Pulp and Paper Industry Digital Business Transformation in Action in the Fast-Changing Digital and Business World

ASEAN Pulp and Paper Summit, Putrajaya, Malaysia
November 13, 2024

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Tietoevry Industry, Pulp, Paper and Fibre

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Greetings from Finland & Now Here in Kuala Lumpur Malaysia
The Happiest Country in the World
Tietoevry #1 in Pulp & Paper Industry Specific MES/ERP Solutions

Agenda

- Industry Trends & Digital Evolution
- Data-Driven Operations
- The Promise of AI
- Sustainability Meets Digitalization
- Summary and Takeaway Message

Industry Trends & Digital Evolution

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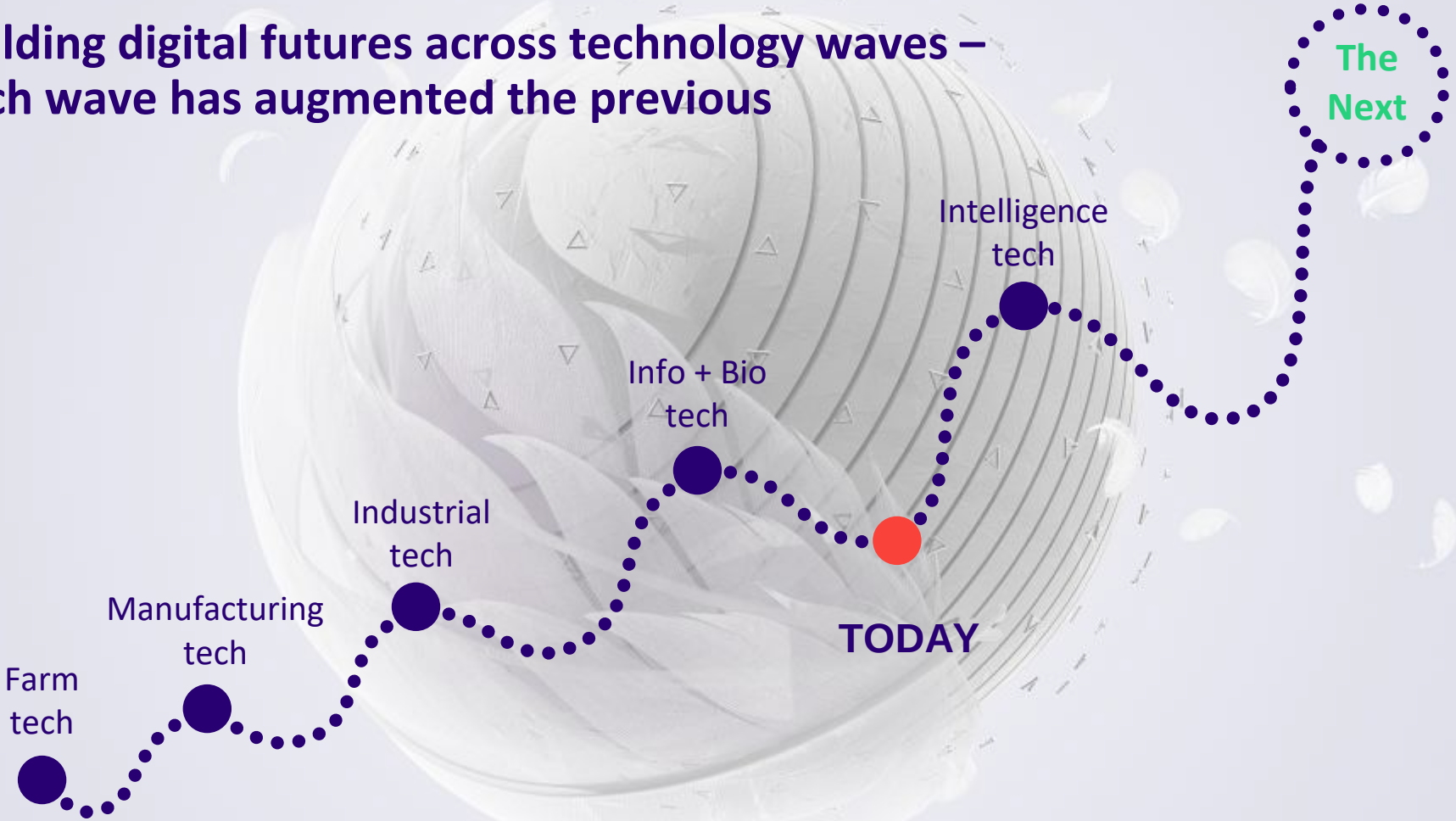
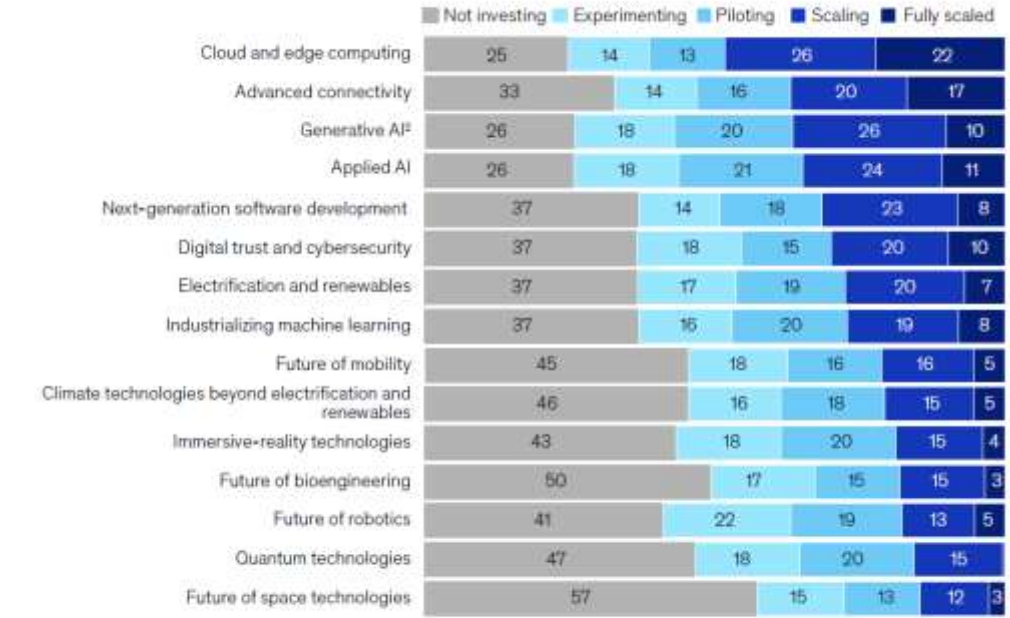
Building digital futures across technology waves – each wave has augmented the previous



