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What kind of data (if any) does the robot collect and who is responsible for the collection?

For example, does the robot collect data about images/ voice, medical, biometric, geolocation, etc.?

1

Does the robot use any microphones, cameras or other types of sensors that collect and store data?

If yes, reflect on whether the robot unintentionally collects data about people which are not necessarily needed for the function of the robot?

2

What mitigation steps have been put into place regarding the use and protection of data?

E.g. Measures are taken to anonymise sensitive data, the user has an easy way to gain insights on the data, consent is collected, data is controlled for bias, external audits are conducted to validate privacy and security in data usage etc.

3

Does the robot use AI, or will it use AI in the future?

If yes, consider:

How transparency and explainability of the AI algorithms can be ensured?

How bias and fairness in AI algorithms can be addressed?

Has the AI Act been taken into account?

4

Does the robot share any data with third parties?

If yes, discuss what data and reflect on to what degree you think it is acceptable to share data.

5

Does the robot use any external datasets?

What consideration have been taken when choosing the dataset(s)?

On what basis have the dataset(s) been chosen?

6

Reflect on the broader impact of the use of data within AI and robotics in the future.

What advantages and barriers do you foresee? E.g. How can AI algorithms adapt to changing conditions in the environment? How can data be protected?

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Has the robot and the problem it solves been validated by relevant stakeholders to secure the relevance and need for the solution?

1

What benefits could robot developers gain by engaging the wider public (e.g citizens) in the development of their technologies?

Consider what potential risks and missed opportunities robots face if they do not match with the expectations and values of the greater public.

2

In which real-life environments has the robot been tested or plan to be tested?

Discuss the areas/ environments most important for testing and identify what challenges there might be in a real use-case.

3

During the design process of the robot, when do you think is the most suitable time to engage end users?

Reflect on what value they can bring.

4

What measures can be taken to make the robot user-friendly to various users?

What different kinds of users could you imagine?

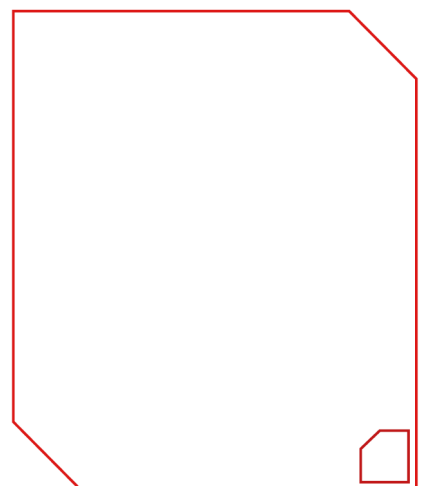
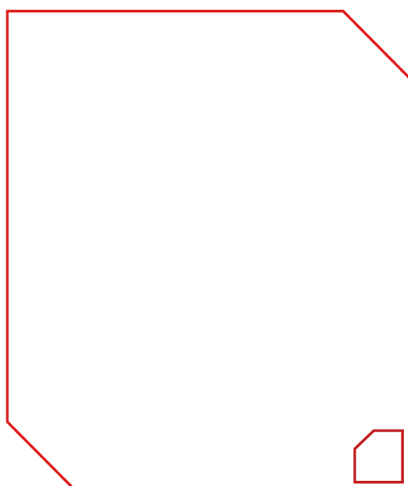
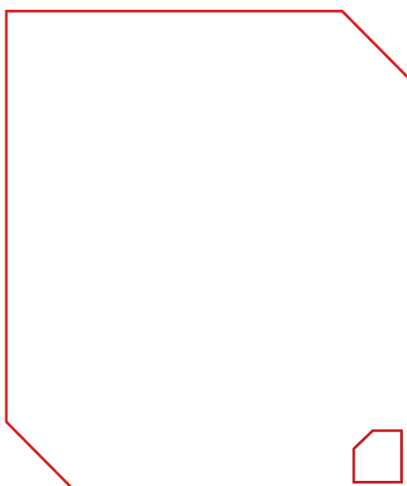
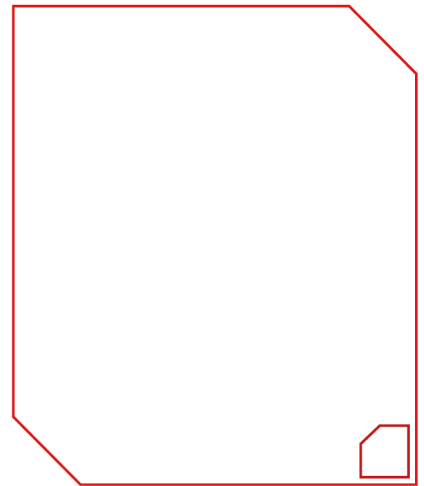
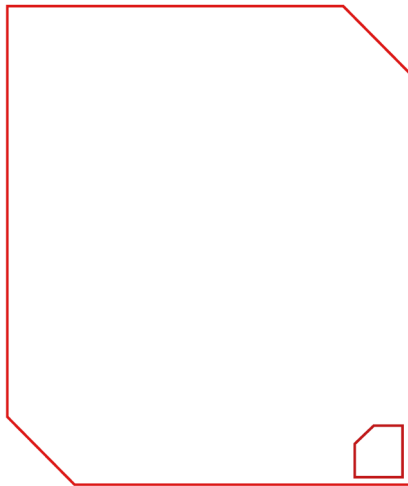
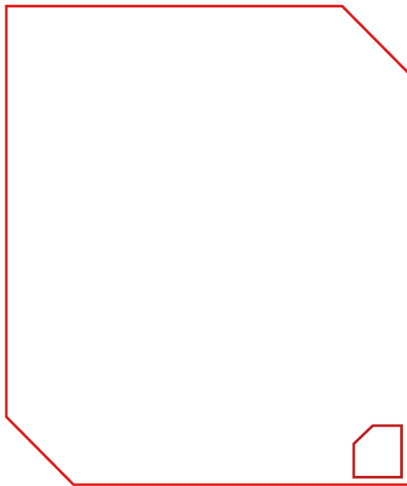
5

