Finnish Institute of
Occupational Health

Climate Change and Work in the Future

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Climate change – what does it mean (for Northern Europe) in practice?

- annual average temperature rises
- snow cover season shortens
- frost season shortens and severe frost becomes less frequent
- heat seasons become more frequent
- very dry summers increase
- soil drought becomes more common
- winter rain and snowing increase
- heavy rains become more common in summer

Diverse perspectives on the theme

- **Mitigation** of climate change through preventive organization- or employee-level measures
- **Adaptation** of organizations and employees to climate change
- The **effects** of climate change on organizations and employees and their work
  - Direct effects (e.g., changing product and service market, changing work environment)
  - Indirect effects (e.g., increasing climate refugeeism)

Organizational resilience

- Organizational resilience refers to an organization's ability to act agilely, coordinate functions effectively and learn quickly (= increasingly important dynamic capabilities for an organization in the future).

- Green business models
  - raw materials and materials circulate in production, use and reuse processes for a long time while maintaining their value and quality
  - harmful environmental impacts and consumption of raw materials are minimized
  - changes in service and product chains, management practices, work processes, ways of working and workspaces call for technological, material-related and **work-related innovations**

Principles underlying green business models

- leasing instead of ownership
- utilization of shared resources
- co-development
- increasing attention to maintenance and repair services and overhaul maintenance
- recycling and reuse
- closed-loop processes
- zero thinking
- “the renaissance of the local”

Positioning of employees in green business models
(inspired by Sűssbauer et al. 2019)

Implementer

- Implementing sustainable work processes and practices
- Creating eco-friendly products and services

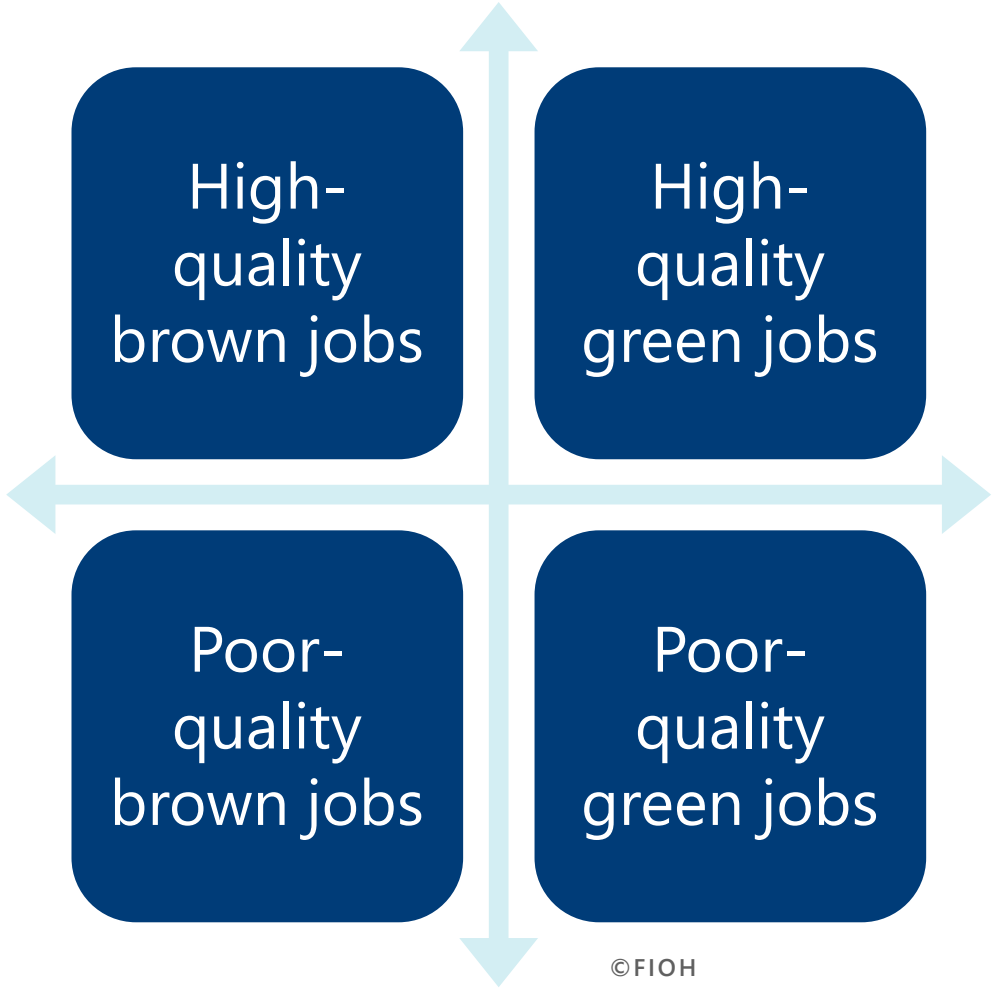
Ambassador

- Spreading information of the company's solutions to a wider audience
- Advising clients about sustainable offers in the company's products and services

