

## H2020 Work Programme

# D3.2 Report on plans for a governance structure of the six BBECs

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# 0. Executive Summary

WP3 provides detailed plans for the implementation of the BBEC covering vocational, academic and life-long learning, in a coordinated and consistent form. The specific objective of Task 3.2, which is reported in this deliverable is to provide examples of how to manage the internal operations, staff expertise and data sharing within the organization and with its context.

The work was conducted in three phases. First of all, all the consortium agreed on the structure of the governance plan; secondly each BBEC coordinator, accordingly with the other partners involved in the design of the governance plan, designed a process to identify the key information needed to fill the governance plan structure; finally, all the information gathered in the previous phase was introduced in each BBEC governance plan. As a result, this report presents the comparative analysis of the six individual governance plans. These results are closely linked to those obtained in tasks 3.3 and 3.4.

The results of the task 3.2 show that the context of action of the BBEC is one of the most important things to be considered once one wants to design the governance plan; according to the context it should be defined the legal form of the BBEC, which has to be the best one to facilitate the activities that should be carried out. Is for that reason that in parallel with the context analysis and the definition of the legal framework each BBEC should define its mission and vision.

Once the previous aspects have been defined, its time to think in the specific operational and management structures that will be needed to achieve the objectives proposed. The results of the analysis show that most of the BBEC consider the importance to start their activities linked to previous organizations; as becoming a part of them, or as becoming a consortium of organizations working together in a collaborative platform. In both cases, this is conditioning some of the management structures and the resources that will be available.

Regarding the decision-making processes, it is clear in all the BBEC that this should be structured in a democratic way, facilitating the communication and participation between the different actors involved in the BBEC, and also with the stakeholders. Being transparent and receiving feedback with and the stakeholders should always be one of the main activities of the BBEC.

The overall conclusion is that the governance plan should be adapted to the context and the legal form of the BBEC, and this legal form should be always the one that better fits to the regulations and the activities that will be performed by the BBEC.

# 1. Introduction

As part of work package 3 (WP3), a process of reflection and co-creation with main stakeholders has been conducted to identify which should be the structure and governance plans for each BBEC (6 in total). The main objective of the Governance plans is to help manage the internal operations, staff expertise and data sharing within the organization and with its context.

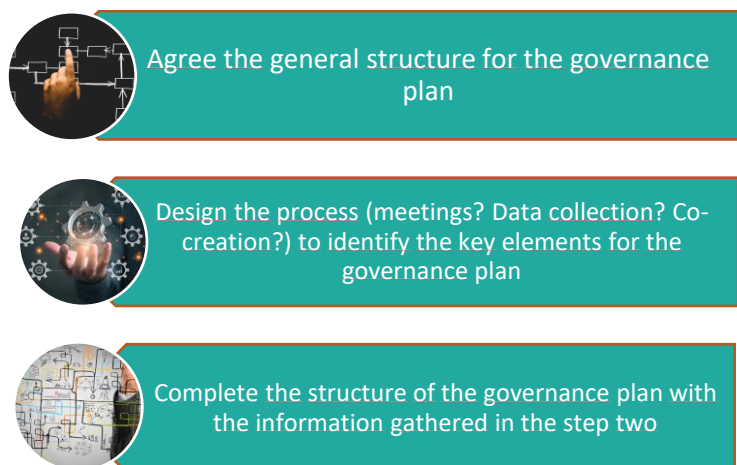
The objective of this report is to perform a comparative analysis of the six individual governance plans from each of the six BBECs, and pretends to give examples of how BBEC can be structured. These are the main sections of each BBEC, and it is as well the structure of this report:

1. The context of action, which includes a general description of the socioeconomic and regulatory context.
2. Institutional purposes, which include the mission and vision of the BBEC, and the main values that will guide its development.
3. The operating structures, which include information about the human resources structure, the material resources and functional resources.
4. Management and operation, with information about how the BBEC will be lead.
5. The relational systems, which include information about how the information will be managed within the BBEC, and through its direct context.
6. Institutional dynamics, which include the most relevant aspects of the BBEC day-to-day activities.

This document presents, firstly, the methodology implemented to get the data necessary to develop the governance plans; secondly, there is a summary that pretends to provide information about how each BBEC can be implemented in different regions, considering the information in each governance plan; and finally, all the governance plans are presented in the annex.

## 2. Methodology

The methodology or plan implemented to get the data for the development of each governance plan was divided into three main moments of phases, as can be seen in the following figure:



During the first phase, the general structure for describing the governance plans has been designed by UAB and discussed by all the partners during the project meeting held in Seville, in January 2023. Minor changes had been added according to the meeting discussions.

In order to design the process to get data, in the second phase, each BBEC coordinator was asked to fill a table where they were asked to identify which sections of the governance plan apply to the BBEC they were planning; if the information was necessary for the governance plan, they were asked to identify if this information was already available in the project previous results, or not; if not, they were asked to identify how to get the information and who will be responsible to get it.

In these cases, they could identify that the information will be gathered through the revision of previous documents, reports or bibliography, or the information will be gathered through the implementation of workshops and meetings with the main stakeholders involved in the project. It should be noted that one of the premises of this activity was to leave freedom to the various BBEC leaders to interact with the stakeholders in the way they saw fit; for this reason, the information needed for the governance plans were not obtained in specific workshops planned for all the BBECs, but during informal meetings that were planned by different BBEC leaders to obtain information in the scope of T3.2 as well as the other ongoing tasks related to WP3 (namely, T3.3 and T3.4).

Furthermore, we also discussed with stakeholders which should be the main objectives of the BBEC in each region, the general structure it may have, the needs that should be answered through the BBEC, etc.

The third phase was dedicated to elaborating each governance plan with the information obtained in the second phase. In this stage of the process, each coordinator and the partners involved in each regional BBEC worked together to complete all the sections of the document.



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## 3. The Governance Plans: comparative summary of six BBECs

In this chapter we analyse each section of the governance plan, providing a summary of all the information gathered identified in the project from different regions. The main objective is to provide a general overview of how a governance plan for a BBEC can be designed. The reader can also check each governance plan to get further ideas on how to develop it.

### 3.1. The context of action

All the organizations have a specific context with their corresponding sociocultural, economic and regulatory frameworks.

In this section it is important to identify the needs of the context, the socioeconomic reality, the existing organisations providing services like those we aim to provide, as well as the regulatory system that will affect the activities we want to promote and implement.

As we can see in the following table, most of the BBECs have been planned to operate in a single country. This happened because of difficulties in finding common regulatory and economic rules in different countries that allow the design of a centre that involves several countries.

<b>Central-Eastern</b>	<b>Danish</b>	<b>Finnish</b>
Bulgaria Czech Republic Poland	Denmark	Finland
<b>German</b>	<b>Irish</b>	<b>Mediterranean</b>
Germany	Ireland	Italy Spain

Table 1: Countries involved in each BBEC.

The main characteristics of the context where the BBECs are located are:

#### CENTRAL-EASTERN BBEC

There is a need to support the bioeconomy transition in the macro-region. Only one National bioeconomy strategy exists, others are being developed in the region, and there are macro-regional bioeconomy initiatives. The BBEC CE aims to be a hub for bioeconomy education, promoting collaboration and knowledge exchange. It should align with existing activities in other countries and consider regional and sectoral diversity.

According to previous project activities, the governance of the circular bioeconomy requires network governance in addition to public governance. Recommendations include integrating bioeconomy education across curricula, involving NGOs and businesses, and empowering experts through comprehensive education and training. Each country in the BBEC CE project — Bulgaria,



Czech Republic, and Poland — has identified strategic actions and sectors for bioeconomy development, emphasizing sustainability, research, innovation, education, and governance.

The model and framework of the BBEC CE should match the future macro-regional trends related to the bioeconomy. Considering the best practices from other countries with a more developed awareness and institutional reality, BBEC CE wants to address its structure, mission, vision and future activities for the effective development of the bioeconomy in Central-Eastern Europe.

### DANISH BBEC

The Danish context acknowledges the lack of analysis for the biobased job market within the broader "Green sector" in Denmark. The Danish educational system, which offers free education and state grants, includes a lifelong educational system from 10<sup>th</sup> grade to master's level, consisting of a mix of private and public-supported education. Accreditation and monitoring ensure the quality of educational provision. The identification of educational needs is a collaborative effort involving businesses, municipalities, and workshops. Viborg municipality, with its focus on green/agricultural businesses, aims to meet the workforce requirements and align with local/regional green business development policies.

According to the information provided by stakeholders, the BBEC should push an educational model to emphasises business-oriented and demand-driven lifelong learning, recruitment of young talents, and public dissemination of knowledge to citizens, reflecting the region's green identity and agribusiness stronghold. Workshops will further define the educational needs in the coming year.

### FINNISH BBEC

The Finnish forest-based bioeconomy is influenced by EU strategies and directives, as well as Finland's own bioeconomy strategy. There is a demand for bio-based products to replace fossil-based ones, and digitalization and efficiency will impact the industry. The training and education needs in the field are changing, requiring the development of different types of programs and incorporating sustainability aspects. The main educational actors in the Finnish BBEC are the University of Eastern Finland, Karelia University of Applied Sciences, and Riveria Vocational School. The BBEC should operate as an open collaboration platform, with eight key actors providing knowledge. Each actor organization follows its own ethical and regulatory context, and the BBEC has to define its own rules for participation.

### GERMAN BBEC

Germany has a strong focus on the Bioeconomy, supported by a European framework. One of the regions, Baden Württemberg, has a Bioeconomy strategy and aims to use innovative concepts, reduce emissions, strengthen rural areas, and promote a sustainable and circular economy. The strategy involves creating a supportive framework, generating sustainable resources, implementing bioeconomy in industrial areas, networking, education, and promoting dialogue about sustainability.

According to previous project activities, there is the need to address the training, assessment, counselling, and research needs related to sustainability in the industry. Effective communication, marketing, and networking are crucial for involving stakeholders and facilitating knowledge transfer between academia and practical implementation. The Bioeconomy Education Centre (BBEC) is expected to serve as a hub for bioeconomy education with close collaboration with BOKU, APT and UH, supporting interdisciplinary and practical-focused formats. It will adapt existing

courses, define professional profiles, foster connections, raise awareness, and facilitate exchange to enhance regional focal points.

## IRISH BBEC

Irish reports show that there is still a lack of broad public, community and industry understanding and awareness of the bioeconomy opportunity in Ireland. As a result, new policy implementation pillars have emerged which include:

1. Governance
2. Research, Development & Innovation
3. Nature, Climate and Circular
4. Agriculture, Forestry & the Marine
5. Communities
6. Industry & Enterprise
7. Knowledge & Skills

As part of the Knowledge & Skills pillar, several reports, in addition to “skills gap” reports such as “Talent for Ireland’s Green Economy 2022” have shown that there is no overarching mapping of bioeconomy integration into Irish education, training, and skills curricula. There is also a lack of comprehensive information on skills gaps and shortages in the sector. The Irish BBEC, therefore, has an opportunity to meet these requirements and provide the overarching mapping of the Irish bioeconomy, providing an online knowledge database for all bioeconomy stakeholders and specifically geared towards education.

According to the information provided by stakeholders, the Irish BBEC could provide various services such as career progression, networking, grants access, accreditation of multi-learning pathways, consortium building, coaching services, and mentoring and co-ordination and marketing of the educational courses on offer at the various levels.

## MEDITERRANEAN BBEC

The Mediterranean area lacks specific strategies or alliances for bioeconomy, with only partial coverage through the Adriatic-Ionian Region strategy and the Vanguard Pilot Action Plan. Italy and Spain have intense and moderate regional strategic actions for bioeconomy, respectively, while Greece, Croatia, Cyprus, and Malta lack relevant strategies. Italy's bioeconomy strategy aims to achieve +15% national performance by 2030, emphasizing education and training. Spain has its own national strategy, and Andalusia has a Circular Bioeconomy Strategy.

According to the information gathered, present needs include actor identification, structured educational frameworks, and alignment of education and training. Future needs involve skilled human resources for innovation and transitions. Existing institutions for collaboration include schools, academia, vocational education, and technology transfer institutes.

### 3.1.2. The legal status

As important as to know which is the socioeconomic situation of each region regarding bioeconomy, is to know the regulations related to the creation of new organisations. The legal status of each BBEC was selected considering the one that will be more beneficial for the centre purpose, and its directly

connected with the business plans and the decision making processes. The following table summarises the legal status for each BBEC.

Central-Eastern	Danish	Finnish
Virtual Consortium of independent entities	Commercial Foundation	Collaboration platform, and private entity in the future

German	Irish	Mediterranean
Public Body linked to University of Hohenheim.	National bioeconomy education & engagement platform hosted with Munster Technological University	Non-profit Association

Table 2: Legal status of each BBEC.

The main decision in defining the legal status of BBECs is economical. Hence, two of them (German and Irish) are proposing to be linked to universities, since this status, in the case of Germany, will give the centre the opportunity to get public funds like any other department or centre linked to a public higher education institution. In the case of Ireland, this status simplify the structure and legal requirements and the BBEC will be able to benefit from the existing legal structure, policies and procedures of MTU.

Instead, two of them (Central-Eastern and Finish) are planning to become a consortium of entities, where they collaborate to operate the BBEC. In the case of the Finnish BBEC, this collaboration will be only to start the centre, but in the future, the Centre should become an independent private entity.

In the case of the Danish BBEC, the situation is similar to Finnish one. In this case, the suggested structure is a Commercial Foundation, where the founding partners will help at the beginning of the BBEC until this can run without any other economical support.

Finally, in the Mediterranean case, the suggested legal status is a non-profit association, with public purposes, since this will give the centre the opportunity to get public funds to run some of the expected activities that it will implement.

Below there are more details regarding the reasons why the different regions chose one or another legal status:

### CENTRAL-EASTERN BBEC

The cooperation between the entities will be based on the Memorandum of Understanding in which each Partner will be able to indicate the willingness to cooperate to fulfil the Action Plan of the BBEC CE for the period of 5 years after the BIObec Project finalization. The document will be voluntary and each of the entities will be able to decide to withdraw from coordination of the development of BBEC CE due to various circumstances.

### GERMAN BBEC

The current network from the University of Hohenheim could potentially support and enhance the BBEC activities through the inter- and transdisciplinary approach that the University has. Although there could be a dependency on projects' money, this ownership type is the most convenient for the BBEC.

As part of the university, the same ethical framework will govern the BBEC.

## DANISH BBEC

The Founding fathers of the foundation will sign an application for funds apart from the ‘foundation fee’ to give the BioBEC some ‘power’ to start with. From this starting point, the BBEC should start to run finding activities to do where they can get funding for its subsistence.

## FINNISH BBEC

The Finnish BBEC will operate as an open collaboration platform. The coordinator of the platform will be working under one of the actor organisations with the idea that in the future the BBEC could become an independent private entity.

## IRISH BBEC

It will likely be funded by government grants with some industry support. Educational institutions in Ireland are substantially state-funded. The ethics and regulatory content are in line with the policies and procedures of MTU.

## MEDITERRANEAN BBEC

The idea is to have an independent legal entity, so not dependent on a single/prevaling partner, and not devoted to making profits, so following an approach compatible with the mission of public partners (e.g. university) and use of public funding. The commitment of industry is sought in particular through intermediary organizations (e.g. clusters) rather than individual companies. Legal requirements and constraints linked to opportunities for funding will be considered at a later stage depending on what is available at the time of implementation (e.g. Next generation EU). Moreover, the identified legal framework helps members to join or leave in a more flexible way.

## 3.2. Institutional purposes

In this section, the governance plans are supposed to describe which is the main mission of the BBECs, the strategies that will guide their action, as well as to identify some of the main actions they will implement, such as training activities, innovative projects with third parties, etc.

Considering the mission and the vision of the different BBECs, we can summarise them as follows:

### Mission

*The BBECs function as knowledge exchange and education hubs, promoting cooperation and service provision in the field of bioeconomy education and training. They aim to connect actors, develop flexible frameworks in order to make education accessible, turn challenges into profitable businesses, deliver outstanding education, and match training demand in specific regions, to turn challenges into profitable businesses and career opportunities.*

### Vision

*The BBECs aim to serve as hubs for bioeconomy development, innovation, and investment in their respective regions. They envision being catalysts for sustainable education, bridging career gaps, pioneering green circular*

*bioeconomy, achieving excellence, and becoming reference points in their areas of focus.*

Below we present the mission and vision of the different BBECs. It can be seen that all of them are introducing ideas related to the improvement of education and knowledge related to the bioeconomy. Furthermore, some of them are pretending to become a hub that can serve as the starting point to promote not only education but also innovation in the field of bioeconomy, putting in contact the different actors of the territory, such as companies, universities, education institutions and administrations.

### **CENTRAL-EASTERN BBEC**

**Mission:**

Serve as a hub for knowledge exchange, education, cooperation, and service provision related to the field of bioeconomy

**Vision:**

Become a leading catalyst for bioeconomy development, innovation and investment in Central-Eastern Europe.

### **GERMAN BBEC**

**Mission:**

Serve as a hub for connecting actors between institutions and networks. It will support the creation and adaptation of educational offers by developing a flexible, inter- and trans-disciplinary, tailored, practical-oriented and regional-driven framework for sustainable Bioeconomy at the different educational levels and offerings.

**Vision:**

Support the connection of supply and demand for bioeconomy, offer advise and/or consultancy for educational formats, serve as a platform that connects stakeholders of bioeconomy education in the region and at national and international level, work on social awareness of bioeconomy by inspiring, engaging and communicating topics of sustainability transition to the bioeconomy to society and become an authority in topics of bioeconomy education based on research of directional trends, developments and challenges

### **DANISH BBEC**

**Mission:**

Make education for the bio-based economy in Denmark accessible and visible and fill in a need for further cross-silo themes and use our competencies in cooperation with similar centres in the EU to continue to be the most innovative, best educated and most inspiring partners in the European bio-economy while creating jobs and long-term sustainable solutions in Danish rural areas.

**Vision:**

We are a platform, a 'one-stop-shop', or training/competence/knowledge centre, bridging the gap between existing public education and the competence needs of private companies to meet the demand for a well-trained workforce in the bio-based economy of the future.

### **FINNISH BBEC**

**Mission:**



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We help to turn global bioeconomy-related challenges into profitable businesses through the cooperation between research, education and business.

**Vision:**

We want to be global pioneers in a green circular bioeconomy.

**IRISH BBEC**

**Mission:**

The Irish BBEC will be Ireland's flagship destination for bioeconomy skills & training, from vocational to university level, integrating all Irish bioeconomy stakeholders and providing a pathway to the programmes and resources of the European BBEC network.

**Vision:**

The Irish BBEC will be an EU leader in circular bioeconomy education & training, ensuring that Ireland is at the cutting edge of sustainable bioeconomy growth in Europe.

**MEDITERRANEAN BBEC**

**Mission:**

To match the demand and the offer of education and training in the Mediterranean basin, with a specific interest in the characteristic Mediterranean value chains, i.e. food, food waste, fishery and aquaculture. Furthermore, at the heart of the Med-BBEC, there are some transversal topics, fundamental for the Mediterranean countries: the importance of rural communities; water scarcity; low development of biomass value chains.

**Vision:**

Mediterranean areas have the potential to benefit a lot from the development of a vital and specific bioeconomy sector. The Centre aims to become the reference point for bioeconomy education and training in the Mediterranean area, for both EU and Extra-EU countries.

The main objectives of the BBECs, mentioned in the individual governance plans, can be summarised as follows:

- **Strategic planning:** Each BBEC aims to develop a strategic plan to guide its interventions and activities in the bioeconomy sector.
- **Training and education:** The BBECs focus on promoting values and general professional skills in the field of bioeconomy. They aim to bridge the educational gap by reorganizing existing learning materials and training offers, and by acting as a broker between the demand for education and the available offerings. The BBECs also aim to enhance cooperation between bioeconomy actors, create new job opportunities, and have a positive impact on EU-funded projects related to bioeconomy education and training.
- **Development of plans and characteristics:** The BBECs aim to connect with various education entities and provide a wide range of opportunities, including training the trainers, experiential learning activities, online teaching materials, internships, and mentoring. They also engage in non-learning activities such as dissemination, communication, and collaboration with industry and the bioeconomy ecosystem to identify priorities and training needs.
- **Singular and innovative projects:** The BBECs collaborate on projects such as internships in companies, Information and Communication Technologies implementation, entrepreneurship workshops, and lifelong learning for trainers.

Each BBEC has its own specific objectives based on the regional context:



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- **Central European BBEC:** Focuses on knowledge exchange, education, cooperation, and services related to bioeconomy, and supports regional development, sustainable entrepreneurship, and skills development.
- **Finnish BBEC:** Focuses on strategic planning, increasing collaboration between educational and research organizations and industry, and joint funding calls for all of them.
- **Danish BBEC:** Focuses on coordinating and promoting existing biobased education, adding a biobased content and framework, and developing new courses to fill identified gaps.
- **German BBEC:** Focuses on connecting supply and demand for bioeconomy education, serving as a platform for cooperation, promoting social awareness, and becoming an authority in bioeconomy education.
- **Irish BBEC:** Focuses on coordination and development of educational programmes (vocational to university), development of bioeconomy apprenticeships, jobs and skills hub, schools and community engagement, technical mentoring and EU interuniversity programmes.
- **Mediterranean BBEC:** Focuses on thematic specialization, cooperation between bioeconomy actors in the Mediterranean area, social benefit through job opportunities, and the impact of EU-funded projects.

Overall, the BBECs aim to promote bioeconomy education, bridge the gap between industry and education, and foster collaboration and innovation in the bioeconomy sector.

