



# Innovation Strategies 4 Sustainability (S4) and the POINT Methodology

*Dimitrios Pontikakis*

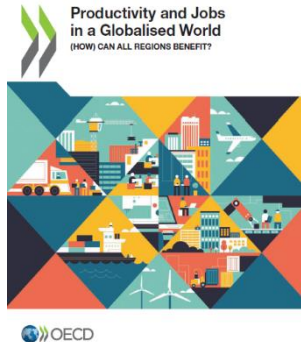
*Joint Research Centre*

*European Commission*

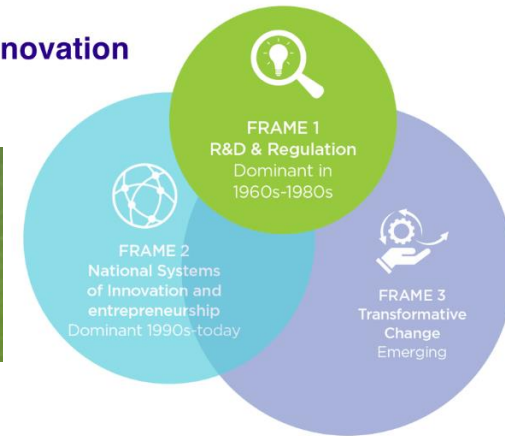
# Outline

- POINT Methodology for Reviews of Industrial Transition
  - Background
  - The analytical steps
  - Insights from pilot reviews (Andalusia, Bulgaria, Greece, Romania)
  - POINT reviews as a tool for S4
- Innovation Strategies 4 Sustainability (S4)
  - Background
  - The JRC-CoR Pilot
  - Elements of the S4 Playbook

# The Projecting Opportunities for INdustrial Transitions (POINT) Methodology



## The 3 Frames of Innovation



**A European Green Deal**  
Striving to be the first climate-neutral continent

## Global trends

## Challenges of lagging regions

- Industrial decline and mass emigration
- Structural change: low-productivity agriculture/tourism
- Weak tradable sectors; Investment barriers
- Lacking scale-efficient production and business innovation
- Societal and environmental challenges
- Large infrastructure gaps

- *Deep productive transformations*, esp. in energy and transport systems, and digitalisation
- Resurgence of interest in *industrial policy* – no longer a taboo
- Emergence of new framework of thinking: *transformative innovation policy*
- *European Green Deal and EU Recovery Fund (>1 tn EUR for Green and Digital Transitions)*

**Pressing need to develop *production* (in addition to innovation) capabilities**

→ *Problem*: no framework available for full-blown industrial policy!

# need to re-discover planning capabilities

## Saturn V: world's most powerful rocket

- Dependent on massive network (est. 400,000 people\*)
- Network disbanded since early 1970s
- Humanity has **since lost** heavy-launch capability
- No point using old 'blueprint' – world moved on

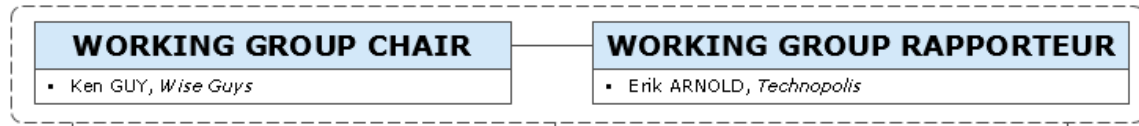
## Industrial transitions

- Lost capability for long-term, large-scale social action
- Climate emergency: Non-negotiable deadlines, Massive coordination task
- No point reviving 20<sup>th</sup> cent. industrial policies - world moved on

[\\*https://www.theguardian.com/science/2009/jul/02/apollo-11-back-up-team](https://www.theguardian.com/science/2009/jul/02/apollo-11-back-up-team)



# JRC Working Group on Industrial Transitions



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 ▪ Ken GUY, *Wise Guys*

**WORKING GROUP RAPPORTEUR**  
 ▪ Erik ARNOLD, *Technopolis*

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- Matthijs JANSSEN, *Utrecht University*
- Totti KÖNNÖLÄ, *Insight Foresight Institute*
- Ruslan STEFANOV, *ARC Fund*
- Yannis TOLIAS, *Innovatia Systems*
- Christos EMMANOUILIDIS, *Cranfield University*
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- Mircea PETREA, *E#Net*

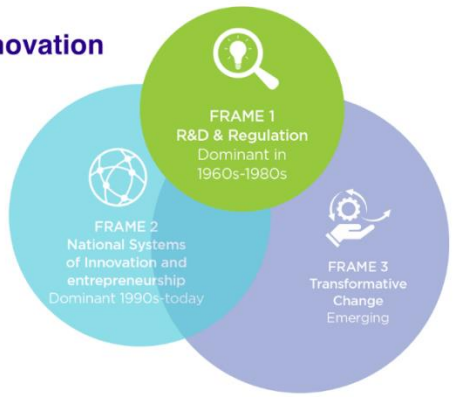
**MEMBER STATES**

Regional authorities	National authorities
<ul style="list-style-type: none"> <li>Andalucía (Spain)</li> <li>Western Macedonia (Greece)</li> <li>All regions (Romania)</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Development (Greece)</li> <li>Council of Ministers (Bulgaria)</li> <li>Ministry of Economy, Energy and Business Environment, and other ministries with inputs in S3 (Romania)</li> </ul>
<ul style="list-style-type: none"> <li>Catalonia [own resources] (Spain)</li> </ul>	

**ADVISORY BOARD OF DISTINGUISHED EXPERTS**

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## The 3 Frames of Innovation



JRC TECHNICAL REPORT

Projecting Opportunities for Industrial Transitions (POINT)

Concepts, rationales and methodological guidelines for territorial reviews of industrial transition

Fontakaki, Dimitris  
Fernandez, Tatiana  
Janssen, Matthijs  
Guy, Ken  
Marques Santos, Anabela  
Boden, Mark  
Moncada-Paternò-Castello, Pietro

2020



JRC SCIENCE FOR POLICY REPORT

JRC SCIENCE FOR POLICY REPORT

JRC SCIENCE FOR POLICY REPORT

JRC SCIENCE FOR POLICY REPORT

POINT Review of Industrial Transition of Bulgaria

POINT Review of Industrial Transition of Greece

FORTHCOMING

FORTHCOMING

Hampering digitalisation to link and strengthen the ICT and mechatronics sectors

Kuznetsov, Pavel  
Barnard, Dimitris  
Fontakaki, Dimitris

2021

Renewables, Batteries and their Applications in Mobility, Agriculture, Shipping and Defence

Heffley, James  
Hertz, Tobias  
Dimitris Fontakaki

2021

FORTHCOMING

FORTHCOMING



[BG DOWNLOAD](#)

[GR - DOWNLOAD](#)

[POINT METHODOLOGY DOWNLOAD](#)

<https://s3platform.jrc.ec.europa.eu/industrial-transition>



**A European Green Deal**  
 Striving to be the first climate-neutral continent

- + RRF / JTF/ JTTP (GR)
- + ROP (BG)
- + Energy Strategy (AND)



# how to understand transformative change

- Literature on **system innovation**
- Not the same as "*innovation system*"!
- **Production / Consumption** at centre
- science and technology one (of many) vectors
- **Directionalities** of central importance
- Outcomes ~ **macro-level organisational innovation**

## Builds on:

- Socio-technical transition experiences (large body of knowledge in NL)
- Multi-level perspective (Frank Geels / Johan Schot)

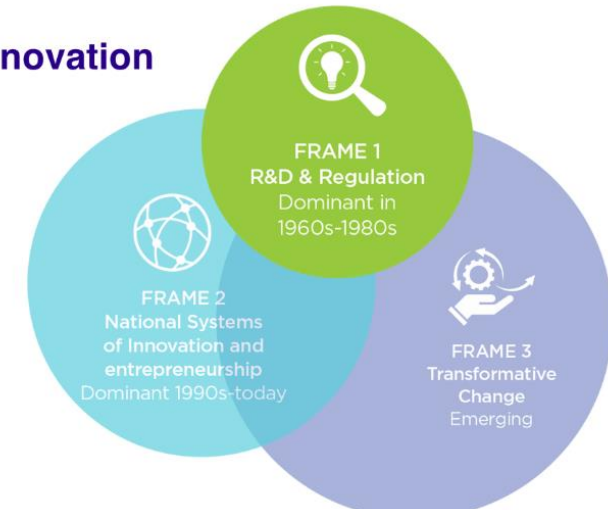
See links below::

OECD [System Innovation Synthesis Report](#)

