

An abstract graphic composed of green wireframe lines forming the shape of a leaf at the top and a hand at the bottom. The lines are interconnected, creating a mesh-like structure. Small green dots are scattered around the main shapes, and some lines extend outwards, giving a sense of motion or digital data.

# AWK'23

[WWW.AWK-AACHEN.DE](http://WWW.AWK-AACHEN.DE) 11. / 12. MAI 2023

## New Modularity and Technology Roadmapping

Impulse presentation – Session 1  
Dr. Ulrich Viethen

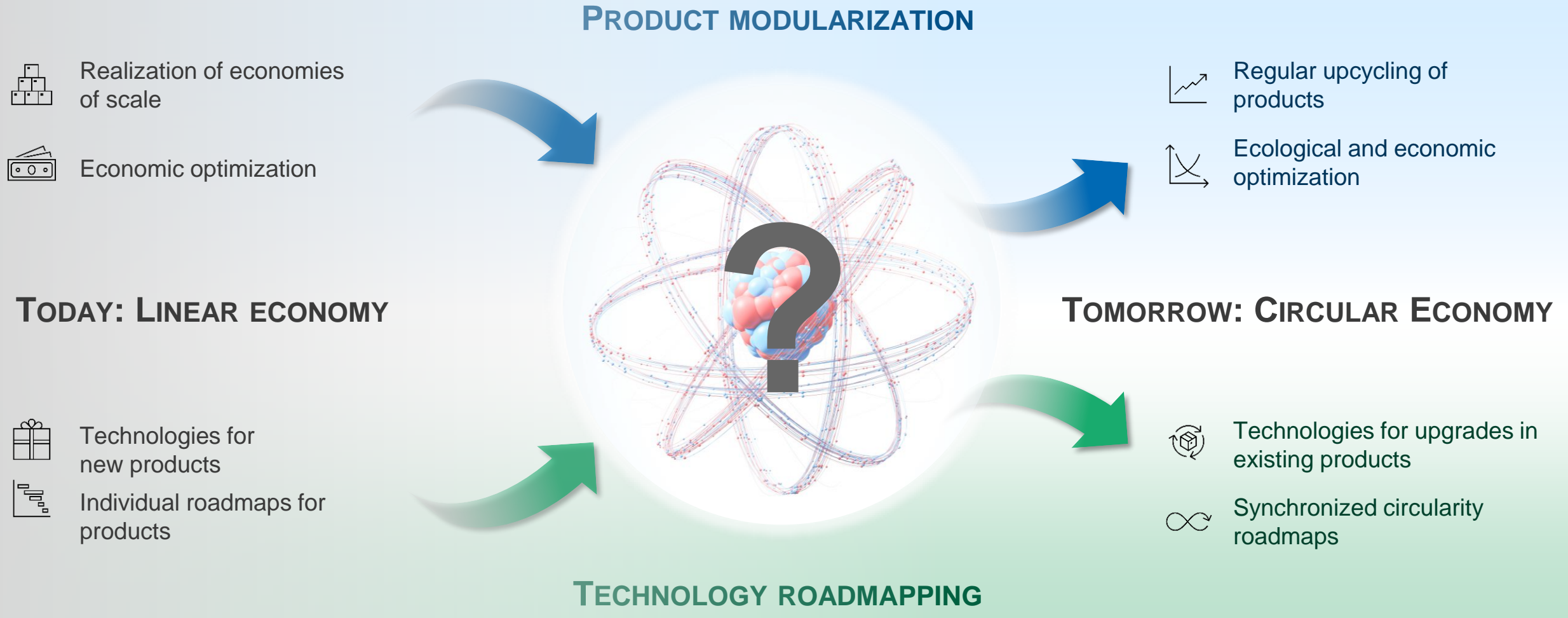
# Empower Green Production

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IPT

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UNIVERSITY

# The transformation towards the Circular Economy requires paradigm shifts in product modularization and technology planning