Status of Digital Technology Implementation

Self-reported adoption level by tech trend, 2023,[1] % of respondents

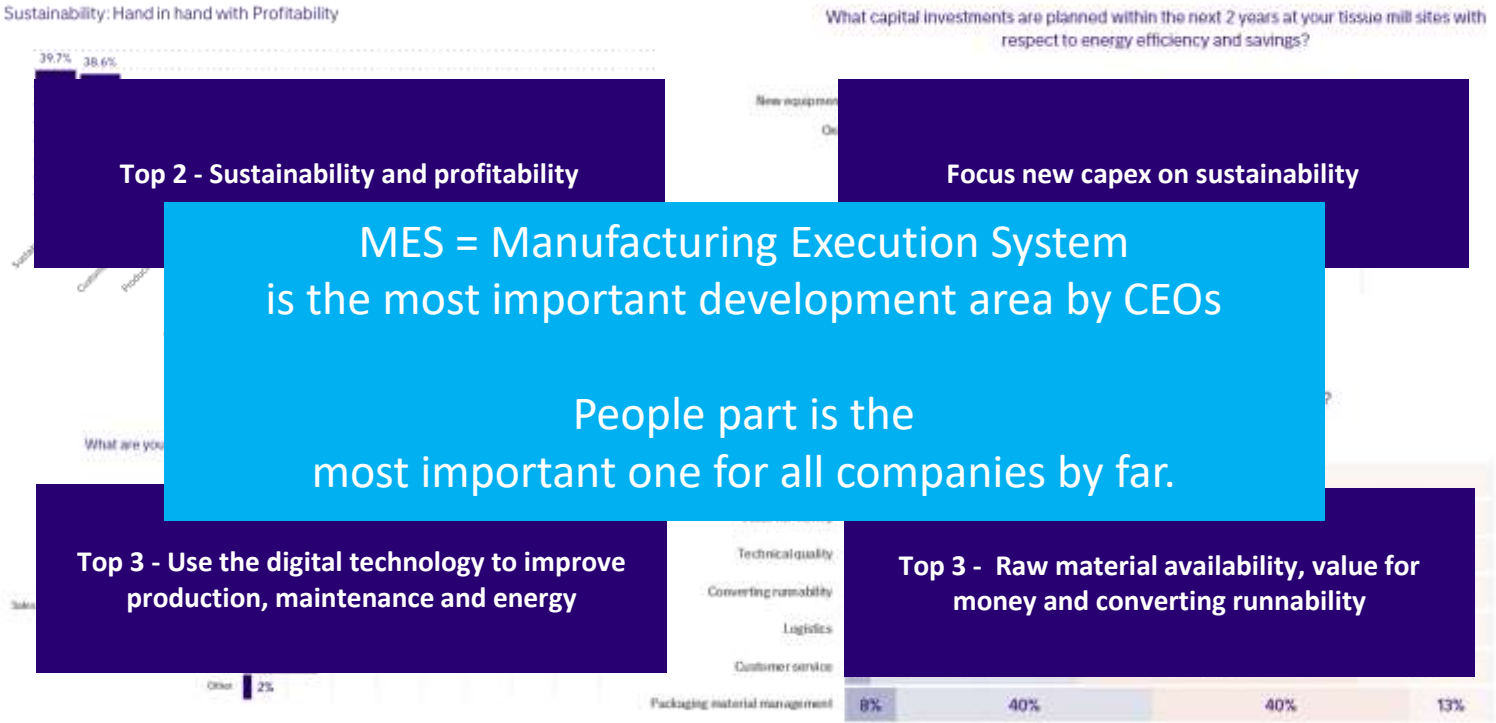


[1]Respondents may interpret these categories differently based on their organizations. As such, the results should be considered as indicative of organizations' self-assessments, rather than precise measurements. [2]For a deeper look at our AI-related trends, see "The state of AI in early 2024: Gen AI adoption spikes and starts to generate value," McKinsey, May 30, 2024.
Source: McKinsey technology adoption survey data

McKinsey & Company

Leveraging the new technology to support a Digital transformation is a complex process that will require to partner with technology provider that will support the deployment at scale.

Global Tissue Study 2022 Reflections – Top Focus Areas
(By Experience Very Valid for Pulp & Paper Industry in General)



Drivers to Design Future IT Solution

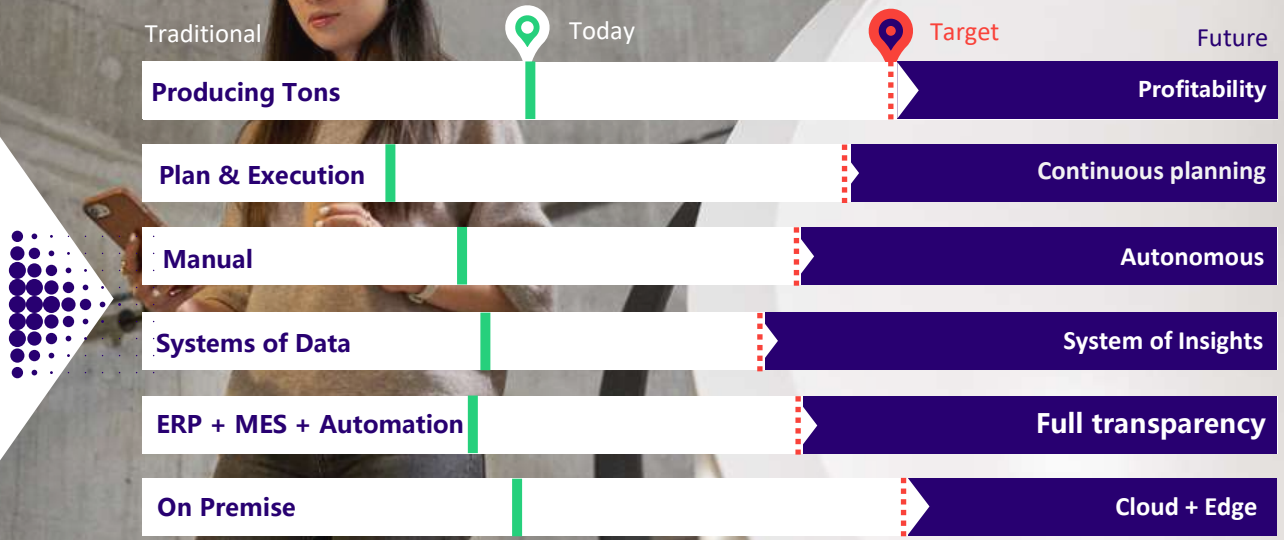
“Business clock is ticking faster and faster”

