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D1.5

Transition2BIO toolkits – 1st version

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1.   Executive Summary

The transition towards the bioeconomy and a more sustainable Europe requires a profound transformation of different sectors of the economy and involves a wide range of stakeholders. With this in mind, a set of toolkits have been created to promote bioeconomy from different perspectives and objectives, producing a package of knowledge and supportive media. Specifically, the toolkits seek to provide tailored actionable knowledge tools and contents to all stakeholders targeted by the project, namely the demand, supply side and multipliers/supportive environment. The Transition2Bio toolkit is an action-oriented compilation of related information, tools, databases, videos, presentations, platforms and good practices that together can inform users and guide different groups to develop a plan or organize efforts to conform to evidence-based recommendations.

The Toolkits can be viewed on the Transition2Bio website here: https://www.transition2bio.eu/toolkit/
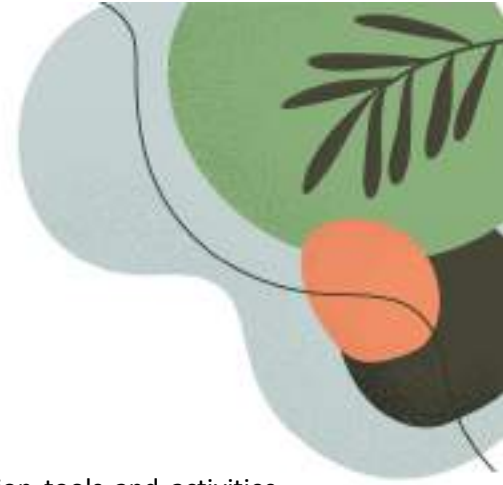
2. Introduction

The objective of WP1 is to valorise and exploit sectoral communication tools and activities developed at national, regional and local level by EU funded bioeconomy projects and other relevant initiatives (SO1) for the creation of the awareness, communication and education toolkits.

Task 1.1 designed a first version of a conceptual framework for the creation of the awareness, communication and education toolkits. Based on this, D1.1 conceptualized a framework to provide tailored actionable knowledge tools and contents to all stakeholders targeted by the project and ensure the coverage of all bioeconomy sectors. Task 1.2 then collected and analysed a set of existing contents, tools, databases, platforms and good practices from at least 100 different sources and summarized the information in D1.3 Report on Collection of existing contents, tools and good practices – 1st version.

Based on conceptual framework defined in T1.1, and the knowledge collected in T1.2, Task 1.3 created a first version of three (3) toolkits, tailored to the three different target groups: demand, supply, and multipliers/supportive environment. The toolkits will then be validated during a Focus Group (T1.3.2) workshop, involving the AB Members, providing their expertise in all sectors of the bioeconomy.

The following document summarizes the methodology for the production of the toolkits, the results of a pre-validation workshop, the key dimensions of the first version of the toolkits including their content, sources, design, usage, and limitations.

3. Methodology

3.1   Key findings of D1.1

The definition of the three target groups (beneficiaries) provided by D1.1 conceptual framework of the awareness, communication and education toolkits – 1st version provided an initial basis for the targeting of the toolkits into three distinct tools.
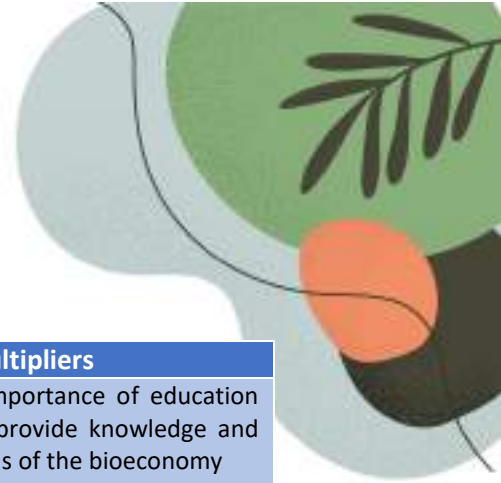
- DEMAND SIDE (consumers, citizens, B2B, public procurers, etc.; physical persons in the first two categories can further be classified according to demographic characteristics, such as age, with a focus on young people as the main target for some actions; several of these groups may also be targeted together under more generic labels, for example the one of general public).

- SUPPLY SIDE (primary production, production industries, biorefineries, etc.; the supply side actors may also be distinguished based on sector/value chain or by structural characteristics, e.g. large industry, SMEs, micro family-managed companies)

- MULTIPLIERS and SUPPORTIVE ENVIRONMENT (EUBIONET, citizens' organisations, NGOs and other associations, brands, retailers, teachers, EU-funded projects and initiatives, influencers, media, policy makers, regional authorities, initiatives, networks, clusters, etc.)

The following key insights (Table 1) into the interests and needs and core messages for each target group were identified by D1.1 and provided the basis for strategic set-up of the toolkits.

	Demand	Supply	Multipliers
Interests and Needs	- Need for clear, user-friendly, understandable messages and informative materials concerning the bioeconomy matter - Lack of knowledge in the bioeconomy matter at large	- Lack of knowledge on economic benefits stemming from bioeconomy	- Lack of personnel/experience/time to develop bioeconomy communication strategy - Lack of knowledge on how to communicate research results
Core Message	- *What is bioeconomy?*	- *What are the bioeconomy opportunities for you?*	- *How to communicate and support bioeconomy?*

Table 1 D1.1. Key Insights

Other general needs and interests, suitable channels, messages, contents, tools and specific activities were discussed and complemented by the feedback of 9 interviews (9/3 per target beneficiaries' type) with Advisory Board members representing the quadruple-helix stakeholders in D1.1. The following key ideas (Table 2) and priorities of targets' needs and interests in the bioeconomy guided the production of the toolkits:

|	Demand	Supply	Multipliers
Advisory Board Feedback	- The need clear and reliable information - Preference for information materials in native language - Usefulness of practical activities and successful stories - Incorporation of challenge-based activities - need to involve and depict women and girls in events and graphic materials	- The need to explain the sustainability of the production chain. - Importance of using different technical language for this target group - Need to encourage cross-sectoriality - incorporation of practical and useful information about waste opportunities - usefulness of professional networking and technical advice	- Importance of education to provide knowledge and skills of the bioeconomy - Preference for vocational training - Need to address stakeholders' needs differently - Preference for workshops and informative seminars.

Table 2 Key Advisory Board Insights

In addition, the production of the toolkits was guided by the following definition of the bioeconomy identified by D1.1:

The updated Bioeconomy Strategy (2018), and Ronzon & M'Barek (2018), define all bioeconomy sectors as such:

a) land and marine ecosystems, including the services they provide;
b) all primary production sectors using and producing natural resources (agriculture, forestry, fisheries and aquaculture);
c) all economic and industrial sectors using natural resources and processes to produce food, feed, BBPs (bio-based textiles, chemicals, pharmaceuticals, plastics and rubber), wood products and furniture, paper, bioelectricity and liquid biofuels;
d) bio-based services and all support sectors relevant to unlock the full deployment of bioeconomy (regulatory, normative, risk assessment, technology transfer, investment, IPR, dissemination, etc.).

