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# PRIORITIES FOR ADDRESSING OPPORTUNITIES AND GAPS OF INDUSTRIAL BIOTECHNOLOGY FOR AN EFFICIENT USE OF FUNDING RESOURCES (PROGRESS)

Final Conference September 27<sup>th</sup>, Brussels

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## Presentation of Value Chain Selection and the Scenario Methodology

Sven Wydra and Aaron Rosa

# Selection of value chains for further analysis

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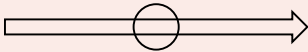
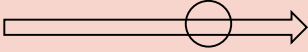
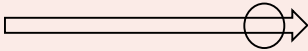
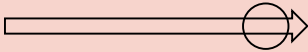
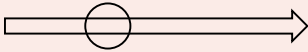
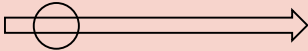
## Criteria for selection

- Portfolio covers the heterogeneity of IB
- Allowing to analyze different aspects such as new functionalities vs drop-ins, different feedstock basis, high value products, etc.
- Potential for innovation and for significant contribution to the EU economy

## Selected value chains

Lignocellulosic ethanol	Enzymes	Flavors & Fragrances
Bio-based plastics	Production of biopharmaceuticals	Microbiomes for food and healthy nutrition

# Characterization of the Value Chains

Value Chain	Characteristics			Maturity stage	EU competitiveness (% shares of world output)	
	Potential Volume	Price	Quantity of feedstock		Patents	Production capacities
Lignocellulosic ethanol	++	-	++		32%	9 %
Bio-based plastics	+	-	+		43%	27%
Enzymes	-	+	--		36%	40%
Production of Bio-pharmaceuticals	--	++	--		n.a.	31 %
Biotech Flavours and Fragrances	-	+	-		31%	30%*
Microbiomes	-	+	--		41%	n.a.

++ Very high, + High, - Low, -- Very low

\* market demand

# Value Chain Analysis

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## Value Chains analysis consist of

- Key technological developments and R&D&I needs
- Needs or hurdles that arise along the value chain
- Mapping and description of European actors along the value chain
- Geographical distribution of capacities and competencies
- Missing competencies and opportunities for joint actions / intervention

