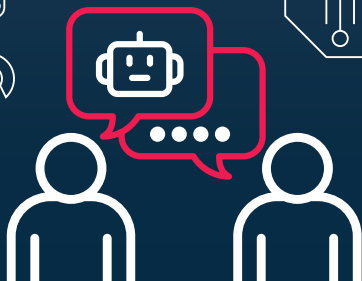


TALKaBOTit

Rule Book & Guide



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Robotics4EU

Boosting Wider Adoption of Robotics in Europe

TALKaBOTit

Developed by the Danish Board of Technology as part of the EU-funded project Robotics4EU.

Contributing partners: CIVITTA, LOBA, Norwegian University of Science and Technology, Laboratoire national de métrologie et d'essais, AgriFood Lithuania, and Robotex.

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TALKaBOTit

Welcome to the instruction manual for the discussion game TALKaBOTit developed by the Robotics4EU project.

Before we start, we want to give you a short introduction to why we developed this game.

Why this game?

The rapid development and implementation of new robotic technology is transforming various areas of our society. As we become more reliant on automation it is also essential to explore how robots are perceived and received by those who will be using the robots and the society they will be implemented into. The Robotics4EU project emerged from the recognition that the trajectory of robotic development requires careful consideration of societal impacts and ethical implications.

To address this challenge, we believe it is key to engage and include the perspectives of those who will be affected by the technology in the development of it. Our game aims to facilitate this engagement in a fun and including manner. To bring together robot developers and manufacturers with end-users and stakeholders to discuss the societal aspects of robotics solutions and co-create ideas for improvements.

Who is this game for?

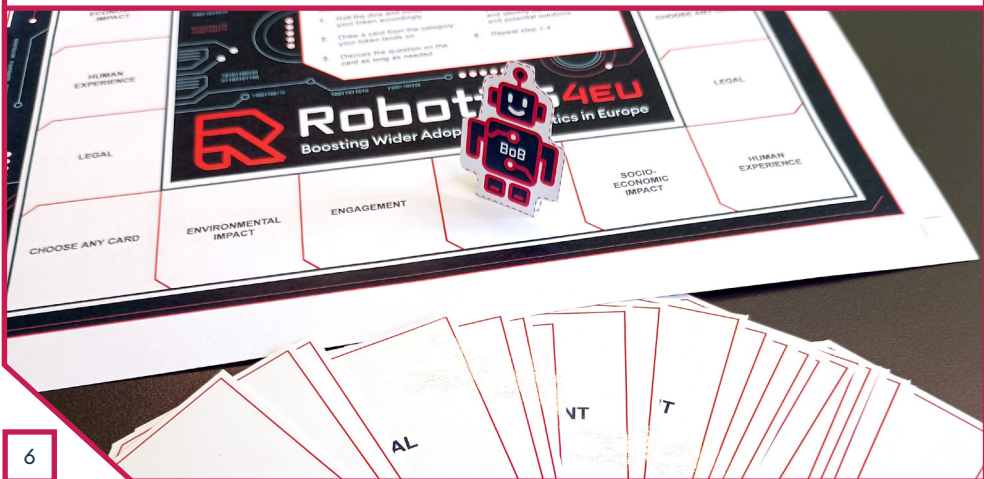
The game serves as a free tool for robotics companies and researchers to evaluate the societal and ethical aspects of their robotic solutions in collaboration with potential end-users and stakeholders.

The game can also be used as an internal tool for reflective discussion within the organisation/project if end-users or stakeholders are not available.

The game should not be seen as an All-in-One tool, however, it's just the beginning!

As you embark on this journey, we invite you to embrace the spirit of collaboration and exploration that defines the Robotics4EU project. Together, let us keep paving the way for a future where robotics aligns with the values and needs of society.

Let the game begin.



Rule book and Guide



Instructions

The Goal

The discussion tool is meant to assist you in assessing different aspects of societal acceptance of a specific robotic solution. The game helps both developers and end-users discuss and share their considerations within six different topics. The aim of this exercise is to collaboratively think about the potential difficulties and problems associated with the development of the robot and discuss what possible solutions there might be to the problems identified.

