

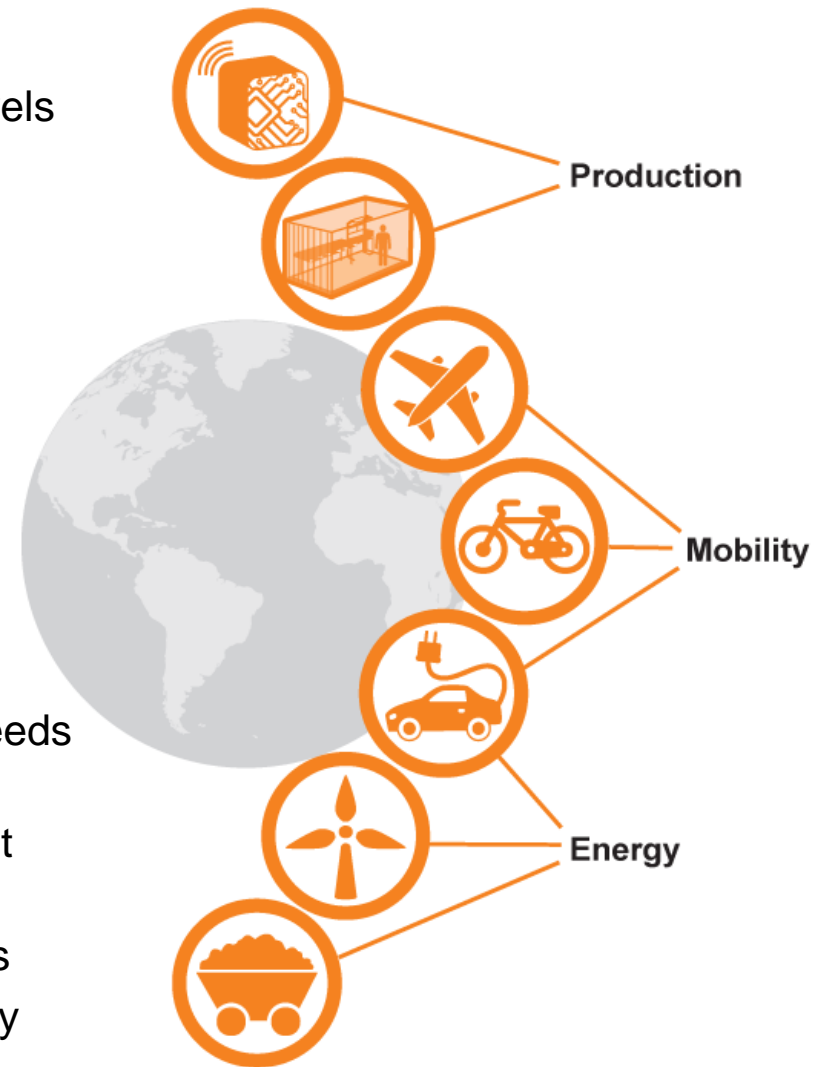
A1 Pathways for sustainable technology development – Challenge

