

D3.7 – Future skills for Bioeconomy

Policy brief

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**WORK
PACKAGE
WP 3**

*“Support
Member
States and
Regions in
awareness,
communica
tion and
education
activities in
bioeconom
y”*

LEADER

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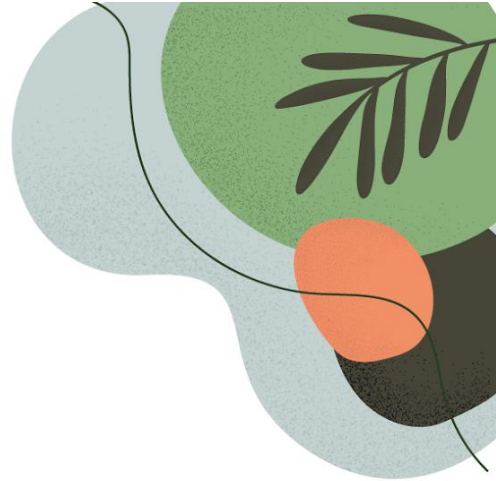
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H2020**

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1. Introduction

The project “Support the TRANSITION towards the BIOeconomy for a more sustainable future through communication, education and public engagement” (Transition2BIO) contributes to the implementation of the updated 2018 EU Bioeconomy Strategy and promotes the transition towards more sustainable production, consumption and lifestyle by implementing an integrated package of activities addressing a wide range of target stakeholders.

Within the project, Task 3.3 – Future skills for Bioeconomy developed co-creation workshops to identify future skills and related educational needs in the bioeconomy. The results of the workshops are reported in D3.6, while this document provides a policy brief summarising the main policy implications on the topic.

2. Context and education strategy for the bioeconomy

The bioeconomy has grown over time also under to pressure of a few long term drivers connected to major societal challenges, including world food needs, resource scarcity and climate change. The current approach to the bioeconomy in Europe is framed in the EU Updated Bioeconomy Strategy published in 2018, but the recent developments have also been affected the wider economic context characterised by high instability and the outbreak of Covid-19, followed by the political and market uncertainties due to the Ukrainian war.

While the bioeconomy is developing as a sector, the concept remains marginally known by most of the population, or at least there is a high level of misunderstanding of the term and ambiguity or lack of awareness with respect to its employment and economic growth potential.

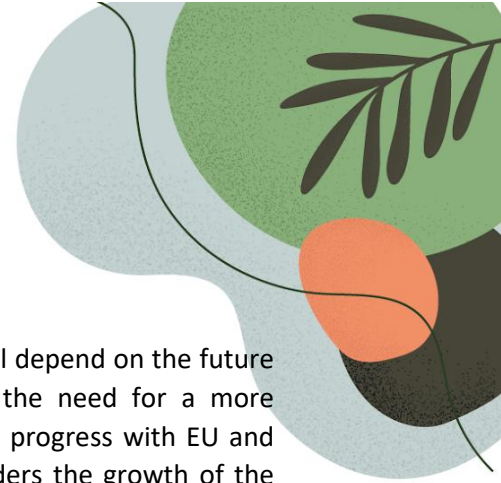
In this framework, skills are key for the growth of the Bioeconomy and need to be connected to other areas of skill development in particular green skills (see in particular the Greencomp document by the JRC). Also, skills cannot be considered as independent from other aspects of personal development and career, as well as from general awareness.

On the other hand, a lot of skills and competences are already available for the bioeconomy, e.g. in life science and agricultural science, but they are not perceived under the umbrella of the bioeconomy and bioeconomy action is poorly connected to well-established curricula.

It is important to provide a strong messages on how the bioeconomy can contribute to recent societal challenges, such as the fight against climate change and the increase of systems' resilience, and focus directly on such challenges in a proactive and creative way.

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bioeconomy education challenges in a proactive