Before you start

Before you start the game, you should:

1. Find the group you want to play with

We suggest that you gather a diverse group of 4-8 people. We encourage that you both include people from within the company/project that are developing the robot and people from the outside such as potential end-users and important stakeholders.

2. Present the robot in a five-minute pitch.

Make sure that everyone at the table knows of the purpose and functionalities of the robot. If it is not possible to do a live demonstration, show a few pictures or video of the robot.

3. Find a rolling-dice and pens to write down your discussion.

What's inside:

The discussion game is composed of four elements:

A Gameboard

The gameboard with different categories on each field corresponding to the categories on the question cards. Players navigate on the gameboard by rolling a dice and moving a token corresponding to the number rolled on the dice.

A Token

Use the token provided with the game or use any small item you can find.

Question Cards

There is a total of 41 question cards divided into six different categories that are

important to consider when assessing and improving the non-technical aspects of robotics. Place the question cards on the left side of the gameboard.

An Action Plan

The action plan is a tool to collaboratively identify problems and discuss potential actions that could be further explored. During the discussion you can use the action plan provided to note down your discussions and reflections by filling in the barriers and challenges you might have identified and lastly the potential solutions/mitigations to the identified barriers and challenges. If you run out of action plans more can be printed from the Robotics4EU website.

Step by step

Place the token at the start of the game board.

- 1.**
Roll the dice and move your token accordingly.
- 2.**
Draw a card from the category your token lands on.

- 3.**
Discuss the question on the card as long as needed.

- 4.**
Note down the main outcomes of your discussion in the action plan and identify barriers, challenges and potential solutions.

- 5.**
Repeat step 1-4.

- 6.**
If the players manage to go all the way around, the game is designed to easily go again and continue playing as long as needed.

When does the game end?

The game is designed to not have a winner nor an end. The playing time can be anywhere from 40 minutes to up to an estimate of 3 hours depending on the time available and how fast participants discuss the questions. The only end to the game is when there are no longer questions available. However, it is not expected that participants make it through all of the questions as the game can easily be played without doing so.

Explanation of the different question categories:

The six different categories are identified as being key topics to consider when assessing and improving the non-technical aspects of robotics.

Human-Experience

The human-experience refers to how humans interact with, perceive, and are affected by robotics in various contexts and domains. The human-experience of robotics can influence the acceptance, adoption, and satisfaction of robotic solutions, as well as the well-being, safety, and dignity of human users. We want to understand the needs, preferences, and expectations of different groups of people regarding robotics, and how we can design and implement robotic solutions that enhance the human-experience and foster trust, collaboration, and empowerment.

Socio-economic Impact:

The socio-economic category explores the effect of the robot on society and the economy. It encompasses considerations such as job displacement,

workforce retraining, income inequality, and the redistribution of wealth. These aspects are important as these often concern the status of workers and how their lives might change as a result of implementation of new robotic technology. Fears of losing one's job is among the key worries of citizens along with other worries such as inequality. We believe engaging relevant stakeholders can help pave the way for sustainable and responsible solutions.

Data:

The category focuses on the collection, storage, analysis, and utilization of data within the robotic system. Data is an encompassing aspect of much new technological development, and it is important that we constantly review how, why and when data is being collected and used. From citizen consultations conducted in 2022 we know that problems and uncertainties pertaining to data is an area that concerns citizens a lot when it comes to implementation of new robotic technology. Examining issues related

to data privacy, security, transparency, and bias is essential for building trustworthy systems.

Legal

Legal aspects should always be included in discussions about new robotic technology. Especially concerning the legal aspects of automated or partially automated technologies. Robots are increasingly becoming decision-makers on their own, completing complex tasks with little to no human input. The category ensures reflection on liability issues, legal regulations, and standardisations.

