MÉFOBIO

EMPLOYMENT, PROFESSIONS, SKILLS AND TRAINING IN INDUSTRIAL BIOTECHNOLOGIES

CAMPUS DES MÉTIERS ET DES QUALIFICATIONS D'EXCELLENCE
Bioeco Academy Grand Est

UNIVERSITÉ DE REIMS CHAMPAGNE-ARDENNE

GOUVERNEMENT
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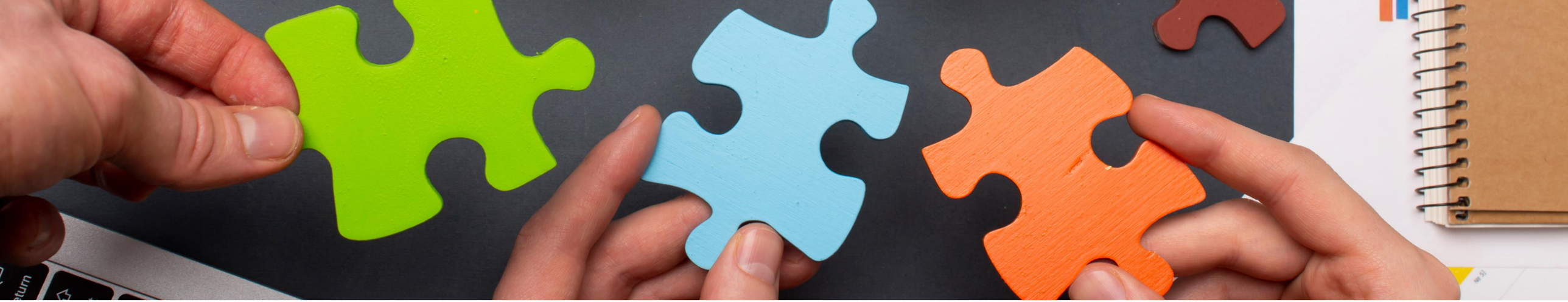
BANQUE des TERRITOIRES | Caisse des Dépôts Groupe

FRANCE 2030



Objective

Identify **employment, professions, skills, and training programs** in the field of **industrial biotechnologie**s in the **Grand Est region** of France.

Methodology

01

Quantitative

- Statistical data (INSEE, Pôle Emploi).
- Online survey

02

Qualitative

- 89 individual interviews
- 2 focus groups
- Bibliographic documentation

03

Scope

Companies and public R&D laboratories in the Grand Est region

Strategic Jobs Identified

71% managerial positions
29% non managerial positions

47% of these professions are at the heart of biotechnologies

Transdisciplinarity for many professions

sometimes **double degrees required**

38 strategic jobs identified in industrial biotechnologies.

