Application and evaluation of the tool

Author(s):	Vitalijs Komasilovs (LLU), Aleksejs Zacepins (LLU),
Review:	EBA
Date:	10.03.2022
Deliverable N°:	D4.3

DiBiCoo – Digital Global Biogas Cooperation
Grant Agreement N°857804

Executive Summary of D4.3

The purpose of this document is to describe the activities and strategy aimed on evaluation and application of the developed Biogas and Gasification Matchmaking platform.

This deliverable describes activities completed to make the evaluation of the platform by different user groups and stakeholders. The evaluation of the performance and usability of the developed platform was done in an iterative way during the course of the project. The final evaluation was done by applying an end-user survey.

End users were constantly involved in testing and trying the platform to evaluate its functionality, performance and usability. After the evaluation, data are gathered and necessary improvements are implemented.

The functional evaluation of the platform was completed, linking all the defined requirements with achieved results.

It should be emphasized that still the improvements of the platform are ongoing and new features are implemented and this process will continue till the end of the project.

All questions about the platform can be addressed to the DiBiCoo project team from Latvia University of Life Sciences and Technologies (vitalijs.komasilovs@llu.lv; aleksejs.zacepins@llu.lv).

Digital global Biogas Cooperation

Summary of the DiBiCoo Project

The **Digital Global Biogas Cooperation (DiBiCoo)** project is part of the EU's Horizon 2020 Societal Challenge 'Secure, clean and efficient energy', under the call 'Market Uptake Support'.

The target importing emerging and developing countries are Argentina, Ethiopia, Ghana, South Africa and Indonesia. Additionally, the project involves partners from Germany, Austria, Belgium and Latvia. The project started in October 2019 with a 33 months-timeline and a budget of 3 Million Euros. It is implemented by the consortium and coordinated by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

The overall objective of the project is to prepare markets in developing and emerging countries for the import of sustainable biogas/biomethane technologies from Europe. DiBiCoo aims to mutually benefit importing and exporting countries through facilitating dialogue between European biogas industries and biogas stakeholders or developers from emerging and developing markets. The consortium works to advance knowledge transfer and experience sharing to improve local policies that allow increased market uptake by target countries. This will be facilitated through a digital matchmaking platform and classical capacity development mechanisms for improved networking, information sharing, and technical/financial competences. Furthermore, DiBiCoo will identify five demo cases up to investment stages in the 5 importing countries. Thus, the project will help mitigate GHG emissions and increase the share of global renewable energy generation. The project also contributes to the UN Sustainable Development Goals (SDG 7) for 'Affordable and clean energy", among others.

Further information can be found on the DiBiCoo website: www.dibicoo.org.

Contents

List of Abbreviations

AEA	Austrian Energy Agency
API	Application Programming Interface
BMP	Biogas and Gasification Matchmaking Platform
D	Deliverable
EBA	European Biogas Association
FvB	Fachverband Biogas
LLU	Latvia University of Life Sciences and Technologies
RES	Renewable energy sources

List of Figures

Introduction

[Biogas and Gasification matchmaking platform](#) was launched for public testing when the first platform prototype was developed (11.2020). Then in parallel with the evaluation process further development and new feature development was continued.

The evaluation of the performance and usability of the developed platform was done in an iterative way during the course of the project. The final evaluation was done by applying an end-user survey and individual feedback collection.

The main aim of the evaluation process was to find out how well the target users can use a platform to achieve their goal in finding an appropriate contact candidate. Functional evaluation of the platform was completed by linking all the pre-defined requirements with achieved results.

For the platform evaluation, end users, stakeholders and project partners were involved, to evaluate platform functionality, performance and usability and provide recommendations on the required improvements.

Still the improvements of the platform are ongoing and new features are implemented and this process will continue until the end of the project.

