CLEAN HYPRO

Open Innovation Test Bed for Electrolysis Materials for Clean Hydrogen Production

D2.6 STRATEGIC RECOMMENDATIONS FOR THE GOVERNANCE MODEL AND METRICS

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EXECUTIVE SUMMARY

The CLEANHYPRO project aims to establish a sustainable Open Innovation Test Bed (OITB) for electrolysis materials for clean hydrogen production, components for different applications, and provide companies with a network of facilities and services.

This document contains an **initial proposal** based on a set of strategic values: transparency, accountability, integrity, openness, good conduct, monitoring, evaluation, impartiality, protection of intellectual property, capacity and capability, excellence, and continuous learning. Based on these values, the OITB is created to accelerate learning about electrolysis technologies in Europe, to guide and support innovation in this field and to make advanced electrolysis technologies accessible to all.

Five strategic objectives have been proposed to achieve the CLEANHYPRO's mission and vision: reduce the technological risk and facilitate the uptake of hydrogen technologies by European companies, strengthen the European Hydrogen Ecosystem to support innovation and the development of hydrogen technologies, promote the social awareness and acceptance of hydrogen as a clean energy source, contribute to climate neutral and circular economy across sectors and the Single Market and the CLEANHYPRO OITB long term profitability and sustainability. To ensure the strategic direction of the OITB in the short and long term, several indicators have been proposed, each linked to its corresponding strategic objective.

Finally, to support the strategy, a dual governance system has been proposed, with a strategic level consisting of the General Assembly and the Executive/Coordination Committee, and an operational level consisting of the CEO/Coordinator and the Service Delivery Managers linked to each of the OITB service providers.

This initial proposal should be seen as a first step towards the final governance model, which will be defined in a definitive way in the coming months.

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ABBREVIATIONS

CEO	Chief Executive Officer
COBIT	Control Objectives for Information and Related Technologies
GA	General Assembly
IP	Intellectual Property
KPI	Key Performance Indicator
OITB	Open Innovation Test Bed
SDM	Service Delivery Manager
SDP	Service Delivery Plan
SEP	Single Entry Point
SME	Small Medium Enterprise


Sustainability in terms
hydrogen technologies
leadership- high standards
potential risks
risk management
leadership is essential
transparency
Leadership
effective governance
principles
open
high standards
accountability
continuously monitor

1 INTRODUCTION

Open Innovation Testbeds (OITB) are a set of facilities located in at least three Member States or Associated States, that provide shared access to the physical facilities and services needed to develop test and scale up advanced materials in industrial settings [4].

OITB are one form of technology infrastructure that is essential for the companies to take up technology and knowledge developed in key areas such as nanotechnology or advanced materials. The main objectives of the OITBs are to accelerate the time to market of these technologies, while reducing cost and investment risk. The OITBs themselves are shared service portfolios accessible through a Single-Entry Point (SEP) that is the legal entity that provides access to all OITB services. It is also the entity that has direct contact with the customers in the initial stage, and it is authorised to sign contracts on behalf of the OITB and be held accountable for it [4].

The OITBs contribute to the priorities defined in both the European Green Deal [9] and the New European Innovation Agenda [5] and are designed to support European industrial development.

Given that OITBs are supported by consortia of academia, Research and Technology Organisations (RTO) and companies, the governance model becomes one of the key elements in achieving the strategic objectives. The governance model must therefore be consistent with the strategy and must be defined to ensure the long-term viability of the OITB, far beyond the end of the project. In this sense, it is important to have a governance system in place that allows for agile and flexible management of the OITB, to respond quickly to market and technological challenges.

In addition, the governance model should ensure open access to the OITB under fair conditions, such as transparency and equal opportunities for all service providers. This idea is widely shared by other OITBs, such as INNOMEM or OASIS, and ensures that the conditions are in place to build trust between the OITB's current and future partners.

Depending on the services offered, the members involved, the type of technology, and the maturity of the market among other characteristics, there is a wide variety of OITBs. In particular, the CLEANHYPRO project aims to establish a sustainable (both environmentally and economically) OITB for electrolysis materials for clean hydrogen production, components for different applications, and provide a network of facilities and services for companies (especially SMEs). **However, the CLEANHYPRO project is still at an early stage. There are several sources of uncertainty (the number of final partners, the market acceptance of the services, the business profitability etc.) that need to be resolved before the governance model and the strategic basis for the OITB can be fully defined.**

Therefore, based on the recommendations derived from the literature review, the study of other OITBs and the opinions obtained from the internal survey, a first approach for the main governance principles for CLEANHYPRO have been summarised in the following values: transparency, accountability, integrity, openness, good behaviour, monitoring, evaluation, impartiality, IP protection, capacity and capability, excellence, and continuous learning.

These values form the basis for defining a first strategic approach for the OITB, whose mission could point to make advanced electrolysis technologies accessible to all, with a proposed vision to accelerate learning about electrolysis technologies in Europe and to provide direction and support for innovation in this field.

The proposed strategic goals are consistent with this first approach. In order to ensure the strategic direction of the OITB in the short and long term, several indicators have been proposed, each linked to its corresponding strategic objective.

In this sense, it is important to underline that this document aims to provide valuable information to complement deliverable 2.3 (SEP definition and business model). **It won't be until month 48 of the CLEANHYPRO project that there will be a final and definitive definition of the OITB business model and its main dimensions, including the governance model.**

2 METHODOLOGY

To identify the foundations for the CLEANHYPRO OITB governance model and strategic basis, three main sources of input have been reviewed:

- Literature review: analysing the main sources that study the governance systems for technology infrastructures and identifying the main recommendations for designing a good governance framework, and the main governance bodies.
- Case studies: analysing the governance model chosen by other OITBs and the experience of partners in defining governance models for technology infrastructures.
- Internal survey: gathering the opinions of the partners on issues that are fundamental to the design of the OITB-SEP.

As shown in FIGURE 1, the previous inputs will be used to define the governance principles, recommendations for the future CLEANHYPRO OITB governance model, the strategic values and the basis for a balanced scoreboard to measure the performance of the OITB in the short, medium, and long term.

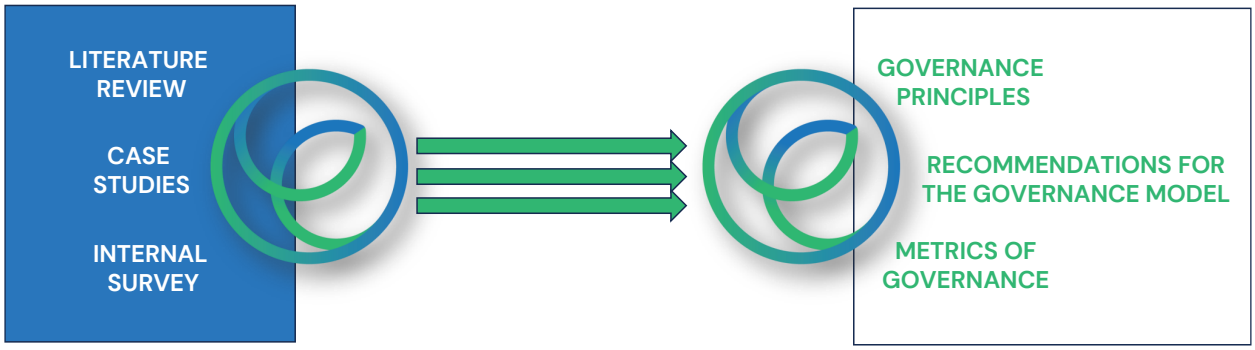

FIGURE 1. DELIVERABLE METHODOLOGY

3 RECOMMENDATIONS FOR THE GOVERNANCE MODEL OF THE OITB

The governance model is a crucial aspect of a business plan. In essence, the business plan outlines the business story, describing the purpose, basis, reason, and future of the organisation or, in this case, the technology infrastructure. The governance model is designed to guarantee a value proposition for the structure, a commitment from the partners and the general viability of the infrastructure. Governance refers to the set of structures and processes designed to ensure accountability, transparency, responsiveness, rule of law, stability, equity and inclusiveness, empowerment, and broad-based participation.

