

Cybersecurity challenges in downstream steel production

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OUTLINE

Introduction

New Trends in OT

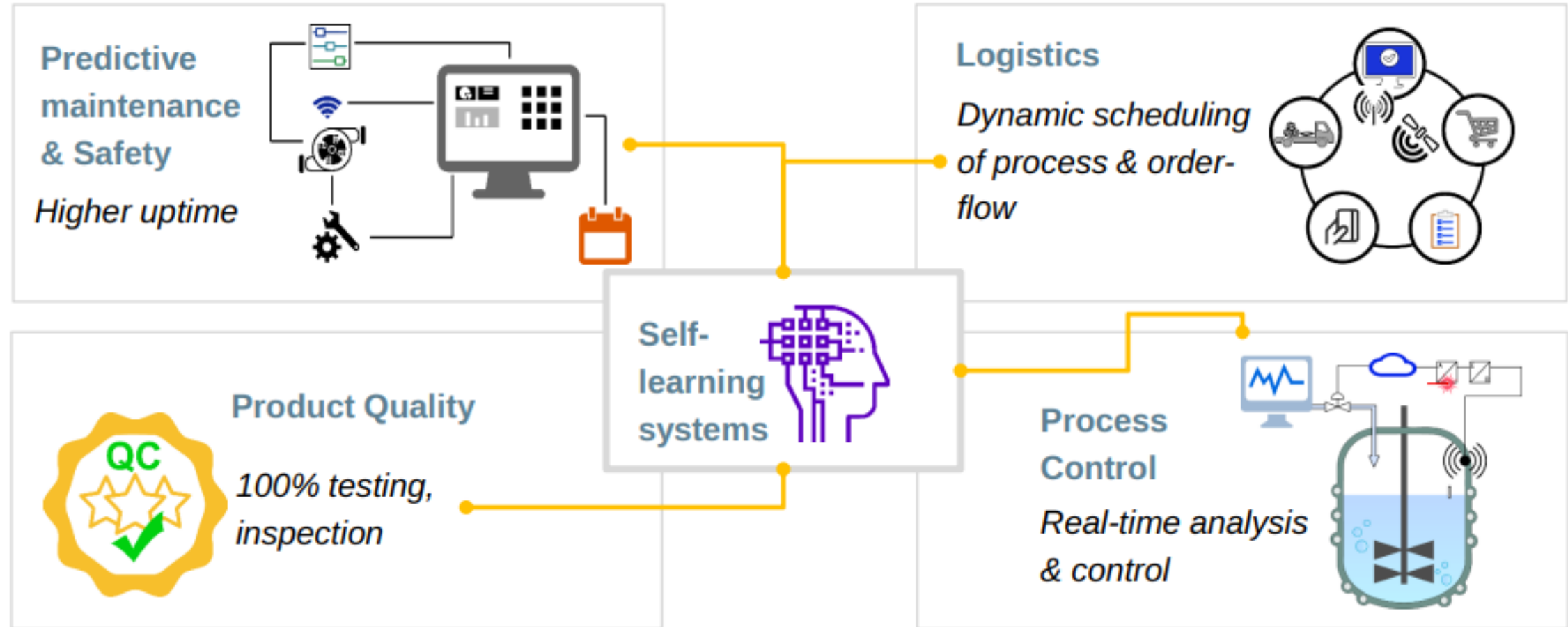