1   Platform evaluation strategy

Before the start of the platform evaluation, a testing strategy was developed to succeed at the important stage of the platform development: testing and evaluation by the end target users. A developed strategy ensures successful evaluation of the platform and documents how the collection and analysis of partners' and end user's feedback should be done. Different user groups responsibilities are summarised below:
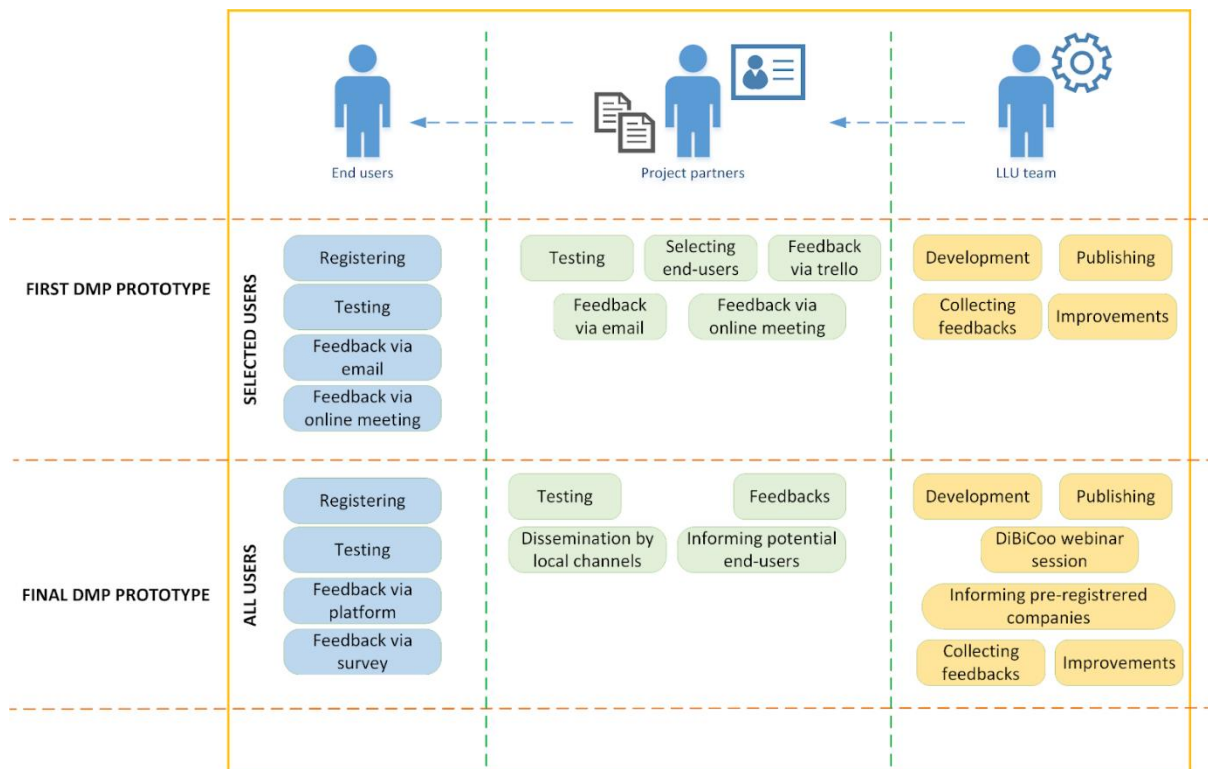

Figure 1. Conceptual strategy for the platform evaluation

The first platform prototype was evaluated by two different user groups: DiBiCoo project partners and potential target users.

1.1   Evaluation by the project partners

For the evaluation of the platform by the project partners several approaches were used.

Approach-1: Firstly, partners were provided with the possibility to test the Biogas and Gasification matchmaking platform individually, including each of its functions requiring anonymous or authenticated authorization level. After testing it was expected to receive feedback in the form of Trello ideas/tasks. This ideas/tasks may be aimed to particular change/update/addition/fix of the system's functionality. Apparently, Trello was not the means of choice for all DiBiCoo partners, hence email was used to send/request ideas/tasks. These ideas/tasks were then processed by the LLU team, discussed with partners if required, and implemented considering functionality and time requirements, added value.

