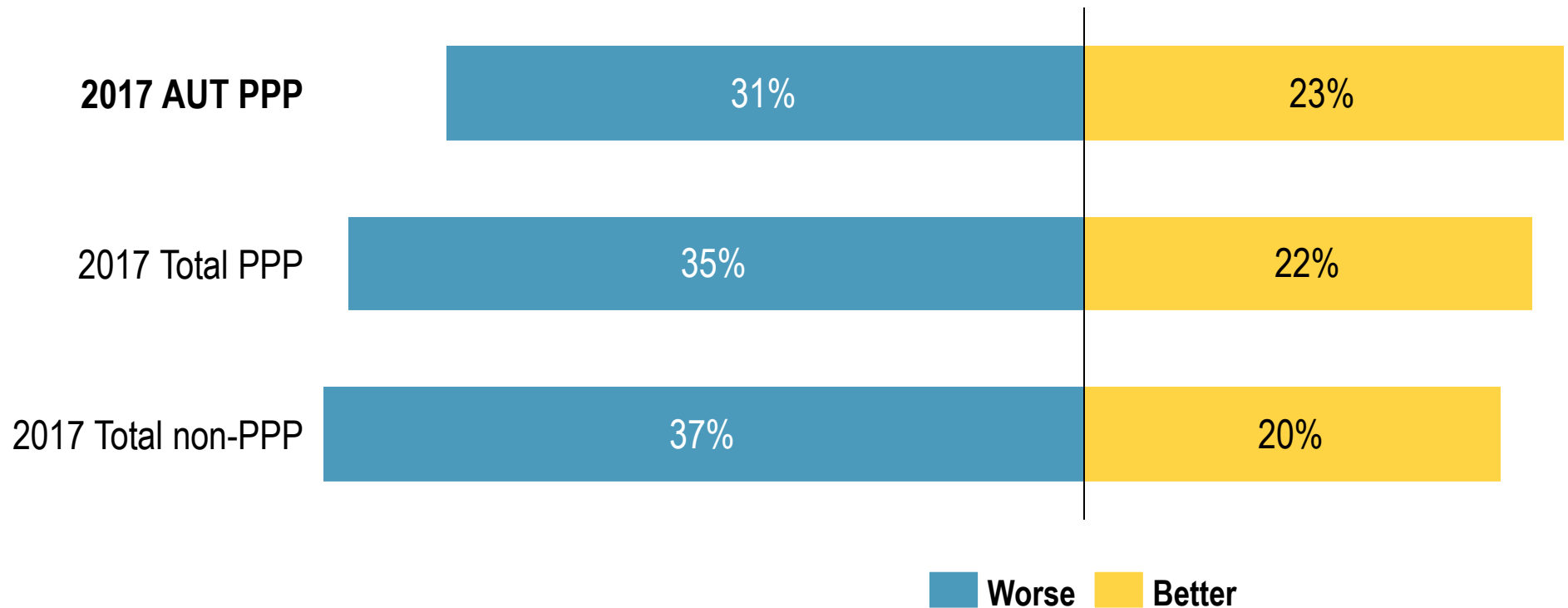


Austrian respondents show a higher level of engagement with Industry 4.0 compared to the total of participants, however, just 38% are already engaged in specific projects in Austria

Results show Pulp, Paper & Packaging Industry (PPP) participants viewpoint

Self-perception of the Pulp, Paper & Packaging industry is more positive compared to self-perception of other industries

Q: How do you consider your industry to be performing compared to other industries in terms of Industry 4.0 / digitalization? [%]



Around one third of the PPP participants considers their Industry 4.0 performance worse compared to participants from other industries

Delta to 100% representing respondents considering "same performance" of their industries regarding Industry 4.0 / Digitalization, compared to other industries

Industry 4.0...

