



**11-12 MAY 2026
BUCHAREST, ROMANIA**

INTERNATIONAL CONFERENCE AGRIVISION 2026

Romanian Farmers' Club · New Club of Paris · World Capital Institute

**Enhancing the role of knowledge and intellectual capital in the transition
towards agriculture 4.0.**

11-12 may 2026, Bucharest

- *"Farmers in the age of AI: Are new job profiles emerging in agriculture?", **Günter Koch**,
World Capital Institute (Online)*

My contribution adds to this program of The Romanian Farmers' Club endeavors in ...

"Antreprenor în Agricultură 4.0" ediția a III-a, un program de perfecționare manageri...

București, 21 noiembrie – Clubul Fermierilor Români lansează seria a III-a a programului de perfecționare managerială "Antreprenor în Agricultură 4.0", care vizează creșterea performanței și competitivității fermierilor din România prin transformarea propriei afaceri într-un model de business sustenabil. Crearea unui plan de dezvoltare...

[Citește articolul >](#)



... by discussing the shift from Agriculture 4.0 to **Agriculture 5.0**

“4.0” denotes:

- smartness
- connectivity
- self-optimization
- data-driven operation
- ... and – often - autonomous decision-making



Agriculture 4.0 :

- Smart Farming,
- Digital Agriculture,
- Precision Agriculture 4.0

The transition from **Agriculture 4.0** to **Agriculture 5.0** is not simply a further increase in automation. It represents a deeper shift

... from **technology-centered optimization**

... toward **human-centered, sustainable, resilient, and regenerative ecosystems.**

If Agriculture 4.0 is mainly about *smart and autonomous farming*, then **Agriculture 5.0** is increasingly **about combining technological intelligence with ecological intelligence, human judgment, and societal goals.**

KNOWLEDGE ECONOMY / INTELLECTUAL CAPITAL / METHODOLOGY // KNOWLEDGE REGIONS

2

We live in a global economy where knowledge is power! This sounds like a truism today since the quotation attributed to Sir Francis Bacon dates back to the XVIIth century. What is new is the fact that today it is demonstrated that knowledge is a principal factor of production and wealth creation.

The end of the XXth century brought up the idea of a knowledge economy, whose engines are universities, R&D institutes and innovation firms while knowledge is the central point to getting competitive advantage.

Moreover, the principles of competitiveness and performance have been introduced to the public sector under the heading of New Public Management. In the given context, knowledge producers such as universities, R&D institutes or innovation firms are keen to measure the value of intangible capital, and the topics of intellectual capital management become fundamental for politicians, entrepreneurs and managers.

"It is the first time that a pilot report on knowledge regions has been professionally compiled in one of the countries of the Danube Region. It is an excellent example of what I would appreciate to be applied to other European countries as well." Dr. Erhard Busek, former Vice-Chancellor of Austria and Head of the Stability Pact for South Eastern Europe, Austria

"As the chairman of an organization annually granting an award for best profiled knowledge municipalities I highly appreciate this publication aiming at promoting methods of characterizing knowledge regions. Job well done!" Professor Francisco Javier Carrillo Gamboa, Monterrey Institute of Technology, President of the World Capital Institute, Mexico

"Since more than a decade scientists in urban development are searching for best methods to define what a knowledge city or region is. Our European colleagues took the courage to compose a report on this question. Congratulations!" Professor Tan Yigitcanlar, Queensland University of Technology, Australia

Günter Koch is President of the Humboldt Cosmos Multiversity (Canary Islands); Adj. Professor at Graz University of Technology and Guest Professor at Danube University Krems (Austria), Co-Founder and Advisor of The New Club of Paris, and also former CEO of the Austrian Institute of Technology (AIT, Vienna) and the European Software Institute (ESI, Bilbao, Spain).

UEFISCDI BLUEPRINTS SERIES • NUMBER 2 • 2014 • EN
"CHARTING THE INTELLECTUAL CAPITAL OF A NATION. METHODOLOGICAL GUIDELINES"