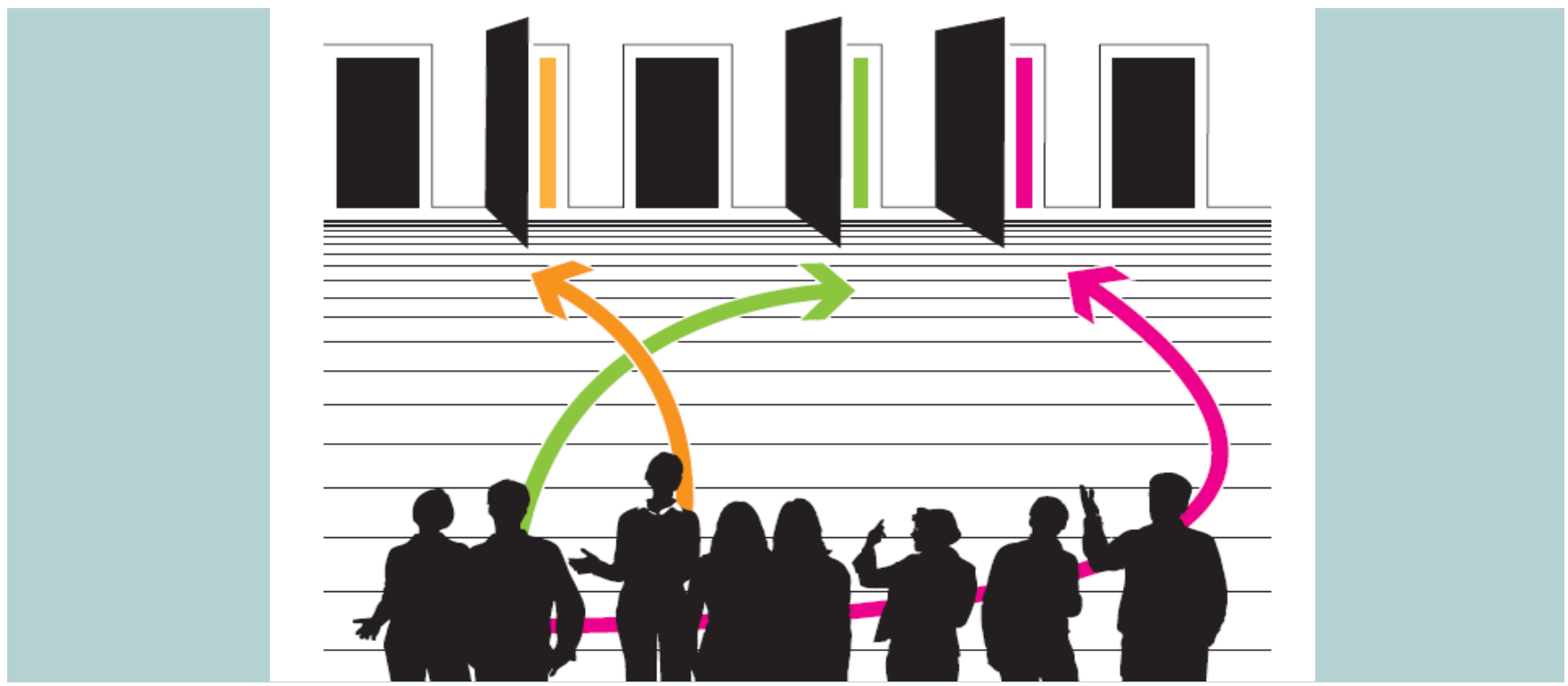
## Scenario Workshops

- Aim: To elaborate possible future scenarios for a value chain in Europe in the next 10-12 years  $\Rightarrow$  Implications for R&D&I needs and policy
- 3 workshops with 6 value chains  $\Rightarrow$  for each value chain 8-13 external experts participated
- Important technological, business and political factors discussed by experts and future assumptions combined to consistent scenarios

# SCENARIO APPROACH

FRAUNHOFER-INSTITUTE FOR SYSTEM AND INNOVATION RESEARCH ISI

Dr. Aaron Rosa

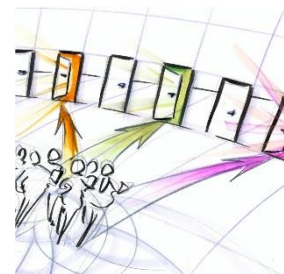
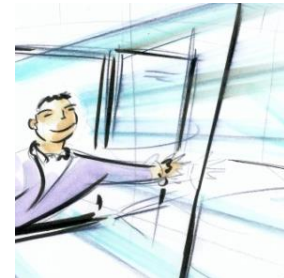


# Foresight basic concept

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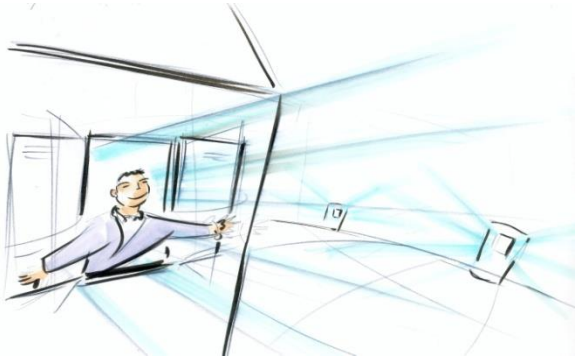
## Structured Engagement with Complex Futures.

- **Structured:**  
To ensure emergence of collective intelligence and thinking beyond established pathways
- **Engagement:**  
Strategic conversation where relevant stakeholders are actively engaged.
- **Complex:**  
Systemic perspective on the interplay of diverse factors in the evolution of complex systems.
- **Futures:**  
Considering multiple futures, thinking in alternatives.

