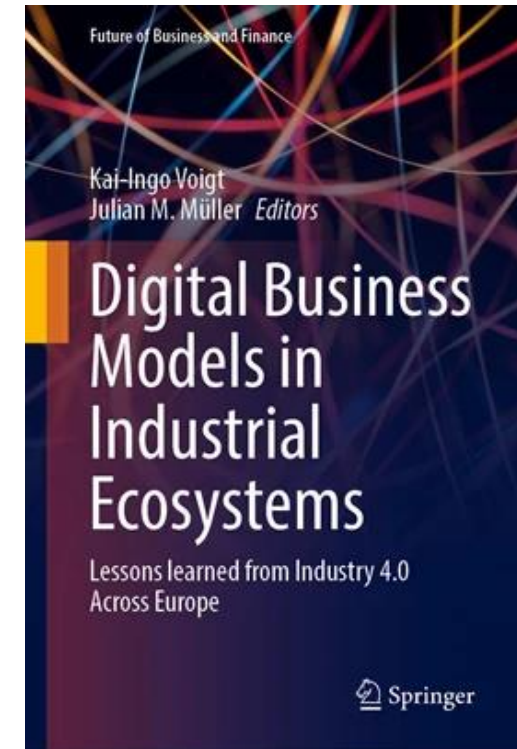
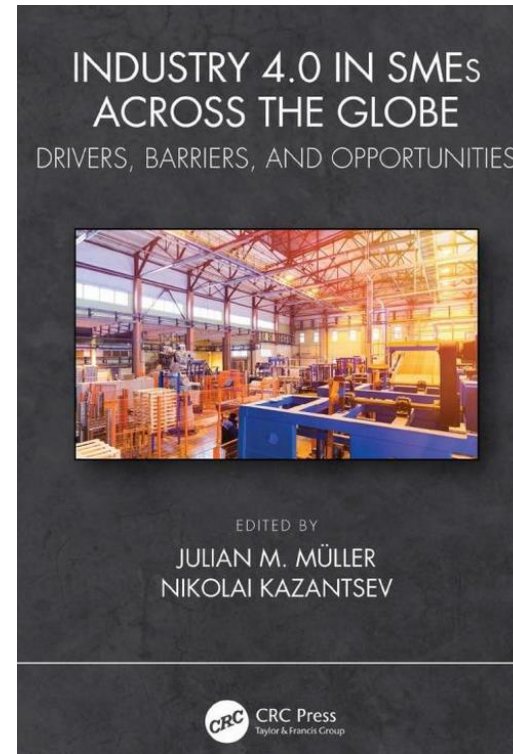


Good and best practices – making the concept reflect reality

Prof. Dr. Julian M. Müller

10.11.2022

A short introduction of myself



Best practices of digital transformation SMEs hear about: a selection

- *„Build your own digital platform with digital services and business models“*
- *„Everything that can be digitised will be digitised.“*
- *„Set up an AI system that analyses your entire supply chain and tells suppliers what to do.“*
- *„Interconnect ERP (enterprise resource planning“ with forecasting data across multiple plants.“*

Many SMEs are not yet on the level of full-scale implementation of digital technologies

			Formal Industry 4.0 strategy and service-based business models allow an active role in markets, alliances and ecosystems
		Conditions for Industry 4.0 fulfilled: Foremost market, strategy and efficiency	Full implementers (88) <i>Service-based business models and complex products</i>
	Preconditions for Industry 4.0 fulfilled: Foremost innovation and strategy	Non-planner implementers (106) <i>Manufacturers of complex products</i> - Strengths: Efficiency, strategy, availability of financing resources and infrastructures. Integrated management of Industry 4.0 transition.	- Industry 4.0 technologies: Big Data Analytics, Robotics, Artificial Intelligence, Internet of Things or intelligent metrology. - Strengths: Collaboration culture, (mainly technological centers), technological advisors and experts, advanced services. Integrated management of Industry 4.0 transition.
Non-implementers with no Industry 4.0 preconditions (88) <i>No own end-product and low-technology sectors</i> - Challenges: Low degree of pre-conditions, mainly: leadership, alliances, innovation, skills and management	Non-implementers of Industry 4.0 with preconditions (68) <i>Usually low-technology industries and semi-finished components</i> - Challenges: Low acceptance of Industry 4.0 by market, servitization, organizational model, alliances and qualified staff.	- Challenges: Servitization, analysis of competitors, market acceptance, development of alliances, change of organizational models and availability of qualified staff.	- Challenges: Availability of qualified staff and financial resources.



Estensoro, M., Larrea, M., Müller, J. M., & Sisti, E. (2021). A resource-based view on SMEs regarding the transition to more sophisticated stages of Industry 4.0. *European Management Journal* (in press).