Many customers are looking for standard solutions without losing own strengths and operational efficiency

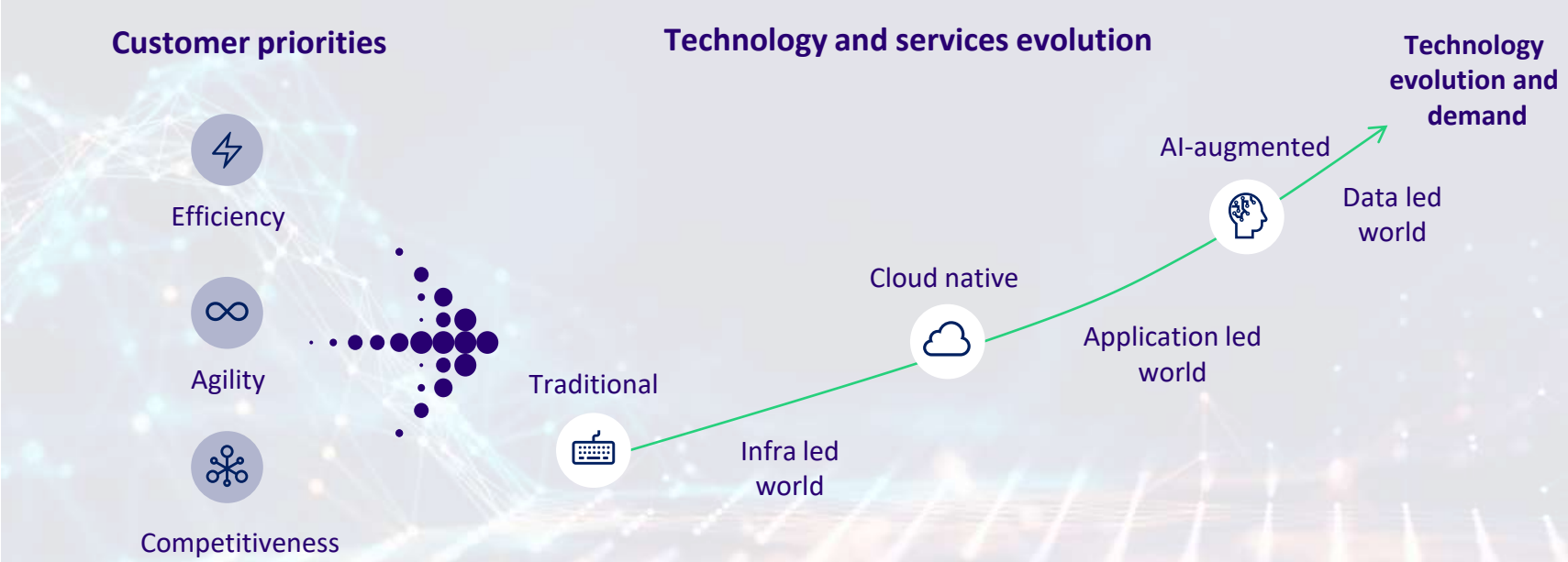
IT Renewal

Smart Automation

Insights



Our industry is consistently progressing to an AI native world



Increased Digital Focus with Major Shifts in Behaviors

NEW SERVICE & DIGITAL BUSINESS

New Services — Digital Platforms

Offering of **new services** next to industrial production.

Integrating digital business platforms for "common interests".

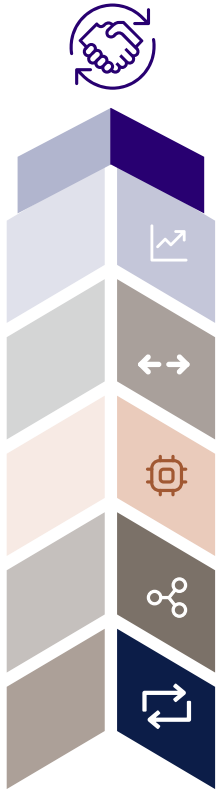
Pioneering services & **business** models

Customer Experience ✓

From		To
Perpetual model / CAPEX		Subscription model / OPEX
Customization		Configuration
On Premises		Cloud
Legacy and Obsolescence		New Digital practices
Isolation and work around		Integration and data sharing

New Technology will support business expectation but comes with new behavior.

Business Perspective: What do we see



CURRENT CHALLENGES

- Manage the Sustainability challenge
- Information system must support growth, resilience and agility
- Generate more business value at scale
- Improve profitability

DIGITAL OPPORTUNITIES

- Improve Digitalization adoption
- Integrate Data source and system
- Digitalizations to boost innovation and disrupt market
- Digitalization to implement new ways of working

Rising constraint and pressure to maintain a **high level** of **performance** and **profitability** ↗

