

Application FORMS

questionnaire AND READINESS LEVEL FORMS

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| Contact Details |
| * Project Name and Acronym * Is the project?   + Private   + Public   + Public-Private * Contact person:   First name and last name  Job title or role in the project  Email  Phone Number   * Coordination Entity or Company Name:   Country and Region  Website   * Entity type:   + University   + Research Centre   + Start-Up   + SME   + Large company   + Other |
| We need to know more about you, please answer to these questions |
| * What is the reason you want to apply for ToBeReaL’s services (max 500 words) * Which sector and/or areas does your project cover? (max 25 words) * What is the main technology you apply in your process? (max 25 words) * What are the main biological resources/feedstocks your project use, please select 1 or more:   + agri-food, forest-based,   + aquatic biomass,   + industrial bio-based residues,   + Municipal bio-bases residues   + Biogenic gaseous carbon,   + other (for example: microbial biomass, insects, fungi, etc.). * What is the geographic origin of your feedstock? (max 25 words per question) * Do you want to add any additional information (max 200 words) |
| Select the services you want to receive from ToBeReaL experts |
| * Select the services you want to receive from ToBeReaL experts considering the value in “ToBE Coins” each service have. * You have a maximum of 60 ToBe Coins. * Visit the website to learn more about the services and their value in ToBe Coins. |

1. **TECHNOLOGY READINESS LEVEL (TRL):** *TRLs are a set of management metrics that enable the assessment of the maturity of a particular technology and the consistent comparison of maturity between different types of technology all in the context of a specific system, application and operational environment.*[[1]](#footnote-2)

You can use the “TRL self-assessment tool” provided by the Horizon Europe NCP Portal to guide you in describing the TRL (starting from 3) based on whether your bio-based innovation is related to a product manufacturing or industrial process.[[2]](#footnote-3) The table below is an example of what each TRL means.

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| **Solution** | **TRL 3** | **TRL 4** | **TRL 5** | **TRL 6** | **TRL 7** | **TRL 8** | **TRL 9** |
| **Product** | *Analytical studies on separate elements of the technology. Laboratory based trials* | *Basic technological components integrated together. Durability is not yet important* | *Basic technological components integrated under controlled environment* | *Functional version on a realistic environment to draw conclusions on the technical and operational capabilities* | *Manufacturable version on an environment to address all the operational requirements* | *Product in its final form in full mode under expected conditions and periods* | *Product in its final form under full commercial deployment* |
| **Process** | *Laboratory experiments to verify the conceptual process works* | *Process components are validated individually and could be integrated in an ad hoc manner at lab scale* | *Integrated validation of the process to produce short batches* | *Development of a pilot-scale testing plant including engineering scale equivalents* | *Demonstration of the continuous operation of the pilot plant* | *Demonstration plant is constructed and operated in continuous mode outside normal parameters* | *Commercial plant set up and running for full range of operating conditions* |

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| **Technology Readiness Level (TRL): Maximum 1 page** |
| *Please, answer to all these questions:*   1. **Select the specific TRL that best represents your project’s current state, providing a comprehensive justification supported by key technical, scientific, and operational factors that corroborates your assessment.** |
| 1. **Identify the target TRL your project aims to achieve within a 5-year horizon, detailing the critical milestones, technological innovations, and scientific advancements necessary for progression and scalable development. Explain how these advancements will be mobilised to reach the targeted TRL.** |
| 1. **Describe the fundamental enablers facilitating your project’s TRL advancement, specifying the technological and scientific innovations strategically planned to drive progression towards the targeted TRL.** |
| 1. **Analyse your project's potential for replicability across different contexts (e.g., geographic, industrial, and market environments), and critically propose strategic approaches to address potential challenges associated with technological scaling and adaptation in different settings.** |
| 1. **Identify the main barriers and needs to achieve the target TRL and outline the strategies you plan to implement to address these challenges, considering factors such as feedstock availability, resource allocation, technical hurdles, and potential regulatory or market obstacles.** |

1. **BUSINESS READINESS LEVEL (BRL):** *BRL addresses the business dimension necessary for innovators relying on TRL to manage their route to commercialization and thus classifies the steps to bring an idea from the laboratory to commercial success.*

**BRL1**: Hypothesizing on possible business concept;

**BRL2**: First business concept described. Identified overall market & some competitors;

**BRL3**: Draft of business model. Described market potential and competitive overview;

**BRL4**: First version of business model, first projections of economic viability & market potential;

**BRL5**: Business model testing, first revenue model competitive position verified in market;

**BRL6**: Full business model including pricing verified on customers;

**BRL7**: Product/market fit demonstrated. Attractive revenue/cost projections;

**BRL8**: Business model is fine-tuned. Sales & metrics show business model holds and can scale;

**BRL9**: Business model finalised. Business scaling with recurring revenues.

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| **Business Readiness Level (BRL): Maximum 1 page** |
| *Please, answer to all these questions:*   1. **Select the BRL where your project is currently located and explain why, providing specific details such as market validation, revenue models, or other business aspects** |
| 1. **Select the BRL you aim to achieve in 5 years and outline the key milestones or business advancements (e.g., team composition, value proposition, market strategy). Provide specific examples of how your business model will evolve to support growth.** |
| 1. **Identify the main barriers (e.g., financial, market, organisational) and needs to achieve the target BRL. Outline the strategies you plan to implement to overcome these challenges.** |
| 1. **How much investment and/or public funding do you plan to secure in the next 5 years? Please specify potential sources (e.g., Regional, National, European programmes, private investment.** |