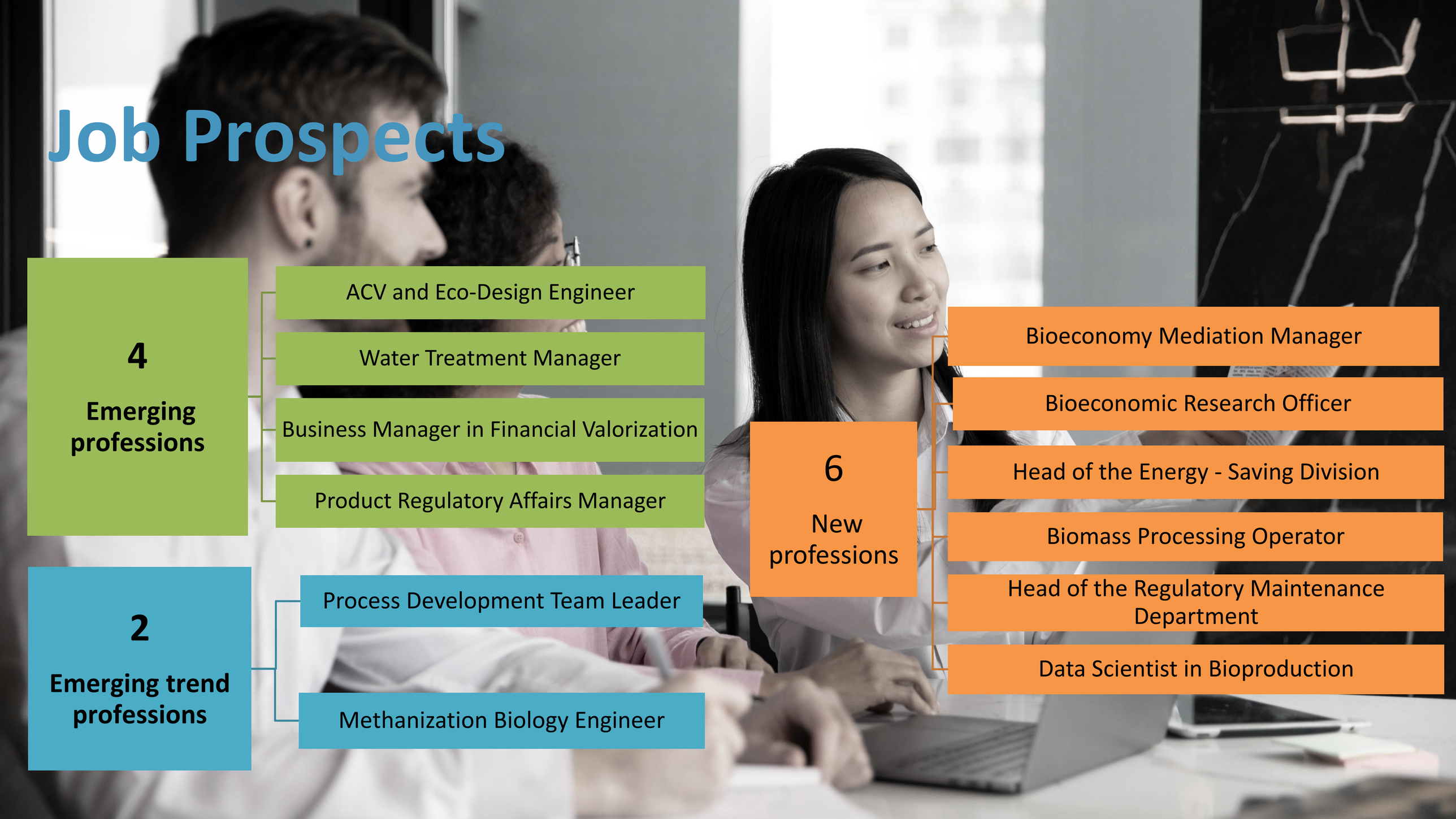
17 strategic skills divided into 7 categories

12 emerging and new professions

Categorized into 6 job families:

1. R&D (Research and Development)
2. Production
3. Logistics
4. Industrial Engineering
5. QHSSE (Quality, Health, Safety, Security, Environment)
6. Valorisation and Regulation

Job Prospects



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Emerging professions

- ACV and Eco-Design Engineer
- Water Treatment Manager
- Business Manager in Financial Valorization
- Product Regulatory Affairs Manager

