



The First International Conference on Sustainable and Regenerative Farming

CSRF 2024

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New challenges for agricultural policy between new actors and redefining development paradigms

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Her **current research interests** are related to food and agricultural sectors, with a specific focus on innovation, sustainability, ecosystem services economic evaluation, and rural development with a specific focus on understanding specific drivers of rural environmental and social change. Her research interests are also related to behaviour of economics agents (consumers, farmers, citizens), applying advanced quantitative and qualitative methodologies that merge economics and social psychology. She is active within the business community and serves as a scientific consultant of various Public Institutions.

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Agenda

- The scenario: challenges and redefining objectives
- Stakeholders and the need for new mapping
- Governance: from the sector to the system
- Development models: new paths for new actors
- Science – actors interfaces





Scenario and research space

CHANGE!

Grand Challenges (GC) – Social, political and environmental dimensions *(Davidson et al., 2015; Bock et al., 2020; Finco et al., 2020; De Bernardi et al., 2020)*

18 GC in three dimensions *(FAO, 2021)*

ENVIRONMENT:

Scarcity of natural resources, ecosystem degradation, pandemics, **climate change**, exploitation of the seas

ECONOMY AND SOCIETY

Population increase, urbanization, economic growth, big data and data protection, geopolitical instability, urban and rural poverty, **inequality, migration**

FOOD

Food price increases, **innovation and science**, intensity of capital, investment, market concentration, food models.



Scenario and research space

New roles of the agricultural sector

- Food production
- Landscape
- Culture
- Environmental management
- Mitigating climate change
- Managing the physical space for humanity

The sector that more than any other is called on to ensure a

“SAFE AND JUST OPERATING SPACE FOR HUMANITY”

(Rockström et al., 2009).



Scenario and research space

Sinergies and conflicts between objectives

- Sustainability
- Competitiveness
- Food security
- Food sovereignty
- Resilience

Two viewpoints

- Food and its policy role and justice
- Agriculture and its environmental and social role



Trying to integrate peculiarities in a system view: our challenge

Digital and ecological transition but also social transition (Brunori, 2022; Gava et al, 2022).

- Changes in policies and tools
- Different types and roles of stakeholders
- Governance structures
- Development models
- The role of science



Policy interventions and transitions



1) The target area of support has widened to broader sectors outside of agriculture, using a strongly place-based policy framework *(OECD, 2023)*

2) Current policies have been built with the aim of redesigning EU economic development pathways in the long-term, with inter-generational goals.

Agenda 2030, Europe 2020 for “smart, sustainable and inclusive growth” (COM(2010) 2020), with the seven flagship initiatives, European Green Deal, Farm to Fork, Biodiversity Strategy, EU Strategy for forests for 2030, the REPowerEU Strategy, European Soil Strategy for 2030, the Climate Change Adaptation Strategy, Zero Pollution Action Plan for air, water and soil, European Climate Pact, the Rural Pact - the long-term vision for European rural areas, European Law on Nature Restoration, the next European Framework Law on Sustainability.



Policy interventions and transitions

3) **Current policies implemented or integrated in a period of shocks** (pandemic and war) and profound changes in economic models, market equilibrium and societal needs, as well as to the concept of globalization itself (economic conjuncture or permacrisis?)

e.g. range of interventions envisaged by Italy's national recovery and resilience plan -PNRR- and the new CAP 2023-2027

4) **Innovation as a transversal strategy**

- Transition to socio-technical regime change –technological innovation, but also social and institutional innovation (Kok and Klerks, 2023; Brunori, 2022; Herrero et al., 2020).
- Digitalisation to develop the resilience and sustainability of the entire agricultural and rural sector (Veronique et al., 2022)



Multidimensional Innovation: how to achieve

1) **Can only be achieved via systemic level thinking**

- **Agricultural Innovation Systems (AIS)** (food production, consultancy, research sectors, Public Institutions and civil society) to co-produce research, innovation and tailormade policy interventions for increasing complex needs (*Annosi et al., 2022; Klerkx et al., 2012; Pigford et al., 2018*).