However, as noted in the limitations section in D1.1., the document did not provide processes and practical approaches for the toolkits. In addition, all combinations of target users, activities and tools were beyond the scope of the project. The bioeconomy encompasses a vast range of sectors, services, and stakeholders and it is impossible to take every perspective into account. Furthermore, the different activities addressed in the project (communication, education, awareness rising) must be thought of in combination in order to yield the expected effects.
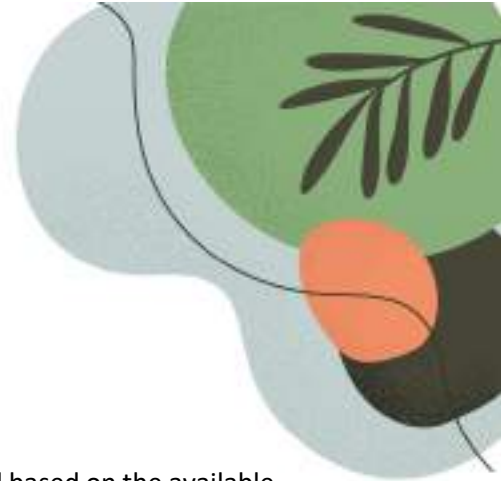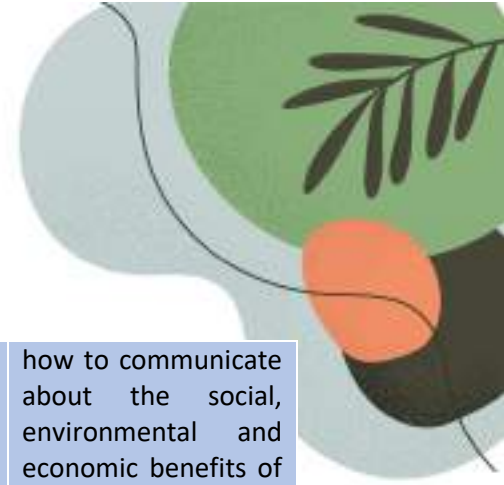
3.2　Key findings of D1.3

The conceptual framework proposed in D1.1 then needed to be adjusted based on the available tools collected in D1.3 Report on collection of existing contents, tools and good practices – 1st version. A total of 926 tools from 97 different sources were collected. The majority of the tools were targeted towards multipliers / supportive environment (746), while significantly less demand side (64) and supply side (98) tools were identified. The vast majority of tools were in English (770) and in the form of a project deliverable (223) or presentation (131).

3.3　Toolkit Production

3.3.1　Narrowing Definitions

Building off of the conceptual framework of D1.1 and an initial set of tools (before publication of D1.3), the target groups were refined, suitable tools defined, and a clear objective for each toolkit developed (Table 3).

	Toolkit 1: Demand Side	Toolkit 2: Supply Side	Toolkit 3: Multipliers
Sub-Target Group	- general public, - consumers	- primary producers (e.g. farmers, fisherman, forestry owners), - SMEs - large enterprises, - industry, - associations /clusters	- NGOs/CSOs, - projects/initiatives, - research academia, - teachers/educators, - children/teenagers, - students/young - researchers, - public authorities - policy makers
Suitable Tools	- clear, user- friendly, understandable, interactive, practical and inspiring examples and stories in the form of videos, factsheets, visual narratives, exhibitions, social media, games	- informative, collaborative, practical and inspiring examples and stories in the form of factsheets, videos, presentations, best practices, reports, platforms.	- informative, robust, practical, and method and skill orientated examples and stories in the form of factsheets, videos, presentations, best practices, reports, tutorials, webinars, methodologies.
Objective	- to raise awareness and educate the demand side about bioeconomy at large and its benefits for them, in particular: what are the benefits	- to raise awareness and educate the supply side about bioeconomy at large and its benefits for them, in particular: to highlight the economic	- to raise awareness and educate multipliers and the vast supportive environment on the benefits for different stakeholders and on

	and impacts for society, environment, economy and ways to contribute to driving the transition to a more sustainable consumption and lifestyle.	opportunities (business, development and jobs) for specific sectors, job creation and income diversification possibilities, best practices, promising regional business models, ways of valorising residues and contributing to the promotion of the transition to a more sustainable production.	how to communicate about the social, environmental and economic benefits of the bioeconomy.

Table 3 Toolkit Target Group Definitions

The definitions of the demand-side (e.g. of or relating to the consumption of goods and services), supply-side (e.g. of or relating to the production of goods and services), and multipliers (e.g. those active in the supportive environment) are nebulous concepts that change based on one's vantage point. For example: B2B could be targeted by informative material from the demand side (e.g. clear information about BBPs) or by the supply side (e.g. information on innovative production of raw material or new value chains in the bioeconomy); brands and retailers could be considered part of the multiplier environment or the supply side; young people could be targeted directly through the demand side or indirectly through the multiplier side through teachers; and public procurers could fall into the category of demand-side or multipliers.

With this in mind, narrower definitions were developed, and decisions taken on how best to target the subgroups. Chief among them, was the decision to indirectly target young people through the multiplier toolkit with clear educational resources, but also provide engaging content (videos, quizzes etc.) in the demand side resources that could be used as an engaging and fun overall introduction to the bioeconomy. In addition, B2B, brands and retailers were targeted through the supply side and public procurers through the multiplier side.

Once these definitions were developed, they would require further adaptation based on the reality of the available tools collected.

3.3.2   Filtering of Tools

A number of criteria was used to determine the quality and suitability of the resources for each target group:

- Actionable
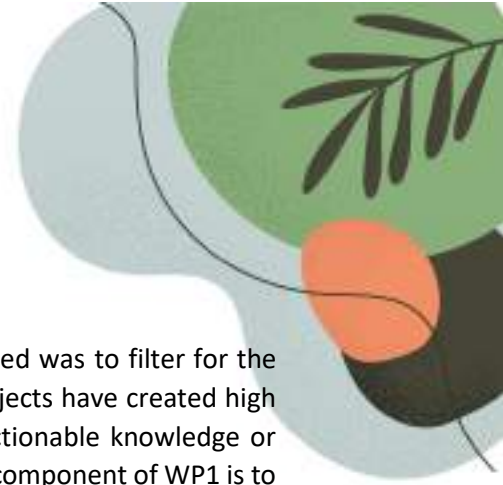
- One of the first steps in analysing the resources collected was to filter for the best "actionable knowledge". While a wealth of EU projects have created high quality deliverables, they are often not available as actionable knowledge or readily usable. A central goal of Transition2Bio and key component of WP1 is to provide "actionable knowledge tools and contents". Of the over 200 resources labelled as project deliverable only a handful were considered to be actionable. The same can be said for publications and recommendation which were often also deliverables or academic papers. In many cases, databases or repositories and platforms were not selected for the toolkits because the resources were not targeted enough. Preference was given to factsheets, videos, games, and toolkits due to their accessibility and inviting nature.
- Universality
  - In an attempt to make the toolkits as applicable to as many people as possible a number of case studies and good practices were not used. While the bioeconomy gains its richness from a diversity of sectors, systems, and practices, it was also essential not to overwhelm the user with its complexity.
- Quality
  - All resources were screened for quality. A number of presentations were thus excluded if they were too focused on communicating information about a specific project as opposed to general information on the bioeconomy. In addition, more recent and higher quality resources were always given preference.
- Format and sustainability
  - Many articles were not considered due to their lack of sustainability. A preference was also given to resources that could be best integrated into a pdf, the chosen format of the first toolkits.
  - With regard to the sustainability of web links, an attempt to contact the owners of all resources and download all content to the Transition2Bio server was ruled out due to limited capacities and potential GDPR and IPR issues. Note: Transition2BIO does not seek to develop a shared stakeholders' database, but rather exploit, for the project's activities, the partners' databases, without transferring these sensitive data among partners.
- Coverage of all bioeconomy sectors
  - A broad definition of the bioeconomy was introduced in the first toolkit and the duplication of ideas was avoided. Where possible one resource for one aspect of the bioeconomy was chosen.
- Language
  - While over 100 resources were listed as available in other languages the majority came from one project, Be-Rural (83), and many were related to specific case studies. It was determined that once the best resources were identified in the first version of the toolkits, another attempt to better incorporate other languages would be made in the second version of the toolkits.
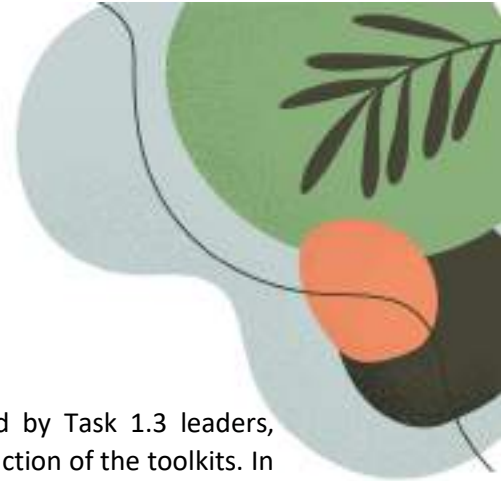
3.4   Pre-Validation Workshop

In early September an online pre-validation workshop was organised by Task 1.3 leaders, BIOCOM, and T1.3.2 leaders, ZSI, to collect more feedback on the production of the toolkits. In total 15 members of the consortium representing all partners took part in a two-hour meeting in which an overview of the first drafts of the toolkits were presented, followed by a structured discussion using Miro board, and an online Lime survey.

The toolkits received positive result from the survey (Table 4) with a total of 8 people filling it on a scale of 1 to 5 (1= I strongly agree and 5= I strongly disagree). In addition, open ended questions allowed for additional input. The lowest scores related to the provision of instructions on how to use the toolkits and toolkit 2 fulfilling the needs of the supply target group.

The results of the Miro board discussion can be viewed in Annex 1.

A number of changes were made to the toolkits based on the lime survey and the Miro board discussion. Key among them, were the addition of more explanatory information, stronger linkages amongst the toolkits, and additional tools. Other more comprehensive suggestions including the inclusion of additional toolkits, translations, and the creation of an online WordPress toolkit could not be considered in the first draft, but will feed into the second draft of the toolkits.

Survey Questions	Average score
In my opinion....The toolkits are easy to use	1,6
In my opinion....The toolkits use clear, consistent and gender neutral language	1,7
In my opinion....The sources are of high quality	1,9
In my opinion....The toolkits design is attractive	1,9
In my opinion....Toolkit 3 fulfils the needs of the target group	2,0
In my opinion....It is easy to understand the aim of toolkit 1	2,0
In my opinion....It is easy to understand the aim of toolkit 2	2,0
In my opinion....It is easy to understand the aim of toolkit 3	2,0
In my opinion....Toolkit 1 fulfils the needs of the target group	2,1
In my opinion....Toolkit 2 fulfils the needs of the target group	2,4
In my opinion....Instructions on how to use the toolkits are sufficient	2,9

Table 4 Pre-validation Survey Results
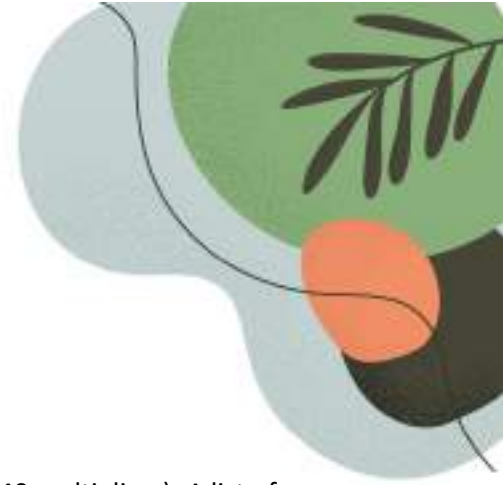
4.   Key Dimensions of the Toolkits

4.1   Content and Sources

A total of 120 tools were selected (45 demand side, 35 supply side, and 40 multipliers). A list of the tools used can be found in Annex 2.

With regard to content type (Figure 1), the most prevalent form of tool used was either a factsheet, platform or video, however a wide range of other tools were incorporated.
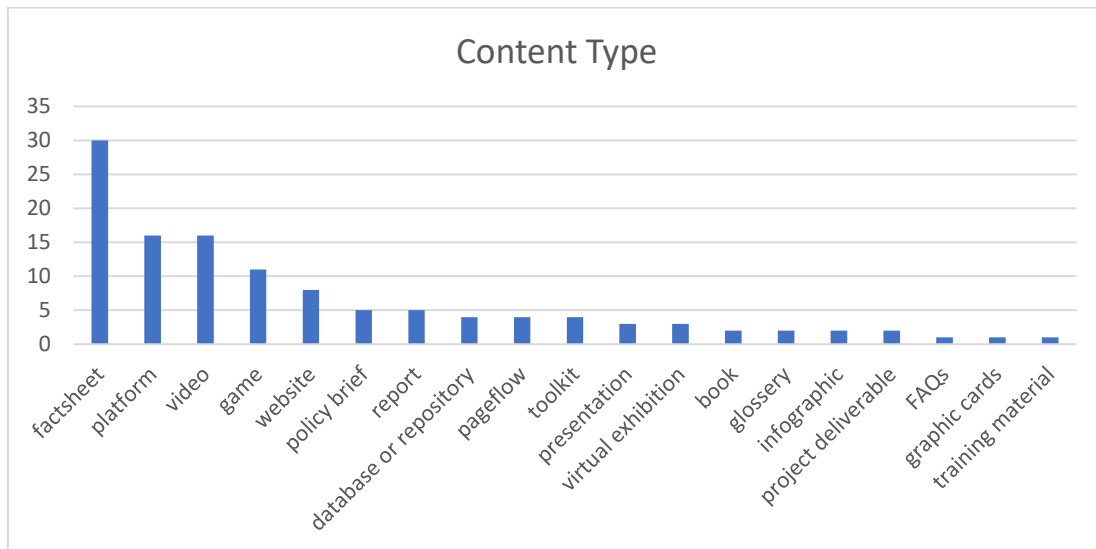