...has become a well known term

...is not expected to be a game changer in Austria, contrary to the perception of the rest of the world

...is expected to transform the supply chain

...is of low priority, however, significant benefits are expected (e.g. cost reduction, sales growth)

...is rarely part of a company's strategy

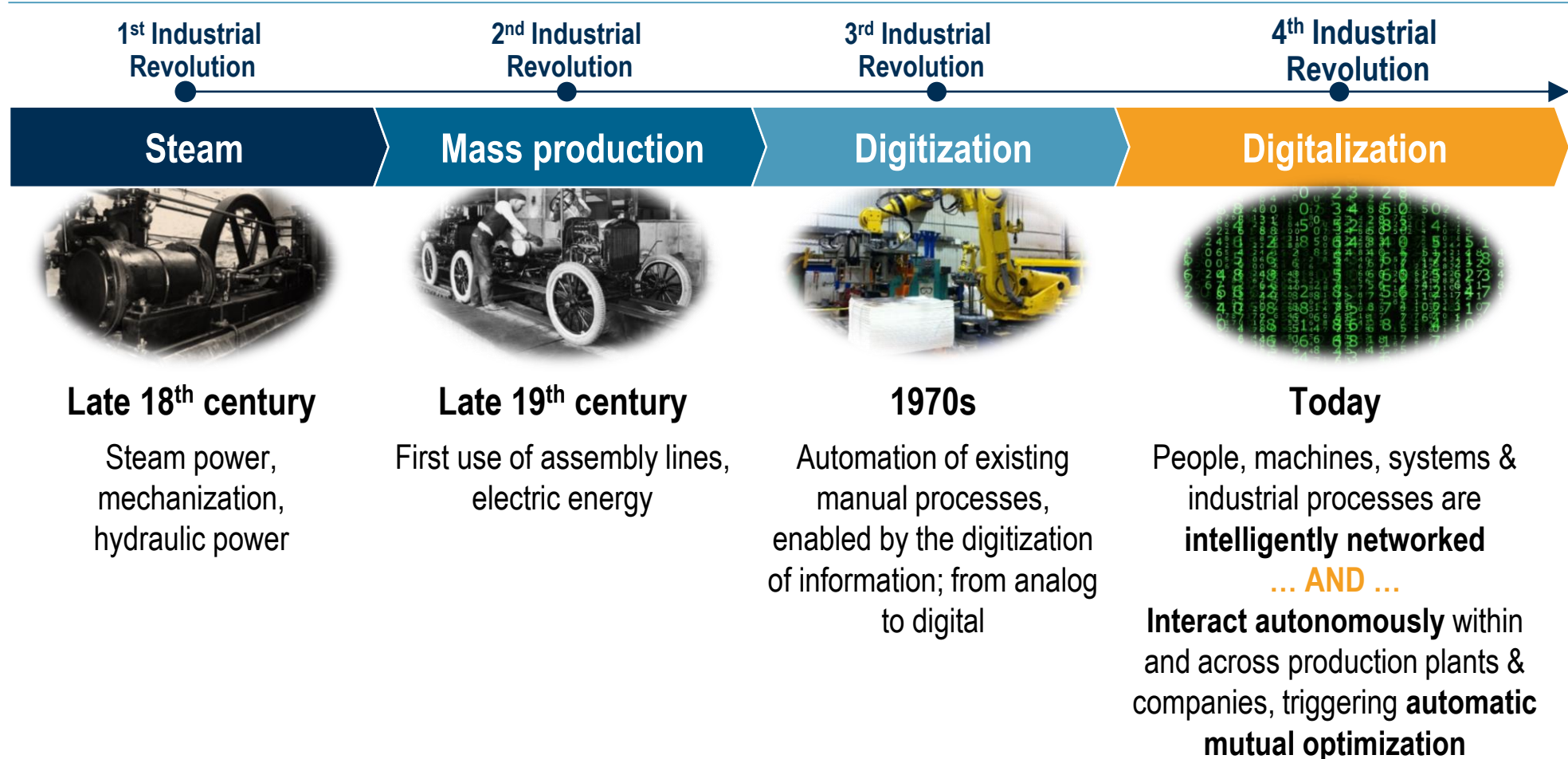
...is showing a scattered picture regarding industry engagement

