general public

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Report info

Report date:	Thursday, September 21, 2017 4:40:09 PM MEST
Start date:	Monday, February 6, 2017 1:30:00 PM MET
Stop date:	Wednesday, May 31, 2017 11:59:00 PM MEST
Number of completed responses:	29

Question 1

Disclaimer

This document is a working document of the Committee on Legal Affairs of the European Parliament for consultation and does not prejudge any future decision to be taken by the European Parliament. Only responses received through this online questionnaire, subject to the exception for people with disabilities and their representatives, will be taken into account and included in the report summarising the responses. Please read User Guide before starting to fill this questionnaire.

In case of any questions related to this public consultation please contact: Consultation.Robotics@europarl.europa.eu .

It is important to read the specific privacy statement   available on the public consultation website for information on how your personal data and contribution will be used.

Question 2

Executive Summary

Robotics and artificial intelligence (AI) have become one of the most prominent technological trends of our century. The swift increase in their use and development presents new and difficult challenges to our societies.

The aim of this consultation is to launch a broad based debate with a wide range of stakeholders on the European Parliament report on Civil Law Rules on Robotics ((2015/2103(INL)). 1 This consultation specifically seeks views on how to best address the challenging ethical, economic, legal and social issues related to the developments in the area of robotics and AI for civil use, as identified in the report. The European Parliament is to debate and vote on the report of the Committee on Legal Affairs in Plenary, in February 2017. The current public consultation will contribute to possible further European Parliament initiatives. This consultation will contribute to assessing the feasibility and content of further potential EU policy initiatives on robotics and AI, to maximise the socio-economic opportunities provided by these technological developments for businesses, citizens and governments, and minimise possible negative disruptions. Furthermore, the results of the Consultation may also feed into the forthcoming European Parliamentary Research Service's 'Cost of Non-Europe on Robotics and Artificial Intelligence' Report.

The Consultation is requested and administratively coordinated by the Committee on Legal Affairs of the European Parliament. The Consultation is prepared by the European Parliamentary Research Service, European Added Value Unit. Scientific coordinator, Dr. Tatjana Evas (EAVA Unit).

1 Draft report with recommendations to the Commission on Civil Law Rules on Robotics. (2015/2103(INL)), Rapporteur: Mady Delvaux (S&D, Luxembourg), 31 May 2016, PE582.443v01-00; available in all EU languages at http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+COMPARL+PE-582.443+01+NOT+XML+V0//EN

Question 3

You are replying as: *
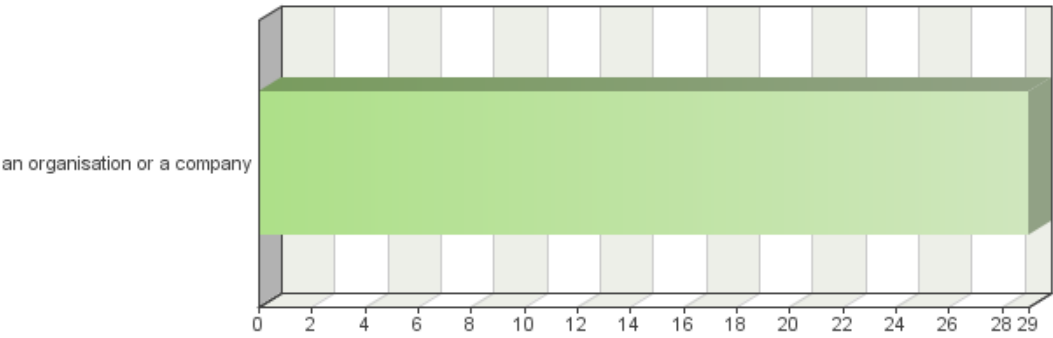
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
an organisation or a company		29	29	100%	100%	100%	100%
Sum:		29	-	100%	-	100%	-
Not answered:		0	-	0%	-	-	-
Average:	2	Minimum:	2		Variance:	0	
Median:	2	Maximum:	2		Std. deviation:	0	

Total answered: 29

Question 4

Please choose from one of the following options on the use of your contribution: *

Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
My/our contribution can be published directly with my personal/organisation information (I consent to publication of all information in my contribution in whole or in part including my name/the name of my organisation, and I declare that nothing within my response is unlawful or would infringe the rights of any third party in a manner that would prevent publication).	29	29	100%	100%	100%	100%
Sum:	29	-	100%	-	100%	-
Not answered:	0	-	0%	-	-	-

Average:	1	Minimum:	1	Variance:	0
Median:	1	Maximum:	1	Std. deviation:	0

Total answered: 29

Question 5

The name of your organisation/company/public authority/international organisation: *

Text input
kkk
Foro del Futuro Próximo
Kancelaria Prawna GG
ArchiXL BV
FullAI
Eticas Research and Consulting
eduard.dk
Fédération des Industries Mécaniques
Deutscher Anwaltverein (DAV)
SYMOP
Lely Industries N.V.
European Tyre & Rubber Manufacturers Association
UNIÓN GENERAL DE TRABAJADORES (UGT)
European Digital Rights (EDRi)
COMECE Secretariat
IAIC - Italian academy of the Internet Code
German Insurance Association (GDV)
Insurance Europe
GoodAI
EUnited Robotics
Global Digital Foundation
Microsoft
Startup Poland
Access Now Europe
Center for Data Innovation
euRobotics aisbl
bluenove
Lucchetti - Lawcrossborder

Question 6

Your full name (first name, last name): *

Text input
kkkk
Antonio Orbe Mendiola
rafael garcía cepas
Erwin Oord
Marijn van der Pas
Gemma G. Clavell
Peter Eduard
Gaillard Patrick
Winfried Tilmann
Jean TOURNOUX ; Margo DESSERTENNE
Jan Willem Rodenburg
Fazilet Cinaralp
JOSE VARELA FERRIO en representación de UGT
Maryant Fernández Pérez
Alessandro Calcagno
Alberto Gambino
Dr. Mercedes Sabine Bunz
Karl Ortmann
Sara MacArthur
Marek Rosa
Susanne Bieller
MacDonnell
Cornelia Kutterer
Marta Pawlak
Estelle Masse
Daniel Castro
Reinhard Lafrenz
Frank Escoubes
Stefania Lucchetti

Question 8

Is your organization included in the Transparency Register? *

  In the interests of transparency, the European Parliament asks organisations who wish to submit comments in the context of public consultations to provide the Parliament and the public at large with information about whom and what they represent by registering in the Transparency Register and subscribing to its Code of Conduct. If an organisation decides not to provide this information, it is the European Institution's stated policy to list the contribution as part of the individual contributions. (Consultation Standards, see COM (2002) 704; Better Regulation guidelines, see SWD(2015)111 final and Communication on ETI follow-up, see COM (2007) 127).

If you are a registered organisation, please indicate your Register ID number below when replying to the online questionnaire. Your contribution will then be considered as representative of the views of your organisation. If your organisation is not registered, you have the opportunity to register now.

It is important to read the specific privacy statement available on the public consultation website for information on how your personal data and contribution will be used.
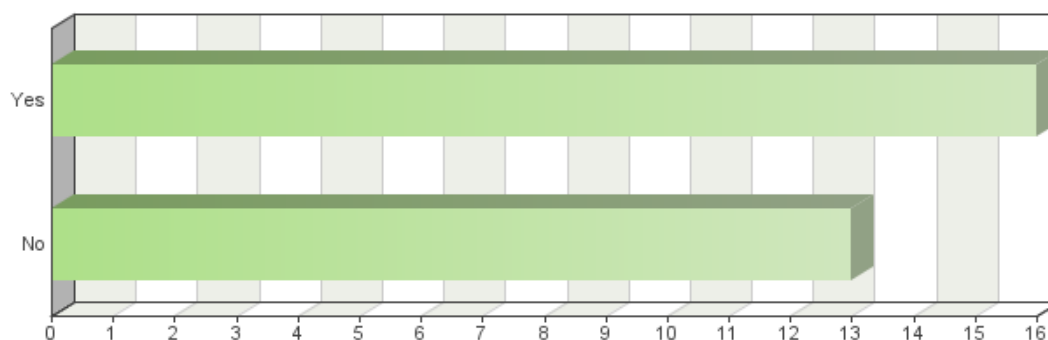
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Yes		16	16	55.17%	55.17%	55.17%	55.17%
No		13	29	44.83%	100%	44.83%	100%
Sum:		29	-	100%	-	100%	-
Not answered:		0	-	0%	-	-	-
Average:	1.45	Minimum:	1		Variance:	0.26	
Median:	1	Maximum:	2		Std. deviation:	0.51	

Total answered: 29

Question 9

If yes, please indicate your Register ID number: *

Text input
190642026116-92
428581813783-89
87980341522-66
ID 6025320863-10
963162918784-50
16311905144-06
47350036909-69
525155418923-75
6437280268-55
33213703459-54
0289344948-82
352788324603-77
0801162959-21
241832823598-19
526825515147-41
IT 8470920961

Question 10

Please indicate the type of organisation or company: *
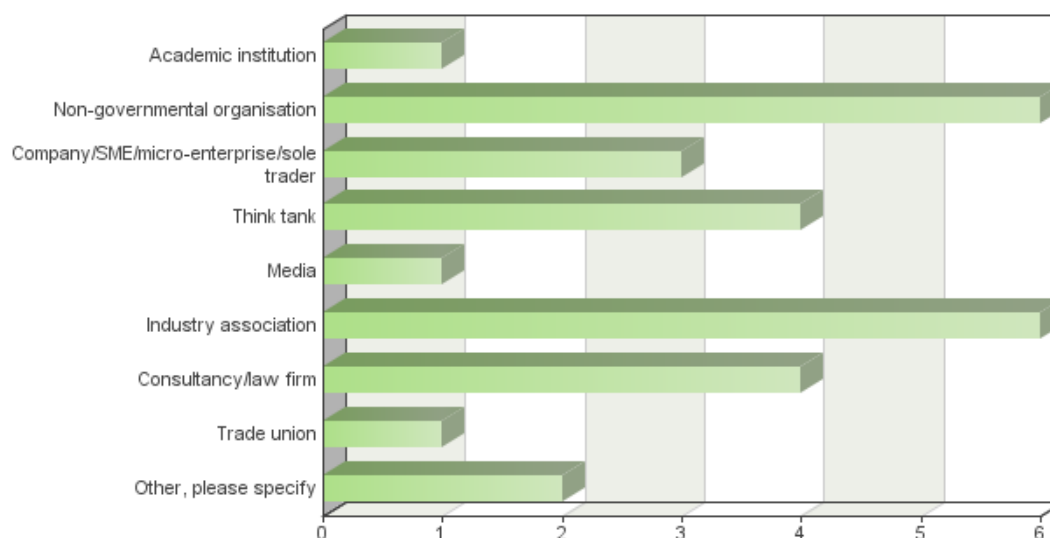
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Academic institution	1	1	3.45%	3.45%	3.57%	3.57%
Non-governmental organisation	6	7	20.69%	24.14%	21.43%	25%
Company/SME/micro-enterprise/sole trader	3	10	10.34%	34.48%	10.71%	35.71%
Think tank	4	14	13.79%	48.28%	14.29%	50%
Media	1	15	3.45%	51.72%	3.57%	53.57%
Industry association	6	21	20.69%	72.41%	21.43%	75%
Consultancy/law firm	4	25	13.79%	86.21%	14.29%	89.29%
Trade union	1	26	3.45%	89.66%	3.57%	92.86%
Other, please specify	2	28	6.9%	96.55%	7.14%	100%
Sum:	28	-	96.55%	-	100%	-
Not answered:	1	-	3.45%	-	-	-