LLU selected Trello (www.trello.com) as a tool for collaboration on evaluation feedbacks. Trello is a web-based Kanban-style list-making application and is a collaboration tool that organizes development process into boards. Trello's boards, lists, and cards enable the development team to organize and prioritize project tasks in a flexible and rewarding way.
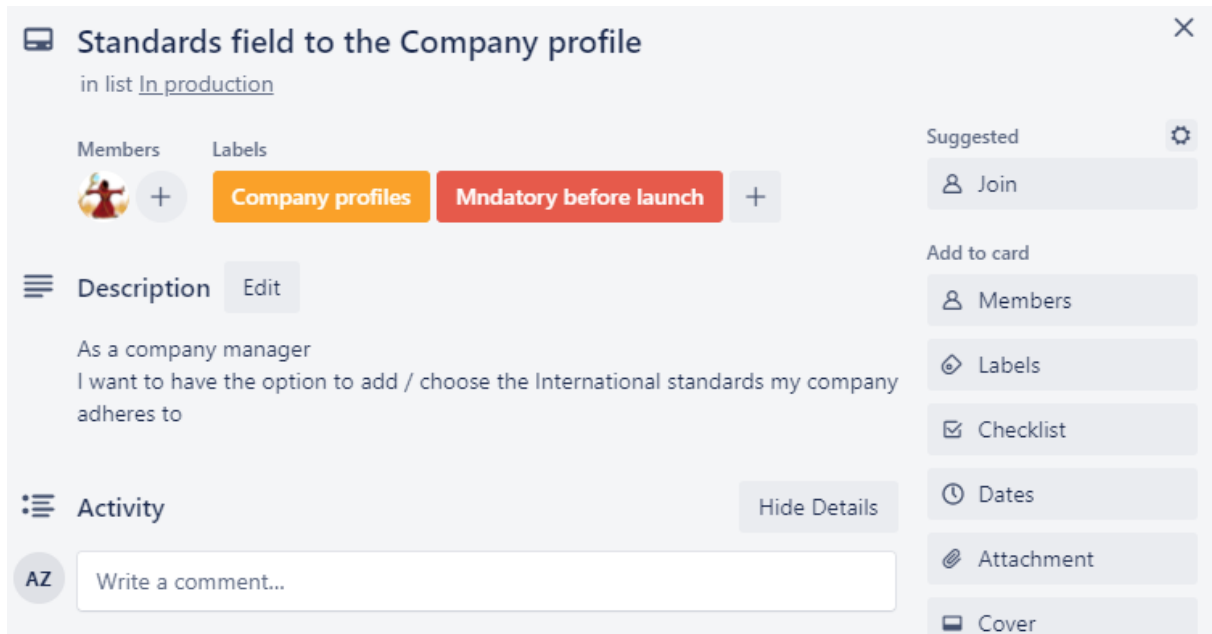
Example of a Trello card is shown below:

Figure 2. Example of a Trello card

Approach-2: Secondly, individual online meetings were arranged to discuss the partner experience with the developed platform prototype. Within these individual meetings detailed feedback was collected and analysed. It provided comprehensive evaluation by the partners and helped to discuss al the unclear features and functionality.

1.2   Evaluation by the potential end users

At the first Biogas and Gasification matchmaking platform evaluation stage several target company representatives from the exporting and importing markets were chosen. It was decided that each DiBiCoo project partner was free to select the most interested partner(s) (company manager) for the first round of platform evaluation. The potential end user selection procedure was started by the project partners on 27.10.2020.

To assist stakeholders, the first platform user manual was created by the LLU with the detailed description of the platform and all available features. The most recent user manual is available on the platform by the link:

https://storage.googleapis.com/dibicoo-matchmaking-tool.appspot.com/DiBiCoo%20platform%20user%20manual.pdf

To guide the target users during the evaluation process several user tasks were developed. Tasks were developed to help users understand platform basic operations and main features. User tasks were divided into several categories: general tasks, which are related to the general operations; company profile managemental tasks and business opportunity creation tasks.