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Study made for Romania

Designing the landscape of the **Intellectual Capital** of a nation

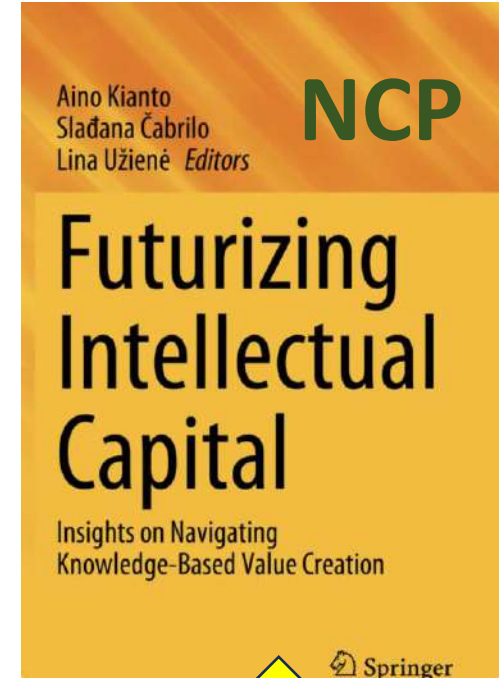
Methodological guidelines

Number 2 • 2014 • EN



edited by
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José-Maria Viedma



The shift from **Agriculture 4.0** to **Agriculture 5.0** requires „system knowledge“ in a broad scope of disciplines, amongst them in advanced economics, especially in **„Natural Capital Economics“**.



Normas

Sectores

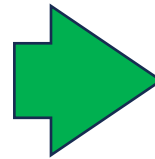
Sobre nosotros

Perspectivas



ISO 14054:2025

Natural capital accounting for organizations — Principles, requirements and guidance



Public conference: The Recovery of Natural Capital in the agricultural sector

- **Julia Manzanas Mondéjar**, the New Club of Paris
- *Discussant* (a professor from the University - TBC)

Recovering Natural Capital in Agriculture

A global review of measurement, accounting and management initiatives

University of Bucharest · Romanian Farmers' Club · New Club of Paris · World Capital Institute

From hidden ecological loss to
decision-useful accounts



By combining financial, environmental and socio-economic information, **natural capital accounting** reveals the value of nature to an organization or its value chain, and the rest of society, and the value of the impacts or dependencies on nature from an organization's activities or those attributed to its value chain. Both market and non-market values are included in natural capital accounts, making the best use of qualitative, quantitative, and monetary methods of measurement.

Continuation: What will change in the transition toward **Agriculture 5.0** ?

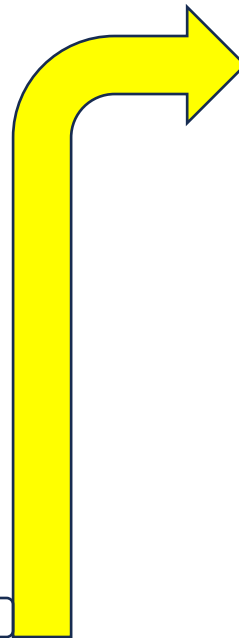
WORLD ECONOMIC FORUM

HOW WILL AI IMPACT YOUR JOB?

FIGURE 3.1 Current capacity for substitution by Generative AI, by skill group

Future of Jobs Report 2025

Category	Jobs Most Affected	% Substitution Potential	% Human-Centric Tasks
Most Vulnerable to AI Replacement			
• AI and Big Data Analysis	Data Analysts, Machine Learning, Data	87%	13%
• Reading, Writing, and Math	Writers, Translators, and Stat Analysts	70%	30%
• Marketing-Media Creation	Social Media, Marketers, Content	66%	34%
• Basic Programming	Junior Software Developers, Bug Testers	61%	39%
• Financial Management	Accountants, Payroll Clerks, Fin Analyst	58%	42%
• Detail-Oriented Work	Data Entry, Proofreaders, Admin	46%	54%
AI Can Assist But Not Replace			
• Technology Systems	IT, Cloud Architects, Systems Analysts	41%	59%
• Design and UX	UX/UI, Product Designers, and Graphic	37%	63%
• Operations and Logistics	Supply Chain, Logistics, Warehouse	35%	65%
• Quality Control	QA, Compliance, and Safety Inspectors	25%	75%
• Networks and Cyber	Cybersecurity Analysts, Network	23%	77%
• Leadership and Influence	Managers, Biz Strategists	21%	79%
AI Cannot Currently Replace			
• Teaching and Mentoring	Teachers, Coaches, and Trainers	20%	80%
• Creative Problem-Solving	Inventors, Entrepreneurs, and Innovation	17%	83%
• Empathy-Active Listening	Therapists, Social Workers, Counselor	14%	86%
• Manual Skills, Physical	Plumbers, Electricians, and Construction	13%	87%
• Environmental	Conservation, Environmental, Biologist	12%	88%
• Sensory-Processing	Chefs, Sommeliers, and Artisans	6%	94%



WORLD ECONOMIC FORUM

FOOD, WATER AND CLEAN AIR

How AI is enabling agricultural intelligence and revolutionizing farming

Jan 12, 2026



Core Qualification Profiles for Future Farmers

1. AI and Digital Literacy

Farmers will not need to become AI experts, but will need: understanding of AI-assisted decision systems, ability to interpret dashboards and predictive models, data quality awareness, and understanding of ownership and governance of agricultural data.

