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ON-LINE SUPPORT FOR BIO-ECONOMY ACTORS THROUGH THE "MADE IN DANUBE" PROJECT

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Abstract: *The important role of bio-economy and the need to support this domain with adequate innovation frameworks and timely policy and financial interventions was recognized by the European Union starting with the Bio-economy Strategy, in 2012. This document can be read as call to action addressed to all actors in the public and private sectors, as well as a pleading oriented towards the markets to open up to this trend. That is why, workable solutions (bio-economy strategies, good management practices, communication tools) for the organizations from the Danube Region must be available in order to capitalize on the potential of the region.*

As many of these actors in the said region are SMEs or R&D units mostly focused on publication, it became apparent that quick and easily accessible solutions are needed to help them get to know and trust each other faster, so they can start working on concrete solutions for the citizens of Europe. This paper discusses the approach and implications of the Interreg DTP project "Made in Danube" mostly from the perspective of the online instruments it makes available for the purpose of better collaboration.

Key words: *bio-economy, on-line support, Made in Danube project*

1. INTRODUCTION TO BIO-ECONOMY IN THE DANUBE REGION

Given that natural resources decline rapidly, in order to maintain its high competitiveness level, Europe needs to take quick and decisive steps to ensure the continuous supply of raw materials, energy and industrial products towards its companies and citizens [1].

The Danube Region has a great potential in terms of resource efficiency and bio-based products and services, mainly because of the diversity of the territory, the variety of natural resources and rural landscapes and the high quality of these (rich soil, high quality wood, creative people). The potential of the region can be capitalized upon and developed furthermore, intervening in the areas where there is room to improve, e.g. lack of strategies for a better mobilization of local actors, lack of good management practices, the lack of adequate transport, and environmental infrastructure, lack of efficient collaboration instruments specific to bio-economy, etc.

Bio-economy refers to both primary production (agriculture, forestry, fishing), and secondary industries that use or process biological resources to generate products (foodstuff, renewable energy, bio-chemistry - fuel or plastics, bio-medical - cosmetics or drugs, etc.). Also, bio-economy can support a wide range of public services, increasing competitiveness and quality of life, while providing jobs and business opportunities. At present, the benefits of bio-economy approaches for economic growth, social cohesion and environmental soundness are recognized worldwide and many countries are seeking tangible solutions to start implementing the concept sooner rather than later, and reap the benefits ahead of the trend [2-3].

These directions are being discussed and debated for over a decade, however they became more important as the world went through an economic crisis and is battling the effects of

climate change. Europe presented in 2012 the Bio-economy Strategy, having as main objective "to pave the way to a more innovative, resource efficient and competitive society that reconciles food security with the sustainable use of biotic renewable resources for industrial purposes, while ensuring environmental protection" [4].

The key sectors mentioned before are among the most reliable and competitive domains of economic growth in the Danube Region, requiring the development of new and innovative products, combining different scientific disciplines (life sciences, social sciences, economics and engineering fields such as IT, nanomaterials, or robotics). Studies concerning the use and impact of bio-resources in fields such as renewable energy or chemical industry [5-6] are painting an optimistic future for Europe, but one that also requires considerable amounts of work.

Although Europe is one of the largest economies in the world, most of the activities aimed at supporting the development of the bio-economy have been carried out at national level. As a result, compared to other major economies, Europe is at a competitive disadvantage, with the risk of falling behind in areas such as fundamental research, education, innovation and investment. There are some rather recent studies and proposals about creating a European wide concentrated and coherent approach in bio-economy or in some of its component domains (e.g. bio-mass for renewable energy) [7-9]. The project "Made in Danube", which has been the engine behind the results presented in this paper, is, together with many other similar initiatives, contributing to the establishment of the constituent elements for such a demarche. More importantly, the "voice of business" is very strong within these projects and the results and outputs they generate are readily applicable in various industries.