2) **The co-evolution of innovation** (*De Rosa et al., 2023; Pigford et al., 2018*)

- **Ecosystem approaches** underline the need for **co-evolution of innovation** and **co-creation of value** (*Wolfert et al., 2023; Lioutas et al., 2021; Autio, Thomas 2014; Bellon-Maurel and Huyghe, 2017; Wittman et al., 2020; Schnebelin et al., 2021; Fraser, 2021; Ditzler and Driessen, 2022*).

“An *innovation ecosystem* is the evolving set of actors, activities, artifacts, and the institutions and relations, including complementary and substitute relations, that are important for the innovative performance of an actor or a population of actors»

(*Granstrand e Holgersson, 2020*)



Multidimensional Innovation

Agricultural Innovation Ecosystems present in public intervention documents

- **CAP 2014-2020** - European Innovation Partnership for agricultural productivity and sustainability - Operational groups.
- **CAP 2023-2027**, Agricultural Knowledge and Innovation System (AKIS) transversal objective and privileged approach in procedures
- **Institutionalized networks** for the exchange of knowledge and the creation of innovation ecosystems - SCAR AKIS (Strategic Working Group (SWG) EU - Consultative Group on International Agricultural Research (CGIAR, “systems transformation approach for food, land, and water systems”) developing countries (CREA, 2023;

McIntire & Dobermann, 2023)



From policy to policy-mix

Broad and diversified policy offer - analyze and represent policy choices

- “**the policy market**” and therefore the choices - composite product – **policy-mix** (Lechi, 1993; Flanagan et al., 2011; Lindberg et al., 2019).
- complex objectives only by adopting a package of interventions which, by **combining different existing policies (measures or plans)**, manage to create a coherent strategy, coordinating the different roles and activities of the actors involved (Geels, 2019; Tønnesen et al. 2022; Sisto et al., 2023; Mugabe et al., 2022; Sarker et al., 2022).



Stakeholders and new needs of mapping

Ecosystem approach, socio-technological transition, policy-mix



Stakeholders

“persons or groups whose interests and activities strongly affect and are affected by the issues concerned, who have a stake’ in a change, who control relevant information and resources and whose support is needed in order to implement the change”

(Morgan e Taschereau, 1996),



Stakeholders and new needs of mapping

Changes: digitalization, genetic innovation, new business models, new services offered to agricultural and rural systems increasing the types and breadth of roles and potential connections.

Needs for theoretical analysis and new stakeholder mapping in agricultural-rural ecosystems to identify connections, conflict and cooperation levels

Farmersmain stakeholders



Farmer profile 2040	Keywords
Adaptive farmer	Diversification; adaptive
Corporate farmer	Corporate; business unit
Intensive farmer	Intensive; production focused; specialisation
Patrimonial farmer	Tradition; family; heritage
Controlled environment farmer	Agri-tech start-up; indoor agriculture
Cell farmer	Biotech start-up
Social care farmer	Social and health sector; community; social inclusion
Lifestyle farmer	Lifestyle; neo-rural; new entrant
Regenerative farmer	Regenerative; conservation; agro-ecology
Urban farmer	Urban; microfarm; local
Serious hobby farmer	Recreational; non profit; hobby
Community provisioning farmer	Subsistence

Source: Bock et al., 2020; JRC analysis

Stakeholders and Innovation Ecosystems

Wide variety of skills, personal goals, farm types, business models, material and immaterial resources employed, also strong links between farmer profile and local territory



Highly diversified ecosystems



Stakeholder mapping »key actors analysis"

(Grimble et al., 1994; Brugha e Varvasovsky, 2000; Friedman e Miles, 2006, Reed et al., 2009).

"a holistic approach or procedure for gaining an understanding of a system, and assessing the impact of changes to that system, by means of identifying the key actors or stakeholders and assessing their respective interests in the system."

(Grimble e Wellard ,1997)

Stakeholder mapping in the new scenario

Stakeholders maps focus on supply chain or geographical area

(Graef et al. (2014) -cereals supply chains; Benedetto et al., (2014) wine supply chain; Vellema et al. (2015) environmental certification, Lokesh et al.(2018) circular economy, Surucu-Balci, et al. (2022) waste management , da Saint Ville, et al. (2017) food security e da D'agostino, et al. (2020) water management)



Stakeholders maps use the Innovation Ecosystem as a reference point but in other areas of research

(Li, Y., Wang, et al., 2022; Del Vecchio et al., 2021; Nylund, et al., 2021; Frooman, 1999; Friedman and Miles, 2002; Rowley and Moldoveanu, 2003).