List of the tasks, that were provided to the target users are provided below:

1. General tasks
- Locate and read the platform user's manual
- Navigate to section "Companies by categories" and navigate through categories using logos/titles/breadcrumbs forth and back
- Find the test company "DiBiCoo" in the company profiles and locate it on the Global Map
- Locate and read the factsheet about "Safety equipment"

2. Sign up / log In to the DiBiCoo digital matchmaking platform
- Create own company profile
- Add company logo
- Add several options for contact information
- Choose relevant categories for your company
- Add your key projects if there are any
- Authorize company profile's publication in the Biogas and Gasification matchmaking platform

3. Create a business application in the business opportunities section
- Add application idea
- Add several options for contact information
- Try to upload some additional files for the application
- Publish your business application
- Find your published application in the list of all business applications
- Find test business application with title "DiBiCoo Digital Platform Users" and inform the platform administrators that its content is inappropriate

4. Log out form the platform

After accessing and evaluation of the platform company managers were able to directly express their feedback to the LLU team by e-mail or during an individual online meeting. In addition, a survey was prepared to collect anonymous feedback from the users and get the first impression about the platform. The survey is available online:

https://docs.google.com/forms/d/e/1FAIpQLSfzwMA99cBBHpYuDhF8GM3hmKMVzc1rNRol hSOjgb3NrWWTrQ/viewform

List of the questions used in a survey is provided below:

General questions

- Which country are you from? (Free text)
- What device did you use to test the platform? (Computer, smartphone, tablet, other)

Front-page

- Is the front-page attractive? (Yes, No)
- Is it clear what is the purpose of the platform sections (Company profiles, Business opportunities, Knowledge base)? (Yes. No)
- Is it clear how to Log In / Sign Up to the platform? (Yes, No)
- Please share your thoughts about the front-end (Free text)

Company profile section

- Is it clear how to create a new company profile? (Yes, No)
- Is the company profile description sufficient? (Yes, No)
- Is it clear at what instance a company profile becomes published? (Yes, No)
- Please share your thoughts about company profile section (Free text)

Business opportunity section

- Is it clear how to create a new application? (Yes, No)
- Is the business opportunity description sufficient? (Yes, No)
- How often would you like to receive the notifications about relevant business opportunities? (Instantly, summary per day, summary per week, summary per month, do not want to get notifications)
- Please share your thoughts about business opportunity section (Free text)

Knowledge base section

- Are there enough literature sources provided in the knowledge base? (Yes, No)
- How do you prefer to read Factsheets? (in the platform, Downloading the .pdf file)
- What kind of additional information you would like to see in the section "Knowledge base"? (Funding opportunities, upcoming biogas events, upcoming conferences, other)

Final questions

- How do you evaluate the design of the platform? (1-5)
- Are there any design elements you did not like? (Free text)
- How do you evaluate the functionality of the platform? (1-5)
- What functionality is missing? (Free text)
- How do you evaluate the usability of the platform? (1-5)
- Are there any unclear things? (Free text)
- Do you have any other comments? (Free text)

The survey was completed by 17 stakeholders from 9 different countries, which helped to get the first important feedback to improve the platform. A summary of the responses is provided below. Represented countries are shown on the image below:
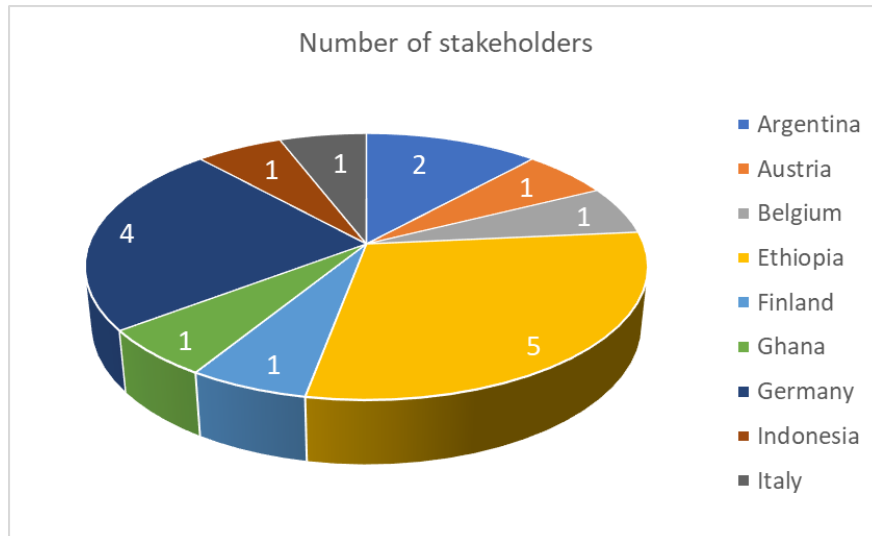
Figure 3. Number of stakeholders participated in the survey by country

Evaluation of the front page:

All respondents used the computer (not the smartphone or tablet) to evaluate the platform.

