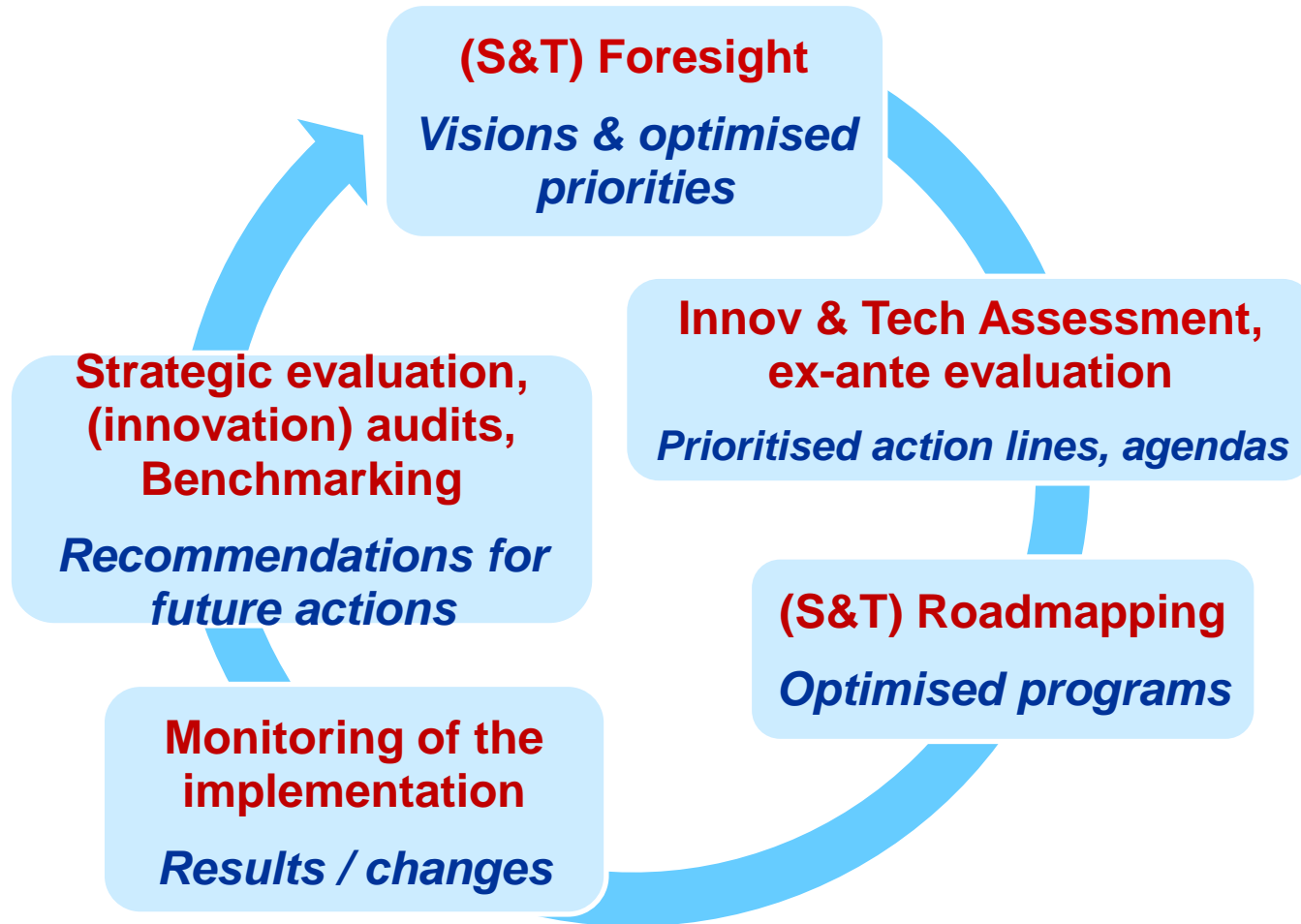




From Shared Knowledge to Collective Action – the „Spitzen“-Cluster MicroTEC Südwest

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Strategic Policy Guidance for the 'Great Transitions'



Strategic Policy Guidance and R&I Support to enable efficient 'Great Transitions'

(S&T) Foresight

Visions & optimised priorities

Innov & Tech Assessment, ex-ante evaluation

Prioritised action lines, agendas

Strategic evaluation, (innovation) audits, Benchmarking

Recommendations for future actions

(S&T) Roadmapping

Optimised programs

Monitoring of the implementation

Results / changes

(EU, nat, reg) R&I-support initiatives, e.g.