Stakeholder mapping includes monitoring the involvement of stakeholders in **co-creation processes** to share knowledge in a reciprocal relationship to develop new strategies to face common challenges *((Barquet et. al, 2022Voorberg et al., 2017).*

Stakeholder mapping in the new scenario



Who are potential stakeholders in the current agricultural and rural Ecosystems?

Public Institutions, AKIS (production, research, consultants, public institutions, civil society), producers of digital and genetic technologies, providers of innovative services such as data management, marketing, traceability (blockchain, food passport etc.), producers of alternative technologies for energy production, third sector partners, tourism sector partners, partners from logistics etc.

Intermediate Stakeholders: Local Action Groups (GAL), GO, Districts, National Research Centres (Agritech), European Startup Village Forum, Regional Innovation valleys, Living labs, Lighthouse Initiative, Accelerators, International and digital networks etc.

Governance: a key factor



- The transition requires institutions and governance that are much stronger, transparent and responsible, adaptable and effective (FAO, 2021).
- Policies for sustainability and resilience that involve complex social – government interactions (Glass e Newig, 2019).
- Describing, analyzing and supporting improvements to governance is a key aspect in research and in policy making (Dwyer, 2021; FAO strategic framework 2022-2031; Sumane et al., 2021).
- Governance must produce processes of ecological transition that are not only efficient but also legitimate and socially just, there must be a two-way street that links technological and economic evolution with social evolution (de Boon et al., 2022; Paris Agreement, 2015).

Governance: from the sector to the system



Governance includes a plurality of **public, private and hybrid stakeholders**, belonging to different institutions, sectors and decision-making levels and consists of formal and informal **rules** and organizations (Bevir, 2011; FAO, 2022).

Rules- domains for new phenomena such as climate management, **risk management**, digitalisation and **data management, genetics and ethics**, the numerous **contractual forms relating to intangible assets** (knowledge, skills, certifications, etc.), the growing presence of **private actors in the provision of traditionally "public" services** (management of natural resources, technical assistance, etc.)

Dimensions – Value, power, sustainability, social justice (Lockwood et al. 2010; Glass et al., 2019; de Boon, 2022)

Links - The improvement or development of linkage mechanisms that better integrate **top-down public interventions and bottom-up local initiatives** (Dower, 2014; Knickel et al., 2018).

Public Institutions

- In the AKIS model - *“coordinating agent in an increasingly pluralistic innovation system”* (EU SCAR, 2015)
- In the CAP new delivery model - choosing the policy mix
- In the **systems approach (co-creation)**
Administrative facilitators - harmonize a body of legislation for complex interventions (regulations for urban planning, agriculture, business, health and safety, immigration, training regulations, etc.),

Governance and the role of actors



Experts

- Role of advisors, digital technology experts and/or experts in new services within knowledge and innovation ecosystems.
- Processes for “expertification” and the creation of a lobby group – the role of knowledge and innovation in striking the right balance between key stakeholders. (Smismans, 2006; Knodt et al, 2011.)

Governance cross-cutting dimension and new intermediate actors



- **Cross-cutting approach** to different economic sectors, intervention plans and development pathways. *The horizontal dimension of European governance* (Steurer,2013) where the role of civil society is central – social policy objectives tend to be overlooked - **an unfulfilled need!**
- **Private and Public-private intermediate actors**, like LAGs, Districts, smart villages networks etc., to reduce the risk of poor integration.

Development models: new paths for new actors

“The opportunities in rural areas go far beyond agriculture”

(OECD, 2019)

For multidimensional development (environmental, social, economic, institutional) and a more dynamic vision, **economic efficiency and the valorization of endogenous resources alone are no longer sufficient criteria to consider.**

Innovation and complex systems of agricultural-rural actors are the **building blocks for a strong connection between endogenous and exogenous development models** (Lowe et al., 1995; Cowie et al., 2020).

Ecosystems present **endogenous and exogenous knowledge flows and actors**. Geographical and sectoral **boundaries** become blurred.