Opportunities for Hybrid OT

Architectures: Proposal

Process monitoring: Capabilities

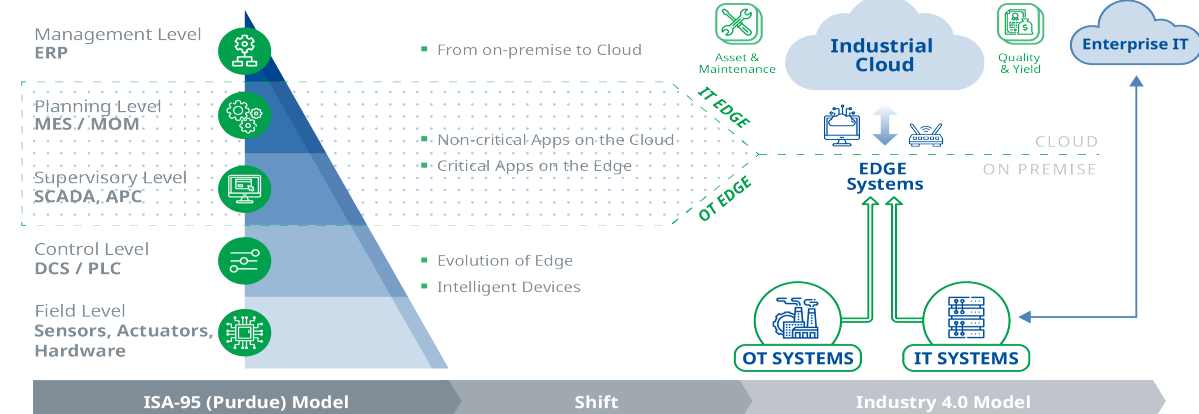
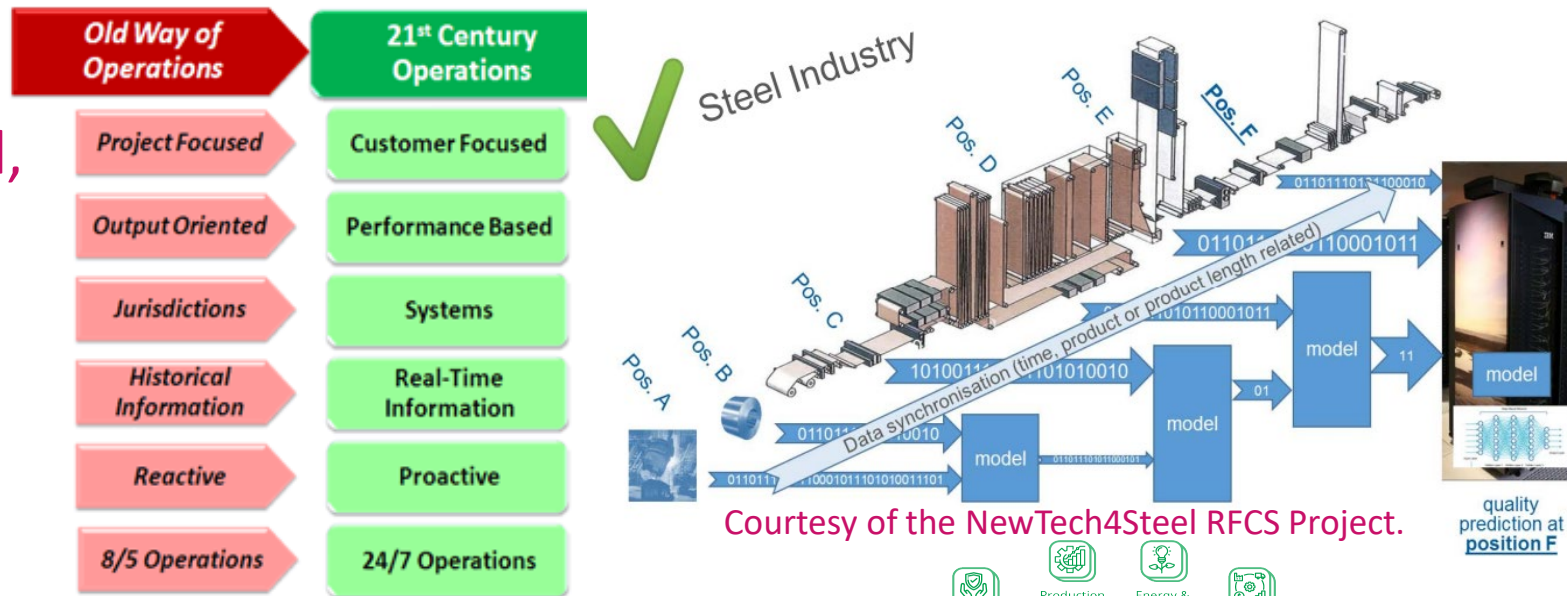
Conclusions