<http://www.tipconsortium.net/>

<https://www.sciencedirect.com/science/article/pii/S0048733302000628>

## The 3 Frames of Innovation

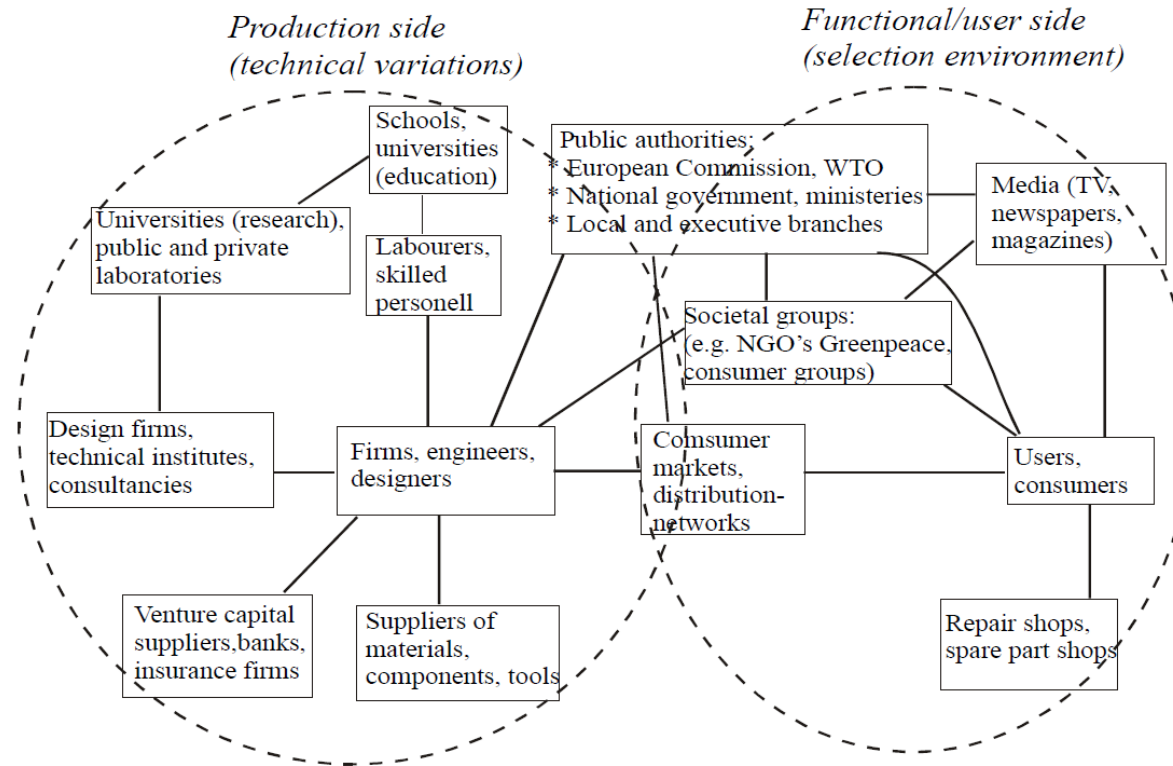


SYSTEM INNOVATION:  
SYNTHESIS REPORT



# what is “system innovation”? not *just* S&T, not *just* '3-ple/4-ple helix'

Figure 1.2 Societal groups involved in system innovation



Source: Geels (2004: p.901) “From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory”, *Research Policy*, 33(6-7), pp. 897-920



# Examples of “System Innovations”

System innovation	Functional purpose	Constituent and/or complementary innovations	Enabling regulation and infrastructure	Contributing social groups (locus of agency)
<b>Electricity grid</b>	Electrification of industry and households	Dynamo, power plant, transmission lines, electrical motors, lighting and refrigeration	Grid infrastructure, safety regulation, standards and certification	Large-scale utilities; government regulators; (formerly) state-owned firms
<b>Controlled-access highway (e.g. the Autobahn)</b>	Untethered long-range high-speed land travel; Integration of national economy	Assembly line, mechanisation of construction, off site fabrication, affordable automobiles	Legislation to restrict right of way, Spatial/urban planning regulations, Vienna Convention,  Transport infrastructure, Petrochemical logistics.	Government (public infrastructure), industrial nexus of mining, manufacturing and construction, households, maintenance and repair specialists
<b>Global value chains</b>	Productivity improvements, integration of global economy	Interchangeable parts, shipping container, tank ship, just-in-time manufacturing	International trade agreements and enforcement frameworks (e.g. World Trade Organisation)	Businesses working across multiple legal jurisdictions; governments; international organisations
<b>Internet</b>	Global information exchange network	Personal computers, internet protocol, multimedia, broadband networking, mobile phones	Domain name registrars; standards development; digital communication and privacy legislation	Computer users, software and content developers, businesses developing hardware and offering telecommunication services
<b>Feed-in tariffs</b>	Create markets for environmentally sustainable energy	Photovoltaic panels, stationary batteries, microgrids, distributed ledgers, electric vehicles	Legislation to guarantee grid access, long-term contracts, step-by-step reductions in tariffs	Energy hardware manufacturers, households, utilities, government regulators, software developers.
<b>Two-sided platforms (e.g. Yellow Pages, eBay, AirBnB)</b>	Information infrastructure to facilitate transactions	Internet, on-line payments, logistics	Business-driven standard setting and adoption.	Platform owners and developers, sellers, buyers
<b>Electric vehicles and renewable energy nexus</b>	Sustainable energy and transport and via new modalities, enhanced access to transport services	Electric trains, high energy density batteries, autonomous driving, feed-in tariffs	Emission regulation, urban combustion vehicle bans, fiscal incentives, charging infrastructure	Drivers, passengers, manufacturers, electric utilities (power, grid, telecommunication), repairers, urban planners, households
<b>Distributed manufacturing (3d additive and subtractive manufacturing)</b>	Place-based manufacturing for goods where high unit costs can be tolerated (e.g. iterative prototyping, instruments)	Computer-aided design, computer numerical control (CNC), two-sided design platforms, material extrusion, milling, material innovations	Intellectual property right attribution and enforcement, environment and health and safety regulations	Model designers, platform owners, software developers, users, CNC mill manufacturers, printer manufacturers, material manufacturers, machinists, repairers

Source: POINT Concepts, Rationales and Methods report: <https://europa.eu/!Gr34Ng>

# What is a review?

Planning hinges on non-readily available system-wide **evidence**

Each review is a **study** of the affected industrial system in the territory.

Aims:

- Provide evidence about the **affected production** and **consumption** system and its **direction**;
- Work with stakeholders to point at **ambitious** yet realistic transition goals, chart **broad pathways for institutional, investment and skills development**;
- Propose **governance solutions** so that disparate policy domains coordinate under a coherent industrial development logic;
- Make concrete **policy recommendations** for the advancement of the transition and for managing its downsides.

# the POINT methodology for reviews

## POINT - Projecting Opportunities for INDUSTRIAL Transitions

- Structured methodology to identify viable transition paths; developed by the JRC with contributions from leading experts (UMIT Working Group)
- Draws from expertise on **system innovation / new industrial policies / foresight / innovation governance**
- Adopts **broad framing of innovation** (including consumers) to gather evidence on **functional systems**, prevalent **territorial strengths, local directionalities**
- Focus only on **key functions** makes broad framing of system-level innovation analytically manageable
- Focus on **territorial responses** to one (or more) global impulses for transformational change (e.g. sustainability, digitalisation, SDGs)
- Stakeholder interviews (over 50 per territory), combined with desk research
- Point to synergetic, high spillover paths, make policy suggestions
- Provide evidence / input for a tailored S4 strategy



JRC TECHNICAL REPORT

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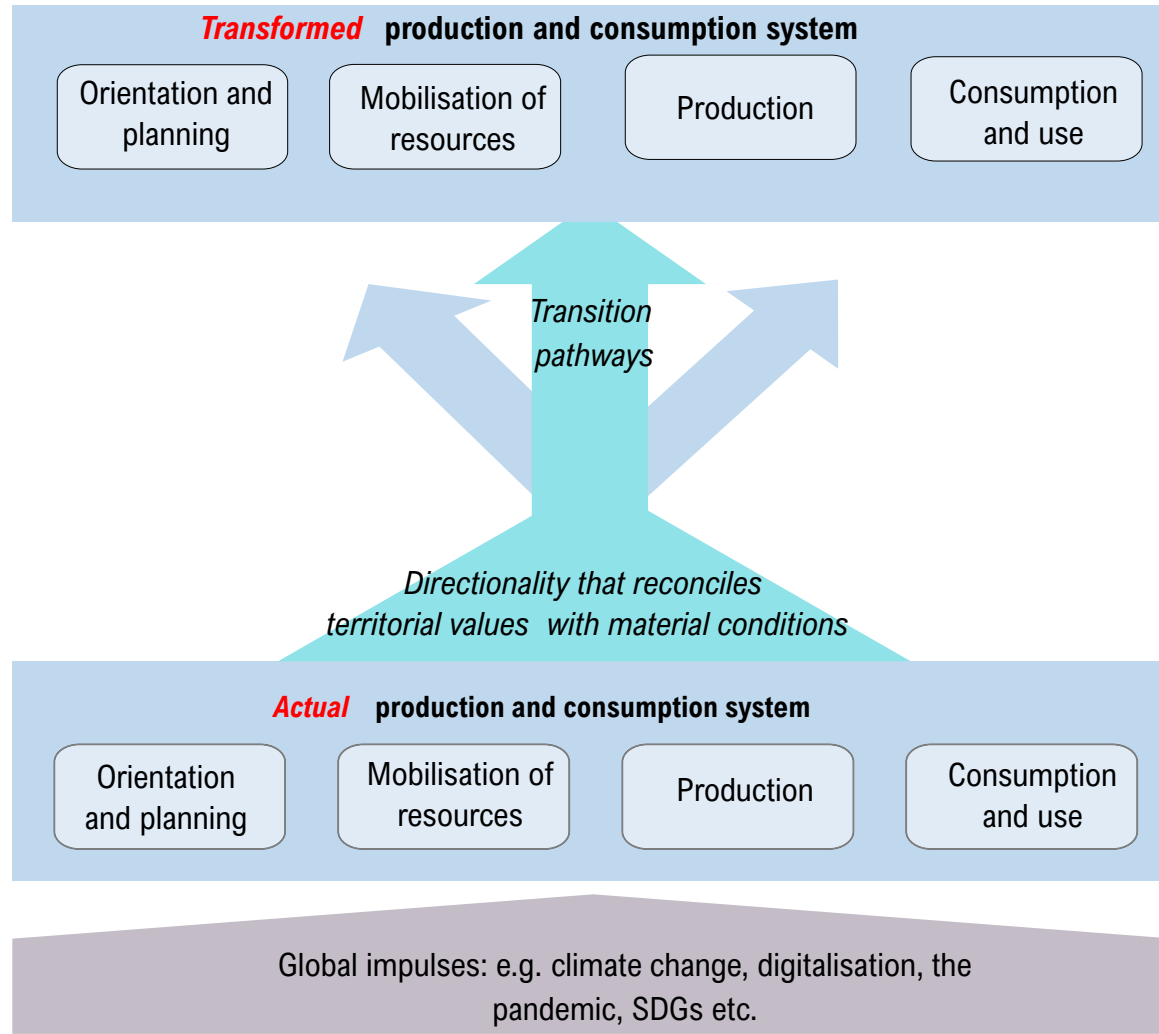
2020