Average:	5.21	Minimum:	1	Variance:	7.8
Median:	4.5	Maximum:	10	Std. deviation:	2.79

Total answered: 28

Last choice text input
manufacturer
Organisations representing churches and religious communities (Section V of the EU Transparency Register)

Question 11

Please specify the type of organisation: (optional)

Text input
law firm
Professional consultancy
Representation of German Lawyers
tyre and rubber manufacturers
National insurance association
General AI research and development company
non-for-profit trade association representing the European robotics industry
Organization represetning startups operating in Poland
euRobitics aisbl is a international non-profit association for all stakeholders in European robotics.
SME
Law Firm

Question 12

Please indicate the type of public authority or international organisation: *

No data to report

Question 13

Please specify the type of public authority: (optional)

Question 14

Is your organisation a multinational enterprise (groups with establishments in more than one country)? *
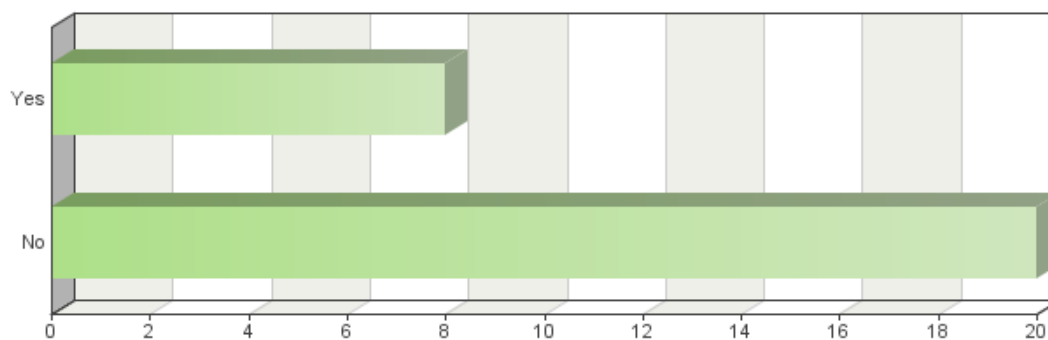
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Yes		8	8	27.59%	27.59%	28.57%	28.57%
No		20	28	68.97%	96.55%	71.43%	100%
Sum:		28	-	96.55%	-	100%	-
Not answered:		1	-	3.45%	-	-	-
Average:	1.71	Minimum:	1		Variance:	0.21	
Median:	2	Maximum:	2		Std. deviation:	0.46	

Total answered: 28

Question 15

Is your organisation a multinational enterprise with establishments outside of the EU? *

Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Yes		7	7	24.14%	24.14%	87.5%	87.5%
No		1	8	3.45%	27.59%	12.5%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1.12	Minimum:	1		Variance:	0.12	
Median:	1	Maximum:	2		Std. deviation:	0.35	

Total answered: 8

Question 16

How many employees does your company have? *

Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
1-9	13	13	44.83%	44.83%	46.43%	46.43%
10-49	8	21	27.59%	72.41%	28.57%	75%
50-249	2	23	6.9%	79.31%	7.14%	82.14%
250-499	1	24	3.45%	82.76%	3.57%	85.71%
500 or more	4	28	13.79%	96.55%	14.29%	100%
Sum:	28	-	96.55%	-	100%	-
Not answered:	1	-	3.45%	-	-	-

Average:	2.11	Minimum:	1	Variance:	2.03	
Median:	2	Maximum:	5	Std. deviation:	1.42	

Total answered: 28

Question 17

Please provide a brief description of your organisation's activities: (optional)

Text input
Promote discusion related to the impact of technology in society
law services, human rights
Strategic and practical advice on information management, enterprise architecture, and knowledge management
FullAI is the world's first NGO advocating human decisions above machine decisions. Full Artificial Intelligence is not science fiction.
Research and research-based consultancy on the ethics of technology and the interaction between technology and society
We aim to help our clients achieve world class competencies within the area of new technology and design thinking.
The German Bar Association (Deutscher Anwaltverein – DAV) is the professional body comprising more than 66.000 German lawyers. Being politically independent, the DAV represents and promotes the professional and economic interests of the German legal profession.
Membre de la Fédération des Industries Mécaniques (FIM) et fondateur de l'Alliance Industrie du Futur (AIF), le Symop est l'organisation professionnelle française des créateurs de solutions industrielles, fabricants de machines, technologies et équipements pour la production industrielle.
European industry trade association representing the interests of tyre and rubber manufacturers in regulatory, technical, trade areas with European Institutions, primarily
¿QUÉ ES LA UNIÓN GENERAL DE TRABAJADORES? Es una confederación sindical constituida en 1888. Uno de los dos sindicatos mayoritarios, dentro de los más representativos, y por ello es un interlocutor social. La Unión General de Trabajadores es una organización progresista, comprometida, reivindicativa, democrática e independiente con presencia en todos los sectores de actividad y en todo el territorio español. ¿QUÉ DEFENDEMOS? Los sindicatos constituimos uno de los engranajes del sistema democrático. Su papel y relevancia está reconocido en el Título Preliminar, artículo 7 de la Constitución Española de 1978, al igual que lo están los partidos políticos, en el artículo 6, y otras instituciones del Estado en el mismo título. La Constitución nos encomienda los intereses generales de los trabajadores. Nuestra legitimidad procede de las elecciones que celebramos con carácter periódico en las empresas. Esto otorga nuestra representatividad. Defendemos los intereses del conjunto de los trabajadores en cualquiera de sus condiciones, trabajen o no, sean fijos o temporales. Defendemos a los trabajadores con carácter integral y no a un colectivo concreto. ¿CUÁNTOS AFILIADOS TENEMOS? UGT cuenta con 919.558 afiliados. ¿CUÁNTOS DELEGADOS TENEMOS? El número lo determinan las elecciones sindicales que se celebran en las empresas cada cuatro años y que no se circunscriben a un determinado periodo de tiempo. Se trata de un proceso dinámico que se va reproduciendo paulatinamente en las empresas, y que se renueva cada cuatro años. Estos procesos electorales nos otorgan una representación de más del 32,6% de los trabajadores y de las trabajadoras. ¿QUÉ HACEMOS? Defender los intereses de los trabajadores. ¿CÓMO? Combinando la acción y la negociación y siempre a la búsqueda del consenso, de acuerdos. Ese ha sido un objetivo de la acción sindical en los últimos treinta años. En la empresa. A través de la negociación Colectiva. Nuestro primer campo de acción son los centros de trabajo. En este ámbito se concitan dos realidades: la fuerza y capacidad de resolver problemas, por un lado, y la capacidad de superar conflictos junto con una situación laboral precaria, por otro. Esto hace necesaria la presencia y la acción del sindicato en la empresa. Negociamos más de 4.500 convenios. Se benefician cerca de 11.00.000 TRABAJADORES, estén o no afiliados al sindicato. Desarrollamos nuestra acción sindical a través de la negociación colectiva en aproximadamente 1.100.000 empresas. OTRAS ACCIONES UGT es miembro fundador de la Confederación Europea de Sindicatos (CES) y de la Confederación Sindical Internacional (CSI), antigua CIOSL. Asimismo, formamos parte de los Comités Ejecutivos europeo y mundial de ambas confederaciones sindicales. Desarrollamos labores de cooperación sindical en América Latina y África, y apoyamos y trabajamos por la formación de trabajadores, formación sindical, investigación, etc.
European Digital Rights (EDRi) is an association of civil and human rights organisations from across Europe. We defend rights and freedoms in the digital environment. You can find our members here: https://edri.org/members/ Information technology has a revolutionary impact on our society. It has boosted freedom of communication and democracy but has also led to new approaches to surveillance and is increasingly used to impose restrictions on fundamental rights. Whenever citizens' rights and freedoms in the online environment are endangered by the actions of political bodies or private organisations, we ensure that they are respected. EDRi's key priorities for the next years are privacy, surveillance, net neutrality and copyright reform.
The Berlin-based German Insurance Association (GDV) is the federation of private insurers in Germany. Its about 450 member companies offer comprehensive coverage and retirement provisions to private house-holds, trade, industry and public institutions, through 431 million insurance contracts. The German insurance industry stands for risk cover, security and financial precautions in all areas of private and public life. It makes risks calculable and bearable for individuals and it is an indispensable basis for economic activity. The insurance industry moreover provides gainful employment for 524,000 persons either as employees with insurers and in the intermediation business or as self-employed insurance intermediaries and advisers.
Insurance Europe is the European insurance and reinsurance federation. Through its 35 member bodies — the national insurance associations — Insurance Europe represents all types of insurance and reinsurance undertakings, eg pan-European companies, monoliners, mutuals and SMEs. Insurance Europe, which is based in Brussels, represents undertakings that account for around 95% of total European premium income. Insurance makes a major contribution to Europe's economic growth and development. European insurers generate premium income of €1 200bn, directly employ over 985 000 people and invest nearly €9 900bn in the economy.
GoodAI is a Prague-based AI research and development company. GoodAI's mission is to develop general artificial intelligence - as fast as possible - to help humanity and understand the universe.
The Global Digital Foundation is a think tank that offers policymakers a framework for dialogue with stakeholders and with their counterparts in other countries so that they can develop a shared understanding of the challenges of policy in a digital world. The Global Digital Foundation is also an international network of policy expertise providing a base for interdisciplinary research and a forum for three-way learning interaction between policymakers, stakeholders and scholars.

Microsoft is a world-leading technology innovator; our services and products are far-reaching. For example, we provide direct-to-consumer products and services, including Bing, Windows, Outlook.com, Skype, and Xbox. Microsoft is also a major provider of software and cloud services to enterprise, including through Azure. We are also a leading digital innovator and researcher, and are working on augmented reality (HoloLens), machine learning and artificial intelligence (AI) capabilities, infrastructure for the Internet of Things, and more. We provide leading productivity tools, including data analytics and platforms, to millions of enterprises around the globe and in Europe.

