

LIT FACTORY

THE SMART RESEARCH FACTORY IN UPPER AUSTRIA



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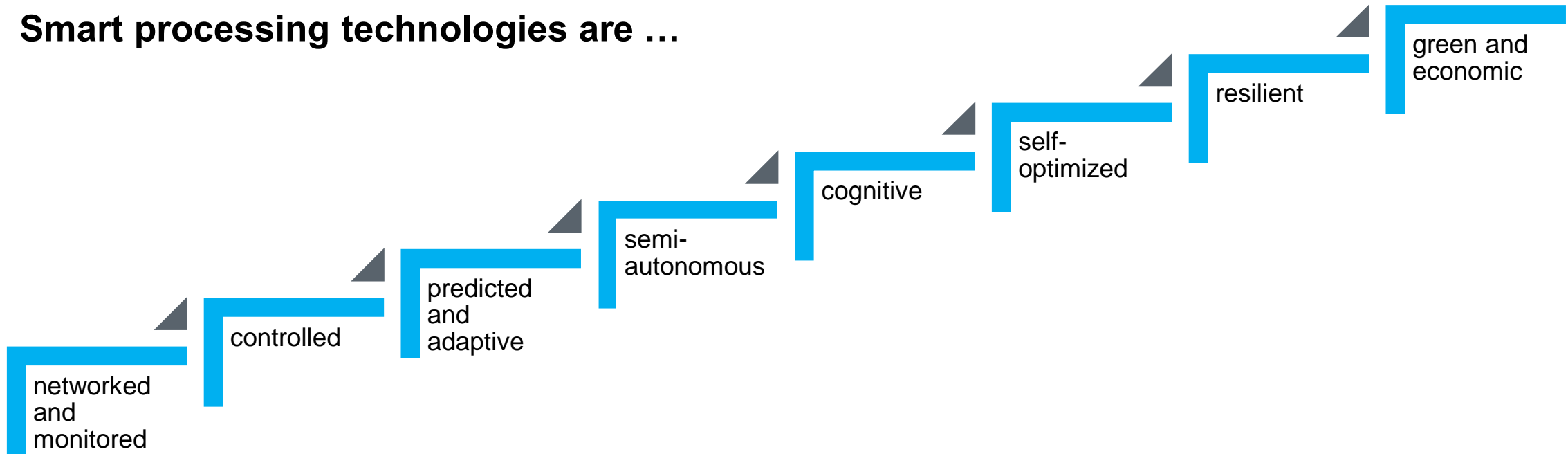
JOHANNES KEPLER
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SMART PRODUCTION

Industry 4.0

Smart processing technologies are ...



... and beneficially for Human, Environment and Business!