### 3.3. The operating structures

In this section of the governance plans, the different BBECs were asked to identify which will be the structures of human resources, identifying the governance and participation bodies of the Centre, as well as the main rules that they will be asked to follow for the correct function. They were also asked to identify the main resources that will be used to run the BBEC.

Below we present a short summary of each BBEC's operating structure.

#### **CENTRAL-EASTERN BBEC**

##### *The structure of human resources*

The Central European BBEC will have a simple and flexible structure, allowing participants to integrate into thematic groups based on their interests. A steering group will coordinate the work of the BBEC, comprising representatives from coordinating organizations. Their tasks include creating a corporate identity, developing action plans, initiating activities, communicating with stakeholders, organizing events, and engaging new stakeholders. Stakeholder groups will be formed in each country of the steering group, and regular meetings will be held to discuss cooperation, knowledge sharing, project ideas, call announcements, industry challenges, and joint initiatives. Working groups will be created for specific topics, coordinated by steering group members or stakeholders, with defined goals and work schedules.

##### *The structure of material resources*

The BBEC will utilise the infrastructure owned by consortium members for coordination, without creating a new physical entity. The structure will be distributed and virtual, enabling flexible actions and leveraging the resources of members in terms of human resources, infrastructure, intellectual property, and research and development capabilities.

### *Functional Resources*

External financing will be sought to support the planned activities of the BBEC. Potential sources of regional and European funding have been identified. A five-year action plan has been established, allowing the partner network expansion and adaptation to changing education market needs and bioeconomy trends. Each partner will undertake independent funding applications at the national level, while joint applications will be made for regional and European calls. Collaboration with other BBECs is also planned to access funds for horizontal activities. Diversification of funding sources and coordination among partners from different countries will be prioritised.

In summary, the BBEC CE's structure involves a steering group, stakeholder groups, and working groups for effective coordination. Material resources will rely on existing infrastructure, while funding will be obtained through various sources, including regional and European financing. The focus is on maximizing resources and collaboration to drive innovation and address bioeconomy challenges.

### **GERMAN BBEC**

#### *The structure of human resources*

The German BBEC is integrated into the institutional setting and infrastructure of the University of Hohenheim, connecting with internal academic and administrative institutes, particularly within the Bioeconomy hub. External stakeholders are also involved. Potential workstreams are identified, including network and communication, educational offerings, and products/outputs.

The organization of staff includes a coordinator, operational manager, and project-based positions. Selection, job assignments, and training follow university rules. Induction courses and ongoing communication are emphasised for interdisciplinary teamwork and improvement. On-the-job training for staff will be recommended to enhance necessary skills.

#### *The structure of material resources*

The BBEC is planned to be located on the University of Hohenheim campus, utilizing its infrastructure.

### *Functional Resources*

The BBEC's calendar and hours of operation align with university rules. Funding is expected to come from bioeconomy-related project funds at regional, national, and European levels. The internal regulations of the University of Hohenheim cover various aspects, such as salaries based on collective agreements, data protection, gender equality, health and safety, equal treatment, and parental leave, following university procedures.

In summary, the German BBEC's structure encompasses governance and workstreams, staff organization, utilization of university infrastructure, adherence to operational hours, budget management, and compliance with internal regulations.

### **DANISH BBEC**

The plan is to have a hub-secretariat of 2-3 employees and this will not require a large and detailed description of the organization and governance, they will probably be employed by FBCD in the first 3 years and follow the operating rules here (Gold cluster excellence certificate).



Cluster management organizations holding a GOLD Label show their documented commitment towards a continuous improvement of their organizational structures and routines for the benefit of even higher performance. In order to qualify for the GOLD Label, cluster management organizations need to meet certain "levels of excellence" in terms of the structure of the cluster, governance, financing, strategy and services and recognition.

Concerning infrastructure, the BIOBEC only needs modest office spaces and will make use of the educational stakeholder's physical facilities. Especially we will make visits (rented bus/cars) to visit relevant companies in Dk.

## **FINNISH BBEC**

### *The structure of human resources*

The governance and participation bodies of the BBEC are outlined, with key actors serving as the main management and governance body. A platform coordinator will oversee daily activities, and decisions will be made in key actor meetings. Participants include local companies, students, researchers, and research groups, who will join an open collaboration platform for easier collaboration. Specific roles and representatives will be determined once the BBEC is established. The rights and duties of platform participants have been defined, emphasizing voluntary participation, active involvement, and content updating.

### *The structure of material resources*

Since the BBEC functions as an online collaboration platform, there is no need for physical spaces or infrastructure. Each key actor organization will provide and maintain its own facilities, furniture, and materials.

### *Functional Resources*

The BBEC's calendar aligns with the educational schedule, considering specific times for traineeships and thesis work. A year clock for student-company collaboration has been defined to support activity planning. The budget for the BBEC is outlined in WP3 T3.2, and further control and monitoring systems will be established. General guidelines for platform participation have been defined, and additional internal regulations will be discussed with the key actors.

In summary, the BBEC's structure includes governance and participation bodies, staff organization, rights and duties of participants, consideration of material resources (mainly online), calendar and operational hours, budget origin, and internal regulations.

## **IRISH BBEC**

### *The structure of human resources*

The Irish BBEC will employ a program manager and a community manager. Working conditions will align with the employment control framework for the higher education and research sector in Ireland and MTU policies. This project team will be supported by an operations team with members of MTU and IBF along with a governance board with representatives from MTU, IBF, a member of the steering committee, and the proposed funding agency.

### *The structure of material resources*



This project has received funding from the Bio-based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023381. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.

The Irish BBEC will be located in MTU, utilising its facilities and resources in alignment with MTU procedures and policies. Access to IBF facilities will also be available in accordance with their policies.

#### *Functional Resources*

The Irish BBEC will adhere to public service office opening hours. Budgeting, finance, and monitoring systems will align with MTU policies. Internal regulations will follow the policies set by MTU.

In summary, the Irish BBEC's structure entails a governance board, dedicated staff positions, utilization of facilities provided by MTU with support from IBF, adherence to working hours and budgeting protocols, and compliance with internal regulations based on MTU policies.

### **MEDITERRANEAN BBEC**

#### *The structure of human resources*

The expected structure of Mediterranean BBEC includes governance and participation bodies such as a general assembly, president, management board, scientific council, and managing director. Additional bodies may be considered as required by law. The organization of staff will adhere to ethical principles and the law, with a minimal staff consisting of a director and a secretary during the start-up phase. The director, with expertise in management and education, will handle relationships with partners and external stakeholders. The secretary will manage administrative tasks, such as coordinating funding applications and financial management.

#### *Structure of Material Resources*

Physical facilities will not be dedicated to the institution, as it will be hosted by one of the member institutions. The core infrastructure will be a web facility, encompassing a public website, restricted areas, coaching, and learning infrastructures. General and specialised furniture and materials for laboratories/workshops will be considered based on functionality and updating. The institution aims to collect and share learning materials from other projects and initiatives, requiring specific agreements and infrastructure for accessibility.

#### *Functional Resources*

The institution will operate during usual working hours, with planned flexibility for professional courses, and learning infrastructures will be available 24/7. Financial funds will originate from public and private sources, and control and monitoring systems will be implemented accordingly. The institution's internal regulations emphasise a "light" organization working as a network, requiring clear agreements on roles and contributions.

Overall, the text highlights the importance of organizing human resources, material resources, and functional resources to support the institution's operations, while emphasizing collaboration, flexibility, and adherence to legal and ethical principles.

In the summary of each BBEC operating structure we can see some similarities, these are:

- **Structure of Human Resources:** All BBECs have a defined structure for human resources, including governance bodies, coordinators, managers, and project-based positions. They

emphasise interdisciplinary teamwork, communication, and training to enhance skills and achieve goals.

- **Structure of Material Resources:** Most BBECs utilise existing infrastructure owned by consortium members or partner institutions. They focus on virtual and distributed structures, leveraging the resources of the members in terms of facilities, equipment, and intellectual property.
- **Functional Resources:** External financing is sought to support the activities of the BBECs. They aim to diversify funding sources and establish collaboration with other Centres to access funds for joint initiatives. They emphasise coordination among partners from different countries and adaptation to changing market needs and trends.

Additionally, each BBEC has specific aspects:

- **German BBEC:** It is integrated into the institutional setting and infrastructure of the University of Hohenheim, with potential workstreams identified and adherence to university rules and regulations.
- **Danish BBEC:** It plans to have a small hub-secretariat and follows the operating rules of the FBCD (Gold cluster excellence certificate). It requires modest office spaces and makes use of the physical facilities of educational stakeholders.
- **Finnish BBEC:** It focuses on an open collaboration platform for participants, relying on online resources and aligning activities with the educational schedule. Specific roles and representatives will be determined once established.
- **Irish BBEC:** Will be run by MTU with support from IBF, using the facilities and resources at MTU with backup as required from IBF. It will adhere to MTU policies and procedures.
- **Mediterranean BBEC:** It includes various governance and participation bodies, with minimal staff during the start-up phase. It relies on web facilities and hosted infrastructure, collects learning materials, and operates during working hours with flexibility for professional courses.

In summary, the BBECs share common aspects such as structured human resources, utilization of existing material resources, and seeking external funding. Each centre has its own specific features, including institutional integration, utilization of specific facilities, online collaboration platforms, and adherence to local policies and regulations.

## 3.4. Management and operation

This is an important section to be considered in a governance plan. However, the meetings with the stakeholders highlight that this is also something that should be thought about once the managers of the BBEC will be hired.

The main common points between all the BBECs (Bio-based Education Centres) are as follows:

- **Management and Coordination:** Each BBEC has a management structure responsible for planning and implementing activities. Decision-making is collective, usually through regular meetings of the Steering Group or governance board.
- **Training, Selection, Functions, and Working Conditions:** All BBECs consider the training, selection, functions, and working conditions of their management teams. They aim to have qualified staff with expertise in bioeconomy, education, research, and industry.
- **Governance Structure:** Each BBEC has a governance structure that includes representatives from academia, industry, government, and funding bodies. The governance board or steering committee plays an advisory role and makes major decisions.

- **Collaboration and Communication:** The BBECs emphasise collaboration and communication with stakeholders. This includes regular meetings, forums, and information-sharing sessions to facilitate cooperation, knowledge exchange, and decision-making.

While these common points are shared among the BBECs, there are also some specific details worth noting:

- **German BBEC:** It defines specific management roles, such as the Bio-based Education Centre Coordinator and Project Leaders, responsible for different aspects of the BBEC's activities.
- **Finnish BBEC:** It focuses on the establishment of a steering group consisting of key actor organizations, with a platform coordinator playing a central role in practical implementation. Each key actor organization assigns specific experts to tasks related to the BBEC.
- **Irish BBEC:** It defines a Programme Manager and a Community Manager to run the Irish BBEC. It follows a simple governance structure with a steering committee, governance board, and operations team. Stakeholders are involved via working groups and included in the decision-making processes.
- **Mediterranean BBEC:** It emphasises hiring motivated staff with experience in bioeconomy training and communication. The management teams are kept simple, with 1-2 people interacting regularly with partners.

Overall, the BBECs share a commitment to collaboration, training, and effective management structures, while also adapting to their specific contexts and organizational needs.

### 3.5. The relational systems

As presented in section 3.2, one of the main missions of BBECs is to connect actors in the field of bioeconomy and bioeconomy education. For that reason, it's important to define a clear communication system, not only to facilitate the dissemination of the planned activities but to facilitate the coordination among the stakeholders and partners involved in the BBEC structure.

In this section, we summarise the main aspects considered in each governance plan related to the relational system:

#### CENTRAL-EASTERN BBEC

Communication aspects should be considered on several levels.

Internal communication within the governing bodies of BBEC CE will take place through standard means of communication: e-mail, teleconference, and physical meetings. The same will be done within individual teams.

Internal communication with the stakeholders and members of BBEC CE will take place through a person from the Steering Group who will be appointed to perform communication tasks. It is very important that BBEC CE members have a single point of contact in each of the three countries that will be able to efficiently respond and provide the necessary organizational information.

External communication activities will be carried out through a number of channels. First of all, it will be a single website with news, information about the activities of individual groups, new initiatives, and dates of meetings. The BBEC CE team will also be active on social media channels such as LinkedIn and Twitter.

Communication activities will also take place through the organization and participation in various events promoting the bioeconomy in the region. It will be an opportunity to promote BBEC CE, its activities and carry out specific tasks.

## GERMAN BBEC

The communication processes in the Centre are structured around internal communication, communication with stakeholders, and workstream communication. Internal communication emphasises early conflict resolution, promoting engagement and bottom-up communication, and providing consistent feedback. Communication with stakeholders focuses on simplicity, openness, transparency, effective written and verbal communication, active listening, and clear visual communication. Workstream communication aligns with the values of the BBEC, emphasizing, cooperation, flexibility, and impact orientation. Decision-making involves continuous communication and exchange with university institutions, with the BBEC coordinator and the Chief Bioeconomy Officer (CBO) authorizing strategic activities. Project leaders have decision-making responsibility for their projects, while the involvement of projects is determined by the BBEC coordinator and CBO.

## DANISH BBEC

A good CEO will analyse the most important aspects that affect people's behaviour once the team will be built.

Employees should be self-motivated by the mission/vision and the daily management should of course stimulate this. The institutional culture should include transparency, networking, cooperation and delegation of tasks. Decisions procedures should be transparent and logical

## FINNISH BBEC

The communication processes within the BBEC will primarily rely on the platform as the main channel for external communication with customers and other stakeholders. Internal communication will take place through emails, Teams, and phone calls, with a dedicated Teams channel serving as the main forum for internal issues. The motivation of staff will be enhanced through a kick-off event and frequent joint meetings. The coordination of people will be overseen by the steering group and the coordinator of the platform, with each key actor organization assigning a contact person. Decision-making will be divided between the steering group and the coordinator, with contact persons consulting experts within their organizations. The institutional culture of the BBEC will be influenced by the participating organizations, particularly the platform coordinator's organization, and will be further defined once the platform is operational.

## IRISH BBEC

Coordination of the Irish BBEC will be as per the governance structure with major decision-making coming from the governance board while the day-to-day running lies with the operations and project teams. Stakeholders will be invited to working groups, forums and information-sharing sessions arranged by IBF and MTU to assist with the decision-making process.

The Irish BBEC will be committed to ensuring the highest standards of professionalism and rigour, and to the accuracy, openness and integrity in all aspects of its work.

## MEDITERRANEAN BBEC

The Centre will leverage the expertise of communication partners and the network of European BBECs for effective communication. Staff motivation will be fostered through collaborative efforts among supporting institutions. The coordination of people and decision-making processes will align with the aforementioned strategies. The Centre's institutional culture will be shaped by a strong bioeconomy vision and commitment to addressing societal challenges.

Common aspects among the different BBECs include the recognition of the importance of communication, both internally and externally. Internal communication is facilitated through various means such as email, teleconferences, physical meetings, and dedicated communication tasks performed by appointed individuals or teams. External communication is carried out through websites, social media channels, and participation in bioeconomy events. The motivation of staff is

emphasised through kick-off events, joint meetings, and the inclusion of dedicated contact persons from participating organizations. Decision-making processes involve collaboration and exchange with stakeholders, with the involvement of steering groups and coordination teams. The institutional culture of each BBEC is influenced by their respective organizations and is driven by a strong bioeconomy vision. There are some aspects that we can highlight from each BBEC:

- **Central-Eastern BBEC:** emphasises the need for a single point of contact in each country to efficiently respond to stakeholders and provide organizational information.
- **German BBEC:** Their communication processes focus on early conflict resolution, bottom-up communication, and consistent feedback. Workstream communication aligns with the values of the BBEC.
- **Danish BBEC:** Emphasises the role of a good CEO in analysing factors that affect people's behaviour. Their institutional culture includes transparency, networking, cooperation, and delegation of tasks.
- **Finnish BBEC:** Relies on a platform as the main channel for external communication. The coordination of people is overseen by a steering group and a platform coordinator, and decision-making is divided between them.
- **Irish BBEC:** The direction of the Irish BBEC is guided by the governance board, decision-making will come from the operations team and day-to-day operations are managed by project teams. They prioritise professionalism, rigour, accuracy, openness, and integrity in their work.
- **Mediterranean BBEC:** They leverage communication partners and the network of European BBECs. Their institutional culture is shaped by a strong bioeconomy vision and a commitment to addressing societal challenges.

## 3.6. Institutional dynamics

In this section, each governance plan coordinator, together with the opinions and feedback of their partners and stakeholders, were asked to identify how they will plan the activities of the BBEC, as well as the monitoring activities, how they will define quality indicators and how they will ensure they are innovating in collaboration with other institutions. Below there is a summary of the main information provided in the BBECs' governance plans.

### CENTRAL-EASTERN BBEC

The Central European BBEC will be guided by a Steering Group responsible for annual planning. They have created a preliminary work plan for the first 5 years of operation. Each year, the group will analyse previous activities and schedule key actions based on possibilities and current conditions. The plan will be monitored through regular meetings and reporting, using established Key Performance Indicators (KPIs). Flexibility will be maintained to adapt to market developments and deepen cooperation. Quality analysis will involve surveys and communication, with corrective plans proposed if needed. Communication with external networks and partners, such as BIOEAST and thematic working groups, is vital for knowledge transfer and international collaboration. The goal is to become a significant player in the bioeconomy ecosystem of the macro-region.

### GERMAN BBEC

The German BBEC conducts its annual planning through a team meeting led by the BBEC coordinator. The planning process involves reviewing the previous year's objectives, strategic milestones, and project updates. Monitoring of plans and programs is carried out by individual team members, overseen by the BBEC coordinator and CBO. Quality indicators related to budget utilization, activities and milestones, project-specific KPIs, communication, and integration with stakeholders are monitored especially the connection with BOKU and APT. The BBEC maintains



close links with external stakeholders through project activities. Improvement and innovation plans are developed based on ongoing feedback and market trends. Networking with other institutions is a shared responsibility, with the BBEC coordinator facilitating stakeholder engagement, cooperation, and product development.

### **DANISH BBEC**

The Danish BBEC daily management include annual (and longer-term) planning with all the involved institutions and companies.

The definition of the role of CEO in the Qualification diagram and cooperation with the close stakeholders is key to success. And based on that, the commercial success of the courses should reflect the real need of the Biobased Education Centre.

When we agree with the participating educational institutions and other stakeholders to develop this common hub/platform for biobased education, the balance between the BIOBEC (marketing the courses, attracting customers) and the 'real educators' should be found. A cooperation model for the BioBEC hub and the institutions will be developed, but this is yet to be discussed with the stakeholders/educational institutions.

### **FINNISH BBEC**

The Finnish BBEC follows an annual planning process coordinated by the platform coordinator, with guidance from the steering group. The plan is developed in collaboration with key actor organizations and is regularly updated. The steering group evaluates the plan before its establishment and assesses its execution at the end of the operating year. Quality indicators and surveys are used to evaluate customer satisfaction and user experience. The platform actively collaborates with various stakeholders, gathering ideas for improvement and innovation. Marketing efforts are conducted through the platform and social media channels, with events organised to engage specific customer groups. Networking with other institutions and stakeholders is actively pursued to enhance collaboration and development.

### **IRISH BBEC**

The Irish BBEC's annual planning will involve collaboration between the operations and project teams, with input from the governance team. The Performance Management and Development System (PDMS) will be utilised to set goals, review performance, and enhance staff performance. Key Performance Indicators (KPIs) will be established and regularly updated through meetings between coordinators and board members. The Irish BBEC will have a web-based platform connecting partner organizations and will employ various communication methods, including targeted emails, webinars, social media posts, and face-to-face visits. Events like Bioeconomy Ireland Week, conferences, and educational programs will be promoted through various channels. An annual calendar of events will be planned in September or October each year, featuring recurring events such as Bioeconomy Week and educational registrations.

### **MEDITERRANEAN BBEC**

The Mediterranean BBEC is carry an annual plan according to the legal form. Monitoring of plans and programs, as well as evaluation and accountability, will also follow the legal form. The adoption of a quality assurance system and relevant certifications will be related to the results of WP4. Improvement and innovation plans will be developed and implemented over the course of the project, with the initial phase serving as a reality check. Institutional marketing and networking with other institutions will be carried out, including partner institutions and a network of former students and users.

As can be seen, the BBECs share common activities such as annual planning, monitoring of plans and programs, quality assurance, linkages with external institutions and companies, development of improvement and innovation plans, institutional marketing, and networking with other institutions.

Annual planning involves setting objectives, reviewing previous activities, and scheduling key actions based on current conditions. Monitoring is done through regular meetings and reporting, often using Key Performance Indicators (KPIs). Quality assurance involves surveys, communication, and corrective plans if needed. Linkages with external stakeholders are important for knowledge transfer and collaboration. Improvement and innovation plans are developed based on feedback and market trends. Institutional marketing is conducted through various channels, including social media and events. Networking with other institutions and stakeholders is actively pursued to enhance collaboration and development. Each BBEC has its specific approach and nuances in carrying out these activities, tailored to their respective regions and legal frameworks.

It should be noted that, since this is the planning stage of the BBEC, some of the information needed to fill this section is still not available. It's just a plan, but it's still difficult to identify how the managing bodies of the BBEC will decide to run each centre.



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## 4. Conclusions

In this section, we analyse the main conclusions related to each section of the BBEC's Governance plan, and considering the information provided by each BBEC. We present the conclusions as a list of suggestions that might be useful for those intending to implement a BBEC.