- (regional/sector) innovation strategies
- wider measures (education, infrastructures, etc.)
- research / innovation support programmes
- specific innovation support (SMEs, clusters, trans-border cooperation, multi-stakeholder networks,...)
- new technology & knowledge -management and -transfer schemes

The Spitzen-Cluster Competition

ca. 100 mio EUR each (50 % pub/priv)



Flagship of the national High-Tech Strategy 2020 and pillar of the Internationalisation Strategy for Science & Research

- Strengthening the research and innovation potential of the best German ‘Clusters’ (Consortia) (bottom-up)
Objective: maintaining/generating jobs by massive R&I investments aiming at achieving a key position internationally, and faster transfer of ideas in ‘products’ and services
- Supporting innovative approaches to long-term R&I boosting strategies, optimised for both, regional AND ‘sector’ dimensions

The winning 'Cluster' MicroTEC Südwest



- >40 mill EUR own funds, >40 mill nat. funds, >5 mill B-W funds, x mill EU funds
- Consortium of > 300 actors, with a 6 million inhabitants 'home base'
- Concentration of competences along key micro-system technology (MST) value chains
 - Excellen universities & HE institutions
 - Large research organisations
 - 'Home-grown' multi-national enterprises
 - Technologically strong SMEs
 - World market leaders
- Strong technology platform





microTEC
Südwest

Overall aim: structuring the large consortium and making it work successfully and sustainably

- Joining research forces in 2 “Light-Houses“ (mobility, health) to generate breakthrough innovations for global lead markets
- Establishing technology platforms as a base for customised smart systems and promising cross-industry innovations
- Building strategic partnerships worldwide along all parts of prioritised value chains



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Cluster Strategy: 'Lighthouse' roles

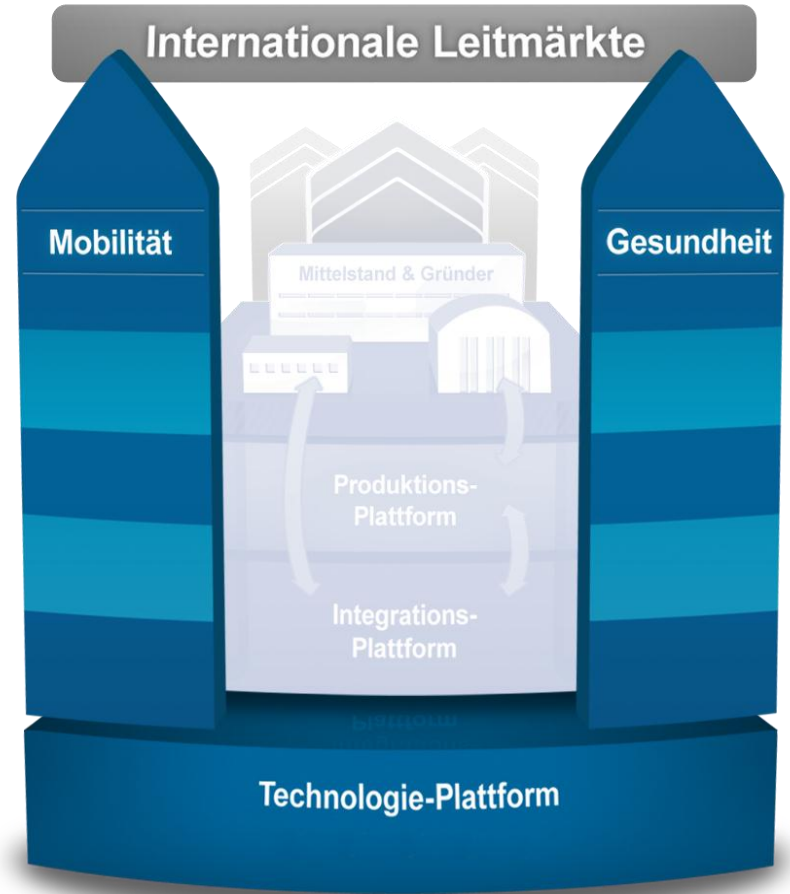


Goal

- ✓ Achieve leading international market position
- ✓ Fast and successful penetration through world market leaders

Challenges

- System integration & value-chain integration
- Close coordination of strategies concerning internationalisation
- SME involvement in overall process including world market penetration



Lighthouse “mobility” examples : High-Performance Sensors

- **RTFIR:** Thin, unchilled distance infrared-image-sensors with nanotech absorb layers.