2

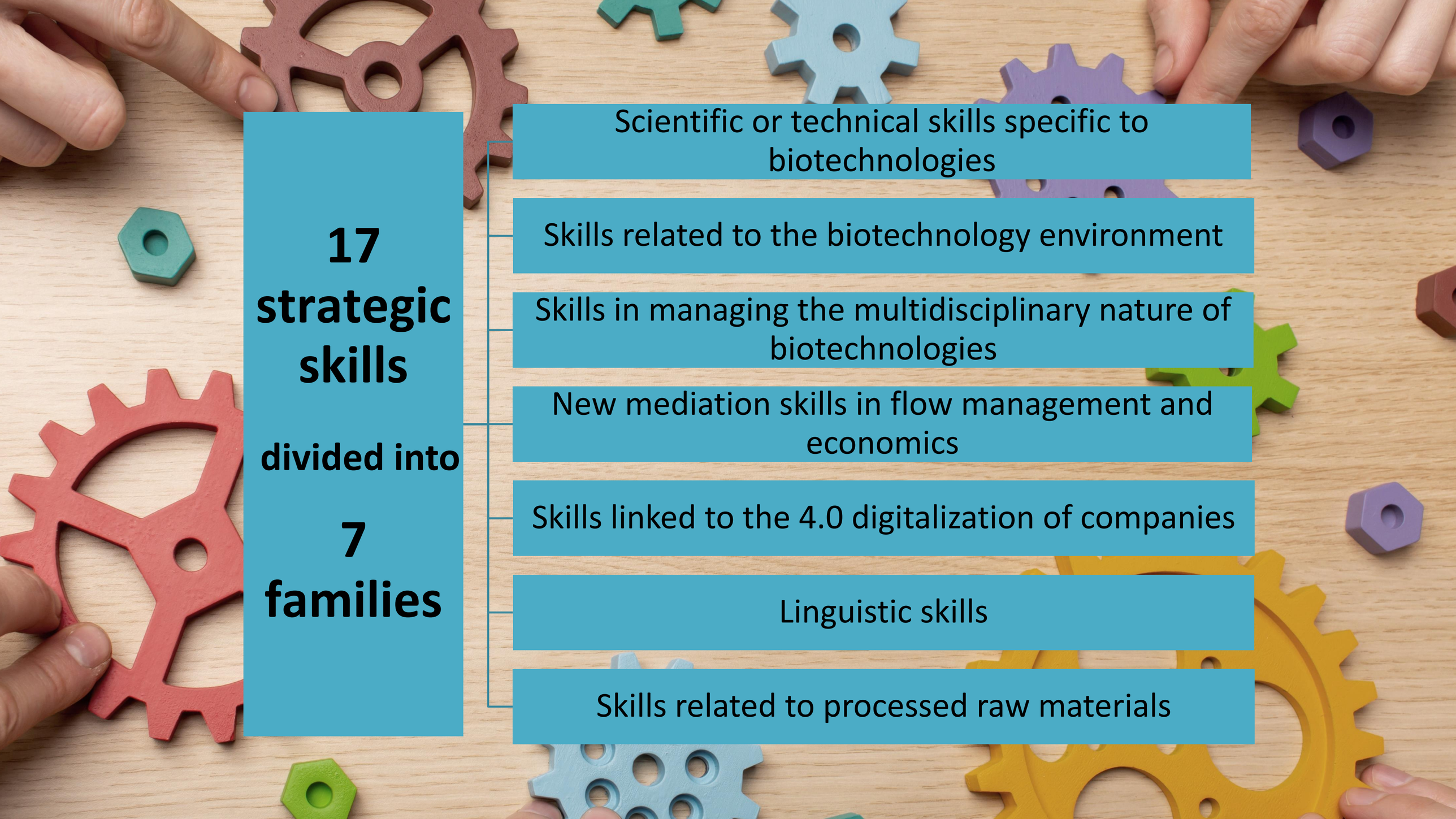
Emerging trend professions

- Process Development Team Leader
- Methanization Biology Engineer

6

New professions

- Bioeconomy Mediation Manager
- Bioeconomic Research Officer
- Head of the Energy - Saving Division
- Biomass Processing Operator
- Head of the Regulatory Maintenance Department
- Data Scientist in Bioproduction


17 strategic skills
divided into
7 families
Scientific or technical skills specific to biotechnologies
Skills related to the biotechnology environment
Skills in managing the multidisciplinary nature of biotechnologies
New mediation skills in flow management and economics
Skills linked to the 4.0 digitalization of companies
Linguistic skills
Skills related to processed raw materials

Expected Skills

TECHNICAL SKILLS

Mastery of biological production processes, knowledge in biochemistry and microbiology.

PROJECT MANAGEMENT SKILLS

Inter-departmental coordination, team management, adaptability.

CROSS-CUTTING SKILLS

Knowledge of regulations, innovation capacity, compliance with environmental standards

Synthesis of future trends:

- Shift towards more specialized roles within the bioeconomy sector.
- Development of new skills related to ecological transition and technological innovation.
- Transformation of existing roles to address new environmental and economic challenges.

Challenge

Adapt the training offer to meet the growing demand for skills in the bioeconomy sector.

Action Plan

- Strengthen collaboration between companies, training organizations, and public actors.
- Modernization of training programs (equipment and teaching methods) to match the needs of companies.
- Encourage the emergence of European projects to pool skills.
- **Call to action**: Mobilize stakeholders to work together at the European level and promote the creation of a **Center of Vocational Education (COVE)** for industrial bioeconomy.