Data Driven Operations

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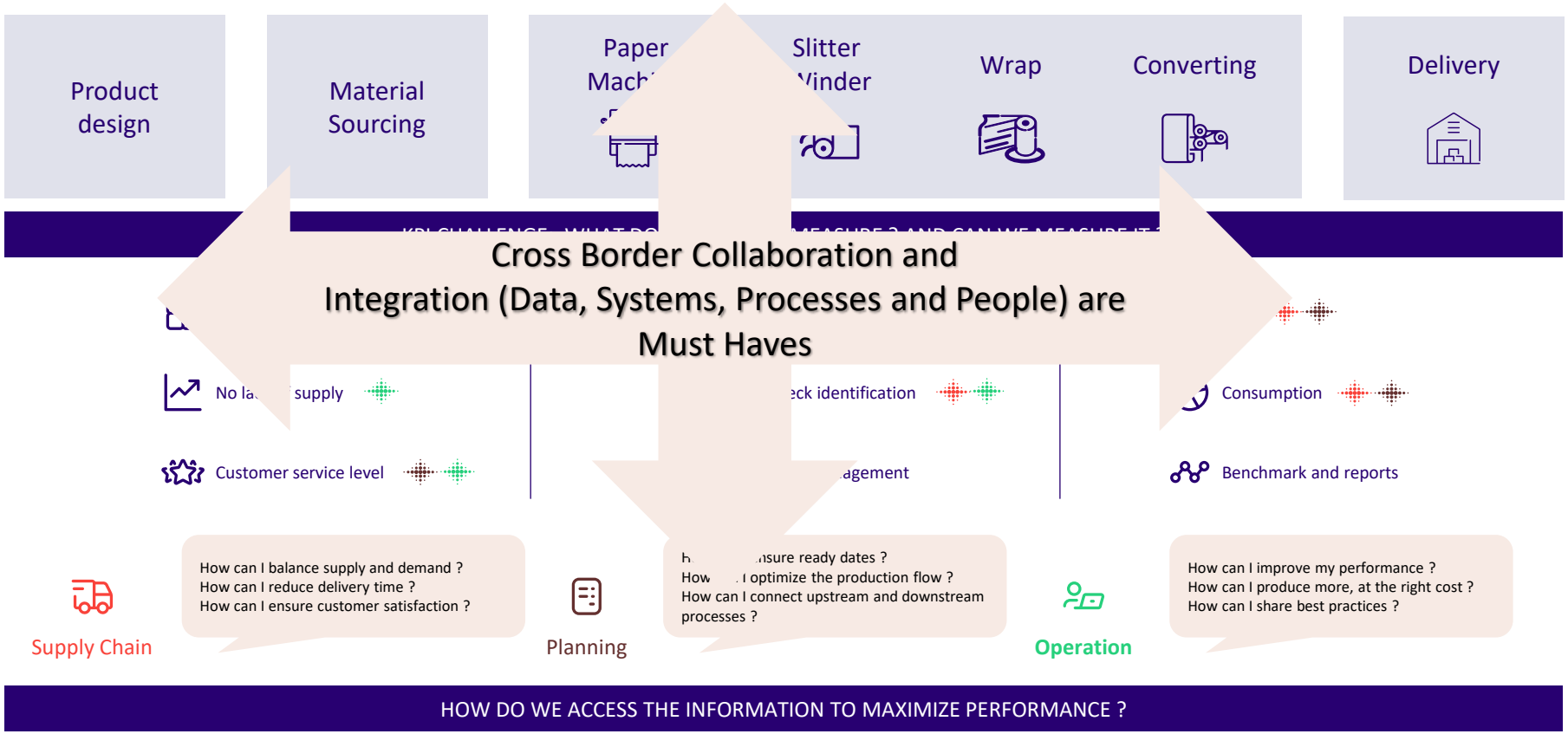
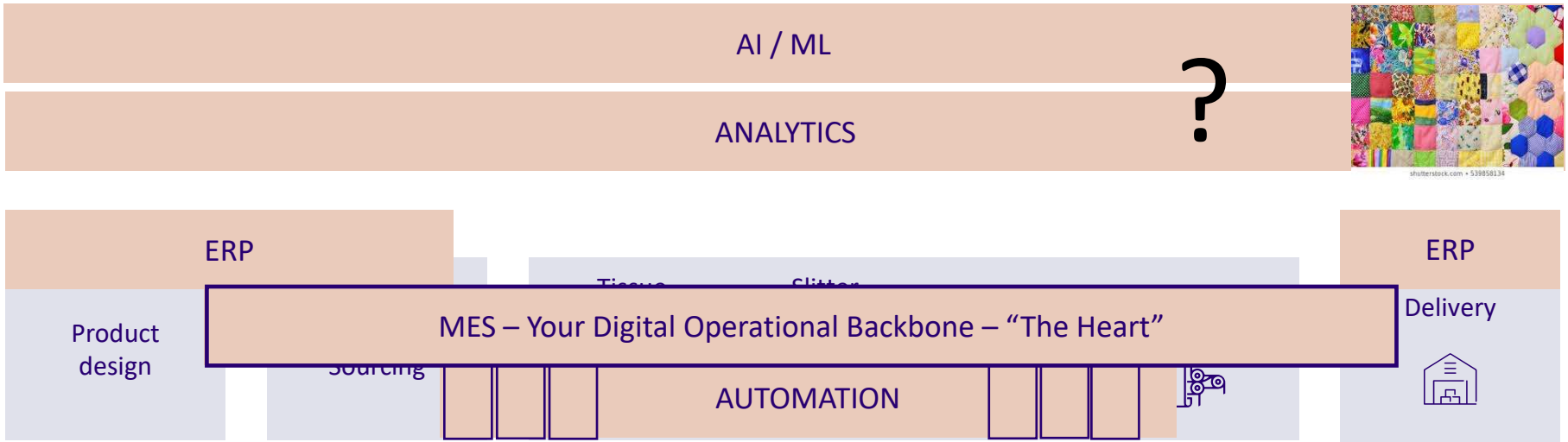
Data Driven Operations – The KPI Challenge



Data Driven Operations –
End to End functional integration supported by the technology



Data analytics
- Team/Morning meeting report
- Benchmarks
- Best practices identification
- Continuous improvements

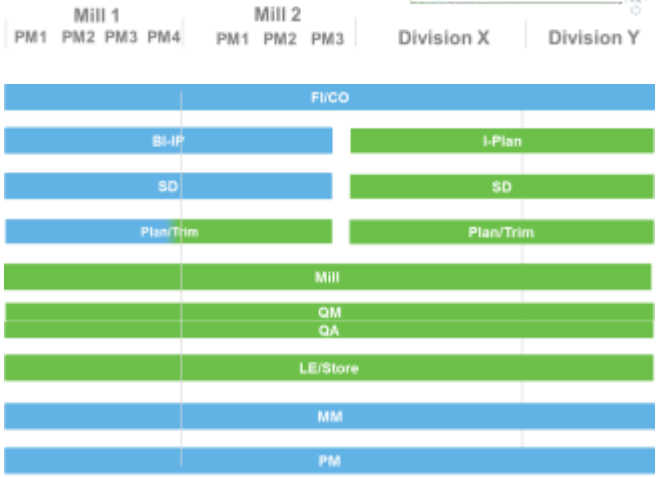
MES
- Production tracking
- Quality data integration (lab, QCS, WIS …)
- Predicting quality (soft sensors)
- Insight with diagnostic analytics