Introduction



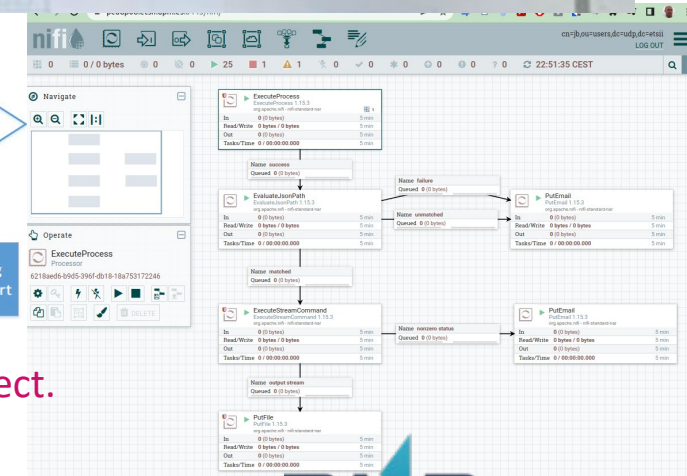
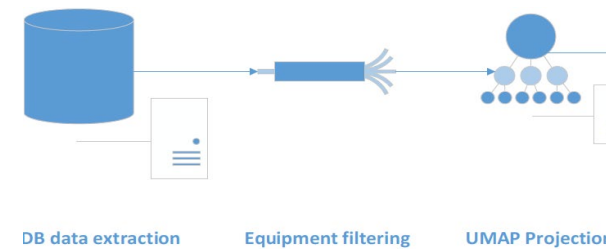
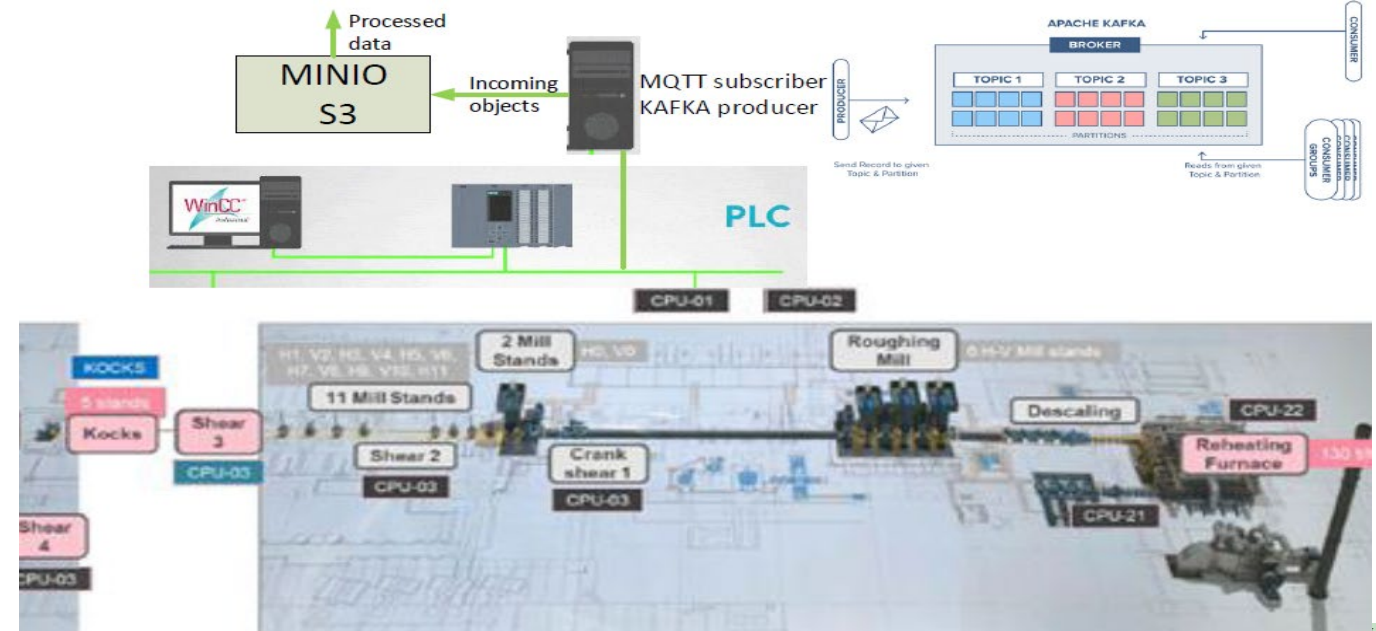
New Trends in OT