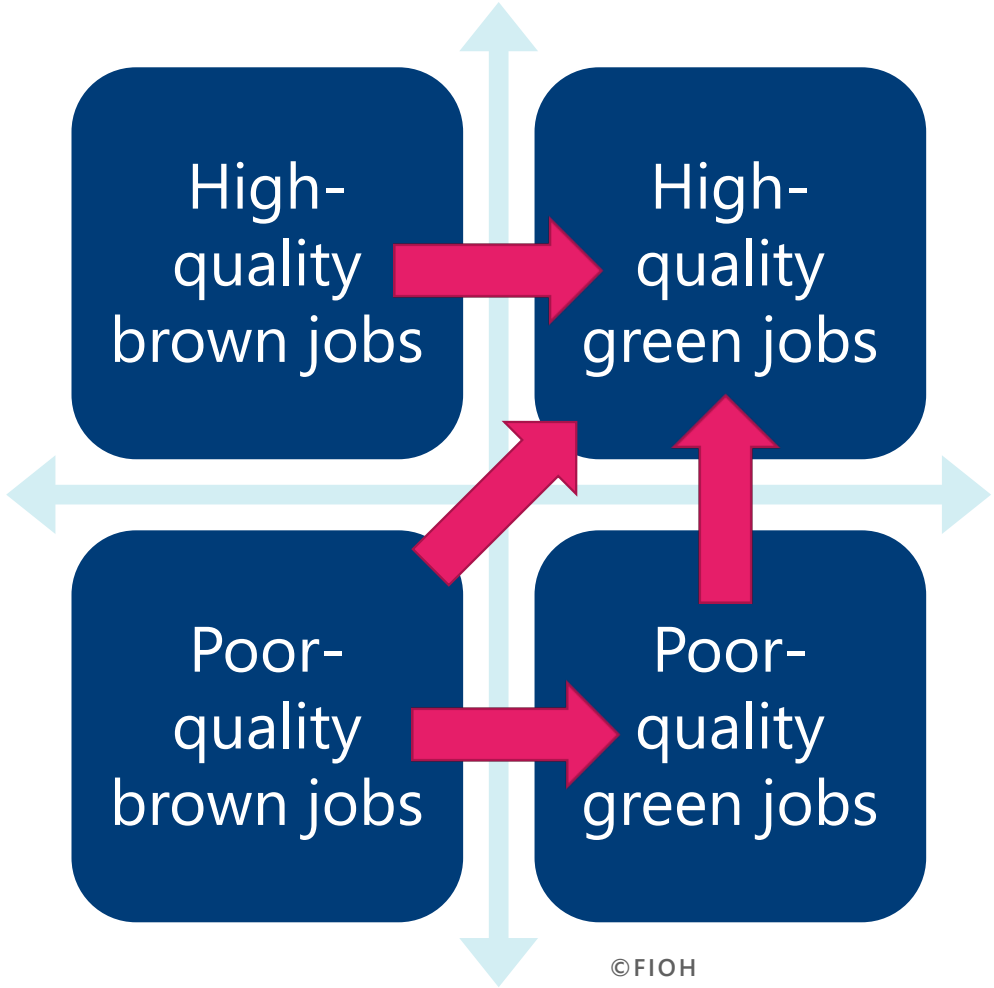
Recipient

- Facing improvements in working conditions due to the company's internal sustainability measures
- Finding more meaning in work by being involved in a socially valued transition

Brown versus green jobs: a new division of jobs



Brown versus green jobs: how to move forward?