▶ Challenge

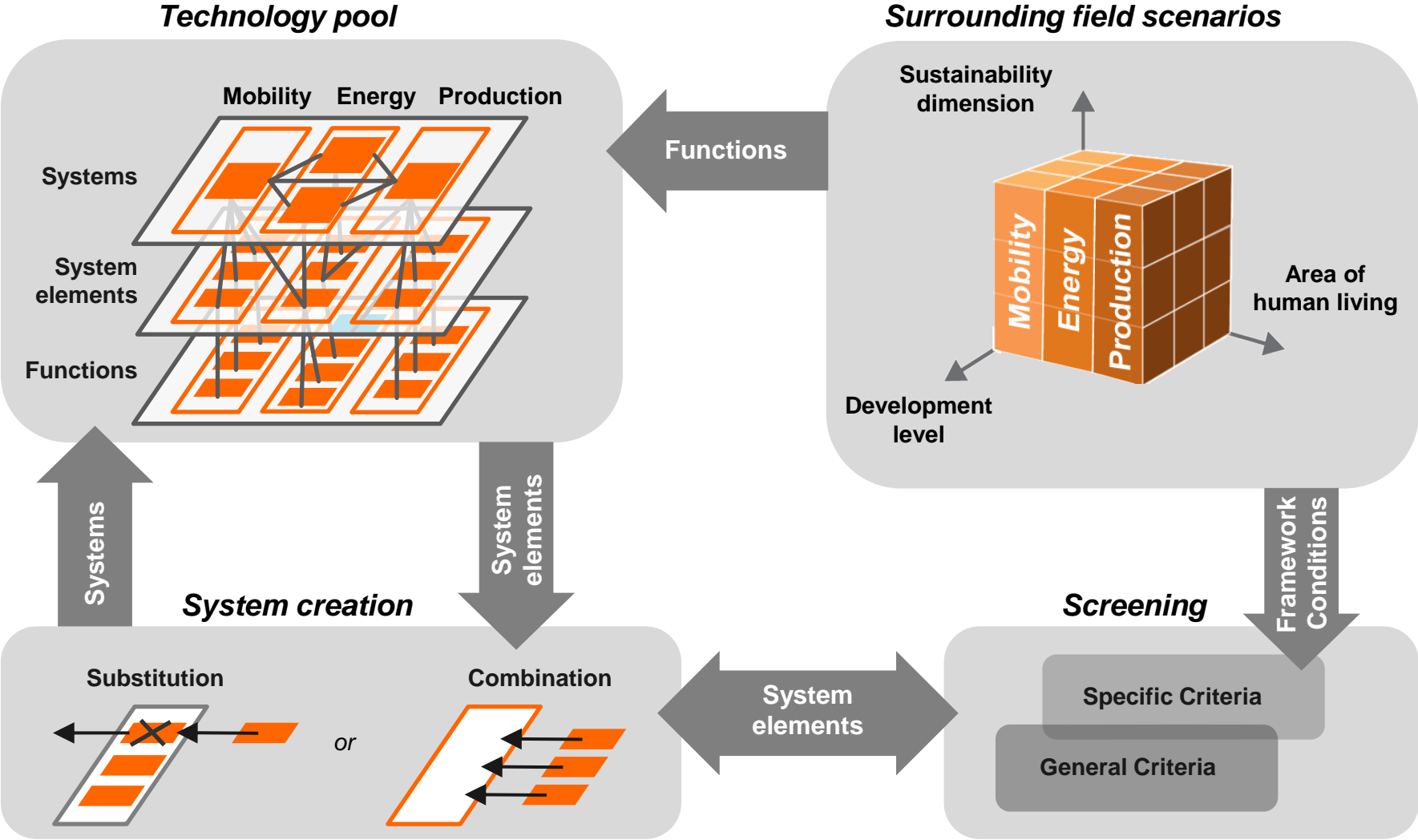
- ▶ Different requirements for different development levels
- ▶ Rapid technology development
- ▶ Lack of orientation in knowledge landscape
- ▶ Limited interdisciplinary knowledge

