



# AWK'23

WWW.AWK-AACHEN.DE

11. / 12. MAI 2023

**Session 4:**

***New Quality Paradigm for  
Sustainable Production***

**Empower Green Production**

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Head of Consulting Services  
Testo SE & Co. KGaA

 **Fraunhofer**  
IPT

 | **RWTH AACHEN**  
UNIVERSITY

# Meeting ESG requirements of different interest groups is crucial for the future viability of companies

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**Consumer Behavior &  
Labor Market**



**Legal Requirements**



**Resource Utilization &  
Circular Economy**



**Emissions & Energy Consumption**

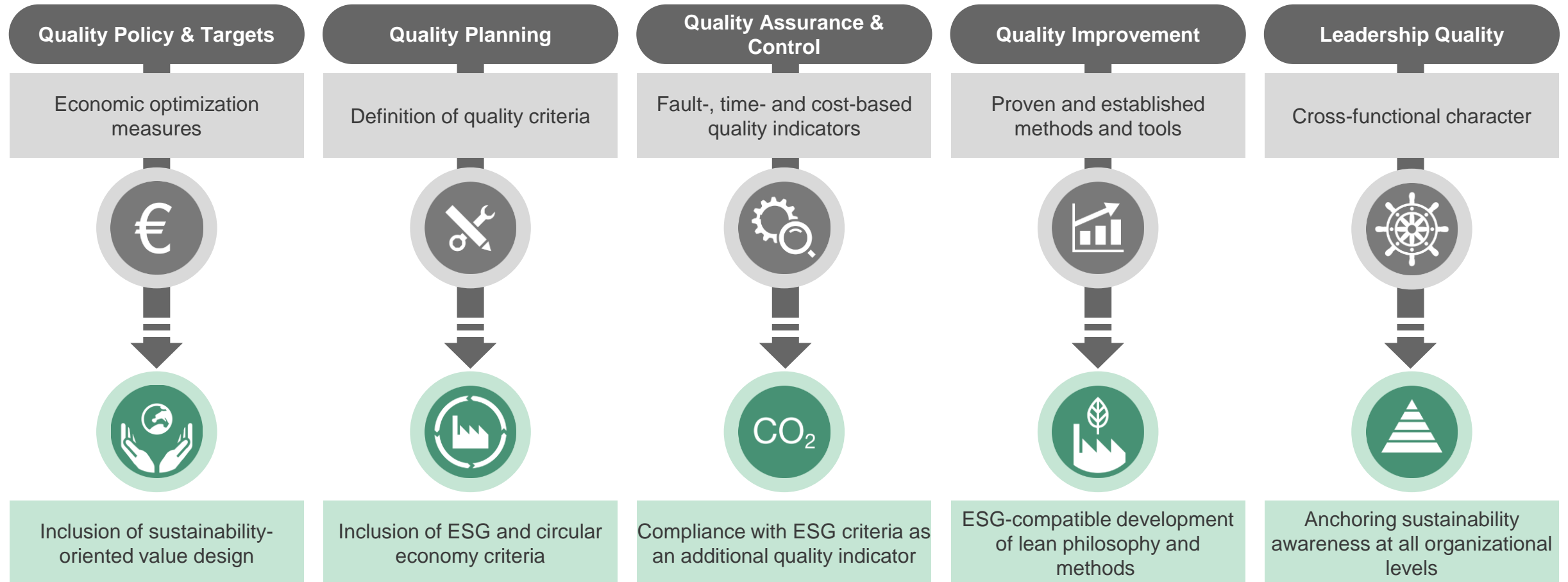


**Investment & Capital Markets**

Pictures: Pixabay

# Quality management provides essential tools and mechanisms for addressing this inevitable sustainability transformation

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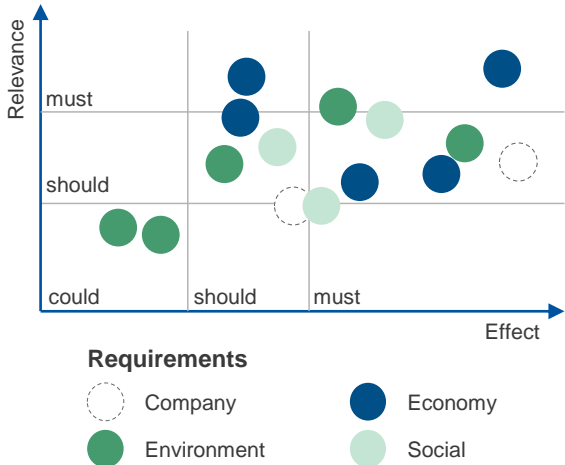


# Through the further development of QM tools, the sustainability transformation can be transferred into company's actions