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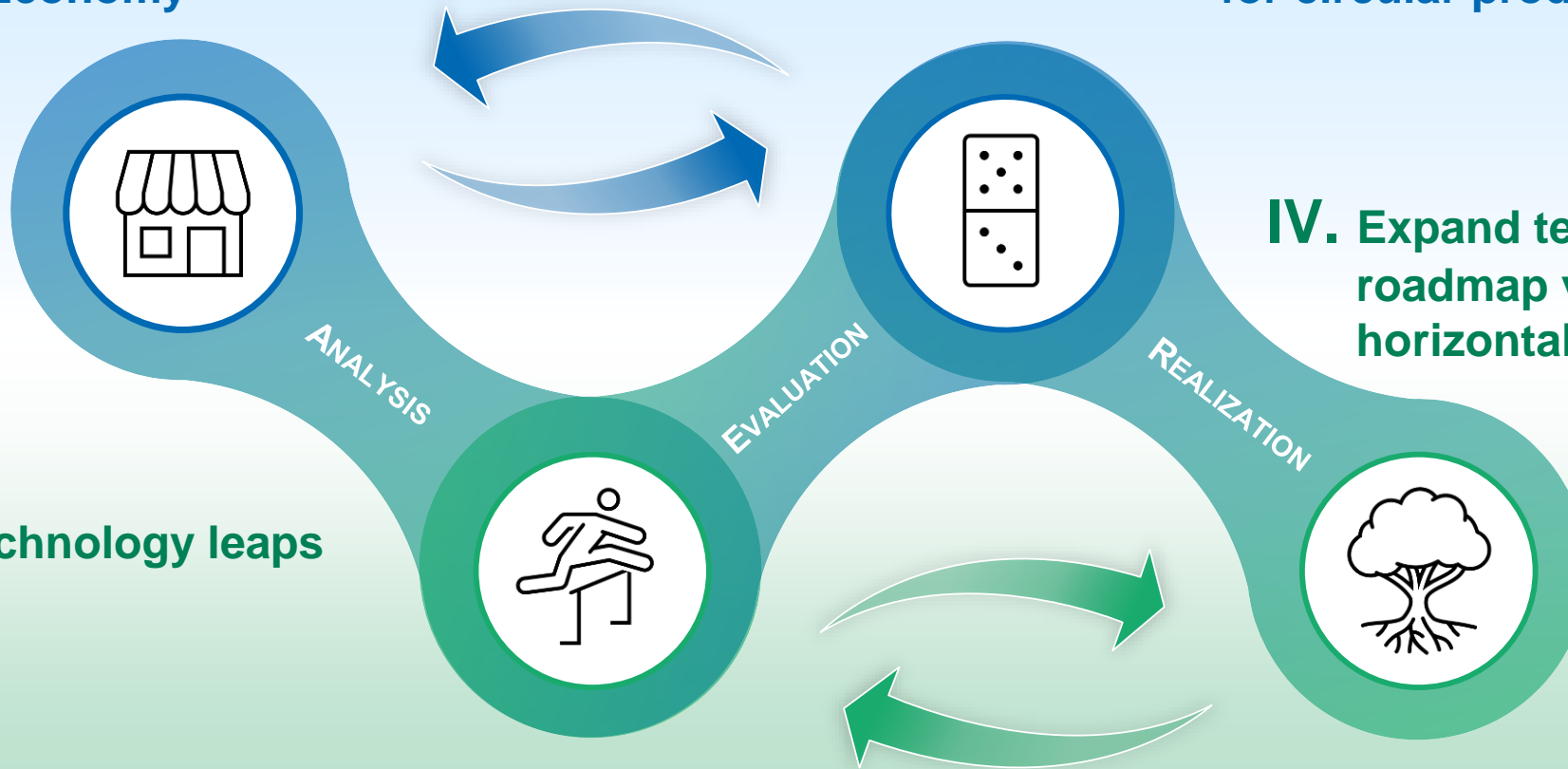


**I. Understand markets and customers in a Circular Economy**

**III. Design product architectures for circular products**

**II. Anticipate technology leaps**

**IV. Expand technology roadmap vertically and horizontally**



Circular modularization can only be successful in the long-term if the accuracy of market and technology analysis is high

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USE CASES

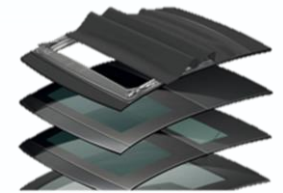
## I. Understand markets and customers in a Circular Economy

## II. Anticipate technology leaps



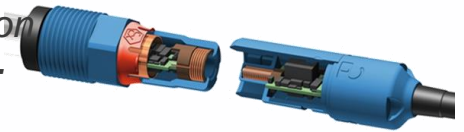
**Webasto**

Provide customers with alternatives through "**Minimum viable sustainable Products**"



Endress+Hauser **EH**

Understand areas of application of the products as a "**system-of-systems**"



**MURR ELEKTRONIK**  
stay connected

Anticipate technology leaps, e.g., in the **automation** of manufacturing



## USE CASES



**Function-oriented system architecture** and expansion of system boundaries



**Systematic deployment strategy** for new technologies to realize ecological and economic potentials



**III. Design product architectures for circular products**

**IV. Expand technology roadmap vertically and horizontally**

EVALUATION

REALIZATION





*Current **products** are rarely suitable for the **Circular Economy** as existing product architectures have not been developed with consideration for the Circular Economy.*  
***Product modularization** and **technology planning** play a central role in embedding products in any future circular system.*



*Scenario-based anticipation of market and technology developments*



*Value delivery also provided by software and services*



*Intelligent digital shadows of products and processes*

# Many thanks to all members of the expert group!

# AWK'23



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Endress+Hauser 

  
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