- **SiC-Tech:** Silicon carbide technology for robust sensors in a harsh environment (motor)



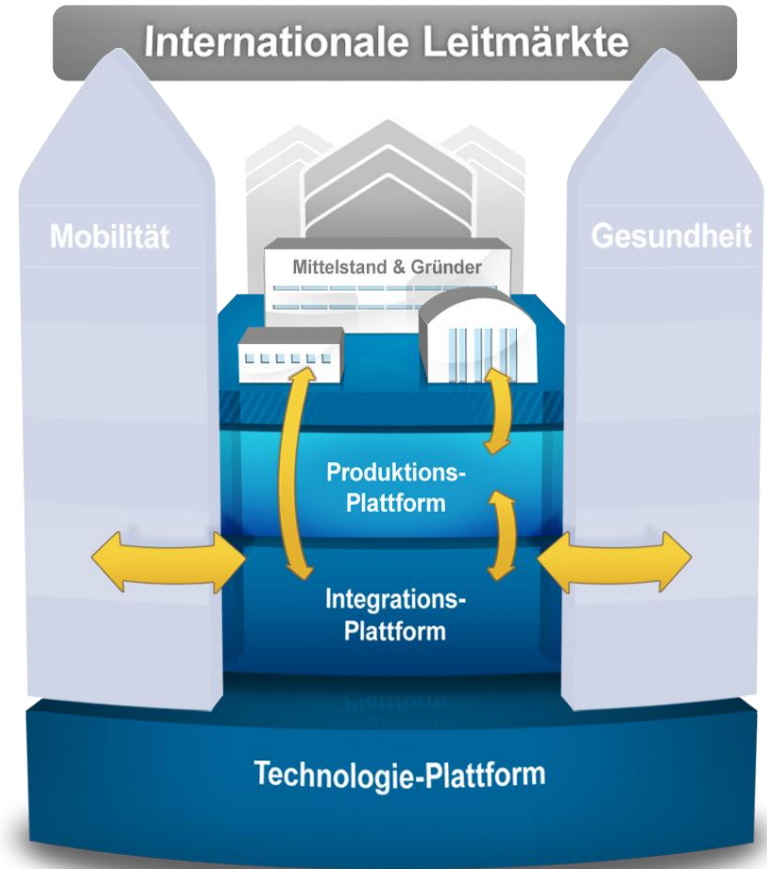
The enabling & support platforms

Goal

- ✓ Expansion and strengthening of the innovation and value chain – with a focus on start-ups and SMEs
- ✓ Improvement of the links between basic research & tech development

Challenges

- Developing dynamic platforms:
 - from strategy development
 - to R&D
 - to joint system development
 - to small volume series production
 - to market penetration





Platforms and other “Structural Projects” of microTEC Südwest



- *for (small system) integration*
- *for production technologies*
- for internationalisation
- for methodological & process competence
- for speeding-up innovation, supporting start-ups
- for qualification and recruitment
- the **STRATCLU** project to develop
 - ✓ the overall cluster strategy
 - ✓ and to support individual actor strategies

A strategy process involving actively a broad spectrum of public and private stakeholders,

- both integrating their specific knowledge and communicating strategic knowledge from global sources,
- elaborating on this basis optimised and preferred development paths,
- and thus creating synergies AND committment,
- **reduces the risks of S&T&I investments**
 - for the participating actors
 - and for ‚external‘ investors.



Developing & Implementing Future Strategies & Roadmaps - for better informed, broadly accepted, and less risky R&I investments