...performance self-perception of the PPP industry is more positive compared to other industries

A view on the Industry's readiness for Industry 4.0

Digitalization in the Paper and Packaging value chain

Digitalization is about more than just manufacturing



Digitalization creates value-add by connecting digitized industrial processes, products & services across the entire value chain

Digitalization



Today

People, machines, systems & industrial processes are **intelligently networked**

... AND ...

Interact autonomously within and across production plants & companies, triggering **automatic mutual optimization**



Smart equipment



Networking & connectivity



Value chain integration



Smart products



Data analytics



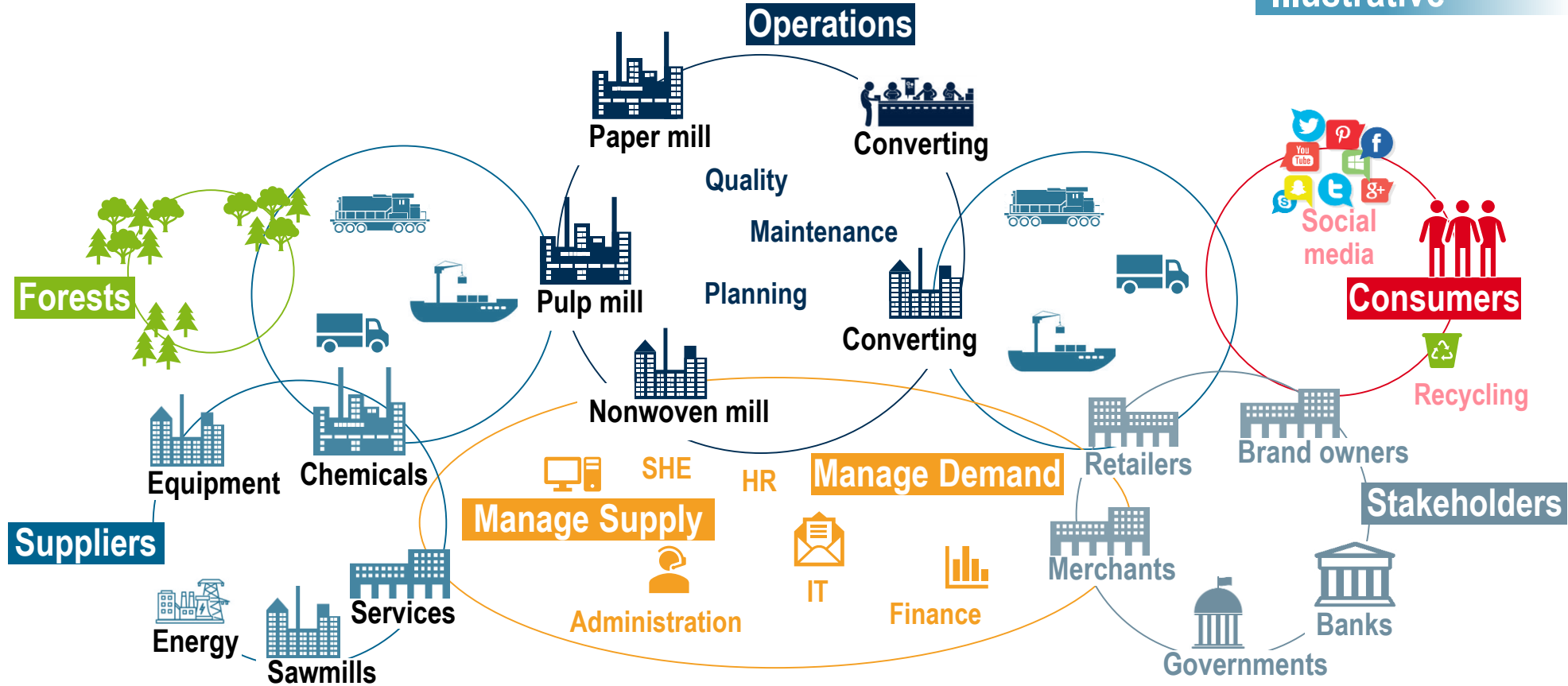
To leverage the full potential of digitalization, corresponding initiatives need to be **evaluated, planned and implemented** consistently and holistically across the whole value chain