Access Now Europe is non for profit organisation registered in Belgium. We work to defend and extend the digital rights of users at risks and protect fundamental rights in the digital era.

The nonprofit, nonpartisan Center for Data Innovation is the leading think tank studying the intersection of data, technology, and public policy. With staff in Washington, DC and Brussels, the Center formulates and promotes pragmatic public policies designed to maximize the benefits of data-driven innovation in the public and private sectors. It educates policymakers and the public about the opportunities and challenges associated with data, as well as technology trends such as artificial intelligence, open data, precision medicine, and the Internet of Things.

euRobotics AISBL is a Brussels-based international non-profit association for all stakeholders in European robotics. It is a successor to the European Robotics Technology Platform (EUROP) and the academic network of EURON. To develop and implement a strategy and a roadmap for research, development and innovation in robotics, under the framework program Horizon 2020, euRobotics and the European Commission formed the public-private partnership SPARC.

Collective intelligence consulting and software development

Question 18

Where are you based (resident) and/or where do you carry out your activity? *
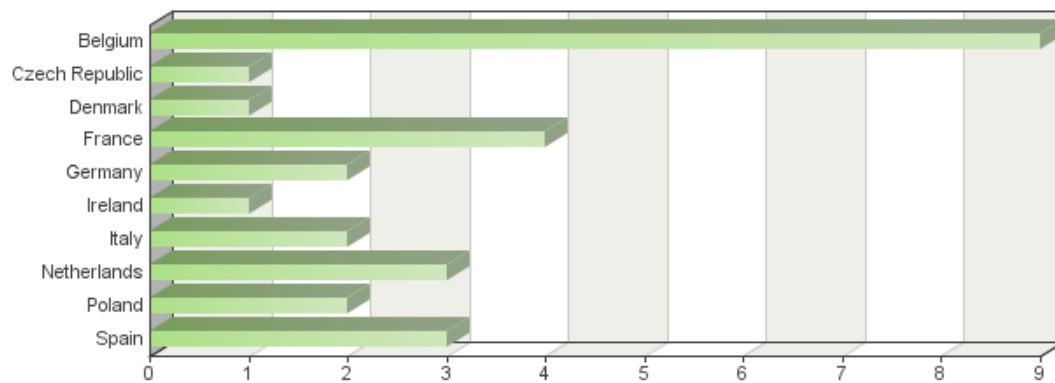
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Belgium	9	9	31.03%	31.03%	32.14%	32.14%
Czech Republic	1	10	3.45%	34.48%	3.57%	35.71%
Denmark	1	11	3.45%	37.93%	3.57%	39.29%
France	4	15	13.79%	51.72%	14.29%	53.57%
Germany	2	17	6.9%	58.62%	7.14%	60.71%
Ireland	1	18	3.45%	62.07%	3.57%	64.29%
Italy	2	20	6.9%	68.97%	7.14%	71.43%
Netherlands	3	23	10.34%	79.31%	10.71%	82.14%
Poland	2	25	6.9%	86.21%	7.14%	89.29%
Spain	3	28	10.34%	96.55%	10.71%	100%
Sum:	28	-	96.55%	-	100%	-
Not answered:	1	-	3.45%	-	-	-

Average:	12.18	Minimum:	2	Variance:	91.63
Median:	10	Maximum:	29	Std. deviation:	9.57

Total answered: 28

Question 19

Field of activity or sector (if applicable): choose at least one option *

  (Statistical classification of economic activities in the European Community (NACE), for details on the classification please consult Eurostat http://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF/dd5443f5-b886-40e4-920d-9df03590ff91?version=1.0).
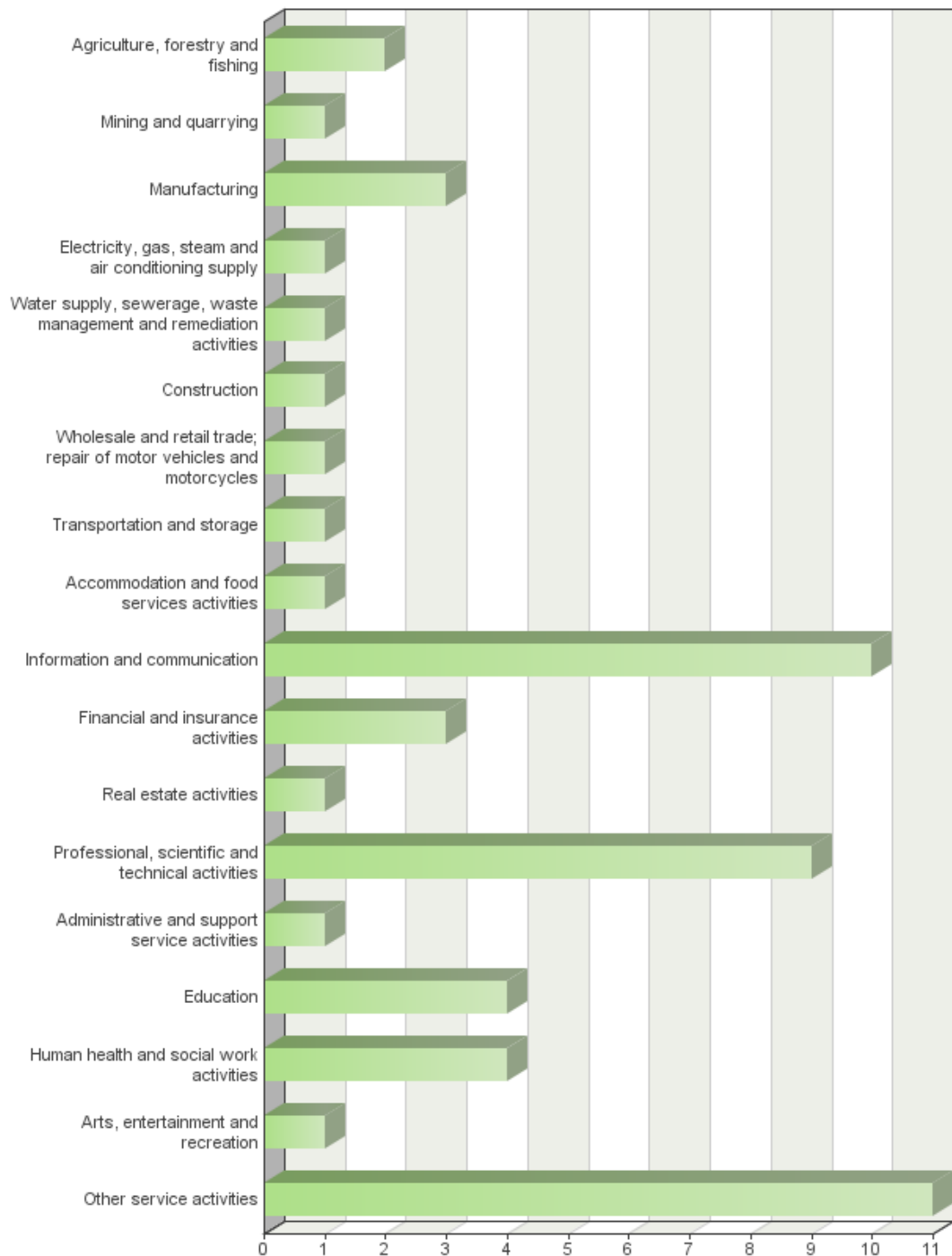
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Agriculture, forestry and fishing	2	2	3.57%	6.9%	6.9%	7.14%	7.14%
Mining and quarrying	1	3	1.79%	3.45%	10.34%	3.57%	10.71%
Manufacturing	3	6	5.36%	10.34%	20.69%	10.71%	21.43%
Electricity, gas, steam and air conditioning supply	1	7	1.79%	3.45%	24.14%	3.57%	25%
Water supply, sewerage, waste management and remediation activities	1	8	1.79%	3.45%	27.59%	3.57%	28.57%
Construction	1	9	1.79%	3.45%	31.03%	3.57%	32.14%
Wholesale and retail trade; repair of motor vehicles and motorcycles	1	10	1.79%	3.45%	34.48%	3.57%	35.71%
Transportation and storage	1	11	1.79%	3.45%	37.93%	3.57%	39.29%
Accommodation and food services activities	1	12	1.79%	3.45%	41.38%	3.57%	42.86%
Information and communication	10	22	17.86%	34.48%	75.86%	35.71%	78.57%
Financial and insurance activities	3	25	5.36%	10.34%	86.21%	10.71%	89.29%
Real estate activities	1	26	1.79%	3.45%	89.66%	3.57%	92.86%
Professional, scientific and technical activities	9	35	16.07%	31.03%	120.69%	32.14%	125%
Administrative and support service activities	1	36	1.79%	3.45%	124.14%	3.57%	128.57%
Education	4	40	7.14%	13.79%	137.93%	14.29%	142.86%
Human health and social work activities	4	44	7.14%	13.79%	151.72%	14.29%	157.14%
Arts, entertainment and recreation	1	45	1.79%	3.45%	155.17%	3.57%	160.71%
Other service activities	11	56	19.64%	37.93%	193.1%	39.29%	200%
Sum:	56	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	11.91	Minimum:	1	Variance:	24.74
Median:	13	Maximum:	18	Std. deviation:	4.97

Total answered: 28

Question 20

Has your organisation received funding from the EU in the last five years? *
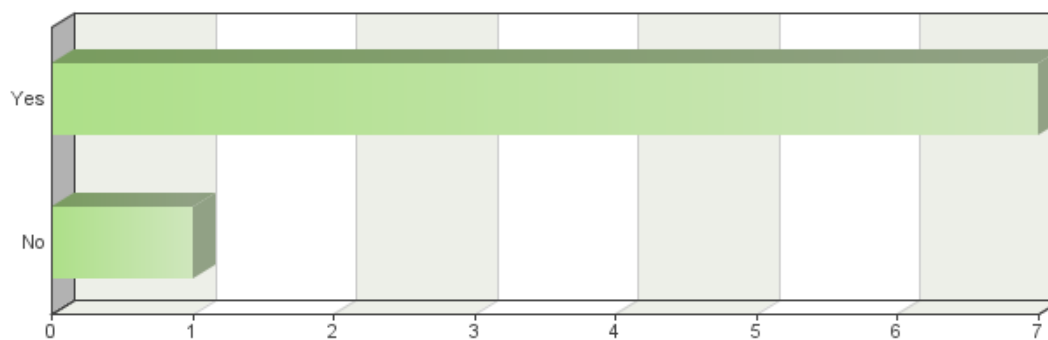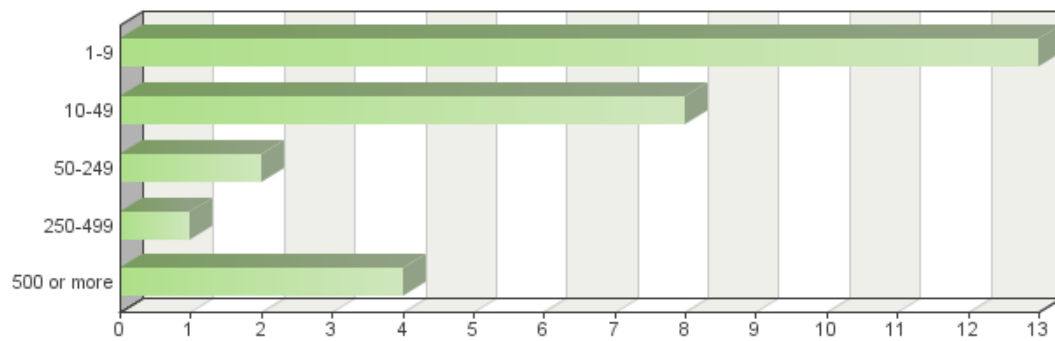

Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
No		23	23	79.31%	79.31%	82.14%	82.14%
Yes. Specify the type of funding (i.e. R&D, start-up funding)		5	28	17.24%	96.55%	17.86%	100%
Sum:		28	-	96.55%	-	100%	-
Not answered:		1	-	3.45%	-	-	-
Average:	1.18	Minimum:	1		Variance:	0.15	
Median:	1	Maximum:	2		Std. deviation:	0.39	

Total answered: 28

Last choice text input
FP7, H2020
https://edri.org/about/
R&D funding (through EU framework programmes)
Funding to conduct a study on data collections programmes.
FP7 and H2020 Coordination and Support actions

Question 21

What is your nationality? *

No data to report

Question 22

How old are you? *

No data to report

Question 23

What is your gender? *

No data to report

Question 24

What is your highest level of education? *

No data to report

Question 25

What is your current occupation? *

No data to report

Question 26

Have you studied, worked or lived in another EU Member State than your country of origin? *

No data to report

Question 27

Finally, if required, may the European Parliament services contact you for further details on the information you have submitted? *
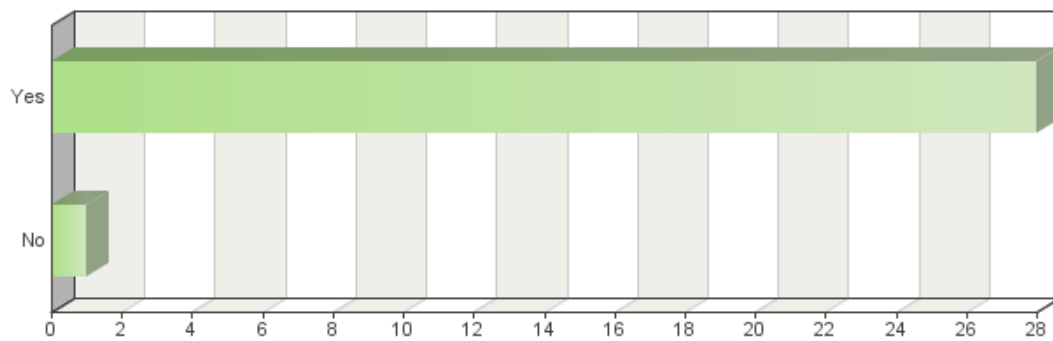
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Yes		28	28	96.55%	96.55%	96.55%	96.55%
No		1	29	3.45%	100%	3.45%	100%
Sum:		29	-	100%	-	100%	-
Not answered:		0	-	0%	-	-	-
Average:	1.03	Minimum:	1		Variance:	0.03	
Median:	1	Maximum:	2		Std. deviation:	0.19	

Total answered: 29

Question 28

Have you ever used, or do you currently use robots at home or at work (e.g. a robotic vacuum cleaner at home or an industrial robot at work)? *

 (A robot is defined here as an autonomous machine which can assist humans in everyday tasks e.g. as a kind of co-worker helping on the factory floor or as a robot cleaner, or in activities which may be dangerous for humans, like search and rescue in disasters. Robots can come in many shapes or sizes, including human-like. Traditional kitchen appliances, such as a blender or a coffee maker, are not robots. [definition used in the Special Eurobarometer on attitudes towards robots http://ec.europa.eu/public_opinion/archives/ebs/ebs_382_en.pdf])

No data to report

Question 29

Generally speaking are you interested or not interested in scientific discoveries and technological developments? *

No data to report

Question 30

Generally speaking, what is your view on robots? *

No data to report

Question 31

Generally speaking, what is your view on developments in artificial intelligence? *

No data to report

Question 32

In a one to three year future, robots will become part of my life: *

No data to report

Question 33

In your opinion, in Europe, when it will become commonplace for robots to do your current job? *

No data to report

Question 34

Please indicate to what extent you agree or disagree with the each of the following statements related to robotics and AI: *

No data to report

Question 35

Please indicate to what extent you feel concerned about the following issues related to robotics and AI: *

No data to report

Question 36

Generally speaking, do you think it is necessary to regulate developments in the robotics and AI area? *

No data to report

Question 37

In your opinion, who should take a primary responsibility to finance research and development in the area of robotics and AI? *

No data to report

Question 38

In your opinion in which area is EU regulatory action most urgent? *

No data to report

Question 39

Please indicate, to what extent you agree or disagree with the each of the following statements, at European Union level it is necessary ... *

No data to report

Question 40

What implications has the development of robotics and AI in your field/industry/organisation? *
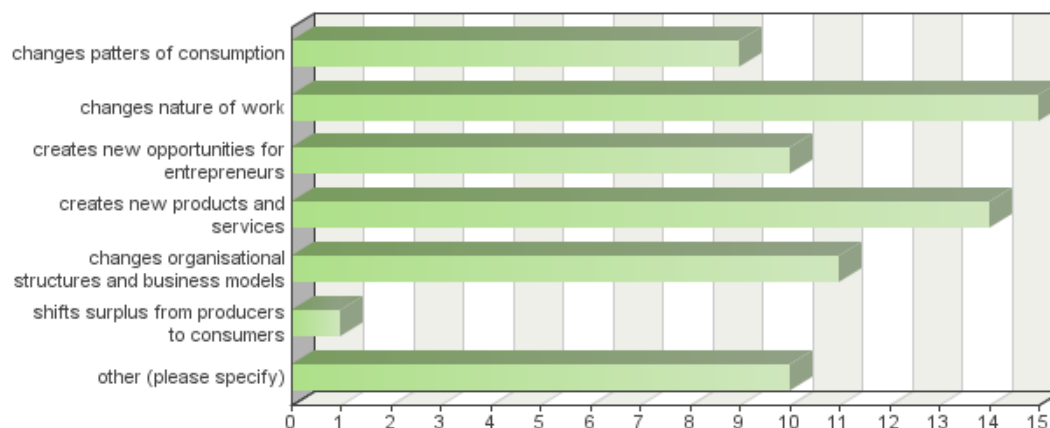
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
changes patters of consumption	9	9	12.86%	31.03%	31.03%	32.14%	32.14%
changes nature of work	15	24	21.43%	51.72%	82.76%	53.57%	85.71%
creates new opportunities for entrepreneurs	10	34	14.29%	34.48%	117.24%	35.71%	121.43%
creates new products and services	14	48	20%	48.28%	165.52%	50%	171.43%
changes organisational structures and business models	11	59	15.71%	37.93%	203.45%	39.29%	210.71%
shifts surplus from producers to consumers	1	60	1.43%	3.45%	206.9%	3.57%	214.29%
other (please specify)	10	70	14.29%	34.48%	241.38%	35.71%	250%
Sum:	70	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	3.81	Minimum:	1	Variance:	4.76
Median:	4	Maximum:	8	Std. deviation:	2.18

Total answered: 28

Text input

Development of robotics and Air is a new area of business and employment.

The main current concern about the development of robotics and AI are the implications on human self-determination and its inherited bias towards certain groups in society. Because of the nature of AI automated AI decisions are a black box, lacking human control. Adding to this is the lack of transparency by AI companies. This is all the more concerning as already robotics and AI are making decisions which influence human lives, even about life and death (for instance by self-driving cars).

We have incorporated AI and robotics as one of our fields of work.

Especially within the area of education, robotics and AI offers the opportunity for radical shifts in paradigms.

amélioration de la compétitivité des entreprises, modification de l'organisation de travail (amélioration de l'ergonomie du poste de travail et création de nouveaux métiers), développement de nouvelles solutions (robotique collaborative, cobotique, équipements mobiles)

Implications on Intellectual Property

- Amélioration des conditions de travil (ergonomie au poste opérateur, diminution des tâches pénibles) - Maintien des savoir-faire et des emplois en Europe - Créations d'emplois dues à l'intégration d'une nouvelle technologie, qui va avoir une répercussion positive sur la performance de l'entreprise (en production, maintenance, service commercial, conception/innovation) - Evolution des profils métiers (montée en compétence technologique, évolution des compétences) - Amélioration globale de la compétitivité des entreprises

En primer lugar, y como declaración de principios, UGT considera imprescindible y urgente incorporar todos los beneficios de la digitalización no sólo a la industria, sino a todo el tejido productivo, a todos los sectores económicos y a toda la Sociedad y la Ciudadanía en general. Por tanto, en UGT no abogamos por ninguna forma de rechazo a la tecnología per se ni somos partidarios de ninguna forma de ludismo. No obstante, no podemos negar una evidencia que es común a todos los estudios que hemos analizado -más de 50-: la naturaleza del trabajo, tal y como la conocemos ahora, va a cambiar radicalmente. Y no solo desde el punto de vista del volumen del empleo, que todos los informes coinciden en que la robótica y la IA ahondarán en una destrucción de empleo neto, sino también desde la incidencia negativa que tendrá sobre la desigualdad social y laboral. Al igual que se afirma que la automatización de tareas destruirá empleo neto, también existe un consenso generalizado que dicha automatización será mucho viable en aquellos puestos que comprendan tareas repetitivas, rutinarias o fácilmente previsibles; y es un hecho constatado que los perfiles laborales asociados a actividades como las descritas son lo que sufren las condiciones laborales más precarias. Por todo ello, desde UGT entendemos que es preciso anticiparse a estas consecuencias mediante una regulación que proteja a los trabajadores y a las personas, fortaleciendo el Diálogo Social y los resortes económicos y regulatorios para que la tecnología redunde en una mejora constante y paulatina del Estado del Bienestar, sin dejar a nadie atrás.