Engagement

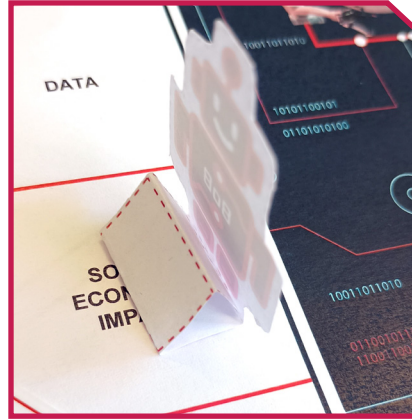
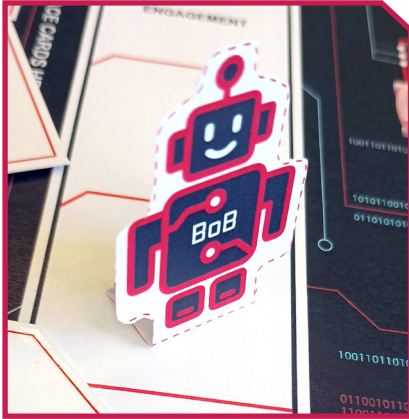
The engagement category focuses on fostering meaningful interactions and collaborations between various stakeholders, including developers, end-users, policymakers, and the general public. Engagement is closely related to many of the ethical aspects of technological implementation. Engaging citizens, end-users and other actors can bring new perspectives and improve development, especially if done early. Engagement

throughout the robotic lifecycle can promote transparency, accountability, and inclusivity, leading to better-informed decisions and more socially responsible outcomes.

Environmental Impact

The environmental impact of robotics is another crucial factor that we need to consider when developing and deploying new robotic solutions. Robotics can have both positive and negative effects on the environment, depending on how they are designed, used, and disposed of. We need to ensure that the environmental benefits of robotics outweigh the costs, and that we adopt eco-friendly practices throughout the life cycle of robotic systems.





Token

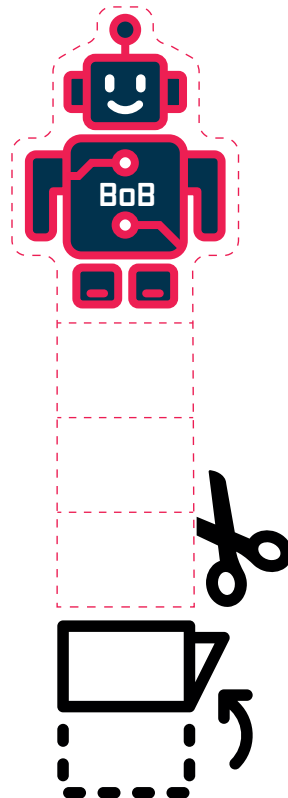
The token, BoB the robot, is used to move around the board and get different questions.

There are six tokens located at the last page.

Only use one token for a game session.

Guide:

1.
Cut one of the tokens out from the last page.
2.
Fold the white pieces three times.
(see picture on above)



Want to see how we have used the discussion game in the Robotics4EU project?

The game has been used at four co-creation workshops each centred around one of the primary focus areas of the Robotics4EU project, these being: *Healthcare, Agri-food, Agile production and Inspection and maintenance of infrastructure*. At the centre of each of the four workshops was the discussion game designed and developed by The Danish Board of Technology.

The co-creation workshop brought together 120 robot developers, manufactures, end-users and stakeholders to collaboratively discuss the societal aspects of specific robotics solutions. Together they assessed barriers, challenges and opportunities and co-created ideas for improvements.

You can read all about the co-creation workshops in our published report available on our website. The report presents a detailed overview of the workshop design, procedure for planning and recruitment of participants as well as a presentation and analysis of the main outcomes of each of the four workshops.

<https://www.robotics4eu.eu/publications/co-creation-workshops-to-test-robotics-applications/>



Want to do more? Try the Responsible Robotics Compass

Do you want to make further assessments of the non-technological aspects of your robotics solutions?

Then try out our online self-assessment tool called Responsible Robotics Compass. RoboCompass, is an innovative tool designed to assess the non-technological aspects of responsible robotics. Whether you are a robotics manufacturer, a small or large company, a researcher from industry or academia, or even an EU-funded project or policymaker, the RoboCompass is here to help you. Our assessment tool provides a comprehensive overview of the development of the aspects which affect the acceptance of a robot.

By using RoboCompass, you choose a user-friendly, intuitive, and easily accessible tool that offers a 360-degree overview of societal issues that might affect your robot. In addition to performing diagnostics and assessments, RoboCompass also provides personalised recommendations to improve your project.

The RoboCompass is freely available at <https://robocompass.aiod.eu/>