Download full report: <https://europa.eu/!Gr34Ng>



# POINT: a functional approach to system transformation



## Transition management policies

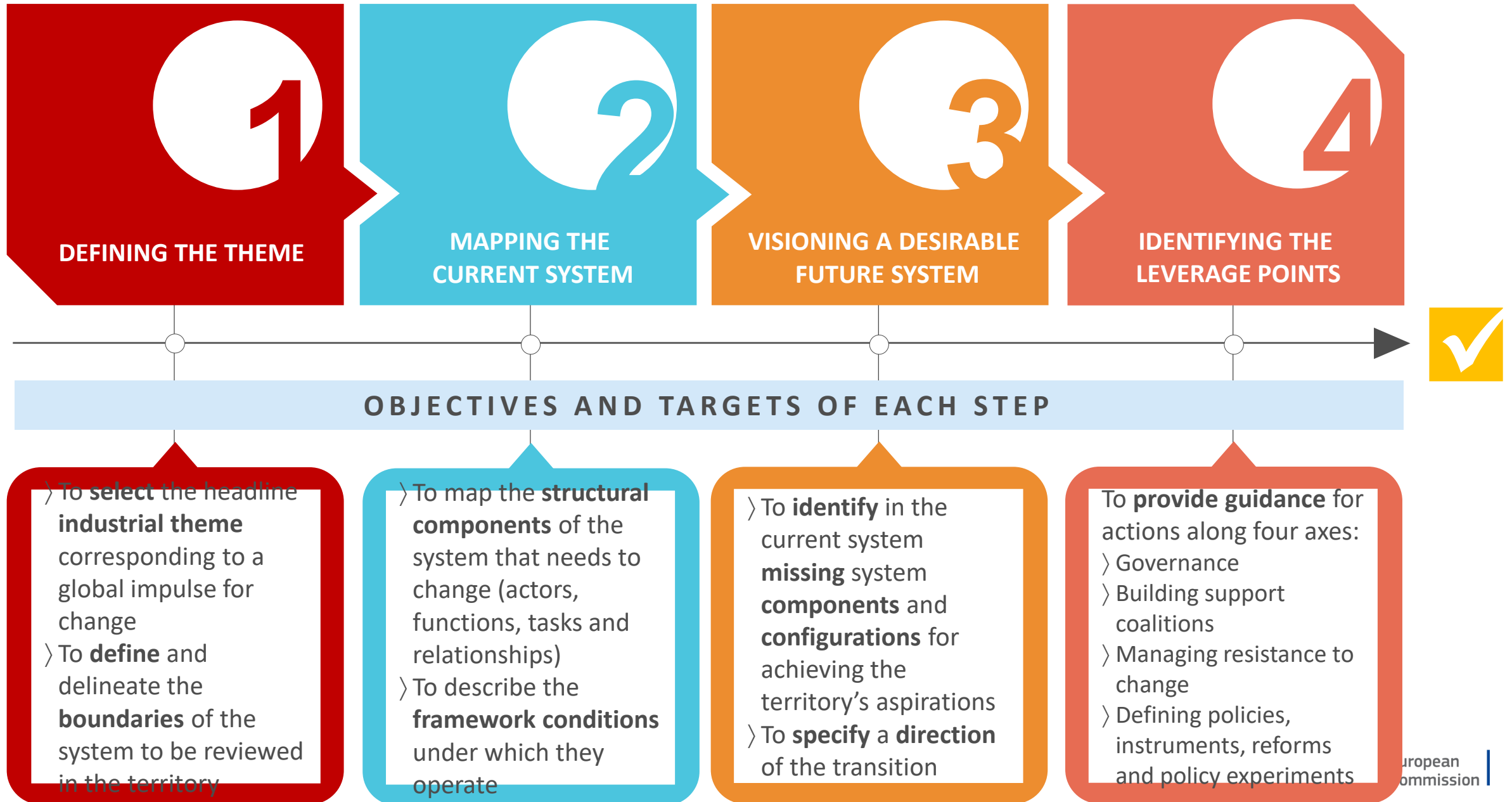
### Principles for supporting transition pathways

- Link disparate production systems and steer consumption
- Harness distributed agency and allow experimentation
- Whole-of-government mobilisation, beyond R&I
- Leadership and sustained impulse at the highest level

### Principles for projecting transition pathways

- Recognise that comprehensive transformations are costly
- Focus on time-critical solutions to territorial problems
- Move beyond the territory's comparative advantage
- Ensure open search and multi-level alignment

# STEPS OF THE REVIEWS



## QUESTIONS / DIMENSIONS TO BE ANSWERED IN EACH STEP

- › Geographical coverage
- › Reasons for the transition (opportunities / threats for the region)
- › Thematic focus
- › Degree of ambition
- › Timeframe for the transition
- › Linkage with the reflected priorities of the relevant authorities

- › Main actors in the system: roles, capacities and linkages on the four functional sub-systems (orientation and planning; resource mobilisation; production; consumption)
- › Framework conditions of the system
- › Geographic boundaries of the territory in the four functional sub-systems
- › Governance

- › Current scope and degree of ambition
- › Stakeholder vision for the future of territory
- › Required connections and reconfigurations of the system
- › Complementarity between production systems
- › Role of science and technology (obstacles / improvements)
- › Missing parts of the desired system (solutions)

- › Lessons learnt from the past
- › Role of monitoring and evaluation
- › Ways to foster the whole-of-government coordination and mobilisation
- › Developing a support coalition for the transitions
- › Stimulating and protecting the coalitions
- › Resistance to change (reasons for delaying the transition and form of opposition)
- › Appropriate policies reforms, specific instruments and policy experiments
- › Interaction with S3 strategy
- › Financing of the transitions

# Accumulating / upgrading **production capabilities** is a key objective

**Table 9. Public support for production and innovation capabilities**

<i>...business sector is predominantly characterised by...</i>	<b>A. Basic or no production capabilities</b>	<b>B. Nationally relevant production capabilities</b>	<b>C. Internationally relevant production capabilities</b>	<b>D. World class production capabilities</b>
(Stars denote intensity of policy attention / need for public support)				
<b>III. New-to-the-world innovation capabilities</b> (shifting global frontier)	N/A ("High tech fantasies")	**	* * *	* * *
<b>II. New-to-the-market innovation capabilities</b> (edge vs current competitors)	*	* * *	* *	N/A (no additionality)
<b>I. New-to-the-firm or new-to-the-territory innovation capabilities</b> (local problem solving)	* * *	*	N/A (no additionality)	N/A (no additionality)

Source: Own elaboration

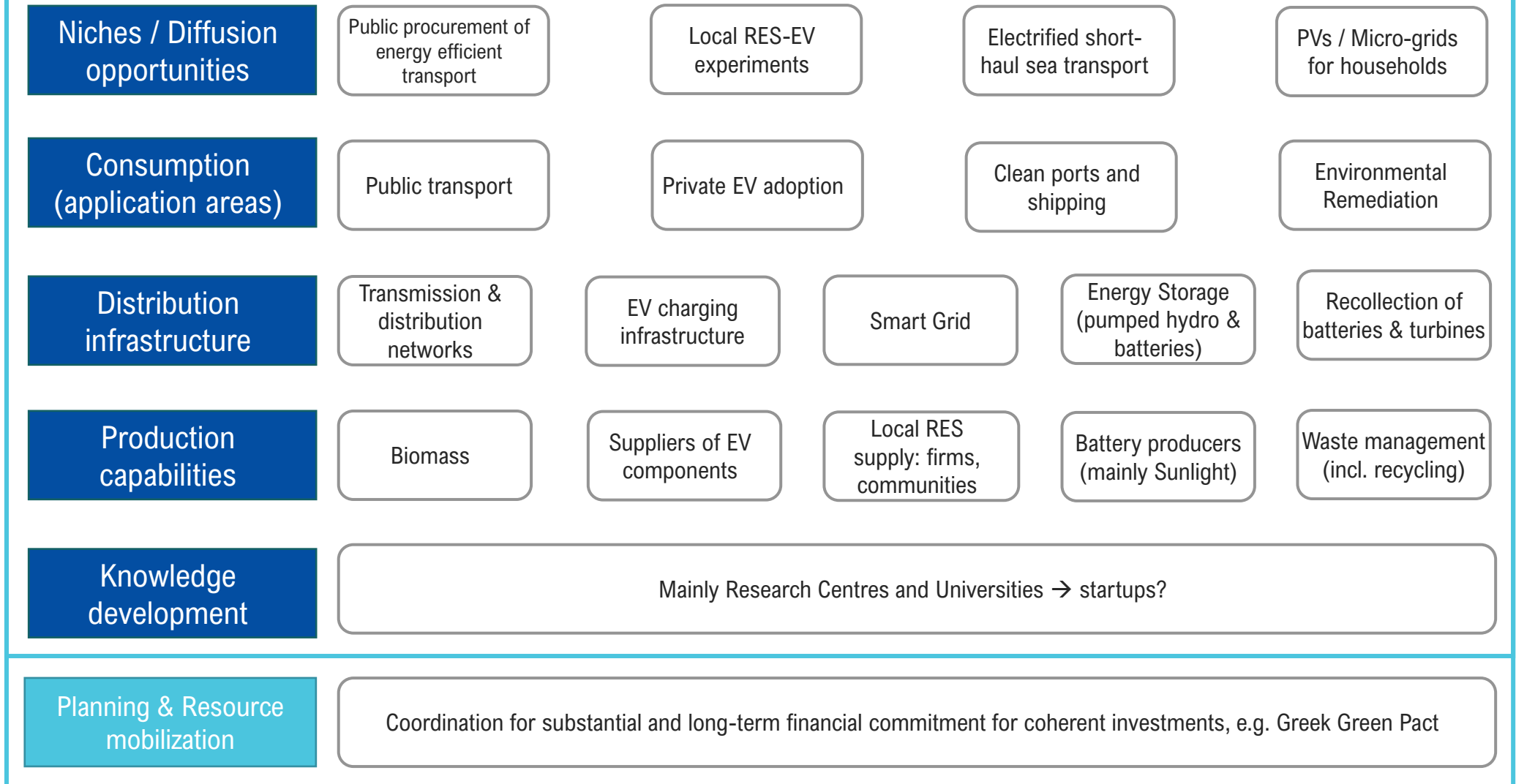
Source: POINT Concepts, Rationales and Methods report: <https://europa.eu/!Gr34Ng>

# Examples: POINT Review of GREECE



# The ingredients

Headline targets: 35% RES in gross final consumption; 19% RES in transport; Economic resilience



# The desired state of the system (imagine solved problems!)

## Orientation and planning

- Extend **joint ministerial committee** and 'Green Pact' for electric mobility; e.g., via the use of **working groups** also addressing skills, businesses, regions
- Consider **interregional learning** via e.g., scalable **demonstrator experiments**
- Enhance **industry involvement**, via **roadmaps** and consultation '**fora**'