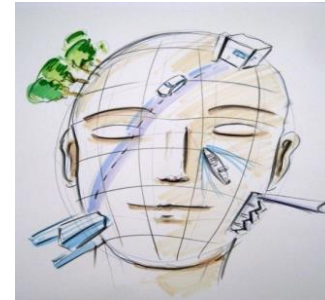


# Aims of the Scenario-Approach

- Widening the perception area



- Making alternative future expectations explicit and illustrating alternative futures



- Reducing complexity by asking many „small“ questions instead of one „big“ question



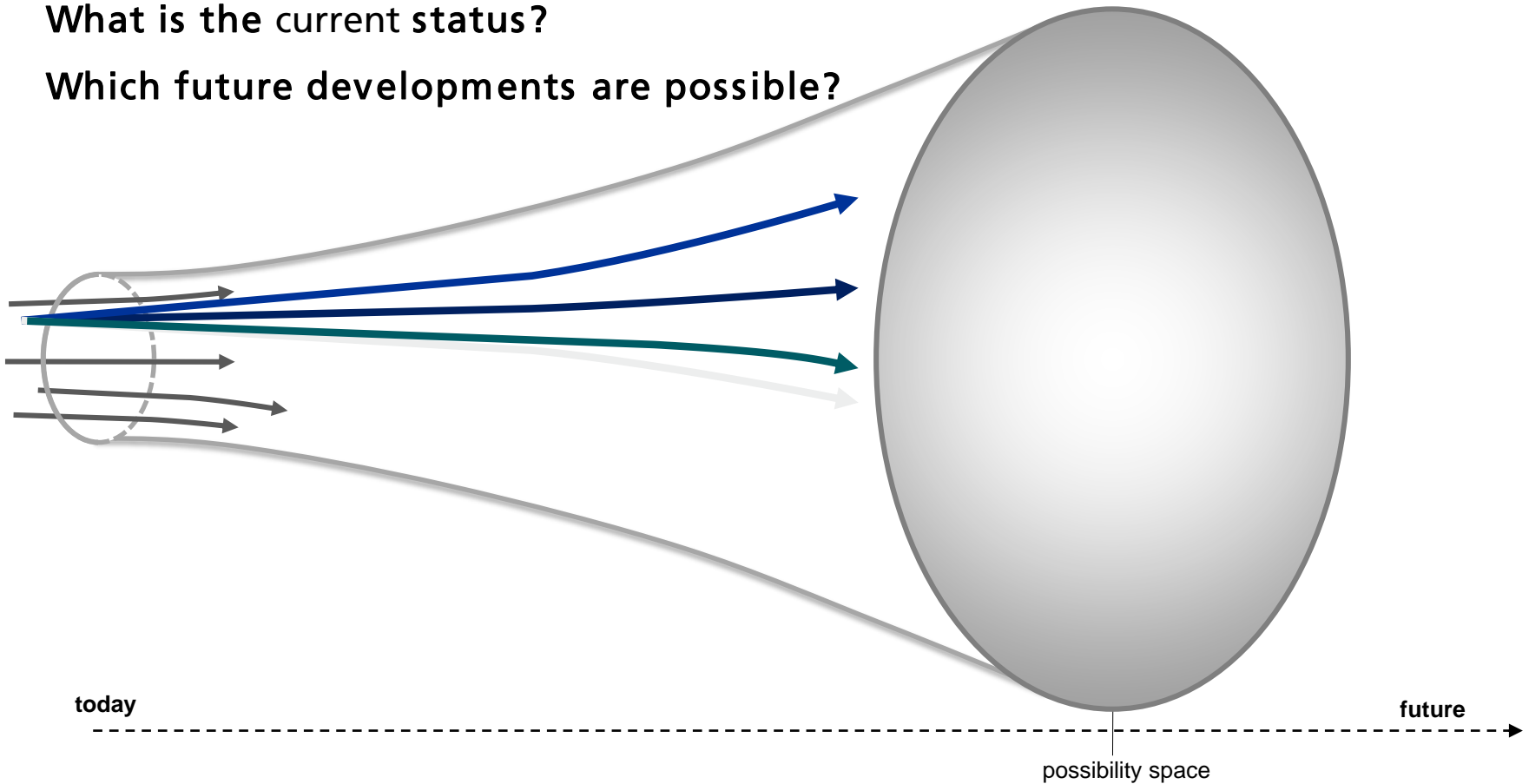
- Discussing options how to influence the development



# The funnel as a symbol of the scenario approach

What is the current status?