3.1 LITERATURE REVIEW

OITBs, testbeds and other related concepts are technology infrastructures designed to foster innovation by testing new technologies with transformative capabilities for companies and also for society as a whole. As controlled experimental spaces, these structures need to develop governance systems with participatory approaches to innovation, that can provide broader legitimacy than purely top-down, expert-driven forms of technology deployment [1].

The governance model of an OITB must facilitate a robust involvement of all relevant stakeholders and should prioritise the **dissemination function** as a key strategic activity, aiming to reach a broad audience of companies and future customers.

Furthermore, it is crucial to identify the most suitable **legal form** for the SEP, taking into account the restrictions imposed by the partners' legal status. In the majority of cases, the legal form is established through a collaboration agreement signed by the interested partners. Since the SEP must be transparent and independent, the location should be neutral towards all partners and should have strong links to different regions and countries [7]. In this line, other key success factor is the overall compliance with regulations and administrative requirements, as well as a clear allocation of roles in the governance structure to avoid gaps and inefficiencies.

In this context, the establishment of a new structure among several partners sometimes implies a relinquishment of certain sovereignty and an acceptance of financial liability and profit sharing. Furthermore, cross-border **collaboration** is regarded as a pivotal factor in offering industry enhanced technological services and solutions, with a particular focus on technological areas with the potential to become growth areas for industry. There are various forms of cross-border collaboration, ranging from the least intensive commitment (purely commercial transaction) to a more institutionalised form of collaboration with a common business strategy. In general, collaborations are more effective when they are carried out among organisations that share a common understanding of how to do business [9].

To ensure an effective design and implementation of a good governance framework, there are some key success factors, such as a good empirical understanding of the ownership and market and technology landscape, the involvement of industry, the quality of the legal and regulatory framework, the protection of members' rights, the equitable treatment of all members, the strategic guidance of the OITB by the board, and its accountability to the organisation and its members [11]. It's particularly important to ensure **long-term alignment with industry needs**, so that the demand for OITB services matches the capacity of the infrastructure. It's also desirable to plan regular **upgrades** to keep the infrastructure up to date [8].

When creating a new technology infrastructure (not only OITBs) it is also crucial to **manage the expectations** of members and the complexity derived from the management of the strategic internal processes. Furthermore, **collaboration** with other actors and membership in strategic regional and national networks strengthens the infrastructure, and this recommendation extends to not only technology stakeholders but also regulatory agents and policy makers [3].

In essence, the governance model should provide strategic direction for the OITB-SEP, oversee the management, ensure accountability, and define clear responsibilities to avoid overlaps and conflicts. The model should also reflect the interactions, influences, rights, and responsibilities of the OITB-SEP, taking into account all relevant stakeholders. The governance model should foster trust, transparency, and fairness for all members, while also ensuring the efficient operation of defined activities and processes. Finally, the governance structure should align with the OITB-SEP's objectives and the legal, institutional, and regulatory framework, providing a reliable framework for private contractual relations.

3.2 OITB CASE STUDIES

Since 2019, 29 OITB projects have been approved by the European Commission The case studies collected in TABLE 1 have been selected from the completed OITB projects set up by the European Commission, whose governance model and final legal form are open to the public (updated up to September 2024).

OITB	PROJECT INFO.	LEGAL FORM
FORMPLANET- Sheet Metal Forming Testing Hub	H2020-NMBP-TO-IND-2018-2020 (2019-2021)	Joint Research Business Unit (EURECAT, COMTES FHT and LETOMEC) with locations in Spain, Italy, and the Czech Republic.
i-TRIBOMAT- Intelligent Open Test Bed for Materials Tribological Characterisation Services	H2020-NMBP-TO-IND-2018-2020 (2019-2023)	Company with Limited Liability (LLC, GmbH) located in Germany.
LEEBED-Innovation Test Bed for Development and Production of Nanomaterials for Lightweight Embedded Electronics	H2020-NMBP-TO-IND-2018-2020 (2019-2023)	SEP located at the Danish Technological Institute (Denmark).
LIGHTCOCE- OITB for lightweight components	H2020-NMBP-TO-IND-2018-2020 (2019-2023)	SEP located at the National Technical University of Athens (Greece).
LIGHTME- OITB for lightweight metal matrix composites	H2020-NMBP-TO-IND-2018-2020 (2019-2023)	Non-Profit Organisation.
MDOT-Medical Device Obligations Taskforce	H2020-NMBP-TO-IND-2018-2020 (2019-2024)	SEP located at the Fraunhofer Society for the Advancement of Applied Research (Germany)
OASIS- Innovative Smart Lightweight Composite Materials and Components	H2020-NMBP-TO-IND-2018-2020 (2019-2022)	SEP rotates periodically among different partners.
SAFE-N-MEDTECH-Safety Testing in the Life Cycle of Nanotechnology.	H2020-NMBP-TO-IND-2018-2020 (2019-2023)	Non-profit association named OITB Pathway, located in Eupen (Belgium).

TBMED-Open Innovation Test Bed for the Development of high-risk medical services	H2020-NMBP-TO-IND-2018-2020 (2019-2023)	SEP operating under the name go.Med, located at CIDETEC (Spain)
TEESMAT- Open Innovation Test Bed for Electrochemical Energy Storage Materials.	H2020-NMBP-TO-IND-2018-2020 (2019-2022)	SEP located at SERMA TECHNOLOGIES (France)-
INNOMEM- Open Innovation Test Bed for Nano-Enabled Membranes	H2020-NMBP-TO-IND-2018-2020 (2020-2024)	SEP located at EMI Twente BV (The Netherlands)
NEXTGENMICROFLUIDICS- Next Generation Test Bed for Upscaling of Microfluidic Devices based on Nano-Enabled Surfaces and Membranes	H2020-NMBP-TO-IND-2018-2020 (2020-2025)	The SEP is a start-up called Microfluidics Innovation Hub

TABLE 1. LEGAL FORM OF COMPLETED EUROPEAN OITB PROJECTS. SOURCE: [1]

The majority of SEPs are open platforms situated at the headquarter of one partner, either permanently or through a rotating system among several partners. In some cases, such as FORMPLANET, OITB PATHWAY, MICROFLUIDICS INNOVATION HUB or i-TRIBOMAT, an independent legal entity has been established as the most appropriate legal form for the SEP. Of the 26 OITBs from H2020, 10 SEPs are profit and 8 non-profit organisations [7].

In this sense, a for-profit organisation should have the participation of the partners as shareholders, and in some cases, this may not be feasible for some types of partners, given their own legal form and restrictions.

Based on our previous experience in defining other OIBT SEPs, such as OASIS or INNOMEM among others, we can make some **recommendations** that may be useful here:

- At the outset of the project, some partners express reservations about the degree of commitment they can accept with the SEP and the potential legal incompatibilities with their own organisations that may result from this commitment. As the project progresses and the market response to the proposed services becomes better known, it will be easier for the partners to select the most appropriate legal form.
- In light of the above, it is recommended that the first structure of the SEP be as simple and agile as possible. This will ensure that the partners are not required to make any significant legal commitments at this stage and that the framework is sufficient to

move the project forward until there is a clearer idea of what is expected from the OITB. The governance model should guarantee a value proposition for the OITB, a commitment from the partners and the general viability of the infrastructure.

- In the event that some partners choose to withdraw from the project at an earlier stage, it would be prudent to define the Collaboration Agreement at a later stage, allowing the discussion on the business and governance model to take place with those partners who will be genuinely interested in continuing in the OITB.
- Considering that there are now several OITBs either in process or on the market, it could be interesting to define the governance model aimed at creating some kind of community or alliance with other OITBs that may face similar challenges to our OITB.
- To guarantee an effective design and implementation of a robust governance framework, it is essential to consider several key success factors. These include a comprehensive understanding of the ownership and business landscape, the involvement of industry stakeholders, the quality of the legal and regulatory framework, the protection of shareholders' rights, the fair treatment of all shareholders, and the strategic guidance of the organisation by the board, along with its accountability to the organisation and its shareholders. In essence, the governance model should guarantee the strategic direction of the infrastructure, effective oversight of management, and accountability of the board. It should also define responsibilities to prevent overlap and conflict. Governance should provide structure to achieve the organisation's objectives and align with legal, institutional, and regulatory frameworks, ensuring reliability when establishing private contractual relations.
- It is also crucial to manage stakeholder expectations and the inherent complexity of strategic internal processes. Furthermore, collaboration with other stakeholders and membership in strategic regional and national networks can reinforce the infrastructure. This recommendation extends beyond technology stakeholders to include regulatory agents and policymakers.