Supply Chain Management
- Supply/demand
- Inventory levels
- Customer service

Operational effectiveness and efficiency – processes, tools and people illustration

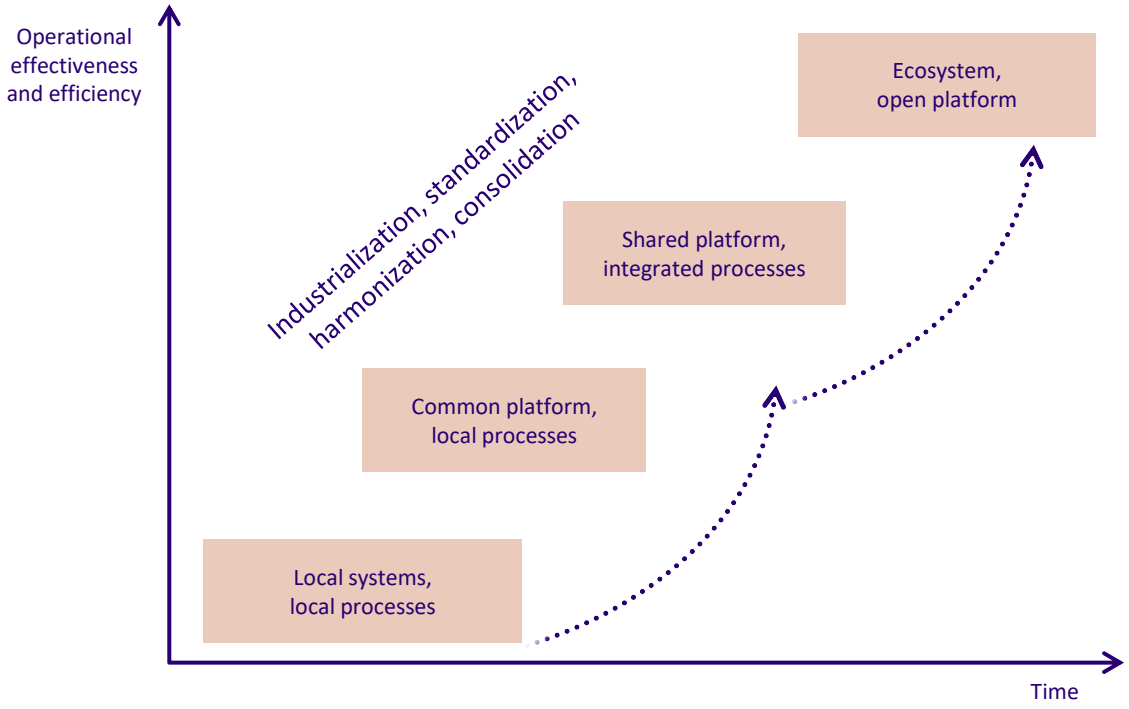
What is your company's way of working across the operations?

OR



Conclusion: True industry know-how is needed to succeed and to establish E2E (end-to-end) integrated business processes for a common way of working with the help of digitalization

Operational Effectiveness and Efficiency – Steps for Digitalized Solutions and Services



Digitalization in the Industry

Start with the Digital Foundation to Establish Your Operational Digital Backbone

The Promise of AI

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AI Transformation Opportunities

Enrich employee experiences

Reinvent customer engagement

Reshape business processes

Bend the curve on innovation

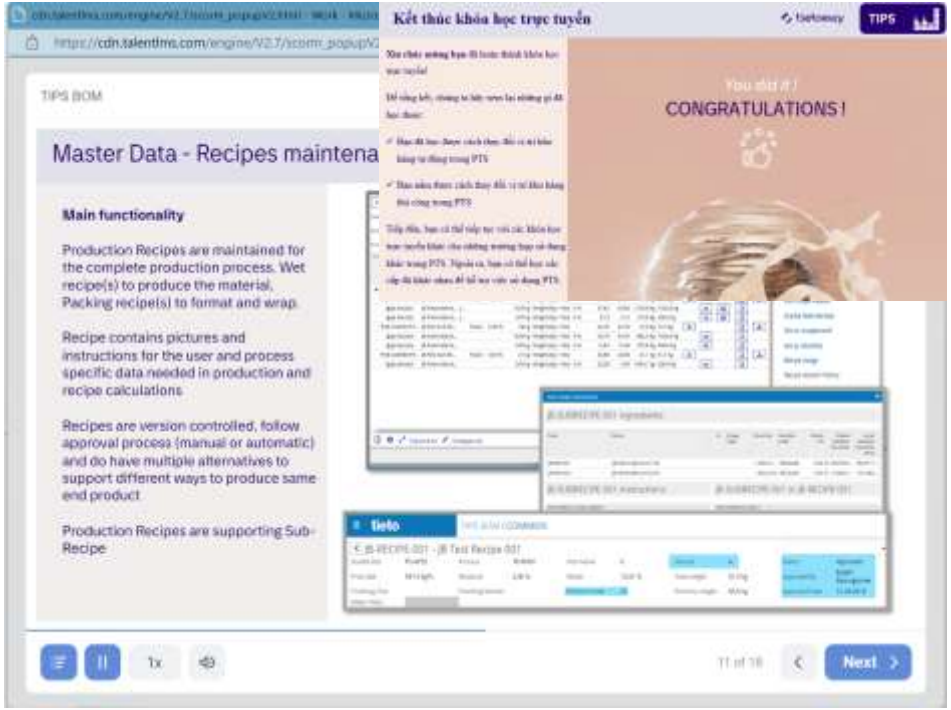
$3.5
For every $1 a company invests in AI, it is realizing an average return of

14 months
Average time it takes for organizations to realize a return on their AI investment

Source: IDC, The Business Opportunity of AI November 2023

E-Learnings will Save Time and Costs while Speeding Up Projects and Ensuring the End Users Know-How

- Why E-Learnings?
  - Valuable F2F training time can be used to apply the knowledge and answer questions instead of knowledge transfer
  - Less F2F training time required which reduces travel time and travel expenses
  - Training availability
    (when & where you want, at your own pace)
  - Faster, more efficient roll-outs
  - Know your people know-how with certifications – “End Use Driver's License”



E-Learning Sneak Peak - Avatars for Your Viewing Pleasure & Large Language Model (LLM)