LIT FACTORY

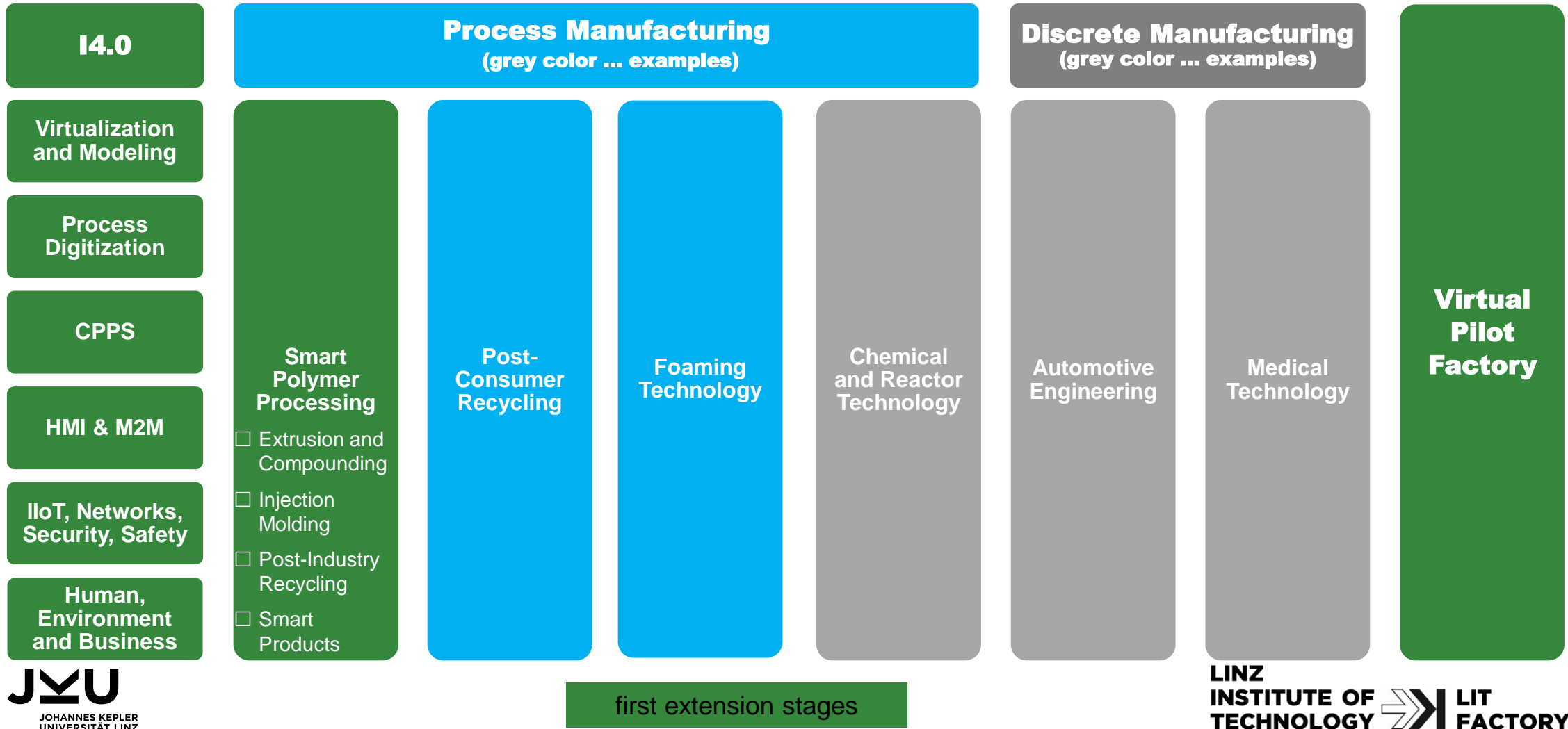
Governing Concept

- To teach, explore and demonstrate potentials and technologies of digitization for smart cross-industry products and processes
- To reinforce existing strengths of our region
- To transfer research results into innovations
- To shorten 'time-to-market'
- To cooperate with industry and SMEs
- To create smart benefits for human, environment and business

- LIT Factory = High-tech research platform and center of excellence in product and production research
- The first extension stages will be:
 - Smart research factory for the process-technological production of polymer light-weight structures by means of smart extrusion, compounding, injection molding, recycling and upcycling technologies*
 - Virtual Pilot Factory as 'digital twin'*
- Other extension stages will follow (see next slide in green color)