The biggest implications of the development of robotics and AI for European Digital Rights (EDRi) relate to the huge growth of the challenges to fundamental rights, such as the right to privacy and personal data protection, security, integrity, self-determination and dignity. Most of real-world implementations of robotics or AI depend on the collection of data to regularly interact with the online and offline environment. Data collected or generated are sometimes very sensitive (e.g. healthcare robots) and or personal (e.g. house robots). These data are exchanged with other robots, machines, computers over a distributed network (such as Internet of Things) that makes it very hard to maintain control of the data. This control can be lost for technical and legal reasons. Technically, networks and robots cannot ever have perfect security; legally, the rules on privacy and data protection, which are designed to also help in the protection of security, integrity, human dignity of people, will become much harder to enforce in a network of connected robots and Artificial Intelligence (AI).

Changes to human relations, consequences on anthropological models, impact on organisation.

In recent years, automation has become increasingly prevalent and now, in the workplace, is set to increase at an unprecedented rate. This huge change may be comparable to the industrial revolution: new opportunities for startups and entrepeneurs and changes in consumption, products and services, suggest our organisation to study the linked phenomena and do not undervalued the juridical and economic implications.

Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).

N/A

In long run, we expect that Artificial General Intelligence (AGI) will have profound impacts virtually in all areas of human activity which will bring about new products and services and new business models. In short run, already available Narrow AI applications enable new products and services and new business models in many in areas i.a. in automotive, finance and healthcare sectors. Therefore, we can expect that AI will create new opportunities for entrepreneurs. In the area of IA R&D we expect that the new ways of gradual learning will actually improve and speed-up the development of more advanced AI itself.

We believe that the use of data-driven technologies like computing algorithms and artificial intelligence will be increasingly common in organisations of all sizes, delivering significant benefits to individuals and society as a whole. In responding to the creation of this new wave of technologies, and what certain people are referring to as the 'fourth industrial revolution,' Microsoft encourages the Government to draw on lessons from the first industrial revolution, leading the way in delivering a significant uplift in humanity's productive capacity. We believe that by encouraging the building and adoption of technologies like AI, underpinned by an established set of guiding principles, the EU can successfully drive a new wave of technological development.

Access Now defends users' rights in policy discussions at the intersection of human right and technology. The development of robotics and artificial intelligence raises important societal and human rights challenges that must be addressed to ensure that the benefits of these new technologies come hand in hand with respect for fundamental rights. First it is important to understand the differences between the two technologies. Robots are autonomous or semi-autonomous machines that can act independently of external commands. Artificial intelligence is a programmed software that learns and can self-improve. Robots can use artificial intelligence to improve their functions by learning. The use of algorithms and automated decision making techniques such as profiling has an impact on the fundamental rights to privacy, data protection, freedom of expression, the right to due process, anti-discrimination and more. Companies and public institutions are looking into further use of those techniques which are perceived to be improving human decision-making by suppressing its biases and limitations. However, being programmed by humans, they can replicate and reinforce biases, and may institutionalise discrimination. (See, for instance, the summary of a study on the role algorithm in hiring processes written by data scientist Cathy O'Neil and published in The Guardian: https://www.theguardian.com/science/2016/sep/01/how-algorithms-rule-our-working-lives). While the EU has started to address and regulate in the EU General Data Protection Regulation the use of automated individual decision making system, such as profiling, further work is needed to fully understand the functioning of these systems and develop adequate safeguards to protect human rights and dignity. Furthermore, a greater emphasis on digital and network security should be developed to prevent third party abuses, personal data theft - including sensitive data, and identity theft. Similarly, while the EU is promoting the development of the Internet of Things, robust privacy and security measures must be in place to ensure that users' rights are respected, to guarantee trust in those services and therefore ensure economic growth. Finally, the development of robotics as part of a new industrial revolution is likely to create pressure on workforces and will require long term education programmes to ensure that workers who are slowly being replaced by robots are not facing discrimination and poverty. To sum up, with society as a whole becoming digital, either through the use of algorithms, IoT or Robots, the work of digital rights NGOs and technologists, is crucial.

Boosts productivity

euRobotics, which represents the European robotics community, in academia and industry, believes that robotics will be one of the key technologies of this century and will have a great impact on society. It believes that some ideas in the European Parliament resolution are critical for encouraging responsible innovation. The digitisation of industry may lead to increasing job polarisation, with growth in both low-paying and high-paying jobs but a loss of middle-paying jobs. That is a challenge to the whole of society and not just to roboticists. However, in many countries, the installation of more robots has led to higher productivity, along with improved working conditions, safety levels, product quality and overall quality of life.

Question 41

In your field, what are the key obstacles/barriers to market development in robotics and AI? *
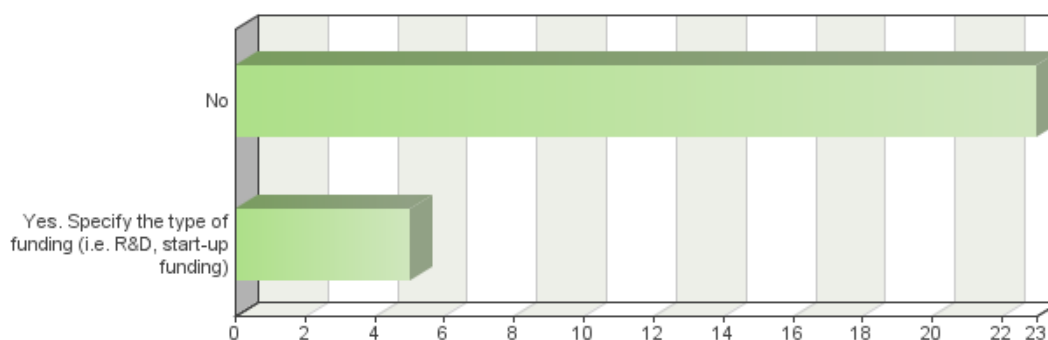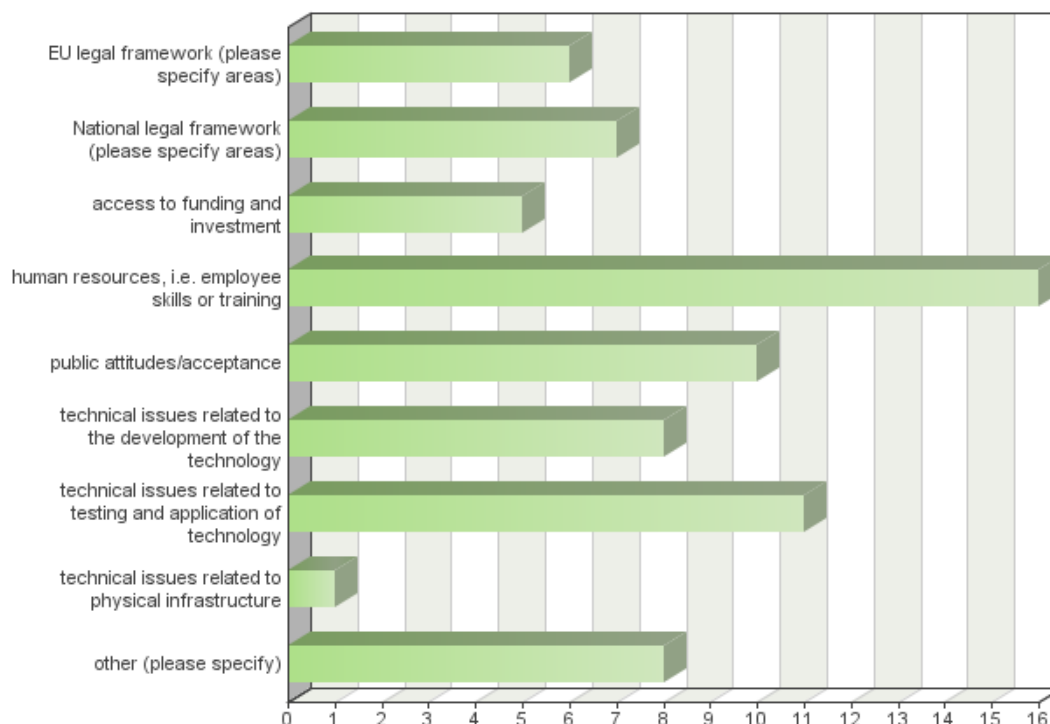

Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
EU legal framework (please specify areas)	6	6	8.33%	20.69%	20.69%	21.43%	21.43%
National legal framework (please specify areas)	7	13	9.72%	24.14%	44.83%	25%	46.43%
access to funding and investment	5	18	6.94%	17.24%	62.07%	17.86%	64.29%
human resources, i.e. employee skills or training	16	34	22.22%	55.17%	117.24%	57.14%	121.43%
public attitudes/acceptance	10	44	13.89%	34.48%	151.72%	35.71%	157.14%
technical issues related to the development of the technology	8	52	11.11%	27.59%	179.31%	28.57%	185.71%
technical issues related to testing and application of technology	11	63	15.28%	37.93%	217.24%	39.29%	225%
technical issues related to physical infrastructure	1	64	1.39%	3.45%	220.69%	3.57%	228.57%
other (please specify)	8	72	11.11%	27.59%	248.28%	28.57%	257.14%
Sum:	72	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	4.92	Minimum:	1	Variance:	5.4
Median:	5	Maximum:	9	Std. deviation:	2.32

Total answered: 28

Text input

Skills are limited and hard to find.

We think it is the other way around, there are too little rules and regulations on robotics and AI.

On the one hand, there is an unreasonable expectation regarding the current possibilities of AI. At the same time, since many of its proponents firmly believe it will only bring benefits, there is a reluctance to address the challenges and negative impacts, and so acceptability is taken for granted -which is a problem.

The primary antagonists are the concepts of "nothing has changed/everything should be as it used to be" and "warm hands beat knowing robots".

difficultés d'adhésion des différentes parties prenantes (entités publiques ou privées, partenaires sociaux)

Sensibilisation et pédagogie sont nécessaires pour comprendre le bon usage des nouvelles technologies par toutes les parties prenantes, y compris par les autorités européennes et nationales.

Along with R&D roadmaps of each tyre maker on product digitalization, still it is felt that more has to be done on standradization, regulatory Framework for dealing with emerging issues, like data flow, ownership and access. A clearer strategy at EU level, for national infrastructures upgrade towards more connected realities, is still missing from the public debate.