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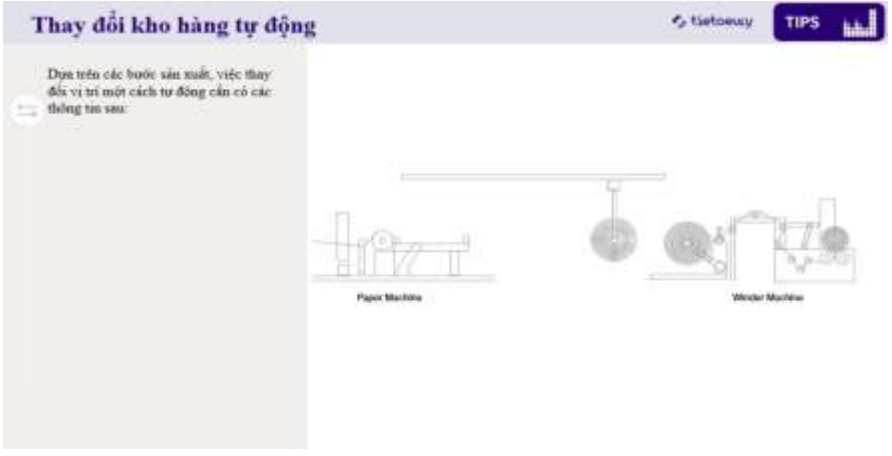
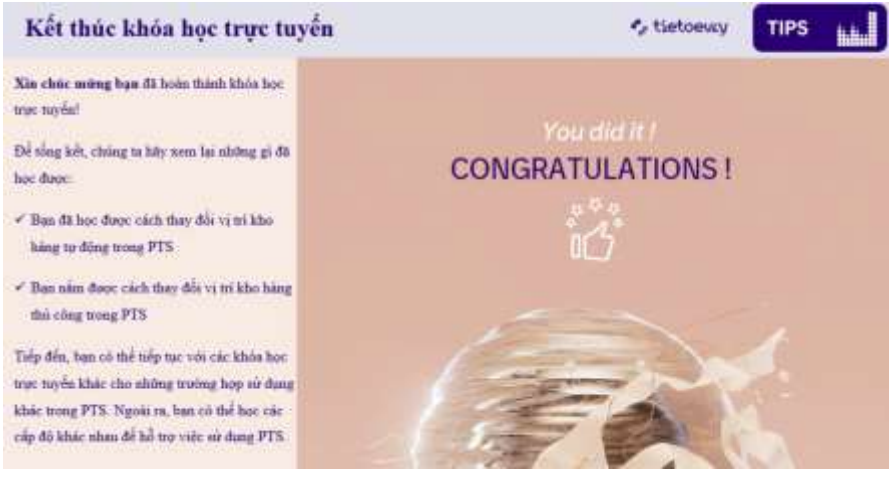
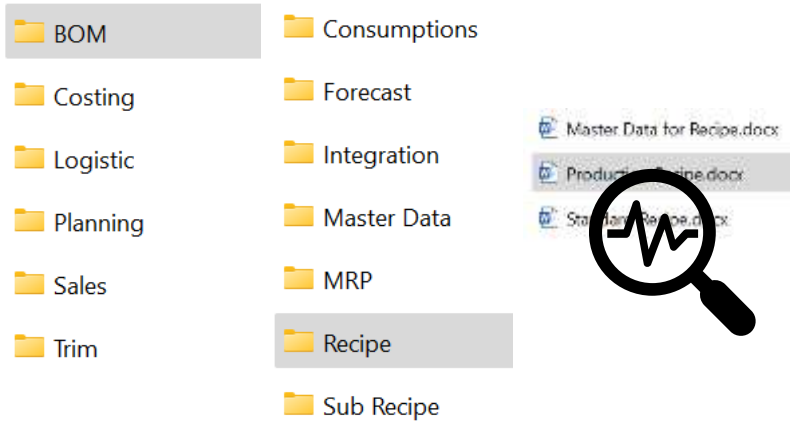
E-Learning Example – TIPS MES





Generative AI/ChatGPT Enables Major Change Accessing Documentation and Information

Past



Using time to find the needed document.
Read the entire document(s) to find the information for which the action needs to be done.

Now

Using your words, directly ask what you need in your own language and get the right information.

Improve efficiency and reduce time to implement best practices !!!

Introducing TIPS Copilot – Continuously Available Tool Integrated with TIPS MES

Knowledge Support

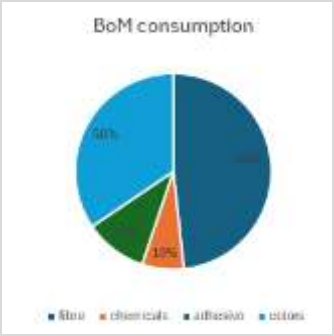
„Where can I book consumptions?“

It provides information from external resources such as documentation, application reports, WiKi, and E-Learnings, along with links to the relevant sources.

Ad-hoc Reporting

„Show the BoM consumption per raw material group for this month in a pie chart“

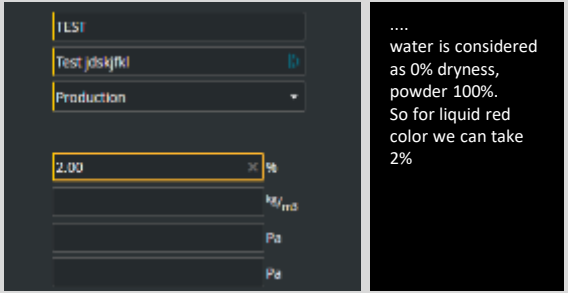
Provides ad-hoc creation and adjustment of graphical data insights.



Work Assistant

„Guide me through the creation of raw material“

Provides AI guidance in an interactive chat for filling in TIPS forms or any other user actions within TIPS.



TIPS Copilot - Ad-hoc Reporting

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PREPARATION | INPUT | PRODUCTION | OUTPUT | Actions

Run Code	Begin Time	Endtime	Production Step Number	pattern number	Version	Run Balance
SC230003	08.02.2023	08.02.2023	1	1	1	0%

Search | Include all for ...