## Human and financial resource mobilisation

- **Reverse brain drain** via support for development paths targeting local challenges
- **Certify and accredit** the offer of **vocational training**
- Establish **thematic vocational training centres** (cf. CoVES)
- Use **EU funding schemes** linked to the European Green Deal Investment Plan (**EGDIP**)
- Intensify **PCP** and **PPI**
- Develop **rating tools** and a **digital one stop shop** for investments

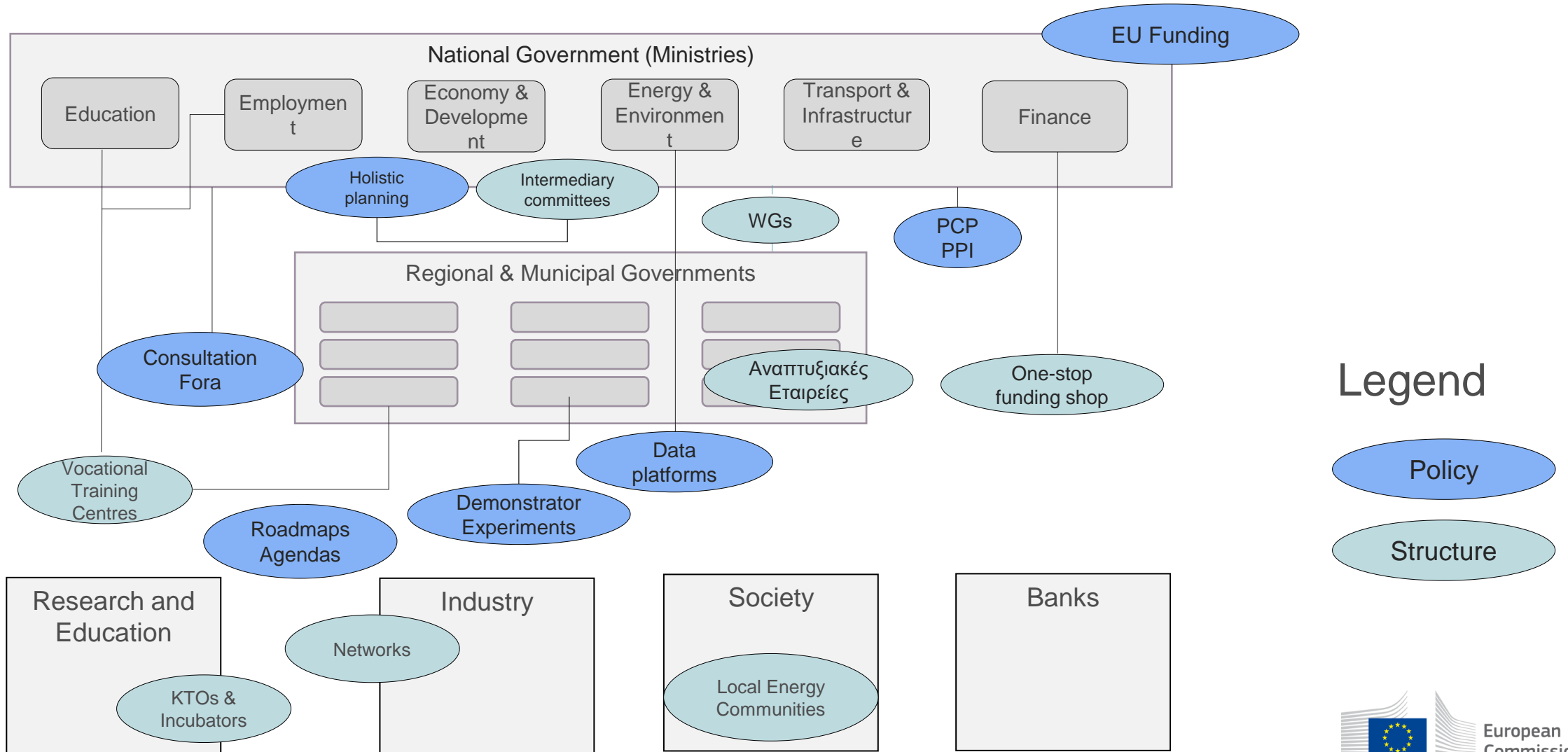
## Production of knowledge, goods and services

- **Target FDI** at industrialisation related to RES technologies and digitisation
- **Forge links** between energy and transport sectors/systems
- Upgrade **public investments** that create demand and attract businesses and FDI
- Enforce active **environmental regulations**
- Create **regulatory sandboxes** for experimentations
- Support **KTOs** and **incubators**

## Consumption and use

- Enable **prosumers** and reform the **local energy community law** to avoid excesses
- Support **energy citizenship** and link RES production to different application domains (e.g., private EV, electric boats)
- Exploit **niches with special demands**, like EV on islands
- Expand **RES-based public transport** (like buses), e.g., via municipality-owned development companies

# System-enhancing interventions



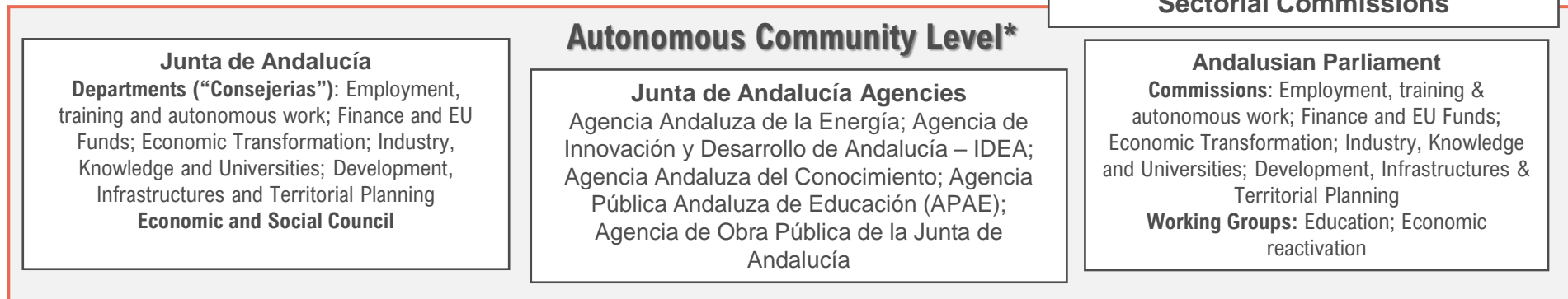
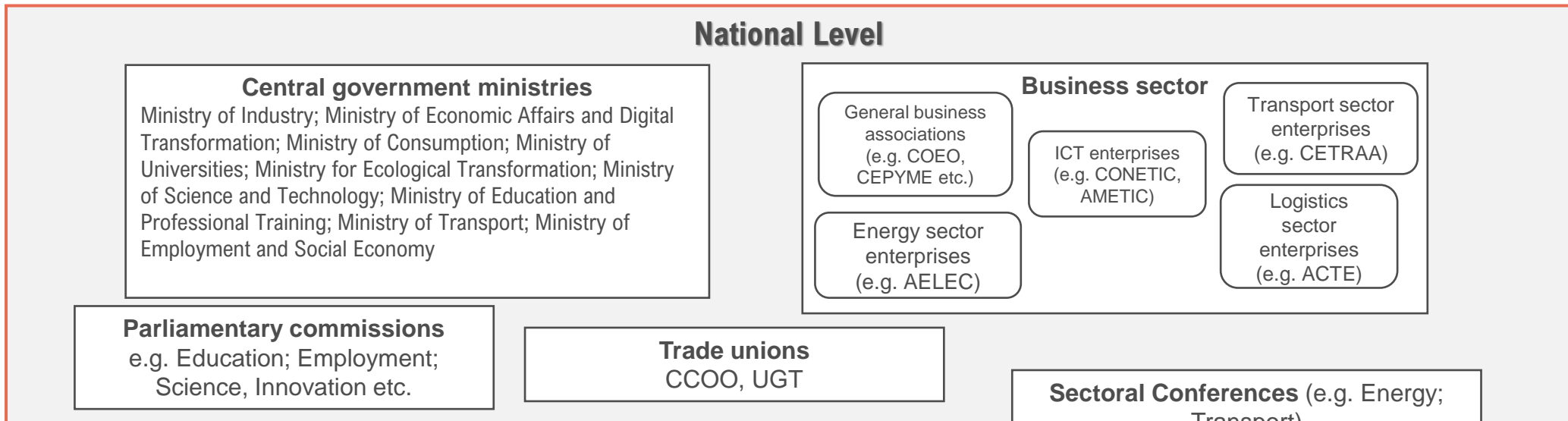
# Examples: POINT Review of ANDALUSIA

# Orientación y Coordinación

**\*Exclusive autonomous competences:**  
Industry, commerce

**Shared role with central government:**  
environment, economic policy, consumer protection

**Role in implementation:**  
employment and vocational education



**\*\*Local competences:**  
traffic planning  
urban planning  
road paving  
environmental protection  
consumer protection  
water supply and public lighting  
public transport

# Producción de bienes, servicios y conocimiento

## National producers of goods and services

### ENERGY

**Large businesses:**  
ACCIONA, ENDESA, IBEDROLA, NATURGY  
**Associations:**  
AELEC, ANPIER, UNEF, APPA, FUTURED, CIDE

### MANUFACTURING

**Large businesses:**  
ACERINOX, CIE  
Automotive  
**Associations:**  
ANFAC

### LOGISTICS

**Large businesses:**  
CORREOS, SEUR  
**Association s:**  
ACTE

### CONSTRUCTION

**Large businesses:**  
ACS, ACCIONA, FCC, FERROVIAL, SACYR  
**Associations:**  
SEOPAN, ACTE

### ICTs

**Large businesses:**  
TELEFONICA, INDRA, MASMOVIL  
**Associations:**  
CONETIC, AMETIC, Plataforma enerTIC

### TRANSPORT

**Large businesses:**  
TORROT, NAVANTIA  
**Associations:**  
ANFAC, CETRAA, AEDIVE, AEPIBAL

### Cross-sectoral bodies

Confederation of Employers and Industries of Spain (CEOE), Confederation of SMEs (CEPYME), Spanish Association of Automobile Equipment (SERNAUTO), ...

