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# Understanding Business Environments and Success Factors for Emerging Bioeconomy Enterprises through a Comprehensive Analytical Framework

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**Abstract:** The development toward the bioeconomy requires, among others, generating and institutionalizing knowledge that contributes to technical and nontechnical inventions and innovations. Efforts to support innovation are often linked with the development of business models that facilitate the development in bioeconomy. However, the interdependences between the business models and their business environments are not sufficiently well understood in a way where misalignments that can obstruct the development can be dealt with adequately. Given this lacuna, this research aims to contribute to the development of a comprehensive analytical framework for better understanding the conditions of business environment as well as empirically apply the framework in an empirical study on cases of bioeconomy enterprises in Europe. In this paper, a comprehensive business environment framework is developed and applied for analyzing over 80 cases, thereby allowing for critical action arenas and crucial success factors to be identified. The findings are derived from a systematic application of the framework to relevant action arenas for business development: institutional development, technology and knowledge, consumers' agency, market structure, funding, resource and infrastructure, and training and education. The results show that businesses in the bioeconomy, unlike other businesses, have to deal with more and very specific constraining legislative issues, infant and non-adapted technology and knowledge, as well as unclear values and perceptions of consumers. Due to this, businesses have to develop new forms of cooperation with different stakeholders. Successful businesses are characterized by the fact that they develop specific strategies, steering structures, and processes with a particular focus on learning and innovation to overcome misalignments between the business environment and their business models. Focusing efforts on learning and innovation in institutional development, technology and knowledge, consumers' agency, and funding are especially promising as these turned out to be particularly critical and in particular need of institutional alignment for reducing different kinds of transaction costs in the development of bioeconomy.

**Keywords:** biobased business; business environment; bioeconomy; capacity development

## 1. Introduction

The literature on bioeconomy devotes much attention to the technological aspects of new biobased products as well as policy measures that support a shift towards a sustainable bioeconomy [1–4]. Currently existing definitions of the term bioeconomy are neither completely congruent nor offer scope for interpretation [5,6]. Against this background, we adopt a broad definition for building an

objective, comprehensive and value-neutral framework. This means including all businesses that use biological resources. Policy and research documents referring to the emerging bioeconomy offer concepts and solutions in particular for the development and market introduction of the products and services [7–10], but they hardly deal with the development issues of the enterprises and the necessary changes in their immediate business environments, except few recent studies [11,12]. Studies have also shown the need to focus more on business development for bioeconomic activities because technological innovations alone are seldom sufficient without complementary innovations in business models [11,13,14]. A growing number of studies aim at evaluating business models in the bioeconomy, but the majority of these studies are review studies without additional contributions to the conceptual and empirical body of literature about the enterprises in the bioeconomy. The focus of these studies is to contribute to the definitions [15] and understanding of value propositions [16], business model design [9], and challenges and opportunities to operationalize [13,17] business models for the bioeconomy.

Enterprises and their business models are shaped, constrained and/or enabled by their business environment through manifold interactions. Against this background, it is surprising that so few scholars are concerned with understanding how the business environment and enterprises and their business models influence each other. Efforts to understand the conditions of the business environment in which bioeconomy businesses operate have been very minimal. In particular, studies on the interdependence between business models and their business environments are rare, and the subject is not sufficiently understood to the point where the misalignments that obstruct the development towards a bioeconomy can be overcome or at least minimized. A purposeful framing for better understanding the interdependences between and within the business environments can motivate and guide future studies on the subject, and subsequently make an important contribution to the sectors development. Guiding entrepreneurs and actors in the business environment to better coordinate their strategies and actions by using a common conceptual framework can contribute to lower transaction costs and promote higher investment, more innovation, and consequently, the creation of more and better jobs [18].

The study of business environments is essential because an enterprise does not operate in a vacuum; rather, it can only function under certain conditions or success factors—both internal and external—that can significantly influence its activities' performance [19]. According to some studies, which mainly used World Bank data on formal enterprises indicated, a poor business environment reduces enterprise productivity and growth [20]. Yet, in order to assess the conditions, challenges, opportunities, and risks associated with doing business in the bioeconomy, there is a need for comprehensive and in-depth knowledge of the success factors that determine the learning ability and innovativeness of businesses and business environments. Existing business environment frameworks, i.e., “Ease of Doing Business” from the World Bank [21] and “Investment climate” from Donor Committee for Enterprise Development DCED [18], mainly focus on features of rules and regulations, policy and marketing. Other relevant features of the environment, such as funding, consumer behavior, resources, infrastructure, and training and education, are not included in the frameworks. The work of Roos [11] made the first effort to review some features of the business environment by assessing the conditions and improvement potential only for biobased forest products. Thus, there is a significant research gap to investigate and understand the conditions of the business environment for the bioeconomy. To the best of our knowledge, there is no empirical research that provides a comprehensive understanding of the business environment interactions in the bioeconomy.

Our current research contributes to addressing the abovementioned research lacuna by (a) proposing a comprehensive framework to characterize the conditions of businesses environments such as regulations, technology, knowledge, resources, funding, consumers, and trainings and education; (b) identifying and validating supporting factors for businesses in the bioeconomy; and (c) empirically assessing and testing the frameworks meaning and relevance for research, business, and policy making using empirical data from business cases of the bioeconomy. Accordingly,

the research question we aim to answer is what are the characteristics of business environments in the bioeconomy, what characteristics distinguish a supportive from a non-supportive business environment, and ultimately, does the proposed conceptual framework include the necessary elements for guiding entrepreneurs and actor in business environments? For answering the above questions on the business environment characteristics and its impact on the businesses we choose a comparative case study procedure using primary data from over 80 cases of business cases all over Europe.

The paper is organized as follows: Section 2 describes the conceptual background for the development of the business environment framework. Section 3 explains the research methods and material used in the study. Sections 4 and 5 present and discuss the main results. Finally, Section 6 provides the summary and conclusion of the study with remarks for policy recommendation and future research.

## 2. Conceptual Framework

The scope of this research and the analytical framework to be developed aim to uncover the features of the business environment may have on the development of businesses, including the interlinked subarenas that interact directly or indirectly with the businesses and shape the opportunities and limitations or even threats to their development. Approaches found in the literature which address business environments related issues focally or peripherally include the business and entrepreneurial ecosystem approach. The Relational Organization of Entrepreneurial Ecosystems [22]; the transition management approach [23] and the technology innovation systems (TIS) approach [24]. There is a rich body of literature using these approaches which have been very influential in explain transitions of sociotechnical systems and networks of businesses. However, the two widely used approaches by practitioners, business analysts and policy makers to describe business environments are the “Ease of Doing Business” World Bank [25] and “Investment climate” DCED [18]. The two approaches mainly consider business models where the value proposition typically refers to the economic return of a delivered good and/or provided service. The focus of “Ease of Doing Business” is mainly on the rules and regulations that govern businesses and their interaction with other organizations [25,26]. The Ease of Doing Business project has captured several important administrative and regulatory factors of the business environment as they apply to local businesses. Some relevant factors not included are policies, technology, and resources that, directly or indirectly, influence the performance of businesses. The “Investment climate” from DCED has broad understanding factors and defines the business environment as a composite of policy, legal, institutional, and regulatory conditions that govern business activities. It defines the business environment as a subset of the investment climate and includes the administration and enforcement mechanisms that are established to implement government policy, as well as the institutional arrangements that influence the way key actors behave and operate. Important components of the business environment are not explicitly addressed, such as funding, technology, knowledge, consumer values, resources, and training and education.