In order to use the potential of the region, it requires integrative approaches that involve knowledge transfer, innovation support and good management practices. Know-how from universities and research entities and new and innovative products and services from SMEs should become the foundation for building a more competitive, innovative and prosperous Europe. The number of studies dealing with aspects of collaborative efforts between public authorities, SMEs and research institutions in the bio-economy field is increasing greatly [10-11].

In his research, Bodin O. [12] comes to the conclusion that the effectiveness of policy implementation in the field of bio-economy is bigger if there is a diverse collaboration between stakeholders and public agencies.

A study of the Centre for Economic Performance and McKinsey & Company [13], focused on medium sized manufacturing intensive companies came to the conclusion that improvements in management practices are a far better investment than either more labor force or more capital. This is an indirect proof of the excessive amount of work, financial effort and psychological stress that is consumed by companies within their own structure with no significant impact on the market position or on competitiveness as perceived through comparison with other actors.

We believe this situation is even more true for an emerging domain such as bio-economy, where most players are small or, at best, medium. Based on this context, the "Made in Danube" project proposal was developed and is now being implemented with the support of the Interreg - Danube Transnational Programme, to help this field advance faster by employing customized and effective management, physical and virtual tools.

2. DESCRIPTION AND OBJECTIVE OF THE "MADE IN DANUBE" PROJECT

The „Made in Danube" project will improve the collaboration conditions between research organizations, SMEs and public authorities creating new innovative products and services in the field of bio-economy and generating good management instruments for all the involved stakeholders. The initiative brings together a consortium of 18 entities, including businesses, associations, research institutions and public authorities from 10 states from the Danube Region (Austria, Croatia, Germany, Republic of Moldova, Romania, Slovakia, Slovenia, Serbia and Ukraine) [14].

The project will promote and support good management practice exchange by creating a

transnational network in 3 priority domains of Bio-economy: sustainable smart agriculture in Slovakia, forestry (competence in the wood sector) in Croatia and bioenergy (in the form of biofuel) in Serbia. Among its complex structure of results and deliverables, that must be finished in the period January 1st, 2017 to June 30th, 2019, we can mention the following [14]:

- Collaborative product and service development in mini-consortia that involve more project stakeholders, from the public and private sector, with the goal to reach 15 viable proposals;
- Interconnection of the research environment and the companies, especially the SMEs, via the determining and understanding of innovation support needs in the form of Innovation audits, Technology Requests evaluations and Technology Offers evaluations, with a number of 80 documents collected in the countries of the Danube Region;
- Creating a complex online e-tool, comparable to the professional solutions available, capable to foster the growth, interconnection and synergy of bio-economy initiatives across the area by facilitating the mapping of the innovation landscape, communication, collaborative working and assistance for the product development process;
- Establishment of a strategic and operational foundation necessary for the development and transnational cooperation in the field of bio-economy, including position papers, reports, analyses and a well-rounded training and best practice exchange programs;
- Facilitation of the free and unrestricted access to the outputs and conclusions developed, including open access to the software code of the platform realized within the "Made in Danube" for the benefit of the stakeholders.

3. GOOD MANAGEMENT PRACTICES IN THE FIELD OF BIO-ECONOMY USING AN ONLINE E-TOOL

In order to improve collaboration in the Danube area and to build the framework necessary to support innovation and technology transfer projects between research entities and companies in the field of Bio-economy, an online e-tool was developed. The tool will support the creation and expansion of bio-economy initiatives across the Danube Region, those promoted by the "Made in Danube" project, or those that might appear later on, during the active life of the system.