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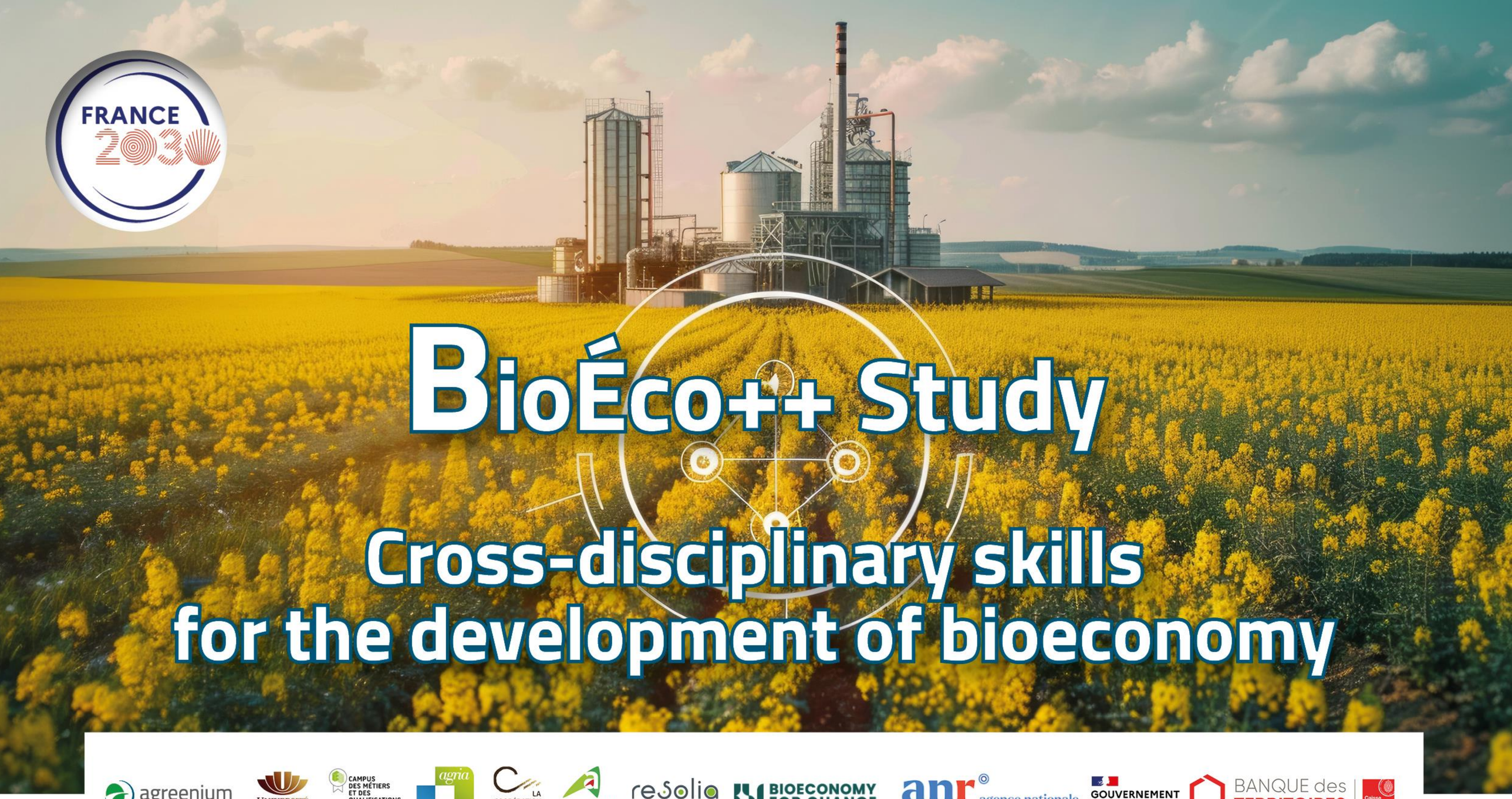

BioÉco++ Study

Cross-disciplinary skills for the development of bioeconomy

FRANCE 2030

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Université de Reims Champagne-Ardenne

Campus des métiers et des qualifications d'excellence Bioeco Academy Grand Est

agria Grand Est

La Coopération Agricole

Agricultures & Territoires Chambres d'agriculture

reSolia déployons nos talents

Bioeconomy for Change

anr agence nationale de la recherche

Gouvernement Liberté Égalité Fraternité

Banque des Territoires Caisse des Dépôts Groupe

With the participation of :

the University of Reims Champagne-Ardenne (CMQ of Excellence Bioeco Academy), AGRIA Grand-Est, Agricultural Cooperation, Chambers of Agriculture France - Resolia, Bioeconomy for change, Wavestone

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Banque des territoires Caisse des Dépôts Groupe

MAIN OBJECTIVES

Review existing literature on the subject of cross – disciplinary skills within the scope of bioeconomy activities

Explore more precisely the **content** of **cross-disciplinary skills**

Produce a **tool kit** for improving the training of students and staff on these skills

Map the **French current training programs** on the scope of bioeconomy and **assess** what skills are covered