In order for business models in general and the bioeconomy in particular to be considered sustainable [13,16,17], there is a need to incorporate ecological and social value propositions in addition to economic value propositions. Another specificity of entrepreneurship in rural areas, which includes the majority of enterprises in the bioeconomy, is new combinations of place-based or localized natural resource-uses that create value not only for the entrepreneur but also for the local community and/or whole society [27] and valorize the natural environment. Thus, the new and emerging business models in the bioeconomy are not driven solely by monetary motives; rather, the pursuit of environmental, social, and cultural value creation is a characteristic of many business models in the bioeconomy [16]. The businesses and value chains of enterprises in the bioeconomy are often crosscutting and involve cooperation across sectors and professionals from different areas [28]. To our knowledge, the approaches used so far for monitoring and steering the business environments of enterprises do not sufficiently consider the specificities of bioeconomy enterprises operating in rural environments. Even though these approaches consider some relevant factors such as the natural environment, they do not explicitly

capture the specific requirements of businesses in the bioeconomy, such as circularity, inclusiveness, replicability, and cumulateness. By using approaches that do not take sufficient account of the specificities of enterprises in the bioeconomy, entrepreneurs and decision-makers run the risk of not promoting the development to a bioeconomy to the best of its ability. In the next section, we propose a comprehensive business environment framework as an alternative approach for analyzing business environments and assessing their performance and supportiveness for businesses in the development towards the bioeconomy.

### *Conceptual Categories of the Business Environment*

The main analytical elements needed for understanding business environments comprehensively are derived next, taking into account their embeddedness and interrelations as depicted in Figure 1, which shows the Business Environments Framework (BEF) for analyzing business environments. In the framework, we conceptualize the businesses and their business environments as separate, but interdependent action arenas. Figure 1 shows the business environment and its subarenas in more detail, as this is also the focus of the present study. Business environments are composed of subarenas where various actors interact in action situations [29,30]. The performance of action situations as well as innovations in the action arenas are determined by factors such as Strategy, Steering Structure, Cooperation and Process that we may also call capacity factors as they are assumed to be decisive for the businesses' success. Since these factors are not objective elements of the framework, they are shown in dotted boxes. Enterprises interact with their business environment in defined action situations, which take place in the subarenas and may influence each other. These interactions and interdependencies are bi-directional, which is shown by the arrows between the subarenas to the enterprises in the Figure 1. The subarenas are characterized by specific action situations where different actors undertake actions and transactions governed by institutions and governance structures. The subarenas in which the action situations take place must be further differentiated according to the level, i.e., from local to global.

Institutional development in our framework describes the subarena of the business environment where rules and regulations are being crafted and implemented by actors. This is very much in line with World Bank [21], DCED [18], and Roos [11], who stated it as basic and important components of the business environment. In accordance with Roos [11], we also argue that policy should be considered as part of the subarena institutional development since it influences the relative competitiveness of businesses in the bioeconomy. We refer to this subarena as "institutional development", encompassing sets of rules, regulations, and policy that affect the businesses and are intentionally designed [31,32] by public agents, associations, or networks to regularize the actions and transactions of actors in the economy. Such institutions determine who is eligible to make decisions in a subarena, what actions are allowed or constrained, what aggregation rules will be used, what procedures must be followed, what information must or must not be provided, and what payoffs will be assigned to individuals, depending on their actions (32 P.51). The complexity and scope of the issues addressed by the actors in the subarena institutional development suggest that the factors cooperation, strategies, leadership structures, and processes, as well as learning and innovation are very important for the emergence of conducive rules and regulations that are developed in this subarena.

Consumers' agency refers to the subarena where actions and interactions take place that shape the ability of individuals, organizations, and societies to make decisions based on their knowledge, values, awareness, perception, and attitudes, which in our research case is toward biobased products, thereby promoting or limiting consumer demand and influencing consumer decisions [11,33–35]. A change in consumers' agency is considered as one of the important factors for driving the future demand for biobased products [36]. A challenge for entrepreneurs in this subarena is that potential customers often do not have the capability to make informed decisions related to the use of the offered new products and services provided by bioeconomy companies, and thus they have difficulties assessing the benefits or gains. Sijtsema et al. [37] reported that consumer demand for biobased

products depends on the awareness, knowledge and understanding of the concept of biobased, the perception of the product, usability, production method, and proportion of biobased materials used in the biobased product. Enterprises have the capacity to influence or change consumers' agency but only to a very limited degree, since other actors in the business environment can also greatly influence the consumers' agency. Therefore, it is important to assess how the nature of consumers' perception toward bioproducts affects demand and production decisions in the business [11,38]. In this subarena, the interacting actors, the transactions, governance structures, and strategies shaping the values and perceptions of consumers are considered when characterizing consumers' agency and understanding how a favorable business environment may foster the ability of consumers to make decisions.

Technology and knowledge is the subarena concerned with generation of knowledge and the research, development, and diffusion (i.e., R&D) of the technical processes and tools for the production and conversion of renewable biological resources into value-added products [39]. Yet, creating new markets for biobased products often depends on achieving a technological breakthrough and cost effectiveness [11,39]. Innovative businesses in the bioeconomy require creating conditions to facilitate the translation of available technological and nontechnological innovations into commercial products [36]. Such activities require interactions with various actors at different levels who are not necessarily involved in the business or enterprise, and thus we define technology and knowledge as one of the subarenas of the business environment. In addition, the subarena also describes the existing technology and knowledge that are already available in the business environment.

Resource and infrastructure refers to the subarena that makes available and accessible to enterprises and society all types of basic physical structures, including services and facilities (e.g., buildings, roads, power supplies), that are needed for the functioning of the enterprise and the society, such as communication (internet, phone), road, transport, and networks that enterprises use to facilitate their communication and transportation of products and services. In addition, it includes the availability and access to raw materials and human resources. Infrastructure and resources are critical for human resource and raw materials. The subarena is particularly critical to businesses in rural areas where access to infrastructure and certain resources can be more limited compared to urban areas. The availability and provision of services and resources not only attracts businesses and facilitates their development in rural areas, but it is also an important factor for attracting skilled workforce to work and live in rural areas instead of commuting to nearby towns. A conducive subarena is understood as a subarena that enables businesses to effectively acquire and appropriate the necessary resources (e.g., people, raw materials, or infrastructure) and other basic structures, services, and facilities in their environment [40].

Funding is the subarena that determines the availability and access to the financial capital needed for entrepreneurs and companies to develop their business. This subarena is in particular relevant and critical for entrepreneurs in the bioeconomy where many emerging businesses depend on starting capital, as some of them are very capital intensive. A challenge for entrepreneurs in this subarena is that public and private investors are not always familiar with the products and services provided by bioeconomy companies [28], and therefore have difficulties to assess the opportunities and risks associated with investments in the sector. This may lead to higher costs for capital resources as well as additional demands from investors in terms of collateral from the companies. Access to information on credit offers, time, and costs to process applications and obtain approval, as well as the diversity of financing agencies are some of the criteria used to describe the funding environment in the "Ease of Doing Business" index [26]. In addition to access to credit, we include in this subarena another criterion, i.e., the availability of funding from public agencies, as well as the requirements, collaboration, and procedures needed to apply for it. Further, new companies in the bioeconomy are often considered less lucrative by traditional investors. Against this background, developing new ways for raising capital is of particular importance for business development in the bioeconomy. We therefore take a special look at the ability of entrepreneurs and companies to develop innovative ways of raising capital. This subarena reflects on the funding opportunities not only for the businesses but also for other actors

engaged in other subarenas of the business environment, including among other associations, interest groups, producer groups, NGOs, clusters, and even public agencies.