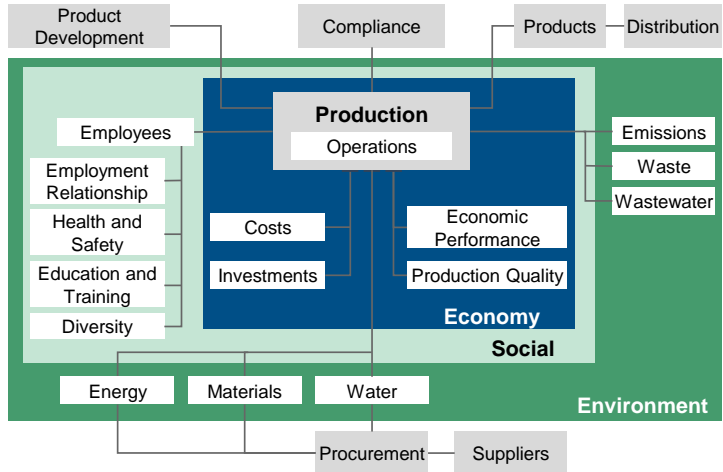
## Classification of requirements



## Prioritization of requirements



## Operationalization of requirements



Classification of sustainability-oriented market requirements based on the impact on the company's activities

Materiality matrix for identifying prioritized fields of action

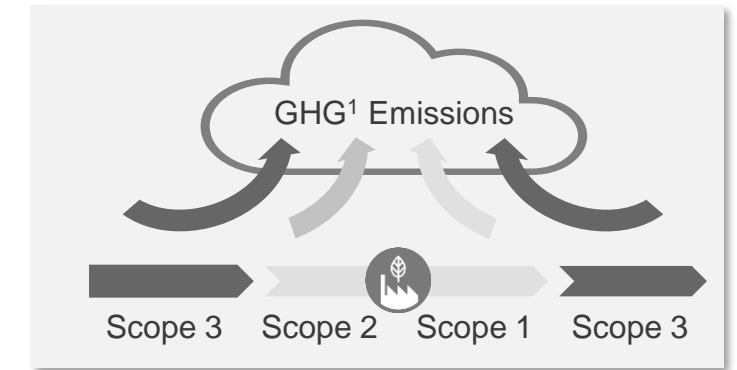
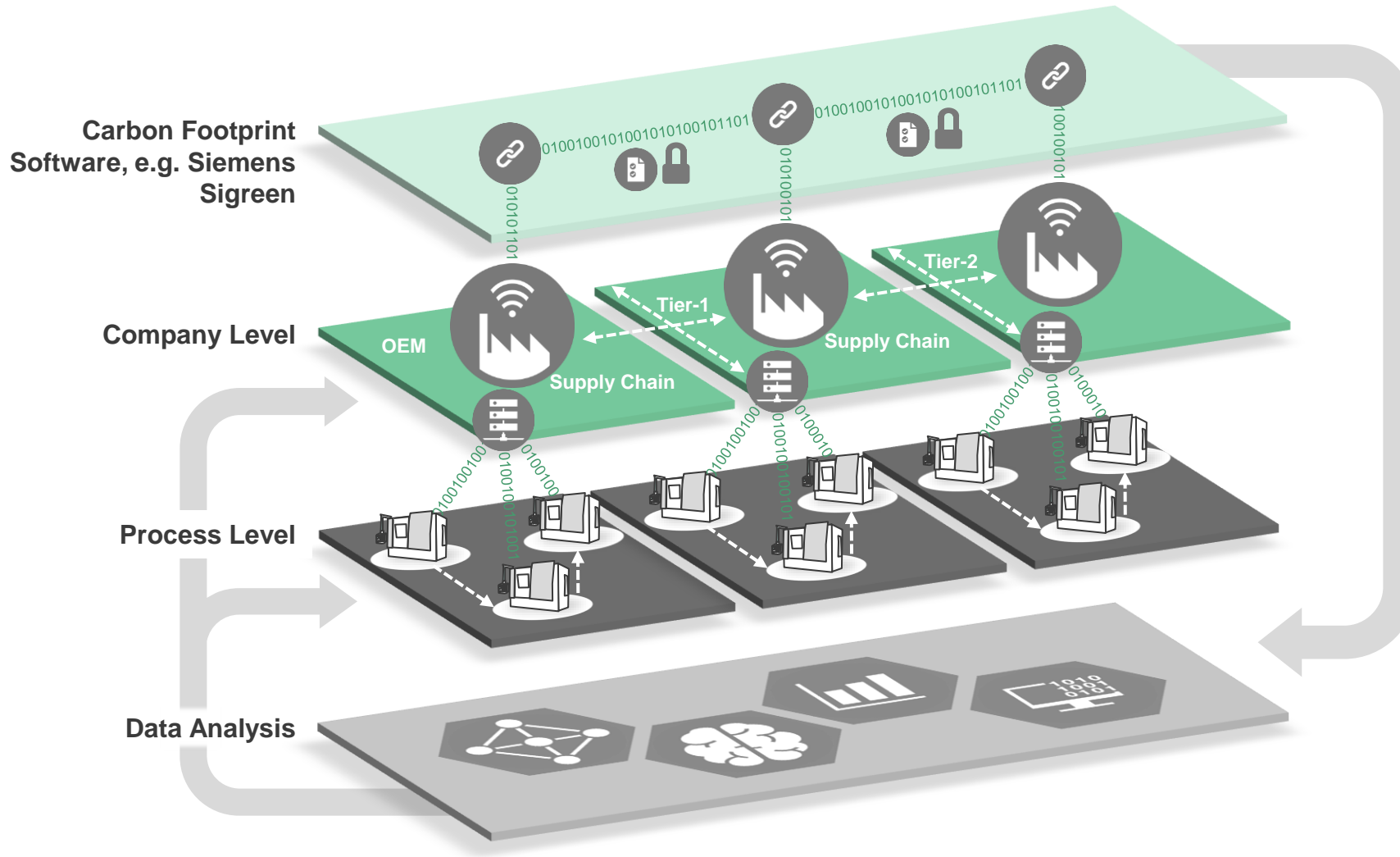
Indicator system for input-output-based sustainability assessment of production processes<sup>1</sup>