## Foreign Direct Investment

**Manufacturing, transport and logistics:** AIRBUS, DEKRA, GRUPO PSA, NISSAN IBERIA, RENAULT GROUP, SIEMENS, VW ETC.  
**ICTs:** ORANGE, AMADEUS, VODAFONE, SAMSUNG, IBM, ACCENTURE, ESPRINET

## Knowledge producers

**Public research organisations**  
Spanish National Research Council (CSIC), National Centre for Renewable Energy (CENER), Research Centre for Energy, Environment and Technology (CIEMAT), Geological Survey of Spain (IGME), Spanish Institute of Oceanography (IEO), National Institute of Aerospace Technology (INTA), Advanced Aerospace Technology Centre (CATEC), Centro para el Desarrollo Tecnológico e Innovación (CDTI)

### Universities

-University of Almeria, University of Cadiz, University of Cordoba, University of Jaen, University of Granada, University of Huelva, University of Malaga (Domotics and Energy Efficiency Institute), University Pablo Olavide, University of Seville (Engineering School, Architecture School)

## Regional producers

### ENERGY

**Large businesses:**  
ABENGOA, INERCO, MAGTEL, PRODIEL  
**SMEs & Start-ups:**  
GPTECH, HESTECC, H2B2, INGENIERIA DEL SOL  
**Associations:**  
CLANER, APADGE, A3E, ANESE

### MANUFACTURING & INFRASTRUCTURE

**Large businesses:**  
EZENTIS, AYESA, AZVI  
**Associations:**  
AFAR, AGI, AIQB

### LOGISTICS, TRANSPORT & CONSTRUCTION

**Large businesses:**  
J. CARRION, VALEO ILUMINACION, ALESTIS AEROSPACE  
**SMEs & Start-ups:**  
HURTAN, PASSION MOTORBIKE FACTORY  
**Associations:**  
ACTE, FLC (Labour Foundation of Construction), FADECO, Cluster de Construcción Sostenible de Andalucía, Fundación CIAC

### ICTs

**SMEs & Start-ups:**  
ISOTROL, Wellness TechGroup, EC2CE  
**Associations:**  
Digital Cluster Association (ETICOM), Cluster Andalucía Smart City

### Cross-sectoral bodies

Confederation of Entrepreneurs of Andalusia (CEA), Andalusian Cooperatives Association (FAECTA), UPTA Andalusia (Self-Employed Workers Union), Technological Corporation of Andalusia (CTA)

# Consumption or Use

## Andalusian exports

**MINERAL OILS AND FUEL**  
4.582bn EUR  
(2019)

**AIRCRAFT AND AEROSPACE**  
2.499bn EUR  
(2019)

**METALLIC ORES, SLAG AND ASH**  
1.84bn EUR  
(2019)

**ELECTRICAL EQUIPEMENT AND MATERIAL**  
1.565bn EUR  
(2019)

**COPPER AND ITS ARTICLES**  
1.147bn EUR  
(2019)

**CAST IRON, IRON AND STEEL**  
1.08bn EUR  
(2019)

## National markets

**HOUSEHOLDS**  
ENERGY EXPENDITURE (975 EUR PER HOUSEHOLD, 2019),  
TRANSPORT EXPENDITURE (3,888 EUR PER HOUSEHOLD, 2019)  
SERVICES (INCL. FINANCE)

**PUBLIC SECTOR**  
CITY COUNCILS, COUNTY COUNCILS,  
AUTONOMOUS COMM. GOVNTMS,  
NATIONAL GOVERNMENT

**BUSINESSES**  
ENERGY EXPENDITURE AND INVESTMENT;  
TRANSPORT EXPENDITURE AND INVESTMENT;  
B2B SERVICES

## Regional markets and users

**HOUSEHOLDS**  
ENERGY EXPENDITURE (876 EUR PER HOUSEHOLD, 2019),  
TRANSPORT EXPENDITURE (3,789 EUR PER HOUSEHOLD, 2018),  
SERVICES (INCL. FINANCE)

**PUBLIC SECTOR**  
CITY COUNCILS  
COUNTY COUNCILS  
JUNTA DE ANDALUCIA

**BUSINESSES**  
ENERGY EXPENDITURE AND INVESTMENT;  
TRANSPORT EXPENDITURE AND INVESTMENT;  
B2B SERVICES

## Local niches

**CITIES**  
APARTMENT BLOCK PVS,  
MICROGRIDS, COMMUNITY STORAGE,  
MICROMOBILITY, LAST-MILE DELIVERY,  
PARKING AND EV CHARGING, E-BUSES,  
METRO AND TRAMWAY

**INTERCITY TRANSPORT**  
ELECTRIC TRAINS,  
FREIGHT,  
PASSENGER SERVICES

**AIR TRANSPORT**  
AIR TRAVEL,  
SECURITY,  
HYDROGEN PLANES

**COASTAL OFFSHORE**  
RES: WIND,  
FLOATING PV;  
HYDROGEN;  
E-FERRIES

**COUNTRYSIDE**  
RES: PV, WIND, GEOTH.,  
HYDRO; THERMAL SOLAR;  
STORAGE: PUMPED HYDRO;  
BATTERIES; HYDROGEN;  
BATTERY RE-USE & RECYCLING

## Lead adopters and prosumers

**PROSUMERS**  
MICROMOBILITY USERS  
RIDESHARING USERS  
EV OWNERS/USERS,  
ROOFTOP SOLAR HOUSEHOLDS  
(SELF-CONSUMPTION)

**ENERGY COMMUNITIES**  
SOMENERGIA  
ECONACTIVA  
ENERGETICA COOP  
GOIENER  
LA CORRIENTE  
NOSA ENERXIA  
SENEC  
SOLABRIA

**USER ASSOCIATIONS**  
ENERCLUB (Energy Education NGO);  
AUVE (Asctn of EV Users);  
AMPES (Ascn of Ecological Mobility of Seville)

## Information and interest brokers

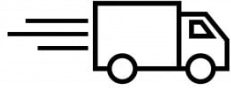
**CONSUMER ASSOCIATIONS**  
AEGE (Asctn of Businesses with Large Energy Consumption)  
UCA (Unión de Consumidores)  
FACUA (Federation of Consumers and Users of Andalusia)

**KEY USER INFORMATION NODES**  
EVs:  
DEALERSHIPS, REPAIRERS.  
ENERGY: LOCAL UTILITY OFFICES  
TRANSPORT: CONSORCIOS,  
OBSERVATORIoT RANSPORTE

**SPECIALISED PRESS & ONLINE CHANNELS**  
AUTOBILD  
REVISTACAR  
FOROEV.COM  
MOVILIDADELECT  
RICA.COM

# Ejemplos de desafíos y oportunidades

## Ejemplos de desafíos regionales

- Logística de última milla 
- Vivienda sostenible/ sector de construcción
- Industria petrolera / polo químico
- Almacenamiento de energía renovable
- Fabricación

Diario de Sevilla

ECONOMÍA

SEVILLA PROVINCIA ANDALUCÍA SOCIEDAD ECONOMÍA SEVILLA FC BETIS CULTURA COFRADÍAS OPINIÓN TODAS LAS SECCIONES


ECONOMÍA

### La fábrica de Renault en Sevilla reanuda su actividad esta semana

- José Vicente de los Mozos, presidente de la firma en España, dice que exportará cajas de cambio a Corea del Sur, China o Rusia, donde se está reanuda su actividad.
- Estima que las ventas de automóviles caerán un 95% en abril



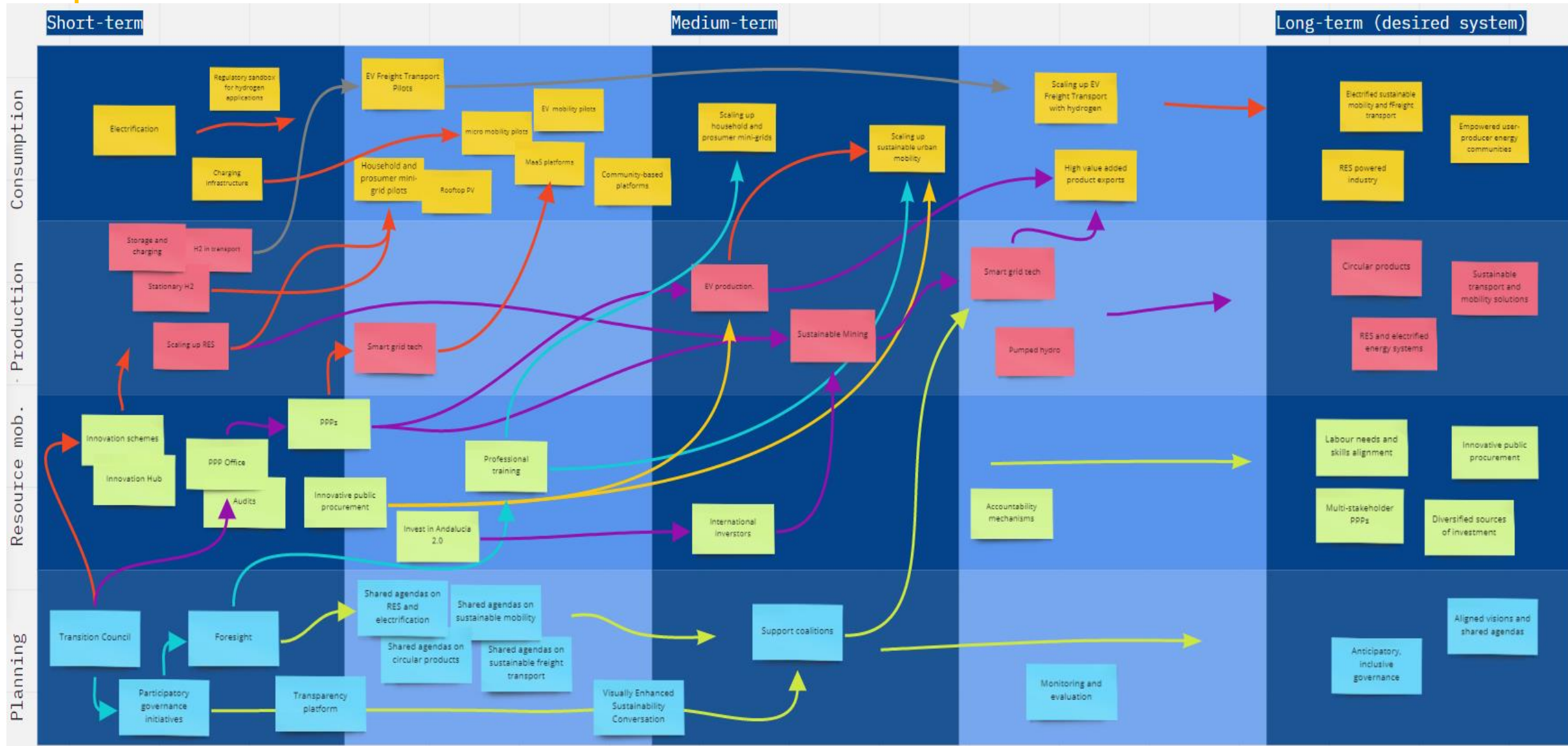
## Oportunidades

- **Proyectos demostradores: Cartuja Verde+++**
- **Compra pública** (p.e. ¿Transporte público?) 
- **Alianzas público-privado (PPP) para inversión**
- **Formación profesional y innovación empresarial**
- **Emprendimiento comunitario**