Figure 1 Toolkit Content Type

41 different project sources were incorporated into the toolkits. Those projects where more than 5 resources were used are listed below (Figure 2). These projects tended to produce more actionable and universal resources that could be more easily accessed by the general public.
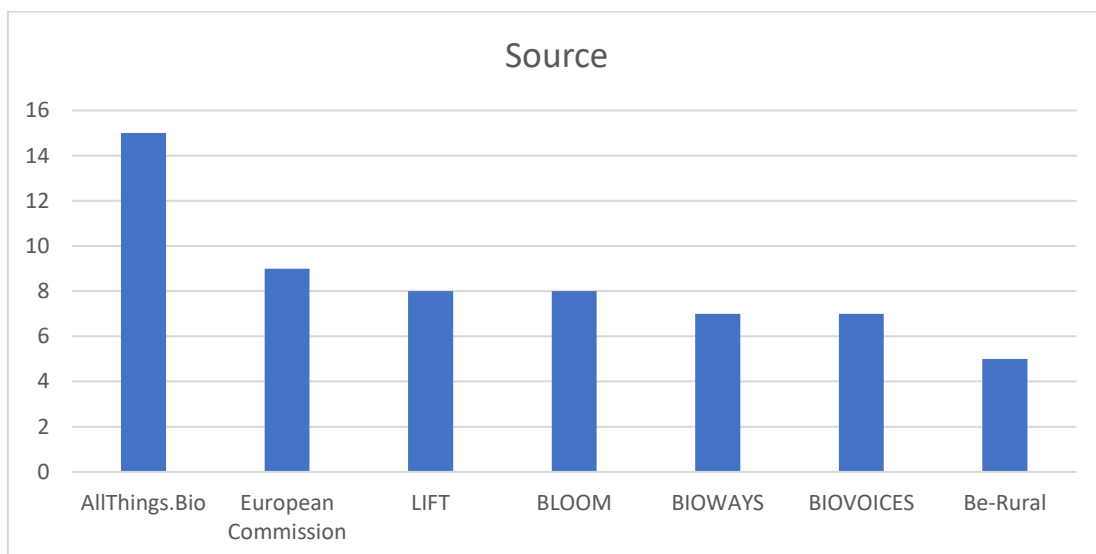
Figure 2 Toolkit Source Type
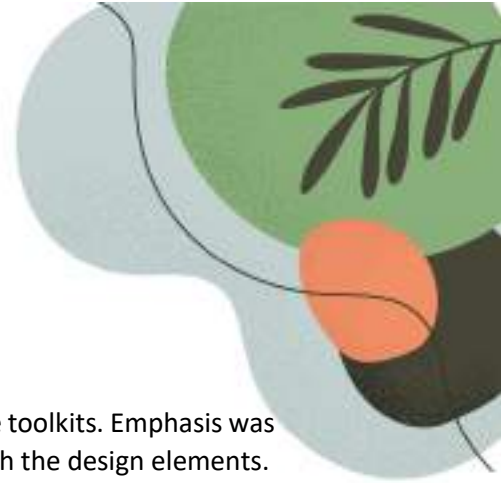
4.2   Design

A scrolling pdf infographic was chosen as the best possible format for the toolkits. Emphasis was greatly placed on creating an inviting, colourful and engaging format with the design elements.

The first versions of the toolkits will be incorporated in a dedicated page on the Transition2Bio website (Figure 3) with additional information added about their background and usage.
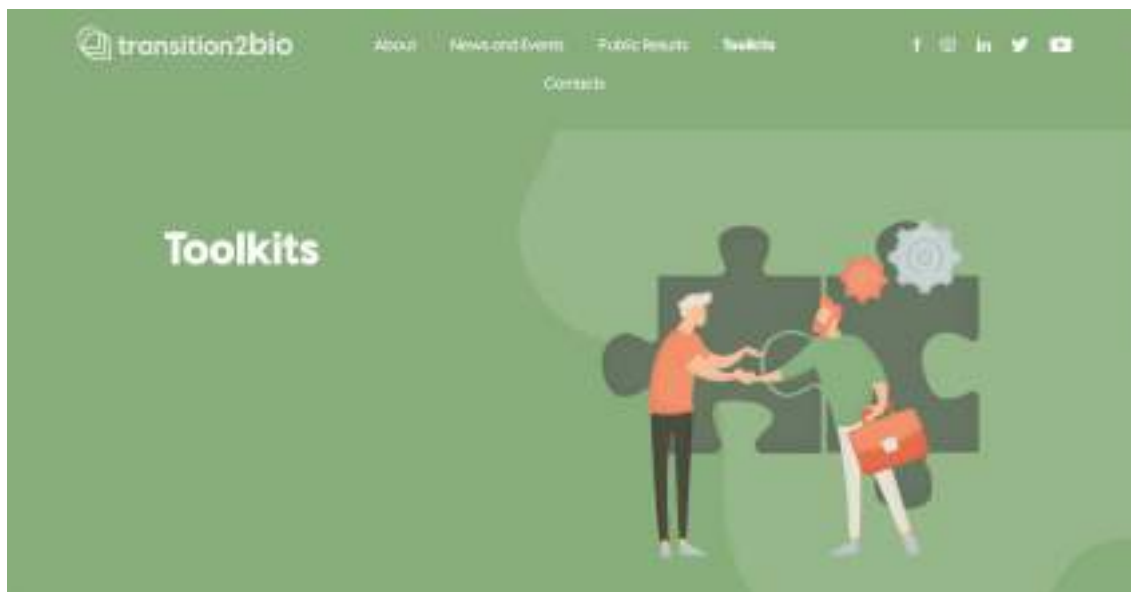
Figure 3 Toolkit Website Page

4.3   Usage

The Transition2Bio toolkit is an action-oriented compilation of related information, tools, databases, videos, presentations, platforms and good practices that together can inform users and guide different groups to develop a plan or organize efforts to conform to evidence-based recommendations. All 3 toolkits can be seen as a package of knowledge that helps raise awareness and educate about the bioeconomy and its benefits for the user. It also acts as an instrument that helps users engage in the bioeconomy in a manner that meets specific evidence-based recommendation or practice standard.

6. Toolkit Exploitation and Validation

6.1 Validation

In the first year of implementation, the toolkits will be exploited and tested in WP 2, WP 3 and WP 4. Each toolkit provides a contact email where users can send in comments and concerns. This will provide valuable feedback not only from the target beneficiaries using the toolkits, but also from members of the consortium implementing the toolkits. This information will feed into the organisation of the Focus Group. The toolkits will then be validated during a Focus Group (T1.3.2) workshop, involving the AB Members, providing their expertise in all sectors of the bioeconomy.

6.2 Exploitation

WP 2 seeks to raise awareness on the bioeconomy at large and the related environmental and socio-economic impacts for European citizens, by organizing a wide range of awareness and public engagement activities. Where feasible, a laptop will be set up at large-scale events (T2.1) or hands-on labs (Sub-task 2.2.1) where the general public (demand side) will be encouraged to look through the toolkit. A survey will be developed to collect feedback and incorporate suggestions into the second version of the toolkits. The toolkits especially 1 and 3 will be used in Training for teachers (Subtask 2.2.3) to determine their usability among teachers and their students.