A holistically integrated digitalization strategy enables companies to leverage the full potential

The forest products value chain is full of interfaces, from forest to end customers. Digitalization helps to leverage value.

Illustrative



Each Player is mostly both, Supplier and Customer, within an interwoven value chain



Benefits that can be captured from Digitalization in the European PPP industry:

~€ 5 Billion in Inventory

~€ 10 Billion in Costs

Think beyond. Today! The potential optimization benefits from digitalization within the value chain functions are high



Manage Safety, Health & Environment

Up to **50%** loss time incident reduction
Reduction/Avoidance of uncontrolled emissions

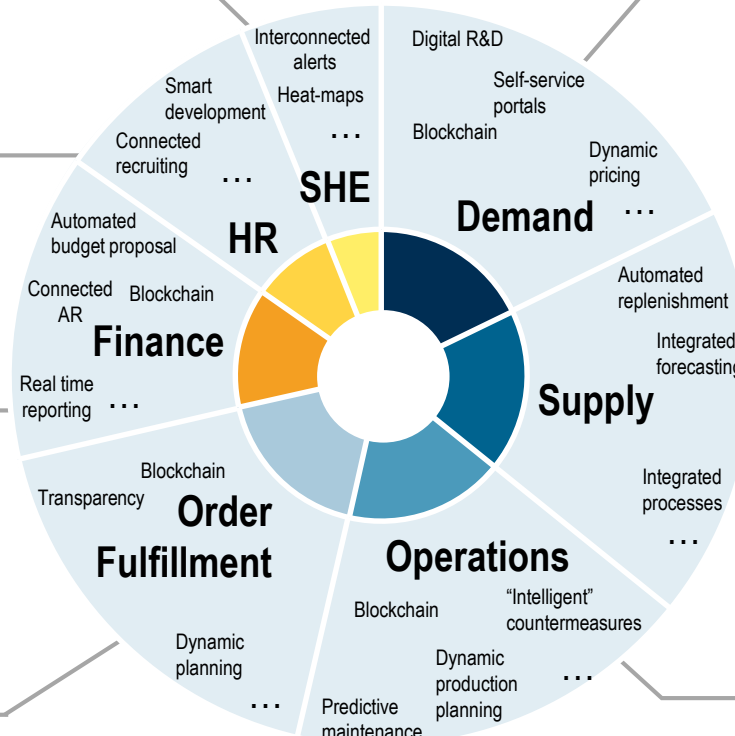
Higher asset utilization
Higher service levels
Higher effectiveness