Cluster-Foresight
Perspectives & Scenarios

**Cluster-Audit,
International Benchmarking** Initial Position

**Monitoring,
Controlling**

Impact Assessment, ex-ante Evaluation

Agenda with Priorities

Strategic Learning Cycle

Roadmapping

**Cluster- &
R&I-
Roadmaps**

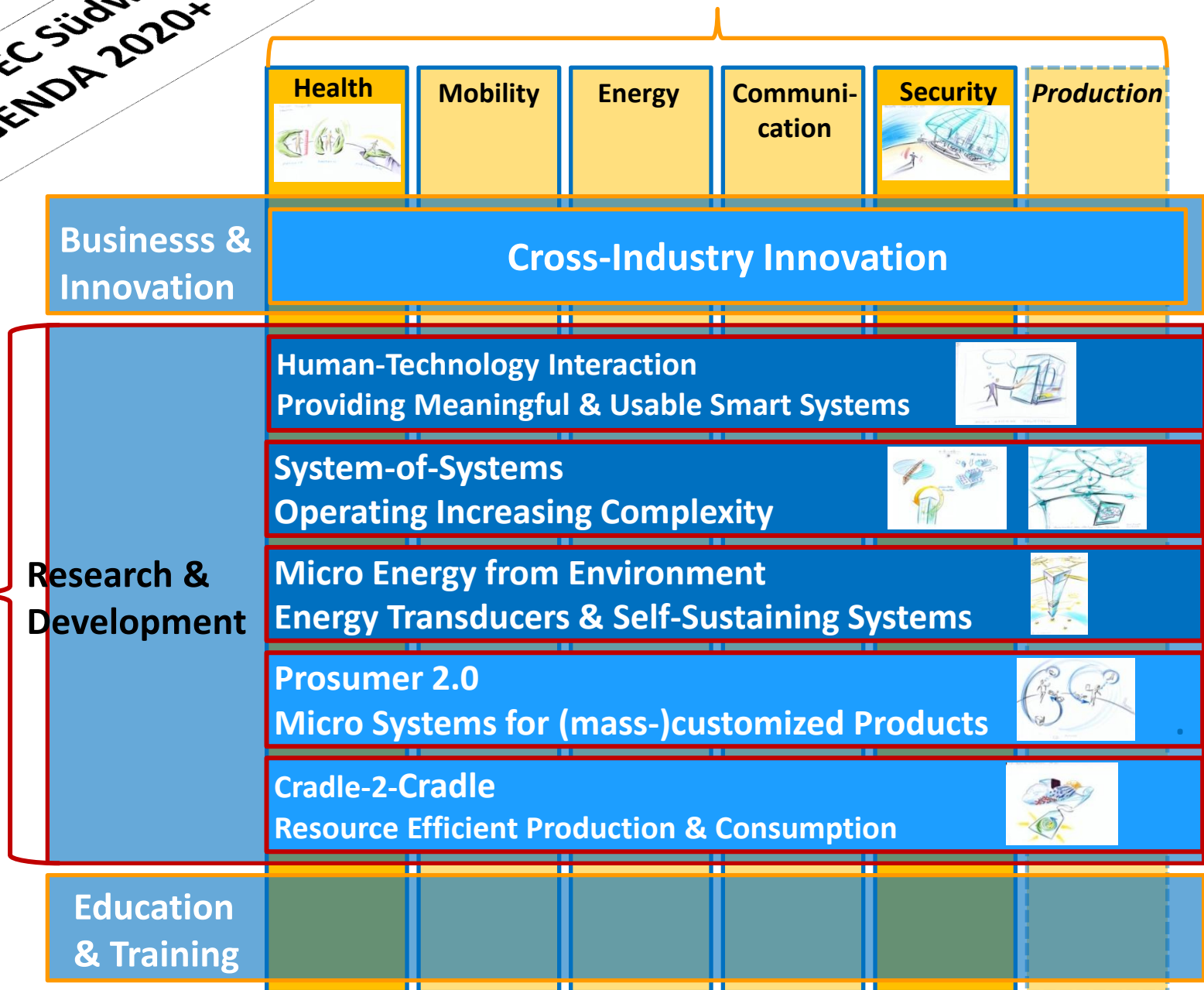
Action & Implementation

**Operational
Learning Cycle**

**MicroTEC Südwest
AGENDA 2020+**

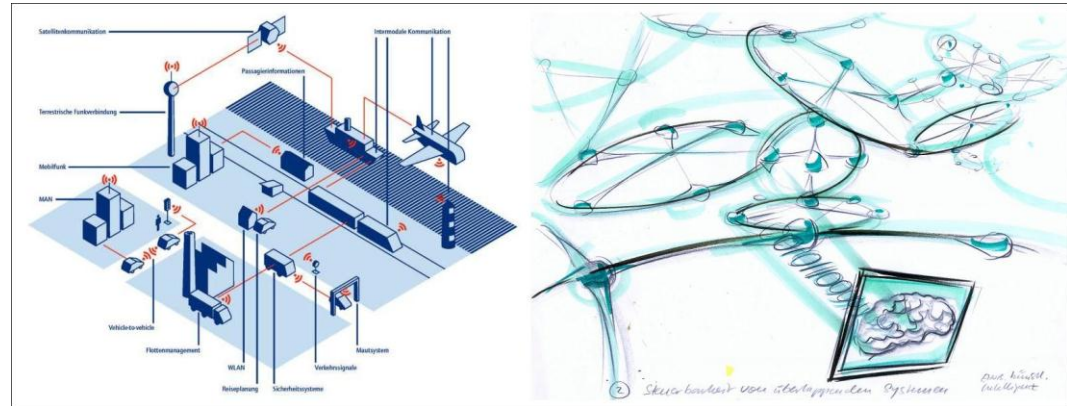
Application-oriented Fields (national priorities)