The objective of WP 3 is to contribute to the deployment of the regional bioeconomy strategies by providing Member States and Regions with methodologies, tools and material to implement their bioeconomy raising awareness, communication and education activities and identify educational and training needs to support the creation of an innovation ecosystem for the bioeconomy. In WP 3 under (T3.1) a package of services including the toolkits will be provided to member states and regions and feedback collected on their functionality in light of the implementation of awareness and communication activities for the deployment of their regional Bioeconomy Strategies. T3.2 can use and collect feedback on the toolkits in the Mobilization and Mutual Learning (MML) workshops and co-creation workshops as part of T3.3. Future skills for Bioeconomy.

Under WP 4, Strengthen the European Bioeconomy Network, opportunities will be found to gather input from the European Bioeconomy Network on the toolkits and feedback collected for their continued improvement.
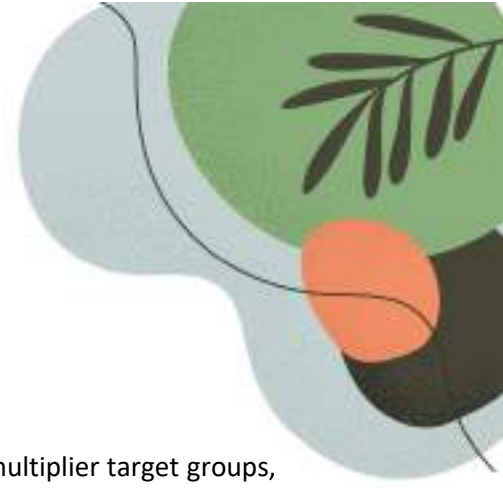
7.   Limitations and Conclusion

Given the evolution of the understanding of the demand, supply, and multiplier target groups, the toolkits require a more thorough analysis of the most suitable channels, messages, contents, tools and activities to target each group. A balance must be reached between ensuring a wide range of stakeholders are reached with each toolkit and allowing for a more targeted approach. This must be combined with the availability of online resources that lend themselves to specifically targeting one group or subgroup. Where online resources are lacking in one area, the toolkits must be adapted to supplement this knowledge with additional information. Where online resources have been overseen, the toolkits must be updated with the best actionable resources.

With regard to the design of the toolkits, adaptions must be made to ensure a certain level of sustainability and long-term usage. However, it must be noted that the availability of all online tools cannot be fully ensured without the development of a shared stakeholders' database and the transferring of data among partners.

By testing out the toolkits in the field, valuable feedback will be collected on their targeting, contents, and practical usage. Subsequently, the Advisory Board members will be involved again, together with other external experts, to validate the toolkits during a Focus Group workshop (T1.3.2). This information will flow into D1.2 Conceptual framework of the awareness, communication and education toolkits – update, D1.4 Report on Collection of existing contents, tools and good practices – update and ultimately D1.6 Transition2BIO toolkits – update.
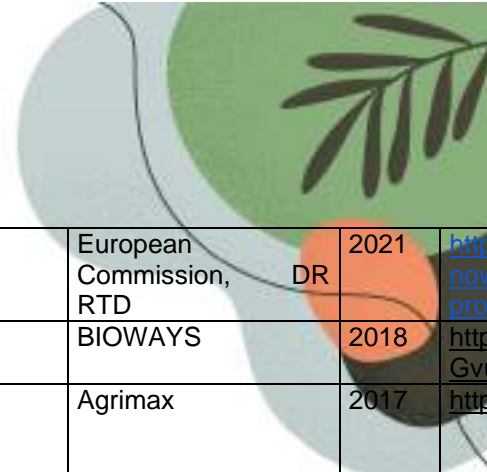
8.   Appendix

8.1   Appendix 1: Miro Board Discussion

8.2   Appendix 2: Collection of Tools used in Toolkit

No.	Title of the tool	Type	Target Group	Sub-group	Project /Source	Year	Link
1	"The bioeconomy starts here!"	video	demand		European Commission, DR RTD	2014	https://www.youtube.com/watch?v=2xvXkOMRTs4
2	The bioeconomy: a brief introduction	factsheet	demand		Allthings.bioPRO	2021	https://www.allthings.bio/wp-content/uploads/2021/04/Bioeconomy_EN_2104.pdf
3	Bioeconomy value chains and rural development – the policy context	presentation	demand		ENRD	2021	https://enrd.ec.europa.eu/sites/default/files/tg1_bioeconomy_ieep_allen-bowyer.pdf
4	BLOOM Bioeconomy Infographic	infographic	demand		BLOOM	2019	· https://bloom-bioeconomy.eu/repository/bioeconomy-infographic/
5	'60' Science videos – From bio-based research to Bio-based products	video	demand		BIOWAYS	2018	https://www.youtube.com/playlist?list=PLk-gaYFMdulFS0FPU7V1Zzvpk-dAuPfMe
6	Factsheet #1: What are bio-based products	factsheet	demand		InnProBio	2019	https://www.bioeconomy-library.eu/wp-content/uploads/2019/11/InnProBio_Factsheets_combined.pdf
7	"The bioeconomy in our everyday lives"	video	demand		BIOWAYS	2018	https://www.youtube.com/watch?v=ir3MgOSmvLg
8	"A Bio-Based Day"	video	demand		BIOBRIDGES	2020	https://www.youtube.com/watch?v=6f7Ej2_BLso&list=PLtcmfwGu2PB3NdW5cwMb2ciiOdfyVtvvL
9	Bio-Art Gallery	virtual exhibition	demand		BIOVOICES	2018	https://www.biovoices.eu/gallery/
10	GBS2020, Bioeconomy Exhibition	virtual exhibition	demand		GBS2020	2020	https://gbs2020.net/bioeconomy-exhibition/
11	Bioeconomy	website	demand		European Commission, DR RTD		https://ec.europa.eu/info/research-and-innovation/research-area/environment/bioeconomy_en
12	Pure organic spirulina chips	factsheet	demand		BIOWAYS	2018	https://drive.google.com/file/d/17Xt6iKuf4BUAOagqrr6bMhgXNeh72dCU/view
13	Potential use of seaweed for pharmaceuticals and health products.	factsheet	demand		BIOWAYS	2018	https://drive.google.com/file/d/1qDfaLR3q5DAXW4D5HeKAogA-khbK4_Xs/view