### *The context of action*

The context of action is different for each BBEC. It is important to consider which are the needs of each context when someone is planning to create a Centre, as it must address the real needs of the territory if it wants to succeed. To identify these needs, the project BIObec has implemented various activities, such as interviews, workshops and meetings with different kinds of stakeholders. One of the main conclusions achieved during this process is that **the bigger the region where the BBEC should act, the bigger the challenges** to identify which should be the mission and objectives of the Centre. It is for that reason that, as it can be seen in the report, most of the centres are planned to operate at a national level, since international activities are more complex, it is not always easy to reach consensus on the objectives and activities that should be pursued, what is most important, actors are more motivated to contribute if they anticipate a direct return.

The second conclusion to consider is the **legal form** of the BBEC. Each region has different rules (legal conditions), and these rules are affecting the activities that could be implemented by each BBEC, as well as the possibilities to get funds from private or public institutions. It is for that reason that this is a key aspect when pretending to create a BBEC. The legal form should be chosen considering the regulations of the context where the headquarters will be located, as well as the kind of activities that should be implemented and the characteristics of the regions where the BBEC should act, since the focus is not always the country where the headquarters will be located.

### *Institutional purposes*

Considering the mission and vision of the BBEC planned in the BioBEC project, we state that the main mission of the BBEC should be:

*The BBECs function as knowledge exchange and education hubs, promoting cooperation and service provision in the field of bioeconomy education and training. They aim to connect actors, develop flexible frameworks in order to make education accessible, turn challenges into profitable businesses, deliver outstanding education, and match training demand in specific regions, to turn challenges into profitable businesses and career opportunities.*

At the same time, considering all the BBEC, the main vision is:

*The BBECs aim to serve as hubs for bioeconomy development, innovation, and investment in their respective regions. They envision being catalysts for sustainable education, bridging career gaps, pioneering green circular bioeconomy, achieving excellence, and becoming reference points in their areas of focus.*

Considering this, the governance plans include objectives related to the implementation of training and education activities, the development of plans of various types, and the implementation of unique and innovative projects necessary for enhancing bioeconomy and bioeconomy education in their respective regions of influence.

One of the main conclusions drawn during the preparation of the governance plans is that the objectives vary across different regions and that it is important to consider the needs identified and taking into account stakeholders' opinions. The aim of BBEC is to create synergies and collaborate with existing institutions in the territories, not to compete with them, but being complementary to the activities they are already doing. For this reason, the objectives of BBEC should aim to assist existing organizations to improve the activities they are already doing, and facilitate collaboration among these organizations in implementing new innovative activities that can enhance the bioeconomy and bio education in the region.

### ***The operating structures***

The BBECs aim to promote innovation and address bioeconomy challenges through effective coordination, resource utilization, promotion of training activities and collaboration.

The BBECs' operating structures have some common elements. Firstly, the emphasis of the human resources structures is placed on interdisciplinary teamwork, communication, and training to enhance skills and achieve goals.

Secondly, most BBECs utilise existing infrastructure owned by consortium members or partner institutions, adopting virtual and distributed structures. This approach allows for flexibility and leverages the resources of the members in terms of facilities, equipment, and intellectual property.

Thirdly, external financing is sought to support the activities of the BBECs. They aim to diversify funding sources and establish collaboration with other centres to access funds for joint initiatives. It's important to consider the deliverable related to business plans and address the necessary collaboration between the different BBECs.

Overall, the BBECs should demonstrate a commitment to effective governance, resource utilization, and collaboration in driving innovation and addressing bioeconomy challenges.

### ***Management and operation***

The identification of the management structures of the BBECs is something complex since it is constrained by the structure and legal form of each of them. It is identified, at the same time, as one of the critical parts of the governance plan. However, during the meetings and workshops with the main stakeholders, it was also noted that the management and operation structure should be implemented once the first CEO or Manager of the BBEC is already hired. It's important that each management and operational structure answer not only to the objectives of the BBEC and the needs of the context but to the leadership style that each manager. In any case, the structure should answer to the following elements:

- Coordination of actions
- Training, selection and working conditions of the employees and collaborators
- Relations with the governance structure, steering or advisory committees
- Identification of the main structures to facilitate communication with and between the BBEC stakeholders.

### ***The relational systems***



This project has received funding from the Bio-based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023381. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.

BBECs require a well-defined communication system to connect actors in the field of bioeconomy and bioeconomy education. The different BBECs have recognised the significance of communication, both internally and externally, in achieving their objectives. Internal communication should be facilitated through various tools such as email, teleconferences, physical meetings, and dedicated communication tasks performed by appointed individuals or teams. External communication activities include the launch of websites, engaging in social media channels, and participating in bioeconomy events.

Decision-making processes should involve collaboration and exchange with stakeholders, with the involvement of steering groups and coordination teams.

Each BBEC also considers specific aspects that stand out. The Central-Eastern BBEC emphasises the need for a single point of contact in each country to efficiently respond to stakeholders. The German BBEC emphasises early conflict resolution, bottom-up communication, and consistent feedback. The Danish BBEC recognises the role of a good CEO in analysing factors that affect people's behaviour and promotes transparency, networking, cooperation, and delegation of tasks. The Finnish BBEC relies on a platform as the main channel for external communication and divides decision-making responsibilities between the steering group and platform coordinator. The Irish BBEC prioritises a simple governance structure with close communication between the project and operations teams with direction guided by the governance body. Lastly, the Mediterranean BBEC leverages communication partners and the European BBEC network, with a strong bioeconomy vision and a commitment to addressing societal challenges shaping their institutional culture.

Overall, effective communication, motivation, and collaboration are key factors in the success of the BBECs in promoting bioeconomy and bioeconomy education.

### ***Institutional Dynamics***

The analysis of the governance plans shows that some common elements are important to be considered to launch a BBEC. From one side, it's important to define an annual plan that should contemplate the main objectives to be implemented during the next 12 months. In the elaboration of this annual plan, the BBECs have to consider the previous activities, assess their implementation, and identify the activities to be implemented according to the BBEC's main objectives and the current needs of the context. It is important that before the definition of each annual plan we check if the context needs remain the same, or there is something new that should be considered.

For this reason, it is important to establish which will be the best procedures and mechanisms to monitor and assess the quality of the activities implemented. The quality should be in accordance not only with the BBEC objectives but the current needs of the sector and its stakeholders. To do so, quality assurance mechanisms such as surveys, customer satisfaction analysis, user experience, etc., should be part of the daily activities of the BBECs. Considering the feedback and the analysis done, each BBEC should also identify which is the best way to promote innovation in the sector, helping stakeholders to implement new developments and promoting the collaboration between different actors to achieve the challenges of the sector. In this respect the BBEC also need to be flexible, including in their governance structure, and ready to adapt to new needs, including unforeseen opportunities.

## 5. Annexes

### 5.1. Governance plan suggested index

#### A.- The context of action:

**All institutions are situated in a context; sociocultural and economic, to which they must respond and which justifies their meaning and existence.**

##### A.1. The socioeconomic context:

- Socioeconomic reality and future prospects.
- Present and future needs of the training/assessment/counselling/research to which it is intended to respond.
- Existing training bodies and institutions in the field of action where you want to influence or collaborate.

##### A.2. The regulatory context

- Ownership of the institution: public, private, consortium, linked to another body, etc..
- Justification of the institution ownership: economic benefits, incomes, grants, etc..
- Institution size
- Ethics and Regulatory context

#### B.- Institutional purposes:

**They refer to the purposes and goals pursued by the institution**

- Mission and vision of the BBEC.
- Strategic planning that guides your intervention.
- Training project: values that BBEC want to promote, general professional skills to develop and intervention methodology.
- Plans that it develops and some characteristics of these.
- Singular and innovative projects in which BBEC will work: internships in companies, ICT implementation, entrepreneurship workshops.

#### C.- The operating structures:

**They refer to the way in which existing resources are organised to achieve the established institutional purposes.**

##### C.1. The structure of human resources:



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- Governance and participation bodies (organization chart): management bodies and their functions, participation bodies (stakeholders they represent and their functions).
- Organization of the staff participating in the institution: selection, assignment to job positions, training and improvement, and working conditions.
- Organization of users: rights and duties
- Organization of other participants in the institution: sponsoring companies, Public Administrations, professional groups,...

### *C.2 The structure of material resources:*

- Infrastructure of the BBEC: spaces, security conditions, health and sustainability of the facilities, .....
- General and laboratory/workshop furniture and materials, with reference to its functionality and level of updating.

### *C.3. Functional Resources:*

- Calendar and hours of operation.
- Budget: origin of financial funds, items and control and monitoring systems.
- Most prominent aspects of internal regulations.

## **D.- Management and operation:**

### **Review the format and actions of the institution's management bodies**

- Management: training, selection, functions and working conditions
- Management teams: composition and functions.
- Intermediate management (coordinators, area managers,...) and their functions.

## **E.- The relational system:**

### **Analyse the most important aspects that affect people's behaviour**

- The communication processes in the centre.
- The motivation of the staff.
- The coordination of people.
- Decision making.
- Institutional culture.

## **F.- Institutional dynamics:**

### **It refers to the most relevant aspects of the institutional day-to-day.**

- The annual planning of the centre, who, how and when it is carried out.
- Monitoring of plans and programs. Evaluation and accountability.
- Quality indicators and internal quality assurance systems.
- The link with the environment and its institutions and companies.
- The elaboration and development of improvement and innovation plans.
- Institutional marketing.
- Networking with other institutions.

## 5.2. Central-Eastern Europe BBEC Governance plan

### THE BIO-BASED EDUCATION CENTER FOR CENTRAL -EASTERN EUROPE (BBEC CE)

#### A.- The context of action:

**All institutions are situated in a context; sociocultural and economic, to which they must respond and which justifies their meaning and existence.**

##### A.1. The socioeconomic context:

When analysing the context of the Bio-Based Education Centre for Eastern Europe (BBEC CE) it must be taken account the perspective of the whole macro-region. Three countries (Bulgaria, Czech Republic, Poland) are responsible for creating an adequate BBEC model but the Centre will have an impact on other countries in the region. One of the key aspects is that Bioeconomy policies and initiatives exists in the region or are being developed. **The European Commission points out that there are three large macro-regional bioeconomy initiatives involving governmental authorities from several European countries (BIOEAST, Nordic bioeconomy and a bioeconomy for the Baltic Sea region).** The reason is that Member States have diverse perceptions and priorities for their national bioeconomy, mainly due to the varied biophysical characteristics and industrial specialization of EU regions<sup>1</sup>. The issue of regional diversity immediately comes to the foreground, regarding diverse biophysical characteristics and industrial specialization of EU regions. **The European bioeconomy is therefore shaped by policies at different levels that follow different approaches<sup>2</sup>.** The result is that a number of instruments are available to provide public financial support to bioeconomy projects in the form of grants, loans and equity, starting from the EUs research and innovation programmes. Under Horizon 2020 and Horizon Europe, the European Commission already dedicated substantial public investment into bioeconomy projects, including under the Bio-based Industries Joint Undertaking (BBI JU) successor Circular Biobased Europe Joint Undertaking (CBE JU). In this regard as mentioned before there are few macroregional initiatives but the most relevant to BBEC CE and which covers the area is BIOEAST - Central-Eastern European Initiative for Knowledge-based Agriculture, Aquaculture and Forestry in the Bioeconomy<sup>3</sup> which offers a shared strategic research and innovation framework for working towards sustainable bioeconomy in the Central and Eastern European (CEE) countries. It promotes bioeconomy development in 11 central and eastern European countries, where bioeconomy deployment is currently less advanced. BIOEAST is supported by the European Unions Horizon 2020 Programme for Research and Innovation. This initiative is essential in the field of future national bioeconomy strategies which will influence the actions of BBEC CE the most.

As of December 2022 in the microregion only Latvia from BBEC CE countries had a national bioeconomy strategy. Other countries have such strategies under development (Czechia, Croatia,

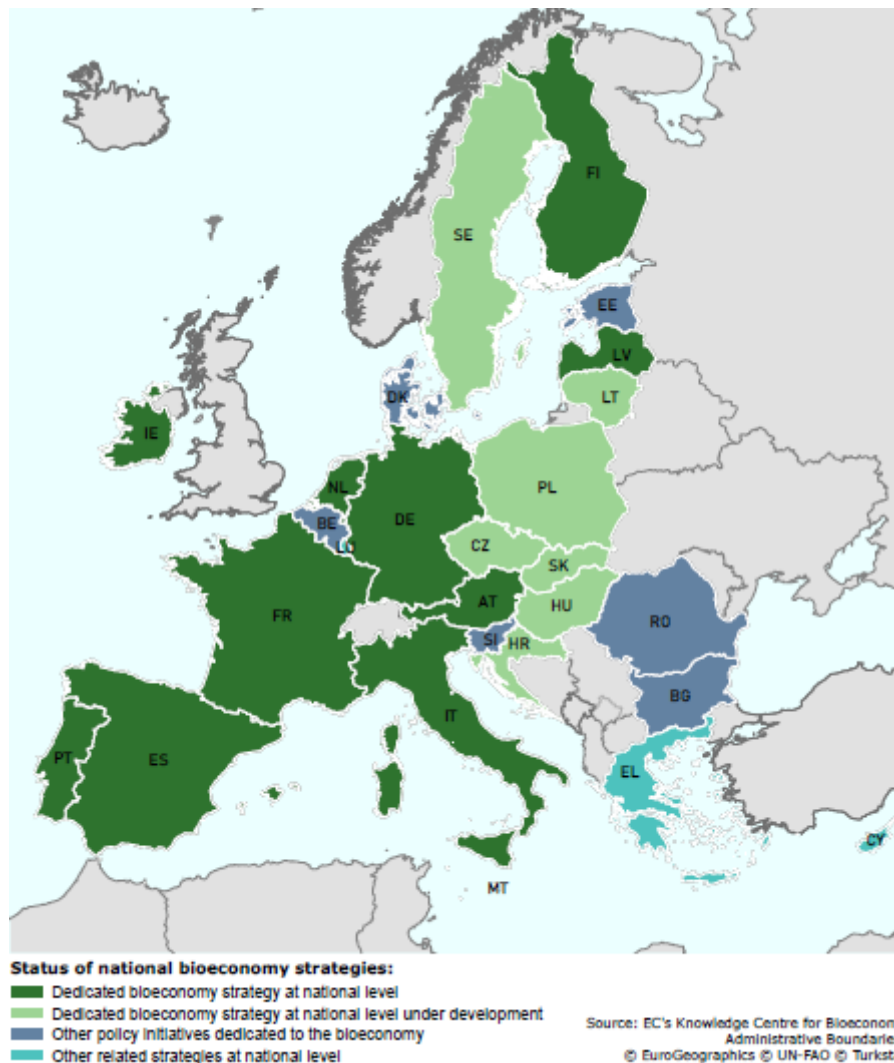
<sup>1</sup> Mubareka, S., Giuntoli, J., Sanchez Lopez, J., Lasarte Lopez, J., M'barek, R., Ronzon, T., Renner, A. and Avraamides, M., Trends in the EU bioeconomy, Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/835046, JRC132639

<sup>2</sup> Ibidem.

<sup>3</sup> <https://bioeast.eu/>



Hungary, Lithuania, Poland and Slovakia). Estonia has other policy initiatives dedicated to the bioeconomy.



In the EU there are a large number of countries that have already established and implemented national bioeconomy strategies. In the existing strategies there are mentioned number of Policy actions that each state has taken to develop the bioeconomy on national level<sup>4</sup>, among others:

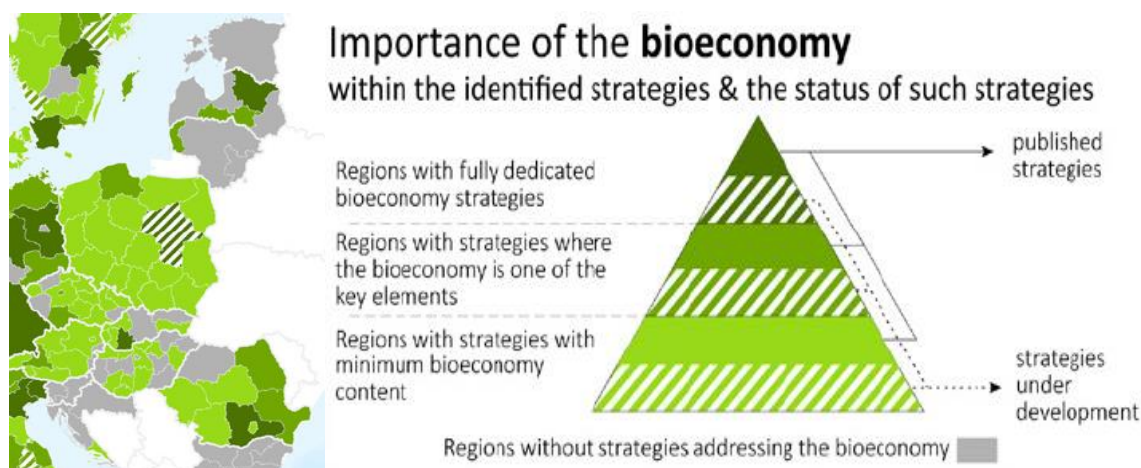
- Promotion the establishment of intra-governmental groups to support policy coherence or collaboration amongst **different bioeconomy stakeholders**
- Promotion **specific bioeconomy sectors**
- Enhancement the knowledge on bioeconomy by **setting-up knowledge hubs**, observatories, information systems, web portals, conferences, etc.

<sup>4</sup> Doussineau, M., Bachtrögler-Unger, J., Exploring synergies between the EU Cohesion policy and Horizon 2020 fund-ing across European Regions, EUR 30678 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-36247-0, doi:10.2760/218779, JRC123485.

- Implementation of **specific studies** (feasibility, impact assessments, land use, territorial development analyses, market analyses, foresight studies etc).
- Promotion of communication campaigns for **awareness raising** (e.g. bioeconomy awards, information systems, events, etc.)
- Promotion of **educational/training programmes**
- Promotion of **investments in bioeconomy** research, innovation, market development

Looking at the future activities of BBEC CE, **it is necessary to consider the above points**. The created model should be in line with the activities undertaken so far in other countries because it is very likely that they will also become an element of the policy of implementing future strategic documents related to bioeconomy.

For a more accurate description of the reality, it is also necessary to refer to the activities of individual EU regions for the bioeconomy. It must be mentioned that on the regional level overall, **there are 359 bioeconomy-relevant strategies at regional level in the EU**. Of those, 334 frameworks are published in the form of documents such as strategies, action plans, roadmaps, and the rest are under development. From the strategies published, 32 fully are fully dedicated to the bioeconomy, in 209 the bioeconomy is embedded within a wider strategic framework (e.g. circular economy) while in 83 the bioeconomy is covered within a sectoral strategy (e.g. forestry or waste strategy)<sup>5</sup>.



The BBEC CE intention is to be a bio-based education centre. An institution that will provide high value information, education and support to bioeconomy transition in the macro-region. As previous studies shown **it is not possible without deep collaboration between the partners**. Different stakeholders from different sectors must work hand in hand to address this complex transformative process. While the variables of the governance process can be changed independently, governance of the circular bioeconomy is holistic. No actor operates in isolation, and all actors influence each other either implicitly or explicitly. Acknowledging that sustainable governance of the circular bioeconomy is not brought about by pro forma changes is a prerequisite of success. Network governance is an indispensable addition to conventional public governance. Regarding the education system issues the number of previous recommendations where pointed<sup>6</sup>:

<sup>5</sup> Mubareka, S., Giuntoli, J., Sanchez Lopez, J., Lasarte Lopez, J., M`barek, R., Ronzon, T., Renner, A. and Avraamides, M., Trends in the EU bioeconomy, Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/835046, JRC132639

<sup>6</sup> BIOEAST Foresight Exercise. Sustainable Bioeconomies towards 2050, <https://bioeast.eu/documents/>



- Education about the bioeconomy, the circular economy and sustainability should **develop horizontally across curricula and at all levels of education** (from primary schools up to universities);
- The inflow of **competent staff to national and local governments** must be insured;
- Focus of **education on the reality** we are living in;
- **Involvement of NGOs and businesses in education programmes** to showcase the circular bioeconomy;
- **Empowerment of experts and professionals** through a comprehensive system of education and training.

Within the BIObec project the framework for the BBEC CE is being developed by three EU states: Bulgaria, Czechia and Poland. At this point, we should focus on identifying the key needs and expectations of these countries in the context of the future of bioeconomy. As mentioned earlier, the three countries are different from each other in terms of biological resources, environmental conditions, legal and governmental issues. **However, this information is intended to show that the developed BBEC model is adapted to diversity and can be implemented in other countries in the region and beyond.**

### **BULGARIA**<sup>7</sup>

The reports show that in Bulgaria there are four directions for the strategic actions in the selected sectors are:

1. Use of fast-growing biotechnology for transformation to the bioeconomy and increase the production and exports of bio-based products. Especially it regards to the chemical industry, the oil industry, the woodworking and furniture industry and the food industry.
2. Valorisation of by-products and wastes to overcome energy intensity, substitute fossil fuels and improve efficiency of raw material use.
3. Growing the role of the national bioeconomy in addressing the global economic instability.
4. Improving research, education, training, networking and cooperation among stakeholders to mitigate external competitive pressure.