Example: A farmer may need to evaluate whether an AI system is making sound recommendations or merely optimizing short-term yield.-

2. Ecological & Biological Systems Knowledge

Important competencies include: soil microbiology, water cycles, regenerative agriculture, biodiversity management, ecosystem interactions, climate adaptation strategies.

Competence evaluation: soil regeneration, water retention, biodiversity contribution.

3. Systems Thinking

Future farming requires understanding interactions between: climate, economics, biology, energy, logistics, consumer behavior, and policy frameworks. The farmer becomes a manager of complex adaptive systems rather than isolated production units.

4. Human–Machine Collaboration

Farmers will need to supervise: autonomous tractors, robotic harvesting systems, drone fleets, livestock monitoring systems, AI-based planning tools.

Related skills include: supervising autonomous systems, integrating human intuition with machine recommendations.

5. Entrepreneurship and Regional Value Creation

AI may accelerate consolidation in industrial agriculture, but it also creates opportunities for highly specialized regional farming models.

Future-oriented farmers may increasingly work with: direct-to-consumer systems, traceability platforms, premium ecological production, local energy systems, agri-tourism, educational farming, and regional resilience networks.

Thus, **entrepreneurial creativity becomes highly important.**



Romania's Structural Duality: Romanian agriculture is strongly polarized.

On one side:

Large industrial farms, export-oriented grain production, increasing mechanization, access to EU subsidies, adoption of precision agriculture technologies.

On the other side:

Millions of smallholder and semi-subsistence farms, aging rural populations, limited digital infrastructure, low investment capacity, informal knowledge systems, fragmented land ownership.

This duality makes Agriculture 5.0 both an opportunity and a risk.

Why Romania Has Special Potential for Agriculture 5.0

Unlike highly industrialized agricultural systems in parts of Western Europe, Romania still possesses: traditional mixed farming landscapes, lower chemical intensity in many areas, preserved soil biodiversity, extensive pastoral systems, local seed traditions, and human-centered agricultural knowledge.

These may become strategic advantages in the AI age. Why? Because **Agriculture 5.0 increasingly values: ecological resilience, biodiversity, regenerative methods, localized adaptation, and traceable sustainable production.**

Romania, therefore, can leapfrog directly into a hybrid agroecological–AI model instead of merely copying industrial Agriculture 4.0 pathways

The Emerging Structural Transformation

Romania's agricultural landscape may gradually split into **four major models of land-use systems**:

Future Land Type	Main Characteristics
High-productivity AI agriculture *)	Large-scale precision farming in fertile plains
Ecological-cultural landscapes	Traditional mixed farming maintained for biodiversity and tourism
Rewilded or semi-wild land	Abandoned marginal areas returning to natural ecosystems
Multifunctional rural landscapes	Combination of food, energy, tourism, carbon storage, and ecosystem services