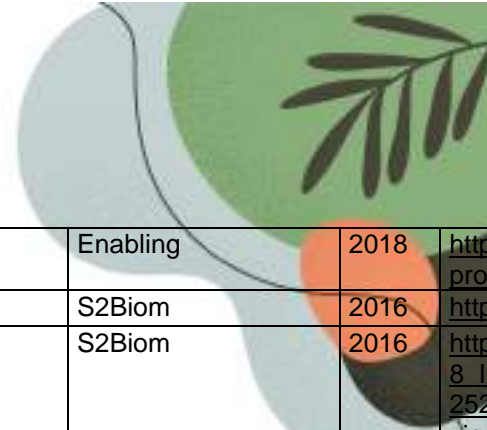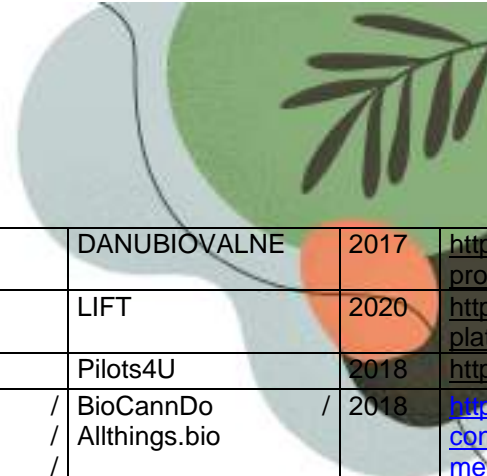| 14	Knowledge Centre for Bioeconomy - video on algae biomass production	Video	demand		European Commission, DR RTD	2021	https://knowledge4policy.ec.europa.eu/publication/knowledge-centre-bioeconomy-video-algae-biomass-production_en
15	Bracelets from fish skin	factsheet	demand		BIOWAYS	2018	https://drive.google.com/file/d/1VzFdLjOQHr8NIb6EGvuAEYDcT_9KqM7R/view
16	Using cereal waste to develop novel products for the food, packaging and agricultural sector	factsheet	demand		Agrimax	2017	https://agromax.iris.cat/resources/
17	Using olive residues to develop novel products for the food and packaging sector	factsheet	demand		Agrimax	2017	https://agromax.iris.cat/wp-content/uploads/2017/05/Using-olive-residues-to-develop-novel-products-for-the-food-and-packaging-sectors.pdf
18	Using potato waste to develop novel agricultural films and pots	factsheet	demand		Agrimax	2017	https://agromax.iris.cat/wp-content/uploads/2017/05/Using-olive-residues-to-develop-novel-products-for-the-food-and-packaging-sectors.pdf
19	Using tomato waste to make novel products for the food and packaging sectors; cutin and lycopene	factsheet	demand		Agrimax	2017	https://agromax.iris.cat/wp-content/uploads/2017/05/Using-olive-residues-to-develop-novel-products-for-the-food-and-packaging-sectors.pdf
20	Using tomato waste to make agricultural fertilizer	factsheet	demand		Agrimax	2017	https://agromax.iris.cat/wp-content/uploads/2017/05/Using-olive-residues-to-develop-novel-products-for-the-food-and-packaging-sectors.pdf
21	Bioplastics from sugar beets – BLOOM Biocononmy	video	demand		BLOOM	2020	https://www.youtube.com/watch?v=DxTcqChFIYA
22	Knowledge Centre for Bioeconomy - video on agricultural biomass production	video	demand		European Commission, DR RTD	2020	https://knowledge4policy.ec.europa.eu/publication/knowledge-centre-bioeconomy-video-agricultural-biomass-production_en
23	What if we could transform food into food preservatives?	factsheet	demand		EuropaBio	2020	https://www.europabio.org/wp-content/uploads/2021/03/2020_01_I_F_EuropaBIO_WHATIF_iFermenter_V02.pdf
24	Wooden Shirts – BLOOM Bioeconomy	video	demand		BLOOM	2019	https://www.youtube.com/watch?v=DxTcqChFIYA
25	Knowledge Centre for Bioeconomy - video on forestry biomass production	Video	demand		European Commission, DR RTD	2020	https://knowledge4policy.ec.europa.eu/publication/knowledge-centre-bioeconomy-video-forestry-biomass-production_en

26	'59 Application areas in Factsheets'	factsheet	demand		BIOWAYS	2018	https://drive.google.com/file/d/1UsVNfcLrKMUn-O-5CArY-R5Bf3tNaWuv/view
27	"Game changer for the bio-based economy"	video	demand		AllThings.Bio	2021	https://www.youtube.com/watch?v=_mCkQYzvsKY&t=3s
28	Bio-based food packaging	pageflow	demand		Allthings.bioPRO	2019	https://www.allthings.bio/pageflow/bio-based-food-packaging/
29	Bio-based insulation materials	pageflow	demand		Allthings.bioPRO	2018	https://www.allthings.bio/pageflow/bio-based-insulation-materials/
30	Bio-based household cleaning products	pageflow	demand		Allthings.bioPRO	2018	https://www.allthings.bio/pageflow/bio-based-household-cleaning-products/
31	Factsheet – Sustainable fashion	factsheet	demand		Allthings.bioPRO	2021	https://www.allthings.bio/wp-content/uploads/2021/04/Fashion_EN_2104.pdf
32	Key words	glossery	demand		Allthings.bioPRO		https://www.allthings.bio/keywords/
33	Bioeconomy Glossary	glossery	demand		Joint Research Centre		https://knowledge4policy.ec.europa.eu/bioeconomy/glossary_en
34	Bioeconomy Questions & Answers	FAQs	demand		BLOOM		https://bloom-bioeconomy.eu/bioeconomy-questions-and-answers/
35	BIOES Game	game	demand		BIOVOICES	2018	https://www.fvaweb.eu/bes/
36	Serious Game 'BIO…What?'	game	demand		BIOVOICES	2018	https://www.fvaweb.eu/biowhat/ https://www.bioways.eu/bio-learn/serious-games
37	BIOCHALLENGE	game	demand		BIOVOICES	2018	https://www.fvaweb.eu/biochallenge/
38	'Bioeconomy in everyday life"	virtual exhibition	demand		BioSTEP	2017	http://products.bio-step.eu
39	Quiz #4 – Bio-based or biodegradable: that is the question!	Games	demand		AllThings.Bio		https://www.allthings.bio/quiz/quiz-4-bio-based-or-biodegradable-that-is-the-question/
40	Quiz#5 – Bio-based food packaging	Games	demand		AllThings.Bio		https://www.allthings.bio/quiz/quiz-4-bio-based-or-biodegradable-that-is-the-question/
41	Quiz #3 – Find out how bio-based insulation can keep you warm this winter	Games	demand		AllThings.Bio		https://www.allthings.bio/quiz/quiz-3-bio-based-insulation-materials-find-out-how-bio-based-insulation-can-keep-you-warm-this-winter/
42	Quiz 2 – Gear up and test your knowledge on biofuels!	Games	demand		AllThings.Bio		https://www.allthings.bio/quiz/quiz-2-gear-up-and-test-your-knowledge-on-biofuels/
43	Quiz #1 – Are you ready for the bioeconomy?	Games	demand		AllThings.Bio		https://www.allthings.bio/quiz/are-you-ready-for-the-bioeconomy/
44	Quiz: Food Waste Valorisation	Games	demand		Refresh	2020	https://eu-refresh.org/quiz.html