- Traditional OT approach: Local, Isolation, and Self-contained.
- Current approach:
 - Hybrid (Local – Cloud)
 - Integration IT/OT
 - Enabler for servitization
 - AI fostered
 - Increase of transparency along the value chain
 - Suitable for new technologies: Blockchain 4.0 (DLT), Quantum solutions.



Architectures: Proposal

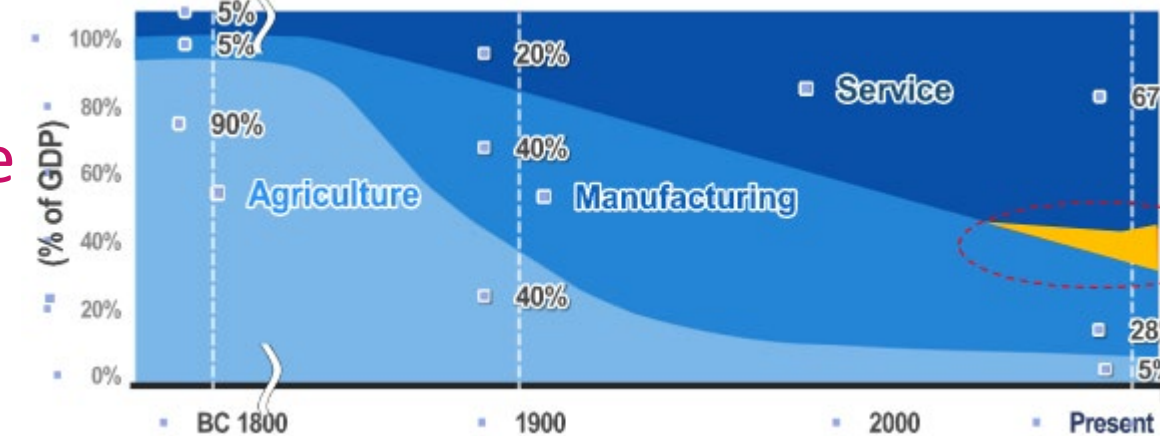
- Easing transition toward fusion with cloud architectures (S3+NiFi).
- Highly scalable workflow solutions able to work in *near* real time.
- Trend analysis by *similarity*.
- High dimensional variable spaces can be reduced with distance preservation, useful to 'inform' operators.
- Integration with advising system.



Courtesy of the AUTOSURVEILLANCE RFCS Project.