Desde nuestro punto de vista, la principal barrera que existe en España para la adopción de las nuevas tecnologías en la denominada Brecha Digital Laboral; es decir, la exclusión de los trabajadores/as de las nuevas tecnologías como consecuencia de la falta de formación, o de la ausencia de capacidades o habilidades digitales. Las cifras que presenta la fuerza laboral española son muy negativas en cuanto a capacidades digitales. El número de empleados que utilizan ordenadores conectados a Internet en su trabajo habitual (en porcentaje sobre el empleo total) supera a duras penas el 51%. O dicho de otro modo, la exclusión digital alcanza a la mitad de los trabajadores/as, que nunca acceden a Internet en su puesto de trabajo. Además, solo un 22% de los trabajadores y trabajadoras españolas reciben formación en TIC. Dicho de otro modo, se deja a tres cuartas partes de los trabajadores sin ninguna formación en nuevas tecnologías. Los indicadores internacionales ahondan en esta lacra. El NRI de la OCDE relega a España al puesto 104 de 139 países, con una calidad de formación en el puesto de trabajo semejante a Gabón, Líbano o Montenegro. A esto debe sumarse que el problema no sólo está en la formación continua en el puesto de trabajo. Existe una evidente barrera que proviene de la educación formal: estudios de Roland Berguer o PwC entre los empresarios locales demuestran que la formación reglada o académica también está resultando insuficiente e ineficiente. Por último, según datos del Instituto Nacional de Estadística de nuestro país para 2016, sólo el 15,47% de los parados han usado en alguna ocasión Internet. El porcentaje de ocupados españoles que han utilizado alguna vez Internet es cuatro veces mayor al de parados y dobla al de inactivos. Este dato es sumamente revelador del grado de preparación digital de los desempleados españoles. En conclusión: En España no contamos con RRHH formados. Nuestra fuerza laboral ocupada y activa no tiene las capacidades y habilidades necesarias para afrontar la transformación digital que precisa nuestra economía.

Unfortunately we have noticed obastacles such as: a shortage of talent, lack of re-skilling opportunities, and barriers as an overcoming fear of consumers and policy makers not supported by pragmatic and facts based informed discussion.

Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).

N/A

In certain business cases, the obstacle is still insufficient AI capabilities and weak interpretability of AI's behavior. For example, the cost of failure of narrow AI technology used in self-driving cars or health care could be human life. So until the technology's behavior is predictable and provably non-harmful, its acceptance will be slow-paced. To mitigate possible risks, more focus including financing should be put on interpretability and predictability of AI algorithms. In this case, people will be able to make a more accurate choice of where, how and under what conditions to use a state-of-the-art AI solution safely and beneficially, and avoid undesired or even fatal consequences of wrongly estimated AI's capabilities.

There is legal uncertainty around ownership of data and privacy.

AI is at a nascent stage of development, and governments need to prioritize the desire to innovate rather than to regulate. Broad regulation of AI technologies would be inadvisable at this time. Instead, its continued research and development and innovation on AI technologies across all sectors should be encouraged. Public awareness on the potential impact of AI on enabling continued growth of the digital economy should be raised, along with increased investments on appropriate skills training.

overcoming fear of consumers and policy makers vs. pragmatic and facts based informed discussion, shortage of talent, lack of re-skilling opportunities,

To ensure a positive development of AI and robotics markets, the EU should develop a harmonised framework setting clear rules on protections for users, technologically-neutral measures on digital security to prevent market failure in case of security failures, and a clear liability regime.

The EU's General Data Protection Regulation (GDPR) is a significant barrier to market development.

Given the diversity of the application fields, it is not possible to provide answers related to technical issues. This clearly depends on the application area. However, funding, skills and training, as well as acceptance, not only by the public, but also by the specific business environment of the sector, seem to be crucial factors.

Access to data scientists

Question 42

What action, in the context of technological developments in robotics and AI in your field, should the EU take to encourage innovation and global competitiveness in the European Union? Please select up to 3 choices which in your opinion are most urgent. *
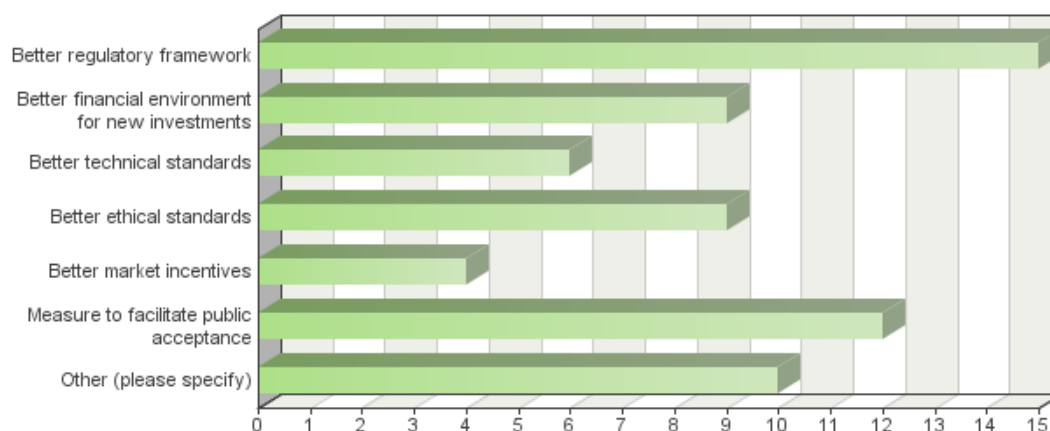
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Better regulatory framework	15	15	23.08%	51.72%	51.72%	53.57%	53.57%
Better financial environment for new investments	9	24	13.85%	31.03%	82.76%	32.14%	85.71%
Better technical standards	6	30	9.23%	20.69%	103.45%	21.43%	107.14%
Better ethical standards	9	39	13.85%	31.03%	134.48%	32.14%	139.29%
Better market incentives	4	43	6.15%	13.79%	148.28%	14.29%	153.57%
Measure to facilitate public acceptance	12	55	18.46%	41.38%	189.66%	42.86%	196.43%
Other (please specify)	10	65	15.38%	34.48%	224.14%	35.71%	232.14%
Sum:	65	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	3.98	Minimum:	1	Variance:	6.08
Median:	4	Maximum:	8	Std. deviation:	2.47

Total answered: 28

Text input
I will not need to hire human staff
EU should stimulate more research and development.
More transparency by AI companies on their policies, for instance their ethical and safety policies.
A general ethical ruleset incorporating everything from computer-based learning to robotic physical assistance and AI-based multi data prognosis would help business build upon a common core of rulesets, allowing easier branding "the safe" robots from the EU and cooperation.
améliorer l'information et l'adhésion des parties prenantes
Améliorer l'information et l'adhésion des acteurs impliqués
Update machinery directive with robotics. Outside industry and medical area hardly no robotic standards exist
The development of new technologies and services open the road to a fast changing society that needs new/revised rules to protect both consumers and industry. Issues like consumer right to choose from different services and products providers shall be guaranteed at any moment of the digital agenda implementation.

UGT quiere trasladar a la Comisión Europea la siguiente pregunta: ¿Qué modelo de sociedad queremos para el futuro? ¿Una Sociedad de estajanovismo laboral entre humanos y máquinas? ¿O queremos una visión solidaria de la Sociedad del futuro en donde la riqueza y el bienestar sean compartidos en armonía? Nosotros apostamos por un nuevo paradigma social: un Estado del Bienestar 4.0 fraguado en el reparto de los beneficios que aporta la tecnología. Y para fraguar este nuevo paradigma, tendremos que: • Equiparar el aumento de la eficiencia de la producción por las máquinas con la mejora del bienestar humano, desarrollando sistemas de reparto de los beneficios empresariales a través de nuevos impuestos asociados a las nuevas tecnologías y a la maquinización del trabajo. Que se cotice por la ocupación y también por la no ocupación cuando deviene de una sustitución tecnológica. • Reducir paulatinamente la jornada laboral y la vida laboral a medida que el empleo se va automatizando. Debemos fijarnos como objetivo que la vida laboral de cada individuo se menor al 40% de su vida biológica, disminuyendo la jornada semanal progresivamente. En un sucinto resumen, se trata de que las mejoras inherentes a la Productividad 4.0 amparen el Estado del Bienestar 4.0. Reformular el Contrato Social hacia un Contrato Social Digital, para construir una Smart Europa y una Smart España. Adicionalmente, proponemos: • Desarrollar un Plan Nacional de Inclusión Tecnológica, trasversal y sobre el que gravite la inclusión digital de todos los ciudadanos/as. No podemos dejar a nadie atrás. • Potenciar la formación continua en el puesto de trabajo como herramienta de desarrollo y adaptación de los trabajadores/as, incluyendo ayudas públicas o exenciones fiscales si fuese preciso. • Actualizar la Educación Académica (primaria, secundaria, universitaria y de FP) a las demandas del mercado de trabajo y de la Sociedad. • Confeccionar auténticas Políticas Activas de Empleo que permita a los desempleados formarse en nuevas tecnologías y tener acceso al mercado de trabajo, copiando si es preciso las mejores prácticas internacionales en esta materia. • Poner en marcha una Renta Básica Condicionada para aquellos trabajadores que no puedan adaptarse a esta nueva realidad y sopesar medidas complementarias como las propuestas por la Administración Obama como el fondo de desempleo tecnológico. En definitiva, aplicar un conjunto de medidas directas y eficaces para que la nueva Economía Digital esté al servicio de ciudadanos, trabajadores y personas, de forma justa, equilibrada y sostenible.

Better regulatory framework: the implications of developing robots, AI and the Internet of Things have an influence on users' rights and freedoms. Therefore, a harmonised legal action at EU level is essential. The GDPR contains key principles in this regard, most importantly and absolutely essential in this context are privacy by design, privacy by default and strict data minimisation. Moreover, it is important the Member States not abuse the flexibilities of the Regulation https://edri.org/analysis-flexibilities-gdpr/ In addition, the ePrivacy reform is an opportunity to specifically apply key GDPR principles into the electronic communications world, including robotics and IoT (indirectly, therefore AI). Other types of regulation should be created to deal with liability and safety, with a strong focus on accountability for and transparancyy of the data and algorithms involved. This approach will benefit all stakeholders. Better technical standards: The economic incentives for security need to be addressed. With little or no local storage, IoT devices are heavily dependent on communications, so securing the communications path is as important as strengthening the device. Protecting the IoT is not like protecting a data centre. Securing the IoT requires looking at the whole ecosystem, not just individual points and devices. To leave the protection of the systems to the discretion of the producer is, at best, hazardous. In fact, if all but one company implement strong security in their own brand devices, the communication and the network still is in danger due to the one company device not implementing a high level of protection. Therefore, legal standards are needed to ensure a minimum, high security standard to ensure users' protection. Better ethical standards: customers buy products that respect their values. Privacy by design and default are an essential way to create and maintain trust. Products that are not privacy friendly, or that are found to have privacy issues will suddenly become less attractive for customers (see the example of the Cayla doll and i-Que Robot) [https://fil.forbrukerradet.no/wp-content/uploads/2016/12/complaint-dpa-co.pdf; https://academic.oup.com/jiplp/article-abstract/11/11/856/2335247/Digital-markets-data-and-privacy-competition-law?rss=1].