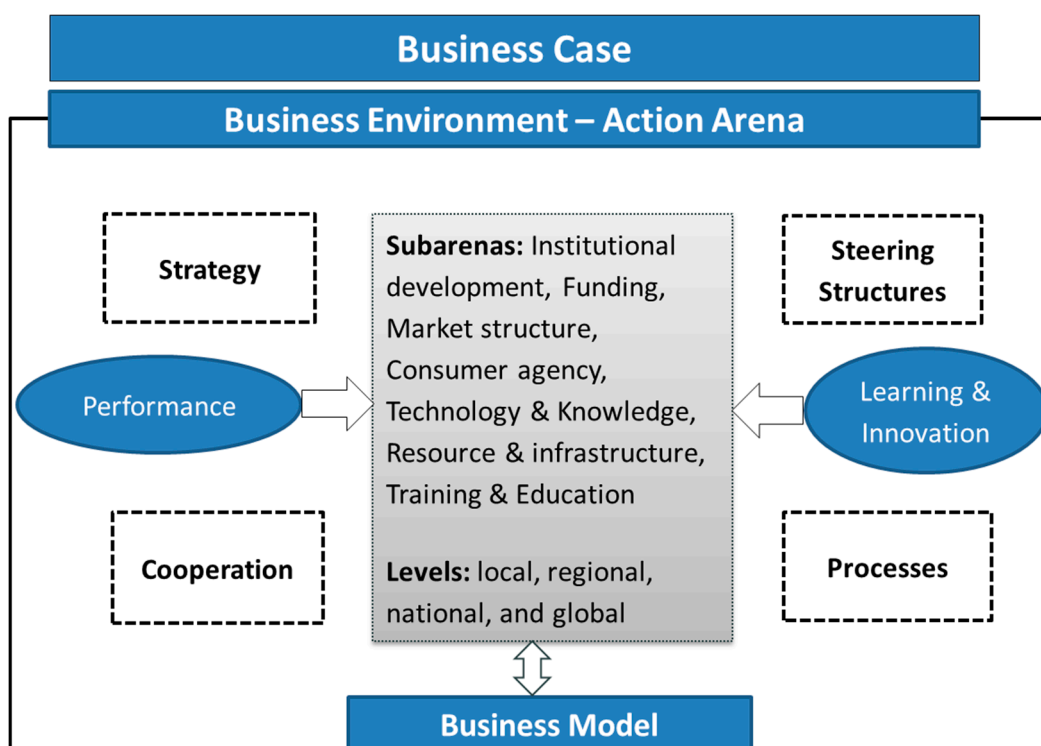


Figure 1. Analytical framework for business environments.

Market structure is the subarena in the business environment in which the actual transactions of products and services are negotiated and agreed upon between the enterprises and their customers. The subarena can be characterized among others by the properties and strategic actions of actors, as well as the imperfections in the processes and structures that businesses are dealing with in bioeconomy [8]. This further can be determined by the conditions and nature of the bioproduct, its collaborations with stakeholders, and other businesses in the sector. Standardization is found to be essential in supporting the creation of new markets and in creating trade opportunities for biobased products [39]. The development of new markets, such as in the bioeconomy, often exceeds the possibilities of individual companies and makes the commitment of cross-sectoral organizations necessary.

Training and education is the subarena where investment in education and training takes place to develop and transfer skills that can ultimately contribute to opening up markets and enhance the competitiveness of bioeconomy enterprises [41]. The subarena ideally enables the transfer of skills and knowledge that results in higher technology absorption, business management, and sectoral governance capacity. Education and training need to be developed to meet demands for labor force with specific capacities in the sector [41], increase public agencies awareness, and facilitate entrepreneurship and property rights [21]. In this subarena, we subsume factors such as the availability, frequency, and quality of the education and training that is available for businesses and other actors (e.g., entrepreneurs, public agents, consumers, professional associations) at different levels in the various subarenas of the business environment.

Enterprises in the bioeconomy need to use a mix of resources, and they also need to collaborate and select solutions to turn their ideas into products and services. In this work, we propose and validate the success factors identified as relevant in business and project management [42] so that we can assess the conditions of the presented subarenas for enhancing the performance and innovation of the business environment. These factors include (a) strategy, (b) steering structure, (c) cooperation,

(d) process, and (e) learning and innovation (see Figure 1). Strategy refers to the consistency on the strategic orientation of actors, their goals and expectations resulting from a process of deliberation and selection of various options available. Cooperation refers to the networks of people and organizations that are necessary to facilitate change. A clear understanding of who the enterprise works with or needs to work with, in what way, and at what level can enable the enterprise to achieve its goals more efficiently. Steering structure is about selecting a particular form of governance in favor of a particular management structure that is based on communication and interaction between different stakeholders. The basic functions of the steering structure include resource management, strategy, decision-making, coordination, and conflict and risk management. Processes as a factor that influences the performance of a subarena describes the structured negotiations and agreements about which process should be managed and which are essential in order to guarantee the acceptance and sustainability of the change process. Learning and innovation refers to the capacity of individuals and organizations in each of the subarenas to actually appropriate and implement primarily new strategies, steering structures, forms of cooperation, and processes.

We propose to characterize the business environment by decomposing it into the subarenas and assessing it using the success factors elaborated above. The subarenas can be further decomposed according to different levels depending on the nature of the business and its affectedness by the subarenas from the local to the regional, national, or even global level. The relevance of the different levels may vary from case to case and from subarena to subarena, as, for example, in a business case the relevant levels of the funding subarena may be the EU, national, and regional level, whereas for the consumers' agency subarena, only the local level may be relevant.

### 3. Research Methods

#### 3.1. Selection of Cases and Data Collection

Data used in this study are from businesses selected as part of the RUBIZMO project (N°773621) which is funded by the European Union. A multi-stage purposive sampling procedure is conducted to represent business cases that are located in rural areas. The sample includes business cases from across 11 different EU countries including Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Poland, Romania, Spain, and Sweden. At the beginning, we conducted a desktop review using as basic population all businesses initiated by entrepreneurs in rural areas and funded by the European Commission and other national programs. This enabled us to capture various types of businesses in different sectors and localities in rural areas. After the desktop review, an initial phone contact was made with the owners or representatives of the businesses. An interview guide was used for gathering information that aimed to provide a detailed understanding of the business model, its activities, and challenges they are facing. With the information from the desktop review and phone interview, over 140 enterprises were selected for further investigation using semi-structured questionnaires (Please have a look to the interview guide questionnaire as a Supplementary File). The data collections were conducted by the project partners in the respective countries and languages from January to February 2019. It takes about 1.5 to 2 h to complete the questionnaire for an individual business case.

The data collection targeted the selected 140 business cases, of which over 80 businesses completed the semi-structured questionnaire successfully as they were fully available and willing to provide information. The data collection was conducted mainly with the owner or representative of the businesses. The questionnaire contained questions on the general features of the business and its main activities; the different subarenas of the business environment; labor and infrastructure; market structure (at both production and market side); novelty; and the businesses' social, economic, and environmental impact. We used the information from the interviews in this study to validate the business environment framework and characterize the conditions of the business environment in the bioeconomy and beyond.