### **CZECH REPUBLIC**<sup>8</sup>

The key actors indicated the crucial issues regarding the further development of the bioeconomy in this country:

1. consider highly important to protect, restore and promote the sustainable use of terrestrial ecosystems, sustainable forest management, promote sustainable agriculture, new breeding techniques and food security, manage natural resources sustainably, building resilient infrastructure, promoting inclusive and sustainable industrialisation and promoting innovation and reducing dependence on non-renewable resources;
2. emphasise the need to mitigate the effects of drought in connection with climate change, adapt the landscape to these changes and comprehensively care for and protect primary resources, improve their management;

<sup>7</sup> EXECUTIVE SUMMARY OF THE STRATEGIC CONCEPT PAPER FOR BIOECONOMY: BULGARIA, <https://bioeast.eu/documents/>

<sup>8</sup> EXECUTIVE SUMMARY OF THE STRATEGIC CONCEPT PAPER FOR BIOECONOMY: CZECH REPUBLIC, <https://bioeast.eu/documents/>

3. see environment, food industry, waste, agricultural and food technology with the automotive, aircraft and spacecraft industry, railway, and rail vehicles as the most priority sectors, prominent position in the biogas production and composting technologies; consider the need to support the transition from cost-oriented competitiveness towards knowledge-based competitiveness;
4. consider it essential to support cooperation between research organizations and the application sphere, further development of the national BIOEAST HUB CZ for the implementation of bioeconomy in the bottom-up approach;
5. clarify the need to support for environmentally friendly technologies and technologies and products that increase the overall efficiency of the use of primary resources and energy efficiency; develop bioeconomy education as it is of crucial importance to influence changes towards sustainable development, more specifically to provide sufficient competence for industry, services, and public administration;
6. perceive the potential of bioeconomy in the Czech Republic to replace fossil fuels with renewables, modernise primary sector; improve resource efficiency, develop industrial applications and biotechnology, comprehensive approaches to value chains, consumption, and ecosystem services;
7. name the following sectors to have the greatest potential for bioeconomy: biotechnology and breeding, composting and biogas, education in bioeconomy.

### POLAND<sup>9</sup>

For Poland there are three strategic directions to develop overarching intersectoral bioeconomy appropriate strategic actions:

1. Market intervention: introducing sustainability criteria for the national production system could help the deployment of bio-based products; the high added value products and related delivered ecosystem services should be promoted; special programs to be launched to support new business models and cooperation's in local/micro cluster partnerships.
2. Research, innovation and education: research agenda as a functional part of the macro-region Strategic Research and Innovation Agenda (SRIA) with the most important elements for bioeconomy: (1) increasing the agricultural productivity through sustainable intensification; (2) cascading the use of agricultural and forest residues potential (increasing circularity) and the added value of biomass through innovative bio-products and technologies, (3) new and modern bio-refinery technologies and products. Significantly strengthen the relationship between business and science and educational activities in the field of sustainability and climate change.
3. Governance and policy actions: (1) set up a Polish Bioeconomy Council to ensure long-term engagement at the national level to act as a catalyser for interministerial coordination; (2) enforce the relationship between the main sub-sectors of bioeconomy and niche sectors in frame of bioeconomy strategy or action plan; (3) evaluate and monitor policy adoption by appropriate indicators valid for different environmental policies, e.g. sustainability indicators (carbon footprint, water footprint, energy footprint), annual expenditure on education in individual departments/sectors, added value of products from bioeconomy sectors, number of newly created jobs.

<sup>9</sup> EXECUTIVE SUMMARY OF THE STRATEGIC CONCEPT PAPER FOR BIOECONOMY: POLAND, <https://bioeast.eu/documents/>

**The model and framework of the BBEC CE was created to match the future macro-regional trends related to bioeconomy. Taking into account the best practices from other countries with a more developed awareness and institutional reality, BBEC CE wants to address its structure, mission, vision and future activities to effective development of bioeconomy in Central-Eastern Europe.**

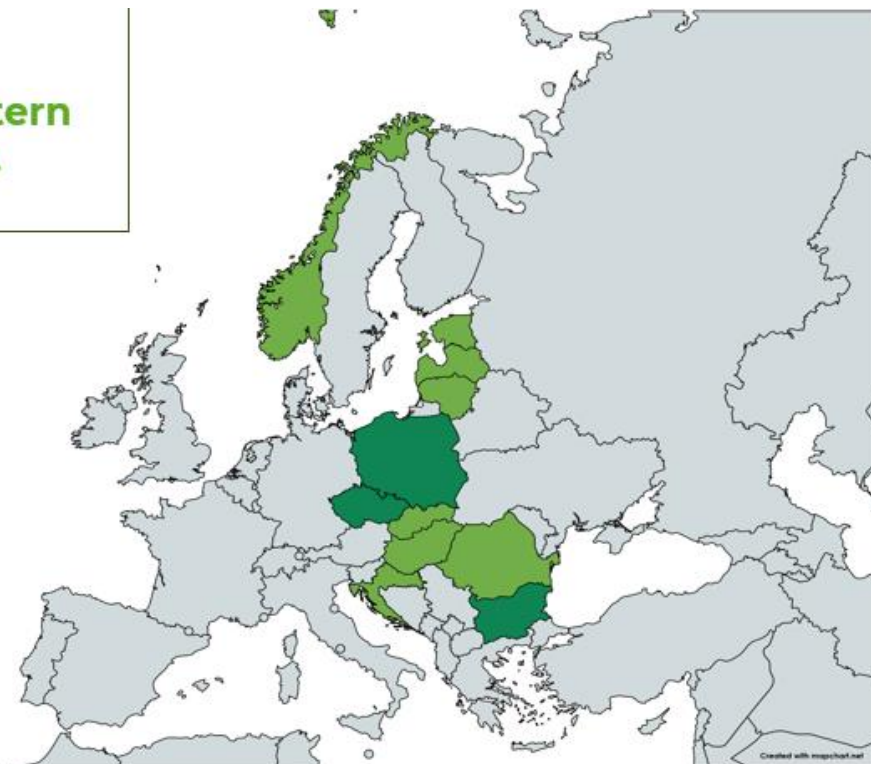
### *A.2. The regulatory context*

The Bio-Based Education Centre for Eastern Europe (BBEC CE) will be a consortium of four independent entities: Zemědělský výzkum, spol. s r. o. (Czech Republic), Trakia University (Bulgaria), The Educational Research Institute (Poland) and Foundation of Education and Social Dialogue "PRO CIVIS" (Poland). The cooperation between the entities will be based on the Memorandum of Understanding in which each Partner will be able to indicate willingness to cooperate to fulfil the Action Plan of the BBEC CE for the period of 5 years after the BIObec Project finalization. The document will be voluntary and each of the entities will be able to decide to withdraw from coordination the development of BBEC CE due to various circumstances. BBEC CE will have its own corporate identity conveyed in a separate website, visualizations, logo, social media channels. Local offices of the BBEC will be established within the premises of partners' infrastructure.

These entities will act to raise awareness about bioeconomy in the Central - Eastern European region, develop education offer in this area, enhance and facilitate the cooperation between various regional actors with particular emphasis on cooperation between industry and science. The activities of the centre will be flexible enough to take advantage of the opportunities arising from regional dynamics and on the scale of the European Union. This is justified by the fact that individual countries in Central - Eastern Europe have their own specializations in bioeconomy, the level of economic development and socio-cultural conditions yet majority of them do not dispose of a national bioeconomy strategy as bioeconomy is sadly not a political priority of these countries. This generates many barriers, challenges and opportunities that can be comprehensively solved. This can be achieved only through flexible action on many levels (European, regional, national). BBEC CE will also establish and develop contacts with governmental institutions and local administration bodies in order to receive political support for implementing activities related to development of bioeconomy policy and education in the region.

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## BBEC 5: Central-Eastern Europe-East



Geographical coverage of BBEC CE

### B.- Institutional purposes:

**They refer to the purposes and goals pursued by the institution**

The BBEC CE will become a hub for knowledge exchange, education, cooperation and providing services related to Bioeconomy. This approach enhances the participation and guarantees a substantial interaction between different disciplines in the region and with other BBECs. In order to achieve as many goals as possible a legible structure is necessary. The structure has to allow flexibility and openness in order to integrate and use the existing potential of a scientific network, business, education partners (members of IRWG and other).

The future activity of BBEC CE is aligned with the development of bioeconomy policies at the EU level but also the Eastern European region and individual countries included in it. Thanks to this BBEC CE could receive financial support for its activities from public funds: EU (e.g. Horizon Europe), regional (e.g. Interreg Central Europe, Erasmus+), national (e.g. Cohesion Policy programmes). Thanks to the fact that BBEC CE will be coordinated by internal managerial team and independent entities the organizations will be capable to either develop their own business plans or to benefit from external funding. It is also not excluded that BBEC CE will attract the interest of venture capital and will receive private funding on specific projects and technologies. Thanks to this approach Partners will be able to both jointly create international consortia to apply for EC funds and as individual entities applying for national and regional funds. All projects will be aimed at the implementation of the activities mentioned in the Action Plan. Development of the existing potential of the entities will ultimately contribute to the development of bioeconomy in the region.

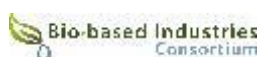
Finally, The BBEC for Central - Eastern Europe could achieve concrete dynamics for the know-how management and technology transfer, offering guarantees for a substantial development and this way attracting the interest of potential investors for the specific domains in the region.

BBEC CE has identified many areas that need to be addressed in order to achieve the assumed vision of the organization:

- Mutual learning and effective communication between the BBECs, IRWG and others actors in order to develop capacity of the bioeconomy education and cooperation in the region
- Facilitation of the joint innovative initiatives in the sphere of bioeconomy education and development
- Improvement of the cooperation in key areas, to in order to become competitive to the institutions/networks present on global market.
- Mapping of valuable education and training opportunities that will respond to the needs of the industry and other actors in the field of bioeconomy
- Rise of awareness to improve the quality of education and training providers in the field of bioeconomy
- Rise of awareness about the importance of bioeconomy in the modern world at all levels of education and the general public and articulating the potential of bioeconomy in the Central and Eastern Europe
- Support the international exchange of knowledge, students and staff between different countries with a higher level of awareness and development of bioeconomy which will contribute to development of regions
- Support the development of the potential of enterprises, universities, research institutes and other actors operating in the bioeconomy sector through participation in international projects and implementation a wide range of practices in a sustainable way
- Support to governments and decision-makers in developing and implementing policy in the field of bioeconomy (i.e. Strategies, Road Maps etc.)
- Implementation of closer cooperation between industry and universities/scientific institutes and better use of their personal and technical resources
- Enhancement the possibilities for private investment in the bioeconomy, enlarging the market opportunities, aligning with the general European tendencies, supporting companies willing to capitalise on the business potential of the bioeconomy.
- Promoting sustainable entrepreneurship education, Investment on Bioeconomy, Assessment of the potential & the risk, etc.
- Development of future skills for staff working in sectors related to bioeconomy
- Participation in external events related to bioeconomy to promote and communicate its development, achievements in the region and to encourage participation in supporting initiatives

The BBEC CE identified a number of thematic areas regarding development of bioeconomy in the region that are significant. In this areas BBEC CE will undertake its activities.

- Sustainable food production and processing
- Agriculture, feed, fertilizers
- By-products and waste from the agro-food and forestry industries; renewable raw materials for the production of polymers and polymer composites; characteristics of polymer and polymer composites based on renewable raw materials;
- Nanomaterials;



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- Forestry
- Renewable energy (biofuels)
- Fresh Water, fishery/aquaculture, sewage treatment
- Biorefining, nanomaterials
- Biotechnology and nanotechnology in the development of new biomedical materials (including biomaterials) and innovative drug forms; basic, preclinical and clinical research in the areas of medical biology and clinical medicine (biomedicine)
- Biomaterials, tissue engineering products and drug delivery systems
- Fighting Antimicrobial Resistance (AMR)
- Regional development and consulting
- Considering the above mentioned parameters for the adoption of a regional and national strategies

The Central – Eastern Europe is very diverse. This fact is a challenge but also a great opportunity to achieve significant impact in the field of bioeconomy in the region. Only broad cooperation will the already existing actions and initiatives will provide a synergy that will lead to change. Therefore BBEC CE will have to take into account and engage number of relevant stakeholders such as: Bioeconomy companies (SME, large), manufacturers of the agri-food industry and the forestry industry, manufacturers of polymers and polymer composites from renewable raw materials, including producers interested in implementing new technologies, Research institutes, Education and academia, Business Development organisations, Public administration, Global national, regional and local political actors, Clusters, Networks and Associations, NGO's, Private Investors, Start-ups and individual inventors, - Science communicators, Home educators, Student organizations, Employers organizations, Technology transfer centres, Business incubators, Labour market institutions, Associations of students and doctoral students, Investment bodies and Institutions, (e.g. ESBF, EIB), Entrepreneurs (especially young), Biomaterials and Nanomaterials, tissue engineering products and drug delivery systems, Consulting, Specialised press and media, Student associations, career offices, volunteer centres.

It is also essential to connect with an active platforms (e.g. BioEast Initiative) which already exists and provides substantial input in the whole Central – Eastern Europe microregion having own governance and operational Units, including one TWG dedicated to the Education.

### C.- The operating structures:

**They refer to the way in which existing resources are organised to achieve the established institutional purposes.**

#### C.1. The structure of human resources:

The BBEC CE will have a simple structure that will enable participants to integrate in thematic groups that are most important to them. This model assumes active actions in many fields. Therefore the structure must allow the creation of additional working groups dedicated to specific initiatives. BBEC CE will also cooperate with other established BBEC's.



Below there is a brief description of possible future structure of BBEC CE. Each bodies has preliminary list of duties.



Structure of BBEC CE

## 1. Steering Group (SG)

The steering group will include representatives of : Zemědělský výzkum, spol. s r. o. (Czech Republic), Trakia University (Bulgaria), The Educational Research Institute (Poland) and Foundation of Education and Social Dialogue "PRO CIVIS" (Poland) as organizations coordinating the work of BBEC CE.

Main tasks of SG:

- creation of corporate identity for BBEC CE
- creating action plans for each year
- initiating activities related to the fulfilment of BBEC CE annual plans
- active communication with stakeholders groups within BBEC CE
- active communication with the socio-economic environment
- coordinating and monitoring BBEC CE activities in the context of achieving the assumed goals
- participation in organizing internal and external events related to the activities of BBEC CE
- engaging possible new stakeholders
- communication activities (other BBEC's, media, target audiences, other valuable initiatives and networks)

## 2. Stakeholders groups

In the Stakeholders Groups there will be representatives of IRWG and other stakeholders who are were active during the implementation of the BIObec project or declare their willingness to get involved in the work of the BBEC CE.

Stakeholder groups will be created by each country of the Steering Group members: Bulgaria, Czech Republic, Poland. They will be created on the basis of the topics pointed as Key areas of specialization.

Members of the groups will participate in regular meetings organised by representatives of the Steering Group.

The Steering Group will also organise meetings for the stakeholders from the whole BBEC CE region.

Purpose of the meetings:

- discussions the possibilities of initiating cooperation within the BBEC CE action plan
- discussions on cooperation and knowledge sharing between the stakeholders
- sharing ideas for new projects
- providing information about the call announcements
- discussions on challenges and needs from the industry
- making decisions to initiate joint initiative or undertaking

### 3. Working Groups

When a decision to implement a joint initiative or undertaking is made, working group dedicated to a given topic will be created. Working groups will be coordinated by a member of the Steering Group or a person from the group of stakeholders who is the initiator of the activity.

The working groups will have a clearly defined goal and work schedule. During the work, at any time, members may decide to dissolve the group if they consider that the conditions for cooperation have changed. It would mean that it impossible to achieve the goal, the goal has become unrealistic or the goal has been achieved and there is no justification for the group's further operation.

#### *C.2 The structure of material resources:*

The BBEC CE will rely on infrastructure owned by consortium members to coordinate its work. No new legal entity based in a specific location will be created. The structure of BBEC CE will be distributed, virtual. In this way, flexible actions of coordinators and all members will be possible to achieve the assumed goals and activities.

It should be emphasised here that the potential of BBEC CE will be largely based on the potential of its members: IRWG and other stakeholders. We have already managed to gather a significant number of entities from the field of science, NGOs and industry around BBEC CE. They have extremely large human resources, infrastructural, intellectual and research and development resources that they can contribute to the implementation of joint ventures. This is an idea that was diagnosed during detailed market analysis and stakeholder discussions. Having large, innovative resources, they need a centre like BBEC CE to establish new contacts with industry and other scientific units.

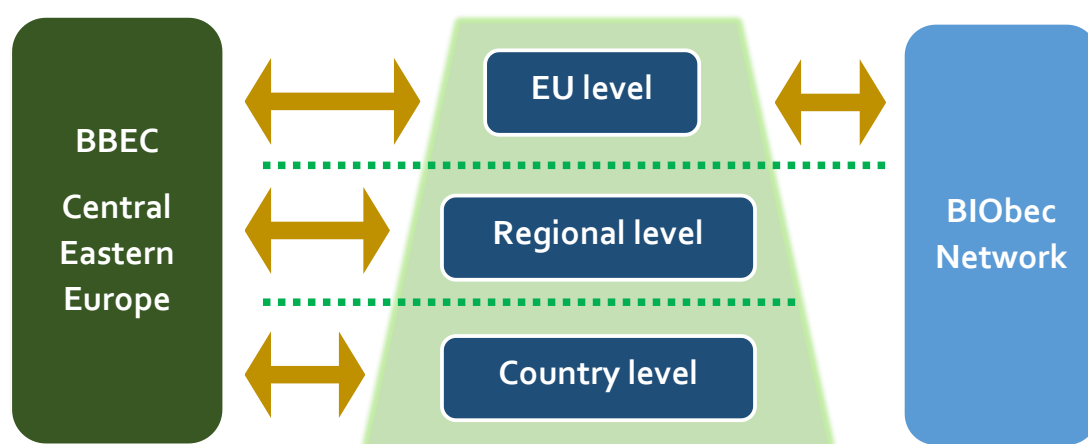
#### *C.3. Functional Resources:*

Due to the innovative nature of the planned BBEC CE, it is planned to obtain external financing to carry out individual planned activities. The analysis showed many potential sources of regional and European funding that will allow the development of BBEC CE's activities. Currently, an action plan with a horizon of 5 years has been established. This time will be a pilot that will allow to expand the network of partners, learn more about the changing needs on the education market and adapt to emerging trends in the bioeconomy in the region.

In terms of funding, it will be necessary to diversify sources and involve each of the partners coordinating the work of BBEC CE. In the current situation, each of the partners has a different legal form (university, research institute, SME, NGO), which determines the possibility of participating in



competitions and applying for funds. In addition, the partners are currently located in three different countries in the region. To this end, efforts will be made at the national, regional and European level to maximise the chance of obtaining funds for the development of BBEC. The general idea is that each of the partners undertakes to apply for funds independently on behalf of BBEC CE at the national level. In turn, joint applications will be created in regional and European competitions. It is also planned to cooperate with other BBECs in order to apply for funds that can finance activities of a horizontal nature, appropriate for each of the six organisations.



*Funding strategy of BBEC CE*

#### **D.- Management and operation:**

##### **Review the format and actions of the institution's management bodies**

The management and coordination of BBEC CE will be the responsibility of the Steering Group. Decisions will be made collectively on meetings (physical or virtual). The schedule of those meetings will be established but they should take place once a month. More frequent if it would be necessary.

The members of the Steering Group will be responsible for planning the work related to the implementation of the activities. The agreed actions will be implemented by members of the Steering Group and project managers and communication specialists appointed by them. People from the team with adequate competences and time possibilities will be assigned to individual projects or activities.

#### **E.- The relational system:**

##### **Analyse the most important aspects that affect people's behaviour**

Communication aspects should be considered on several levels.

Internal communication within the governing bodies of BBEC CE will take place through standard means of communication: e-mail, teleconference, physical meetings. The same will be done within individual teams.

Internal communication with the stakeholders and members of BBEC CE will take place through a person from the Steering Group who will be appointed to perform communication tasks. It is very important that BBEC CE members have a single point of contact in each of the three countries that will be able to efficiently respond and provide the necessary organizational information.

External communication activities will be carried out through a number of channels. First of all, it will be a single website with news, information about the activities of individual groups, new initiatives, and dates of meetings. The BBEC CE team will also be active on social media channels such as LinkedIn and Twitter.

Communication activities will also take place through the organization and participation in various events promoting bioeconomy in the region. It will be an opportunity to promote BBEC CE, its activities and carry out specific tasks.

#### **F.- Institutional dynamics:**

**It refers to the most relevant aspects of the institutional day-to-day.**

The Steering Group will be responsible for annual planning. Already at the project implementation stage, a preliminary work plan for the first 5 years of BBEC CE's operation was created. At the beginning of each year, the Steering Group will each time analyse the previously planned activities, creating a schedule for the implementation of key activities for a given year. It should be underlined that the indicated types of activities will be undertaken depending on the possibilities and current conditions, like political decisions at the level of individual countries, economic and geopolitical events may have an impact.

The action plan will be monitored on an ongoing basis by the Steering Group. This will be possible thanks to regular meetings of the group, mutual reporting - between countries and within each of the coordinating institutions.

Established KPIs showing progress will help in monitoring the implementation of individual actions. The draft work plan includes a proposals of KPI's. Their value will be set at the beginning of each year of operation and will be in line with current intentions and plans.

The BBEC CE will operate flexibly, depending on market developments and deepening cooperation with partners and stakeholders. In the course of work, it may turn out that some of the planned activities will be implemented to a lesser extent, and others will appear that will have a much stronger impact and impact on the development of BBEC CE, partners and the bioeconomy in the region.

The quality of the work carried out will be analysed through surveys and communication with BBEC CE members, stakeholders and other actors from the bioeconomy ecosystem. The Steering Group will be open to external inputs regarding the work of BBEC CE and the quality of its activities and projects. In case of irregularities, the BBEC CE management group will react and propose corrective plans.

Communication with the external environment will be crucial for BBEC's operations. This applies in particular to already established cooperation networks. Staying in touch with other BBECs across Europe and BIObec project partners will be a priority. The potential of 19 partners and mutual relations are a unique resource that should be further developed. This will also benefit the members of each BBEC and enable knowledge transfer and international cooperation.