In our opinion the first action needed is a regulatory flexibility for AI, in terms of a clearer regulatory framework around specific applications of the technology rather than an all-encompassing generic regulation covering all AI/robotic applications). In fact, consumers need a driven support of research, ways to encourage and empower European SMEs and Startups to benefit from AI, collect concrete case studies.

Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).

N/A

To truly progress in the field of AI, more focus can be put on longer term goal of general-purpose AI including the issues of safety. It would be beneficial to establish an EU-backed program dedicated to support of this basic research topic. In addition, the EU may support various AI applications and cooperate with AI researchers to increase effectiveness and efficiency of its various policies.

All regulatory measures should avoid unnecessary bureaucracy. Harmonized regulation at EU level is seen better than fragmented national regulation.

- Continue to convene broad dialogues and facilitate collaboration between governments, business, researchers, civil society and other interested stakeholders on how AI can be shaped to maximize its potential and mitigate its risks and impacts, including a set of practical guiding principles that encourage development of human-centered AI; - Stimulate the development and deployment of AI, including its use in the public sector and innovative applications of AI to address public and societal challenges; - Fund short- and long-term research and development of AI technologies, addressing questions of how the technology can be shaped to address ethical concerns as well as how the technology can be used to provide additional insights into socio-economic issues that may be caused by AI. The research should consider areas that private industry is unlikely to pursue (e.g., public health, urban development and smart communities, social welfare, criminal justice, environmental sustainability, national security) and longer term transformational impacts of AI on the world; - Assess whether existing data access laws should be modernized to enable the benefits of AI. - Develop shared public data sets and environments for AI training and testing, to enable broader experimentation with AI and also comparisons of alternative solutions to address some of the ethical concerns raised below; - Invest in training and certification for people at all stages of of the work continuum and different levels of education to develop an inclusive workforce for AI. Support and incentives can be provided for development and implementation of relevant programs and tools that can help more people develop needed skills.

Regulatory flexibility for AI (a clearer regulatory framework around specific applications of the technology rather than an all-encompassing generic regulation covering all AI/robotic applications), consumer needs driven support of research, ways to encourage and empower European SMEs and Startups to benefit from AI, collect concrete case studies

Measures to promote adoption of AI and robotics in leading EU industries

euRobotics recommends using a clear and realistic image of robotics. The resolution refers to fictional figures like Frankenstein's creature and cites the well-known and over-stressed robot laws of Isaac Asimov that were just laws for robots, not for humans. Such references might induce fears about robots that have only very little, if anything, to do with the reality of robotics. Instead, euRobotics considers it important to use and to strengthen a realistic view of current and future robot systems that are in most cases less sophisticated, and thus less threatening, than the wider public thinks. It is crucial to provide a reality check by clarifying what robots can do today and what they might do in future. This is also a task for communication strategies: robots are not job killers per se, as is often stated simplistically; nor should their functions and especially their future abilities be overestimated. Communications about robots should be rich in facts and real applications and open about uncertainties and possible impacts, such as on the nature of work, which need to be tackled. Given the limit of three answers, we were not able to prioritise others, such as 'Better financial environment for new investments', 'Better technical standards' and 'Better ethical standards'.

Question 43

What action, in the context of technological developments in robotics and AI in your field, should the EU take to unlock the potential for growth and jobs in the European Union? Please select up to 3 choices which in your opinion are most urgent. *
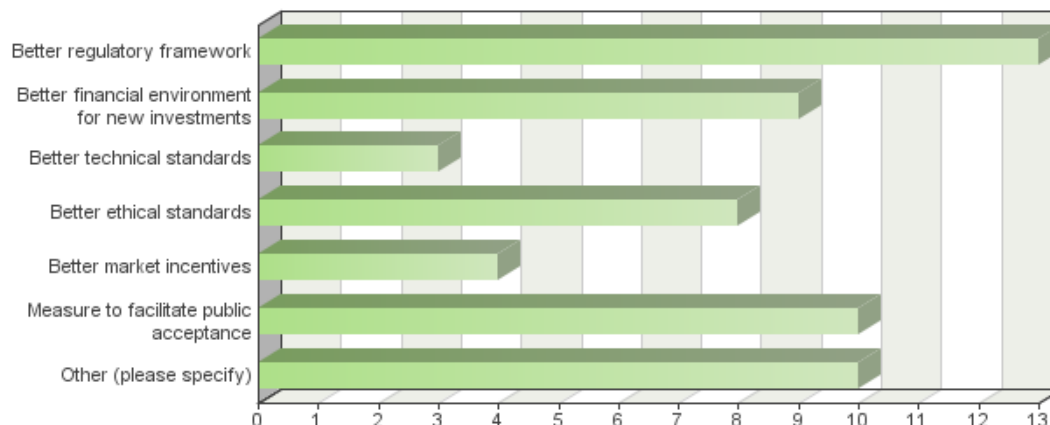
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Better regulatory framework	13	13	22.81%	44.83%	44.83%	46.43%	46.43%
Better financial environment for new investments	9	22	15.79%	31.03%	75.86%	32.14%	78.57%
Better technical standards	3	25	5.26%	10.34%	86.21%	10.71%	89.29%
Better ethical standards	8	33	14.04%	27.59%	113.79%	28.57%	117.86%
Better market incentives	4	37	7.02%	13.79%	127.59%	14.29%	132.14%
Measure to facilitate public acceptance	10	47	17.54%	34.48%	162.07%	35.71%	167.86%
Other (please specify)	10	57	17.54%	34.48%	196.55%	35.71%	203.57%
Sum:	57	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	4.07	Minimum:	1	Variance:	6.42
Median:	4	Maximum:	8	Std. deviation:	2.53

Total answered: 28

Text input
I will not need to hire human staff
On the long run, for instance to insure public acceptance, more transparency by AI companies on their policies, for instance their ethical and safety policies is needed.
A general ethical ruleset incorporating everything from computer-based learning to robotic physical assistance and AI-based multi data prognosis would help much to alleviate the fear and misunderstandings within the area. Some science in society approaches would help engage people with the positive outcomes.
améliorer l'information et l'adhésion des parties prenantes
Analyser les mutations du monde du travail et répondre à ses évolutions par des offres de formations harmonisées
A lot of start-ups and new robotic products are being developed. there is no sufficient alignment on safety related issues
It is expected that society and consumer demands for new products and services will change the current consumption patterns for which new incentives should be foreseen
Nos remitimos a la amplia explicación reseñada en el punto anterior.
It is not within the scope of EDRi's work.
In our opinion, one of the most urgent action is to improve and impose better market incentive sto unlock the potential of AI in the workfield.
Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).

Microsoft's vision for AI is one in which machines and humans work together to enable greater societal progress and equality. We believe that the computational power of algorithms can augment human creativity, allowing an increase in productivity by enabling people to make more accurate decisions, more quickly. Microsoft's CEO, Satya Nadella, outlined this vision of a 'human-centred' AI in a recent Slate article , highlighting our belief in a future where machines augment and extend human abilities and experiences, empowering every individual to realise his or her full potential, and enabling new socio-economic opportunities. Policy makers should consider investing in skills training for people whose jobs may be displaced by AI-based technologies. Appropriate training in occupations that are complimentary to automation, along with new technology services and tools, will be essential to help individuals develop new skills and connect with new jobs. New technology tools can also better help more people develop so-called middle skills – the types of technical skills that can ensure that those with less than a college degree can not only learn valuable new skills, but obtain the certifications and credentials that will be valuable in the workplace. Microsoft's AI platform services and toolkits will make these powerful technologies available to anyone with appropriate training, thus "democratizing AI." New data tools such as LinkedIn's Economic Graph enable cities and states to help those in government match worker training and economic development resources with the strongest opportunities in the market. Moving forward, continued strong public- and private-sector support of research and studies on the scientific and the socioeconomic challenges of AI will be critical to ensuring that people and society get the most out of AI advances. The computational power and learning capabilities of machines must be coupled with the sensitivity and emotional intelligence of humans.

Increased research and development funding

We strongly agree with the point that the monitoring of current and coming changes in the job market is one of the key issues with respect to the European economy. Strengthening the teaching of digital abilities, as well as lifelong learning, will grow in importance in the near future. It is therefore recommendable to support the research and initiatives dealing with these changes.

Question 44

What actions should the EU take, in the context of technological developments in robotics and AI in your field, to enhance productivity in the European Union? Please select up to 3 choices which in your opinion are most urgent. *
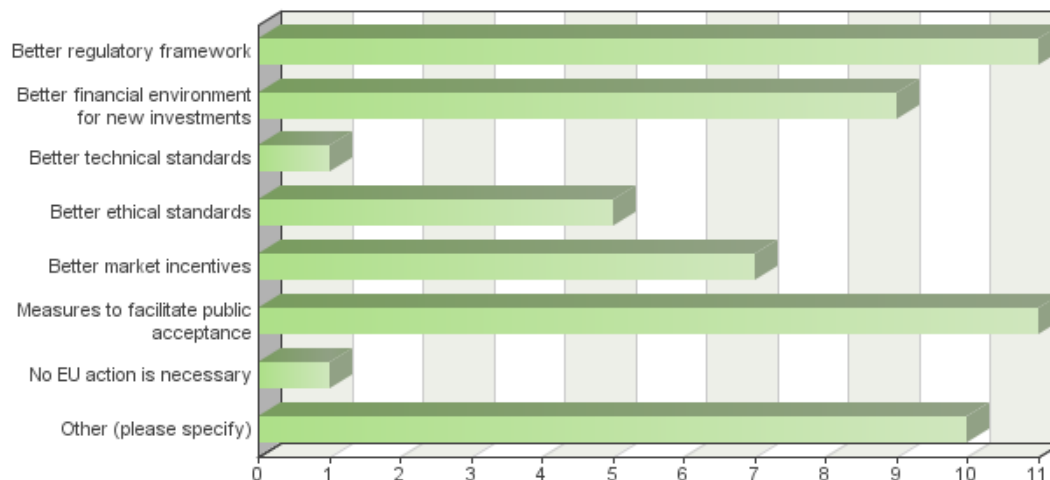
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Better regulatory framework	11	11	20%	37.93%	37.93%	39.29%	39.29%
Better financial environment for new investments	9	20	16.36%	31.03%	68.97%	32.14%	71.43%
Better technical standards	1	21	1.82%	3.45%	72.41%	3.57%	75%
Better ethical standards	5	26	9.09%	17.24%	89.66%	17.86%	92.86%
Better market incentives	7	33	12.73%	24.14%	113.79%	25%	117.86%
Measures to facilitate public acceptance	11	44	20%	37.93%	151.72%	39.29%	157.14%
No EU action is necessary	1	45	1.82%	3.45%	155.17%	3.57%	160.71%
Other (please specify)	10	55	18.18%	34.48%	189.66%	35.71%	196.43%
Sum:	55	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	4.36	Minimum:	1	Variance:	6.46
Median:	5	Maximum:	8	Std. deviation:	2.54

Total answered: 28

Text input
we think is not only the markets
EU should help increase public acceptance by changing fear (of massive job losses) into hope (of improved labour conditions).
Same as above: on the long run, for instance to insure public acceptance, more transparency by AI companies on their policies, for instance their ethical and safety policies is needed.
Same answer as above.
adopter des mesures fiscales incitatives sur moyen et long terme
Adopter des mesures fiscales incitatives sur moyen et long terme
Nos remitimos a la amplia explicación reseñada en la penúltima respuesta.
It is not within the scope of EDRi's work.
The most urgent action to enhance productivity is to clear the regulatory framework around specific applications of the technology rather than an all-encompassing generic regulation covering all AI/robotic applications.
Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).