1. **REGULATORY READINESS LEVEL (RRL):** *RRL is mostly used in medical or health innovations, however, regulatory, and legal bottlenecks are also affecting bioeconomy innovations to reach commercialization. Based on references from the medical and health sector, RRLs have been adapted to bioeconomy innovations. RRL addresses the stage of an innovation and what are the steps needed to complete the regulatory steps to advance development of the innovation and move to the next TRL.*

**RRL1:** Awareness of possible regulatory compliance frameworks;

**RRL2:** Understanding of policy and regulatory uncertainties or hurdles

**RRL3:** Overarching relevant regulatory frameworks identified;

**RRL4:** High-level understanding of targeted regulatory frameworks;

**RRL5:** Critical in-depth understanding of regulatory frameworks identified.

**RRL6:** Strategy to overcome identified regulatory hurdles;

**RRL7:** Fine-tuned strategy to overcome regulatory hurdles;

**RRL8:** Obtaining regulatory approval, accreditation, standards;

**RRL9:** Periodic reporting of regulatory requirements in progress.

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| **Regulatory Readiness Level (RRL): Maximum 1 page** |
| *Please, answer to all these questions:*   1. **Select the RRL where your project is currently located and explain why, including the status of any regulatory assessment, certification, or consultation with regulatory bodies or authorities.** |
| 1. **Describe how your proposed project aligns with current regulatory frameworks and sustainability criteria, including greenhouse gas (GHG) emissions and feedstock sustainability. Highlight any existing gaps and your plan to address them.** |
| 1. **Select the RRL you aim to achieve in 5 years and describe the specific benefits or impacts this level will have on your project's development and commercialisation.** |
| 1. **List any certifications or standards you aim to obtain within the next 5 years and explain their relevance to your project's regulatory and commercial objectives.** |

1. **SOCIAL READINESS LEVEL (SRL):** *SRL is designed to address the readiness of society to adopt and use an innovation. The SRL takes a society-centric view of innovation and can help the innovator understand the social issues faced when implementing new technology or services in the marketplace. The SRL helps the innovator to fully and systematically engage with stakeholders to find out who is interested in what problems and why, and what solutions are acceptable to them.*

**SRL1:** Formulating the societal challenges specific for your project. Are these linked to a fair division of the benefits withing the value chain, accessibility for all consumer groups or rather the general knowledge and acceptance of the solution by the general public?

**SRL2:** Identify the relevant stakeholders and their respective roles in solving the societal challenges

**SRL3:** Co-creatingsolutions with relevant stakeholders to the identified societal challenges

**SRL4:** Problem validation with pilot testing in a relevant environment**;**

**SRL5:** Proposed solution validated by relevant stakeholders in the area;

**SRL6:** Solution demonstrated in a relevant environment in cooperation with relevant stakeholders;

**SRL7:** Refinement of solution and retesting in relevant environment with relevant stakeholders as necessary;

**SRL8:** Proposed solutions and plan for societal adoption complete and qualified:

**SRL9:** Actual solution proven in relevant environment.

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| **Social Readiness Level (SRL): Maximum 1 page** |
| *Please, answer to all these questions:*   1. **Select the SRL where your project is currently located and explain why, providing specific examples such as type of stakeholder already mapped and engaged.** |
| 1. **Select the SRL you aim to achieve in 5 years and explain the main enablers (e.g., partnerships, tools, community engagement strategies) that will help your project achieve meaningful social change, maximise stakeholder outcomes, and drive societal impact.** |
| 1. **Identify the main barriers (e.g., inclusiveness, fairness of the value chain, knowledge level, stakeholder engagement) and needs to achieve the target SRL. Outline strategies you plan to implement to address these challenges.** |
| 1. **What ethical considerations have you identified in your project? Describe how these will be addressed to ensure responsible societal engagement and adoption.** |

1. ESA (2008) Technology Readiness Levels Handbook for Space Applications. [Here](https://artes.esa.int/sites/default/files/TRL_Handbook.pdf) [↑](#footnote-ref-2)
2. TRL tool guide prepared by the Horizon Europe NCP Portal. [Here](https://horizoneuropencpportal.eu/repository/7dc8e3bf-8c26-4134-9fca-0c9114fb799d) [↑](#footnote-ref-3)