The on-line tool will adapt to the bio-economy requirements, delivering workable solutions for the organizations in the region that want to develop innovative transnational businesses. Among the capabilities of this web platform, we can mention the following elements that the project and its promoting consortium recognize as critical for the success of the involved parties:

- Access to relevant and up to date information about trends, policies, strategies and opportunities that can speed up the development of bio-economy as an integral component of European economy;
- Networking, relationship building, trust building and information exchange in a specific manner to the topics of bio-economy and with partners with similar preoccupations, from the entire Danube Region, in a transnational approach based on European common values;
- Dissemination of the obtained results achieved within project activities, and, at the same time, for market related purposes during the sustainability period of the project;
- Concrete online tools that can speed-up cooperation (e.g. communication instrument).

3.1 BIO-ECONOMY INITATIVES IN THE "MADE IN DANUBE" PLATFORM

The Bio-economy module represents one of the five menus of the DTIC (Danube Transnational Innovation Cooperation) platform, which has the role of supporting bio-economy initiatives and providing management

support for the Danube Region, being accessible for specialists and the general public.

The Bio-economy module contains links to the pages: About Bio-Economy, Local Action Pilots, Innovative products/services and to the Promotion page for new products and services [16].

Improving the innovation capacity of SMEs in the Danube Region, especially in the bio-economy area, has the role of influencing a wide range of industries and services, but also intervening in the sustainability of society. The module contributes in identifying challenges and opportunities to integrate the bio-economy theme in the wider innovation and sustainable development agendas. The aim of the module is to help companies disseminate new products and processes in the fields of sustainable agriculture, forestry and bioenergy, while collaborating with R&D organizations and having the support of public authorities and civil society.