[1] F. Sohnius et al. 2022: „Quantification of sustainability in production systems through a conceptual input-output model“



# The transformation implies an implicit process-, metric-, and competency-based perpetuation of ESG criteria in the organization

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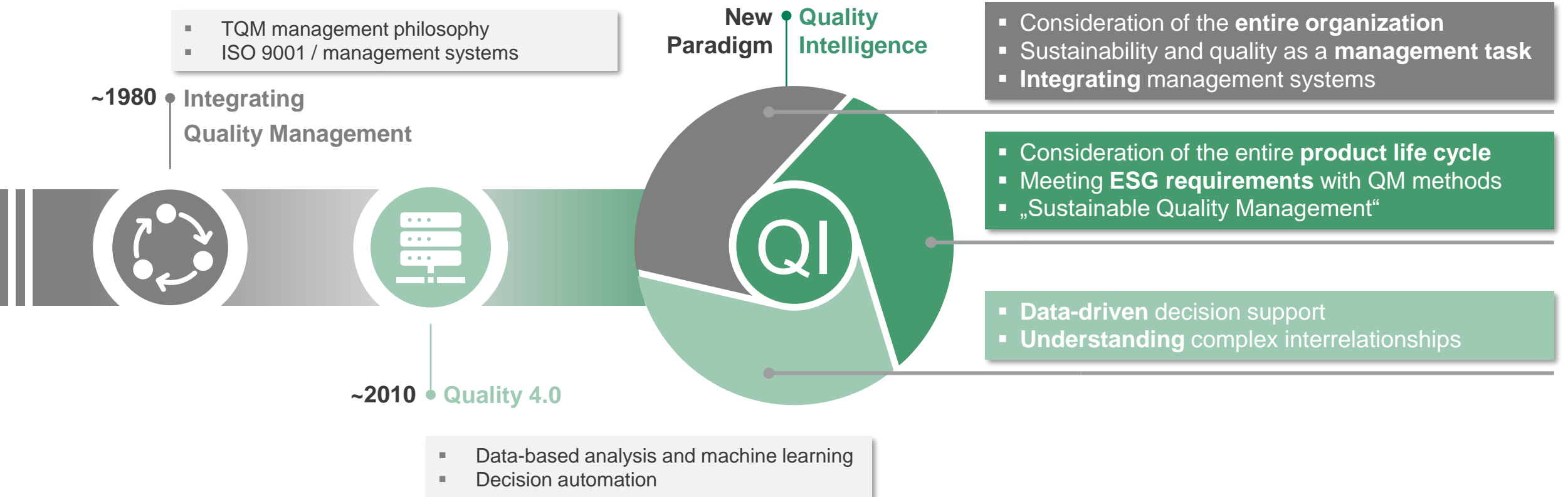


- **Increased data requirements** due to operationalization of ESG criteria
- Only **reliable data** (internal and external) enable innovative QM concepts
- **Data sovereignty** with increased data exchange through encryption technology

1) GHG: Greenhouse Gas

# The development of quality management under consideration of ESG criteria paves the way to Quality Intelligence

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2006 - 2013



2013 - 04/2023



2009 -



VDI/VDE-Gesellschaft  
Mess- und Automatisierungstechnik

VDI Fa. 1.12, „Eignungsnachweis“



05/2023 -

17 years of quality management and production excellence



Automotive



Aerospace



Medical



Operational Excellence

Bilder: Pixabay, Testo SE

- [1] F. Sohnus, M. Iglauer, L. Gussen and R. H. Schmitt, „Quantification of sustainability in production systems through a conceptual input-output model,“ Proceedings of the 16th CIRP Conference on Intelligent Computation in Manufacturing Engineering, CIRP ICME '22, Italy, accepted, 2022.



**Thank you for your attention!**