robotics ethical, legal and social issues

www.robotics4eu.eu

Robotics4EU

Current issues

//

Socio-Economic Analysis	Ethics	Data
• Fear of tech unemployment • Loss of worker autonomy • Rising inequality in earnings • Rising skill gaps and skill depreciation • Uneven distribution of wealth • Insufficient protection of worker rights (gig-economy) • Policy issues • Geographical disparity • Digital divide • Environmental problems	• Safety and security at the workplace • Lack of responsibility and accountability • Lack of transparency & liability • Infringements of traditional and cultural norms and values • Gender inequality • Insufficient protection of the minority groups • Human rights abuse • Negative impact on peace	• Surveillance issue • Lack of informed consent • Lack of data control and • Lack of contestability • Vulnerability of cyber physical systems • Cyberwarfare (social & political manipulation) • Data theft (network security) • Unbalanced power in data ownership

Legal	Education and Management
• Intellectual property infringement • Lack of global governance • Lack of and lag in regulatory development • Lack of GDPR compliance • Unclear and unharmonized regulations (inconsistent set of rules for human-machine cooperation) • Lack of legal rights awareness related to data and technology	• Insufficient public engagement • Lack of methods and empowerment • Education issues (lack of resources, knowledge availability and informal science education) • Inequality in development (education sector not following trends fast enough) • Lack of trust in science • Insufficient empowerment of the general public

- Issues associated with deployment of robots were concluded into five categories:

- **socio-economic**

- **ethical**

- **data**

- **legal**

- **education and engagement**

What is
Responsible
Robotics?
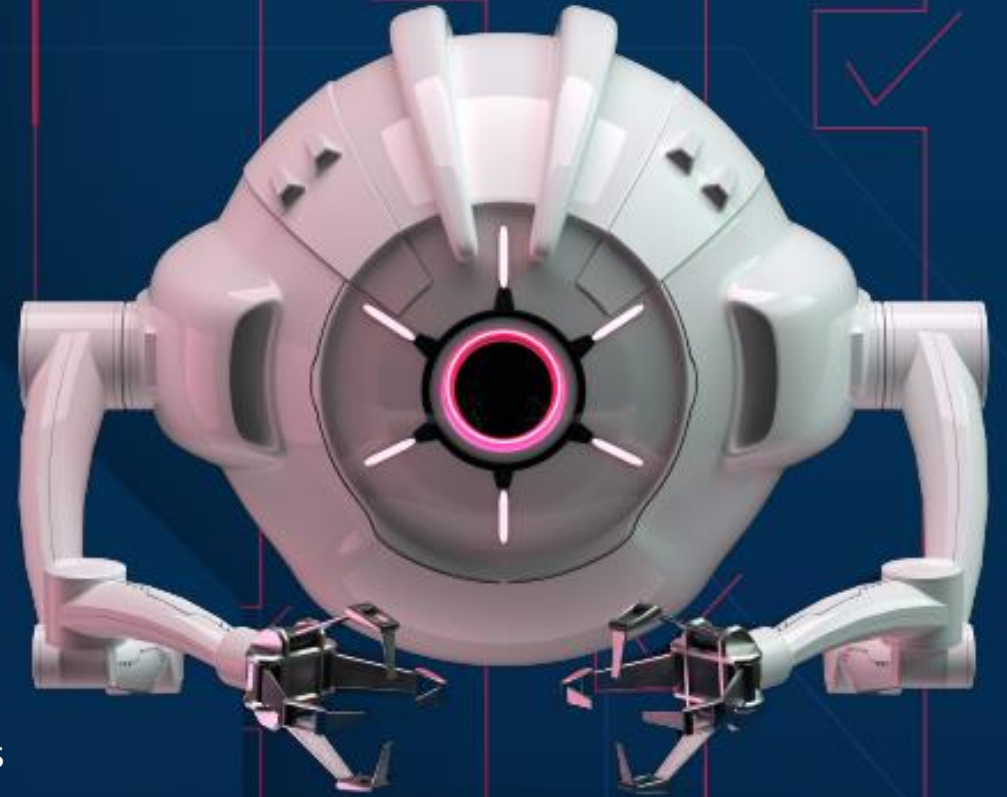
www.robotics4eu.eu

Robotics4eu

Robotics4EU
Survey for the
Robotics Community

- **1232 responses** from robotics community, policymakers and citizens
- 21% from agri-food
- **60** interviews and **50** projects

www.robotics4eu.eu

Robotics4EU

Agri-food highlighted the most

- 53% of the policymakers think that **socio-economic issues are most pressing in agri-food**

- **42% of the respondents say that education and engagement issues are most pressing in agri-food**

- **Safety compliance and efficiency are the main concerns**

Robotics community readiness and robots' acceptability

Fear of technological unemployment

Safety and security at the workplace as well as responsibility, accountability and data issues

Industrial robots performing specific tasks are widely accepted but robots that interact with their environments – **intelligent robots** – are generally not considered technologically ready for wide-spread implementation

Performance of the technology is important: *what is the use of having a robot if it is nothing but a toy?* "Technological advance", "better sensitivity to environment", "proven efficiency", "more than a demonstrator" were commonly mentioned keywords
The **acceptance of intelligent robots is expected to happen „naturally"** as they become more commonly used

Increase societal awareness about the **positive impact of robots**

Cooperation between policymakers and robotics community

- Collaboration between the policymakers and the robotics community is limited due to the **lack of communication** and technical knowledge possessed by the policymakers

- Shortcomings were identified regarding providing **objective information about the available robotics solutions** and their capabilities

- Solutions offered:
  - make information transparent and available to all the stakeholders
  - establish systematic cooperation models
  - In overall means of progress are **education and clear governance** and **additional certification procedures**

Conclusions

1. Improve cooperation between the robotics community and policymakers

2. Focus on **advancing human-robot interaction**

3. Prioritize solving key challenges related to **safety and privacy**

4. Increase societal awareness about the **positive impact of robots**

thank you