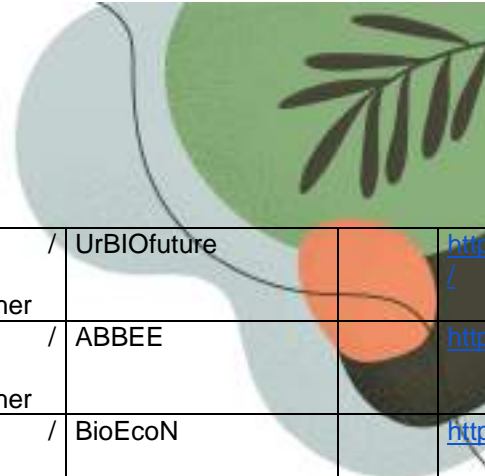| 45	BLOOM Quiz on bioeconomy	Games	demand		BLOOM	2018	http://quiz.bloom-bioeconomy.eu/
46	Bioeconomy employment and value added: 2017 data – Infographic	infographic	supply		European Commission	2017	https://knowledge4policy.ec.europa.eu/publication/bioeconomy-employment-value-added-2017-data-infographic_en
47	The Bioeconomy – a rural approach	video	supply		Matís Iceland	2017	https://www.youtube.com/watch?v=JfLNRr2lFcg&list=UUY-frt3uTqgVZW-DLjoo5bA
48	Fact Sheet "New value chains and business models"	factsheet	supply		LIFT	2020	https://www.bioeconomy-library.eu/new-value-chains-and-business-models/
49	Handbook on regional and local bio-based economies	project deliverable	supply		Be-Rural	2020	https://be-rural.eu/resources/
50	Small-scale technology options for regional	project deliverable	supply		Be-Rural	2020	https://be-rural.eu/resources/
51	Catalogue of bioeconomy solutions	platform	supply		Power4Bio		https://www.bio-based-solutions.eu/#/
52	Rural BioeconomyPortal	website	supply		European Network for Rural Development	2021	https://enrd.ec.europa.eu/greening-rural-economy/bioeconomy/rural-bioeconomy-Who
53	Transformation Support Tool	platform	supply		Rubizmo		https://rubizmo.eu/business/transformation-support-tool
54	Best Practices Atlas	platform	supply		Enabling		https://atlasbestpractices.com
55	AlpBioEco factsheet - Apple value chain	factsheet	supply		AlpBioEco	2021	https://www.alpine-space.eu/projects/alpbioeco/en/activities-results/main-activities-results/final-report
56	AlpBioEco factsheet - Walnut value chain	factsheet	supply		AlpBioEco	2021	https://www.alpine-space.eu/projects/alpbioeco/en/activities-results/main-activities-results/final-report
57	AlpBioEco factsheet - Herbs value chain	factsheet	supply		AlpBioEco	2021	https://www.alpine-space.eu/projects/alpbioeco/en/activities-results/main-activities-results/final-report
58	Replicable Roadmap to analyse bio-based value chains	Report	supply		AlpBioEco	2021	https://www.alpine-space.eu/projects/alpbioeco/projects-results/roadmap_kern-final_03-07-20_final.pdf
59	Biomass availability, quality, supply and sustainability	factsheet	supply		LIFT	2020	https://www.bioeconomy-library.eu/biomass-availability-quality-supply-and-sustainability/
60	Process Flows Platform	platform	supply		Enabling	2018	https://www.enabling-project.com/platforms#process-flows

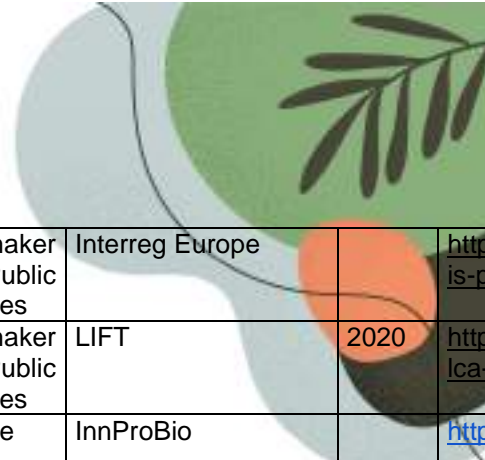| 61	Biomass Trade Platform	platform	supply		Enabling	2018	https://www.enabling-project.com/platforms#biomass-trade-platform-
62	Tools for biomass chains	platform	supply		S2Biom	2016	https://s2biom.wenr.wur.nl/web/guest/home
63	Bio2Match tool	platform	supply		S2Biom	2016	https://s2biom.wenr.wur.nl/web/guest/bio2match#_48_INSTANCE_JVu9ChXOqtRc_%3Dhttps%253A%252F%252Fs2biom.wenr.wur.nl%252Fmatchingtoolviewer%252Findex.html%253Fclassic%2526
64	Biomass Data Story	platform	supply		ICT-BIOCHAIN	2019	https://ictbiochain.eu/platform/biomass-data-story/#
65	Forest Energy Atlas.	database or repository	supply		BalticForBio	2021	https://forest-energy-atlas.luke.fi
66	ERIFORE: European Research Infrastructure for Circular ForestBioeconomy.	website	supply		ERIFORE	2017	http://i2m.bordeaux.inra.fr/erifore/
67	Geoportal tool, European Wood Waste Platform	platform	supply		BIOREG	2018	https://www.bioreg.eu/platform/
68	Business Plan	pageflow	supply		ProBIO		http://www.probio-project.eu/pageflow.html
69	BUSINESS PLAN WRITING FOR BIOECONOMY RESEARCHERS	video	supply		CommBeBiz	2017	https://commbebiz.eu/?post=business-plan-writing-for-bioeconomy-researchers-
70	MARKET PARTNER RESEARCH FOR BIOECONOMY RESEARCHERS	video	supply		CommBeBiz	2017	https://commbebiz.eu/?post=market-partner-research-for-bioeconomy-researchers-
71	BIOSWITCH TOOLBOX	toolkit	supply		BIOSWITCH		https://bioswitch.eu/bioswitch-toolbox/
72	Drivers and barriers faced by brands related with the adoption of bio-based business models	factsheet	supply		Biobridges	2019	https://www.biobridges-project.eu/en/results/factsheet-drivers-and-barriers-faced-by-brands/
73	Bioways factsheets	factsheet	supply		BIOWAYS	2018	https://www.bioways.eu/bio-learn/factsheets/
74	Innovation Services	website	supply		SuperBIO	2016	http://www.h2020-superbio.eu/innovation-services
75	Bio.InnovationSupport for Entrepreneurs throughout NWE Regions.	website	supply		Interreg North-West Europe – BioBase4SME.	2019	https://www.nweurope.eu/projects/project-search/bio-innovation-support-for-entrepreneurs-throughout-nwe-regions/
76	About BIOOPEN	website	supply		BIOOPEN	2017	https://www.biopen-project.eu/about/
77	Best practices and challenges on multi-stakeholder and cross sector interconnections	factsheet	supply		Biobridges	2019	https://www.biobridges-project.eu/en/results/factsheet-best-practices-and-challenges-on-cross-sector-interconnections-/