### 3.2. Delineation of the Business Cases and Data Analysis

Over 52% of the businesses in our sample were established in 2010 or later, which make the businesses recent and emerging ones in rural areas. For the purpose of this study, we have identified and categorized the businesses into two broad categories, namely “bioeconomy” and “other businesses”. The numbers of business cases are proportional among the two categories of businesses. Businesses in the bioeconomy refer to businesses developing their business model based on biobased products [5], often with use of biomass resources—those originating directly or indirectly from plants, microorganisms, or animals—and biological knowledge. Such businesses may rely on new technology, forms of ownership, cooperation, and cross disciplinary knowledge sharing mechanisms for the processing and production of products. The group of *other businesses* refers to businesses focusing on service provision using the ecosystem and other sectors such as food which mainly focuses on packaging and redistribution to supermarkets, retailers or consumers. They offer leisure activities (tourism or sports), provision of goods, maintenance, and conservation of the environment services. The comparability of the two groups of companies is based on the fact that all companies are located in rural areas.

The data used for this study are qualitative data, and we applied a qualitative data analysis using Atlas.ti software to achieve our objectives, which aim at developing a comprehensive business environment framework and empirically assessing and testing the framework to characterize the conditions of the businesses environment for the new and emerging enterprises in the bioeconomy. Using this software, techniques such as coding, categorization, and drawing generalizations were applied to systematize the data and deduce implications on the business environment of the businesses in the bioeconomy. During coding we label and organizing the data based on the individual subarenas which help us to identify trends of themes within the subarena and its relationship with other subarenas. During the coding process we are also able to compare and contrast results from business cases in bioeconomy and other business.

## 4. Results: Subarenas and Success Factors of the Business Environment

The results presented in the following sections are mainly from businesses in the bioeconomy. We used findings from the group of other businesses to compare and contrast with businesses in the bioeconomy. The findings are presented for the single subarenas of the business environment explained in Section 2 with the intention to meet the requirements of the comprehensive framework and thereby better characterizing the business environment, identifying misfits and processes of alignment between businesses and their environments, and determining important success factors of a conducive business environment.

### 4.1. Institutional Development

The analyzed bioeconomy enterprises are subject to a wide range of rules and regulations, from registering the business as a legal entity to complying with various regulations and standards in order to ensure certain conditions, such as human and environmental safety of products that are offered on the market. The emerging bioeconomy enterprises especially perceived these regulations as complex and variable over time, which hinders their operations. The enterprises often do not have the capacity at the organisational level to negotiate with the public agencies or they cannot have the capacity at network level to represent their interest in dialogue with authorities at higher levels. The capacity requirements for dealing with sometimes complex regulations are particularly high for bioeconomy enterprises that engage in the provision of several and innovative products and services, e.g., in a circular value chain. Such businesses need to handle various legislation, stakeholders, and funding agencies to control the different parts of the value chain. To cope with the complexity encountered in this subarena, the bioeconomy enterprises depend on having the availability and access to advice from consultancies to obtain the right funding, partners, and information on how to comply



with the regulations. However, such difficulties are not reported as frequently from other businesses in the study.

The other barrier, mainly reported from bioeconomy enterprises, is the lack of legislation to introduce new products into the market or use of some raw materials. However, such barriers are not reported by any of the enterprises from the other businesses included in the study. Our results show that some of the bioeconomy enterprises faced a lack of legislation or policy frameworks in using certain raw materials for production and in the marketing of biobased products. The interviewed enterprises perceived this as a big threat as it hinders innovation and business development. One of the interviewees described the strict legislation framework as “everything which is not allowed is prohibited” (Firm 75). Another case is the lack of regulation, for example, in the case of organic labelling: “Due to the lack of regulations, the leftover of tropical fish production could not be accepted and certified as organic even if there is no use of medicine in the production process” (Firm 12). As a result, enterprises face high transaction costs to obtain approval from public agencies for their products as well as the use of biobased raw materials as input for production.

The enterprises reported that it is not just the complexity of the legislation or lack of regulations itself, but also the process-related efforts needed to obtain the necessary approval, which is described as “tedious and time consuming”. This is often due to the lack of experience of the public agencies to deal with new inputs or products from the bioeconomy enterprises. One of the entrepreneurs stated that “there is a need to knock and open many doors before the final approval of the regulation to provide the product into a market” (Firm 75). The already better-established enterprises are dealing with these procedures with collaborations through networks, associations, and clusters. It was found that such interactions enable them to make a strong argument and increase their lobbying capacity to adopt new regulations. In particular, sector-specific networks or professional associations are found to be critical in initiating strategies and lobbying for new rules and regulations. Such cooperation is crucial due to the need for regular and resource consuming interaction with public agencies, professional associations, research institutes, universities, and other networks at the local, regional, national, and EU level to create the awareness and relationship needed about the specific inputs, products, and services.

#### 4.2. Funding

The enterprises usually use combinations of different sources of funding. Some of the common sources of funding used by enterprises include grants, loans from credit institutes, crowd funding, and own sources of finance. Over 90% of the enterprises have received, at least once, some sort of funding (public or credit) in their business's life. These funding streams are national, regional, local or EU level. The difference of access to funding in the two groups of businesses is not importantly different. However, unlike enterprises in the group other businesses, businesses in bioeconomy reported a lack of trust by investors or financial institutions at the beginning of the business life, mainly due to new and innovative products. As a result, attracting investors or securing access to credit at the early stage of the business life is a major challenge. According to one entrepreneur, “During the early stage of the business, even if investors are impressed with the innovative idea, they are afraid to take risk and invest on insect production. But now after over 10 years on innovation and markets, we have enough investors who dare to invest for further innovation and upscaling” (Firm 75).

Enterprises both in the bioeconomy and other businesses described application for public funding as a strict and long process in getting approval. Due to the requirement, formalities, and frequent updates in the regulations, some of the enterprises even withdrew their application for funding and searched for other sources of finance. An interviewee stated, “We tried once with public funding, and we had also won, but then we ourselves abandoned the approved budget because of the regulation that was continually updated” (Firm 60). Another business reported a similar experience: “We have applied for EU subsidies. However, we prefer private funds since EU regulations are too complex and sanctions are potentially possible” (Firm 88). However, the enterprises who renounced public funding

have a greater decision-making scope as they are all well-established, have access to other sources of financial means, and are working in the businesses already for a while.

Cooperation with different research institutes, universities, and professional associations is decisive for access to funding in the case of the interviewed enterprises. Such interactions with various stakeholders enable enterprises to create a consortium not only for applying for funding but also to understand the regulations for application and obligations following the approval of the budget. The enterprises involved in networks are better able to make successful applications for funding, as writing the project proposal and application for funding requires specific skills and experience. Interviewed emerging enterprises are dependent on the support and advice of the cooperative or network in their area with regard to the available funding opportunities and the application procedure.

#### *4.3. Consumers' Agency*

Not only do the awareness and value that actors in the business environment (e.g., customers, consumers, and other market players) have toward the bioeconomy affect the demand for biobased products and consequently the production decision of the interviewed enterprises, but also the general attitude of actors in all subarenas and action situations towards the enterprises and their products. Interviewed enterprises report that low demands for biobased products are either due to a low awareness or biased perception of consumers for the product in the market. One enterprise reported that due to low awareness of the benefits of biobased products, consumers are not willing to pay a premium for its products compared to conventional products. Other enterprises reported the low awareness of the public agents, in particular at the local and regional level, as a challenge for the business development. In contrast to this, some businesses reported that consumers' awareness of the causes of climate change and their concern for the environment are urging them to promote a circular economy and support innovative local food production.

The awareness and perception of consumers and other stakeholders for biobased products and services even motivates customers to volunteer and support the enterprise with their production and marketing activities. One enterprise reported the following: "Due to our business model value for the local and seasonal food, we have volunteers who lobby for the product and service we are providing" (Firm 88). Similarly, the awareness that public agents have of the enterprise's activities, products, and services influences their decision-making. At times when public awareness is low or biased, interviewed enterprises encounter greater obstacles when it comes to obtaining authorization for their activities and approval of their products and services.