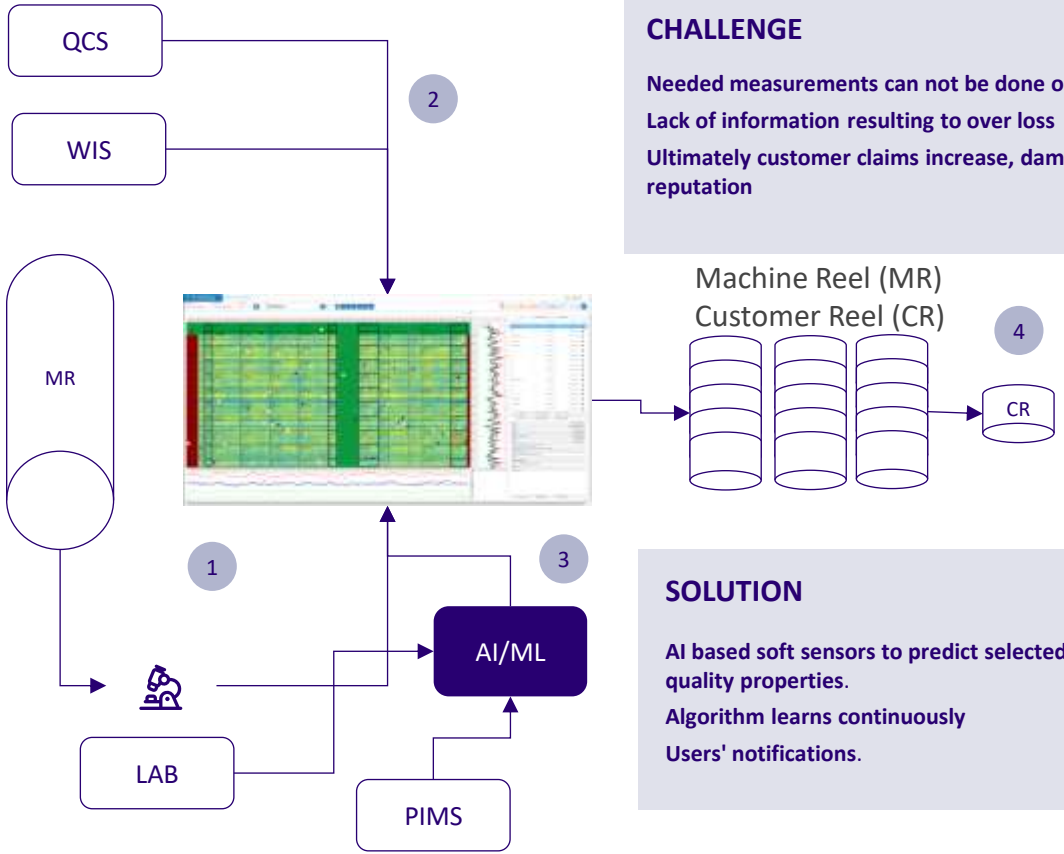
Run Code	Prod Step	Process	pattern number	Version	Begin Time	GradeName	Set Count	Length	Diameter	Status
SC230003	1	TE-SC01	1	1	08.02.2023 01:00	TIPS Matt 80g	1.552	7,500 m		Active

Track Number	Order	Core Code	Width (mm)	Roll Length	Roll Diameter (mm)
1	OR23/07200-10-1-1		600.0	750 mm	

Page 1 of 1 | 10 | Row 1 - 1 of 1

Run Code	Production Step Number
SC230003	1
pattern number	Process
1	TE-SC01
Version	Grade
1	TIPS Matt 80g
Trim Set Count	ProducedWeight
1	13272.65 kg
Target Weight	ProducedGross
605.28 kg	44553.73 kg
Trim Count	Trim Nethet Weight
1.552	605.36 kg
Trim Net Weight	Trim Gross Weight
605.36 kg	623.96 kg
ProducedNet	
16819.06 kg	

AI/ML Predicting Paper Reel/Roll Quality with Soft Sensors



CHALLENGE

Needed measurements can not be done online

Lack of information resulting to over loss

Ultimately customer claims increase, damaging reputation

SOLUTION

AI based soft sensors to predict selected quality properties.

Algorithm learns continuously

Users' notifications.

BENEFITS

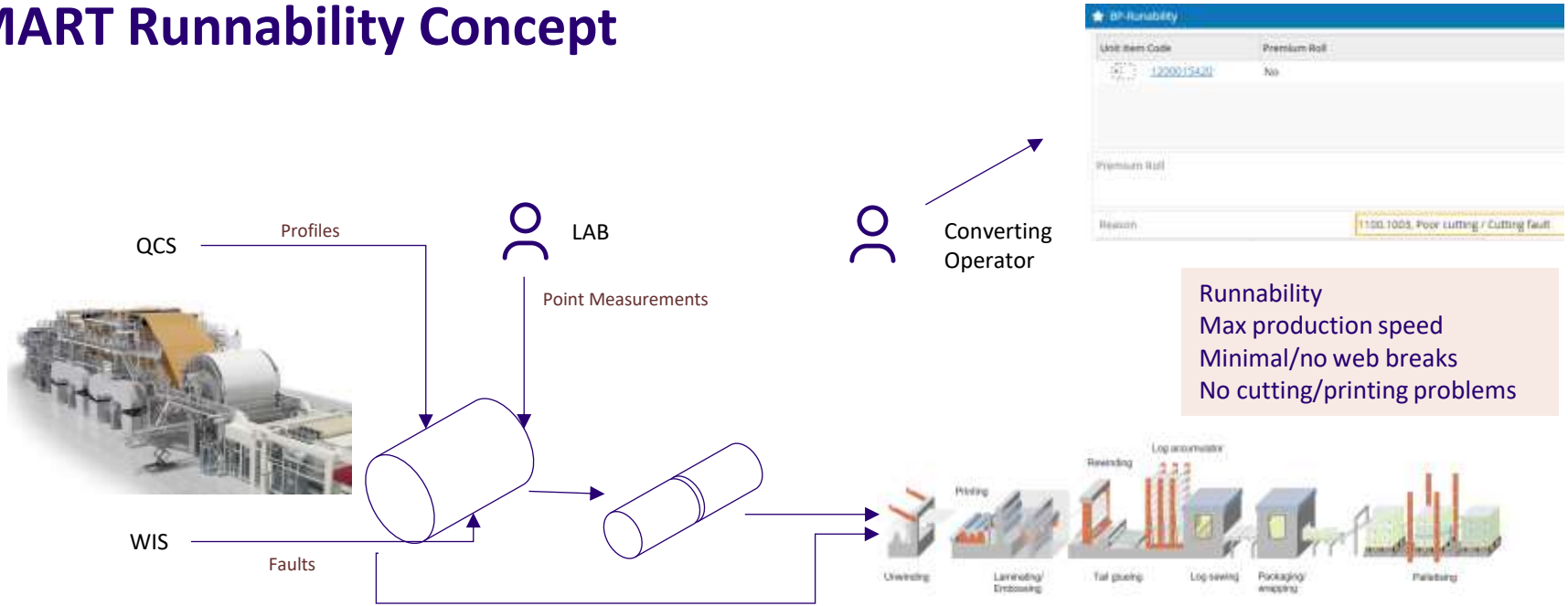
More sellable production

Increased customer satisfaction and loyalty

Increased production efficiency

Enabling process improvements

SMART Runnability Concept



All quality data of the machine reels is collected for analytics: full profiles, full WIS data and all laboratory measurements.