Manage Demand

5-10% increase in contribution
up to 80% forecasting accuracy optimization

Manage HR

10-30% reduction in headcount



Manage Supply

5-15% TCO spend reduction
30% inventory reduction

Manage Finance

10-30% receivables optimization
Process throughput/improve allocation/liquidity

Manage Order Fulfillment

5-10% distribution cost reduction
10-40% finished goods inventory reduction

Manage Operations

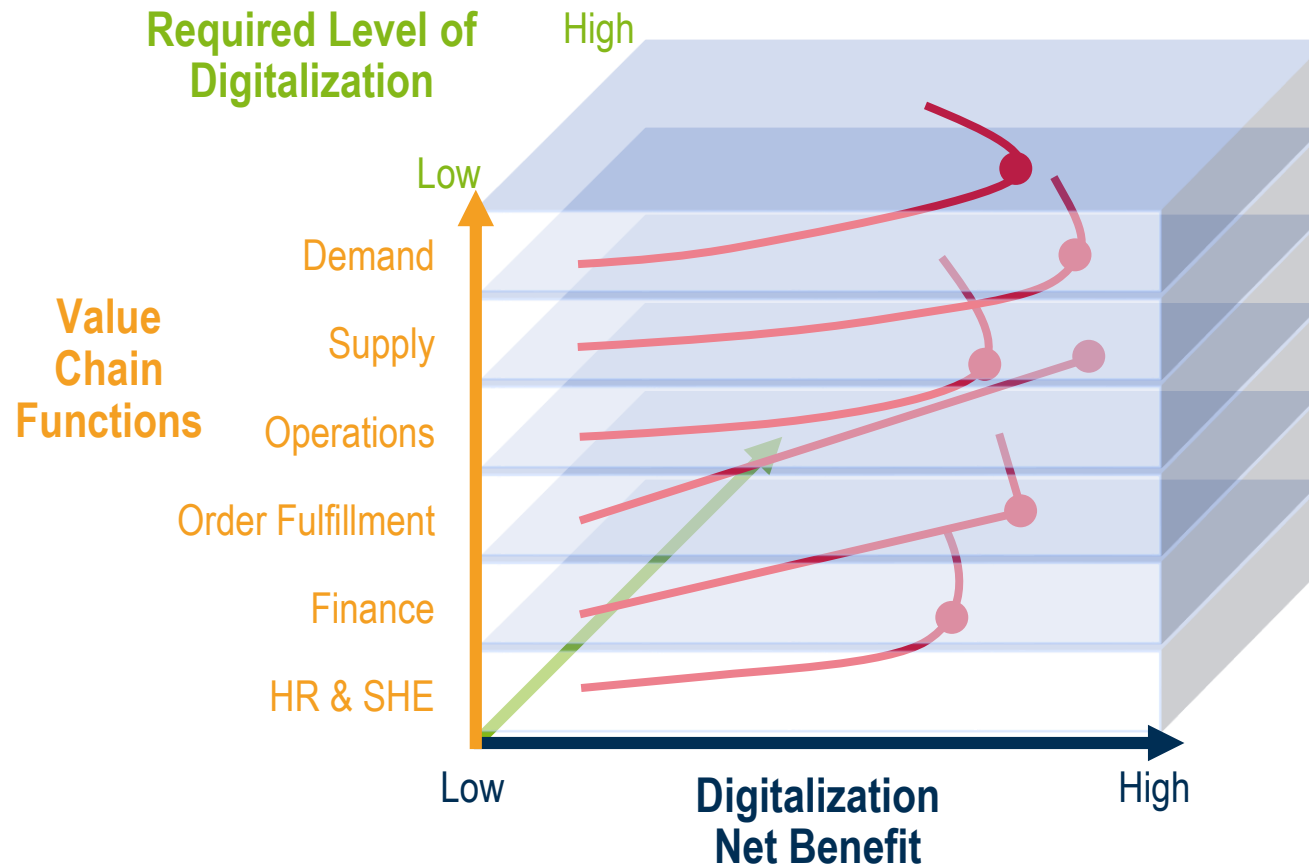
up to 50% reduction in downtime
5-10% productivity increase
10-30% maintenance cost reduction

Lower cost
Lower risk
Lower working capital

Assessment of Digitalization Net Benefits requires a multidimensional approach

Digitalization Value Assessment Cube

Illustrative



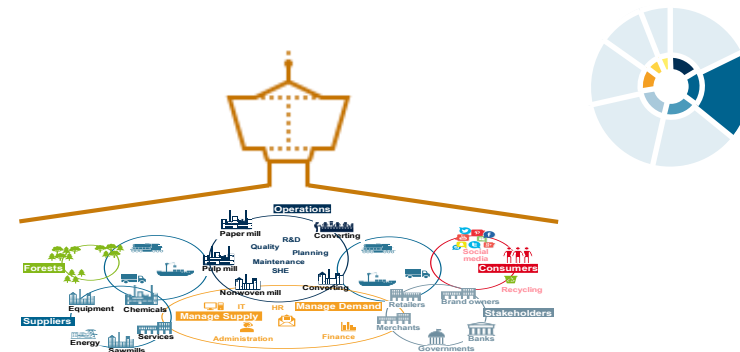
Digitalization of supply management processes reduces spend and inventories, and lowers overall value chain cost and risk