In the study, it was also found that the awareness of the community is not only for products provided by the businesses; rather, sometimes it becomes a source of innovation and new business models. One enterprise owner stated the following: "Originally the business was created in 2011 to sell pharmaceutical equipment, along with the necessary monitoring tools. One day the founder was contacted by a friend who was a farmer and who could not understand the reasons why its biomethanization plant was not working so well. Then he realized that some of his monitoring tools could actually help monitoring and optimizing the efficiency of the plant, and identifying potential issues. This is how the new business model was born in 2014" (Firm 1).

Against this background, it is not surprising that the interviewed enterprises emphasize the need to foster a positive awareness of bioeconomy businesses and their products and services among consumers, public agents, and actors in other subarenas. Enterprises that are members of a cooperation, cluster, or network are in a much better position to create awareness among consumers, public agents, and the wider public than businesses that are working by themselves. An interviewee stated that "the association has done a good job in creating awareness and market about the biogas. So it is popular not only in the region but at the national level and beyond. Due to this various groups visited the business including from Norway" (Firm 5).

#### 4.4. Market Structure

The enterprises surveyed stated that they are not in direct competition with other enterprises because they serve a market niche, there are either only a few or no other companies in their local area, and demand is high enough. Sometimes the businesses are not able to supply the demand in the market. Such businesses also benefit from the awareness of consumers and other stakeholders as they could raise their profit and even attract volunteers to become engaged in the businesses' initiatives. Yet, the favorable market structure is not sufficient to outbalance the negative effects in cases with low awareness of consumers for biobased products, resulting in local product sales at the local market. By contrast, enterprises in conventional sectors experience strong competition from larger and well-established enterprises, which in some cases have copied the business model of smaller, innovative companies.

Bioeconomy enterprises are more competitive if they combine different business models at the same time. A business owner stated that "the competition is not so much because the business model is not only providing a conventional rural tourism but also provide training module on solar energy and engineering for students in schools and colleges, and rent the building to use for training purposes" (Firm 48). Yet, some small business owners stated that they do not receive equal treatment on the markets compared to large enterprises due to their low bargaining capacity. For example, the big producers of wine have the capacity to negotiate with supermarkets on the price of their products while the smaller ones do not have such bargaining power, as they are not organized in associations or cooperatives to increase their capacities when negotiating with supermarkets and other stakeholders.

The interviewed bioeconomy enterprises reported that they received support from associations, cooperatives, and sometimes even from public agencies to develop market strategies, customer relationships, and other businesses at the local level and beyond. These stakeholders in the business environment provide the enterprises technical support in advertising and promoting their products and services.

#### 4.5. Technology and Knowledge

Bioeconomy enterprises reported that the access to some form of external knowledge was available in their locality and beyond. However, this support is mainly related to organizational innovations, including market development, know-how on market strategies, public administration, and possible funding options. By contrast, the support and access to technical innovations and know-how is very limited, particularly for the new enterprises. Yet, access to these innovations considerably varies by the size of the business, business model, and types of cooperation the enterprises are able to establish. In this regard, our findings show that most of the well-established enterprises in the bioeconomy have better access to innovations from sector-specific networks as well as from research and academic institutes, due to their strong cooperation built over the years. Such businesses are able to cooperate with different institutes with laboratory tests, innovation, and other technical cooperation. They also gain technical knowledge through participation in various seminars, workshops, conferences, and networks. However, the mere availability of research or academic institutes or of other enterprises in the sector does not necessarily initiate and result in collaboration or create key partnerships that could obtain support for technology and knowledge, particularly at the earlier stage of the business life. For instance a small enterprise producing biogas could not able to create collaboration with the well-established big biogas producer in their vicinity to create platforms for exchange of knowledge or technology. Rather the enterprise cooperates and received support from Science Park and research institute which is far from their local area.

In comparison to this, the new and emerging enterprises have access to knowledge and technology mainly through the existing associations or networks in which they are members. For instance, one association that was purposefully formed to facilitate the innovation and development of bioenergy for new and emerging businesses reported that it is supporting farmers who would like to develop a biogas plant. This association helps farmers develop their project, find the right actors and suppliers,

and estimate possible funding options; it also organizes knowledge exchange sessions among farmers and organizes visits to mechanized businesses producing biogas.

The access to technical knowledge and support is limited in most of the new businesses. In particular, those working in the bioeconomy reported not receiving enough technical support from their surroundings. A characteristic of successful and innovative enterprises is having a strategy for developing and managing their own innovation processes mainly through learning by doing. Such enterprises have chosen to self-educate themselves and manage through “learning by doing” and trial and error. This has been an important part of the development of the concept of their business model. One enterprise in bioeconomy described the procedure as an “energy and time consuming process” (Firm 3).

In some cases, the limited support available in the field of technical innovation is due to a general lack of knowledge on the specific product or technology that the enterprise is engaged into. In this situation, it is up to the enterprises to develop their own learning and innovation strategies. One business that is involved in the production of fruits and vegetables has developed its own processing technology through trial and error due to the lack of a nearby research organization with which it could have collaborated. These kinds of experimenting and learning processes were time and resource consuming for the entrepreneurs but at the same time an important feature of innovation and marketing strategy. Enterprise stated that even though technology and knowledge are available, they face difficulties in taking advantage of existing initiatives for exploiting synergy effects. This indicates that the mere availability of well-established businesses as well as research and academic institutes does not necessarily create cooperation with the emerging businesses in the bioeconomy. Rather, creating cooperation requires time, resources, and regular negotiation with the stakeholders, which is not easy for emerging businesses.

#### *4.6. Resource and Infrastructure*

The result of the study shows that enterprises both in the bioeconomy and other sectors have access to the necessary infrastructures and resources for the production and provision of services. Those enterprises that have easy access to resources (such as biomass) and infrastructure services such as transport, road, and information and communication technology (ICT) are even able to create new business models. This was mainly reported in enterprises that are engaged in ecosystem services, primarily in Denmark, Sweden, and Germany. Expressing the importance of the road and ICT services for the business model, an interviewer stated that they have “excellent transportation infrastructure, (which) is why we are able to deliver the groceries within 48 hours from order to the consumer doorsteps” (Firm 19).

However, access to services is not always easy, in particular for businesses that are operating in rural areas. Enterprises reported that they have to create cooperation with other enterprises around their vicinity to facilitate services from logistic companies due to the lack of such services. Due to this strategy, the enterprises get package delivery and pickup and other postal services on a regular basis twice per week. Such services would not have been possible if it was not for the cooperation created by the enterprises. Creating such kinds of cooperation require the availability enterprises in some specific geographical areas. In our results, we found that strong cooperation is able to be formulated when enterprises are found in a single premise together with other enterprises. In addition such kinds of premise also enable to cooperate not only to lobby for services but also enables them to access raw materials and energy easily with other enterprises in the premise.

Some of the enterprises reported challenges to access qualified professionals, supervisors, or expertise for some of their activities. One enterprise reported that it faced a problem in finding qualified personnel in agriculture, which even delayed its activities until it found an expert. Another enterprise reported that due to a lack of qualified experts in the local area, it needed to collaborate and create strategies to resolve the challenges. Because of this, the enterprise moved its laboratory to a big town so that it can have access to experts and also collaborate with research and academic institutes.