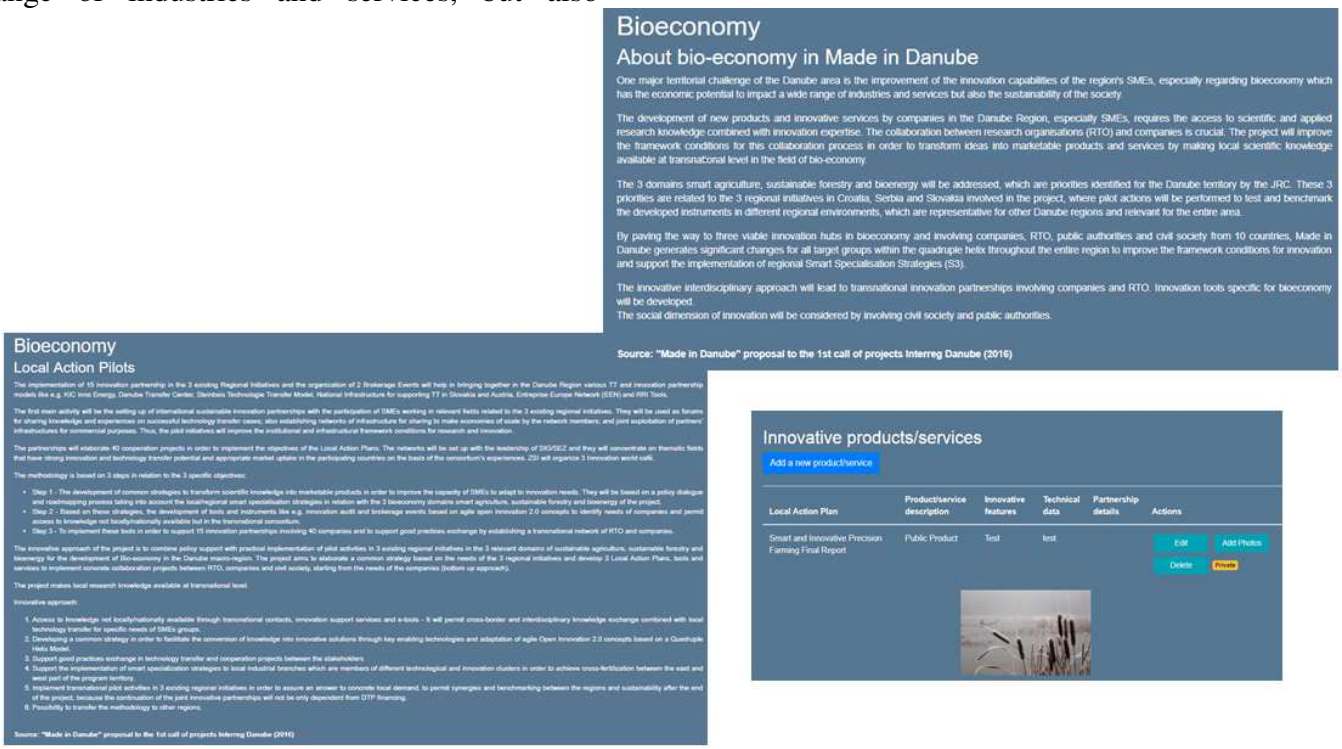

Fig.1 Bio-economy menu [16]

The first two menus contain general information about bio-economy, and the role of the pilot initiatives in the "Made in Danube" project (Figure 1). The Local Action Pilots page presents the contributions of the consortium in developing international cooperation hubs for innovation, which will facilitate the exchange of good practices related to successful technology transfer cases and beyond [15].

The form Innovative products/services can be used by all the stakeholders from the "Made in Danube" project using the platform to add multiple items they have worked on. The form has sections for storing representative technical information of the product/service, Innovative features, Technical data and Partnership details of the added product. (Figure 2).

Together with the description of the products and services, photos of the innovative features can be submitted. Uploading pictures in this menu will help it serve as a database of products. This will be linked with the Promotion page where externally accessible visualizations can be obtained and disseminated.

The user will select the products together with various fields from their description and will use the Promotion page to display this information publicly. The page also generates a QR code, providing an easier access from mobile phones. Potential customers of these products will thus gain easy and timely access to this information.

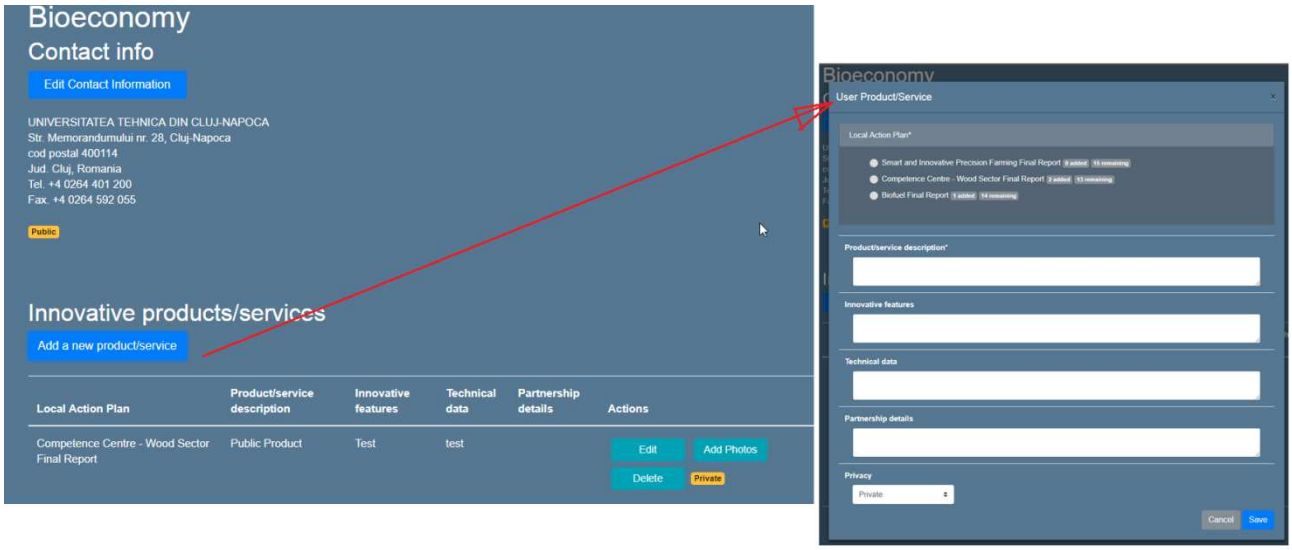

Fig. 2 : Innovative products/services menu [16]