**R&I-related Priority Fields
for smart systems - based solutions**



Agreed R&I Priority Fields (I)

Systems of Systems *Operating Increasing Complexity*



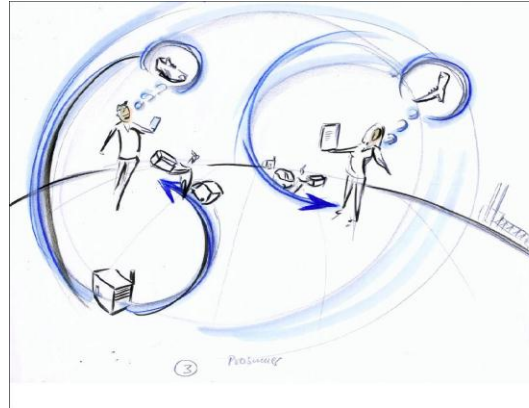
Micro Energy *from Environment Energy-Autonomous & Self-Sustaining Systems*



Agreed R&I Priority Fields (II)

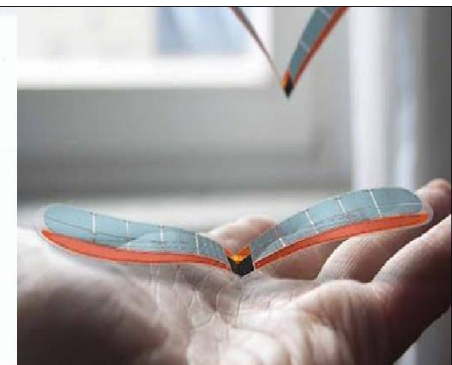
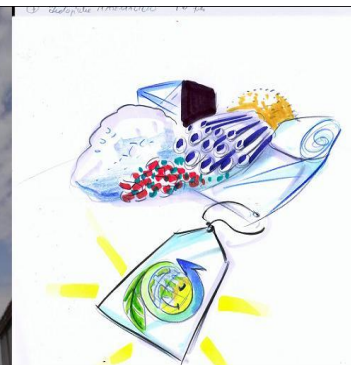
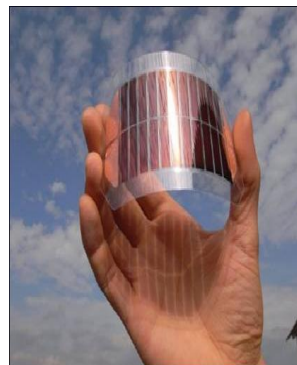
Prosumer 2.0