For **76.5%** (13 respondents) the front-page of the platform was attractive.

Only for **two** respondents it was not clear what the purpose of the platform was for different sections.

Only **one** respondent had problems with the sign-up process.

Important direct remarks collected from the survey are:

- "Join platform and log in: these two options should be more visible. log in is indeed not really visible. Additionally, there should be more clarity about the functions on the platform e.g., "join the platform" "log in"."
- "Need more clear information on how the platform works. For project owner>how to post project and for vendor>how to find projects. More pictures related with biogas will be good."
- "It would be interesting to add a space to share opinions and experiences, something like an online discussion forum."
- "The front page in general OK but I would change the picture on the AD plant to a more attractive picture."

Evaluation of the Company profile section:

Only for **one** respondent it was not clear how to create a company profile.

For **76.5%** (13 respondents) the company profile description was sufficient.

For **four** respondents it was not clear when the company profile was published.

Important direct remarks collected from the survey are:

- "Please add more space between Anaerobic digestion and gasification so you can better explain what is meant with 98 and 4 and 20 and 4. you could then write 98 companies in 4 sub categories. Fine would be having a button where we can see all sub categories directly on the screen and how they are divided. So, at the end everybody who is searching for a detailed device provider etc."
- "Fine would be also not using too much space for the company categories which are chosen by this company but instead giving the possibility to add photos from already installed plants/devices etc. or giving the possibility to add links to examples. these links should always be opened in a new window."
- "It is only possible to add one website; I also missed a field for videos/links."
- "Need to add section to add product/service in more detail, and better if can add photo to the project reference. For company category can add contractor (different from turnkey)."
- "Color codes are not clear from the start. It would be easier, once you have filed your company profile one gets a notice on screen that the administrator, publish it (or not) and inform the creator once it is published."
- "Company profile description lacks clarity, there is no specific means (uniqueness) to differentiate between the different companies involving similar activities. Particularly this will be critical for those not familiar with European technologies in the RE sector."

Evaluation of the business opportunity section:

Only for **one** respondent it was not clear how to create a new business application.

For **70.6%** (12 respondents) the business opportunity description was sufficient.

There were **different answers** to the question on how often to receive the notification about the relevant business opportunity (instantly (6), summary per day (2), summary per week (9))

Important direct remarks collected from the survey are:

- "We are not sure if this will become a success story. If nearly nobody adds new applications it will become a very fast dead street. Most users will write to the found most promising partners directly to avoid unwanted spam emails. So we are not sure if this can become a success story."
- "Opportunity list: I would also include the origin country of the applicant? There is only information about the target country."
- "Is it possible to see the notifications from possible partners you are interested in at these pages directly? Like already made matchmaking opportunities? How about a place to write about a company's business related preferences if any?"
- "In the section looking for... it is not clear that it is a free field. The prefilled possibilities limit the thinking of what can be asked."
- "In the detailed information section one has no possibility for a free field. That is maybe handy though to have."

Evaluation of the knowledge base section:

Only **two** respondents said that there are not enough literature sources in the knowledge base.

52.9% of the respondents read the factsheets in the platform and others downloaded them as .pdf files.

Most of the participants would be interested in the section about **funding opportunities** (88.2%), 76.5% would like to have information about **upcoming Biogas events** and 70.6% about **conferences**.

Evaluation of the final questions

Design of the platform: **4** (5 was max)

- "Need more pictures."
- "Perhaps I would improve the colours (green and blue for navigation menu) or its combination."

Functionality of the platform: **4.13** (5 was max)

- "Finding a clear structure at the beginning in the companies section from where we then can directly chose the sub category."
- "How about including the feedstock sellers here. Would it be possible to send direct mails from this system if the co. has informed about the contact person with an e-mail?"
- "Better description of login process."

Usability of the platform: **4.19** (5 was max)

- "In the global map I did not manage to navigate to 1 special company. I would insert two things. In the global map itself put in a search function. In the company profiles create a link to the global map within the company field, in order that you can immediately see where they are based."