# Camino para desarrollo industrial que crean valor múltiple (económico, social, medioambiental)



# Horizontal lessons across reviews

- Importance of domestic **demand** for industrial development – unexploited opportunities for profitable **sequencing** of policies
- **Synergies** between research and innovation, broader business support, skills, infrastructures etc. **stand to amplify impact**, yet not easy to identify
- **Massive coordination task within government** requires a **“whole-of-government” approach**, focused on national(/regional) goals (e.g. National “Missions”, smart working parties, shared agendas, etc)

# POINT as a tool for S4

## **1. Evidence can change perspectives.**

A broad, systemic framing is necessary to find policy levers for transformation. Examples from the pilot POINT reviews.

## **2. System-level evidence is unavailable, yet extremely valuable.**

POINT reviews can make a contribution. Upgraded policy intelligence needed for the European Green Deal, the Just Transition Fund, the Recovery and Resilience Fund.

## **3. Evidence is not enough. New framework for transformative stakeholder coordination is necessary.**

POINT reviews only a beginning. Not enough to change policies. Need to work directly with stakeholders (through e.g. a new generation of EDP) and build support coalitions

# Innovation Strategies 4 Sustainability (S4)

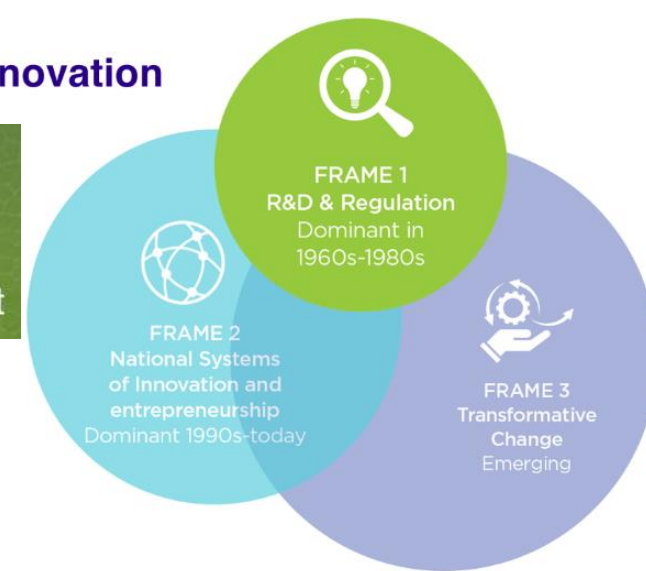
# Why S4?



## A European Green Deal

Striving to be the first climate-neutral continent

### The 3 Frames of Innovation



Need to address climate change while leaving none behind

Secure Europe's position in the economy of the future

Confluence of maturing trends:

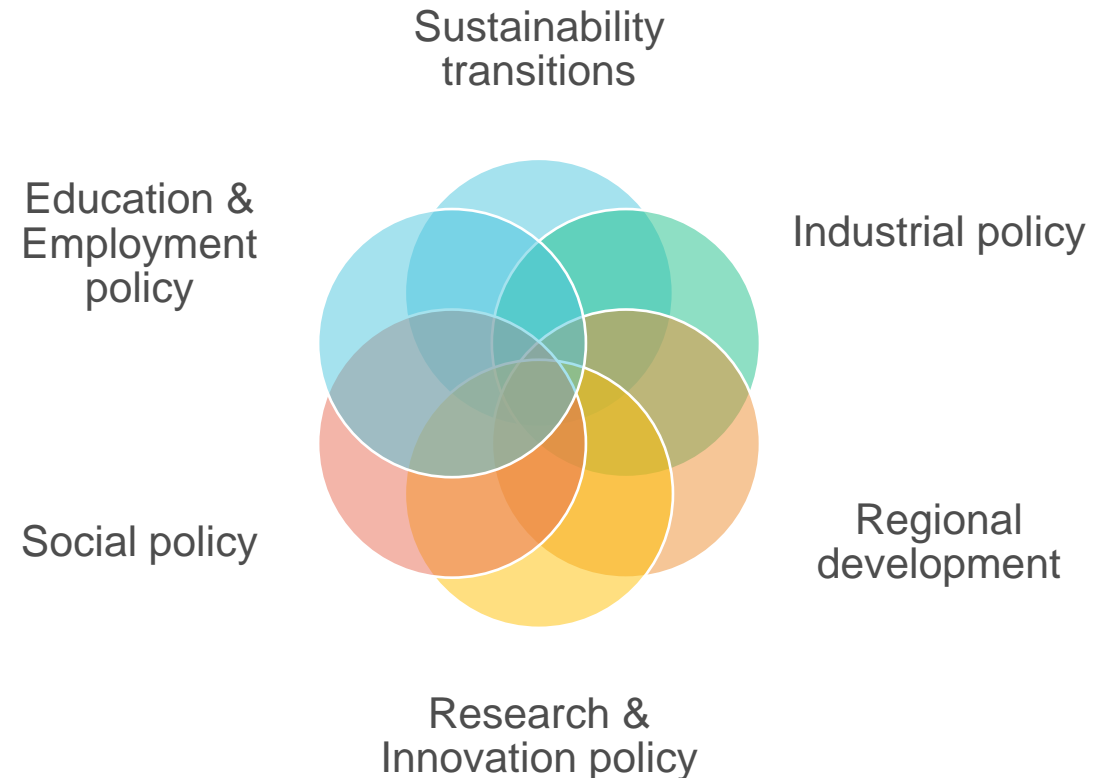
- Deep global **transformations in energy, transport, digitalisation**;
- Return of **industrial policy: EU competitiveness through sustainability**;
- New scientific paradigm of innovation: **system-level innovation and transformative innovation policy ("Frame 3")**;
- JRC experience with **Smart Specialisation (regions)** and **RRF (countries)**.



JRC has a role in helping **bridge policy domains and levels of governance**

# Innovation Strategies 4 Sustainability (S4)

- Impact-based **strategies** for sustainability transitions that create economic, social and environmental value
- A participatory **governance framework** in support of forward-looking policy
- A **new way of working across government** departments and levels focused on solving territorial challenges



# JRC Project on S4

- Develop S4 concept building on & substantially extending upon S3
- Test key novelties of the approach in a pilot with the CoR in selected regions and countries
- S4 Playbook (due May 2022) to provide initial guidance and menu-for-choice of tools
- JRC CoR-Pilot in 2022-2023 to refine, further co-develop the methodology
- Develop (new) JRC tools to collect policy intelligence and support strategic planning and a research agenda for/around S4

# Scientific Committee on S4

## Chairs

Sylvia Schwaag Serger (SE/DE) and Luc Soete (NL)

Katalin Erdos (HU)

Kevin Morgan (UK)

Dominique Foray (FR)

Slavo Radošević (HR)

Luke Geoghiou (UK)

Andres Rodriguez-Pose (ES)

Paula Kivimaa (FI)

Andrea Renda (IT)

Phoebe Koundouri (CY)

Daria Tataj (PL)

Philip McCann (UK)

Michaela Trippl (AT)





# Tentative structure of S4 Playbook

## **PART I – Understanding S4**

- Preamble
- Chapter 1. What is S4
- Chapter 2. Why we need S4
- Chapter 3. Key concepts

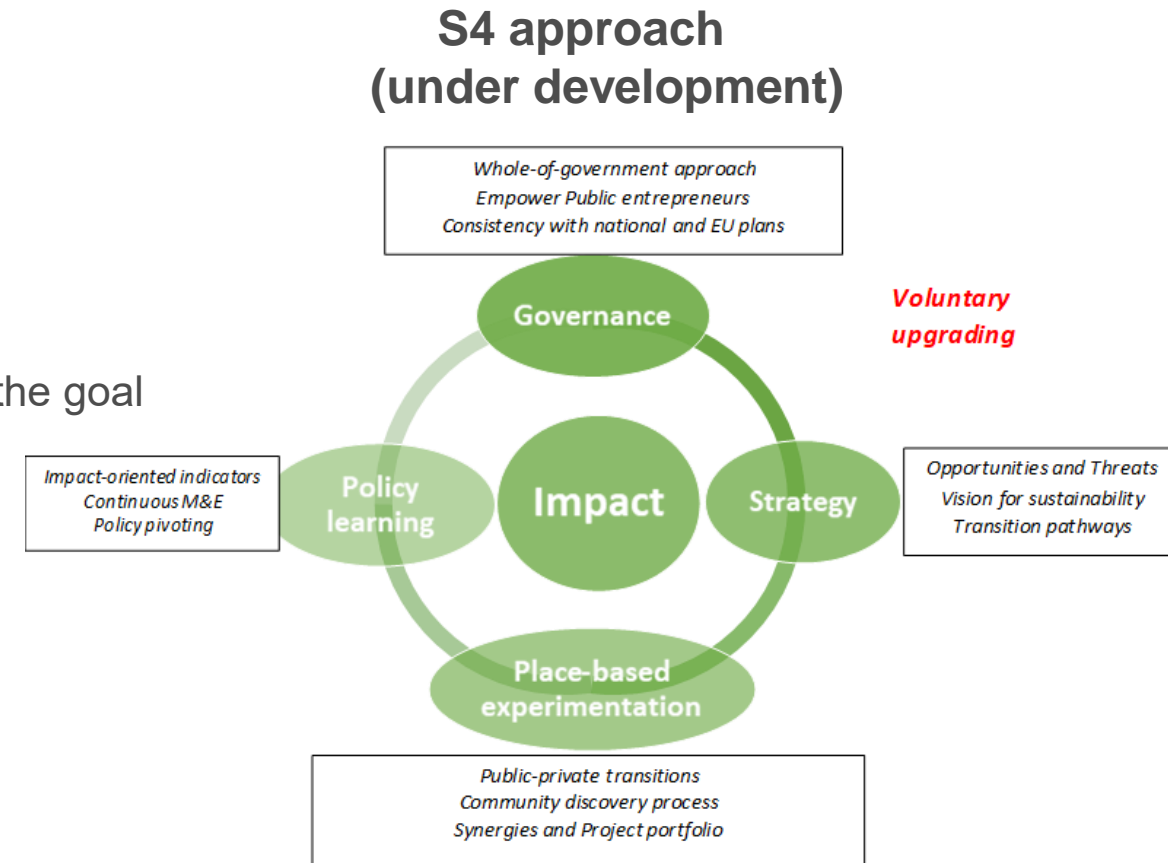
## **PART II – How to develop S4 in your city, region or country**