As described in [7]: *"The sustainability of an OITB relies on establishing a functional SEP that represents an excellent marketplace of competence. When the project ends, the members need to create a new collaboration agreement where the business model or strategy, main activities and management pillars are specified. To be successful in the long-term, OITBs should put in place a single-entry point (SEP) during the first year after the start of the publicly funded project, including a financing strategy and a permanent location"*.

It is important to note that **the creation of a legal entity is not a prerequisite for the entry point**. The CLEANHYPRO OITB must provide access to services, but the legal structure is at the discretion of the partners involved, provided that the structure demonstrates its capacity to fulfil the objectives for which it has been create.

3.3 INTERNAL SURVEY

An internal survey has been carried out to find out what the partners thought about the main features the OITB should have. With a participation rate of 80%, the following paragraphs present some of the more relevant results. The full questionnaire can also be found in the Annex A.

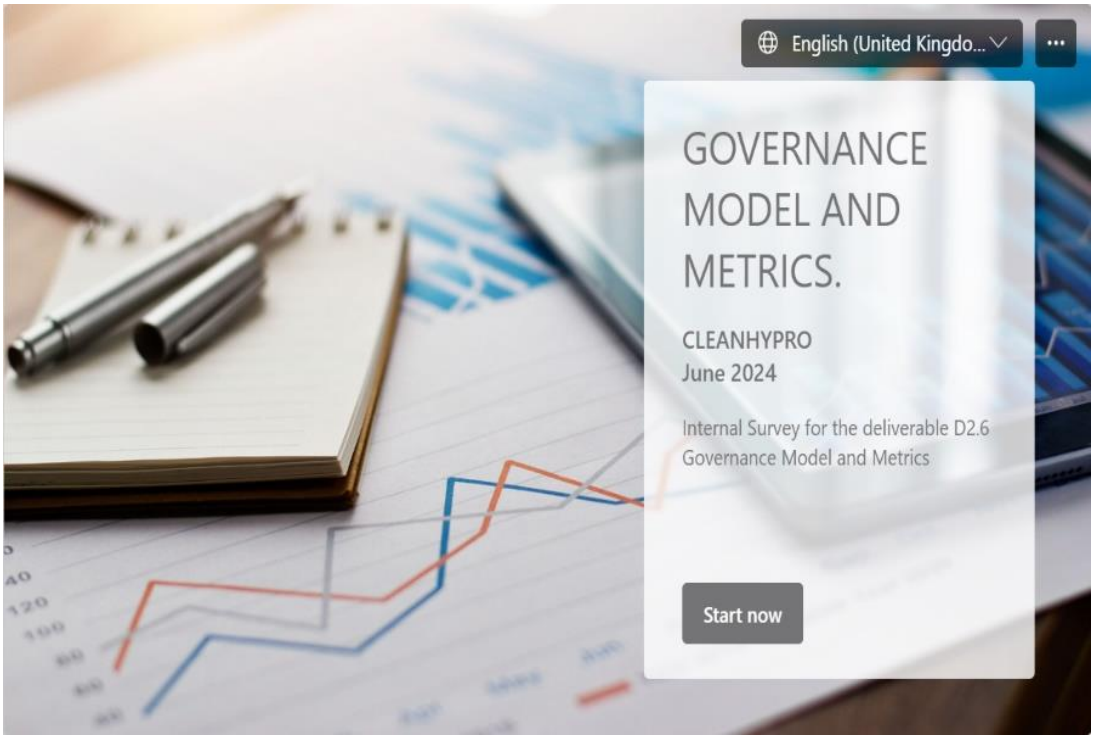

FIGURE 2. COVER PAGE OF THE INTERNAL SURVEY

(full survey in ANNEX A)

In the internal survey, partners mentioned other structures whose governance models can offer interesting keys to success. For example, the COBIT framework, a governance model developed by ISACA[1] to manage operations effectively. This model places a strong emphasis on integrating IT with business strategy, with a clear focus on value creation. The framework offers a range of tools, resources, and guidance to help ensure that governance objectives are met.

Furthermore, the model SaaS (Software as a Service) is discussed, whereby members (companies, public administrations, etc.) pay an entry fee, and dissemination activities are carried out to encourage new members to join.

Some partners also mention during the survey that the OITB could benefit from adopting a

[1] More information available at: https://www.isaca.org/.

hybrid stakeholder-consortium model, which combines broad stakeholder engagement with effective operational management. This model would include a stakeholder council with representatives from academia, industry, and regulators to ensure diverse input into strategic direction setting.

When asked about the guiding principles of CLEANHYPRO OITB governance, partners highlight transparency and accountability as the most important values. Clear communication, open access to information, regular reporting on progress and outcomes, high standards of behaviour, simplicity, ethics, clear roles and responsibilities and periodic monitoring and evaluation are some of the key demands of CLEANHYPRO partners.

In addition, leadership is seen by partners as a key management principle for the OITB, guiding the whole project towards its goals, inspiring members, making society aware of the benefits of H_2 and fostering a culture of excellence and innovation.

And more, many partners cite security as a key principle of the OITB governance, both in terms of the ability to identify, assess and mitigate risk, and in terms of privacy, strict IP rules and data management.

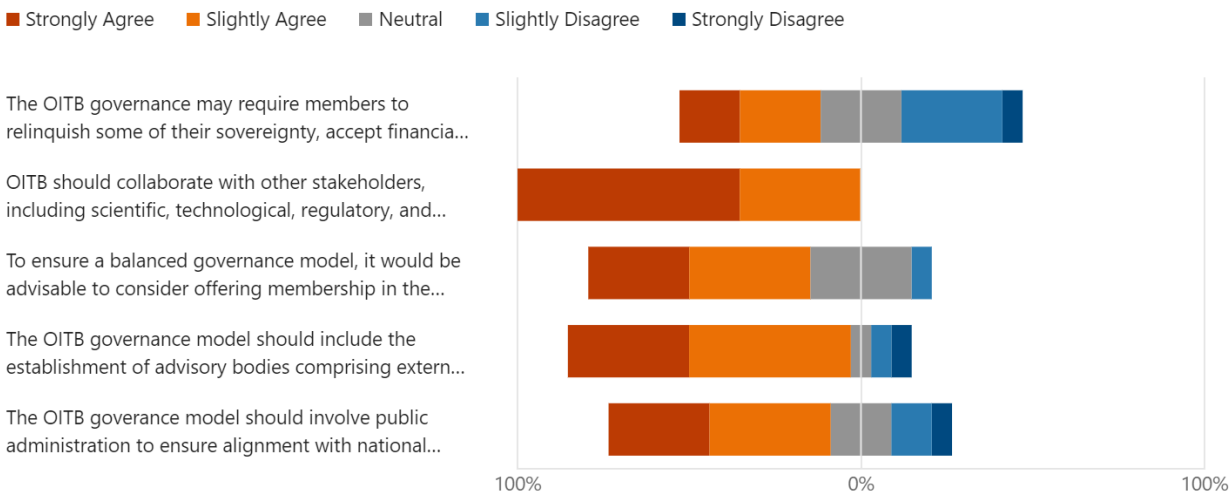

FIGURE 3. VIEWS OF THE PARTNERS ON THE GOVERNANCE MODEL OF CLEANHYPRO OITB. SOURCE: INTERNAL SURVEY.

As shown in Figure 3, there is a clear consensus among the partners in favour of strengthening the OITB's collaboration with other stakeholders, including scientific, technological, regulatory and policy experts, as well as strategic regional, national and European networks, in order to

strengthen OITB's position.