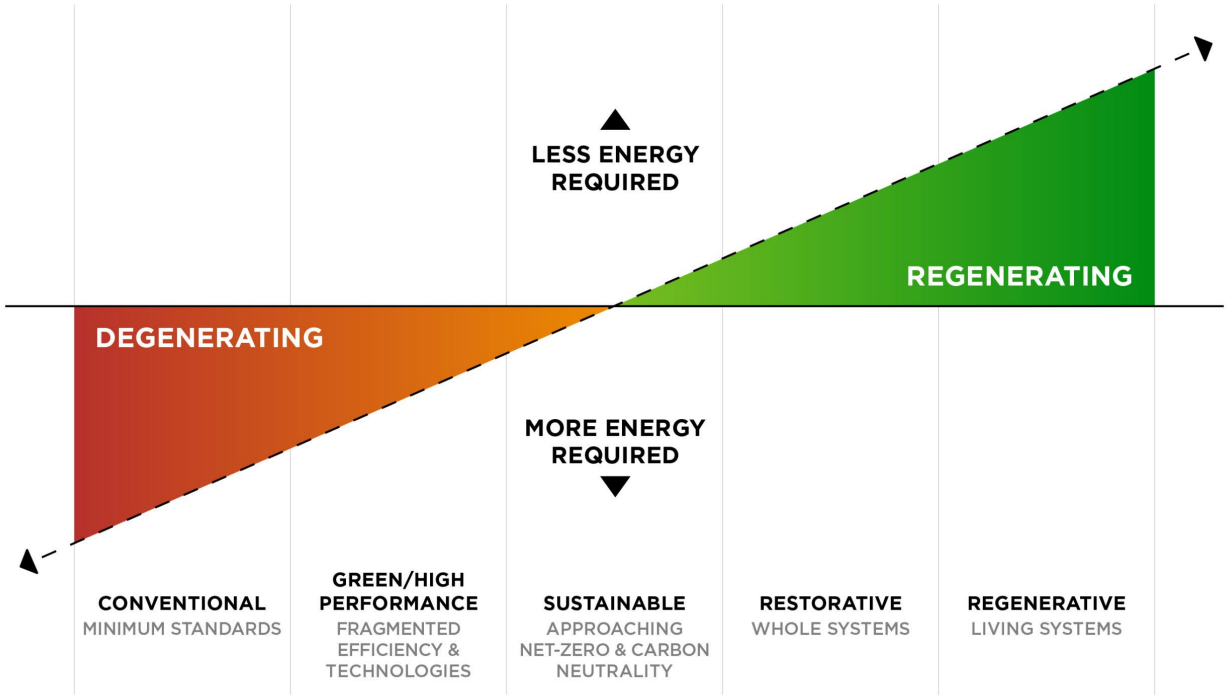


Changes in workplace behaviour or the nature of the work system

Poor-quality green jobs

- biological hazards such as molds, bacteria and viruses
- chemical hazards such as solvents and flame retardants
- physical hazards such as noise
- accident hazards such as working at height, heavy lifting, lack of cleanliness and non-standardized work processes

BUT: Is green economy only a “less bad” economy and are green jobs only “less bad” jobs?