- Chapter 4. Diagnose
- Chapter 5. Discover
- Chapter 6. Design
- Chapter 7. Deliver

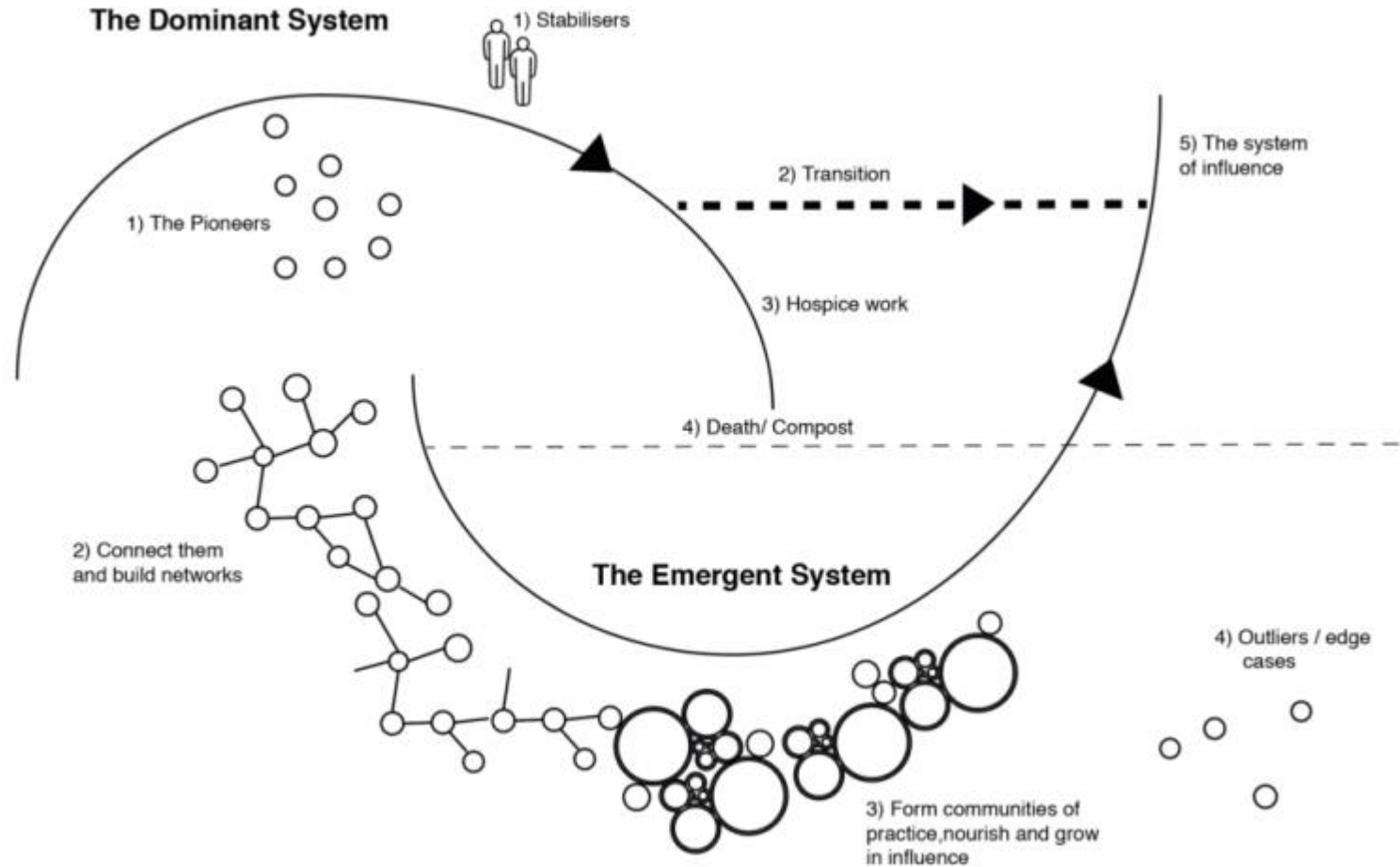
# How to develop your S4

## Some considerations (elements of S4 Playbook)

- Take a transition view and provide paths for everyone
- Use the broad framing of innovation
- Unlearn loaded framings
- Identify what's inside (and outside) the system according to the goal
- Reform governance
- Tailor priorities to diagnostic of development needs
- Upgrade your instruments and develop policy mix
- Use demand strategically
- Work backwards from goals with broad coalitions of stakeholders
- Continue to build the case for the transition



# Take a transition view and provide paths for everyone



Source: Cassie Robinson, <https://stream.syscoi.com/2019/01/18/hospicing-the-old-thefarewellfund-cassie-robinson/>

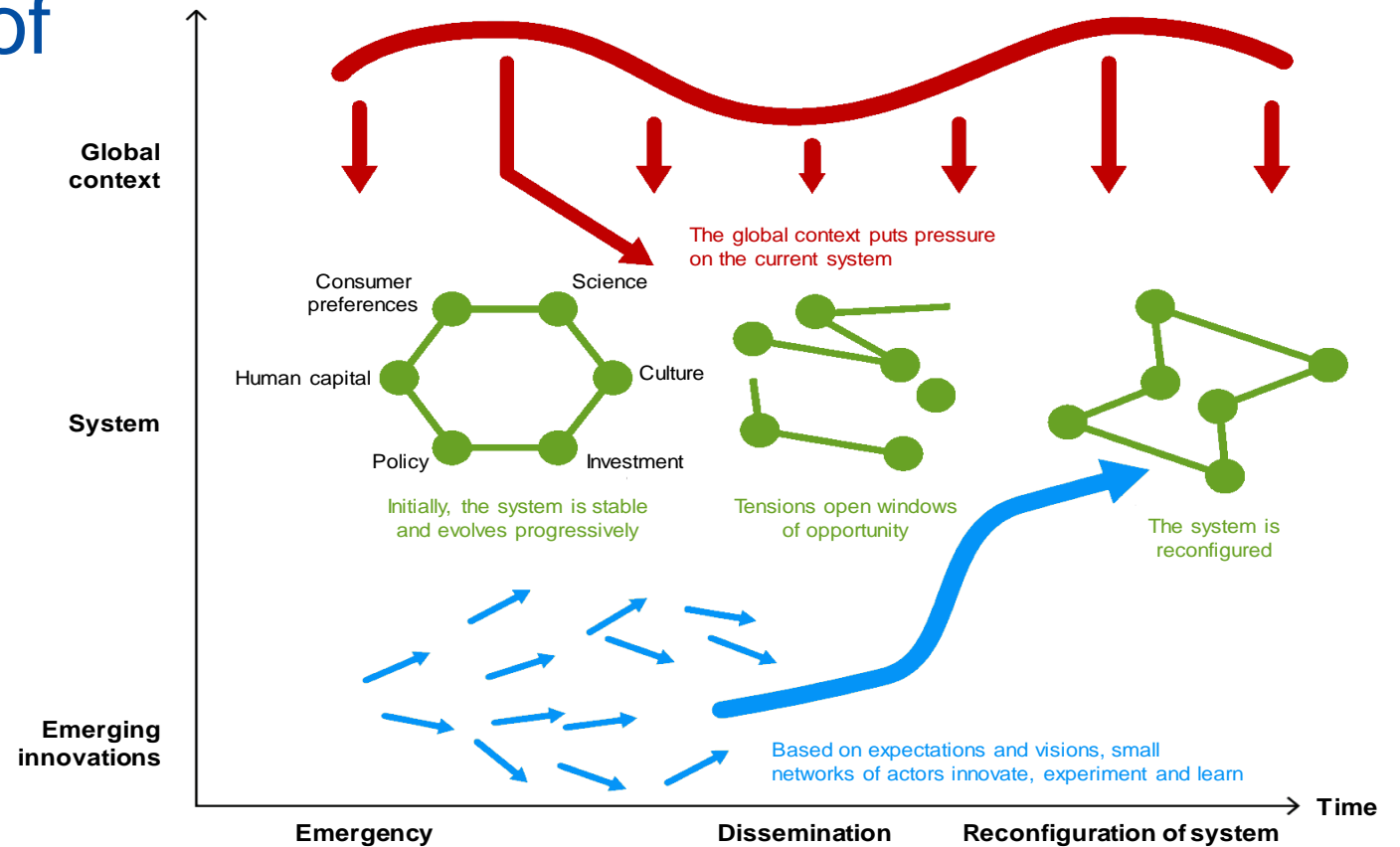
# Use the broad framing of innovation

## Old framing

- Science and technology centred
- Operated at lower level (e.g. firm or organisational level)
- Objective: innovation-driven growth

## New framing

- Producer and consumer centred (incl. knowledge)
- Operates at multiple-levels (system-level innovation is a legitimate policy aim)
- Objective: system re-configuration to meet new societal purpose(s)