#### 4.7. Training and Education

The studied enterprises reported having very limited access to training and education. The enterprises reported that access to it is mainly in the form of participation in seminars and workshops. Rather, most of the interviewed enterprises are focusing on internal job training to develop the competencies and knowledge required for the production and process and service provision in their businesses.

Indeed, through these channels, employees have acquired competencies required for some activities of the enterprises. Yet, enterprises reported a need for graduates to have skills not only on the technical aspects but also business management. One entrepreneur working in the biometanization sector stated the following: “Students do not learn about business in Europe; they have all the technical competences, but they do not know what are assets, investment, depreciation, etc.” In recent years, some of the enterprises stated that cooperation with universities and research centers should include their need on training and education. Some universities are revising their curricula to include specific aspects of the bioeconomy into the modules. This would have the expectation to support not only entrepreneurs but also public agents and other actors who are relevant for the specific business in the bioeconomy.

In addition to the demand of businesses, the training and education of other key actors in the sector was stated as relevant in the interviews. These actors in need of training and education include decision-makers in the public agencies, potential partners, investors, credit institutes, and others. In some of the cases, the low awareness of the consumers is reported as a problem for the low demand of the product. There is also a need to create awareness and to better inform potential consumers of the benefits obtained from bioeconomy products using various channels of communications. Likewise, public agents’ decision-making depends on their awareness and perception towards specific new products. Studies have shown a high demand for education and communication on the characteristics and benefits of the bioeconomy. In its latest report, the World Bank [21] has stated a significant positive association between the availability of training programs for public officials and streamlined business regulations.

## 5. Discussion

The overarching objective of the paper is to support the decision making of stakeholders involved in the development of business environments in general, and provides guidance to emerging bioeconomy enterprises in rural areas in particular. The implications for managers and policy makers are mainly to focus on set of specific capacity factors and subarenas for a purposeful development of supportive business environments. Our specific objective is to develop a comprehensive analytical framework for characterizing the business environments of enterprises and identifying the success factors and business environment-related requirements of businesses in the bioeconomy. The results of our empirical study show that the analyzed subarenas, including institutional development, funding, technology and knowledge, market structure, consumers’ agency, and training and education, represent in a comprehensive manner all relevant arenas. These arenas capture the environments of businesses in the bioeconomy with different level of significance on the types of products produced and the service provided by the businesses. The framework adds to the already existing frameworks for assessing business environments from the World Bank [11,25,26] and DCED [18] by introducing the focus on the analysis of subarenas that may significantly influence the business environment. In this regard, the subarenas of consumers’ agency, technology and knowledge, resource and infrastructure, and training and education are discussed [8]. Further, we validated the significance of these subarenas using empirical results from business cases. In addition to this, we have broadened the issues and concerns of the subarenas. Our findings show that the proposed subarenas of consumers’ agency, technology and knowledge, and training and education are particularly relevant for understanding business environments for innovative enterprises in emerging sectors such as the bioeconomy, which require new or transformed cooperation, strategy, and steering structures. The newly introduced

subarena resource and infrastructure is of special relevance for the bioeconomy, since the sector develops based on natural resources primarily in rural areas with comparatively weak infrastructural conditions. This subarena is of high relevance for businesses in rural areas as the possibilities for accessing external knowledge are more limited than for urban regions, due to geographic distance and less agglomeration [43,44]. As the value proposition of emerging enterprises in the bioeconomy is derived from new products and services as well as innovative processes and the strategies for producing and offering them, the newly proposed subarena of consumers' agency is of great relevance for understanding the performance of these business environments. A limitation in this study is that due to our objective of developing a comprehensive framework makes us not to leave out elements from the works which makes some aspects may have been touched only on the surface.

In the second objective, we aimed at empirically testing the comprehensive framework for assessing the performance of business environments and identifying success factors using business cases across Europe. The empirical findings show that each of the subarenas has specific features and different relevance of the performance factors. This would require businesses to develop unique strategies, steering structures, and cooperation among different actors specific to each subarena. The findings indicate that business environments are less conducive for the surveyed bioeconomy enterprises than for other businesses engaged in the provision of conventional products. We found numerous challenges that the analyzed enterprises face in the business environment, which have significant impact particularly on bioeconomy enterprises. In particular, the challenges of the subarenas of institutional development, technology and knowledge, and consumers' agency have indicated severe implications for business development. Since the cases examined are enterprises that have been able to develop despite the existing misalignments, a closer look at the interactions between their business models and the business environments is promising. Initial empirical observations in the context of this study suggest that the development, opportunities, risks, challenges, and experience of bioeconomy businesses in the environment depend on the size of the businesses, sector, and region in which they are operating. Our findings imply that bioeconomy enterprises have different requirements toward their business environment compared to other businesses. However, similar strategies were observed in bioeconomy as well as other businesses that were applied to overcome the challenges and meet the needs of the enterprises. A limited but nevertheless important ability and effort of enterprises to shape their business environment was also observed in the study cases. A closer examination of these interrelationships is highly relevant for the development of enterprises and the bioeconomy sector, as the creation of specific business environments for enterprises in the bioeconomy would probably involve high transaction costs. At this point, it should be mentioned that proofing these initial observations goes beyond the scope of this research as it would require a systematic comparison of enterprises with same environments. Yet we observed that emerging enterprises in the bioeconomy have to outweigh additional transaction costs when dealing with actors and regulations in the business environment as the result of deficits and lack of capacities at individuals and organisations level in the businesses and the business environment subarenas. However, the capacity of actors in the businesses and businesses environment differs in relation to the nature of the business they are dealing with. As an example, the food safety authority already has sufficient knowledge and experience in inspecting compliance of food production from traditional businesses than the same inspection for novel food products from insect proteins in emerging businesses.

The relevance of the subarenas varies according to the type of bioproducts and location of the enterprise. However, the subarenas of institutional development, consumers' agency, and technology and knowledge are found to be the critical subarenas of the business environment in the bioeconomy. The subarena of institutional development is found to be significantly important to businesses in bioeconomy due to its restrictive nature, regular updates, and the complexity of rules and regulations. These issues create high uncertainty and a long process for getting approval to provide the product on the market. Operating in such gray legal areas may also entail high financial risks for investors and other financial agencies in the business [45]. Similarly, unlike the other businesses, businesses

in the bioeconomy have to deal with the consumers' agency subarena in order to work and improve consumer perception and value to the biobased product which in some cases are new. The subarena of technology and knowledge deals with both the technical and organizational innovations needed for innovation in bioeconomy. However, the support for technical innovations for emerging businesses in the sector is found to be very restricted. Rather, most of the supports they receive are mainly organizational innovations.

In our analysis, one feature mentioned by successful enterprises was their engagement in developing a conducive business environment and removing obstacles in the business environment. In addition, successful enterprises cooperate with other stakeholders to develop coordinated strategies, steering structures, and learning and innovation platforms. According to our observations, initiatives by individual enterprises to remove barriers in the business environment are rarely successful. Rather, cooperation with actors at different levels to overcome constraints in the business environment is a common strategy adopted by the well-performing enterprises [46]. These are in line with studies [47–50] that emphasize the importance of collaboration with stakeholders such as research institutes, agencies and universities for innovations. However, the obstacle mainly stated in our study is not a mere lack of crucial actors in the emerging bioeconomy value chains as stated in Rönnlund et al. [28] or the absence of nonlocal network [51]; rather, the obstacle is the lack of capacity or platforms to create cooperation with the available actors in the value chain and other relevant stakeholders in the sector, particularly for emerging businesses. The cooperation may be with research and academic centers, networks, associations, clusters, public agencies, private businesses, and other enterprises. Such cooperation enables enterprises to introduce the institutional and organizational innovations that are needed to remove or circumvent the obstacles and constraints mentioned in the result sections.