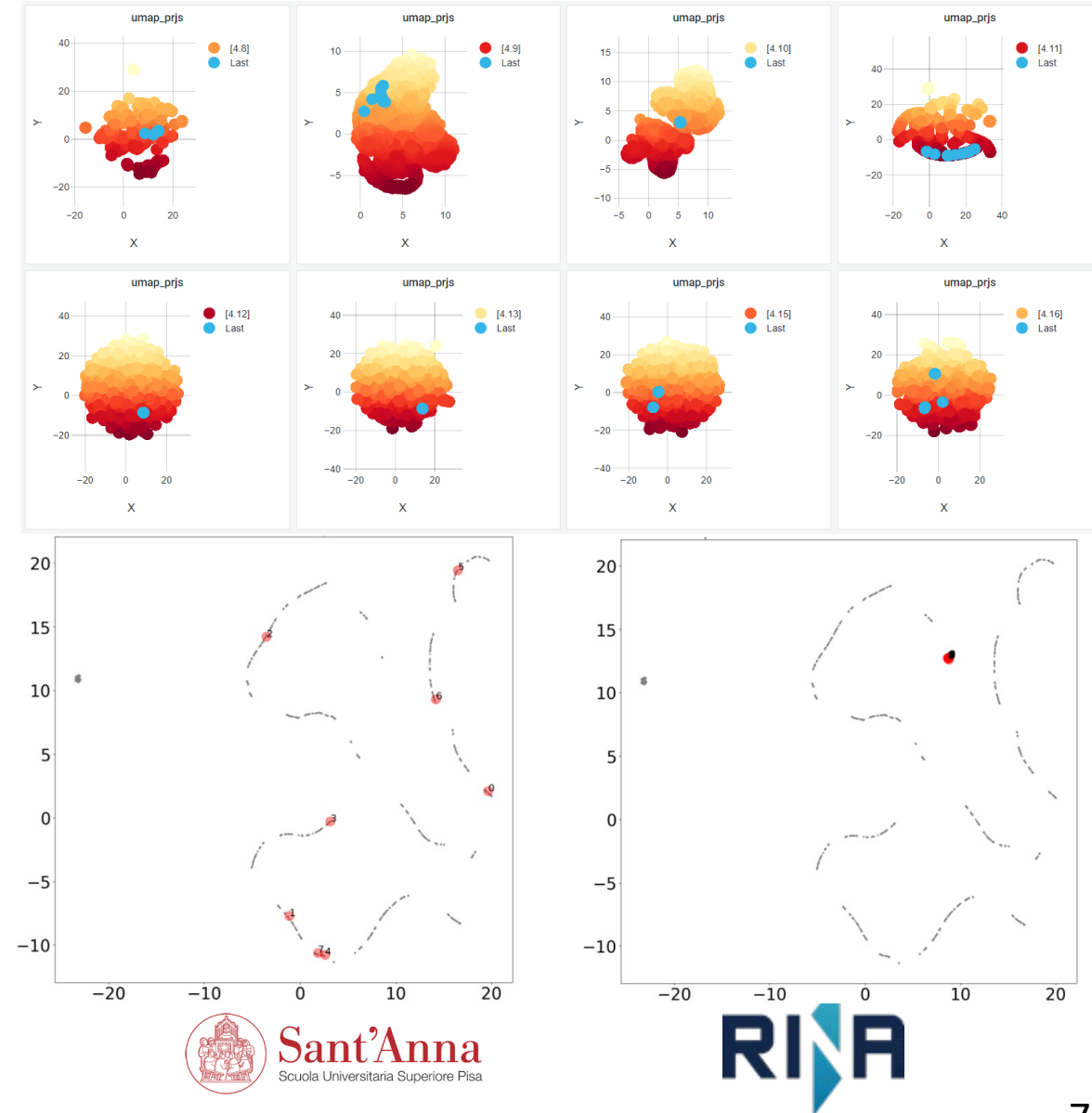
Process monitoring: Capabilities

- Through options such as “Rolling as a service” to customers, “Lubrication as a service” or “Cooling as a service” from suppliers, the “smart servitization” is arriving
- New Jobs, Services and Business Models will be developed based on the “Smart Servitization” concept.