Besides that, most partners agree that the OITB governance model should include the establishment of advisory bodies comprising external experts, whose role would be to provide information about long-term technology needs, but there is no clear consensus on this issue with more than 10% clearly against the idea.

The inclusion of industrial and public administration members in the OITB governance bodies also rises some concerns. Regarding the matter of public administration, it is notable that nearly 20% of the partners are opposed to their inclusion in the governance bodies. It is therefore necessary to hold further discussions to clarify their potential roles and the benefits that their presence could bring to the OITB in achieving its strategic goals.

Similarly, the potential delegation of sovereignty from the partners to the OITB requires further discussion. Most partners are willing to share functions, provided that they retain control of the main decisions and that neither their financial stability nor their image is compromised.

In terms of how OITB performance should be measured, partners believe that the financial dimension, the customer, internal processes and the learning and growth are the most important dimensions to consider, in that order.

With regard to the expected impact of the OITB, i.e. the expected long-term results, the majority of partners expect that the activities carried out by the OITB will have a relevant impact on the environment (4.2/5). In descending order of importance, partners consider the ability to influence regional and national policies (3.3/5), quantifiable social impacts (3.1/5) and non-quantifiable impacts (wellbeing, better social cohesion, etc.), (2.5/5).

3.4 RECOMMENDATIONS FOR CLEANHYPRO OITB GOVERNANCE MODEL

After analysing the data from the literature review, other OITB case studies and the internal survey, we have identified several recommendations for the governance model of the OITB-SEP. It is important to underline that the final governance model will be defined at the end of the project when members have tested the services of the catalogue and have a more accurate vision of the real demand for them. At that time, members will also choose the final legal form of the OITB SEP, which will determine the framework for defining the final governance bodies, as well as the internal rules and policies.

An effective governance structure for the OITB SEP should enable the organisation to meet the main strategic goals and create value for all members.

Thus, the organisation's **strategic level** defines the framework and main guidelines within which the OITB-SEP's operational level develops.

The most important element is the members themselves, who will also be the main service providers to the companies. Members should join and leave the OITB under specific conditions that will be defined in the Collaboration Agreement.

In short, members should have the right of access to the OITB-SEP's commercial network and, more generally, to all its activities and governing bodies. In return, members should actively participate in decision-making processes, pay all fees and contributions, and fulfil all obligations arising from the Collaboration Agreement. Besides that, members are the main source of access to other networks and technological platforms of interest with which the OITB-SEP may enter into agreements.

All members are brought together in the main strategic governance body, the General Assembly, which is the responsible for the strategic direction and organization of the OITB-SEP and provides overall guidance to validate the strategic basis and the general strategy. The General Assembly approves financial matters, the general rules and policies, the admission and resignation of members, and mediates in conflicts affecting the OITB-SEP.

An Executive Committee or Coordination Committee is sometimes elected by the General Assembly to supervise the management, assess the progress of activities, elaborate the budget and strategic roadmaps, and evaluate the results obtained. Often the CEO or coordinator of the SEP is one of the members of this group.

The CEO/ Coordinator is at the heart of the **operational level,** responsible for implementing the vision, purpose and strategy defined by the strategic level. The CEO/Coordinator will focus on increasing the visibility of the OITB, attracting new members, generating new clients, and organising the internal work to provide an appropriate response to client demands.

The Service Delivery Managers (SDM) are another important part of the operational level.

They are representatives of the service providers (members) who combine technical and commercial skills to build relationships with customers and work with them to develop the service agreement. All the SDM are coordinated by the CEO/coordinator.

The CEO/Coordinator receives the customer request and forwards it to the SDM, who develops the offer or Service Delivery Plan (SDP), which contains the proposed solution based on the offer of one or more suppliers. If more than one solution is possible, this may result in more than one SDP involving different service providers.

Figure 4 shows the proposed basic scheme of the governance model for the OITB-SEP:

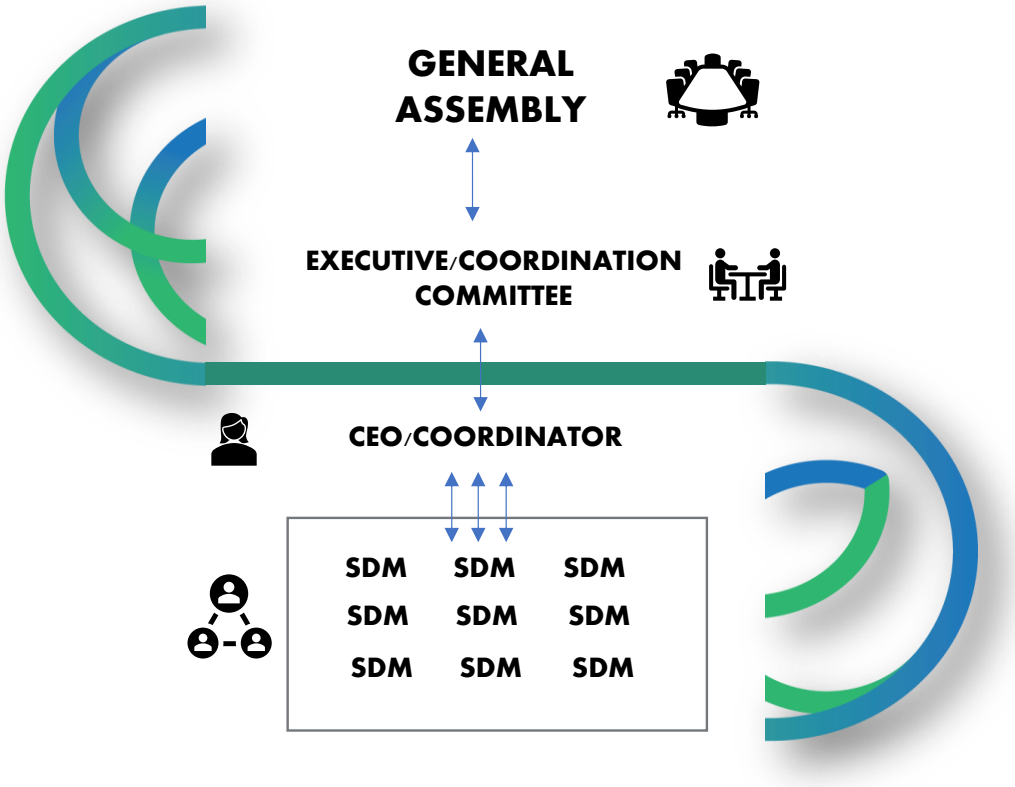

FIGURE 4. BASIC SCHEME OF THE CLEANHYPRO OITB GOVERNANCE MODEL.

All details relating to the development of the service delivery plans, the relationship between the governing bodies, functions, rules and policies governing these, and other processes will be set out in the Collaboration Agreement.

4 STRATEGIC BASIS OF THE CLEANHYPRO OITB

4.1 MISSION AND STRATEGIC GOALS

As stated in the introduction to this document, it won't be until the final months of this project that the final strategic basis of the OITB will be established. However, considering other experiences and in the light of the meetings and surveys to gather partners' opinions, this is an initial proposal for a basis that will be discussed in the coming months.

The **mission** of the CLEANHYPRO OITB could be to make advanced electrolysis technologies accessible to all, especially SMEs and startups. A proposed **vision** could be to accelerate learning in electrolysis technologies in Europe and provide direction and support to innovation in this field.

Coherent **strategic goals** based on these principles are:

1. Reduce the technological risk and facilitate the uptake of hydrogen technologies by European companies (especially SMEs).
2. Strengthen the European Hydrogen ecosystem to support innovation and the development of hydrogen technologies.
3. Promote the social awareness and acceptance of hydrogen as a clean energy source.
4. Contribute to neutral and circular economy across sectors and the Single Market.
5. OITB long term profitability and sustainability.

