DGUV
Deutsche Gesetzliche Unfallversicherung
Fachausschuss Maschinenbau,
Fertigungssysteme, Stahlbau

The whitepaper of ISO/TMB SMCC

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Christoph Preuße, Chairman ISO/TMB SMCC

ISO SMCC - member

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ISO/IEC JTC 1	*Information technology*
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ISO/IEC JTC 1/SC 40	*IT Service Management and IT Governance*
ISO/IEC JTC 1/SC 42	*Artificial intelligence*
ISO/TC 10	*Technical product documentation*
ISO/TC 10/ SC 10	*Process plant documentation*
ISO/TC 39	*Machine tools*
ISO/TC 39/ SC 10	*Machine tools - Safety*
ISO/TC 184	*Automation systems and integration*
ISO/TC 184/ SC 1	*Physical device control*
ISO/TC 184/ SC 4	*Industrial data*
ISO/TC 184/ SC 5	*Interoperability, integration, and architectures for enterprise systems and automation applications*
ISO/TC 199	*Safety of machinery*
ISO/TC 211	*Geographic information/Geomatics*
ISO/TC 261	*Additive manufacturing*
ISO/TC 292	*Security and resilience*
ISO/TC 299	*Robotics*

plus Chair of IEC SyCSM

The SMCC - whitepaper

The **overall goal** of the whitepaper is to facilitate for companies, and other stakeholders, to adapt to, and benefit from, the concept of Smart Manufacturing

”Manufacturing that improves its performance aspects with integrated and intelligent use of processes and resources in cyber, physical and human spheres to create and deliver products and services, which also collaborates with other domains within an enterprise’s value chain”

Source: Definition (ISO SMCC resolution 114/2017)

The whitepaper´s approach

… to explain Smart Manufacturing by utilizing models from innovation.

With certain regularity new disruptive technologies become available and pave the ground for a new wave of innovations.

When the effect of the new innovations is large enough, they will revolutionize the current norm of how things are seen and done.

The whitepaper´s presentations

In the whitepaper SMCC will present
new disruptive technology that are matured enough
for industry to leverage on,
they will be called “Enablers of Smart Manufacturing”.

SMCC will also present

- a set of design principles, referred to as the Enablers for SM, that are of high relevance for achieving a successful implementation of Smart Manufacturing,

- the Effects that are foreseen with Smart Manufacturing

Technologies

Technologies behind the current revolution are largely connected to computer power and computational capabilities:

- *cheap (hence unlimited) data storage*
- *fast (hence responsive) computer and calculation power*
- *reliant (hence place-independent) communication*

Future effects

What **future effects** will it lead to?

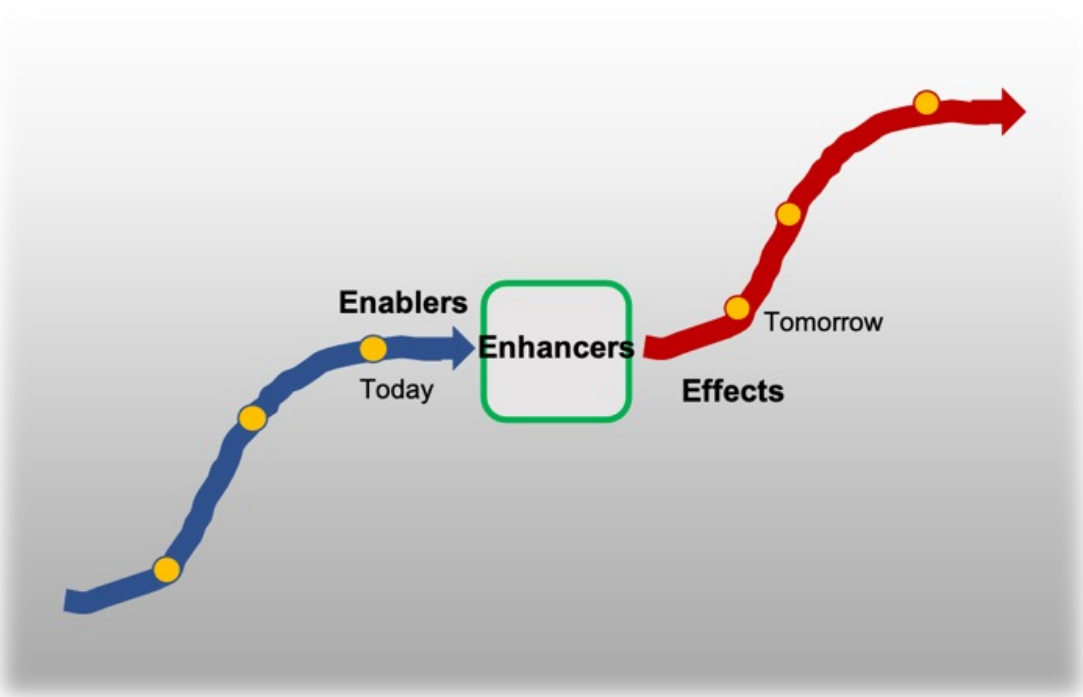
- Circular manufacturing;
- Model based Manufacturing;
- Lights out factories;
- Product personalization
- Preventive and predictive maintenance;
- Edge automation;
- Servitization;
- Data-driven business models

Needed principles

What **principles** are needed to enhance the development?

- Terminology and reference models;
- Concepts related to decentralization, modularization and virtualization.
- Integration and interoperability vertically and horizontally;
- Digital twin and digital thread;
- Product transparency;

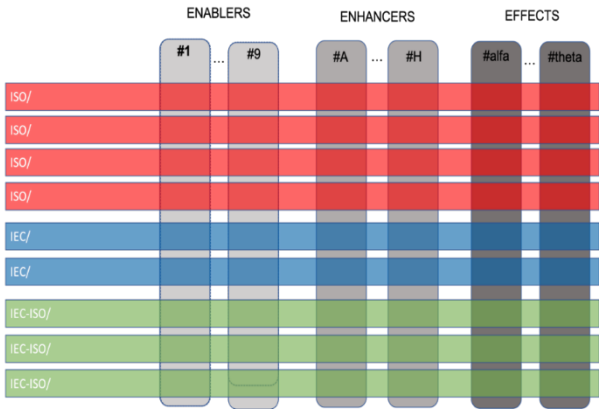
Enablers – Enhancers – Effects



Be beneficial

Standards : ISO, IEC and ITU for

- the enablers
- treating the enhancers
- the effects



The „SMCC-matrix“

Roadmaps for Enablers – Enhancers – Effects to get a „SMCC-matrix“

Appendix with **definitions of used terminology**

Thank you very much for your attention

Christoph Preusse

Chairman SMCC
c.preusse@bghm.de