## 6. Summary and Conclusions

An innovative and comprehensive analytical framework developed for describing business environments is empirically applied and assessed with the aim to better understand the conditions of business environments for bioeconomy enterprises in Europe. The development of the framework is necessary due to specific social and ecological value propositions and benefits of businesses in the bioeconomy sector, which have not been valorized so far by businesses and business environments of traditional sectors in the economy. The underrepresentation of relevant factors in existing frameworks, in particular factors related to social capacity such as the strategies, cooperation, process and steering structures, is a strong motivation for revising existing frameworks. The specificity of businesses in the bioeconomy in terms of value propositions, resources and benefits, to name just a few, provide important starting points for our development of an enhanced conceptual and analytical framework. This concerns in particular the five factors, i.e., strategies, processes, cooperation, steering structures, learning and innovation, which are proposed by the framework to assess business environment conditions and their alignment with specific requirements of enterprises in the bioeconomy. For validating and assessing the meaning as well as relevance of the framework for practitioners and researchers, we conducted an empirical analysis guided by the BEF-framework and compared results from 80 cases of enterprises both from the bioeconomy and other sectors in rural economies.

Based on our findings, we conclude that the business environment of businesses in the bioeconomy is broad, complex and dynamic due to, among others, the nature of its resource base including much interdependence within and between social and natural systems. Businesses in the bioeconomy operate in and interact with environments characterized by often very tight but dynamically changing rules and regulations. To be successful, businesses need to interact and collaborate with stakeholders from various subarenas at different levels (local, regional, national, and beyond) for coping with the complexity of changing demands and conditions. Due to the specific characteristics of the business environments by sector and region, as well as the diversity of businesses, there is no "one-size-fits-all" solution or policy for developing a conducive business environment. However, the conceptual framework validated in this study indicates that, to be conducive, social capacity factors need to be sufficiently aligned within

and across subarenas of a business environment, and fit with the needs and capacities of businesses in the specific sector and local contexts. When referring to capacity, the framework application confirmed as relevant the five inherent categories of factors including the strategies, cooperation and steering structures, processes and capacity to learn and innovate. In addition to the requirement to learn and innovate in the subarenas of the business environment, a sufficient capacity and scope for designing and adapting strategies, processes, cooperation and steering structures was a precondition fulfilled by cases with conducive business environments subarenas. This requires a good understanding of the conditions of the subarenas individually and together. Yet, the findings in this study spell out that the subarenas of institutional development, technology and knowledge, and consumers' agency are particularly critical for businesses in general and the bioeconomy in particular.

The development and sustainability in the bioeconomy not only requires technical innovation, but also institutional and organizational innovations that steer towards fostering and reproducing sustainable business models in the sector. In this regard, the development of innovative products will not suffice to fulfil the development towards the bioeconomy. We argue and recommend focusing on learning and innovation in the subarenas of institutional development, technology and knowledge, and consumers' agency as necessary for addressing the misalignments and thereby reducing costs of developing businesses and business environments in the bioeconomy. In the best case, this would be realized not through the efforts of individual actors from the business sector but also through a joint effort of actors from different subarenas, disciplines and backgrounds. Future research could add value to the research by investigating more in depth the business model and business model innovations in relation to the business environments. In particular, there is a need to focus on the capacity related aspects such as the strategies, governance structures and processes across different interlinked subarenas and action situations.

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## References

1. Gawel, E.; Pannicke, N.; Hagemann, N. A Path Transition towards a Bioeconomy—The Crucial Role of Sustainability. *Sustainability* **2019**, *11*, 3005. [[CrossRef](#)]
2. Devappa, R.K.; Rakshit, S.K.; Dekker, R.F. Forest biorefinery: Potential of poplar phytochemicals as value-added co-products. *Biotechnol. Adv.* **2015**, *33*, 681–716. [[CrossRef](#)] [[PubMed](#)]
3. McCormick, K.; Kautto, N. The bioeconomy in Europe: An overview. *Sustainability* **2013**, *5*, 2589–2608. [[CrossRef](#)]
4. Philippidis, G.; Sanjuán-López, A.I. Article: A Re-Examination of the Structural Diversity of Biobased Activities and Regions across the EU. *Sustainability* **2018**, *10*, 4325. [[CrossRef](#)]
5. Jander, P.; Grundmann, P. Monitoring the transition towards a bioeconomy: A general framework and a specific indicator. *J. Clean. Prod.* **2019**, *236*, 117564. [[CrossRef](#)]
6. Jander, W.; Wydra, S.; Wackerbauer, J.; Grundmann, P.; Piotrowski, S. Monitoring Bioeconomy Transitions with Economic–Environmental and Innovation Indicators: Addressing Data Gaps in the Short Term. *Sustainability* **2020**, *12*, 4683. [[CrossRef](#)]