4.2 GOVERNANCE PRINCIPLES

In light of the findings from the internal survey, insights from other infrastructure projects and the CLEANHYPRO OITB strategic guidelines, we have identified the following principles as the foundation for the future governance system of the OITB-SEP:

1. Make **transparent** decisions based on high-quality information and implement an effective risk management system to respond appropriately to each situation. All the information will be available to all members in a timely and regular manner, and appropriate channels will be created for members to communicate their concerns to the management body.
2. **Accountability and integrity** at all levels, from the most strategic to the most operational. The appropriate technical and organisational measures must be put in place to fulfil the expectations of all members and guarantee compliance with the values on which the OITB-SEP is governed.

3. The OITB is **open** to new members, subject to the exceptions for reasons of confidentiality or exclusivity that can reasonably be justified by existing members.
4. Members will adhere to the highest standards of conduct and **behaviour**. The management system will reflect this behaviour, providing incentives for all members to operate in an effective, efficient, and ethical manner.
5. **Monitor** the external and internal activity of the OITB and conduct periodic **evaluations** of the strategy, the results and general impact to ensure that the OITB achieves its main goals.
6. Ensure that all stakeholders are treated **fairly and impartially**, and that their rights are respected, This includes all matters related to **IP protection** and member security and confidentiality.
7. Ensure that all members and governance bodies possess the requisite **capacity and capability** (skills, knowledge, resources and experience) to be effective and perform well in their roles.
8. Generate **excellent and differential value** for the customers through the provision of quality services in the main areas of activity of the OITB.
9. Define a culture of innovation, effective risk management and a **continuous learning** process that is reflected in all activities carried out by the OITB.

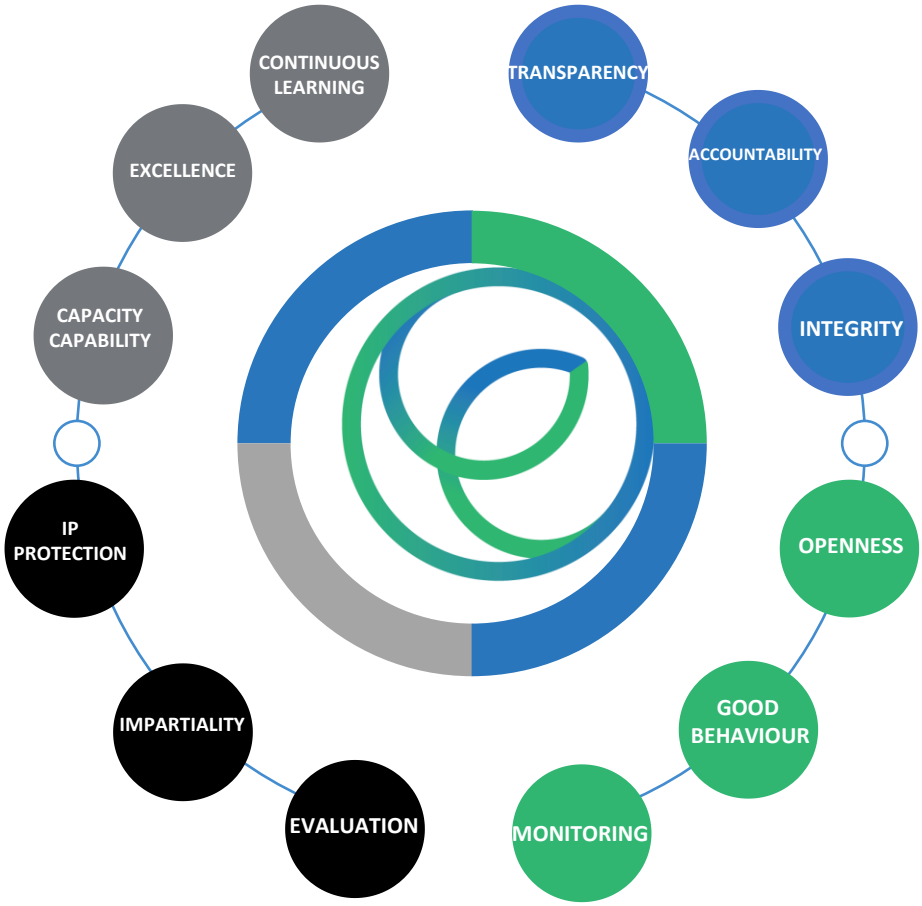

FIGURE 5. GOVERNANCE PRINCIPLES FOR THE CLEANHYPRO OITB SEP.

4.3 STRATEGIC KEY PERFORMANCE INDICATORS

In general, the primary objectives of OITBs are twofold: firstly, to facilitate the integration of technology into social and economic contexts, and secondly, to shape regional and national policies, as well as private investments. It is also essential to consider the non-economic impacts, which may not be easily quantifiable but are nevertheless significant. These include improvements in citizen well-being, environmental protection, national security, health outcomes, and social cohesion. [1]

To ensure that all targets are met and that the OITB is well aligned with the strategy, key performance indicators (KPIs) are proposed and ranked from different perspectives: customer, financial, internal processes and learning and growth perspective. The financial dimension reflects the need for long-term profitability; the customer dimension focuses on our appearance to customers; internal processes aim for partner and customer satisfaction; and the learning and growth dimension assesses our ability to adapt, change and improve.

Reduce the technological risk and facilitate the uptake of H_2 technologies by European companies.

There are many indicators that can contribute to this strategic goal:

- Number of new services added to the portfolio.
- Number of customer companies implementing electrolysis technologies.
- Number of training sessions or workshops conducted for companies.
- Number of European companies adopting H_2 technologies originated in the OITB

Strengthen the European H_2 ecosystem.

There are many indicators that can contribute to this strategic goal:

- Number of innovations successfully launched to the market.
- Market value of the innovations launched.
- Number of patents.
- Number of scientific articles published.
- Number of strategic collaborations stablished with other agents.

Promote the social awareness and acceptance of H_2

There are many indicators that can contribute to this strategic goal:

- Number of qualified jobs created in H_2 technologies.

- Number of dissemination activities for the general public/society
- Percentage of European GDP increased because of the hydrogen industry in X years.
- Contribution of the OITB to the regional/local GDP.

Contribute to neutral and circular economy across sectors and the Single Market.

There are many indicators that can contribute to this strategic goal:

- Number of sustainable practices implemented in OITB internal processes.
- Number of sustainable practices implemented in OITB projects.
- Potential for reducing CO_2 emissions using technologies originated in the OITB.

OITB long term profitability and sustainability.

There are many indicators that can contribute to this strategic goal:

- Number of projects in the OITB
- Number of new partners joining the OITB
- Level of use of the facilities.
- Total revenue generated from services provided to companies.
- Total expenses associated with the operation of the OITB.
- Average time to respond to a customer's request.
- Average duration from the start to the completion of a project.
- Annual revenue growth
- Number of improvements implemented in internal processes annually.
- Average satisfaction rating from companies using OITB services.
- Percentage of companies returning to use OITB services.
- Number of customers coming to the OITB by referral from other customers

OITB KPIS			
INDICATOR	DIMENSION	STRATEGIC GOAL	IMPACT*
Scientific articles published	Learning and Growth	Strength the European H2 ecosystem	Short
Number of innovations successfully launched to the market.	Learning and Growth	Strength the European H2 ecosystem	Medium
Market value of the innovations launched.	Learning and Growth	Strength the European H2 ecosystem	Medium
Number of patents	Learning and Growth	Strength the European H2 ecosystem	Medium
Number of strategic collaborations stablished with other agents.	Internal Processes	Strength the European H2 ecosystem	Short
Number of qualified jobs created in H2 technologies	Learning and Growth	Promote social acceptance of H2	Long
Number of dissemination activities for the general public	Learning and Growth	Promote social acceptance of H2	Short
Contribution of the OITB to the regional GDP	Learning and Growth	Promote social acceptance of H2	Long
Percentage of European GDP increased because of the hydrogen industry in 10 years.	Learning and Growth	Promote social acceptance of H2	Long
Level of use of the facilities	Customer	OITB long term profitability and sustainability	Short
Number of new partners joining the OITB	Internal Processes	OITB long term profitability and sustainability	Short
Number of projects in the OITB	Internal Processes	OITB long term profitability and sustainability	Short
Total revenue generated from services provided to companies.	Financial	OITB long term profitability and sustainability	Short