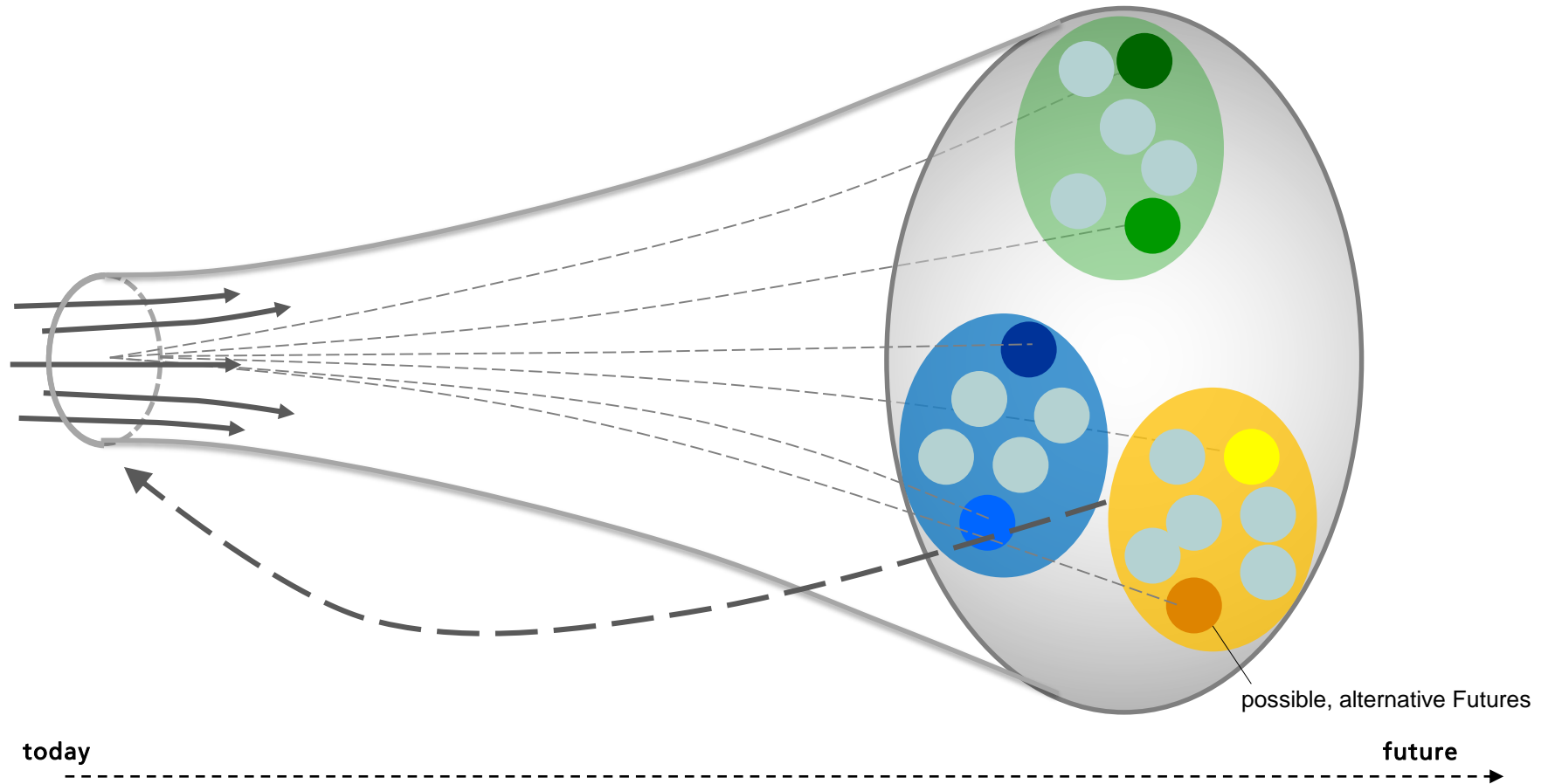
Which future developments are possible?





# Exploring diverse Futures: Scenario Development

By considering alternative futures and enlarging the perception range, we underpin a robust and reflexive handling of uncertainty.



# Steps of the Scenario-Approach