The second valuable initiative is BIOEAST and individual Thematic Working Groups. In particular, the Bioeconomy Education group. Maintaining the created synergy between the networks is crucial for achieving an impact on development the bioeconomy education and cooperation with the industry in the macro-region.

It is also necessary to indicate the networks of current partners and stakeholders that are part of BBEC CE. Each of the organizations is strongly located and specialised in specific bioeconomy areas. Each of the organizations has a huge educational and research potential, which must be used in cooperation with the industry.

Below there is a framework plan for BBEC CE's key activities, which are planned for the next 5 years. During this piloting period, they will be implemented. The goal is to become an important part of the bioeconomy ecosystem in the macro-region. As mentioned earlier, in order to monitor the progress and quality of BBEC CE's activities, preliminary KPIs were identified, which will be the basis for starting operational activities.



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## 5.3. Danish BioBEC Governance Plan

The present document builds on the description in D 2.2. The work in parallel on governance, economy/financing and activities has so far resulted in the below description of expected governance. It is very difficult to decide to upon/describe the governance plan before we know who will support the BBEC establishment financially and/or with human resources. Thus, nothing of the governance plan described below has been decided upon yet as it is a collective co-creative process involving many stakeholders.

Below we describe the best approximations at this stage, but no firm decisions have been taken yet, but this will probably happen within 2023.

The focus of the work has been two-way:

- 1) within the Danish context actually describe and specify what we want to achieve together with local stakeholders (i.e. designing as specific as possible the Danish BioBEC, in Danish) alongside with
- 2) preparing inputs for the DoA-defined deliverables, where we turn this into BioBEC international language.

The ‘audiences’ to these two approaches require different styles, different languages and to a certain level also different content/contexts although we are talking about the same centre/hub. The deliverables in the DoA are thematic (governance, economy and activities) across countries rather than combining these for each BioBEC. This is then what we have done in ‘the Danish Version’.

So we present here an oral summary describing each ‘section’, and as the governance plans develop, we continue to develop the project description in order to communicate rather precisely to potential donors what we are developing.

Especially sections C-D-E in this document are to be detailed later by the CEO employed when the BioBEC is established. We see a good chance for actually establishing a context-adapted BioBEC in Central Denmark Region in 2023/24.

Most Information gathered so far is from the workshops held in WP 1-2, desktop research and 10-12 meetings in WP3 with the stakeholders in a co-creation process.

### A The context

A few studies on jobs and competencies in the ‘Green’ sector and the educational needs have been conducted recently in DK (see reference list). However, the green sector is a broader connotation (‘green sector including e.g. wind power, PV and road traffic) than Biobased and no such analysis exists for ‘the biobased’ job market, as a part of the ‘Green job’ labour market. We do not have the resources in the project to do such a study and we have merely a few interviews and gut feelings to guide us. It is rather easy for the industry to say which education would be ‘nice to have’ more difficult is to define ‘need to have’ in the future – and the corresponding willingness to pay for it.

We initially made an overview (the work in WP 1 and 2) and during March/April 2023 we visited/interviewed the most relevant key stakeholders (10-12 of the existing training bodies, institutions, municipalities etc.) to gather additional info. So we know only briefly our 'socioeconomic reality' and have asked these stakeholders about future needs.

#### The Danish educational system

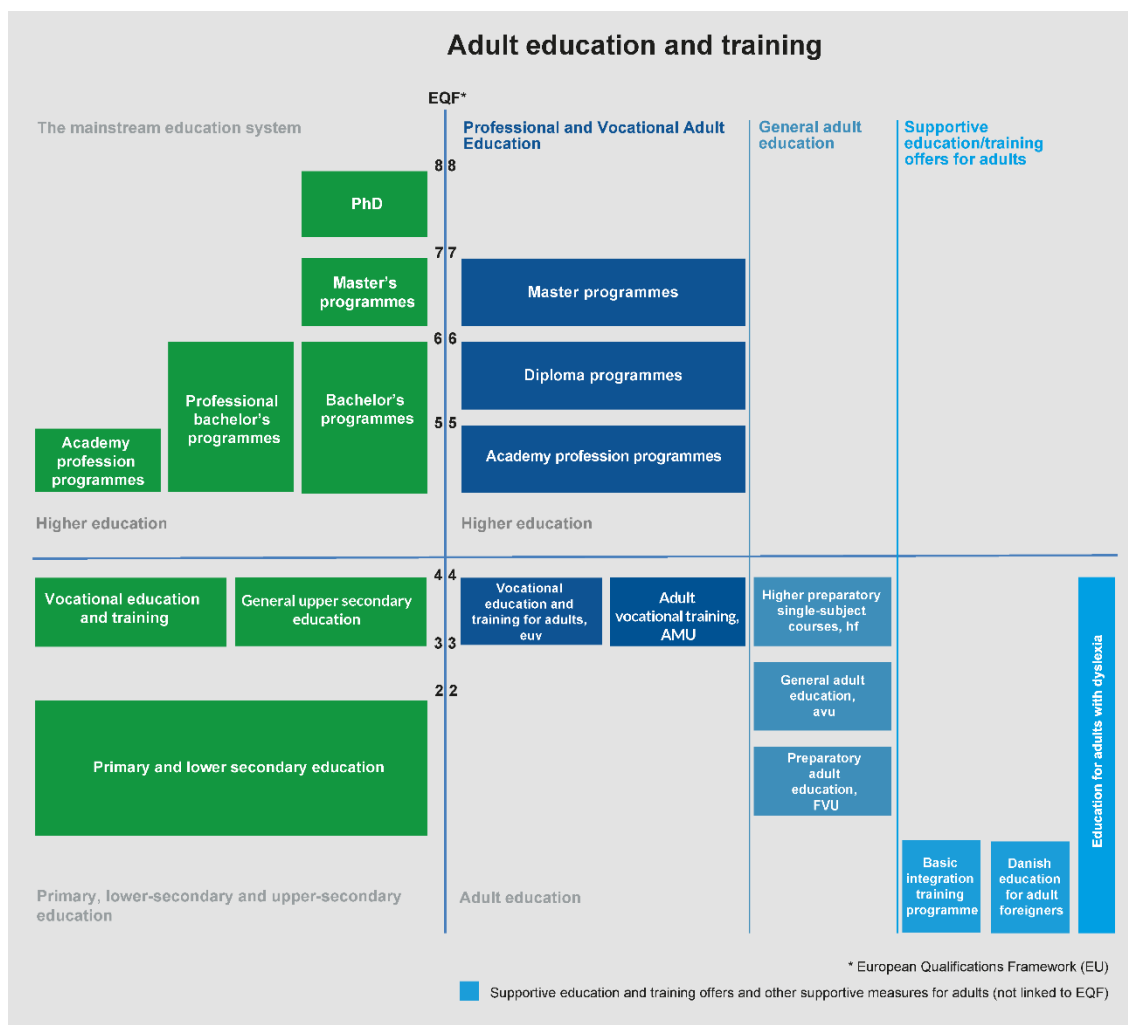
The Danish educational system differs from most other countries. All educations in the ordinary educational system are free and students get state grants during their education.

Apart from this public system, we have in parallel a life-long educational system from 10<sup>th</sup> grade up to master level, consisting of a mixture of private and public-supported education (see figure 1 and this description from the Ministry of Higher Education and Science <https://ufm.dk/en/education/the-danish-education-system/adult-education-and-continuing-training>)

The standard and quality of educational provision in the Danish education system are assured by a number of elements, including:

- Common rules and guidelines (curricula) specifying the aims, contents and duration of programmes and individual subjects
- A testing and examination system using national boards of external examiners
- Ministerial approval of the provision of education and varying degrees of monitoring in the different educational areas
- Mandatory accreditation of higher education institutions by the Danish Accreditation Institution.

Private education institutions at the primary and secondary levels may operate without any state approval. However, if their students are to be eligible for state study grants, the institutions must accept an accreditation procedure.



The institutions that the BIOBEC will integrate into the network are

Figure 1 Danish education system (State supported, left, green ) and life-long Learning (blue to the right, partly private, partly state supported) interpreted into the European Qualification Framework (EQF).

- **Aarhus University** has three relevant institutes: Animal Science, Agroecology and Engineering Sciences at Campus Viborg.
  - BSc, MSc and PhD educations in Viborg: Agrobiology, Animal Science and Plant-food science. Veterinary science will add to this in 2024.
  - In addition, BSc and MSc in Engineering at several locations
- **Asmildkloster, Jordbrugets uddannelsescenter** in Aarhus, **Kalø Landbrugsskole; Bygholm landbrugsskole**,
  - 4 Vocational school for farmers and leaders,
  - Mainly for young and partly for life-long learning
  - Establishing a knowledge centre for green/agricultural education
- **SEGES Innovation** has many courses for agricultural advisors and leaders
- **UN 17 SDG Business** is teaching businesses in using UN 17 SGDs – i.e.. a ‘Green business’ focus
- **Business Academy Dania** is a mercantile education also interested in biobased education and sustainability
- **Viborg Municipality** is a key interested stakeholder in business education and green educations located in the region,

- **Mercantec, Viborg**, Mercantile and technical high school level
- Part of a knowledge centre on robotics and automatization
- **Skive Municipality** has shown interest as the host of GreenLab Skive – a Green industrial symbiosis, in need of a qualified workforce.
- **Skive College** – part of Competencies partners Midt-Vest
- **Klimafonden Skive** (behind bio-industrial symbiosis GreenLab) expect the need for competent workforces in a rural district with symbiosis in bioeconomy (Biogas, Ptx, Marine proteins for fodder etc)
- **Business Region Aarhus** is supporting the municipalities in the region with educational framework inputs.
- **Central Denmark Region** supports the education of the workforce in general.
- **Food & Biocluster Denmark** can add education to incubation and clustering work within the Biobased Cluster.
- **Agro Business Park** (potential BBEC Hub host) is keen on combining education and incubation.

The work on defining needs is a combination of knowledge gathered from businesses and municipalities and through the interviews and workshops held. We expect to organise workshops on defining educational needs within the coming year.

Viborg municipality has a stronghold in Green/agricultural businesses and they have a strategy to fulfil the need for an educated workforce to keep this industry in the areas. Municipalities support the interests and needs of the industry and thus, there is a strong relation to the local/regional policy on green business development.

A model for education of the workforce on strategic stronghold areas is to stimulate:

- Business-oriented – demand-oriented life-long learning.
- Explain the needs in the local cultural framework: we are a green region, and agribusiness is a stronghold.
- Creative knowledge – recruit young talents.
- Public dissemination to citizens.

#### Draft organisation

We expect most of these institutions to be the founding fathers of the Danish BioBEC. We expect it to be started as a commercial foundation, or similar, where a board will formally establish the BioBEC DK.

The board will consist of the main stakeholders/main investors and the other stakeholders will be invited to join an advisory board to give input to the design and development of the BioBEC.

institution	Foreseen input	Role 1	Role 2
Viborg Municipality	monetary	Board member	Strategic/policy
Aarhus University	Monetary and man-power	Board member	Education provider
Skive Municipality	Monetary	Board member	Strategic/policy
Asmildkloster	Monetary and man-power	Board member	Education provider
Klimafonden	Monetary and man-power	Board member	strategic



FBCD	Man-power	Board member	Business repr
Agro Business Park	Host, Man-power	Board member	practical
SEGES	Man-power	Advisory board	Education provider
UN17 business centre	Man-power	Advisory board	Education provider
Agricultural schools	Man-power	Advisory board	Education provider
Central Denmark region	Man-power	Advisory board	Strategic/policy
Skive College	Man-power	Advisory board	Education provider
Business Academy Dania	Man-power	Advisory board	Education provider
Mercantec	Man-power	Advisory board	Education provider

The list can grow further, but these have been contacted.

The BioBEC will make an overview of existing and potentially needed educational offers by these institutions and preferably also with key industrial businesses, such as e.g. biogas or grass refinery companies.

The Founding fathers will sign an application for funds apart from the 'foundation fee' to give the BioBEC some 'power' to start with. So far no formal application has been made, and thus the governance remains yet unclear. In the search for funds, we propose a 'project model' for years 1-3 with a board as described and a project with 2-3 employees (a CEO, a communication specialist and an admin. Person). The project /the commercial foundation can be seen as a 'public-private partnership' with the task of developing a suitable private model for the future (probably private) business. The BioBEC can probably be run/led by AgroBusiness Park/Food & Biocluster, i.e. in a 'project cluster' structure.

The business model will be described more in detail in Task 3.4, but it is foreseen as a 'private non-profit' model supporting and coordination the public and commercial educational actors in the field.

## **B Mission and vision.**

This will be re-formulated this spring, but a preliminary version is

### **Mission:**

*We will make education for the bio-based economy in Denmark accessible and visible and fill in a need for further cross-silo themes and use our competencies in cooperation with similar centres in the EU to continue to be the most innovative, best educated and most inspiring partners in the European bio-economy while creating jobs and long-term sustainable solutions in Danish rural areas.*

### **Vision:**

*We are a platform, a 'one-stop-shop', or training/competence/knowledge centre, bridging the gap between existing public education and the competence needs of private companies to meet the demand for a well-trained workforce in the bio-based economy of the future.*

### **Strategic planning that guides your intervention.**

We are formulating the BBEC as a project – in dialogue with the network stakeholders. In this description (in Danish for Danish stakeholders) we will define /describe the intervention that we will make (see Task 3.4, D 3.4).

Most probable, it will become a hub (Centre without walls) for coordination and promoting of existing biobased educations, and courses - 'bits and pieces' (see qualification framework) and give this a biobased content, tonation and framework. Possibly, as needs for future workforce becomes clear the BioBEC will develop new courses to fill in identified gaps/needs of businesses – i.e. developing new courses.

### **Values that BBEC want to promote, general professional skills to develop.**

The BioBEC will promote and coordinate among the existing educational offers. Some new courses will probably appear and we will add to the present educational framework more focus on internships in companies, international internships, entrepreneurship workshops etc.

The value proposition consists of

- Improved competencies and skills within bioeconomy: production, sourcing, whole value chains,
- 'acting competencies' for change
- Sense of community,
- networks across organisations, bridging between traditional silos
- Sustainability anchored in SDGs.
- Developing a Knowledge bank,
- Innovation environment/ spirit, use existing facilities, such as GreenLab, Cbio bio refinement plants etc.

The overall values are to support the biobased economy to ensure minimum impact of climate, environment and biodiversity and at the same time create meaningful jobs.

This will be unfolded in task 3.4

We will combine theoretical knowledge with the practical skills of the 'students' coming from business and we will train students coming from the educational environments and prepare for real-life work and entrepreneurship.

A specific catalogue of education plans will accompany each course and an evaluation framework will be set up.

### **C.- The operating structures:**

The questions in section C seem to be for a larger organization and are not very meaningful in the Danish context. We plan to have a hub-secretariat of 2-3 employees and this will not require a large and detailed description of the organization and governance, they will probably be employed by FBCD in the first 3 years and follow the operating rules here (Gold cluster excellence certificate).

Cluster management organizations holding a GOLD Label show their documented commitment towards a continuous improvement of their organizational structures and routines for the benefit of even higher performance. In order to qualify for the GOLD Label, cluster management organizations

need to meet certain "levels of excellence" in terms of the structure of the cluster, governance, financing, strategy and services and recognition.

Concerning infrastructure, the BIOBEC only needs modest office spaces and will make use of the educational stakeholder's physical facilities. Especially we will make visits (rented bus/cars) to visit relevant companies in Dk.

#### **D. Management and operation:**

As for section C, this section seems to be for a larger organization and not very meaningful in the Danish context – as it will follow a certain (FBCD) management Modus Operandi.

#### **E. The relational system:**

We do not need to write this at length. It is a working culture to be established. However, a good CEO will analyse the most important aspects that affect people's behaviour.

Employees should be self-motivated by the mission/vision and the daily management should of course stimulate this. The institutional culture should include transparency, networking, cooperation and delegation of tasks. Decisions procedures should be transparent and logical.

#### **F. Institutional dynamics:**

The daily management of the BIOBEC will include annual (and longer-term) planning with all the involved institutions and companies.

How this will take place is a job for the CEO to define – as well as the evaluation of the activities. To define the role in the Qualification diagram and cooperation with the close stakeholders is key to success. And based on that, the commercial success of the courses should reflect the real need of the Biobased Education Centre.

When we agree with the participating educational institutions and other stakeholders to develop this common hub/platform for biobased education, the balance between the BIOBEC (marketing the courses, attracting customers) and the 'real educators' should be found. A cooperation model for the BioBEC hub and the institutions will be developed, but this is yet to be discussed with the stakeholders/educational institutions.

This will be further elaborated in Task 3.3 and D 3.3. Thus, it is premature to describe potential innovations now, before the basic hub has been established.

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Fremtidens grønne arbejdsmarked 2022. Hvad ved vi om fremtidens kompetencebehov til den grønne omstilling?

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## 5.4. Finnish BBEC Governance plan

### A.- The context of action:

**All institutions are situated in a context; sociocultural and economic, to which they must respond and which justifies their meaning and existence.**

Currently, there is an increasing debate regarding the use of forests in Finland. A lot is expected from the national forests – they are expected to support the Finnish economy through forest-based bioeconomy, mitigate climate change through carbon fixation, maintain biodiversity and provide wealth for the society. Hence, there is a need to develop the forest-based bioeconomy and its sustainability. Education is an important part of this task as well as collaboration between the industry, education and research. Developing sustainable global value chains is a key issue when tackling global challenges. Thus, international education of forest-based bioeconomy is needed and co-operation between companies and international students will be strengthened.

#### A.1. The socioeconomic context:

- Socioeconomic reality and future prospects
  - European Union and related strategies and directives have a strong effect on the Finnish forest use and forest-based bioeconomy. Especially the bioeconomy strategy, forest strategy, biodiversity and restoration directives are in central position. Finland has also its own bioeconomy strategy from 2022, which directs the use of forests to increase the value added of products and development of education and research. According to the BIOBEC WP1 focus group interviews with university representative, forest and climate expert in regional council of North Karelia, research professor from Natural Resource Institute Luke and Finnish Forest Industries Federation representative, there is a high demand for bio-based products for replacing fossil-based products. Digitalization and automatization as well as material and energy efficiency will affect the operating environment.
- Present and future needs of the training/assessment/counselling/research to which it is intended to respond.
  - According to the WP1 focus group interviews, the educational needs for the forest-based bioeconomy will change since new work force is needed and hence different types of education from lighter training to whole programmes should be developed. Especially continuous learning will have stronger role in the future and sustainability aspects should be incorporated in the education in all levels.
- Existing training bodies and institutions in the field of action where you want to influence or collaborate.

The main educational actors in the Finnish BBEC are University of Eastern Finland, Karelia University of Applied Sciences and Riveria Vocational School. Furthermore, Metsäkeskus offers training for forest owners. Other forest related education actors outside the North Karelia region are considered as stakeholders. The main issue in developing education and learning is to improve co-operation with business. *A.2. The regulatory context*

- Ownership of the institution: public, private, consortium, linked to another body, etc..
  - The Finnish BBEC operates as an open collaboration platform. The coordinator of the platform will be working under one of the actor organisations (Business Joensuu or UEF). In the future, the BBEC could function as a private entity.
- Justification of the institution ownership: economic benefits, incomes, grants, etc.
  - Defined in the WP3 T3.2 Financial Plan.
- Institution size
  - Eight key actors are part of the BBEC and providing knowledge to the platform users. The key actors are UEF, Karelia, Riveria, Business Joensuu, Luke, Syke, Metsäkeskus and EFI. Companies, students and researchers can both join and leave the platform freely, out of charge.
- Ethics and Regulatory context
  - Each key actor organization has its own ethical and regulatory context which to apply. Furthermore, some BBEC's own rules have been defined together with the key actors e.g., how to participate in the platform, what is required etc.

## B.- Institutional purposes:

### They refer to the purposes and goals pursued by the institution

- Mission and vision of the BBEC.
  - The mission and vision of the BBEC were defined by the key actors. Vision: “We want to be global pioneers in green circular bioeconomy” and mission: “We help to turn global bioeconomy related challenges to profitable business through the cooperation between research, education and business”.
- Strategic planning that guides your intervention.
  - Strategic planning has occurred in joint meetings with the key actors throughout the BIOBEC project. In the future, more key actor meetings will be organised continuously.
- Training project: values that BBEC want to promote, general professional skills to develop and intervention methodology.
  - According to the WP1 survey and focus group interview, there is no need for new direct educational programmes offered by BBEC within forest-based bioeconomy since there are already well functioning and evolving programmes in three educational levels. Furthermore, the three educational organisations within North Karelia region offer the educational programmes and hence no alternative body or authority is needed. However, there is need for collaboration between these organisations to support both teachers and students’ knowledge in forest-based bioeconomy and related issues. As well, there is need for closer collaboration between the academia and industry which will be supported through the BBEC.
- Plans that it develops and some characteristics of these.
  - The key actors as well as local companies will develop plans for joint funding calls related to education and research. The EBU network is an important channel to connect this work on European level.
- Singular and innovative projects in which BBEC will work: internships in companies, ICT implementation, entrepreneurship workshops,....
  - Internship programme for international students as well as an thesis work mentoring group initiatives have been developed in the BBEC. In the future more

similar innovative initiatives will be developed in the joint key actor meetings as well as other interactions between BBEC key actors and participants.