Total expenses associated with the operation of the OITB.	Financial	OITB long term profitability and sustainability	Short
Annual revenue growth	Financial	OITB long term profitability and sustainability	Short
Average time to respond to a customer's request	Customer	OITB long term profitability and sustainability	Short
Average duration from the start to the completion of a project	Customer	OITB long term profitability and sustainability	Short
Number of improvements implemented in internal processes annually.	Internal Processes	OITB long term profitability and sustainability	Medium
Average satisfaction rating from companies using OITB services.	Customer	OITB long term profitability and sustainability	Medium
Percentage of companies returning to use OITB services.	Customer	OITB long term profitability and sustainability	Medium
Number of customers coming to the OITB by referral from other customers	Customer	OITB long term profitability and sustainability	Medium
Number of training sessions or workshops conducted for companies.	Learning and Growth	Reduce the technological risk and facilitate the uptake of H2 technologies by European companies	Short
Number of customer companies implementing electrolysis technologies.	Customer	Reduce the technological risk and facilitate the uptake of H2 technologies by European companies	Medium
Number of new services added to the portfolio	Customer	Reduce the technological risk and facilitate the uptake of H2 technologies by European companies	Short
Number of European companies adopting H2 technologies originated in the OITB	Learning and Growth	Reduce the technological risk and facilitate the uptake of H2 technologies by European companies	Long

Number of sustainable practices implemented in OITB internal processes	Internal Processes	Contribute to neutral and circular economy across sectors and the Single Market	Medium
Number of sustainable practices implemented in OITB projects	Learning and Growth	Contribute to neutral and circular economy across sectors and the Single Market	Medium
Potential for reducing CO2 emissions using technologies originated in the OITB.	Learning and Growth	Contribute to neutral and circular economy across sectors and the Single Market.	Long

*Impact= short-term (3 years), medium (5 years), long-term (10 years)

TABLE 2: KEY PERFORMANCE INDICATORS FOR THE CLEANHYPRO OITB

5 CONCLUSIONS

Designed to ensure an open access of the OITB at fair conditions to all the members, the governance model is one of the key elements of the CLEANHYPRO OITB business plan and is directly linked to the general strategy of the organisation.

In this case a dual governance system has been proposed to help effectively translate the governance principles to daily practices and procedures, roles, and division of responsibilities within the decision-making process. The final model should provide structure to reach the objectives of the CLEANHYPRO OITB and reflect the interactions of all the stakeholders, considering not only the partners involved in the project but also industry, public sector, and research ecosystem.

The proposed governance system is articulated around two levels: strategic and operational. During the project, all the functions and responsibilities corresponding to the last two will be performed by one of the CLEANHYPRO project members, STAM SRL, who will act as SEP.

Together with the governance model, the preliminary strategic bases of the OITB have also been proposed: mission, vision, values, and strategic objectives, which will serve as a starting point for the debate that will take place in the coming months, which will be fed by the input from the democases and the experience of the partners. In the same way, although, the main indicators considered are related with the strategy and with the governance system, the balanced scorecard will be completed with other KPIs developed in other tasks, focused on the performance of the pilot lines or in other elements from the business model.