3.2 NEWS UPDATES IN THE „MADE IN DANUBE" PLATFORM

Sometimes, using a website can cut the user off from other useful information. The DTIC e-tool contains a menu, Article Integration, where news from the field of bio-economy bring the user up-to-date (Figure 3). The function is intended to provide a constant stream of professional and business information that might stimulate future developments and collaborations using all the features of the platform, in new and creative ways.

Fig 3 : News Feed menu from EUODP Integration [15]

For that reason, there are scheduled tasks for each feed that read the sources every 6 hours, parse the source content and store the retrieve articles' metadata in the DTIC e-Tool database as cache. There are 3 sources from where news is retrieved from: EUODP Integration - available at: http://data.europa.eu/euodp/sparqlep, Enterprise Europe Network Feed - available at: http://een.ec.europa.eu/rss.xml, BIOPRO Baden-Württemberg Feed - available at: https://www.bio-pro.de/en/rss/.

With the help of the Article Integration menu, the interested stakeholders will spend less time searching for the bio-economy related information, having them gathered all together in the platform.

4 MANAGEMENT PRACTICES SURVEY

Management is mostly the art of decision making under various constraints. In order to create an environment in which people are involved in continuous management learning experience, a study was developed regarding the use of tools from the project on this dimension of capacity building.

A brief questionnaire was provided to the project members and their collaborators, who had the chance of using the platform and the other developed tools. The questions are the following:

1. Based on your experience with the stakeholders, please rank from 1-5 the perceived usefulness of the following "Made in Danube" (MiD) instruments: e-TIN tool (DTIC), Trainings, IA/TO/TR, Brokerage events, Workshops

2. What were the 3 main benefits that the stakeholders appreciate related to the MiD tools/services?
3. What were the 3 main challenges that the stakeholders fear related to the MiD tools/services?
4. What products/services/concepts are most often associated by the stakeholders with bio-economy?
5. What kind of support (different from the MiD tools and services) have the stakeholders asked for during your meetings?

A number of 20 members received the survey, occupying different positions in SMEs, research organizations or public authorities, and 9 responses (45%) were received. The study is thus a qualitative one and is focused in determining what are the most used tools for the "Made in Danube" project. The research was applied only to the project members, from the following Danube Region countries: Romania, Croatia, Hungary, Slovakia and Germany.

Regarding the most useful tool from the project, the respondents were asked to rank each of them from 1 to 5. A higher score means a higher importance. According to the respondents, the most useful tool for the MiD project were the trainings, with a total score of 32 points, from 45 possible, according to 71.11% of the received answers. This means that the trainings, based on our respondents' opinion, offer a clear and proper transfer of acquired knowledge related to bio-economy.

The next two tools considered to be useful for the respondents, are the IA/TO/TR (Innovation audits and Technology offers/requests) and the Brokerage events obtaining a total score of 31 points (68,88%), proving that instruments that can explore the business potential and the technological co-operation opportunities are needed for market success. The DTIC e-tool also obtained a score of 31 points (68,88%), mainly due to the benefits obtained when using the platform inside the "Made in Danube" project, with good prospects for the future increase of its use by other stakeholders.

Regarding the 3 main benefits of the MiD tools appreciated by the stakeholders, all respondents (100%) noticed the importance of the opportunity to network and discover cooperation possibilities within the entire Danube Region. These two elements can improve policy exchange experiences, good practices sharing and the level of agreement on an action plan, as a good organizational dialogue, should be at the center of all projects. The next identified benefit was the possibility to gain knowledge and learn about current trends from specialized trainers in the field of innovation management, technology transfer and social innovation. This benefit was identified by 5 persons (55,55%), and comes to complement the already discussed knowledge transfer. Other identified benefits refer to: development of new technologies, best practice examples exchange, forecasting of needs, local availability of solutions, and receiving spot expert feedback related to the performed TO/TR/IA.