### C.- The operating structures:

**They refer to the way in which existing resources are organised to achieve the established institutional purposes.**

#### C.1. The structure of human resources:

- Governance and participation bodies (organization chart): management bodies and their functions, participation bodies (stakeholders they represent and their functions).
  - Key actors (introduced in the earlier parts) will function as the main management and governance body of the BBEC. Furthermore, there will be a platform coordinator (which possibly operates under a key actor organization) which directs the daily activities of the BBEC. Decisions will be made in the key actor meetings.
  - Local companies within forest-based bioeconomy and students in the three educational levels as well as researchers and research groups in the research organisations within the North Karelia area represent participant bodies in the BBEC. They will be marketed to join the open collaboration platform through which they collaborate easier with the key actor organisations.
  - These both will be further developed once the BBEC has been established.
- Organization of the staff participating in the institution: selection, assignment to job positions, training and improvement, and working conditions.
  - At least one person from each key actor organization will be a representative for the BBEC. The persons and their specific roles will be defined in future meetings once the BBEC is established.
- Organization of users: rights and duties
  - Initial rights and duties of the BBEC platform participants have been defined in previous BBEC key actor meetings. These are following:
    - BBEC activities are voluntary. Any company, association, group or a person can participate in the network and leave with a notice when desired.
    - Participating in BBEC network is free of charge. The prices for provided services will be discussed separately with the actor offering them.
    - We expect active participation and presence when involved in BBEC activities. This could mean e.g., creating content for the website, participating in joint events, sharing information within one's own organisation or community and developing the platform.
    - The contents of the BBEC platform are actively updated with the help of all network actors.
- Organization of other participants in the institution: sponsoring companies, Public Administrations, professional groups etc.
  - So far there has been no need for such organization of other participants. If needed, they will be defined in future BBEC key actor meetings.

#### C.2 The structure of material resources:

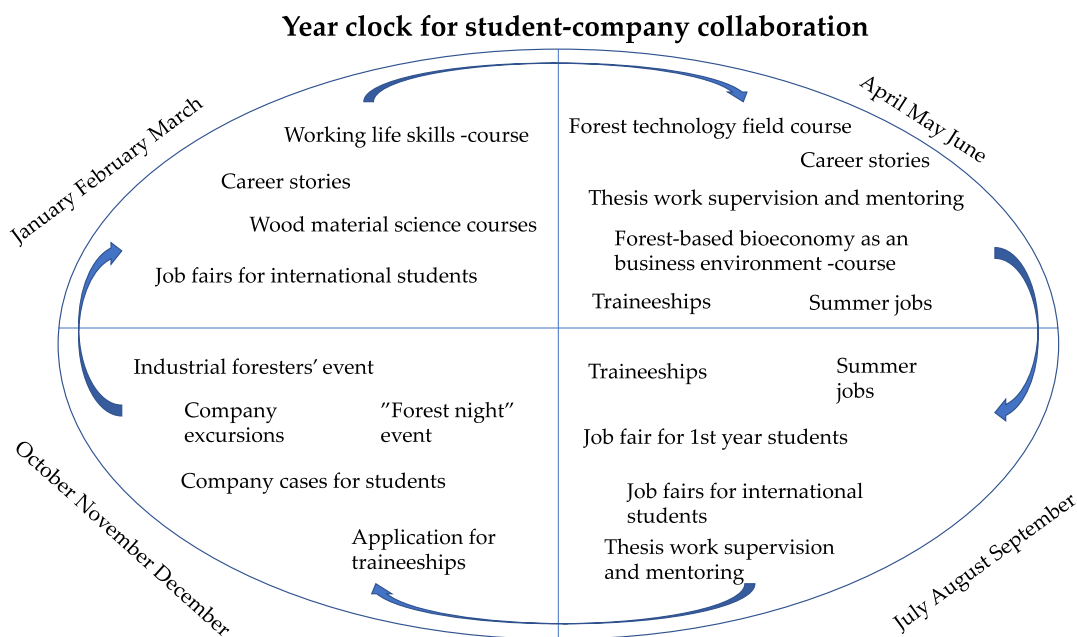
- Infrastructure of the BBEC: spaces, security conditions, health and sustainability of the facilities, .....



- There is no need for this since the BBEC will function as an online collaboration platform. The organization and personnel that coordinate the platform will have own facilities which they take care of.
- General and laboratory/workshop furniture and materials, with reference to its functionality and level of updating.
  - There is no need for these since the key actor organisations and platform coordinator organization will facilitate their own furniture and materials as well as support their functionality and level of updating.

### C.3. Functional Resources:

- Calendar and hours of operation.
  - The educational schedule affects the BBEC's general calendar since there are specific times for the traineeships and thesis work for the students. Here, an year clock for student-company collaboration has been defined to support the planning of activities (Picture 1). A more definer calendar will be defined in future meetings with the BBEC actors once the BBEC is established.



Picture 1: A year clock for student-company collaboration in Finnish

- Budget: origin of financial funds, items and control and monitoring systems.
  - The budget for the Finnish BBEC is defined in the WP3 T3.2.
- Most prominent aspects of internal regulations.
  - General guidelines have been defined for the BBEC platform participation. These have been mentioned in the section C1 (rules for BBEC participation). Other aspects of internal regulation will be defined in further discussions with the key actors.

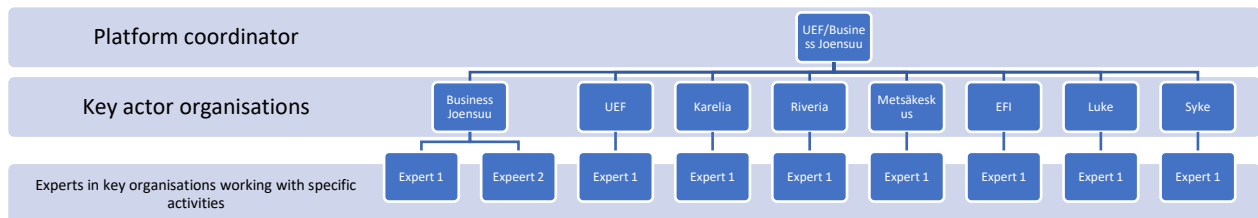
### D.- Management and operation:

#### Review the format and actions of the institution's management bodies

- Management: training, selection, functions and working conditions
  - The preliminary plan is that the key actor organisations decide which organization will take the lead as a coordinator of the platform. The recruitment of this coordinator should take into account that the coordinator should be well aware of the operating environments – education, research and industry related to forest-based bioeconomy. Key actor organisations will manage their own personnel’s training, selection as well as working conditions.
- Management teams: composition and functions.
  - The main management team for the Finnish BBEC will be the steering group consisting of the eight key actor organisations and at least one professional from each. The steering group will discuss relevant issues and plan future activities for the BBEC. The coordinator of the platform will be part of the steering group as well and plan his/her activities according to the steering group’s decisions and directions. There can be also external parties participating the steering group meetings depending on topics and themes discussed.
- Intermediate management (coordinators, area managers,...) and their functions.
  - Each key actor organization will dedicate tasks related to BBEC platform and services to specific experts in their own organisations. These experts are managed by the key actor organisations. Occasionally they can participate in the steering group meetings representing results of their work related to the BBEC.

## E.- The relational system:

### Analyse the most important aspects that affect people's behaviour



Picture 2. Organisational structure of the BBEC

- The communication processes in the centre.
  - The platform will be the main channel for external communication with customers (students, researchers and companies) and other stakeholders. The coordinator of the platform will produce the communication material in the platform as well as direct messages from customers to specific key actor organization if needed.
  - Important matters will be discussed internally through e-mails, Teams and phone calls. Especially, a Teams channel will be the main communication forum for internal issues in the BBEC. All key actor organisations and the people involved in the BBEC activities will be part of this channel. Each contact person from key actor organization will communicate within their own organization about relevant issues in the BBEC.
- The motivation of the staff.
  - A kick-off event will be organised for the key actor organisations to boost motivation and long-term commitment to the BBEC. This will take place on the first year of operation. Furthermore, key actor organisations and the personnel working with BBEC activities will have joint meetings frequently.

- Each key actor organization will dedicate at least one contact person from the organization for the BBEC activities whose job description will include these tasks to enhance long-term commitment. Each chosen contact person should have initial interest towards BBEC activities as well as a broad network within forest-based bioeconomy.
- The coordination of people.
  - The steering group will direct the work of the coordinator of the platform. Each key actor organization will dedicate one contact person from the organization to BBEC's steering group. The contact persons will also involve experts within their own organisations to specific BBEC activities/services.
- Decision making.
  - The steering group will make decisions regarding BBEC's issues in strategic level. The steering group will meet approximately four times a year. On operational level, coordinator will make decisions regarding the platform's daily issues while following the plans and strategies of the steering group. Each key actor organisation's contact person will discuss relevant issues with the experts in their own organization and make decisions regarding their own services and activities.
- Institutional culture.
  - As an online collaboration platform, the institutional culture of the BBEC will not be strictly defined since it aims to represent several different organisations and induce several different customers: students, researchers and companies. However, the institutional cultures of the key actor organisations will strongly affect the BBEC's institutional culture. Furthermore, especially the platform coordinator organisation's institutional culture will have a great impact on the BBEC's institutional culture. As mentioned in the earlier parts of this plan, the coordinator has not been defined and hence the culture could differ if the organization was UEF or Business Joensuu (business incubator). The specific characteristics of the BBEC's institutional culture will be defined and clarified once the platform is active.

## F.- Institutional dynamics:

**It refers to the most relevant aspects of the institutional day-to-day.**

- The annual planning of the centre, who, how and when it is carried out.
  - The coordinator of the platform plans the annual cycle and activities with the guidelines of the steering group. The coordinator actively discusses the year's activities with the key actor organisations' representatives and updates the plan accordingly. The plan for next year is developed at the end of year.
- Monitoring of plans and programs. Evaluation and accountability.
  - The steering group will evaluate the annual plan before it is established as well as at the end of the operating year to evaluate its execution. Furthermore, coordinator will self-evaluate each operating year's activities based on the plan and present improvement ideas and comments to the steering group.
- Quality indicators and internal quality assurance systems.
  - Customers i.e., students, researchers, and companies, will evaluate the services and the platform's user experience through surveys. Especially, a quick response time in the platform is emphasised to ensure solid user experience. Key actors will evaluate

own activities based on the annual plan especially focusing on how effective they have been and how many actors have benefited from their services.

- The link with the environment and its institutions and companies.
  - The collaboration platform is dedicated to enhancing collaboration with several different actors. Ideas to develop the platform are gathered from industries, networks and ecosystems outside the forest-based bioeconomy.
- The elaboration and development of improvement and innovation plans.
  - The improvement and innovation plans will be developed in steering group meetings and other meetings with key actors. In addition, ideas will be collected from stakeholder activities as well as platform users through surveys and interviews.
- Institutional marketing.
  - Main marketing of the BBEC occurs through the platform and social media channels such as LinkedIn and Twitter. Additional channels might be used to market the platform. The platform coordinator will be in charge of conducting these activities. Key actor organisations will promote the marketing through their own organisations and related channels. Events will be organised to specific group of customers e.g. students, companies and researchers to promote the BBEC as well as to get these group interact better. Marketing activities will be followed and improved to gain broader visibility.
- Networking with other institutions.
  - According to the WP1 task on stakeholder map, there are several stakeholders within the Finnish BBEC network. Eight of the stakeholders are considered as key actors of the BBEC. Other stakeholders are the customers i.e., students in all the educational levels, researchers and research groups within the research organisations, and large companies, SMEs and start-ups within the North Karelia region, all related to forest-based bioeconomy. Furthermore, other related regional and international ecosystems and networks, NGOs, governmental and regional actors are considered as stakeholders. The network of stakeholders is actively developed and interacted with.

## 5.5. German BBEC Governance plan

### A.- The context of action:

**All institutions are situated in a context; sociocultural and economic, to which they must respond and which justifies their meaning and existence.**

#### A.1. The socioeconomic context:

- Socioeconomic reality and future prospects.

Germany has a dynamic set of activities related to Bioeconomy supported also by a strong European Bioeconomy framework. This shows how the transformation towards a sustainable Bioeconomy has already started with the associated challenges of climate change mitigation and adaptation, sustainable use of natural resources and reduction of socio-economic inequalities among others.

Within Germany, there are 13 regions with published strategic Bioeconomy frameworks<sup>10</sup> and Baden Württemberg (BW) is one of them. BW area is 35,673 square kilometres with around 11 inhabitants, from which 25% are people from 25 to 40 years old. The BIP of the state was around 536 billion Euro in 2021 (Statista), the third largest in Germany. The capital city Stuttgart and its surroundings are a highly developed industrial metropolitan area with strong economic potential and technological innovation.

At Baden Württemberg, there is a Bioeconomy strategy since 2019<sup>11</sup> and Bioeconomy is defined as “the knowledge-based generation and utilisation of biological resources, processes and principles that are used to provide and utilise goods and services in all economic sectors within the framework of a sustainable economic and social system.” The main objectives of the strategy focus on *i.* the use of innovative biological concepts to identify renewable or recyclable raw material sources *ii.* The reduction of greenhouse gas emissions and conservation of natural resources and biodiversity *iii.* Becoming a role model for the transition into a sustainable and circular economy and *iv.* strengthening rural areas by increasing regional value creation through innovative bioeconomic solutions and by creating attractive, sustainable jobs.

These objectives are based on different areas of actions such as the creation of a supportive framework that facilitates the connection among stakeholder; the generation of sustainable biological resources; the implementation of a sustainable bioeconomy in industrial and urban areas through pilot and demonstration facilities, technological advancements, regional funding programmes and collective innovation processes; the networking activities among areas, actors and clusters; the education and training activities; and the information and dialogue about sustainable bioeconomy.

<sup>10</sup> Haarich, S., Kirchmayr-Novak, S., Bioeconomy strategy development in EU regions, Sanchez Lopez, J., Borzacchiello, M.T. and Avraamides, M. editors, Publications Office of the European Union, Luxembourg, 2022, ISBN 978-92-76-49341-9, doi:10.2760/065902, JRC128740.

<sup>11</sup> Baden Württemberg. Bioökonomie Strategie. <https://mlr.baden-wuerttemberg.de/de/unsere-themen/biooekonomie-und-innovation/landesstrategie>

- Present and future needs of the training/assessment/counselling/research to which it is intended to respond.

Based on the previous tasks and working packages of this project, the need for a transformation of the industry towards sustainability became evident. To achieve this, a better communication, marketing, connection and networking is key for this transformation in which the different stakeholders can be involved on the basis of higher levels of information and bi-directional knowledge transfer between sciences and the practical implementation of the bioeconomy.

In general, the BBEC is expected to represent a hub, contact point or platform for bioeconomy education in the region and beyond. It is expected to support inter- and transdisciplinary formats with a practical focus. Existing courses based on the disciplinary expertise and capacity that already exists in the region need to be adapted toward more flexible programmes which build on current competences and knowledge. Furthermore, the BBEC shall support the definition of different professional profiles and foster the connection among Bioeconomy, education stakeholders, transversal profiles that have not yet been included in the Bioeconomy transformation and increase the awareness of bioeconomy in society. On top of that, the BBEC should also take advantage of its supra-regional network and facilitate exchange by developing joint training offers for students and professionals to add value to regional focal points.<sup>12</sup>

- Existing training bodies and institutions in the field of action where you want to influence or collaborate.

In Germany and BW, there are multiple of educational offerings around Bioeconomy topics at different levels of education. Within BW, the training bodies and institutions that have been mapped as relevant for the BBEC are in the following table:

Who?	Type of stakeholder	Type of education offer (educational level: Higher education, primary and secondary, vocational, on-the-job training, continuing education, informal)
Universität Hohenheim	University	Higher Education
Universität Heidelberg	University	Higher Education
Hochschule Rottenburg	University	Higher Education
Universität Freiburg	University	Higher Education

<sup>12</sup> BIObec (2022). D1.3. Report on expectations on future BBEC: Understanding the regional conditions as basis for the design of the BBECs

Hochschule Biberach	University	Higher Education/ Weiterbildung
Universität Ulm	University	Higher Education
Karlsruhe Institut für Technologie	University	Higher Education
AgroParisTech	University	Higher education
BOKU	University	Higher education
Life Science Accelerator Baden-Württemberg	Accelerators/incubators	on-the-job training/ continuing education
SMART GREEN Accelerator	Accelerators/incubators	on-the-job training/ continuing education
BadenCampus Accelerator	Accelerators/incubators	on-the-job training/ continuing education
Energie-Accelerator AXEL	Accelerators/incubators	on-the-job training/ continuing education
Textil.Accelerator	Accelerators/incubators	on-the-job training/ continuing education
Creative Energy-Accelerator EBU	Accelerators/incubators Alliance of universities	on-the-job training/ continuing education Higher education
BioTechPark Freiburg Industrie- und Handelskammer	Cluster Industry	on-the-job training/ continuing education continuing education / informal
BIOPRO Baden-Württemberg	Industry	Informal/ on-the-job training/ continuing education
Ministerium für Umwelt (UM)	National/regional governmental organisations	Informal
Süd Wissen	Hub National/regional	continuing education/ vocational education
Ministerium für Ländlichen Raum (MLR)	governmental organisations	Informal
Landesanstalt für Landwirtschaft, Ernährung und Ländlichen Raum (LEL)	National/regional governmental organisations	Fortbildung/ Weiterbildung
Metropol-Region Rhein- Neckar	Other	Informal/ on-the-job training/ continuing education
Emmendingen-Hochburg	Other	Vocational



Fachschule für Landwirtschaft Ravensburg	Other	Vocational
Albert-Reis-Technikerschule Sigmaringen	Other	Vocational
Bodensee Stiftung	Other	Vocational
Kommunale Arbeitskreis Filder	Other	Informal
Fraunhofer Institute	Research institute	on-the-job training
Science Center experimenta	Science institute	Informal

Potentially, the BBEC can support and be supported by these institutions for different activities.

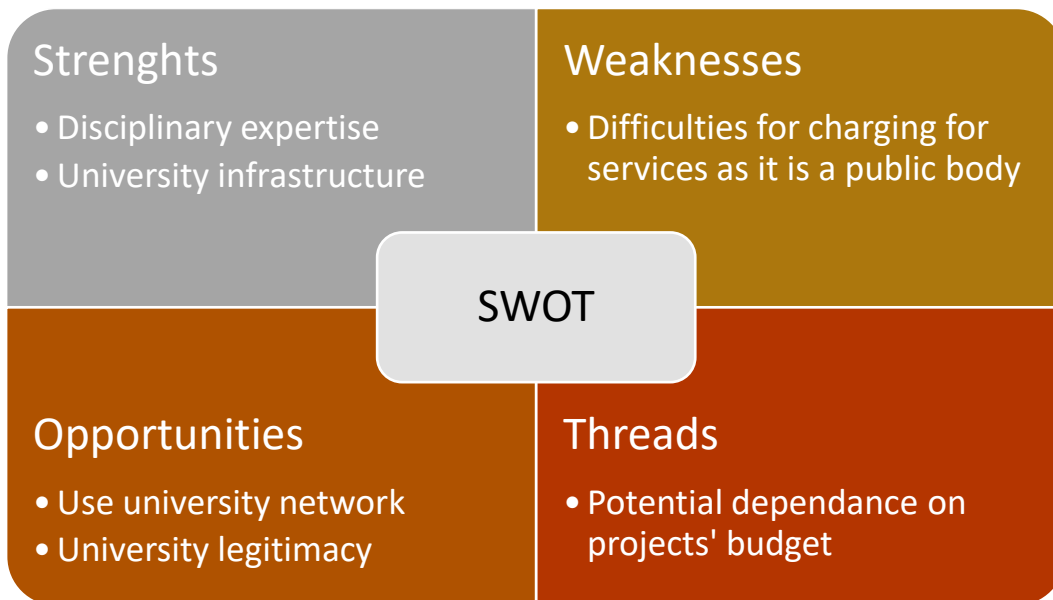
### A.2. The regulatory context

- Ownership of the institution:

The BBEC will be part of the University of Hohenheim and therefore as subordinate institution will keep the public distinction of the superior institution (University of Hohenheim).

- Justification of the institution ownership:

The University of Hohenheim is recognised internationally and at regional level as leading institution in Bioeconomy education. The current network from the University of Hohenheim could potentially support and enhance the BBEC activities through the inter- and transdisciplinary approach that the University has. Although there could be a dependency on projects' money, this ownership type is the most convenient for the BBEC.



**Figure 1.** Swot analysis for analysing the ownership type of the BBEC

- Institution size:

The BBEC operates as a coordination office for all Bioeconomy related education activities performed by its members and the network and cooperation partner (see Figure 1). It is a unit of the University of Hohenheim which is led strategically by the Chief Bioeconomy Officer (CBO) and managed by a coordinator. The coordinator is supported by a secretariat and several project managers, whose number depends on the acquired projects.

- Ethics and Regulatory context:

The University of Hohenheim is a body governed by public law. It is legally represented by its President. The BBEC then it will be part of this corporation under public law and therefore a legal subject by virtue of a sovereign act performing public tasks.

As part of the university, the same ethical framework will govern the BBEC:

- The Ethics Committee examines ethical issues related to research projects at the University of Hohenheim. The Ethics Committee acts as a body for the ethical evaluation (Ethical Approval) of planned projects. For individual projects and upon request, the BBEC can have the ethical aspects of individual research projects reviewed and assessed by the Ethics Committee.
- Regarding data protection issues, the Data Protection Officer of the University of Hohenheim will take care of these aspects for the BBEC.
- Gender equality policy: this is a key concern at the University of Hohenheim geared towards both students and scientific staff.

## B.- Institutional purposes:

### **They refer to the purposes and goals pursued by the institution**

- Mission and vision of the BBEC

The BBEC as an entity of the University of Hohenheim is first and foremost a service unit of the University of Hohenheim, which collects and processes all information related to the bioeconomy for all relevant actors of the university.