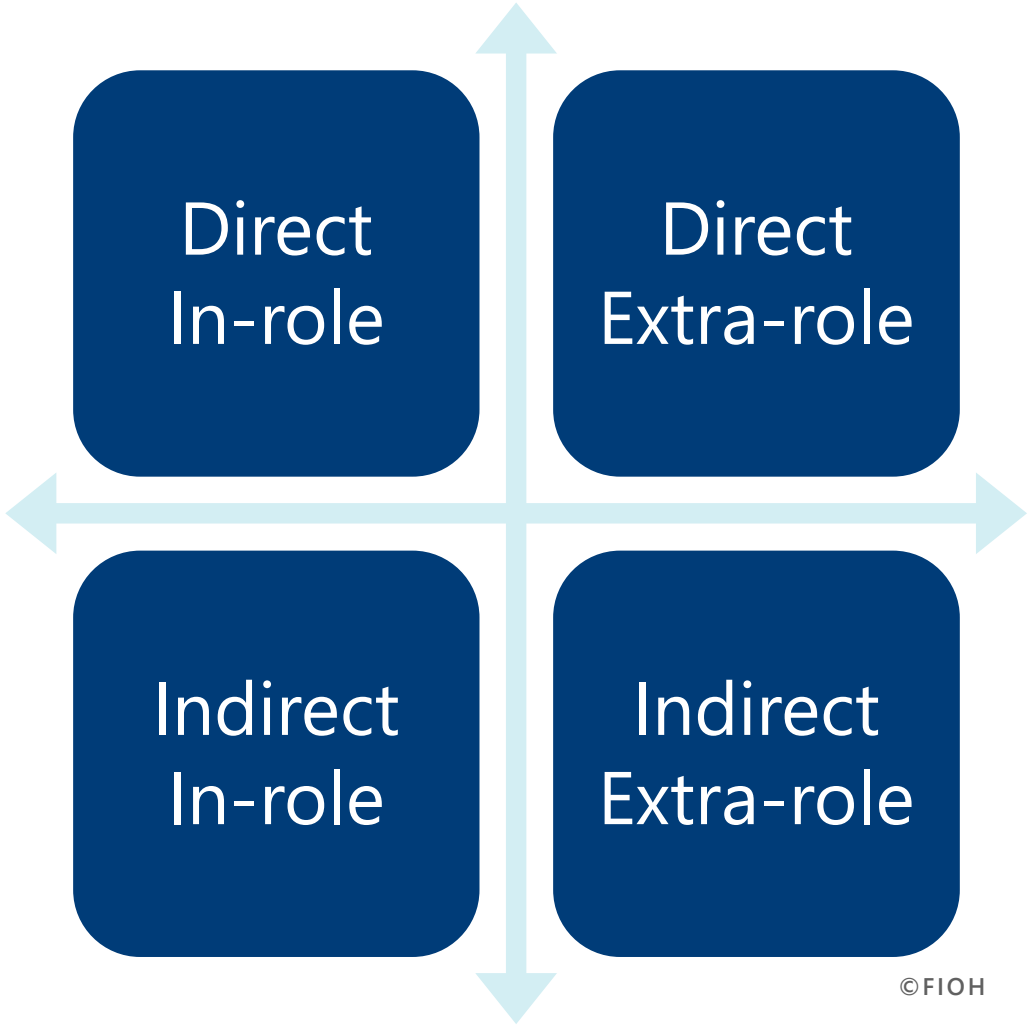


E.g. “Regenerative Capitalism” by Fullerton (2015)

Focus from the overemphasis of green jobs towards more open-minded debate on questioning the overall societal dependence on work and asking what kind of work is for individuals, society and the biosphere as a whole meaningful, pointless or outright harmful.

E.g. “Postwork Theory” by Hoffman & Paulsen (2020)

Types of green workplace behaviour (Francoeur et al. 2021)



Direct ~ changes in one's own behaviour towards GB

Indirect ~ efforts made to influence other members of the organization to adopt GB

In-role ~ inclusion of required GB in one's own work

Extra-role ~ discretionary GB in the organization

What is green workplace behaviour? (Francoeur et al. 2021)

- Conserving, such as recycling, reusing and reducing
- Avoiding harm, such as pollution
- Transforming, such as performing tasks in environmentally-friendly ways
- Influencing others, such as encouraging, supporting and advising
- Taking initiatives, such as initiating measures and lobbying

Workspace and indoor environment solutions

- interoperability
- co-working
- conversion flexibility
- utilization of smart technologies in the optimization of energy consumption and space utilization
- environmentally-friendly and recyclable materials and components
- increased use of remote work

Physical and mental health effects…

- high temperatures increase health risks and mortality, especially in physically strenuous work
- long-term heat exposure impairs physical performance, increases thermal exhaustion, recovery time and the risk of accidents at work, and decreases employee well-being and productivity
- the prevalence of slippery winter weather increases the risk of accidents (e.g., fallings) at work and on the way from home to work and from work to home
- the prevalence of extreme weather events causes hazards especially to outdoor workers and rescue workers
- the prevalence of high temperatures increases preconditions for diseases caused by animals such as ticks, moles and insect pests
- concerns about climate change can increase anxiety as such
- (for Northern Europe) prolonging of the dark period in winter due to less snow cover can increase depression and mental health problems

…and how to respond to them?

- systematic identification and assessment of risks
- rescheduling of breaks during work
- rescheduling work within a year and a day
- introducing smart technologies to measure and regulate employees' physical activity and thermal balance
- using of personal protective wearables and equipment (if necessary)
- redesigning of workspaces and their lighting and air conditioning solutions