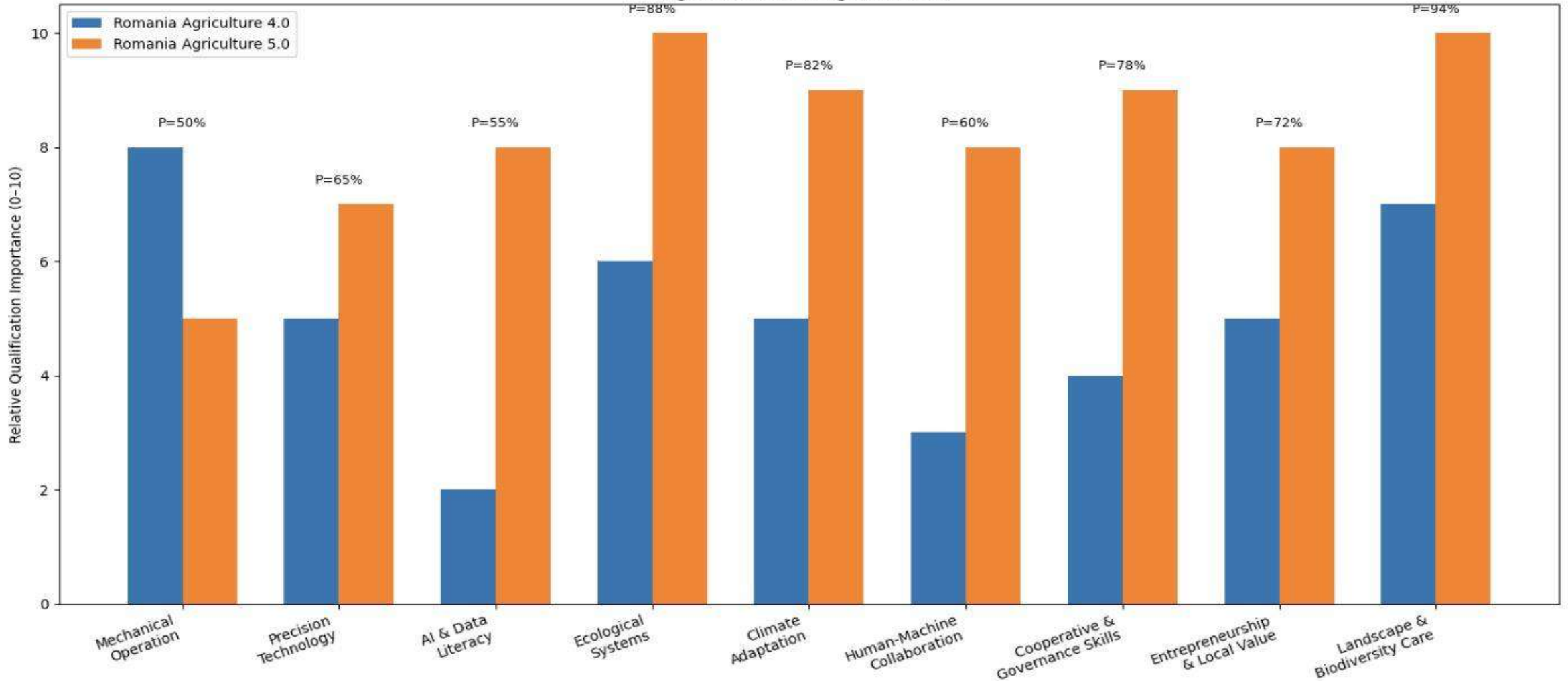
*) Regions such as the Romanian Plain, parts of Banat, and parts of Moldavia, will likely become increasingly industrialized and AI-supported. There, land use may evolve toward: autonomous machinery, large-scale precision agriculture, robotic harvesting, satellite-monitored irrigation, carbon-optimized crop systems.

These regions may resemble highly technologized farming systems in: Germany, the Netherlands, or parts of France.

This development is already supported by EU agricultural modernization policies.

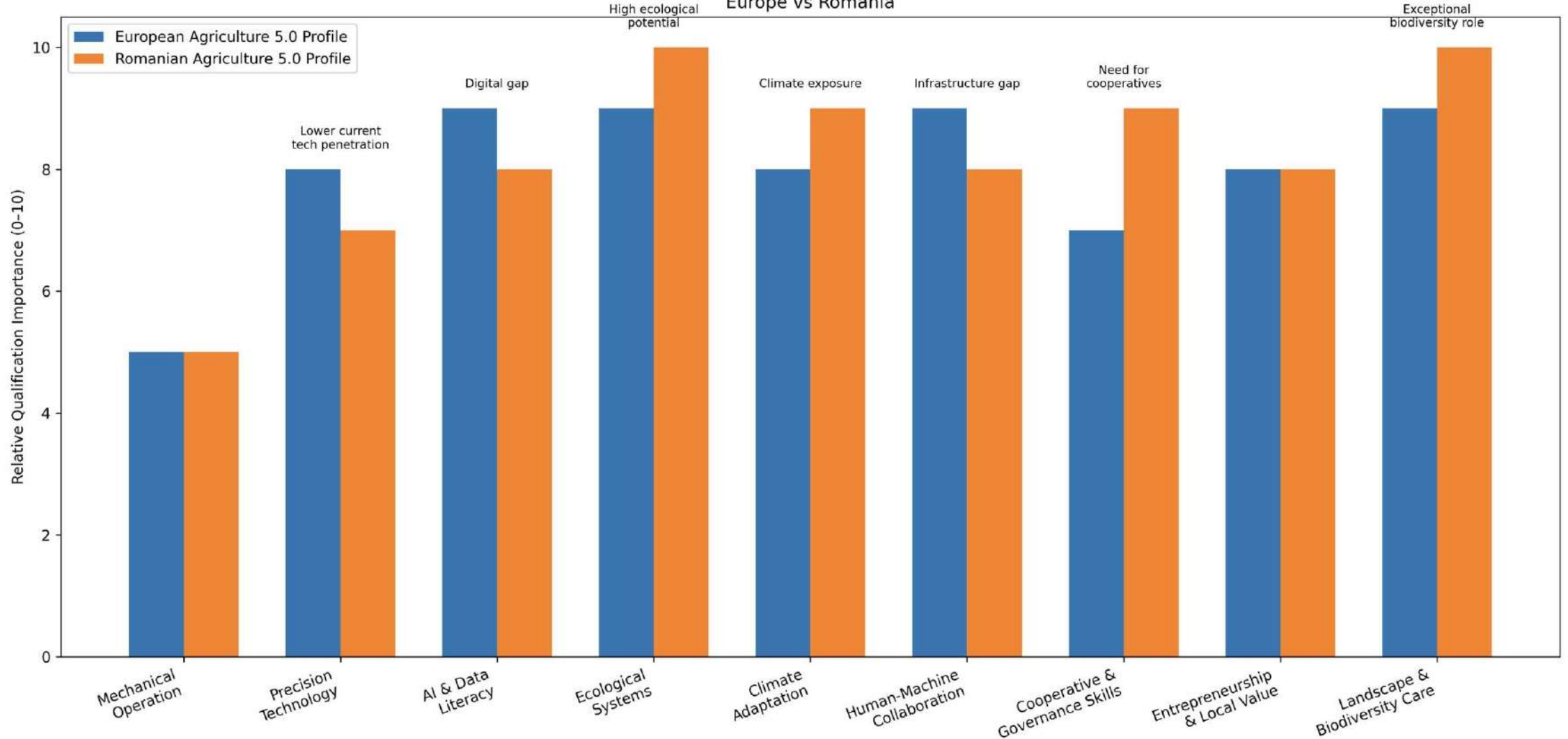
The **social consequence** may be: fewer agricultural workers, larger operational units, and concentration of land ownership.