Manage Supply

Example

CHALLENGE

- Growing supply chain complexity in a globalized world
- Big amounts of data collected, but mostly stored in individual “silos” lacking the connection across the value chain
- Predictive cross-value chain analysis and forecasting rarely in place



SOLUTION

- Digitalized supply chain network to allow for integrated forecasting and automated replenishment
- Integrated and shared performance data across multiple internal and external systems via a Supply Chain “control tower”
- Automated mutual optimization and real-time responses through autonomous interaction of supply chain players’ systems

BENEFITS

- Increased forecasting accuracy and optimized spend management → Reduced TCO spend, lower inventories
- Prompt & agile actions, higher flexibility, reduction of bullwhip effects → Reduced supply cost and risk

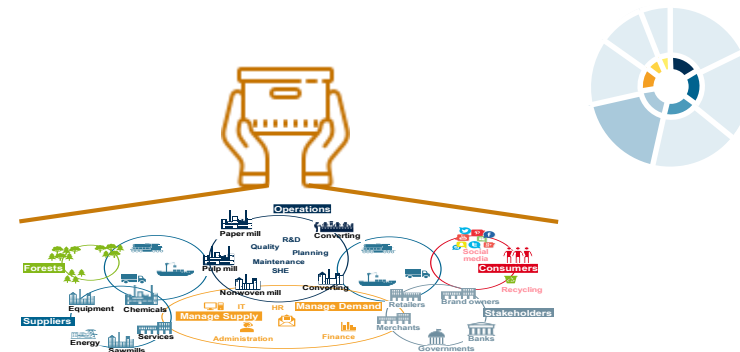
Digitalization of order fulfillment processes enables delivery of right goods, at right place, at right time – at optimal costs

Manage Order Fulfillment

Example

CHALLENGE

- Lack of supply chain transparency drives complexity and causes inefficiencies at all stages of the order fulfillment process (e.g. high inventories, increased warehousing costs, low truck utilization)
- Transport cost volatile and often unpredictable, due to lack of visibility, especially in case of small order sizes or rush orders



SOLUTION

- Cross value chain transport planning by intelligently connected logistics planning, fulfillment and execution systems
- Increased end-to-end visibility by connecting (existing) sales forecasting, real order book, warehousing, transport sourcing and track and trace monitoring applications
- Optimized load planning by leveraging sensor data such as actual weight and dimensions of merchandise

BENEFITS

- Shorter delivery times at reduced inventory
- Increased truck utilization for single & combined loads
- Optimized fulfillment performance (e.g. OTIF)
- ➔ Lower working capital
- ➔ Reduced transport cost and Muda
- ➔ Increased service levels & customer satisfaction, reduced claims cost



Benefits that can be captured from Digitalization in the European PPP industry:

~€ 5 Billion in Inventory

~€ 10 Billion in Costs

Thank you!

For any inquiries, requests or feedback, please contact us!

Alexander Wirth
Senior Manager

StepChange Consulting GmbH
Köstlergasse 1/40, 1060 Vienna

alexander.wirth@stepchange.com



Valentin Schenkenfelder
Consultant

StepChange Consulting GmbH
Köstlergasse 1/40, 1060 Vienna

valentin.schenkenfelder@stepchange.com



office@stepchange.com
+43 1 5870 220



DRIVING CHANGE
TO DELIVER RESULTS