Development models: new paths for new actors

The bottom-up development model sees a reduction in its impact on change and development of the agri-rural system (Eversone e Campbell, 2023).

"Neo-endogenous development": rural areas and communities, exogenous drivers of change, Public interventions (policy-driven neo-endogenous development). (Ray, 2000; Chatzichristos and Perimenis, 2022)-

Innovation eco-system, ecological transition, social innovation - recent models of **rural development characterized by extra-local and extra-sector, exogenous stakeholder connections.**

Community with an "alliance of destiny" not only in geographically, but also culturally, scientifically or bound by common interests

Development models: new paths for new actors

New **Nexogeneous Rural Development model** seems to be taking shape.

(De Rosa, 2023; Eversone e Campbell, 2023; Li et al, 2019; Gkartzios e Lowe, 2019; Bock, 2016)

Main features:

- a process of "**breaking down silos**" both within and between local territories and areas of intervention
- the contribution of non-local actors is often **immaterial** (knowledge, external networks, skills, interpretative tools, mindset)

"more nuanced understanding of the place, beyond the local and the rural" (Bock, 2016).

Science and its role: some concluding remarks



Science-policy interface (SPi): support policy makers in the implementation of new and complex policies (forecasting and monitoring, capacity building, data collection, independent assessments, engagement and diplomacy) *(Hainzelin et al., 2021; Webb et al., 2022).*

Innovation Ecosystem and the role of society, is SPI enough?

Science-policy-society interface (SPSi) - interlocutors from all key stakeholders at different decision-making levels, knowledge produced and transferred is characterized by political legitimacy, broad participation, fairness, transparency and democratic decision-making

(Webb et al., 2022; Brajesh et al., 2022).

Science and its role: some concluding remarks



Co-produce knowledge **with all the actors** of the agricultural and rural ecosystem, through a multidisciplinary approach

Science must provide useful answers for policy implementation, thinking outside the "**comfortable, well-defined scientific boxes**"

EU Commission - "Science for Policy 2.0" (Joint Research Centre, 2020)

Researchers in Innovation Ecosystems



- Methodologies of scientific communication, **co-planning, mediation in multi-actor groups** with different forms of knowledge and speaking different languages are transversal to all disciplines

(van den Hove, 2007; Wynne, 1996).

- Consultants: among the main interlocutors in agricultural-rural systems - technical assistance to the farming and rural world from the public to the private sector due to CAP interventions

Agricultural Economics research for future scenarios



“The most cited papers that are driving the broader food systems and food policy agenda are not published in the traditional agricultural economics journals and often do not include economists among their authors” (Fresco et al. 2021).

The growing breadth of policy research brings with it a growing need for interdisciplinary collaboration. (Matthews, 2021)

Agricultural Economics research for future scenarios



The need for **a more multi-disciplinary approach**, increase our ability to analyze the processes that characterize the functioning of Innovation Ecosystems to achieve economic, environmental and social objectives

System thinking

- to analyze a multi-actor system and mix of policy intervention
- provides a reference framework and a series of methodologies with the aim of directing public intervention by considering the complex and dynamic connections between actors, applying a multi-criteria rather than single-cause approach
(Ingram et al., 2020).

Agricultural Economics research for future scenarios



- Stakeholders and ecosystems – deepen our knowledge of the types of stakeholders and the types of systems they create, analyze cooperation and conflicts that develop as well as power distribution dynamics
- Governance – characteristics of governance and effectiveness of policies; how policies can improve governance
- Evaluation of policy mixes – joint effects on different objectives
- Models of development – exogenous, neo-endogenous, nexogenous, is there an alternative model emerging?
- Resilience – among the most ambitious objectives. Define its meaning, its core features and its drivers for more targeted policies
- Adoption of technological, organizational and social innovations by farmers and citizens - Behavioral economics and experimental methods

Agricultural Economics research for future scenarios

Be open to different approaches and Learn from policies for policies, through a broad examination of impacts in different areas of the system





Thank you for your attention

"I walked keeping in my mind's eye the vision that the revolution hadn't really taken place, that the old would overtake the new until it learned to deal with reality.....Events, friends and foes all contributed to giving me this insight; but keeping my feet on the ground had contributed more than anything."

Manlio Rossi-Doria, 1945 (Italian Agricultural Economist)



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