Its recognition as the German entity of a European network of BBECs, the BBEC UHOH will serve as hub for connecting actors between institutions and networks. It will support the creation and adaptation of educational offers by developing a flexible, inter- and trans-disciplinary, tailored, practical-oriented and regional-driven framework for sustainable Bioeconomy at the different educational levels and offerings.

As vision, the German BBEC will support the connection of supply and demand for bioeconomy, offer advise and/or consultancy for educational formats, serve as a platform that connects stakeholders of bioeconomy education in the region and at national and international level, work on social awareness of bioeconomy by inspiring, engaging and communicating topics of sustainability transition to the bioeconomy to society and become an authority in topics of bioeconomy education based on research of directional trends, developments and challenges

The German BBEC will then:



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- Support the connection of supply and demand for bioeconomy-related education based on the trends and needs of different societal actors
  - Offer advise and/or consultancy based on a framework for educational formats that respond to the needs of education for the current and future social challenges
  - Serve as a platform that connects stakeholders of bioeconomy education in the region and at national and international level to enhance cooperation between educational institutions, industry, government, NGOs, among other stakeholders.
  - Work on social awareness of bioeconomy by inspiring, engaging and communicating topics of sustainability transition to the bioeconomy to society.
  - Become an authority in topics of bioeconomy education based on research of directional trends, developments and challenges
- Training project: values that BBEC want to promote, general professional skills to develop and intervention methodology.

The values of the BBEC based on the vision described in the previous point are shown in Figure 2.



**Figure 2.** Values of the BBEC

The BBEC aims to create a dynamic, interdisciplinary working team that is proactive in the regional, national and international Bioeconomy education networks. The team will have skills in systems thinking, research, innovation, interdisciplinary cooperation, critical thinking, project management and stakeholder management.

### C.- The operating structures:

**They refer to the way in which existing resources are organised to achieve the established institutional purposes.**

#### C.1. The structure of human resources:

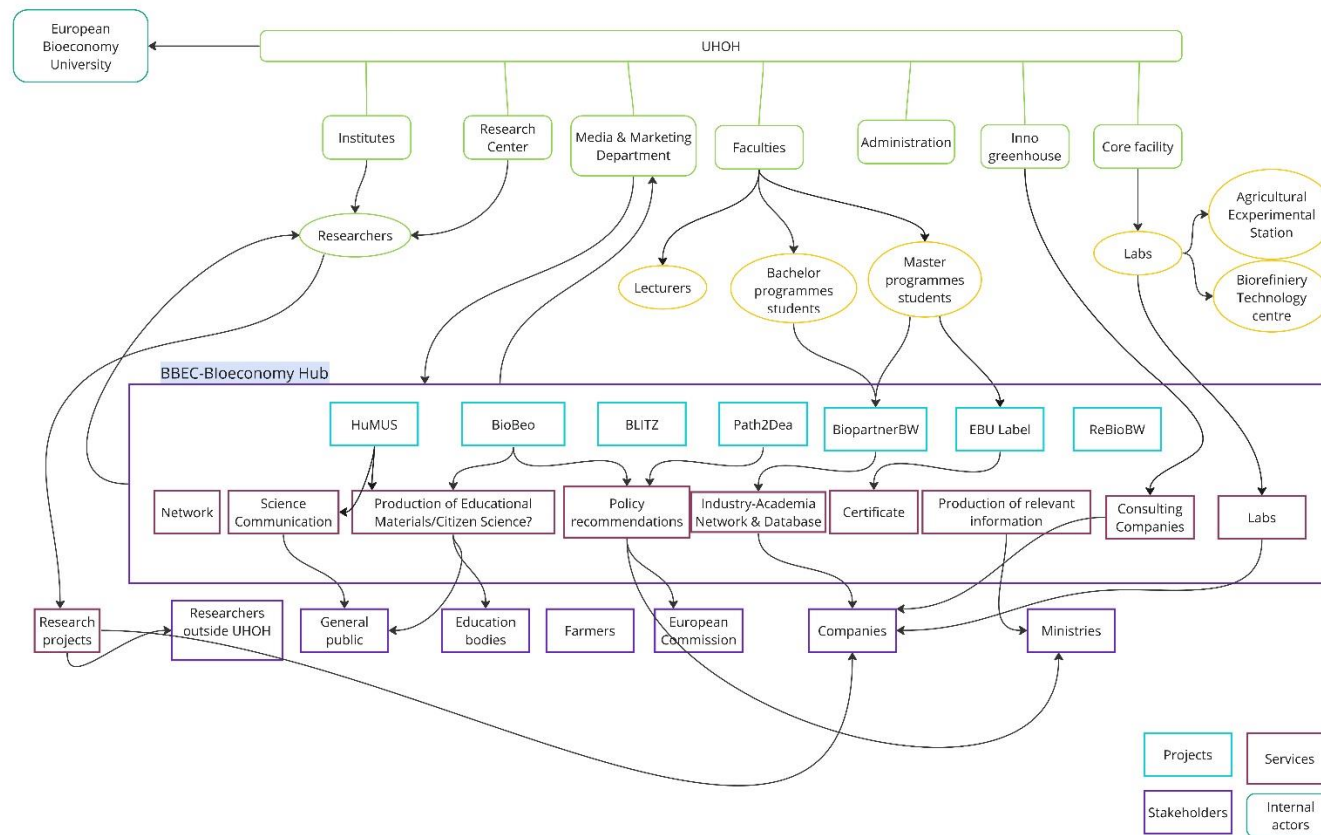
- Governance and participation bodies (organization chart): management bodies and their functions, participation bodies (stakeholders they represent and their functions).

The German BBEC develops itself from current activities and services already offered and seeks for extending those. In the following diagram (Figure 3), the connection of the BBEC with the university,

the current projects and the services that will also be offered by the BBEC are shown. The BBEC is embedded into the institutional setting and infrastructure of the University of Hohenheim. It intends to connect rather than create a completely new model. In the same figure, the turquoise boxes show the project related to bioeconomy education and the burgundy boxes show the type of services that the BBEC will offer, while the purple boxes show the stakeholders that make use of those services.



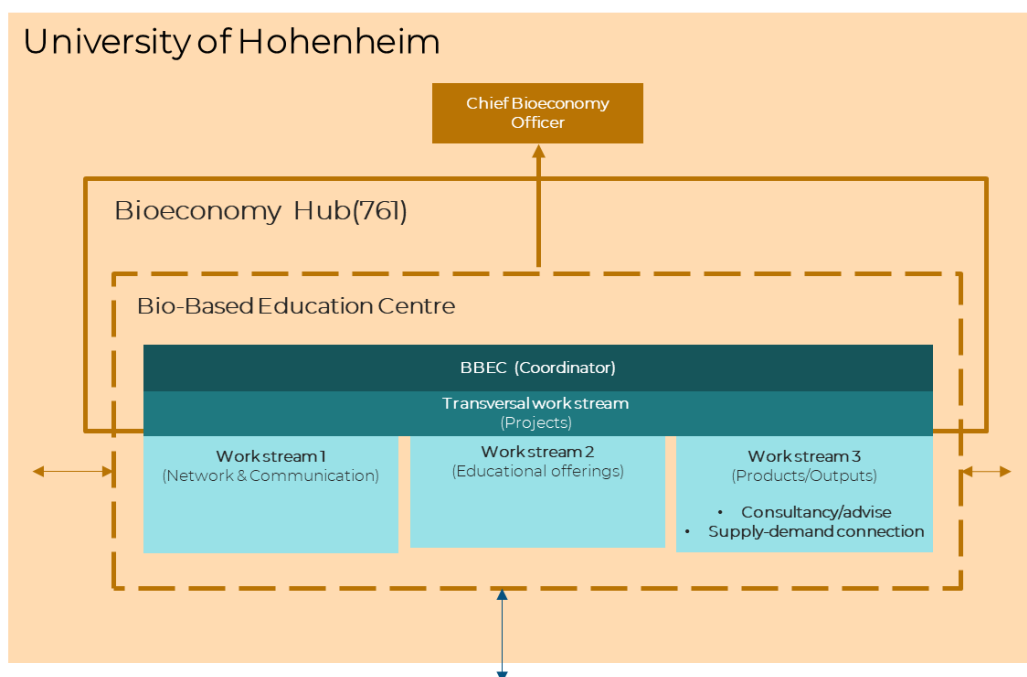
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**Figure 3. BBEC governance**



Based on the current offerings, the German BBEC general structure is shown in the Figure 4. The BBEC will be created within the University of Hohenheim and therefore it will be embedded into the institutional setting and infrastructure depicted in the figure by the dotted line. The BBEC then will have a direct connection with all the internal academic and administrative institutes and parties of the university shown by the bidirectional arrows but especially within the Bioeconomy hub. The connection with external stakeholders is shown by the blue arrow.



**Figure 4.** General structure of the BBEC embedded into the institutional setting and infrastructure.

In Figure 4, there are exemplary workstreams based on the current projects and services that could integrate the different services:

1. Network and communication: Connection and collaboration of network, Science communication, production of relevant information.
2. Educational offerings: EBU label, master and bachelor programs, production of educational materials, industry/academia connection.
3. Products/outputs: Consulting companies, labs use, policy recommendations, production of educational materials.



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- Organization of the staff participating in the institution: selection, assignment to job positions, training and improvement, and working conditions.

The BBEC needs a coordinator who initiates and manages the workforce of educational projects and the network. This person will be the operational manager of the BBEC via the Bioeconomy Hub. The current Chief Bioeconomy Officer will be the strategic program manager of the BBEC, and they will be in constant communication with each other. Additionally, there will be project-based positions to be filled upon project grants.

The people working in the BBEC should have expertise in interdisciplinary and proactive work. Each person works on projects and integrates her/his work with the exemplary topics of the work streams presented before: Network and Communication, Educational offerings and Products or outputs. The selection process and the assignment to job positions will follow the rules of the university.

The members of the team need to have an induction course when starting the job position to understand the complexity of the topics, network, and the dynamics of the team. It will be essential therefore for this interdisciplinary group that the members are in continuing communication to improve the workflow and the structure of the Centre.

There should be an on-the-job training program to enhance the development of the skills that are needed in the team such as systems thinking, research, innovation, interdisciplinary cooperation, critical thinking, project management and stakeholder management.

- Organization of other participants in the institution: sponsoring companies, Public Administrations, professional groups,...

The continuing exchange with external stakeholder is an essential activity of the BBEC. In Figure 5, all the stakeholders' types that will be connected with the BBEC are shown. Detailed examples of these are listed in A1.



**Figure 5.** external stakeholders connected to the BBEC

### *C.2 The structure of material resources:*

- Infrastructure of the BBEC:

As the BBEC is embedded into the University activities, the BBEC is envisioned to be located at the University of Hohenheim campus.

### *C.3. Functional Resources:*

- Calendar and hours of operation.

The calendar and hours of operation will follow the rules of the University of Hohenheim with regular 39.5 hours per week from Monday to Friday with possibility of flexible working hours.

- Budget: origin of financial funds, items and control and monitoring systems.

It is expected that the funds for the operation of the BBEC will be covered by Bioeconomy-related project funds at regional, national and European level.

- Most prominent aspects of internal regulations.

Salaries will follow the collective agreement for the public service of the federal states with the different salary group according to qualifications and time of service. Other aspects such data protection, gender equality, prevention and promotion, health and safety at work, general equal treatment, maternity protection, federal parental leave will go along the University procedures and rules.

#### D.- Management and operation:

##### **Review the format and actions of the institution's management bodies**

- Management: training, selection, functions and working conditions

Defined in C1

- Management teams: composition and functions.

Although the team of the BBEC will work on different projects and the topics of the workstreams will be interconnected, for organization reasons we propose the following general functions:

##### **Bio-based Education Centre Coordinator:**

- Responsible for defining the objectives of the BBEC.
- Responsible for initiating the workforce of educational projects and the network.
- Responsible for the management and administration of all activities within the team.
- Responsible for deciding the approach of the different activities and the plan for the implementation.
- Responsible for distributing information to team members and communicating directly to stakeholders, especially with the Expert advisory panel.
- Responsible for monitoring and controlling the tasks, employees and documents of the team.

##### **Leaders of the projects:**

- Responsible for the implementation and management of projects.
- Responsible for deciding the approach of the projects and potential connection with internal and external stakeholders.
- Responsible for communicating results internally

#### E.- The relational system:

##### **Analyse the most important aspects that affect people's behaviour**

- The communication processes in the centre.

The communication strategy of the centre is structured based on three emphases:



### 1. Internal communication

As mentioned before, the communication among the members of the team is essential for the successful development of the tasks, activities and strategy of the BBEC. To improve team communication, conflicts shall be resolved at early stage, engagement shall be encouraged, bottom-up communication should be promoted, and consistent feedback should be provided.

### 2. Communication with stakeholders

- Simple, open, honest, transparent verbal and written communication.
- Effective, feedback-oriented and simple written communication in emails and the website.
- Effective and active listening with non-judgemental and curiosity approach.
- Simple and clear visual communication.

### 3. Work stream Communication

This is part of one of the workstreams of the BBEC and although the strategy should be created at the beginning of the BBEC, the values of the BBEC should be considered when creating the strategy: Open information, cooperation and connection for change, trend seeker, flexible and regionally-driven, impact-oriented, honest, transparent and clear.

- Decision making.

The decision-making process is depicted in Figure 6. It is important to emphasise that the connection, communication, and continuing exchange with the institutions of the university is intrinsic in the BBEC activities. The BBEC will work from the current work of the researchers, professors and students and the services from the administrative departments of the university.

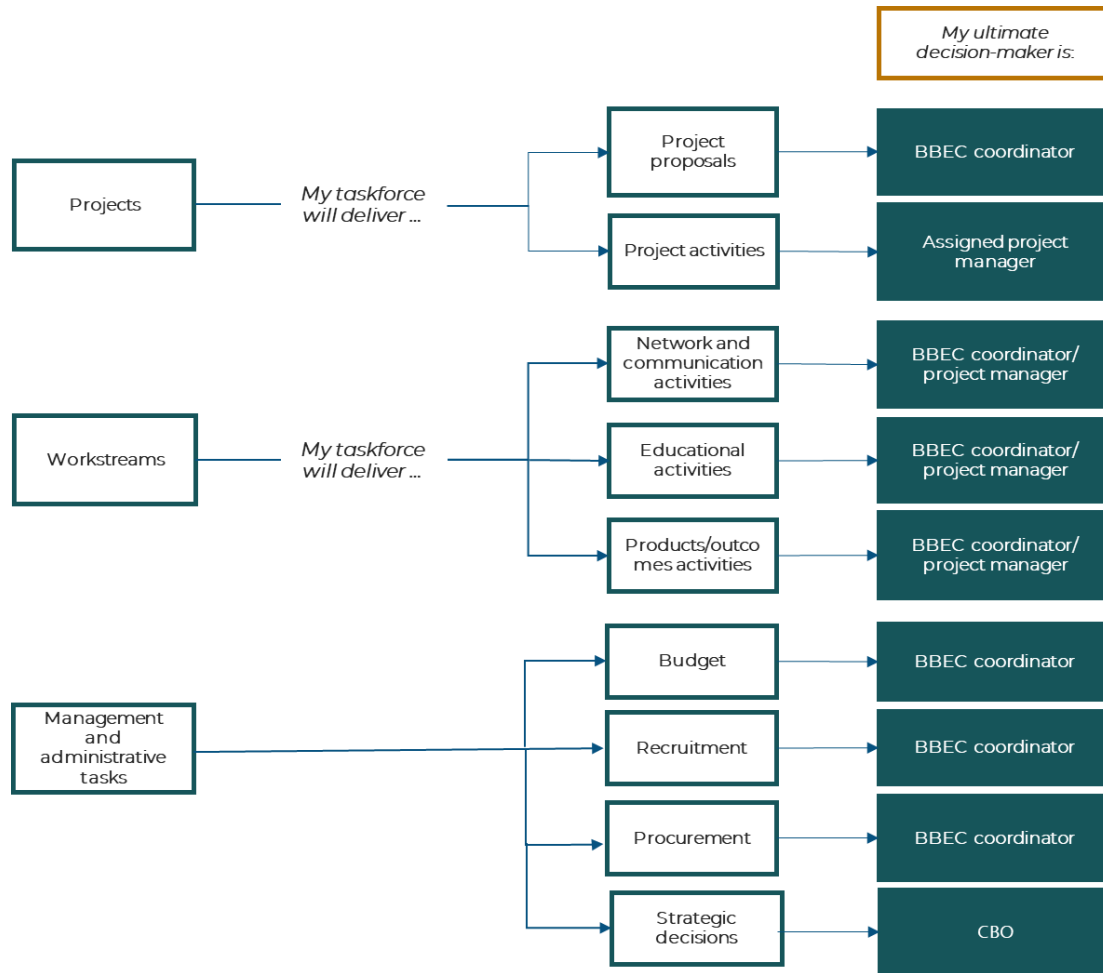
There is a flow of communication and information among the members of the BBEC and advise exchange. It is important to note that there should be clearance or authorization by the BBEC coordinator and CBO for the most strategic activities of the workstreams.

Each project leader is responsible for the decision on their own project activities. However, the decisions on which projects to be involved is responsibility of the BBEC coordinator together with the CBO.



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**Figure 6.** Decision-making process

### F.- Institutional dynamics:

**It refers to the most relevant aspects of the institutional day-to-day.**

- The annual planning of the centre, who, how and when it is carried out.

The annual planning of the BBEC will be done in November. This planning will be done in a team meeting led by the BBEC coordinator in which the objectives of the previous year will be examined. The planning will cover the strategic milestones of the BBEC and the update of the projects.

- Monitoring of plans and programs. Evaluation and accountability.

Each team member will be responsible for the monitoring of their own work/project including the whole BBEC by the BBEC coordinator and CBO. The monitoring will cover internal and external activities and projects that will be defined in the annual planning meeting.

Furthermore, the BBEC coordinator will have bilateral meetings with the Project leaders for an evaluation and monitoring of the activities before and as preparation of the annual meeting.

Feedback processes will be open and constant during the whole year based on the continuing communication among the members of the BBEC team.

- Quality indicators and internal quality assurance systems.

Although each project has its own quality indicators, here we name some indicators that will be monitored within the group:

- Budget use
  - Activities and milestones implementation
  - Specific KPIs of the project
  - Communication activities
  - Connection to the BBEC strategy
  - Integration of project with internal and external stakeholders
- The link with the environment and its institutions and companies.

The link with the environment will be done through the close connection with external stakeholders through different activities of the projects.

- The elaboration and development of improvement and innovation plans.

The continuing feedback will support the improvement of the activities of the BBEC and the annual planning meeting will have a specific focus on innovation according to the trends and needs of the market and society. After the annual meeting, the innovation plan will be updated in the website and communicated to the stakeholders.

- Networking with other institutions

This task is the responsibility of each team member as it is an essential element of the BBEC. The BBEC coordinator will decide an approach for the creation, management and monitoring of the network by engagement stakeholders to the different activities and projects of the BBEC, supporting the cooperation of stakeholders at regional, national and international level, communicating the activities of the network and developing products from the network activities that could serve others.

## 5.6. Irish BBEC Governance plan

### A.- The context of action:

#### A.1. The socioeconomic context:

Market analysis shown that there is no overarching mapping of bio economy integration into Irish education, training, and skills curricula. There is also a lack of comprehensive information on skills gaps and shortages in the sector. The Irish BBEC therefore has an opportunity to meet these requirements and provide the overarching mapping of the Irish bio economy, providing an online knowledge database for all bio economy stakeholders and specifically geared towards education.

The Irish BBEC will provide training, assessment and a research portal for the Irish Bioeconomy sector.

- Single point of entry to Bioeconomy Centre of Excellence (BBEC)
- Accreditation and career progression via multi-level learning pathways
- Bespoke suite of services for industry, government, and civic society
- International, European, and regional connections & networks
- Competitive advantage via centre reputation and expertise
- Adaptable & dynamic agile approach
- Experts in tech-innovation via technology gateways
- Enterprise accelerator & support network for entrepreneurs
- Industry and business focused alumni and expertise
- Mentoring & coaching services and programmes
- Industry and Job creation
- Access to European grants/applications
- Consortium building

The existing training bodies and institutions in the field are: [Teagasc | Agriculture and Food Development Authority, gov.ie - Department of Education \(www.gov.ie\)](#), BiOrbic, Bioeconomy SFI Research Centre. and the university sector. There are also educational training boards such as SOLAS, Skillnet and other approved private training providers.

The Universities are: Atlantic Technological University (ATU), Dublin City University (DCU), Maynooth University, Munster Technological University, University of Galway (formerly National University of Ireland, Galway), Royal College of Surgeons in Ireland, South East Technological University, Trinity College Dublin (TCD), Technological University Dublin, Technological University of the Shannon - Midlands Midwest, University College Cork (UCC), University College Dublin (UCD) & University of Limerick.





## A.2. The regulatory context

The Irish BBEC will be part of MTU with support from IBF. The ownership will be public as MTU is a public body. It will likely be funded by government grants with some industry support. Educational institutions in Ireland are substantially state funded. The ethics and regulatory content are in line with the policies and procedures of MTU. The Irish BBEC will require 2 full time staff members, a programme manager and a community manager.

### B.- Institutional purposes:

The strategic vision of the Irish BBEC is excellence in conducting and supporting education, research, assessment and promotion of the bioeconomy in Ireland. It will focus on a number of key areas: collaborating on European/National projects, developing industry partnerships, growing a sustainable Bioeconomy, skills and talent pipeline, research & innovation, and community action initiatives. The Irish BBEC will operate in line with the overarching MTU “ Our Shared Vision” strategic plan to build on past successes and work together to become a truly great institution. There will be a major emphasis on delivering outstanding learner education and experience to produce work-ready graduates, achieving significant growth and impact across MTU’s research, innovation and entrepreneurship ecosystem; leading regional development; and adopting a global outlook across all of MTU’s activities.