Transformation of Farmer Qualifications in Romania:
Agriculture 4.0 vs Agriculture 5.0



Indicative transition probabilities reflect Romanian-specific factors: rural demographics, fragmented land ownership, ecological potential, digital infrastructure gaps, and cooperative transformation capacity.

Comparison of Agriculture 5.0 Farmer Qualification Profiles:
Europe vs Romania



Romania differs from the average European Agriculture 5.0 profile through: higher ecological-system importance, stronger biodiversity stewardship role, greater cooperative necessity, and lower initial digitalization levels.



In search of a new economy beyond GDP, including valuation of intangible values like knowledge, nature, culture, art, etc. one approach is the Economy for the Common Good - Next occasion to meet.

School of Graduate and Professional Studies
Hochschule Bremen · Germany
City University of Applied Sciences

 HSB

1st ECONGOOD scientific conference 2019 (ECGIC 2019)

TIM GOYDKE AND GÜNTER KOCH (EDS.)

Economy for the Common Good

A Common Standard for a Pluralist World?

Studies in International Management, Politics and Economics No. 1

 GEMEINWOHL ÖKONOMIE
Ein Wirtschaftsmodell mit Zukunft
FORSCHUNGSVEREIN

 tredition



Exploring the Questions behind ECGIC 2026

 ECGIC 2026

4th Scientific Conference
June 10 – 12, 2026 in Bavaria

What if the future of agriculture is not just sustainable — but regenerative?

System Challenges in Land Use & Food Production (2024)

- Resource Pressure: Soil, water, nitrogen
- System Complexity: Global vs. local dynamics
- Waste & Inefficiency: Untapped circular potential
- Governance Gaps: Fragmented responsibility

ECONY FOR THE COMMON GOOD INTERNATIONAL CONFERENCE 2026

10 - 12 June 2026, Amberg, Germany

TRANSFORMING TOWARDS A FAIR AND SUSTAINABLE ECONOMY. RESPONSIBILITY OF SCIENCE AND PRACTICE

Transformation Pathways

- System & Governance**
 - Economy for the Common Good
 - Common-based forest management
 - Feedback loops & institutional change
- Production & Technology**
 - Precision agriculture (site-specific, nitrogen)
 - Safe & Sustainable by Design (SS&D)
 - Groundwater protection
- Circular & Regenerative Systems**
 - Circular economy in agri-food
 - Waste-to-resource (rice straw, grape stems)
 - Sustainable food systems

THANK YOU FOR YOUR ATTENTION

For further questions and communication, please access me via

The World Capital Institute: www.worldcapitalinstitute.org

or via

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