Source: Adapted from Geels (2008)

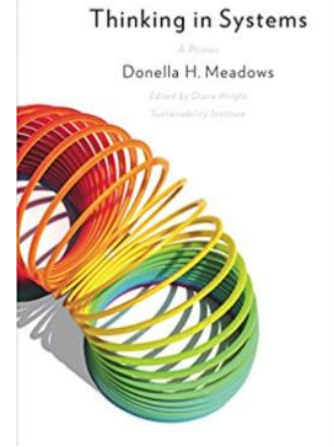
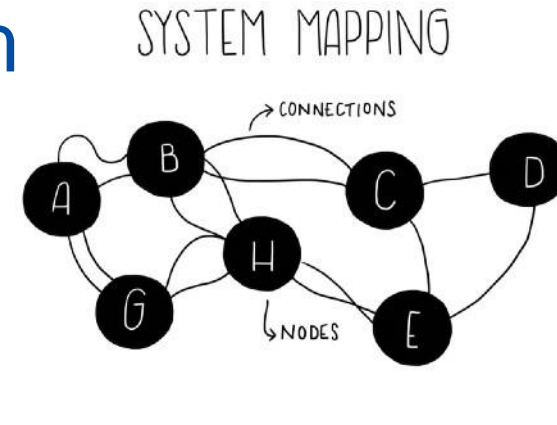
[system-level innovation with directionality]

# Identify what is inside the system according to the goal

- Framing reveals **structure**
- Structure can reveal **points of leverage**
- Framing reveals **perspective**
- Perspective allows **projections**
- Changing perspectives can alter the **goal** of a system



**Directionalities** based on societal goals require a broad system framing



**Example:** You need to examine a system under a broad framing to appreciate new (or newly relevant) interconnections:

**Green:** EVs are complementary investments to renewables which are complementary to energy storage, which are complementary to smart grids etc...

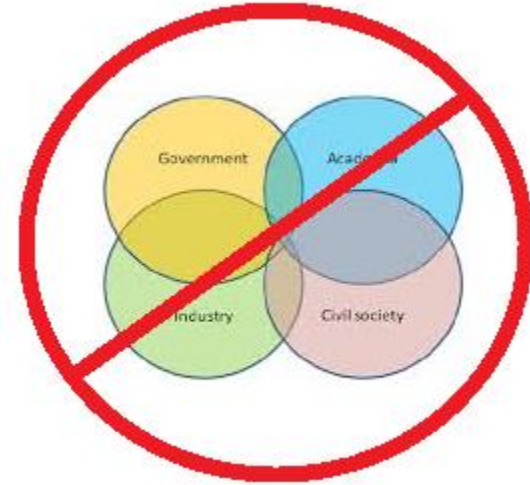
**Digital:** ICT investments are complementary to advanced manufacturing which is complementary to investments in sensors and data, which are complementary to digital marketing, which is complementary to soft skills etc...



**In interconnected nodes, by influencing one node of the system, you can influence others too**

# Unlearn loaded framings

- A quadruple-helix does not suit all: it assigns unconditional pre-eminence to **universities, businesses** and **government** and shoves all other stakeholders to a residual **civil society** category.
- In reality we do not know what actors are important unless we examine a particular system.
- A q-h framing, can mislead us into accepting **a false equivalence** between helices, and can blind us to underlying structure.
- E.g. users of technology, financiers, regulators, professional associations, trade unions, educators, consumers or workers may also deserve equal or greater attention.
- Consumers, users and workers can be crucial to system transformation. Ironically, they don't even fall under the dictionary definition for civil society.



**The correct framing will vary from system to system and has to be discovered through examination**

# Reform governance

## Whole of government approaches

- Leadership
- Shared goals
- Flexibility

e.g. the Marshall Plan came to be seen not as a 'plan' but rather a: “...brilliant series of improvisations.”

## Administrative reform choices

- Layering / accumulation

vs

- Dismantling old structures and building new ones

## Impact-based (/missions-like) planning

- Impact-based (including multi-dimensional and unintended impacts)

vs

- Conformance- & Performance-based policy planning

Source: Shahab et al.(2019), “Impact-based planning evaluation: Advancing normative criteria for policy analysis”, *Environment and Planning B: Urban Analytics and City Science*,

<https://doi.org/10.1177%2F2399808317720446>

OECD (2021), Missions-Oriented Innovation Policy Toolkit: <https://stip.oecd.org/moip/>

Sources:

Deloitte (2019), “[Deploying the whole of government: How to structure successful multi-agency international programs](#)”

Colgan et al. (2014), [Primer on implementing whole of government approaches](#). Dublin: Centre for Effective Services

Source: Edmondson et al. (2019), "The co-evolution of policy mixes and socio-technical systems: Towards a conceptual framework of policy mix feedback in sustainability transitions", *Research Policy*, <https://doi.org/10.1016/j.respol.2018.03.010>



# Tailor priorities to diagnostic of development needs

S4 entails **transformation of already strong sectors and capability accumulation** towards sustainability and other societal goals

However, some existing comparative advantages no longer serve societal goals (e.g. fossil fuels extraction and use)

**New path creation** is also warranted (e.g. for regions with too few or too common priorities) (Asheim, 2019)



**Need to tailor priorities to a diagnostic of development needs**

Mode of industrial change	Description	Comparative advantage
Development ( <i>de novo</i> )	Develop new capabilities and productive capacities	Created
Modernisation	Technology-driven upgrading, prompting associated structural change, usually within existing paradigms	Unaffected
Renewal / Restructuring	Entrepreneurial and technological upgrading in response to industrial decline, not necessarily within existing paradigms (incl. transition in response to paradigm shifts)	Unaffected
Branching	Diversification into related economic activities	Weakened
Specialisation	Growth and/or concentration of existing economic sectors, accompanied by greater reliance on trade outside the territory (incl. offshoring within GVCs)	Strengthened
Upgrading	Upgrading position within value chains, shifting to higher value activities/tasks.	Unaffected
Deepening	Development of related sectors locally by favouring local input sourcing and linkages	Strengthened
Servitisation	Lateral shift towards services building on territory's industrial experience (sometimes in response to manufacturing decline).	Weakened

Source: POINT Concepts, Rationales and Methods report: <https://europa.eu/!Gr34Ng>

# Use demand strategically

- Supply *follows* demand. The other way round happens only exceptionally and cannot be predicted/controlled. Holds true for technology too (Schmookler, 1966)



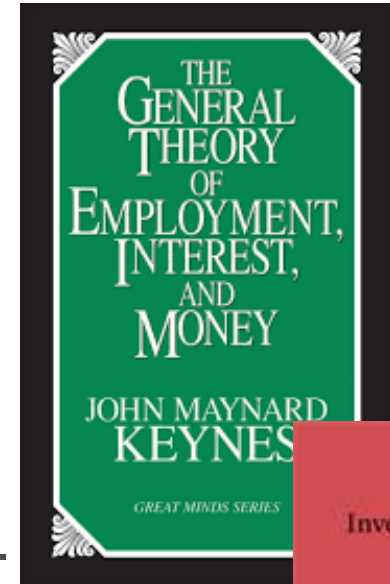
**If demand precedes supply, studying patterns of current and foreseeable demand can reveal leverage opportunities for industrial development that delivers co-benefits**

Solid majorities of citizens\* demand more of their governments for climate action in particular. Consumer surveys find strong demand for EVs and RES.

e.g. next-to inevitable household investments in sustainability, esp. energy and mobility. Who will produce these goods and services? What will they mean for local jobs? Will they be accessible to all consumers?



**To do: Use regulation strategically and promote experimentation, Consider sequencing interventions, use government budgets to create ‘lead markets’, demarcate ‘Innovation Spaces’ in large physical infrastructure projects, support “Innovation for affordability”**



\* <https://www.undp.org/publications/peoples-climate-vote>

# Building multi-actor coalitions: Work backwards from goals with stakeholders

## WHY change? (rationale for S4) e.g.

- Having a planet
- Address inequality
- Benefits to human health (Lancet study)
- Position in the economy of the future/ emerging value chains (IEA, IRENA, studies)
- Employment threats/opportunities
- System-level innovation
- +++....?

## WHAT to change?

- Knowledge/technologies
- Production/consumption systems
- Societal outcomes (e.g. employment)

## HOW to change?

- Changing the frame (multi-level/-portfolio)
- Instruments, Policy mix (demand, PPPs, ...)
- Building stakeholder coalitions
- ++...???

## WHO to change (and who with)?

- Consumers, workers, governments, businesses, researchers, educators, regulators,...

## WHAT goals to aim for (or not to)? E.g.

- Environmental sustainability
  - Being carbon neutral / carbon negative
- Quality employment
  - No new disadvantaged groups
  - Reduce disadvantage gaps
- Prosperity
  - Competitive advantages
  - Co-benefits / multiple-value creation
- Good governance
  - Outcomes reflect local values (no neo- colonialism)
  - Public sector innovation
  - Co-signatories / shared agendas
  - Traction / Legitimacy (/ negative legitimacy)
  - No greenwashing / woke-washing
  - +++...????

# A new generation of EDP

## S3

- Identification of priorities for investment in research and innovation
- Focus on territorial needs and on economic strengths
- Inclusive stakeholders engagement
- Stakeholders include the private, research and public sector
- Collaboration results in joint projects
- Continuous EDP implies that stakeholders are kept engaged
- Stakeholders contribute to the refinement and review of priority-areas

## S4

- Developing directionalities driven by territorial challenges which however aim at **multiple value creation**
- **Working backwards from goals** with coalitions of stakeholders in a multi-level perspective
- Implicated types of **stakeholders vary** acc. to the goal
- Include **other parts of** (/ levels of) **government**, incl. public and private investments according to the goal
- In return for public support, stakeholders **open up their agendas** which allow for synergies/sequencing
- In return for public support, stakeholders **commit to additional actions** including invest./changes in behaviour
- Continuous, **growing and reflexive coalitions** result in **multiple actions** beyond publicly funded projects



“No hay viento favorable para el que no sabe dónde va”

Seneca (c. 4 BC, Cordoba – 65 AD, Roma)

**iGracias!**

<https://s3platform.jrc.ec.europa.eu/industrial-transition>

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