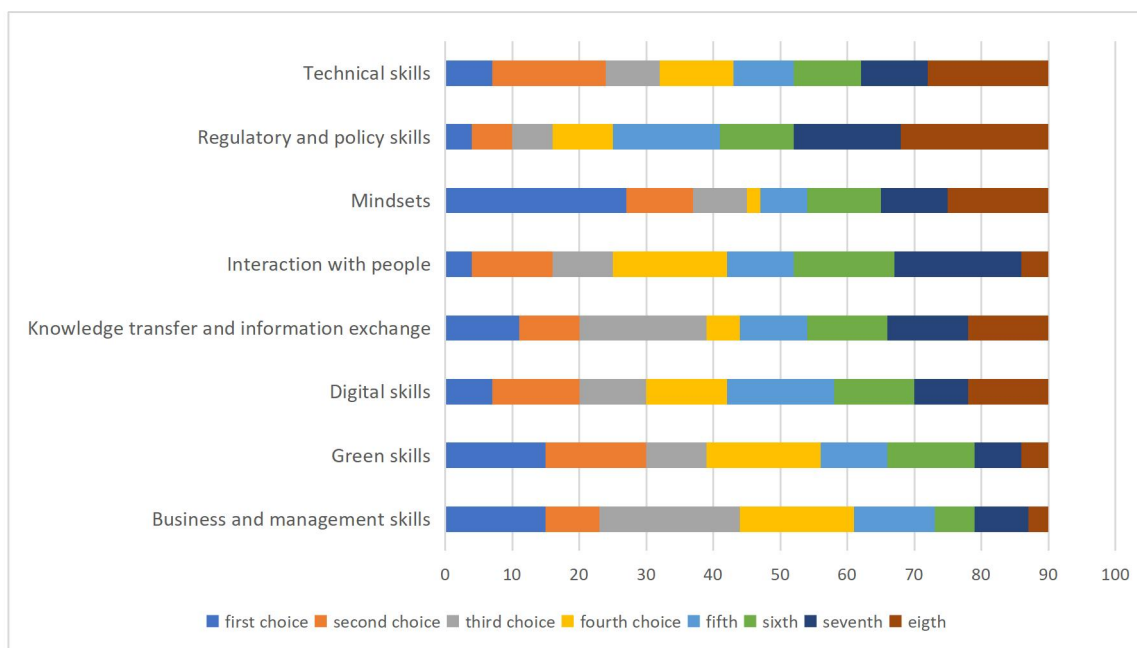




Besides private sector drivers, the skills needed for the bioeconomy will depend on the future policy context. Two issues are of particular relevance. The first is the need for a more consistent and visible bioeconomy policy in the EU, as, in spite of the progress with EU and country strategies, the lack of a dedicated EU bioeconomy policy hinders the growth of the sector. Secondly, bioeconomy policy also consists in further effort to lifting regulatory obstacles to the development of the sector, opening additional opportunities.

3. Priority skills to develop a successful bioeconomy

The most relevant skills identified in the Transition2Bio project and ranked according to the opinion of 162 experts from a wide range of countries, sectors and job profiles in Europe are described by the figure below.



Source: Chatzinikolaou P. et al., 2022, Report on Future skills for Bioeconomy workshops – Update (colors refer to the priority position, first choice=most important).

Mindsets, business and management, knowledge transfer and information exchange, and green skills are the four groups more frequently highlighted by the experts.

As for the mindset group, critical thinking, creative thinking, problem solving and system thinking are among the most frequent skills listed as a priority, but also transdisciplinary thinking are of high and entrepreneurial relevance.





Within the business and management group, the highest priority concerns are by far business models, followed by decision-making, innovation management and knowledge and market development skills.

In the green economy group, attention is distributed in a rather balanced way among circular economy, sustainability and climate change and environmental protection.

Education and communication were the most important skills in the knowledge transfer and information exchange group.

The result is somehow differentiated by sector. The food and feed sectors highlighted the need for system thinking, system science, as well as circular economy. The forestry sector attracted attention more directly to product and chain development as well as collaboration skills. For the blue economy, a high relevance is given to business models and technology, as well as fairness and equal opportunities. The field of bioenergy puts significant attention on system thinking and interdisciplinarity, as well as climate change. For the bio-based sector, a holistic mindset received the highest attention, as well as communication.

Transdisciplinary, communication and interactive skills are very relevant cross-cutting issues for all sectors.

4. Policy suggestions for skills development

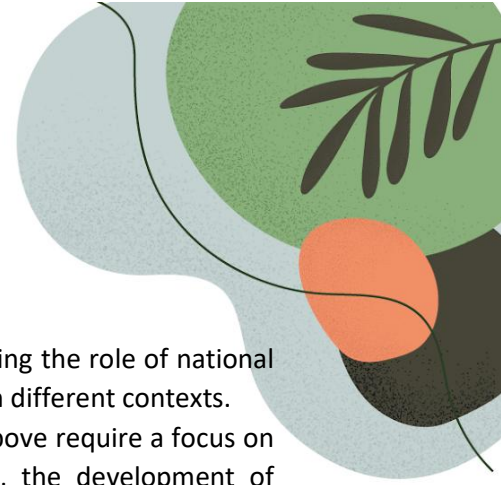
Several cross-cutting policy issues emerged over the course of the project in order to support the development of the skills listed above:

- An important starting point is to promote education and training policies that involve different actors and sectors, and consider their specific needs and motivations. Notably a large group of students and practitioners working in the bioeconomy have good technical skills in their field, but lack a transversal knowledge and vision of the bioeconomy. An important related aspect is to valorise skills that are already available, rather than starting from scratch.
- An important target group for education and training initiatives education is policy makers and public administrations themselves; their increase of awareness and skills on the bioeconomy is key for future development of the sector at regional scale through both relevant policy action and public intervention in the field of bioeconomy education.
- It is also important to work on the consistent involvement of different education levels. While the university level is aware of the bioeconomy and action is being taken to develop appropriate programs (albeit at different paces and with different approaches), lower education levels and lifelong learning are still poorly incorporating the bioeconomy.
- Organisational important, different scales

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aspects are also considering of regulation





and education (from global to regional and local), and considering the role of national and local institutions in education. This also requires flexibility in different contexts.

- It is very important to have in mind that the needs identified above require a focus on methods and approaches, as well as contents. In particular, the development of mindsets and entrepreneurial skills are strictly connected to learning methods that are student-centered and encourage initiative and creativity.

5. Further research

Further research is needed in developing bioeconomy education and skills, in particular on:

- monitoring and keeping track of the many emerging education initiatives;
- updating needs for skills in relation to new challenges and technologies, in particular as the bioeconomy is a new sector, with a growing identity;
- investigating the connection between education, innovation systems and their organisation;
- the perspective evolution of bioeconomy jobs and working conditions.





6. Contacts

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