*Micro Systems for
(mass-)customized
Products*



Cradle 2 Cradle

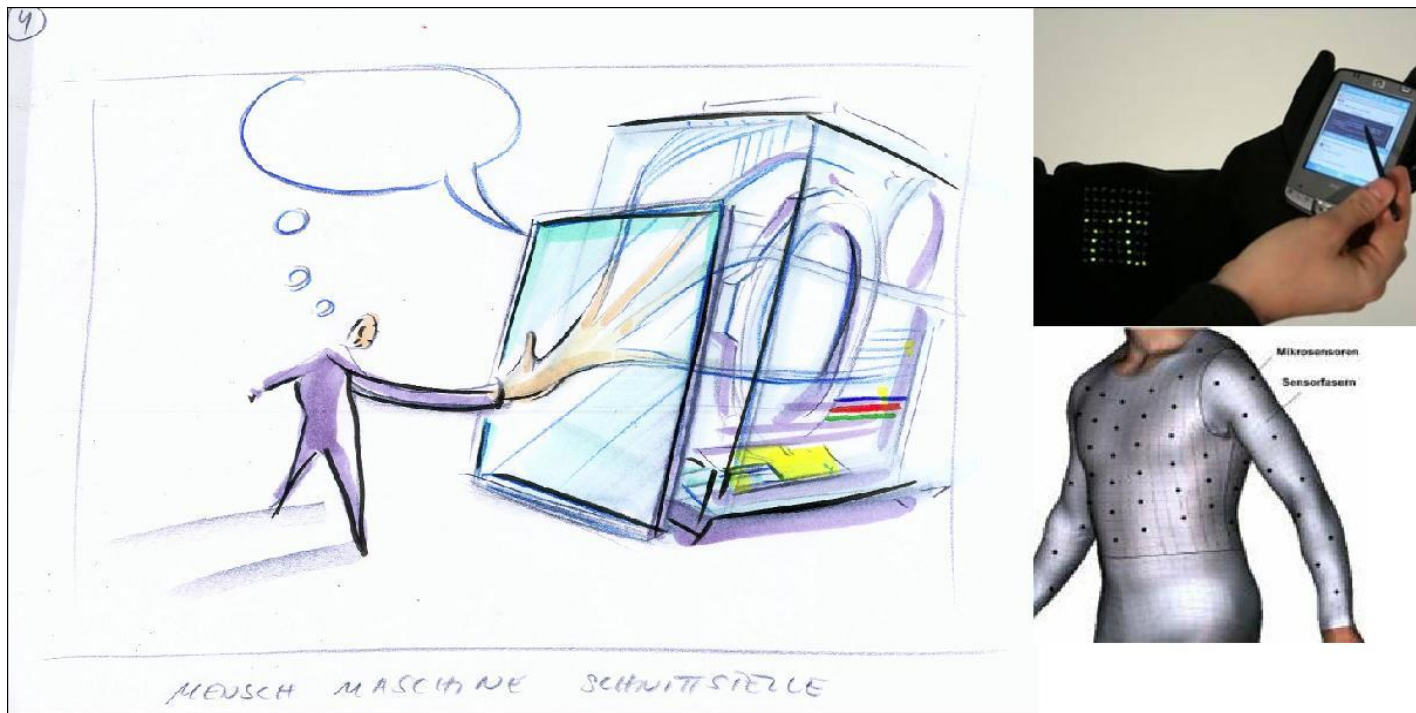
*Resource Efficient
Production &
Consumption*



Agreed R&I Priority Fields (III)