Is the robot accessible and user-friendly to various users?

Have people with disabilities been considered? If not, discuss whether this should be done in the future.

What measures can be taken to ensure broad accessibility?

6



ENVIRONMENTAL IMPACT



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Does the robot contribute to the green transition?

If yes, how? If not, evaluate the robot's purpose and assess whether any changes to the robot could further the transition?

1

Discuss what kind of ecological/ environmental risks that might be connected to the production of the robot?

For example, are toxic chemicals, non-recyclable materials and/or custom parts used in the production of the robot?

2

Consider future scenarios of the fully implemented robot. Are there any potential environmental impacts resulting from the robot's operation, such as harm to flora or fauna, use of hazardous chemicals, fossil fuels, or reliance on external power sources?

3

Can you identify any potential long-term environmental impacts associated with the robot that extend beyond its initial usage cycle?

For example, the use of non-recyclable or non-standard components, etc.?

4

How does the logistics around the robot impact the environment?

E.g. Does transporting the robot involve high energy consumption, non-recyclable materials, or habitat disruption? How can transportation impact be reduced, e.g., through alternative methods?

5

Have you considered what suppliers you are using?

For example, have you assessed whether your supply-chain lives up to the environmental, societal and ethical standards of your organisation?

6

Has a Life-Cycle Assessment of the robot been conducted?

If yes, what were the findings and how do you plan to improve?

If not, consider the benefits of doing so.

7



**HUMAN
EXPERIENCE**



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EXPERIENCE**



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Does the robot put the human in the centre? How?

How does the robot empower users and provide them with control? Are there any aspects of the robot that may make users uncomfortable, and if so, how can these concerns be addressed and mitigated?

1

Try to design an unethical version of the robot. What features would it include?

2

How can we ensure that robots are developed and used ethically, respecting human rights and values?

Have you considered implementing a set of ethical guidelines for the development of robots in your organisation?

3

Does the robot represent a future that you want to strive towards? Why/why not?

How can the values of the organisation be reflected in the final product (for example, gender, race, species equality etc.)? How would you achieve this?

4

What measures can companies developing robots take to ensure trust in the robot? Both among its users and among the general public.

5

Does the robot communicate or collaborate with humans?

Consider how robots can be designed to seamlessly collaborate with humans in various fields, fostering a positive and productive partnership.

6

Imagine the perspective of a strong opponent of the robot. What arguments would they present?

7

Could the robot be featured in a dystopian science fiction movie? Try to describe the plot of the movie, including the best and worst scenarios.

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What liability issues might arise when using this robot, and how can they be mitigated?

Consider potential future scenarios, such as whether the robot's actions could result in property damage, harm to humans/animals, environmental damage, or harm to the robot itself

1

Are you aware of any specific legal regulations or standardisations that should be considered when designing and manufacturing this type of robot?

E.g. relevant national, European and international regulations and standardisations such as: GDPR, Machinery directive, CE marking, product safety regulations or ISO-standards.

2

Discuss whether legal requirements are constraining the potential of this technology or enabling it.

For instance, are there any regulatory or safety standards that might impede the implementation of the robot?

3

Who is the robot marketed towards and does this affect which legal regulations and standardisations the developers should consider?

For instance, is the robot client-specific or publicly available?