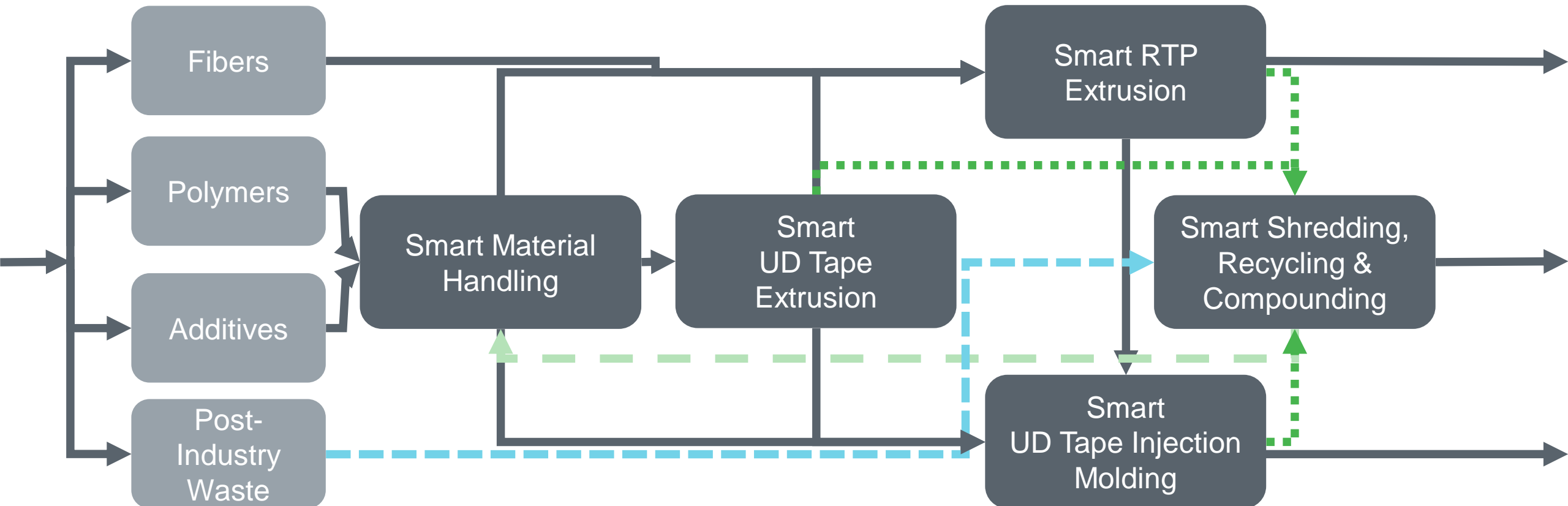
VISION for EXPANSION of LIT FACTORY

Product and Production Center



LIT FACTORY

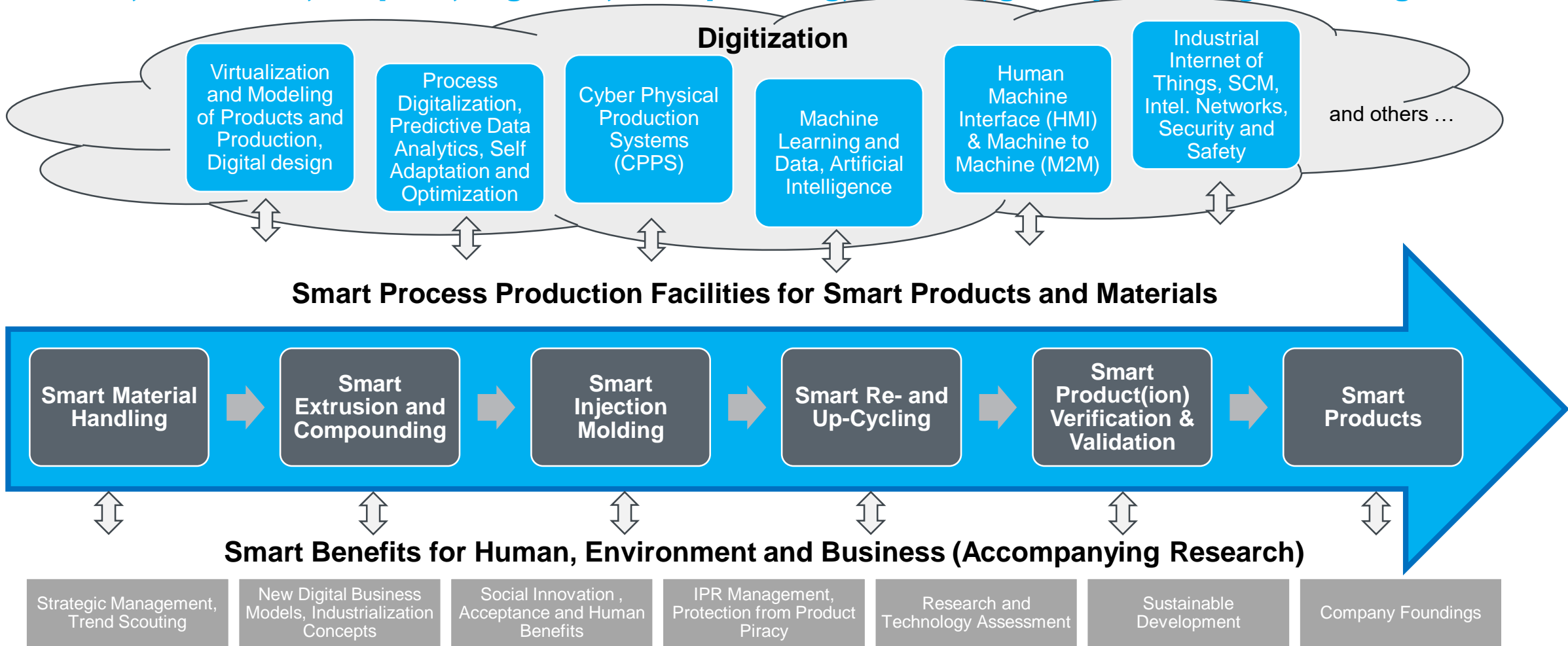
Production process of first extension stage “Polymer Processing”