:

METHODOLOGY

Study based on a qualitative method / an iterative process between :

Documentary research and **information processing**

Interviews with some 20 experts : academics, business executives, local authorities, senior officials

Six workshops with experts for co-construction of deliverables

STUDY TIMELINE

1. Surveying prospective studies

- Over **70 studies** on future professions and skills identified
- **42 studies** thoroughly analysed in detail

2. Compiling **a concise overview** of the **60 cross- disciplinary skills identified** in the process

Cross-disciplinary and generic skills				
Environmental and socio-economic impact analysis	Group work	Crisis management	Modelling	Foresight
Support changes	Communication	Project management	Negociation	Documentation research
Adaptability	Social and econo-mic Accounting	Conflicts/ Controversy management	Digital / AI	Search for institutional and private stakeholders
Life cycle analysis	Confidentiality	Data management	Organisation	Reflexivity
Institutional analysis	Territory analy-sis of issues and players	Material flow management	Partnership	Regulations
Strategic firm analysis	Diplomacy	Risk management	Knowledge outreach	Problem solving
Facilitation	Eco-design	Influence	Performance and sustainability management	Responsability
Meeting facilitation	Industrial, local and spatial ecology	Innovation	Decision making	Structuration
Systems approach	Circular economy	Interdisciplinarity (life sciences-eco-nomics, social sciences)	Consideration of Biodiversity preservation	Bioeconomy complex system
Assertivity	Sustainable economy	Languages	Taking into account Human-Nature relationship	Scientific, technical and regulatory monitoring
Biostatistics	Listening ability	Leadership	Proactivity	
Co-development	Entrepreneurship and intrapreneurship	Management	Intellectual property	
	Critical mind	Mediation		

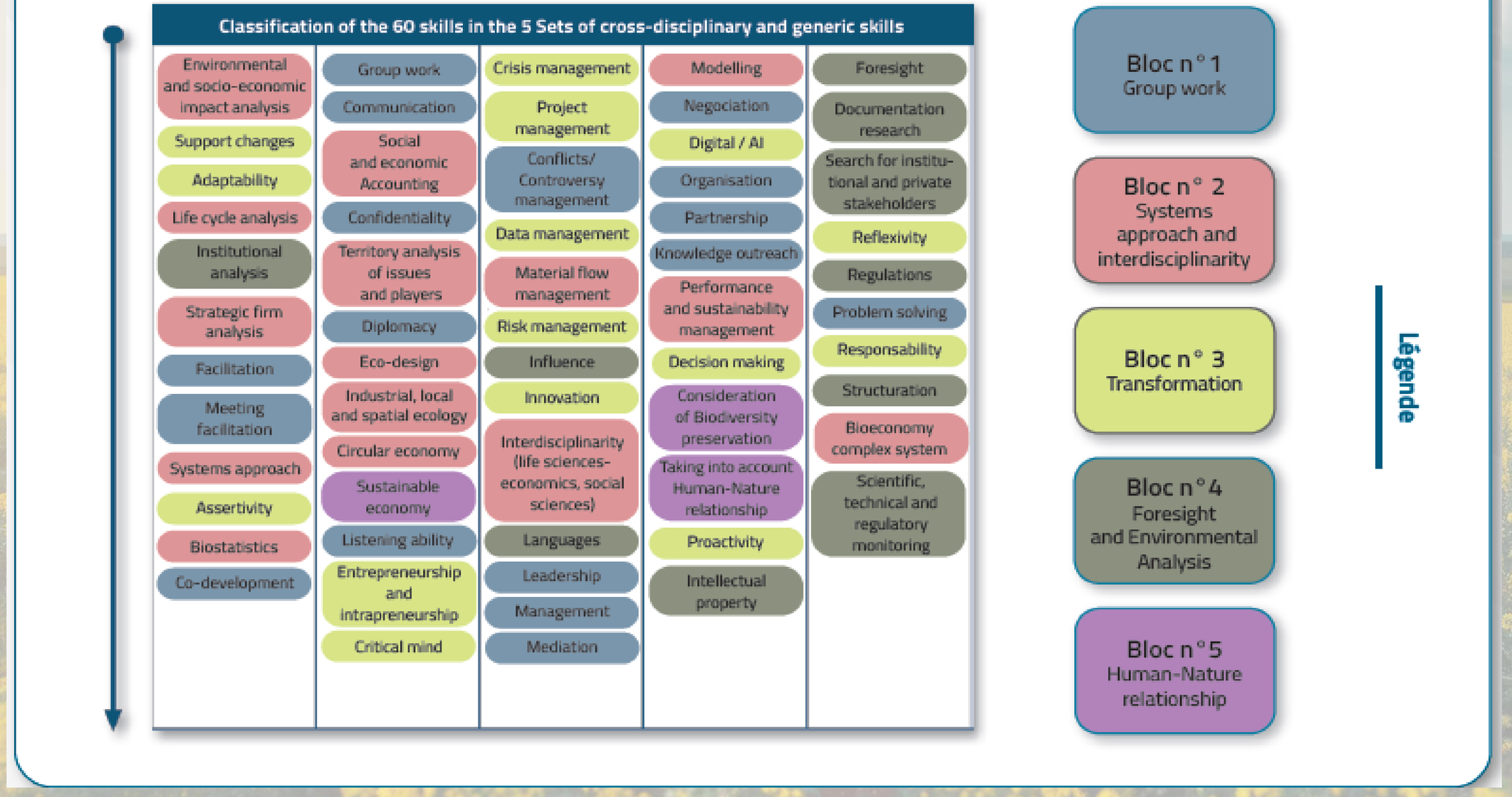
3. Drawing up 5 sets of cross-disciplinary and generic skills