7. European Commission (EC). A Sustainable Bioeconomy for Europe: Strengthening the Connection between Economy, Society and the Environment. Updated Bioeconomy Strategy. Directorate-General for Research and Innovation Brussels: Belgium. 2018. Available online: [https://ec.europa.eu/research/bioeconomy/pdf/ec\\_bioeconomy\\_strategy\\_2018.pdf](https://ec.europa.eu/research/bioeconomy/pdf/ec_bioeconomy_strategy_2018.pdf) (accessed on 26 October 2020).
8. Lewandowski, I. *Bioeconomy: Shaping the Transition to a Sustainable, Biobased Economy*; Springer Nature: Berlin/Heidelberg, Germany, 2018. [CrossRef]
9. Lewandowski, M. Review: Designing the Business Models for Circular Economy—Towards the Conceptual Framework. *Sustainability* **2016**, *8*, 43. [CrossRef]
10. Hurmekoski, E.; Lovrić, M.; Lovrić, N.; Hetemäki, L.; Georg, W. Frontiers of the forest-based bioeconomy—A European Delphi study. *For. Policy Econ.* **2019**, *102*, 86–99. [CrossRef]
11. Roos, A. Business—Bioproducts in the Bioeconomy. In *Environmental Impacts of Traditional and Innovative Forestbased Bioproducts*; Andreja Kutnar, A., Muthu, S.S., Eds.; Springer: Berlin/Heidelberg, Germany, 2016.
12. Lovrić, N.; Lovrić, M.; Mavsar, R. Factors behind development of innovations in European forest-based Bioeconomy. *For. Policy Econ.* **2020**, *111*, 102079. [CrossRef]
13. Reim, W.; Parida, V.; Sjödin, D.R. Circular business models for the bio-economy: A review and new directions for future research. *Sustainability* **2019**, *11*, 2558. [CrossRef]
14. Chesbrough, H.; Rosenbloom, R.S. The role of the business model in capturing value from innovation: Evidence from Xerox Corporation’s technology spin-off companies. *Ind. Corp. Chang.* **2002**, *11*, 529–555. [CrossRef]
15. Boons, F.; Lüdeke-freund, F. Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. *J. Clean. Prod.* **2013**, *45*, 9–19. [CrossRef]
16. Bocken, N.M.P.; Short, S.W.; Rana, P.; Evans, S. A literature and practice review to develop sustainable business model archetypes. *J. Clean. Prod.* **2014**, *65*, 42–56. [CrossRef]
17. D’Amato, D.; Veijonaho, S.; Toppinen, A. Towards sustainability? Forest-based circular bioeconomy business models in Finnish SMEs. *For. Policy Econ.* **2020**, *110*, 101848. [CrossRef]
18. Donor Committee for Enterprise Development (DCED). *Supporting Business Environment Reforms: Practical Guidance for Development Agencies*; Donor Committee for Enterprise Development (DCED): Cambridge, UK, 2008.
19. Hans, V.B. Business Environment—Conceptual Framework and Policies. *Intern. Educ. Sci. Res. J.* **2018**, *4*, 67–74.
20. Nagler, P.; Naudé, W. Non-Farm Entrepreneurship in Rural Africa: Patterns and Determinants. In *IZA Discussion Paper No. 8008*; SSRN: Bonn, Germany, 2014.
21. World Bank. Doing Business 2019 Training For Reform. Comparing Business Regulation for Domestic Firms in 190 Economies. In *A World Bank Group Flagship Report*; World Bank: Washington, DC, USA, 2019.
22. Spigel, B. The Relational Organization of Entrepreneurial Ecosystems. *Entrep. Theory Pract.* **2017**, *41*, 49–72. [CrossRef]
23. Geels, F.W. Socio-technical transitions to sustainability: A review of criticisms and elaborations of the Multi-Level Perspective. *Curr. Opin. Environ. Sustain.* **2019**, *39*, 187–201. [CrossRef]
24. Hekkert, M.P.; Suurs, R.A.A.; Negro, S.O.; Kuhlmann, S.; Smits, R.E.H.M. Functions of innovation systems: A new approach for analysing technological change. *Technol. Forecast. Soc. Chang.* **2007**, *74*, 413–432. [CrossRef]
25. World Bank. Doing Business 2018 Reforming to Create Jobs. Comparing Business Regulation or Domestic Firms in 190 Economies. In *A World Bank Group Flagship Report*; World Bank: Washington, DC, USA, 2018.
26. Besley, T. Law, regulation, and the business climate: The nature and influence of the World Bank Doing Business project. *J. Econ. Perspect.* **2015**, *29*, 99–120. [CrossRef]
27. Korsgaard, S.; Müller, S.; Tanvig, H.W. Rural entrepreneurship or entrepreneurship in the rural—between place and space. *Int. J. Entrep. Behav. Res.* **2015**, *21*, 5–26. [CrossRef]
28. Rønnlund, I.; Pursula, T.; Bröckl, M.; Hakala, L.; Luoma, P.; Aho, M. Creating Value from Bioresources: Innovation in Nordic Bioeconomy. Oslo, Norway. 2014. Available online: <https://norden.diva-portal.org/smash/get/diva2:709329/FULLTEXT01.pdf> (accessed on 13 December 2019).
29. Ostrom, E. *Understanding Institutional Diversity*; Princeton University Press: Princeton, NJ, USA, 2005.
30. Hagedorn, K. Particular requirements for institutional analysis in nature-related sectors. *Eur. Rev. Agric. Econ.* **2008**, *35*, 357–384. [CrossRef]
31. North, D.C. *Institutions, Institutional Change and Economic Performance*; Cambridge University Press: Cambridge, UK, 1990.
32. Ostrom, E. *Governing the Commons: The Evolution of Institutions for Collective Action*; Cambridge University Press: New York, NY, USA, 1990.

33. Schill, M.; Godefroit-Winkel, D.; Hogg, M.K. Young children’s consumer agency: The case of French children and recycling. *J. Bus. Res.* **2020**, *110*, 292–305. [[CrossRef](#)]
34. Borrello, M.; Caracciolo, F.; Lombardi, A.; Pascucci, S.; Cembalo, L. Consumers’ perspective on circular economy strategy for reducing food waste. *Sustainability* **2017**, *9*, 141. [[CrossRef](#)]
35. Mustalahti, I. The responsive bioeconomy: The need for inclusion of citizens and environmental capability in the forest based bioeconomy. *J. Clean. Prod.* **2018**, *172*, 3781–3790. [[CrossRef](#)]
36. European Commission (EC). A Lead Market Initiative for Europe Explanatory Paper on the European Lead Market Approach: Methodology and Rationale. In *Annex II to the Communication from the Commission to the Council*; The European Parliament, the European Economic and Social Committee and the Committee of The Regions: Brussels, Belgium, 2007.
37. Sijtsema, S.J.; Onwezen, M.C.; Reinders, M.J.; Dagevos, H.; Partanen, A.; Meeusen, M. Consumer perception of bio-based products—An exploratory study in 5 European countries. *NJAS Wagening. J. Life Sci.* **2016**, *77*, 61–69. [[CrossRef](#)]
38. Zeug, W.; Bezama, A.; Moesenfechtel, U.; Jähkel, A.; Thrän, D. Article: Stakeholders’ Interests and Perceptions of Bioeconomy Monitoring Using a Sustainable Development Goal Framework. *Sustainability* **2019**, *11*, 1511. [[CrossRef](#)]
39. Scarlat, N.; Dallemand, J.F.; Monforti-Ferrario, F.; Nita, V. The role of biomass and bioenergy in a future bioeconomy: Policies and facts. *Environ. Dev.* **2015**, *15*, 3–34. [[CrossRef](#)]
40. European Commission (EC). *Policy Brief on Social Entrepreneurship: Entrepreneurial Activities in Europe*; European Commission (EC): Brussels, Belgium, 2013.
41. European Commission (EC). *Innovating for Sustainable Growth: A Bioeconomy for Europe*; Directorate-General for Research and Innovation Brussels: Brussels, Belgium, 2012.
42. GIZ. *Capacity WORKS: The Management Model for Sustainable Development*; GIZ: Eschborn, Germany, 2011.
43. Naldi, L.; Nilsson, P.; Westlund, H.; Wixe, S. What is smart rural development? *J. Rural Stud.* **2015**, *40*, 90–101. [[CrossRef](#)]
44. European Commission (EC). *Europe 2020: A European Strategy for Smart, Sustainable and Inclusive Growth*; European Commission: Brussels, Belgium, 2010.
45. Simon, P. Assessing Upgrading Strategies for the Insect Meal Value Chain of *Hermetia Illucens*: A Case Study in Brandenburg, Germany. Master’s Thesis, Humboldt University of Berlin, Berlin, Germany, 2015.
46. Tajeddini, K.; Martin, E.; Ali, A. Enhancing hospitality business performance: The role of entrepreneurial orientation and networking ties in a dynamic environment. *Int. J. Hosp. Manag.* **2020**, *90*, 102605. [[CrossRef](#)] [[PubMed](#)]
47. Hansen, E.; Grosse-Dunker, F.; Reichwald, R. Sustainability Innovation Cube—A Framework To Evaluate Sustainability-Oriented Innovations. *Int. J. Innov. Manag.* **2009**, *13*, 683–713. [[CrossRef](#)]
48. Triguero, A.; Moreno-Mondéjar, L.; Davia, M.A. Drivers of different types of eco-innovation in European SMEs. *Ecol. Econ.* **2013**, *92*, 25–33. [[CrossRef](#)]
49. Bröring, S.; Laibach, N.; Wustmans, M. Innovation types in the bioeconomy. *J. Clean. Prod.* **2020**, *266*, 121939. [[CrossRef](#)]
50. Klewitz, J.; Hansen, E.G. Sustainability-oriented innovation in SMEs: A systematic literature review of existing practices and actors involved. In *Proceedings of the XXII International Society for Professional Innovation Management (ISPIM) Conference*, Hamburg, Germany, 12–15 June 2011.
51. ECORYS. *SEGIRA—Study on Employment, Growth and Innovation in Rural Areas*; Main Report; ECORYS: Rotterdam, the Netherlands, 2010.

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