Arrows ≡ Material Flow

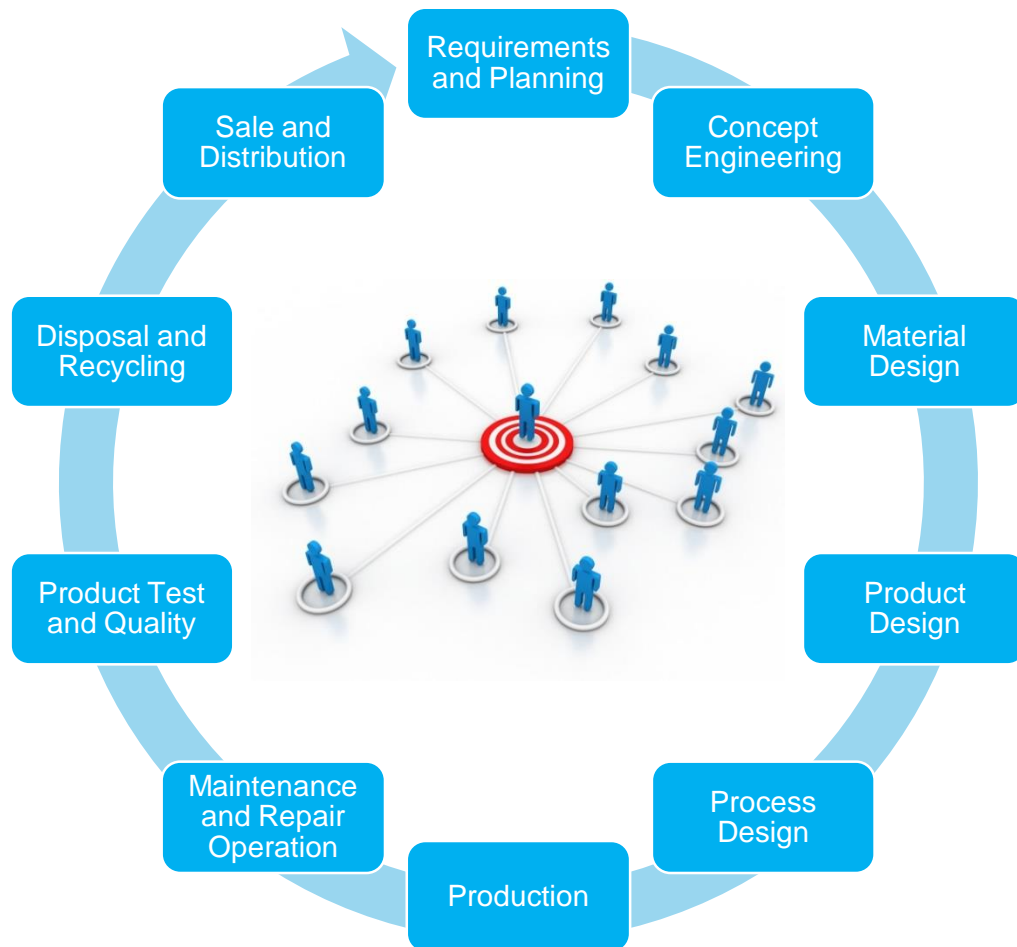
LIT FACTORY

Smart, networked, adaptive, cognitive, self-optimizing, resilient, green processing technologies!



LIT FACTORY

Integrated systems engineering over entire value network



■ Scientific Impact

- New Product Life Cycle Management Methods
- New Computational and Experimental Modeling Concepts
- New Concepts to increase Utility and Value of Polymeric Systems

■ Technological /Industrial Impact

- New Production Technologies of Multi-Layer-, Multi-Component-, Hybrid- and Lightweight Structures which will help to increase Production and Resource Efficiency as well as to exploit the unique Product Properties

■ Commercial /Societal Impact

- Reduction of Material, Energy and Pollution Intensity
- Efficient Waste-2-Value Networks
- Smart Products and new Developments e.g. for Mobility, Civil Engineering, Packaging, Lightweight Construction, Medicine

LIT FACTORY

Classification of Projects

FEI Focus

- F1) Smart Digital Components
- F2) Smart Process Machines & Technologies
- F3) Smart Process Factories & Value Networks
- F4) Smart Products
- F5) Smart Benefits for Human, Environment and Business
- F6) Others

Digitalization

- D1) Virtualization and Modeling of Products and Production, Digital design
- D2) Process Digitalization, Predictive Data Analytics, Self Adaptation and Optimization
- D3) Cyber Physical Production Systems (CPPS)
- D4) Machine Learning and Data, Artificial Intelligence
- D5) Human Machine Interface (HMI) & Machine to Machine (M2M)
- D6) Industrial Internet of Things, SCM, Intel. Networks, Security and Safety
- D7) Others

Products

- P1) Agile exoskeletons, eLegs, eArms or smart patient bed for humanitarian aims
- P2) Lightweight constructions for green-mobility
- P3) Composite technologies for building constructions and mechanical engineering
- P4) Structures for intelligent packaging
- P5) Recyclates for cross-industry products
- P6) Semi-finished products for other Pilot Factories
- P7) Others

Example

To predict wear and tear of shredder unit of recycling machinery by means of smart data mining.

- FEI Focus = F2 (Process Machines)
- Digitization = D2 (Predictive Data Analytics)
- Products = P5 (Recyclates)

THANK YOU

WE THINK PRODUCTION