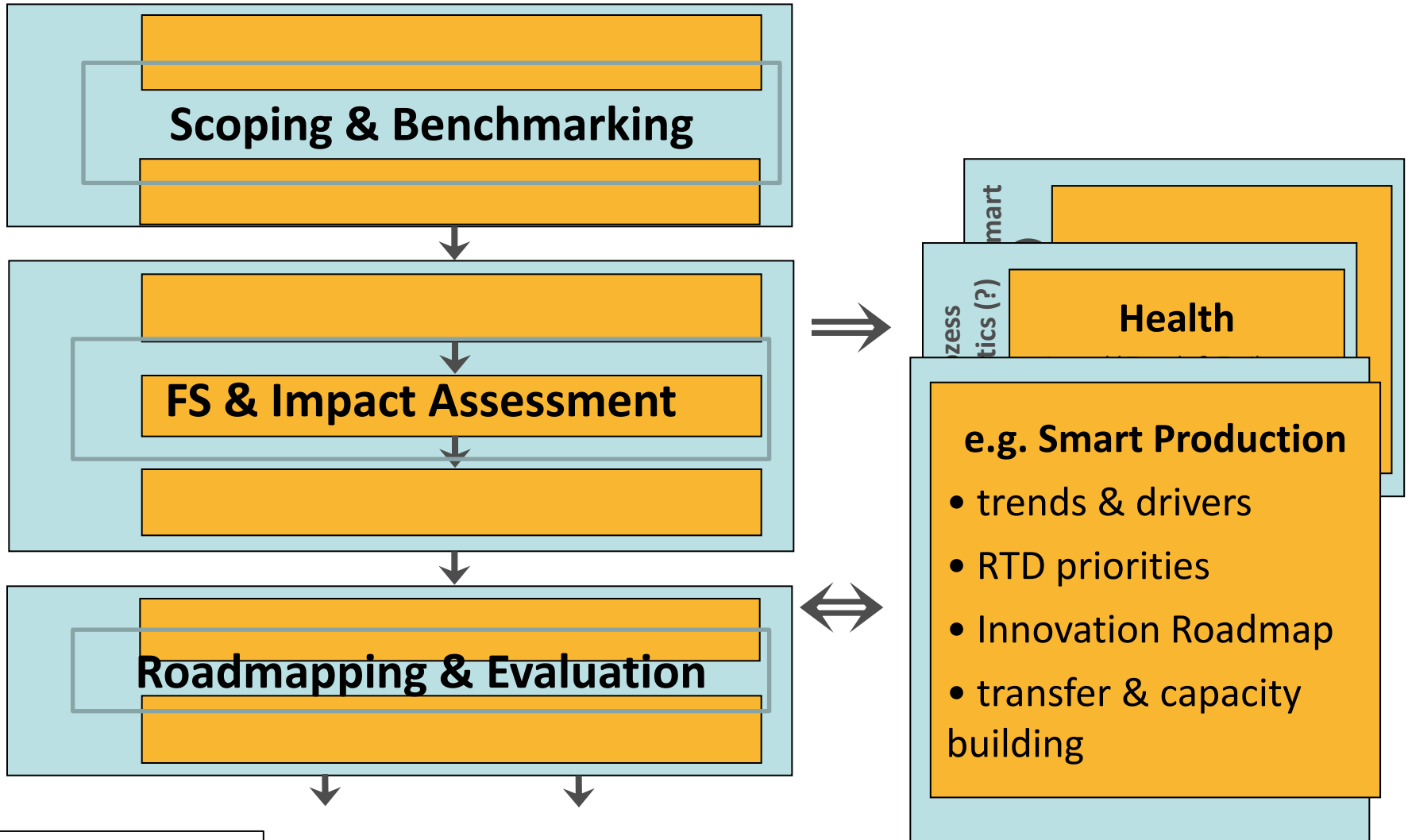
Human-Technology Interaction

Providing Meaningful and Accepted Smart Systems



Focusing & adapting the cluster strategy process

...to key application fields



A thick yellow curved bar in the top-left corner of the slide.

Application Fields, e.g. Smart Health

Personalised Medicine/Therapy

- *Targeted/selective (more effective & efficient) therapy based on reliable point-of-care (companion) diagnostics (e.g. easy-to-use devices for HIV, tumor, ... patients)*

Intelligent implants

- *Compensation of physiological dysfunctions (e.g. cochlea or retina implants)*

Intelligent medical devices & instruments

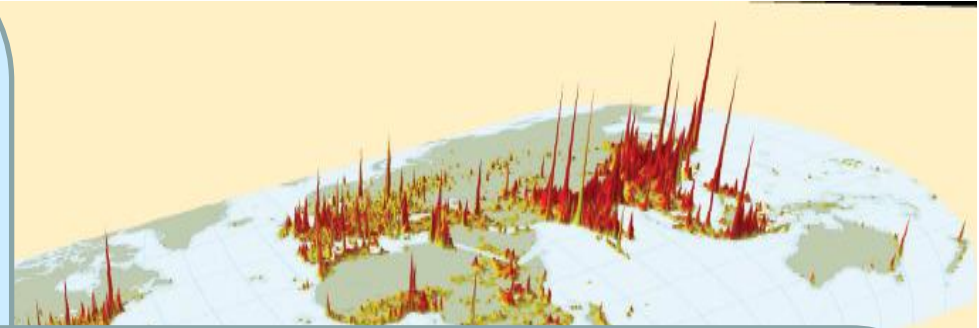
- *Risk- & time-reduction for interventions through „intelligent upgrading“ of devices & instruments, providing more & better information per procedure (e.g. multifunctional intracardiac catheters)*

The world is NOT flat
... and, **to stay with the winners**, a whole range of **strategic** as well as **R&I support initiatives** have to be optimally put in place

➤ strategic capability building so that innovation actors can better cope with complexity and uncertainty

➤ strategic information exchange and trust building to understand conflicting interests and conflicting strategies by facilitating prioritization

➤ translating politically prioritized Societal Challenges into research programs, and aiming at technologically successful solutions accepted by society



Optimally connect to EU-, nationally-, and/or regionally-supported R&I initiatives, e.g.

- (regional/sector) innovation strategies
- wider measures (education, infrastructures, etc.)
- research / innovation support programmes
- specific innovation support (SMEs, clusters, trans-border cooperation, multi-stakeholder networks,...)
- new technology & knowledge management and T&K - transfer schemes