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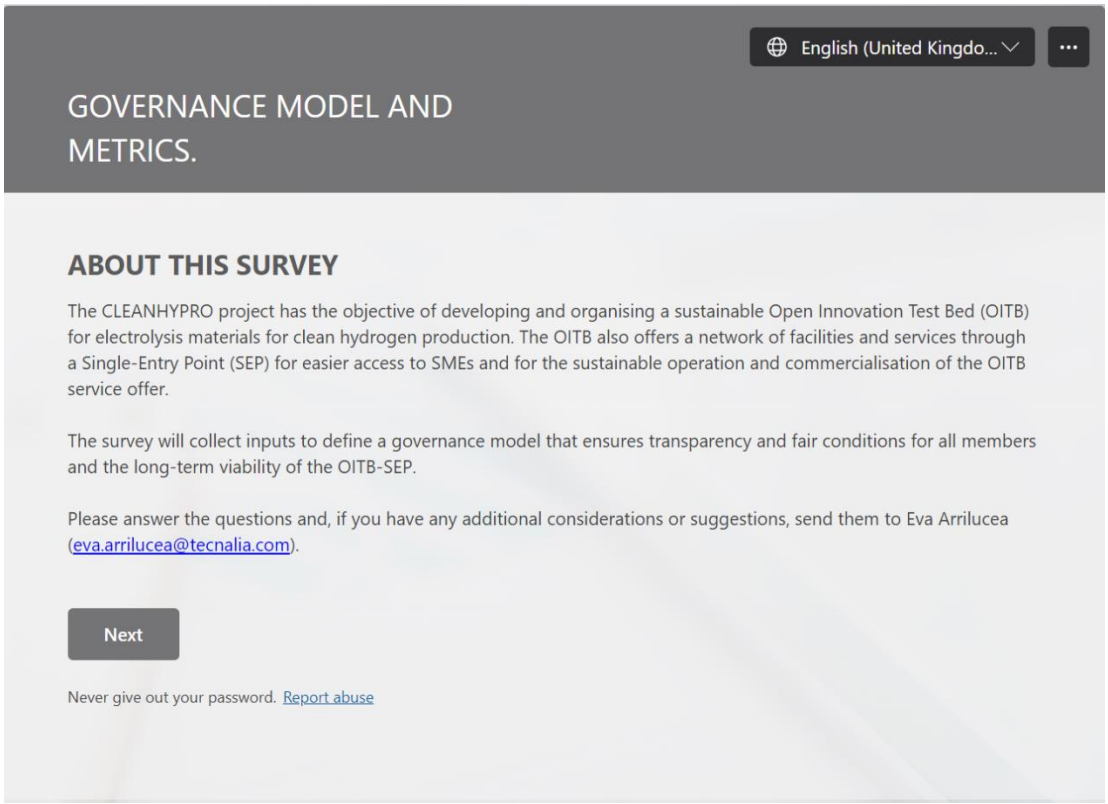
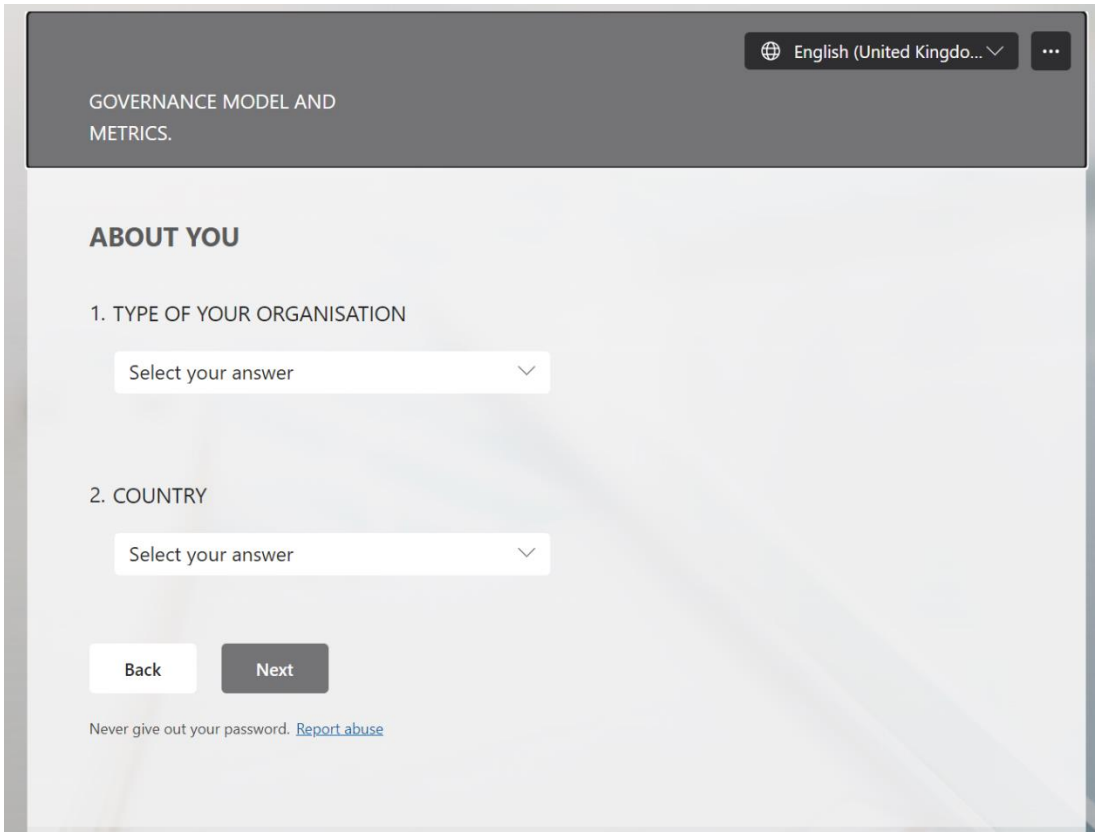
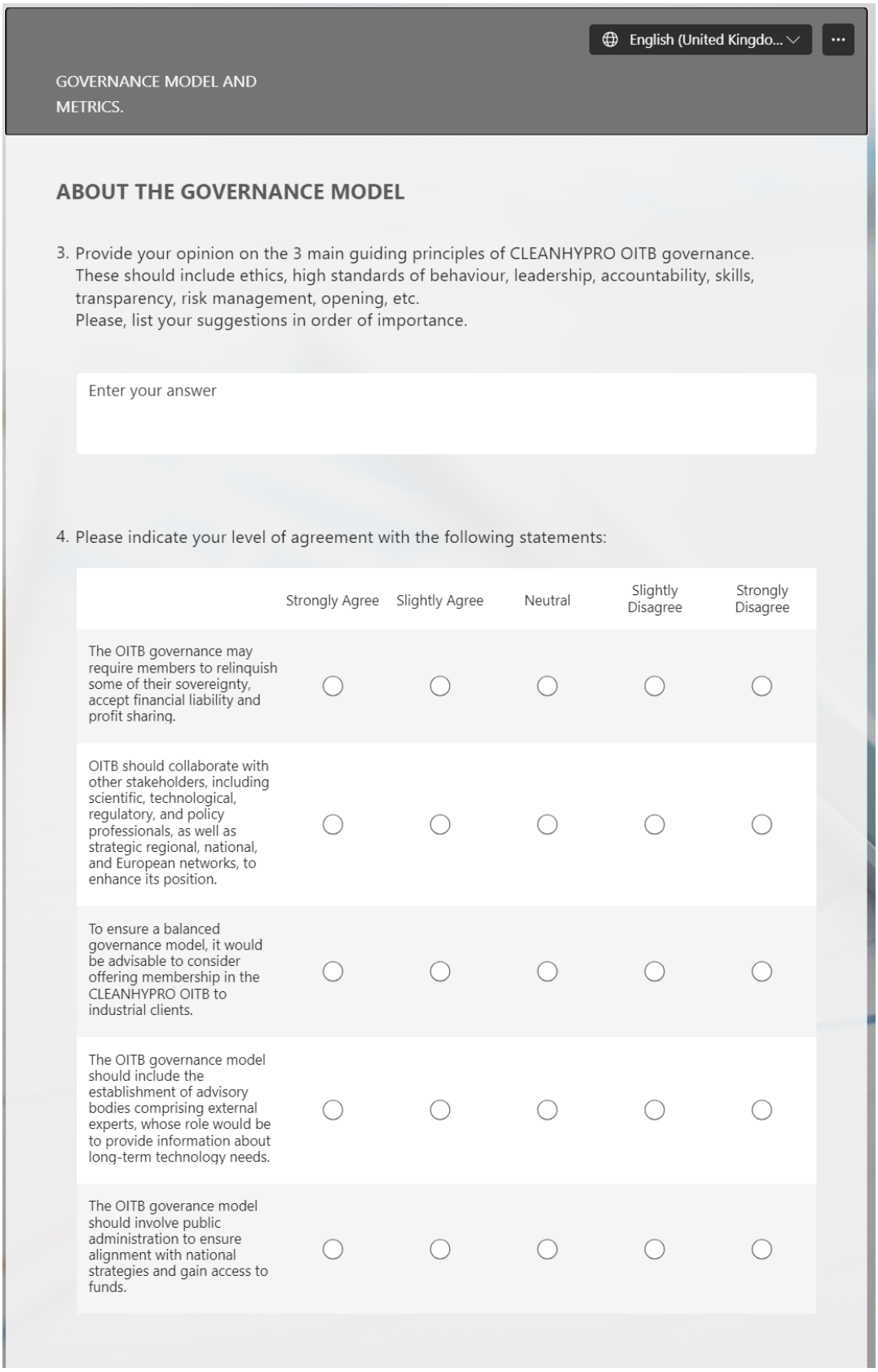
APPENDIX A. SURVEY ABOUT THE GOVERNANCE MODELS AND METRICS OF GOVERNANCE

In June 2024, a survey was conducted among all members of the CLEANHYPRO consortium to gauge their views on more strategic matters related to the governance model and metrics of governance. The survey can be accessed via this link: (https://forms.office.com/e/5eXf9V0uW0).

Also, the following images provide an overview of the full survey:




English (United Kingdo...
GOVERNANCE MODEL AND
METRICS.
ABOUT YOU
1. TYPE OF YOUR ORGANISATION
Select your answer
2. COUNTRY
Select your answer
Back
Next
Never give out your password. Report abuse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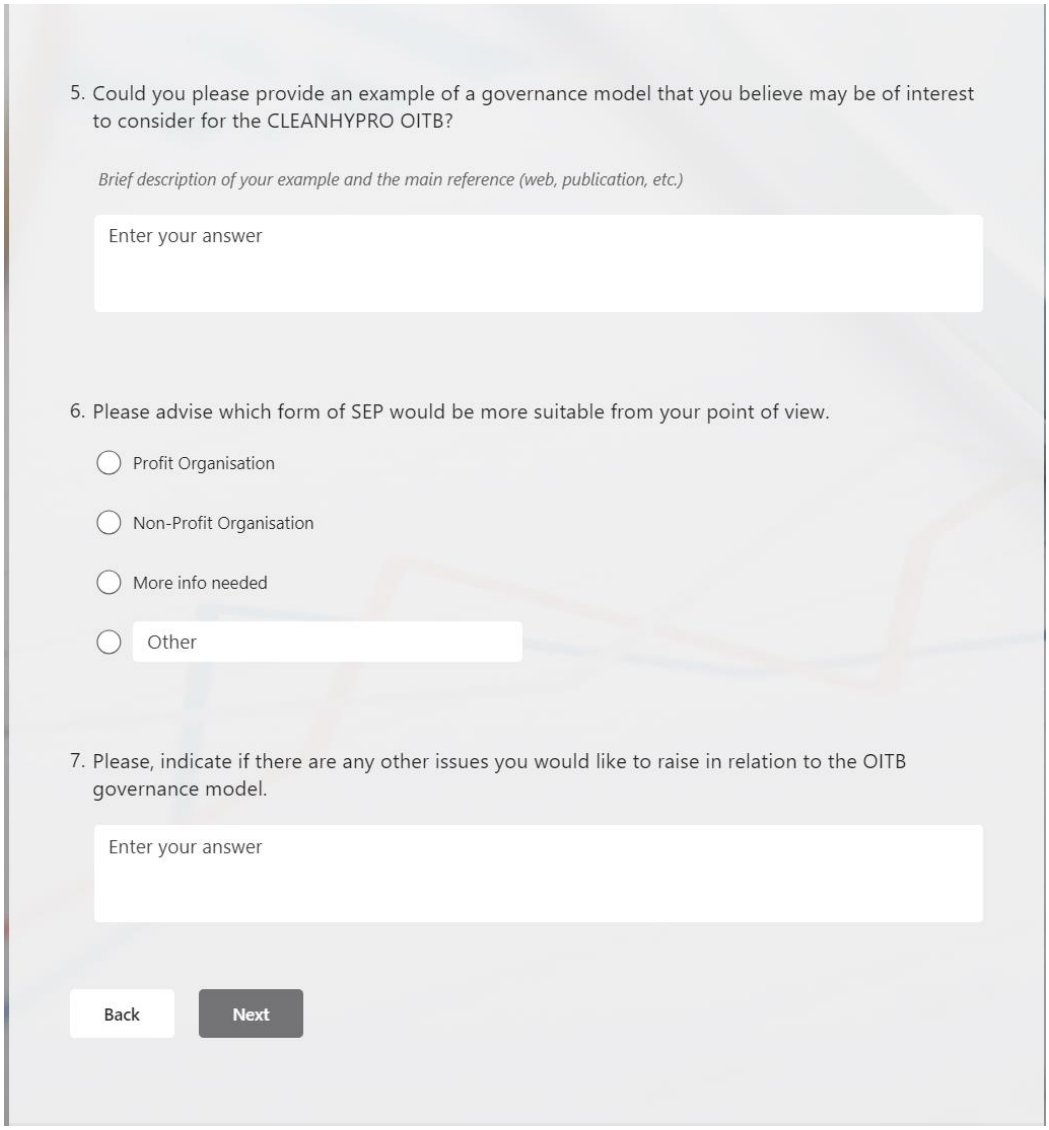
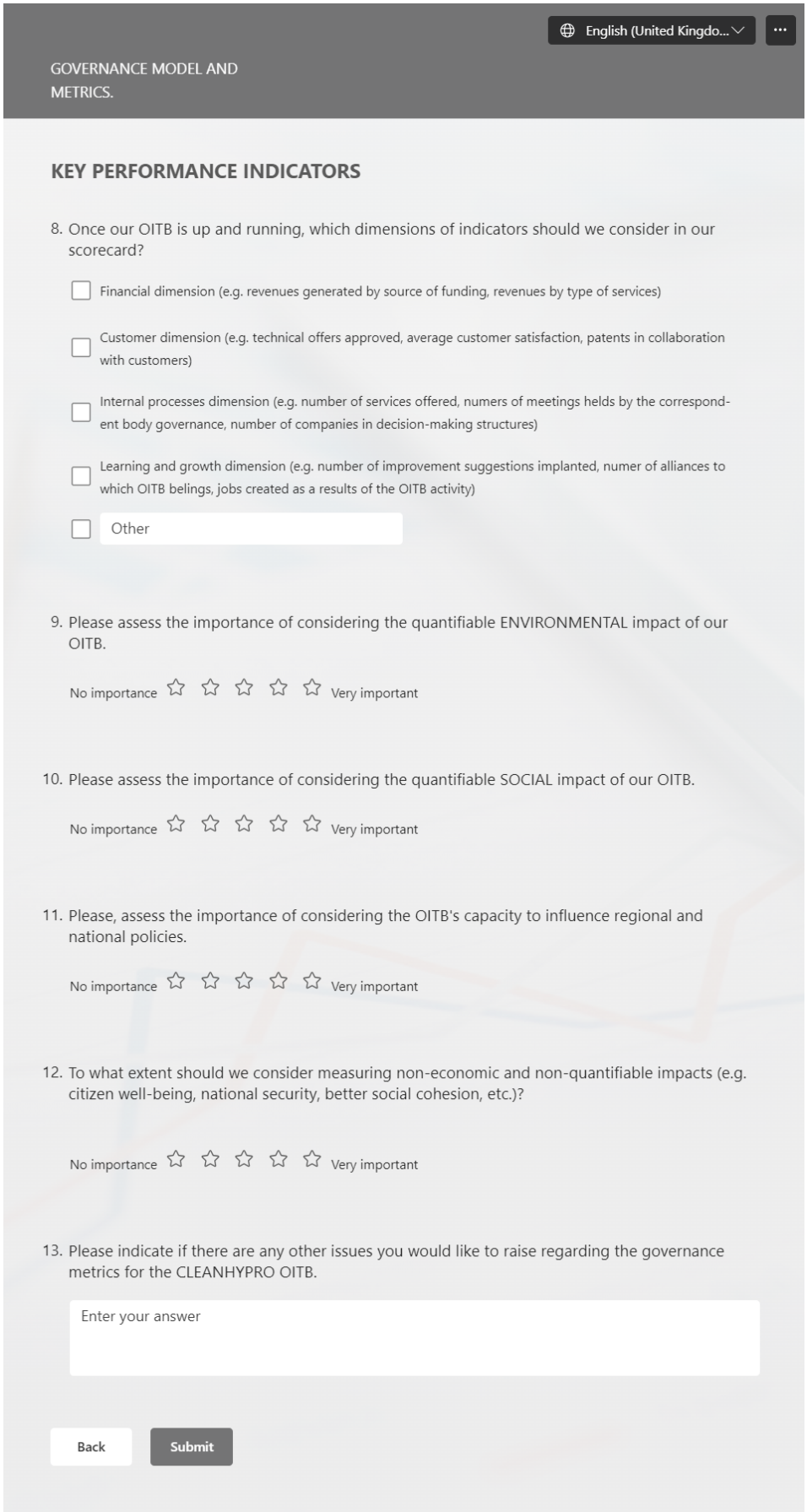
GOVERNANCE MODEL AND METRICS.
ABOUT THE GOVERNANCE MODEL
3. Provide your opinion on the 3 main guiding principles of CLEANHYPRO OITB governance. These should include ethics, high standards of behaviour, leadership, accountability, skills, transparency, risk management, opening, etc.
Please, list your suggestions in order of importance.
Enter your answer
4. Please indicate your level of agreement with the following statements:
Strongly Agree
Slightly Agree
Neutral
Slightly Disagree
Strongly Disagree
The OITB governance may require members to relinquish some of their sovereignty, accept financial liability and profit sharing.
OITB should collaborate with other stakeholders, including scientific, technological, regulatory, and policy professionals, as well as strategic regional, national, and European networks, to enhance its position.
To ensure a balanced governance model, it would be advisable to consider offering membership in the CLEANHYPRO OITB to industrial clients.
The OITB governance model should include the establishment of advisory bodies comprising external experts, whose role would be to provide information about long-term technology needs.
The OITB goverance model should involve public administration to ensure alignment with national strategies and gain access to funds.


5. Could you please provide an example of a governance model that you believe may be of interest to consider for the CLEANHYPRO OITB?
Brief description of your example and the main reference (web, publication, etc.)
Enter your answer
6. Please advise which form of SEP would be more suitable from your point of view.
Profit Organisation
Non-Profit Organisation
More info needed
Other
7. Please, indicate if there are any other issues you would like to raise in relation to the OITB governance model.
Enter your answer
Back
Next


English (United Kingdo...
GOVERNANCE MODEL AND METRICS.
KEY PERFORMANCE INDICATORS
8. Once our OITB is up and running, which dimensions of indicators should we consider in our scorecard?
Financial dimension (e.g. revenues generated by source of funding, revenues by type of services)
Customer dimension (e.g. technical offers approved, average customer satisfaction, patents in collaboration with customers)
Internal processes dimension (e.g. number of services offered, numers of meetings helds by the correspondent body governance, number of companies in decision-making structures)
Learning and growth dimension (e.g. number of improvement suggestions implanted, numer of alliances to which OITB belings, jobs created as a results of the OITB activity)
Other
9. Please assess the importance of considering the quantifiable ENVIRONMENTAL impact of our OITB.
No importance
Very important
10. Please assess the importance of considering the quantifiable SOCIAL impact of our OITB.
No importance
Very important
11. Please, assess the importance of considering the OITB's capacity to influence regional and national policies.
No importance
Very important
12. To what extent should we consider measuring non-economic and non-quantifiable impacts (e.g. citizen well-being, national security, better social cohesion, etc.)?
No importance
Very important
13. Please indicate if there are any other issues you would like to raise regarding the governance metrics for the CLEANHYPRO OITB.
Enter your answer
Back
Submit