78	Interreg Danube Transnational Programme DANUBIOVALNE	website	supply		DANUBIOVALNE	2017	http://www.interreg-danube.eu/approved-projects/danubiovalnet/outputs
79	Open innovation platforms and facilities	factsheet	supply		LIFT	2020	https://www.bioeconomy-library.eu/open-innovation-platforms-and-facilities/
80	Pilots4U Open Access Database.	database	supply		Pilots4U	2018	https://biopilots4u.eu/index.php/database
81	Key messages - Seven things to know about bioeconomy	factsheet	multipliers	NGOs / CSOs / projects / initiatives	BioCannDo / Allthings.bio	2018	http://www.allthings.bio/wp-content/uploads/2018/09/Key-messages_General.pdf
82	Fact Sheet "Awareness raising"	factsheet	multipliers	NGOs / CSOs / projects / initiatives	LIFT	2020	https://www.bioeconomy-library.eu/awareness-raising/
83	Outreach & Engagement Guidebook	report	multipliers	NGOs / CSOs / projects / initiatives	BLOOM	2020	https://bloom-bioeconomy.eu/wp-content/uploads/2020/12/BLOOM-Outreach-Engagement-Guidebook.pdf
84	Fact Sheet "Stakeholders engagement and co-creation"	factsheet	multipliers	NGOs / CSOs / projects / initiatives	LIFT	2020	https://www.bioeconomy-library.eu/stakeholders-engagement-and-co-creation/
85	Biobridges communication toolkit/social media cards	toolkit	multipliers	NGOs / CSOs / projects / initiatives	Biobridges	2020	https://www.biobridges-project.eu/results/bio-based-economy-awareness-toolkit/
86	Top Tips on Short Videos for Bioeconomy Researchers	presentation	multipliers	Reseach / academia	CommBeBiz	2017	https://ebn.eu/sharedResources/users/5006/171218%20-%20CBB%20ESCI%20Top%20Tips%20on%20Video.pdf
87	COMMUNICATION GUIDES	toolkit	multipliers	Reseach / academia	Dandelion	2017	http://www.dandelion-europe.eu/en/infobase/communication-guides/dandelions-communication-guides.html
88	GUIDES TO MAXIMISE IMPACT OF SSH PROJECTS	toolkit	multipliers	NGOs / CSOs / projects / initiatives	Dandelion	2017	http://www.dandelion-europe.eu/en/infobase/guides-to-maximise-impact-of-ssh-projects/guides-to-maximise-impact-of-ssh-projects1.html

89	Insights on the Road to Innovation	report	multipliers	Reseach / academia	CommBeBiz	2017	https://ebn.eu/sharedResources/projects/CommBeBiz/180223%20CBB%20Blueprint.pdf
90	Fact Sheet "Bioeconomy Education"	factsheet	multipliers	teacher	LIFT	2020	https://www.bioeconomy-library.eu/bioeconomy-education
91	Factsheet - Kids and Schools	factsheet	multipliers	children / teenagers	Allthings.bio	2021	https://www.allthings.bio/wp-content/uploads/2021/04/KidsSchools_EN_2104-1.pdf
92	Review of 100 free online teaching resources	report	multipliers	teacher	Be-Rural	2020	https://be-rural.eu/resources/
93	Power Point slides for teacher presentations with notes	presentation	multipliers	teacher	Be-Rural	2020	https://be-rural.eu/resources/#teacher
94	Workshops, quizzes and games	games	multipliers	teacher	Be-Rural	2020	https://be-rural.eu/resources/#workshops
95	educational cards	graphic cards	multipliers	NGOs / CSOs / projects / initiatives	BIOVOICES	2020	https://www.biovoices.eu/results/educational-cards/
96	The BLOOM School Box	training material	multipliers	children / teenagers	BLOOM	2019	https://bloom-bioeconomy.eu/schoolnetwork/schoolbox/
97	Suitcase of products	factsheet	multipliers	children / teenagers	BLOOM	2020	https://bloom-bioeconomy.eu/wp-content/uploads/2020/10/Bioeconomy-suitcase-leaflet.pdf
98	What's Bioeconomy? – Book for kids	book	multipliers	children / teenagers	BIOVOICES	2021	https://www.biovoices.eu/book/concept/
99	Farmer Hubert	books	multipliers	children / teenagers	FNR		https://international.fnr.de/service/for-kids
100	Jobs and Careers in the bioeconomy	factsheet	multipliers	student / young researcher	Allthings.bio	2021	https://www.allthings.bio/wp-content/uploads/2021/04/JobsCareers_EN_2104.pdf
101	Interactive Training Gap Identifier - Career Maps	platform	multipliers	student / young researcher	Askfood		https://www.askfood.eu/tools/itgi/index.php/career-maps/
102	Why should you pursue a career in bioeconomy?'	video	multipliers	student / young researcher	UrBIOfuture	2020	https://www.youtube.com/watch?v=oIISL9-t2cE

103	Educational programmes	platform	multipliers	student / young researcher	UrBIOfuture		https://www.urbiofuture.eu/educational_programmes/
104	About Us	platform	multipliers	student / young researcher	ABBEE		https://www.abbee.eu/
105	The Bioeconet project E-learning platform	platform	multipliers	student / young researcher	BioEcoN		https://moodlebioecon.eu
106	FIELDS Database	platform	multipliers	student / young researcher	FIELDS		https://www.erasmus-fields.eu/database/
107	"A new bioeconomy for a sustainable Europe"	video	multipliers	Policy maker / Public authorities	European Commission, DG RTD	2018	https://www.youtube.com/watch?v=RfRN_hHeIKk
108	Knowledge Centre for Bioeconomy	database or repository	multipliers	Policy maker / Public authorities	European Commission, DG RTD		https://knowledge4policy.ec.europa.eu/bioeconomy_en
109	Bio-based Circular Economy in Europe	policy brief	multipliers	Policy maker / Public authorities	BIOREGIO	2018	https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1536734042.pdf
110	How the bioeconomy contributes to the European Green Deal	factsheet	multipliers	Policy maker / Public authorities	European Commission, DG RTD	2020	https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/66722c8d-2e03-11eb-b27b-01aa75ed71a1
111	BIOVOICES Policy Briefs	policy brief	multipliers	Policy maker / Public authorities	BIOVOICES	2020	https://www.biovoices.eu/results/policy-briefs/
112	SmartPilots Project summary	website	multipliers	Policy maker / Public authorities	SmartPilots		https://www.interregeurope.eu/smartpilots/
113	Bio Base NEW for Policy Makers and Advisors	video	multipliers	Policy maker / Public authorities	Bio Base NWE	2015	https://www.youtube.com/watch?v=84UYj4uC3P4

114	Policy Learning Platform	report	multipliers	Policy maker / Public authorities	Interreg Europe		https://www.interregeurope.eu/policylearning/what-is-policy-learning-platform/
115	Standardisation, LCA, labelling and regulatory hurdles	policy brief	multipliers	Policy maker / Public authorities	LIFT	2020	https://www.bioeconomy-library.eu/standardisation-lca-labelling-and-regulatory-hurdles/
116	Bio-based products database and supporting tools for public procurement	database or repository	multipliers	database	InnProBio		https://www.biobasedconsultancy.com/
117	The EU BioEconomy Contribution to Sustainable Development - Measuring the Impact	policy brief	multipliers	Policy maker / Public authorities	Biomonitor	2020	http://biomonitor.eu/wp-content/uploads/2019/11/2019-11-BIO_policy-brief-no.1.pdf
118	Regional potential and bioeconomy strategies and implementation roadmaps	policy brief	multipliers	Policy maker / Public authorities	LIFT	2020	https://www.bioeconomy-library.eu/regional-potential-and-bioeconomy-strategies-and-implementation-roadmaps/
119	The BSAT-Bioeconomy Strategy Accelerator Toolkit	platform	multipliers	Policy maker / Public authorities	POWER4BIO		http://bioeconomy-strategy-toolkit.eu
120	BERST Platform	platform	multipliers	Policy maker / Public authorities	BERST		https://www.berst.eu/Platform.aspx?master=berst

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