Further, many SMEs lack the adequate economies of scale

Usage of ERP Systems in SMEs

In 2021, the percentage of EU enterprises using Enterprise resource planning (ERP) ranged from **33% for small enterprises** to **81% for large enterprises** (Eurostat, 2021)



Usage of robots in SMEs

SME robot usage: **19%**
Large enterprise robot usage: **31%**

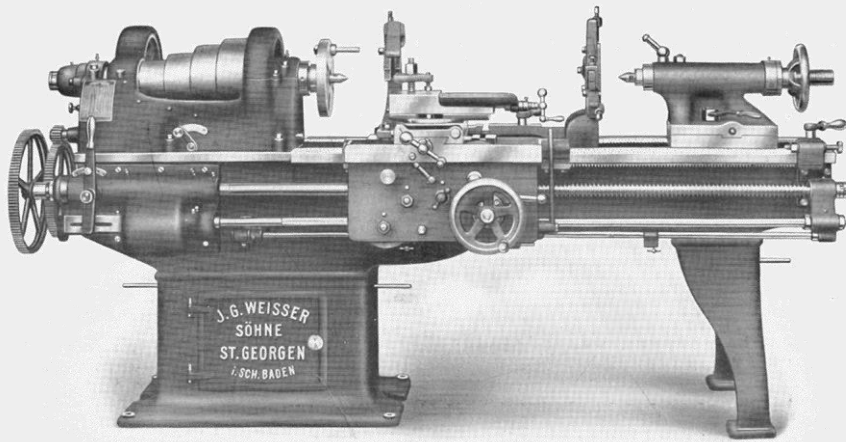
(German Robotics Association, 2021)



***SO WHAT CAN
SMES DO IN
PRACTICE?***

Retrofitting as a source of „low cost“ digitalisation

- Workshops and platforms for SMEs to connect play a vital role to make technologies approachable, such as “Frugal Innovation” hubs.



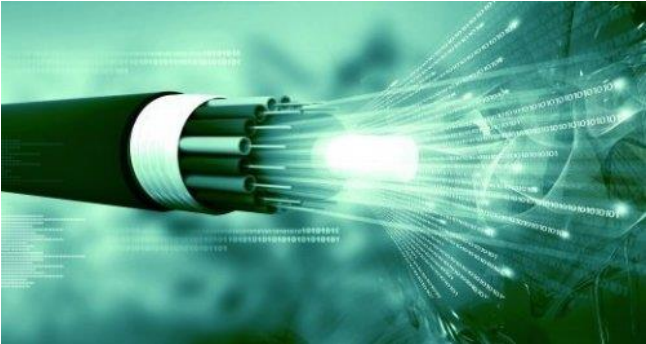
“Downgraded” student projects are enough for many SMEs (and attract talents)



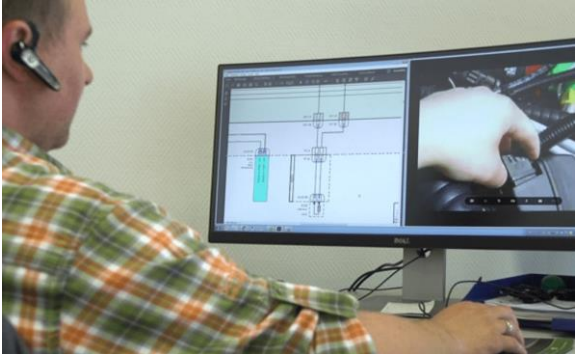
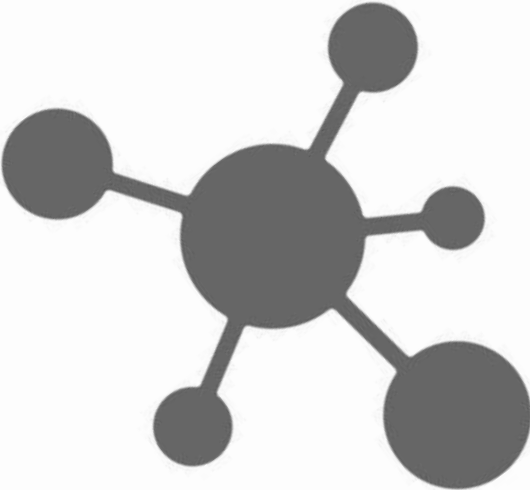
Many SMEs have common interests among equals that they can combine for their common benefit



(Digital) tool sharing platforms



Broadband internet



Remote maintenance and IT



Talent acquisition

Conclusion

- 1) “Good” is often better for SMEs than “best” to make practices approachable
- 2) What might be outdated for large firms is still good enough for many SMEs.
- 3) Nevertheless, the long-term goal should not be forgotten when implementing approachable practices. For some SMEs, a direct step towards “best” might still be right.