▶ Goal

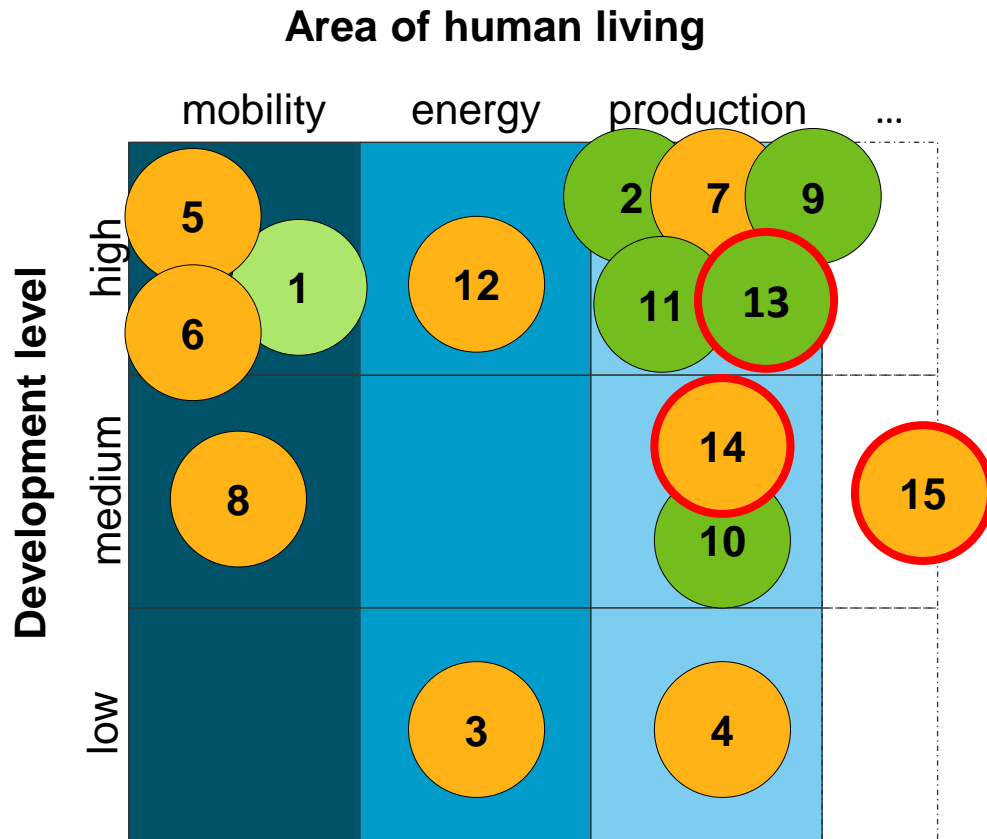
- ▶ Robust technology pathways for different levels of development
- ▶ Exploit potentials of promising technologies and transfer those into useful applications (technology induced pathway)
- ▶ Identify technological potentials to satisfy human needs (problem induced pathway)
- ▶ Include anticipated framework conditions of different observed surrounding fields
- ▶ Connect actual and/or future technological concepts
- ▶ Link discipline-specific knowledge to interdisciplinary solutions by variable boundaries of the system



