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Project No.: 899208

Strategic Usage of Digitalization in Flat Steel Production: Trends for the Coming Future

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OUTLINE

Introduction

Digitalization as key driver for different use cases: Product Quality Prediction Digitalization as key driver for different use cases: Smart Safety

Digitalization as key driver for different use cases: Smart Planning

Digitalization as key driver for different use cases: OT based Cybersecurity

- Trends and strategic impact in the future
- Conclusions













Introduction



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Digitalization as key driver for different use cases: Product Quality Prediction

- AI based solutions
- Prescriptive diagnosis
- Enabler for servitization
- Blockchain 4.0 (DLT) as key for sharing information among different stakeholders
- Additional assessment criteria (Green Steel)
- Increase of transparency along the value chain

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Courtesy of the NewTech4Steel RFCS Project.

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Digitalization as key driver for different use cases: Smart Safety

- AI based solutions for prediction
- Blockchain 4.0 (DLT) as key for sharing information among different stakeholders
- Key for increase the empowerment of workers.
- Better integration between processes and operators => 15.0
- Increase of transparency => increase awareness of managers
- Easyng the imputation



Courtesy of the WISEST RFCS Project.











Strategic Usage of Digitalization in Flat Steel **CONTROL**^{IN} **STEEL Production: Trends for the Coming Future** Digitalization as key driver for different use cases: OT based Cybersecurity Easing transition toward combination with cloud architectures Highly scalable workflow Sending solutions able to work in email aler **UMAP** Projection Equipment filtering DB data extraction near real time Processed data MINIO MQTT subscriber Similarity supports regular Incoming \$3 objects AFKA producer Q Q [] |:| operation PLC High dimensional variable Roughing 11 Mill Stand spaces can be quickly reduced Integration of advising Courtesy of the AUTOSURVEILLANCE RFCS Project. system Sant'Anna CSM entro Sviluppo Material

Applied Research

Commission

Strategic Usage of Digitalization in Flat Steel **CONTROL**^{IN} **STEEL Production: Trends for the Coming Future** Digitalization as key driver for different use cases: Smart Planning OP A C. W Distributed MAS enable rule rtament... S Comunidad In... S Librerias de es... S Measuring Per... S Genetic algori... S How to set up... W Photom DSO based decision systems for **Research Fund** or Coal & Steel product scheduling Al can be integrated at European Coal EUROPEAN COMMISSION / Research Area / & Steel agent level DynReAct Operator changes his role apiict00.etsii.upm.es from assigning items to Status Nº agents N° plants Nº Orders Nº Colls 17 apiict00.etsii.upm.es 15 Alive 0 1 control the KPIs at higher perspective ORDERS PLANTS Enabling M2M and S2S dialog, with lower 138.100.82.179 VA08 * overheads Courtesy of the DYNREACT RFCS Project.



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Trends and strategic impact in the future

ENERGY MANAGEMENT

- Digitalization as operating tool to optimize energy source management
- Enable energy imputation at product level => product labeling
- Easy extension to consider transport impacts
- It will be a key element for cooperation between stakeholders and servitization











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Trends and strategic impact in the future

INTEGRATIVE SUPPLY CHAIN MANAGEMENT

- 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.



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Trends and strategic impact in the future

QUANTUM DISRUPTION

- Offering new algorithms to deal with intractable Hard NP complete problems
- New era for CNN DL models towards QDL
- Quantum Edge solutions supporting IoT functions
- Integration between Qedge with Fog computing to enable powerful and extensive applications













Applied Research

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Conclusions

Impact of transformations:

- Manufacturing jobs will decrease,
- Profitability and ROCE rise will create new investment opportunities.

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Conclusions

- Enormous opportunities for the industry & society. *People must be at the heart of the change.*
- Change towards complex jobs requires multi-disciplinary skills
- Technological advances largely predictable. *Social welfare systems will need review to tackle inequality.*
- Ignoring the change or wanting to be a follower may not allow your business to be maintained. *Join in and participate or you 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