Process monitoring: Capabilities

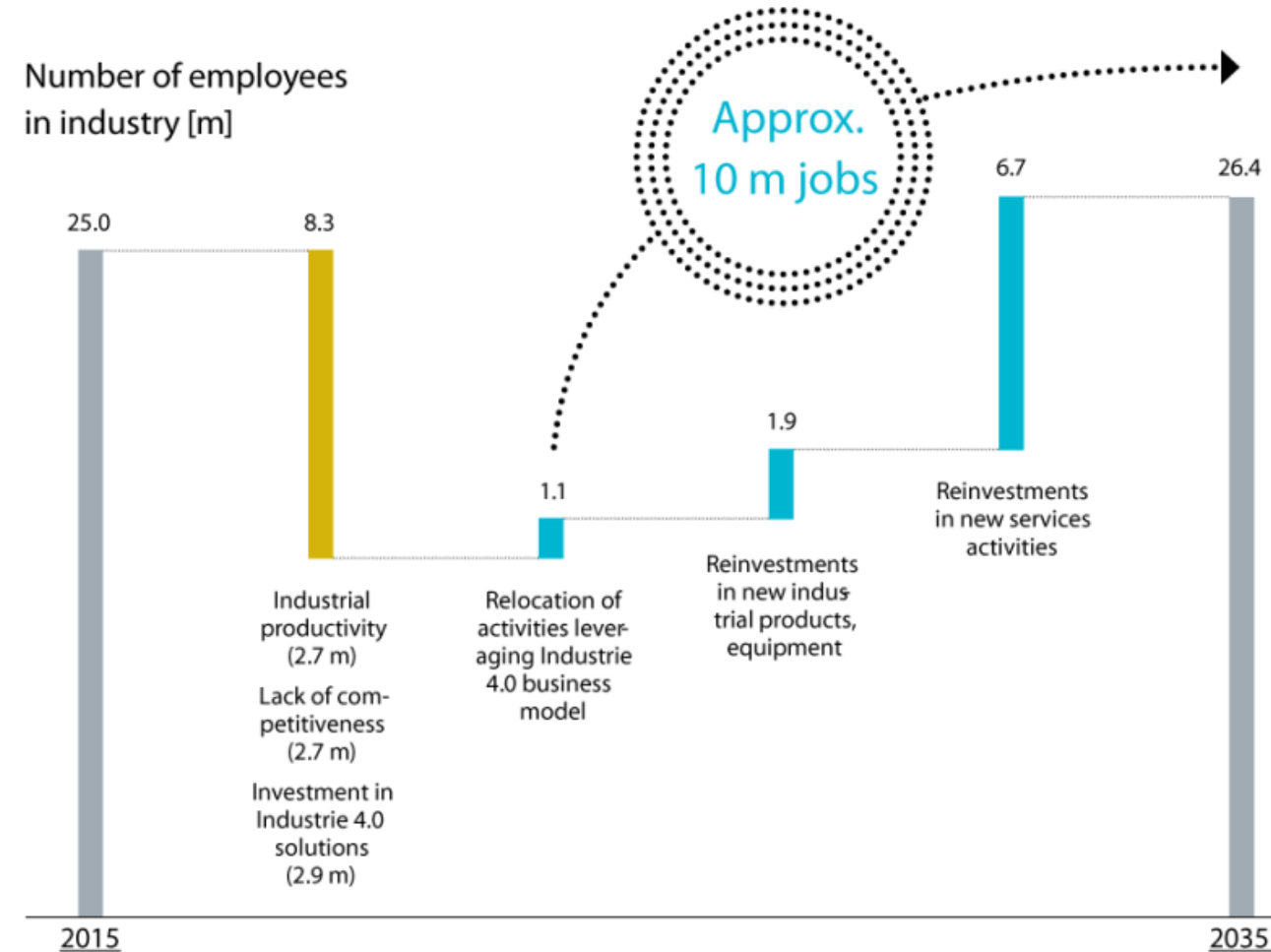
- Monitoring behavior of last 'product' per plant.
- Attacks are identifiable because either drift or collapse. Different operational conditions are also identifiable.
- Based on few signals a semantic description of relevant variables per product are built, enabling inter-product comparisons.



Conclusions

Impact of transformations:

- Increases in reliability because of process facilities' comparisons.
- Benchmarks will increase sustainability through BPs.
- Classical Manufacturing jobs will decrease.
- Profitability and ROCE rise will create new opportunities.



Source: Roland Berger

Conclusions

- Enormous opportunities for the industry & society. *People must be at the heart of the change. (I5.0)*
- Change towards complex jobs requires *multi-disciplinary skills*
- Technological advances largely predictable. *Social welfare systems will need review to tackle inequality, including sustainability.*
- Ignoring the change or wanting to be a follower may not allow the business to be maintained. *Join in and participate otherwise it may never catch up.*

Thank you for attending this presentation

Merci d'avoir participé à cette présentation

Vielen Dank für Ihre Teilnahme an dieser Präsentation

Gracias por asistir a esta presentación

Grazie per aver partecipato a questa presentazione