System perspective on sustainable transitions

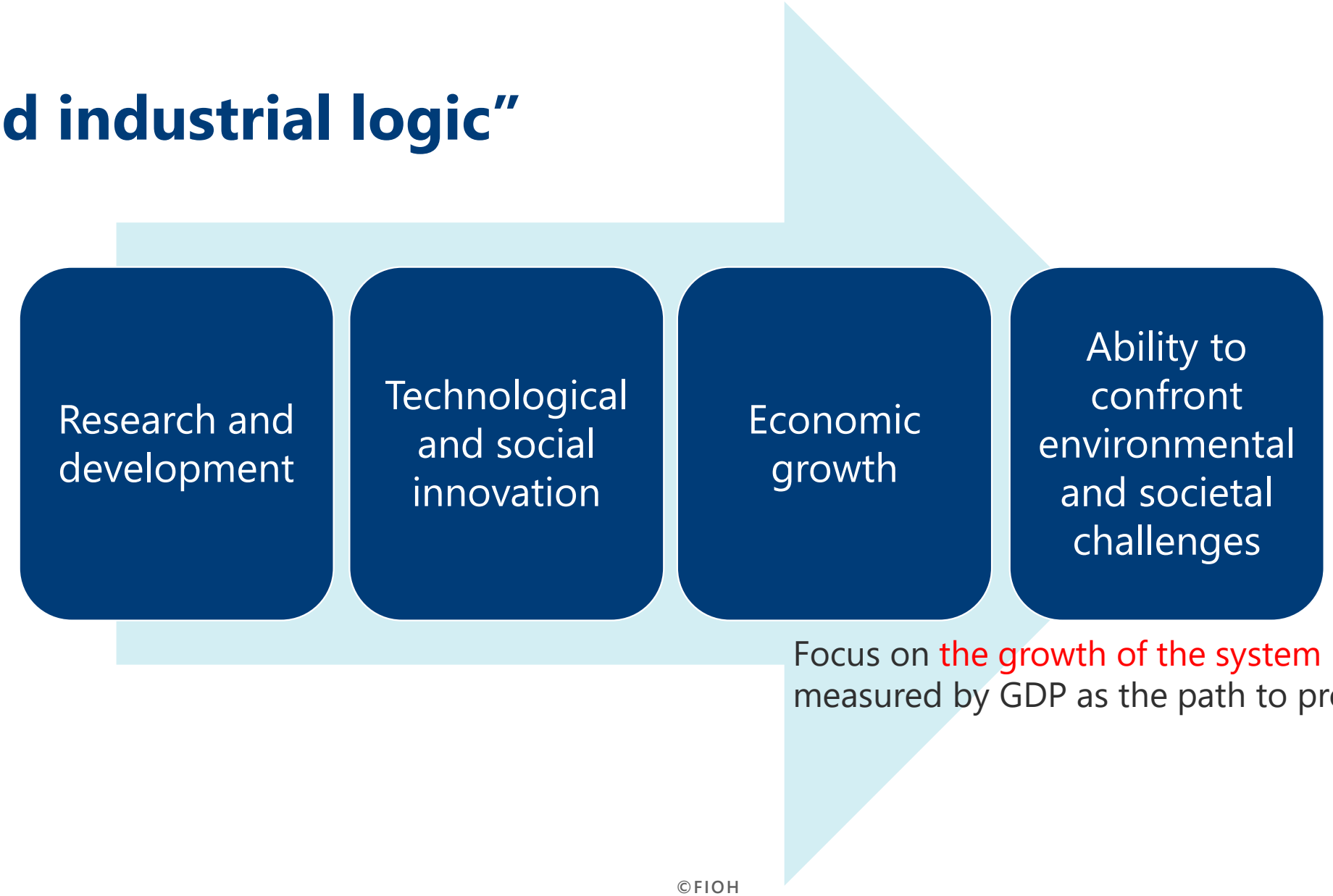
SOCIO-TECHNICAL SYSTEMS

- Agro-food system
- Education system
- Energy system
- Finance system
- Health care system
- Housing system
- Transportation system

CHANGE DYNAMICS

- Fully fledged transitions are long, complex and dynamic processes.
- Systems change through the interaction between (a) external tensions brought by **landscape changes** to bear on existing systems, (b) stress **within systems** due to internal misalignments among their elements and (c) pressure arising from new **niche-innovations** that deviate from mainstream practices adopted by systems.

“Old industrial logic”



Focus on the growth of the system per se measured by GDP as the path to prosperity

"New transformative logic"

Focus on how the system grows as the key to long-term prosperity, not the growth of the system per se

Towards transformative innovation policy
(inspired by Schot & Steinmueller 2018)

	Innovation through R&D (Framing 1)	National systems of innovation (Framing 2)	Transformative change (Framing 3)
Meta policy target	Rate of change	Rate of change	Direction of change
Policy rationale	Fixing market failures (for maintaining national competitiveness)	Fixing *structural* system failures (for maintaining national competitiveness)	Fixing *transformational* system failures (for achieving economic, social and environmental sustainability)
Innovation model	Linear and science-led	Interactive and system-bound	Systemic and experimental
Focus of public support	Knowledge generation for discovery and invention	Knowledge utilization by strengthening institutional links and interactions of existing innovation systems	Collective search and learning for new development paths
Main actor constellation	Clear division of labour between scientists, government and (large) enterprises	Close interaction and partial overlap between government, enterprises and universities	Multiple actors, incl. also communities and civil society, in close cooperation
View of knowledge	Appropriate and transferable: easy to adopt, apply and utilize without protective measures	Sticky and situated: utilization requires proximity, absorptive capacity and interactive learning	Emergent and co-produced: generated through dialogue between multiple actors as part of a collective search process

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Thanks! Questions?

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