LLU has analysed the suggestions and comments provided by the end-users. Some comments are taken into consideration for further improvement of the platform other where rather subjective and hence will not be developed.

2   Development of the final prototype

After the first round of evaluation and testing LLU partner continued to improve the platform based on the suggestions, implemented new features, improved design and usability features. Constantly information about the initial platform updates were communicated to the project partners for internal review. In parallel, presentations of the platform prototype were made at the local stakeholders' workshops and DiBiCoo webinars.

An important stage of the platform development was the official public launch of the platform to a wide audience. Before this step, so-called stoppers were defined and discussed by the project partners. Stoppers defined crucial platform functionality required before official launch. Each stopper had a description, difficulty level and other meta information.

Some of the stoppers were:

- Upgrade of the main landing page
- English proofreading
- Implementation of the guided tour on the platform
- Improvement of the Knowledge base section
- Improvement of the platform user manual

- Input of demo cases to the business opportunity section
- Clarification of the administrator role at the platform
- Review of the platform categories
- Modification of the company profile wizard
- Improvement of the company profile shown description

When all stoppers were implemented, it was decided within the DiBiCoo Consortium to officially launch the platform. Thereby, all partners unanimously agreed in a vote at SCM 5, which took place in Munich from 8 to 10 November 2021. The Platform was presented on several international events, and information about the platform was included at the DiBiCoo homepage, partners websites and dissemination in media channels (more information about the promotional activities will be included within the Deliverable 4.7 - Promotion of the tool).

The previously prepared survey is still available for the feedback collection, as platform development has not stopped after the official launch, and still new features are implemented constantly based on continuous comments from stakeholders and project partners.

3   Detailed test of the platform during the SCM in Munich

During the DiBiCoo project partner meeting in Munich (end of 2021) the biogas and gasification matchmaking platform was tested and evaluated in detail by all project partners. Users were divided into several work groups (Company database section, Design and layout, Overall functionality), related to the different platform sections. After the testing sessions a summary of suggestions were compiled and presented to the LLU. Suggestions were grouped by importance and then its difficulty was evaluated.

Some of the required changes were:

- Implementation of a search functionality on the platform
- Change in wording on the platform
- Restructure of a knowledge base section
- Implementation of a notification feature for all platform users
- Improvement of the e-mail notification feature
- Some visual improvements
- New platform logo development

All the partner suggestions will be prioritised to identify which are the most critical features and which are less. Based on a prioritization LLU will start to implement features one by one. If the remaining time until the end of the project permits it, all suggestions will be implemented.

After the project end FvB will be responsible for the platform. Continuous use of the platform is described in deliverable 4.4. prepared also by LLU.

3.1 Logo of the platform

One of the important objects of the platform is its logo. To decide on the final logo design, which was prepared by the partner of Iceaddis, an online voting was organized. Several logo designs were developed for consideration.
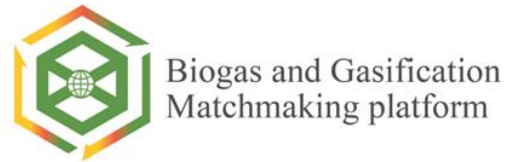

Figure 4. Logo design #1

Figure 5. Logo design #2

Figure 6. Logo design #3

Figure 7. Logo design #4

Project partners selected logo design #1 to be a final logo of the platform, thus it was implemented to the platform and can be used in all dissemination materials. As the logo was changed, this led to change in platform colour scheme. All menus, buttons and other elements were adapted to be in line with a new logo colour scheme.

4   Platform statistics

By the end of February 2022 there are more than 180 company profiles present on a platform and this number is growing, and more than 300 users are registered. It should be reminded that user registration is not mandatory, and the platform can be used also by guest users only for information browsing, so the real number of users probably much higher.

Below basic statistics of the platform visits is provided (data for the last year 16.01.2021 - 16.01.2022). It should be mentioned that statistics data is only collected from users, who accepted cookies and allowed Google statistic data gathering, so the real number of guest users is much higher.