For the third question, the main challenge of the MiD project identified by the stakeholders is the General Data Protection Regulation - challenge identified by 5 of the respondents (55,55%). This is a common problem, due to the recent changes, but by developing specific procedures and new rules, compliance with data protection principles was demonstrated. Other identified problems are: reimbursement delays, English as a foreign language, not enough basic knowledge about innovation, the usefulness of TR or TO, recognition of external competence, compatibility with the stakeholders' companies existing solutions.

The most often associated products with bio-economy are considered to be wood products (4 responses - 44,44%), sector that is searching for solutions as alternatives for resource consumption. Another sector associated with bio-economy is considered to be the bio-food area. In order to use in a sustainable way, the natural resources for food production, several changes concerning the current shortages and depletions must be made. Other identified elements are: Europe's Bio-economy Strategy under the lead of DG Research and Innovation as well as national strategies; Circular Economy and Bio-economy clusters as part of RIS3 approaches; food waste; bioplastics; agricultural products; bio-fuel/bio-diesel, bio-medical products.

The study also identified other types of support that are needed - different from those

used in the MiD project. The funding opportunities was the most wanted support with 4 answers (44,44%). This demonstrates that a good financial framework can improve the development of products/services and is mandatory for generating innovative solutions. Besides the financial aspects, there were also identified tools like: social media networking; newsletter subscriptions; connection to the relevant actors in the region in the field of bio-economy (especially for bio-fuels, precision farming and the wood sector).

5. CONCLUSION

A good management implies using tools and mechanisms that will help you develop your organization, improve your productivity and employee involvement, and the development of your workforce.

From the Bio-Economy perspective, Europe has a number of developed traditional industries: wood sector, agriculture, food, etc., where good management practice can help overcome barriers to growth.

The present paper provides an example of this, using an online e-tool. Even though the "Made in Danube" members considered the trainings the most useful tool, the platform gathers together instruments useful for innovative products/services creation for local bio-economy initiatives within cross-sectoral partnerships. Using the DTIC e-tool will ensure that the expertise and the practices of the "Made in Danube" members will be known by all the interested parties. In this way, it will should easier for the customers and the communities from the region to become accustomed to a transnational way of developing products that are good for economic growth and the natural world, alike. The survey performed indicates good prospects for the future adoption of the platform by the users.

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SUPORT ON-LINE PENTRU ACTORII DIN DOMENIUL BIO-ECONOMIEI PRIN PROIECTUL ”MADE IN DANUBE”

Rezumat: Rolul important al bioeconomiei și necesitatea de a susține acest domeniu utilizand instrumente inovative și intervenții politice și financiare adecvate a fost recunoscut de Uniunea Europeană, prin adoptarea Strategiei privind Bio-economia în 2012. Acest document reprezintă un apel la acțiune adresat tuturor actorilor din sectorul public și privat, dar și o pledoarie orientată spre deschiderea piețelor către aceast sector. De aceea, soluții viabile trebuie să fie disponibile (strategii de bioeconomie, bune practici de management, instrumente de comunicare) pentru organizațiile din regiunea Dunării, pentru a valorifica potențialul regiunii.
Având în vedere că mulți dintre acești actori din regiunea menționată sunt IMM-uri sau unități de cercetare și dezvoltare concentrate în cea mai mare parte pe publicarea rezultatelor ştinţifice, a devenit evident că sunt necesare soluții rapide și ușor accesibile pentru a-i ajuta să se cunoască și să aibă încredere unii în alţii. Prezentul document discută abordarea și implicațiile proiectului Interreg DTP "Made in Danube", mai ales din perspectiva instrumentelor online pe care le pune la dispoziție pentru o mai bună colaborare.

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