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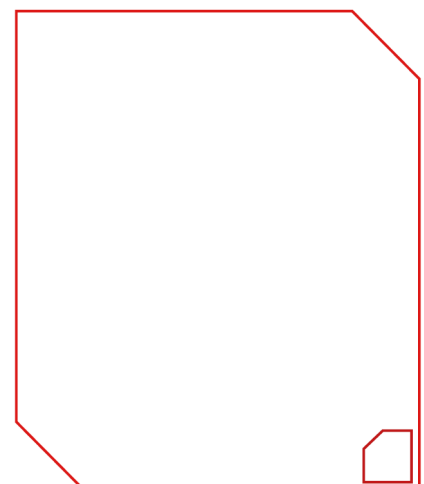
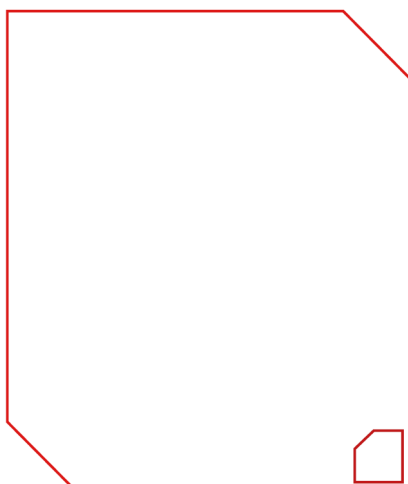
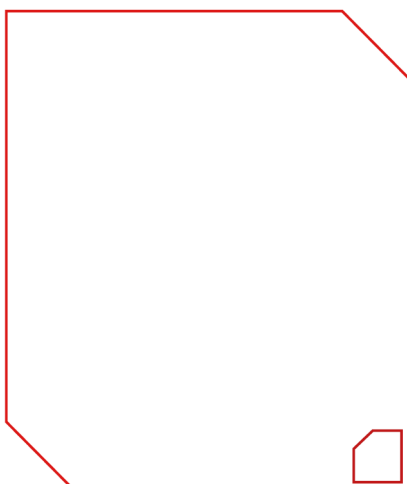
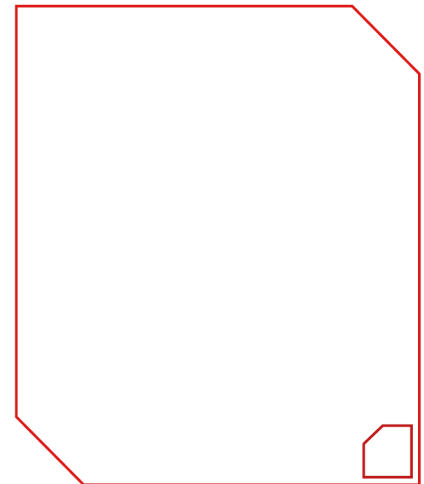
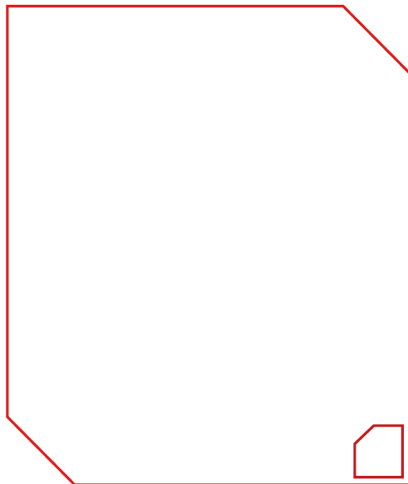
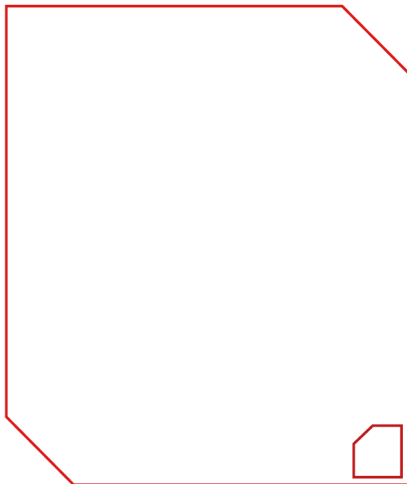
At what stage in the development of the robot do you believe it's crucial to consider legal requirements and standardisation?

5

Discuss if this type of robot should be held legally accountable for their actions? Why/why not? Who should and who could be held legally accountable?

Were there any elements of your discussion that should be considered for the development of the robot?

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**SOCIO-
ECONOMIC
IMPACT**



**SOCIO-
ECONOMIC
IMPACT**



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Imagine the robot in 20 years. What technological advancements have the robot paved the way for and how will it impact the society we live in.

Reflect on whether there might be any negative societal impacts to consider.

1

Will the robot potentially alter the labour market and how will it affect human workers?

Are these changes positive or negative? What measures would you propose to mitigate the negatives and enhance the positives?

2

Do robot developers have a responsibility to support job security within the affected areas where their robots are deployed?

Why/why not?

3

What impact do you anticipate the robot will have on various economic sectors? Specifically, consider its manufacturing process—whether it's manual, partly, or fully automated—and its potential influence on different parts of the world.

4

Discuss whether the broader implementation of robots could lead to increased or decreased societal inequality over time.

Consider the impact that robots might have on job displacement, distribution of wealth and power, social norms, marginalisation of certain groups etc.

What measures can you take in your organisation to mitigate this?

5

In your view, what are the implications of a more widespread adoption of robots? Are there specific sectors or types of robots that are more prone to causing significant changes in society?

What could be the expected impact of your robot over time? Consider both negative and positive impacts.

6

What strategies should robot developers consider to ensure the smooth integration of their robots into their intended operational environments?

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