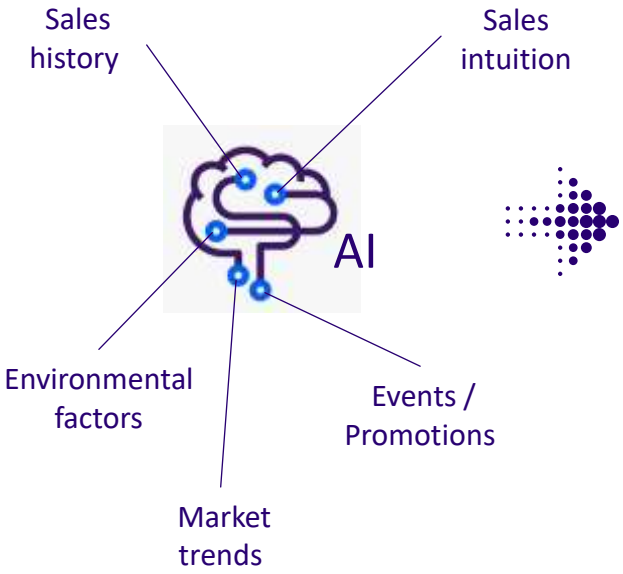
Training AI

Operator classification of rolls to non-premium with reason code.
Production speed in converting.
…

After training AI predicts the runnability of the rolls.
Operator can adjust the converting machine based on the prediction.

AI Powered Demand Forecasting

TIPS I-Plan combines statistical methods machine learning and big data to find the best method and the right data to get the best demand forecast.



DEMAND FORECAST

The demand forecast is the critical driver for paper production

Production

Inventory

Raw material

What to make, when ?

What to stock, where ?

What to buy, when ?

Get these right and you maximise margin and keep your customers happy


Sustainability
Meets
Digitalization

Sustainability + Digitalization – Lead the 5th Industrial Revolution

Sustainability

- Circular economy
- Renew, recycle, re-use, share
- Consumers, citizens, governments, partners, investors expect sustainability and will have influence

Technology

- AI
- IoT
- Cloud
- RPA
- ...

Business Transformation

- Industry 4.0 to 5.0
- Digital Twin
- Big data
- Empowered operators

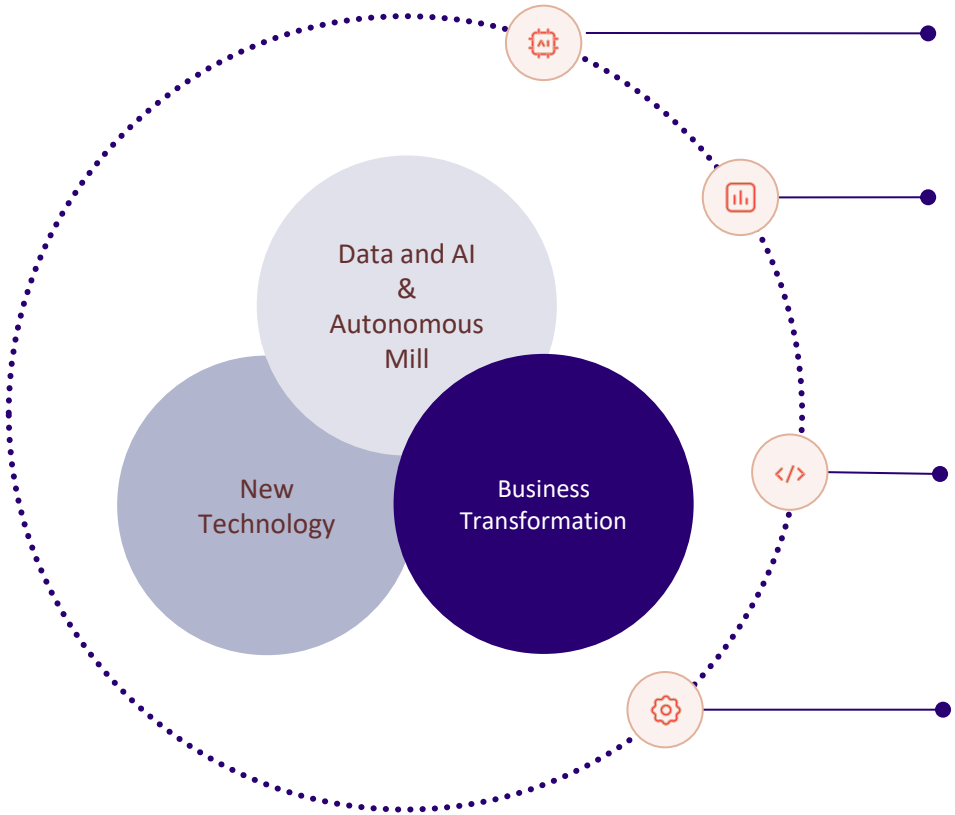
Digitalization + Sustainability will Drive the Business Transformation

Data and information as a key enabler

Design better
Source better
Produce better

as the core of the transformation

Summary & Takeaway Message



The Speed and Volume of change (markets & technology) is ever increasing.

The Data is more valuable than ever before - Do you have access & capability for the quality data insights? Ensure you have your digital operational backbone established.

The Dream – technology is already here for vast amount of practical data driven & AI assisted use cases – Step by Step Towards to the Autonomous Mill.

The Future - There is no sustainable world without digitalization – efficiency gains are imperative. Every efficiency improvement is a sustainability act.

Thank You !!!

Terima Kasih !!!

Reinventing the world for good together

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