A1 Pathways for sustainable technology development – Approach

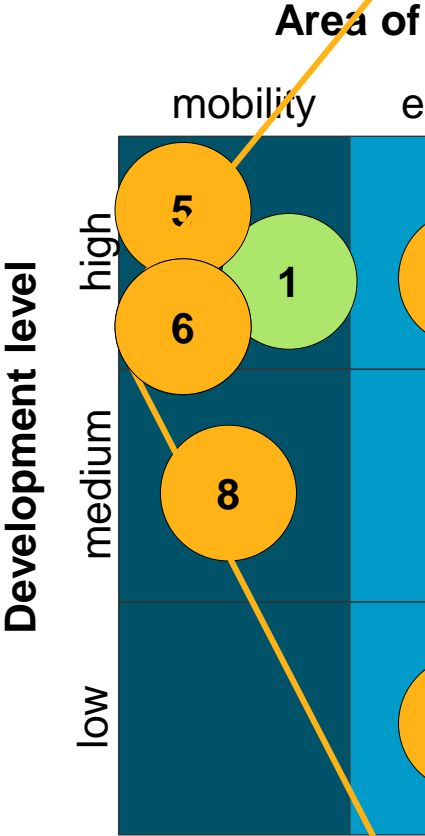


A1 Pathways for sustainable technology development – Results 2014



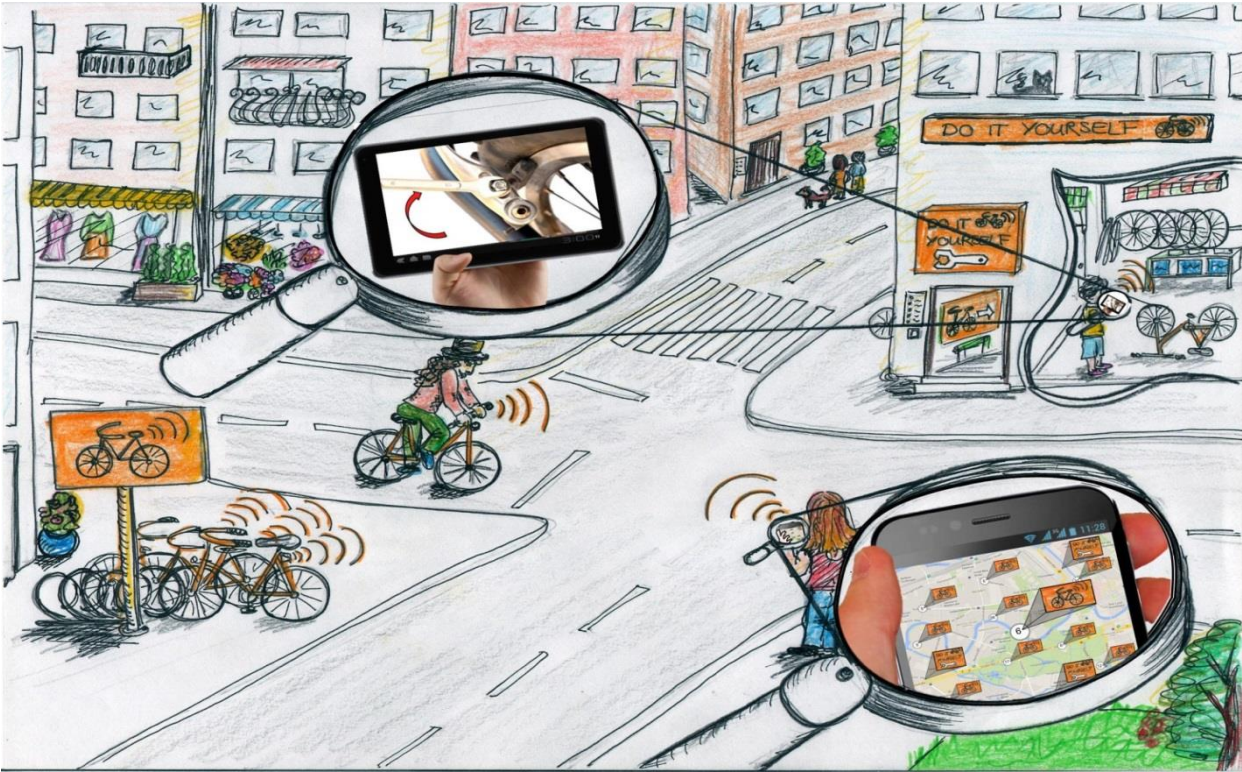
- (1) Hydrogen based mobility
- (2) Modular (LEG²O) machine tool frame – flexible printing on-site
- (3) Self-sufficient energy supply
- (4) Cacao mass production
- (5) Bicycle-design
- (6) Operation and repair of bicycles
- (7) Micro gas turbine manufacturing
- (8) Public transportation in São Paulo
- (9) Modular (LEG²O) machine tool frame – Living Factory
- (10) Adaptronic component – Cutting of turbine housing in Iran
- (11) Adaptronic component – producing an outer ring of an azimuth bearing
- (12) Central energy supply with energy storage
- (13) Learning supportive assembly workstations for SME
- (14) Production in Brasil
- (15) Chinese agriculture

A1 Pathways for sustainable technology development – Results 2014: exemplary application “bicycle mobility in Berlin“



System 1: „Do it yourself repair“

- ▶ Combination of a „do it yourself“-repair with automatically generated instructions
- ▶ and a mobile app for bicycle-sharing.



● Technology induced pathway emanating from system
 ● Technology induced pathway emanating from systemelement
 ● Problem induced pathway
 Work in Progress

Sustainable MANUFACTURING