Event name ▾	+	↓ Event count	Total users
Totals		**32,925** 100% of total	**326** 100% of total
1	page_view	21,328	286
2	scroll	3,558	263
3	user_engagement	3,375	247
4	session_start	1,737	325
5	company_profile_view	1,337	118
6	click	638	107
7	first_visit	326	326
8	file_download	324	68
9	application_view	234	35
10	my_event	61	1

Figure 8. Basic statistics of the platform visits for the one year period (16.01.2021 - 16.01.2022)

Statistics shows data on various events on the platform, for example it can be seen that there were 324 files downloaded from the platform, as well 326 unique registered users signed up to the platform. But in total the platform was accessed more than 20 000 times.

It should be emphasized that platform usage is not restricted to any geographical region and Biogas and Gasification matchmaking platform can be used by any user. Image below shows a variety of users from different countries. Figure 9 shows the countries with the most registered users, and the map provides the whole overview of the countries:
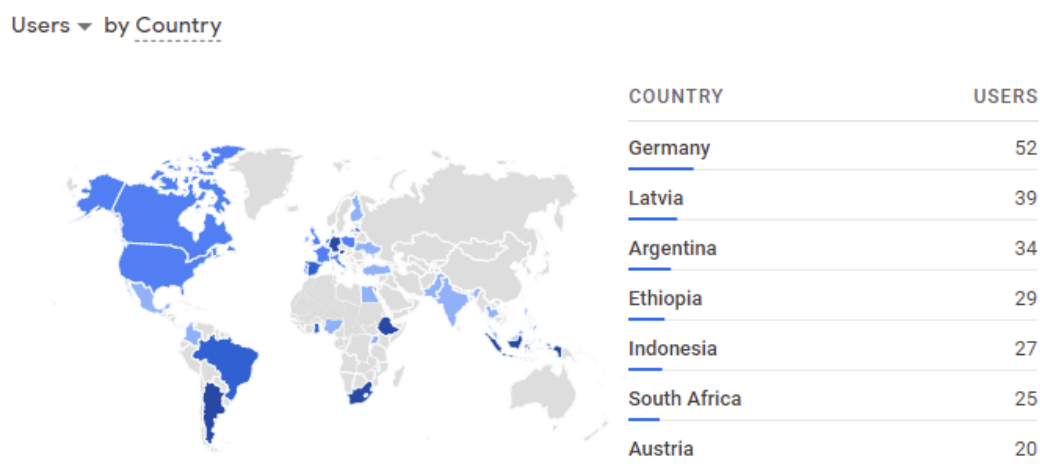
Users ▾ by Country

COUNTRY	USERS
Germany	52
Latvia	39
Argentina	34
Ethiopia	29
Indonesia	27
South Africa	25
Austria	20

Figure 9. Platform users geographical variety

….

The DiBiCoo Consortium

COORDINATOR

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

PARTNERS FROM EXPORTING COUNTRIES

WIP RENEWABLE ENERGIES

AUSTRIAN ENERGY AGENCY

EBA European Biogas Association

kompost & biogas verband

Fachverband BIOGAS

Latvia University of Life Sciences and Technologies

PARTNERS FROM IMPORTING COUNTRIES

INTA

SELECTRA WASTE·WATER·BIOENERGY

iceaddis innovation . collaboration . entrepreneurship

GreenCape

rdi Resilience Development Initiative

SEES INSTITUTE FOR SUSTAINABLE ENERGY AND ENVIRONMENTAL SOLUTIONS
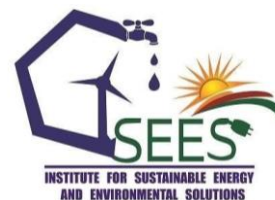
Project website: www.dibicoo.org

Project Coordinator Contact	
Dr. Johannes Anhorn Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	Wielinger Straße 52 82340 Feldafing, Germany
www.giz.de	johannes.anhorn@giz.de

Author(s)
Vitalijs Komasilovs (Latvia University of Life Sciences and Technologies),

Aleksejs Zacepins (Latvia University of Life Sciences and Technologies)

Review
Angela Sainz (EBA), Mieke Decorte (EBA).

Photo credits:
The author(s) if not otherwise stated (Name/Partner Acronym).

Latvia, 2022