➥ **5 major transversal issues** identified for the management in bioeconomy sectors

➥ **5 corresponding sets of skills to classify** the 60 cross-disciplinary skills

➥

Test of the 5 Sets of skills **with HRD / on job offers**


Classification of the 60 skills in the 5 Sets of cross-disciplinary and generic skills
Environmental and socio-economic impact analysis
Support changes
Adaptability
Life cycle analysis
Institutional analysis
Strategic firm analysis
Facilitation
Meeting facilitation
Systems approach
Assertivity
Biostatistics
Co-development
Group work
Communication
Social and economic Accounting
Confidentiality
Territory analysis of issues and players
Diplomacy
Eco-design
Industrial, local and spatial ecology
Circular economy
Sustainable economy
Listening ability
Entrepreneurship and intrapreneurship
Critical mind
Crisis management
Project management
Conflicts/ Controversy management
Data management
Material flow management
Risk management
Influence
Innovation
Interdisciplinarity (life sciences-economics, social sciences)
Languages
Leadership
Management
Mediation
Modelling
Negociation
Digital / AI
Organisation
Partnership
Knowledge outreach
Performance and sustainability management
Decision making
Consideration of Biodiversity preservation
Taking into account Human-Nature relationship
Proactivity
Intellectual property
Foresight
Documentation research
Search for institutional and private stakeholders
Reflexivity
Regulations
Problem solving
Responsability
Structuration
Bioeconomy complex system
Scientific, technical and regulatory monitoring
Bloc n°1 Group work
Bloc n° 2 Systems approach and interdisciplinarity
Bloc n° 3 Transformation
Bloc n°4 Foresight and Environmental Analysis
Bloc n°5 Human-Nature relationship
Légende

4. Reviewing training programs in bioeconomy in France

1,064 initial & **317** continuing training programs

Initial training programs cover only partly cross-disciplinary skills except in agricultural engineering programs

Continuing education focuses on technical skills, very rarely on others skills

5. Recommendations :

Improve training on these skills as part of the **bioeconomy development scheme**

Increase awareness among companies and all actors about the **challenges of training** both students and staff on these skills **for complex roles in bioeconomy**

FEEDBACK FROM STAKEHOLDERS for the skills required in bio-based industries

Set 1 Group Work & Set 3 Transformation: Skills required for all employees

Set 4 Foresight & Set 5 Man's relationship with nature: skills required for certain employees (quality, procurement, production)

Set 2 Systemic approaches and interdisciplinarity: very important skills for the future but the rush of every day business doesn't help companies to train managers on these skills nowadays

DELIVERING LIFE LONG LEARNING for the needs of bio-based industries

25 continuing education programs among Alliance Agreenium members: agroecology for sustainable procurement of food industries - waste management of plants in value-chains - bioprocess engineering - biogaz and methanization - organic raw material management …

Others needs identified for the future:
life cycle analysis , eco-design, climate change mitigation for plants, bio data and AI, biodiversity conservation in industries activities and planning, green regulations …

THANK YOU FOR YOUR ATTENTION

More information

https://www.agreenium.fr/domaines/focus/bioeconomie

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