The Irish BBEC will centre on:

- World Class bioeconomy related programmes, courses and learning pathways designed with consideration of industry demand
- Research centre activities, events and academic publications maintaining strong links to the industry nationally and internationally
- Linking partners to EU funding opportunities
- Civic Society engagement, collaboration and change making activities
- Design and delivery of bioeconomy, environment & sustainability education for all levels of the education sector

The Irish BBEC will facilitate networking events focused on jobs and apprenticeships. It will act as an intermediary between industry and the education sector to ensure placement of suitably qualified interns. The Irish BBEC will also work closely with start-ups in the sector providing access to coaching, research, and workshops in areas such as entrepreneurship, design thinking, access to green finance, socioeconomic and environmental assessment etc.

### C.- The operating structures:

#### C.1. The structure of human resources:

The Irish BBEC will be coordinated by MTU with support from IBF. There will be a governance board with representatives of relevant academic staff, a representative from the steering group and from the proposed funding agency. The governance structure will operate as per figure 1 below. It is proposed that the Irish BBEC will employ 2 full time staff members, a programme manager and a community manager.



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Working conditions will be based on the employment control framework for the **higher education and research sector in Ireland** as outlined by the Government of Ireland.

<https://hea.ie/.../2017/05/Appendix-4-Employment-Control-Framework...> · PDF file and in line with [MTU Policies and Publications | Munster Technological University - MTU](#)

Other participants in the institution will include Higher Education Institutes, HEI Research Centres, Science Foundation Ireland, Enterprise Ireland Technology Gateway Network, Further Education and Training Sector, Media, Department of Agriculture Food & Marine (Policy Makers) EU education partner organizations, Enterprise Ireland Accelerator – network and supports for start-ups, Innovation Hub Network and cluster organisations.

#### *C.2 The structure of material resources:*

The Irish BBEC will be located in MTU with access to all facilities in accordance with MTU Estates policy. It will also have access to IBF facilities in line with all of their in-house policies and guidelines.

#### *C.3. Functional Resources:*

Opening hours will be based on public service office opening hours. All controls and monitoring systems in terms of budget, finance origin etc. will be in line with MTU policies. Internal regulations will all follow MTU policies.

#### **D.- Management and operation:**

The training selection, functions and working conditions of the management will all be in line with MTU policies and procedures. The governance structure is outlined in figure 1 below. There will be a steering committee which plays an advisory role consisting of academics, industry and government representatives which will meet twice a year.

The governance board will consist of a member of the steering committee, MTU, IBF, BiORBIC and the funding body.

The Operations Team will report to the governance board and the project team, consisting of the programme manager and the community manager will report to the operations team.

#### **E.- The relational system:**

Coordination of the Irish BBEC will be as per the governance structure with major decision making coming from the governance board while the day to day running lies with the operations and project teams. Stakeholders will be invited to working groups, forums and information sharing sessions arranged by IBF and MTU to assist with the decision-making process.

The Irish BBEC will be committed to ensuring the highest standards of professionalism and rigor, and to the accuracy, openness and integrity in all aspects of its work.

#### **F.- Institutional dynamics:**

The annual planning of the Irish BBEC will be done in collaboration with the operations and project teams with input from the governance team. Performance Management and Development System (PDMS) will be employed as the system used to set goals, review and strengthen the performance of the staff of the Irish BBEC.



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Key Performance Indicators (KPIs) will be set and agreed between coordinators and board members with regular meetings to provide updates. Indicators will be for example, metrics on social media traffic, requests for visits to school groups, interns placed, and students registered for listed courses. Qualitative data will also be considered with questionnaires for interactions.

The Irish BBEC will host a web-based platform, with links to all partner organizations. Communications will be in the form of targeted emails, monthly webinars, spotlight on a member, face to face study visits and social media posts utilizing industry links.

Events to be promoted could include events such as Bioeconomy Ireland Week, Conferences, Panels, Blogs, Vlogs, Customer Case-Studies, University Channels, Social Media Channels, Video & Online Content, Entrepreneur support agencies, Course Contributions and Programmatic Advisory Channels.

Annual calendar of events to be planned in Sept/Oct every year with information provided by the Irish BBEC team. The calendar will follow roughly the same format every year with key events such as Bioeconomy Week, registrations for educational semesters, intake of apprenticeships etc.



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## 5.7. Mediterranean BBEC Governance plan

### A.- The context of action:

**All institutions are situated in a context; sociocultural and economic, to which they must respond and which justifies their meaning and existence.**

#### A.1. The socioeconomic context:

- Socioeconomic reality and future prospects.

The Mediterranean basin has no specific strategies or alliances for bioeconomy that involve the Countries in the area. To date, the only macro-regional or interregional strategy covering regions from different countries put in place was the one developed within the Adriatic-Ionian Region (Interreg ADRIION, BIOECO-R.D.I. International Strategy for the Adriatic-Ionian Region <https://bioecordi.adriioninterreg.eu>). However, it covers only partly the Mediterranean basin, with a specific focus on Italy and the Balkans relationship.

Furthermore, there is an action plan with interregional coverage, the Vanguard Pilot Action Plan on bioeconomy (<https://www.s3vanguardinitiative.eu/pilots/bio-economy>), that involves some regions of the Mediterranean area, but together with other 10 regions from North and North-West Europe, hence with no specific focus on the Mediterranean.

However, of the EU countries bordering on the Mediterranean two of them (i.e. Italy and Spain) have “intense regional strategic action to deploy bioeconomy,”<sup>13</sup> while other two (Greece and Croatia) present “moderate regional strategic action to deploy bioeconomy”<sup>14</sup>. Instead, no bioeconomy-relevant regional strategies have been put in place by Cyprus and Malta.

Hence, with a specific focus on national strategies, it is possible to outline some socioeconomic elements that characterise the area. In particular, due to the nationality of the lead entities of the Med-BBEC, the present paragraph will take into account the Italian and Spanish Strategies for bioeconomy.

In Italy, the bioeconomy is estimated to have a turnover of around 317 billion euros, employing just under 2 million people (source: The bioeconomy in Europe – VII report<sup>15</sup>). At the national level, the first full strategy for bioeconomy, Bioeconomy in Italy - BIT, is dated 2017. A revised version, the current BIT II, was published in 2019. The core of the strategy is its main objective of achieving +15% of national bioeconomy performance by 2030. To do so, among others, more

<sup>13-2</sup> <https://op.europa.eu/en/publication-detail/-/publication/b86b5850-d4be-11ec-a95f-01aa75ed71a1/language-en> (last seen: 18/05/2023)

<sup>15</sup> [https://assobiotec.federchimica.it/docs/default-source/bioeconomia/rapporti-precedenti/2021\\_rapporto-bioeconomia.pdf?sfvrsn=d57a6a31\\_2](https://assobiotec.federchimica.it/docs/default-source/bioeconomia/rapporti-precedenti/2021_rapporto-bioeconomia.pdf?sfvrsn=d57a6a31_2) (last seen: 18/05/2023)





investments in education and training are explicitly mentioned. Moreover, BIT II has no sectorial point of view but seeks bioeconomy as a holistic approach to sustainable development.

A supplement to BIT II was released in 2021, with the Implementation Action Plan (2020-2025) for the Italian bioeconomy strategy (IAP). In this document, four macro areas of intervention have been identified, namely: policy/standards, pilot actions, regeneration of ecosystem services and stakeholders' engagement. About the latter, the Plan identifies as a priority action: "Promoting upgrading of skills and competencies, attitude, training and entrepreneurship in the field of Bioeconomy."

More in detail, this action (Action 4 within the document) is implemented through the involvement of four categories of stakeholders: Citizens, Firms, Education, and Entrepreneurs. For each of these categories, one or more actions have been identified. Many of these actions coincide with the purpose of BIObec, such as: Including the Bioeconomy in both school education and professional training courses; Disseminate the Bioeconomy concept in Vocational Education and Training courses and school curricula; Intensify mobility between academia, administrations and industry. Moreover, the Plan incentivise the creation of an online Portal for collecting basic information about sustainable and circular bioeconomy: this aspect is in line with the Med-BBEC purposes, although in the IAP no specific mention of the educational and training sphere is made.

Finally, another important issue is identified by the IAP: *Establish a program for the training of trainers by promoting the creation of support structures for the management of projects for innovation and technology transfer, both at the level of production processes and products.* This is an aspect perceived as fundamental also from the Med-BBEC.

Focusing on lower administrative levels, all twenty-one Italian regions have strategies dedicated or related to the bioeconomy. That is strongly connected with the request moved in 2017 by the government to all the regions for preparing an original strategy for sustainable development with a vision until 2030. Hence, six of the regions developed a full dedicated bioeconomy strategy; nine a regional strategy with a strong bioeconomy focus; and six frameworks with a minimum of bioeconomy content. In any case, also for regional strategies, coherently with the national strategy, the bioeconomy is seen as a holistic vision for sustainable development. Nevertheless, education and training are rarely seen as a priority for development, but rather as a means to achieve the priorities, and this reflects the national scheme outlined in BIT II and into IAP.

Instead, in Spain, the most current data available from the European Commission's Joint Research Centre indicates that the bioeconomy represents a significant share of the country's economy, employing approximately 1.3 million people and generating a turnover of over 191 billion euros in 2014. Its importance led the national government to publish in 2015 its Spanish Bioeconomy Strategy: Horizon 2030, with the purpose of taking advantage of the opportunities that the sector offers to increase economic activity, enhance the competitiveness and sustainability of the sectors associated with the use of bio-based resources, and promote the generation and use of knowledge for the development and application of derived technologies.



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This has prompted several regional governments to start the development of their own plans and strategies.

Andalusia is one of the most important agricultural regions in Spain and, consequently, the bioeconomy not only has enormous potential, but it already provides a significant contribution to the region's economy, employing approximately 300,000 people and yielding almost 30,000 million euros in turnover. Of this, the agriculture sector accounted for 73% and 34% of total employment and turnover, respectively. The importance of the bioeconomy for the region led to the publication of the Andalusian Circular Bioeconomy Strategy in 2018, which is focused on the areas and activities that are less developed and therefore need greater institutional support through the implementation of specific measures and actions to facilitate their take-off and consolidation in the medium to long term. These include the production of biological raw material or biomass, the technological processing of biomass to transform it into higher value-added products and/or bioenergy, and the development of markets for the bioproducts and bioenergy obtained.

- Present and future needs of the training/assessment/counselling/research to which it is intended to respond.

Focusing on the present needs in the Mediterranean context to which the Med-BBEC is intended to respond, we identified:

- Not clear identification of the actors involved in bioeconomy;
- Missing structured educational framework for bioeconomy in the Mediterranean area;
- Demand and offer of education and training misaligned;
- Bioeconomy can be an opportunity for NEETs and minorities;
- Need to focus on specificities of Mediterranean areas, such as water scarcity, marginal areas and importance of high quality food value chains

Instead, looking at the future, the following needs has been identified:

- The development of bioeconomy will improve the innovation of the sector, requiring educated, skilled, and trained human resources;
- The ecological transition and the digital transition will increasingly impose the need for many workers to reallocate themselves on the labour market;
- Existing training bodies and institutions in the field of action where you want to influence or collaborate.

Although the education and training systems are quite different between Mediterranean countries, some existing training institutions have been targeted:

- Schools, at every level of education;
- Academia, although in different ways in the various Mediterranean countries;
- VET and Lifelong learning education providers, especially the ones involved in well-established sectors (ex. Agriculture);
- Technology transfer institutes.



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## A.2. The regulatory context

- Ownership of the institution: public, private, consortium, linked to another body, etc..

The institute will be a non-for profit entity. Some concerns have been expressed about the Consortium framework by Italian IRWGs because of some limitations connected with this kind of corporate form. It was suggested to think more flexible forms such as an Association. This association will involve Italian and Spanish partners. Other Mediterranean countries could join the Association, aiming to integrate both EU and Extra-EU countries.

- Justification of the institution ownership: economic benefits, incomes, grants, etc..

The idea is to have an independent legal entity, so not dependent on a single/prevaling partner, and not devoted to make profits, so following an approach compatible with the mission of public partners (e.g. university) and use of public funding. Commitment of industry is sought in particular through intermediary organizations (e.g. clusters) rather than individual companies. Legal requirements and constraints linked to opportunities for funding will be considered at a later stage depending on what is available at time of implementation (e.g. Next generation EU). Moreover, the identified legal framework helps members to join or leave in a more flexible way.

- Institution size

The Association should involve 10 to 25 partners; in principle economies of scale can justify larger groups, but ensuring a manageable size is preferable than too large association, at least at the beginning.

- Ethics and Regulatory context

No specific issues.

## B.- Institutional purposes:

**They refer to the purposes and goals pursued by the institution**

- Mission and vision of the BBEC.

### **Mission:**

To match the demand and the offer of education and training in the Mediterranean basin, with a specific interest in the characteristic Mediterranean value chains, i.e. food, food waste, fishery and aquaculture. Furthermore, at the heart of the Med-BBEC, there are some transversal topics,



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fundamental for the Mediterranean countries: the importance of rural communities; water scarcity; low development of biomass value chains.

**Vision:**

Mediterranean areas have the potential to benefit a lot from the development of a vital and specific bioeconomy sector. The Centre aims to become the reference point for bioeconomy education and training in the Mediterranean area, for both EU and Extra-EU countries.

- Strategic planning that guides your intervention.

The business idea comes from the awareness of the educational gap in the area. In this sense, the first step of the Centre will be to reorganise what already exists (learning materials, educational proposals, training offers, etc.) to interact as a broker between the demand for education and training (both from industry and private citizens), and the offer (at different levels). The thematic specialization of the Center will be a strategic point for its development in the market. The Centre also acknowledges current education and training infrastructures and aims to provide services, value added and opportunities for improvement of them rather competing on the market for education and training.

- Training project: values that BBEC want to promote, general professional skills to develop and intervention methodology.

The Centre promotes a concept of T-shaped education where sector skills developed in “standard” curricula are complemented with a vision if the bioeconomy future, knowledge of different Bioeconomy sub-sectors and transversal skills in the field of system-thinking, innovation management and (self-) entrepreneurship.

Med-BBEC wants to promote:

- Cooperation between bioeconomy actors in the Mediterranean area;
- Social benefit through new jobs opportunities, especially for NEETs and minorities, or re-allocation of the current workforce;
- The impact of EU-funded projects on bioeconomy, especially the ones with educational or training purposes;

- Others?

- Plans that it develops and some characteristics of these.

The Centre will be connected with all the education entities at any educational level (academic, VET, lifelong learning) and at any geographical level (local/regional, national, European, international) providing a wide web of opportunities to its customers. In particular, it aims to understand the need and the possibilities for a “training the trainers” course. In this case, the objective is twofold: increasing knowledge, competencies and skills in teaching bioeconomy; and raising awareness in existing methodologies, approaches and tools in teaching to different levels of education.



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Moreover, the Med-BBEC will provide a series of *experiential and workplace learning activities*, such as online teaching material and internships/mentoring. The former will consist in a valorisation of existing teaching material with the possibility of creating new materials in the future. The latter will be one of the core activities of the Centre and will try to match human resources and industries enabling internships and mentoring.

Finally, also some non-learning activities will be conducted by the Centre, such as dissemination and communication, perceived as fundamental to increase public awareness about bioeconomy and bioeconomy education and training. Moreover, a continuous collaboration with industry and the overall bioeconomy ecosystem to identify priorities, skill profiles, education and training needs will be conducted to maintain up to date knowledge, job trends, industrial and private sector needs, possibilities for education and training for public administration, possibilities for marginalised people (e.g. NEETs), etc. This activity is perceived by IRWG as a characteristic activity of the Centre, especially for the impact that it could have on bioeconomy growth.

- Singular and innovative projects in which BBEC will work: internships in companies, ICT implementation, entrepreneurship workshops,....

The innovative projects will be: internships; mentoring; online courses; lifelong learning for trainers.

### C.- The operating structures:

**They refer to the way in which existing resources are organised to achieve the established institutional purposes.**

#### C.1. The structure of human resources:

- Governance and participation bodies (organization chart): management bodies and their functions, participation bodies (stakeholders they represent and their functions).

The governance will be defined at a later stage, but the simplest structure is expected with:

- A general assembly
- A president
- A management board
- A scientific council
- A managing director

Additional bodies will be considered as required by the law.

- Organization of the staff participating in the institution: selection, assignment to job positions, training and improvement, and working conditions.

This will be done according to law and ethical principles, also in line with those of the members' institutions. The staff is expected to be very thin (2 persons) and will be complemented by in-



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kind staff contribution by member institutions (e.g. from universities and clusters); this will require a specification of tasks, roles and duties. The 2 identified persons, to date, are a director and a secretary. These two figures will ensure the establishment of the Centre during the start-up phase.

In particular, the director is expected to be, at least in the first years, a person involved in education with competencies in management. Indeed, as discussed with IRWG, the first stages of the Centre will be fundamental to guarantee the consistency of the educational and training offer, rather than the corporate management. Moreover, this person will take care of the relationships between partners within the Centre and with external stakeholders. It is reasonable to think that, after some years, the figure of the director can be split in two: a General Manager – more focused on strategies, business plans, relationships and corporate image – and an Education Manager – more focused on the educational part, coordinating trainers, materials, and tools.

Instead, the secretary is expected to take care of all the bureaucratic and administrative parts. More in detail, this person will be an expert in European and national funds and will coordinate the applications for them. Other tasks could be the financial management of specific projects or the purchase of goods and services (e.g. Educational software for Distance Learning).

#### Organization of users: rights and duties

The Med-BBEC is aware of the importance of defining attendance certificates or final certifications or similar to guarantee a recognised level of education and/or training around Europe. Hence, every participant will earn a certificate.

- Organization of other participants in the institution: sponsoring companies, Public Administrations, professional groups,...

To be defined at a later stage

#### C.2 The structure of material resources:

- Infrastructure of the BBEC: spaces, security conditions, health and sustainability of the facilities, .....

Dedicated physical facilities are not expected. Location will be at the premises of one of the member institutions (e.g. UNIBO) and will follow local rules and provisions for hosting external institutions (e.g. contractualisation, rent if any, work safety prescriptions etc.).

On the opposite the web facility will be the core of the infrastructure (see below).

General and laboratory/workshop furniture and materials, with reference to its functionality and level of updating.

It is expected to develop a web facility as the main supporting infrastructure, including: public website, restricted areas, brokerage and matchmaking facilities, coaching, learning infrastructures, etc.



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In this vein, one of the key objectives of the Med-BBEC is to collect and share the learning materials developed in other projects or other initiatives. Just to cite some examples:

- Transition2bio toolkits;
- BoostEdu;
- FOEBE
- Other available at BBEC partner institutions (e.g. MOOC on Bioeconomy from Hohenheim)

Specific agreements will be needed for their use and specific infrastructure to make them accessible and usable according to specific learning needs and processes.

### C.3. Functional Resources:

- Calendar and hours of operation.

Usual working hours with planned flexibility during week ends (e.g. form professional courses); learning infrastructures available H24/7 days a week

- Budget: origin of financial funds, items and control and monitoring systems.

#### Origin of financial funds:

Public funds (EFS, PRIMA projects, Italian Recovery fund, **Spain?**), private ones (Italian interprofessional funds).

#### Control and monitoring system:

Usual control and monitoring systems expected depending on legal form; social balance sheet with a focus on learning processes and activities.

- Most prominent aspects of internal regulations.

The concept of the centre is that of a “light” organization working as a network for the benefit of members and for wider societal aims. This requires a light organization and tasks, but very clear agreements on roles and contributions.

### D.- Management and operation:

#### Review the format and actions of the institution's management bodies

- Management: training, selection, functions and working conditions

It is expected to hire motivated, trained staff, with experience in training and communication of the Bioeconomy but also research and industry in the field. Training is possible but update through participation to events of the “bioeconomy world” is particularly promoted.



- Management teams: composition and functions.

T.b.d but to be kept very simple: 1-2 people interacting at regular occasions with partners.

- Intermediate management (coordinators, area managers,...) and their functions.

T.b.d., but to be kept to the minimum.

#### **E.- The relational system:**

##### **Analyse the most important aspects that affect people's behaviour**

- The communication processes in the centre.

The Centre will take advantage of the presence of partners expert in communication and dissemination. Furthermore, also in the communication strategy, the network of various European BBECs will be fundamental.

- The motivation of the staff.

Motivation will be kept in particular with creation of a lively collaboration among institutions supporting the centre.

- The coordination of people.

See above

- Decision making.

See above

- Institutional culture.

The Centre will be built on a strong vision of the bioeconomy and on the commitment to contribute to social challenges in this field.

#### **F.- Institutional dynamics:**

##### **It refers to the most relevant aspects of the institutional day-to-day.**

- The annual planning of the centre, who, how and when it is carried out.

According to legal form

- Monitoring of plans and programs. Evaluation and accountability.

According to legal form

- Quality indicators and internal quality assurance systems.



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A quality assurance system will be adopted, appropriate certifications will be considered, in particular as identified in WP4

- The link with the environment and its institutions and companies.

tbd

- The elaboration and development of improvement and innovation plans.

Activities will start as planned during the BIOBEC project. The starting phase (year 1) will be used as a reality check of activities planned. Years 2 and 3 will allow the implementation and 4-5 will be used to test revised activities. The Centre includes activities of opportunity scanning and setting agenda for education and training in the field that will allow a continuous update and improvement. Internal evaluation systems will be set up for each specific activity.

- Institutional marketing.

TBD.

- Networking with other institutions.

All institutions linked to Bioeconomy. Networks of partner institutions; own network of former students and users



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