N/A

To truly progress in the field of AI, more focus can be put on longer term goal of general-purpose AI including the issues of safety. It would be beneficial to establish an EU-backed program dedicated to support of this basic research topic.

The main lever to affect productivity is to refrain from measures that could hamper / slow down productivity, i.e. overregulation (e.g. introduction of taxes on means of production, mandatory insurance and registration).

A clearer regulatory framework around specific applications of the technology rather than an all-encompassing generic regulation covering all AI/robotic applications

Increased research and development funding

Technological progress has been around since the first industrial revolution in the 19th century, and the consensus among labour economists is that this has not caused an increase in unemployment in the long run. In many countries, the installation of more robots has led to higher productivity.

Question 45

What are the societal and economic impacts that developments of robotics and AI bring, or could potentially bring to your field in the short to mid-term? *

end users and/or intermediaries benefit from lower prices

end users benefits from additional value in terms of effectiveness (i.e. more services/products, time saving)

end users benefit from better quality of services (i.e. increased accuracy of the diagnosis in the health sector, on time delivery of goods)

end users negatively impacted by diminishing level of privacy

end users negatively impacted by the lack of 'personal' service, for example in the health sector or care for elderly

societies benefit from more efficient use of resources

societies benefit from more sustainable use of resources

societies benefit from better quality of life though innovation and technological solutions (i.e. in services, in healthcare)

societies are negatively affected by diminishing level of protection of fundamental rights (i.e. privacy, data protection)

labour markets are negatively affected by technologies (i.e. change in the nature of work, mismatch between available and needed skills)

companies benefit from new business opportunities

companies are subject to increased competition

companies are subject to the increase shortage of necessary, highly skilled workforce

other (please specify)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
end users and/or intermediaries benefit from lower prices	14	14	9.59%	48.28%	48.28%	50%	50%
end users benefits from additional value in terms of effectiveness (i.e. more services/products, time saving)	16	30	10.96%	55.17%	103.45%	57.14%	107.14%
end users benefit from better quality of services (i.e. increased accuracy of the diagnosis in the health sector, on time delivery of goods)	15	45	10.27%	51.72%	155.17%	53.57%	160.71%
end users negatively impacted by diminishing level of privacy	9	54	6.16%	31.03%	186.21%	32.14%	192.86%
end users negatively impacted by the lack of 'personal' service, for example in the health sector or care for elderly	3	57	2.05%	10.34%	196.55%	10.71%	203.57%
societies benefit from more efficient use of resources	11	68	7.53%	37.93%	234.48%	39.29%	242.86%
societies benefit from more sustainable use of resources	12	80	8.22%	41.38%	275.86%	42.86%	285.71%
societies benefit from better quality of life though innovation and technological solutions (i.e. in services, in healthcare)	15	95	10.27%	51.72%	327.59%	53.57%	339.29%
societies are negatively affected by diminishing level of protection of fundamental rights (i.e. privacy, data protection)	10	105	6.85%	34.48%	362.07%	35.71%	375%
labour markets are negatively affected by technologies (i.e. change in the nature of work, mismatch between available and needed skills)	7	112	4.79%	24.14%	386.21%	25%	400%
companies benefit from new business opportunities	15	127	10.27%	51.72%	437.93%	53.57%	453.57%
companies are subject to increased competition	4	131	2.74%	13.79%	451.72%	14.29%	467.86%
companies are subject to the increase shortage of necessary, highly skilled workforce	5	136	3.42%	17.24%	468.97%	17.86%	485.71%
other (please specify)	10	146	6.85%	34.48%	503.45%	35.71%	521.43%
Sum:	146	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	6.85	Minimum:	1	Variance:	17.4
Median:	7	Maximum:	15	Std. deviation:	4.17

Total answered: 28

Text input

Workers will lose, it´s possible AI will be rich if they are part of a board of directors of a multinational. It´s not possible to be call "electronic person"

Required skills of people will change, which will cause stress with those who are unable to adapt.

In the short to mid-term there are issues with AI bias. As AI applications learn from real world data, they inherit bias from it. This is negatively impacting marginalised groups in society while high class groups are benefiting disproportionately.

The potential of AI is massive. However, the inability to address its negative impacts and work on safeguards and acceptability are harming and will continue to harm its uptake in real life -and so the development of robust business models.

Tyre sensors, in a connected vehicle, have the potential to deliver increased safety for users and lower fuel consumption. By guaranteeing access to vehicle data, will increase the predictive capability of tyres as well as give the possibility to develop products more tailored to the consumer needs.

Nos remitimos a la amplia explicación reseñada en la antepenúltima respuesta.

Robots and AI are used and will be used increasingly in everyday contexts. These will permit the constant collection of a huge amount of behavioural data that could be exploitable by third parties. The source of collection and the data can be used by companies for targeted advertising or automated decision making (insurance, banks, etc.), or by governmental agencies for surveillance purposes, by criminals to spy on or blackmail people, etc.

We would like to highlight in particular possible negative effects on the poorest.

AI is obviously expanding the accessibilità to certain services and products: i.e. nowadays the laboratory advantages of using robotics seem quite natural (ergonomic benefits of automating tasks that would be injurious or hazardous for a human - the Fraunhofer Institute has been studying this aspect and developed LISA, a prototype mobile lab assistant with touch sensitive "skin" and heat sensors to stop her bumping into humans and vice versa), introducing speech recognition is a natural goal in robotics as it is one of the most common forms of communication for humans, finally, mobile phone application that can also use the touch feature of smartphones and embed sensors to move robotics.

Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).

N/A

The applications of AI will bring about higher efficiency which will benefit both users and societies. At the level of societies, the positive impact will to a large extent depend on the ability to deploy available solutions by public bodies, including the EU itself. In terms of labor markets, we perceive the topic to be under-researched and we believe that a great deal still needs to be done to ensure that artificial intelligence development leads to a scenario that is beneficial for most or all of humankind.

Skills shortage - need for education and (re-)training

There is likely to be some disruption. There will need to be more emphasis on education and skills to minimise this.

AI technology available today can already save thousands of lives and improve the performance of many systems. Key opportunities include healthcare, transportation, education, agriculture, manufacturing, and accessibility for those with special needs. AI can also enhance the resilience and capacity of critical infrastructure, including the electrical power grid and road network. In healthcare, AI can reduce hospital readmission, enhance the quality of care for managing chronic disorders, and keep hospitals safe and efficient. In the US, the Institute of Medicine released a study in May 2016 which estimated that preventable errors in hospitals are the third leading cause of death in the United States, trailing only heart disease and cancer. The number of deaths is estimated to exceed 250,000 patients per year. Algorithm-driven systems have been developed to catch errors by recognizing anomalies in best clinical practices, saving thousands of patients per year.

AI/robotics is expanding the accessibility to certain services / products (i.e. medical research & services, text and speech recognition, mobile phone applications)

Artificial Intelligence technologies and robots have the potential to enhance the performance of several sectors, from improving the accuracy of medical diagnosis, to increasing productivity and reduce risks at the workplace. However, these technologies are not without risks. Several academic institutions such as the Berkman Klein Center for Internet & Society at Harvard University are looking into hazards resulting from AI systems, "by potentially diminishing human accountability, perpetuating biases that are inherent to the AI's training data, or optimising for one performance measure at the expense of others." Given the inherent data collection and digital nature of robotics and artificial intelligence, these technologies create an obvious risk for the fundamental rights to privacy and data protection that must be addressed at EU level to ensure harmonised protection for users and prevent unlawful interference with these rights. To unleash the potential of AI and robotics, the EU must not only put in place and implement measures for the protection of fundamental rights and robust rules on digital security but also incentivise investment in networks. As of today, several rural areas and regions of Europe rely on poor connectivity. These forgotten regions are currently missing out on digital opportunities, reinforcing inequalities between populations from large cities and villages. This issue must be urgently addressed to ensure that everyone in the EU can access online services and benefit from all and every technological development. This issue is particularly important as less populated areas already suffer from a lack of access to basic services such as doctors, banks, post offices and schools. AI and robotics could offer solutions to these problems only if the current lack of reliable connectivity is addressed. Finally, research from the World Economic Forum shows that robots and AI could replace 5.1 million jobs by 2020. This means that despite possible positive impact of these technologies on daily lives, it is crucial for lawmakers to address their impact on the job market and find alternatives for the future unemployed salesforce as a result of the deployment of these technologies as it could deepen discrimination and the gap in society.

AI will allow the public and private sectors alike to considerably increase productivity. For example, according to analysis from the International Data Corporation, by 2020 AI will generate more than $60 billion worth of productivity improvements for businesses in the United States per year.

Overall, robotics are likely to strengthen EU competitiveness, thanks to the excellence of the science base of European robotics and the resulting industrial leadership by manufacturers, providers and end-users of robotics-based systems and services. However, as with any developments, in the long term the growth of robotics will require society to confront potential and unforeseen effects, most of them probably positive and some negative. Influences of robots on the job market cannot easily be elaborated and proven scientifically. Several studies branding robots as "job killers" have been intensively discussed and criticized. Eurobarometer data show 73% of Europeans are indeed concerned that robots steal people's jobs. It has even been argued that up to 47% of jobs can be automated within the next 20 years, suggesting the possibility of mass technological unemployment. However, these warnings disclose neither an understanding of robotics in the different applications, nor an insight into the functioning of labor markets

Question 46

In addition to actions at national level, what added value does the EU bring, or potentially bring to your field in the context of new technological developments in robotics and AI? *
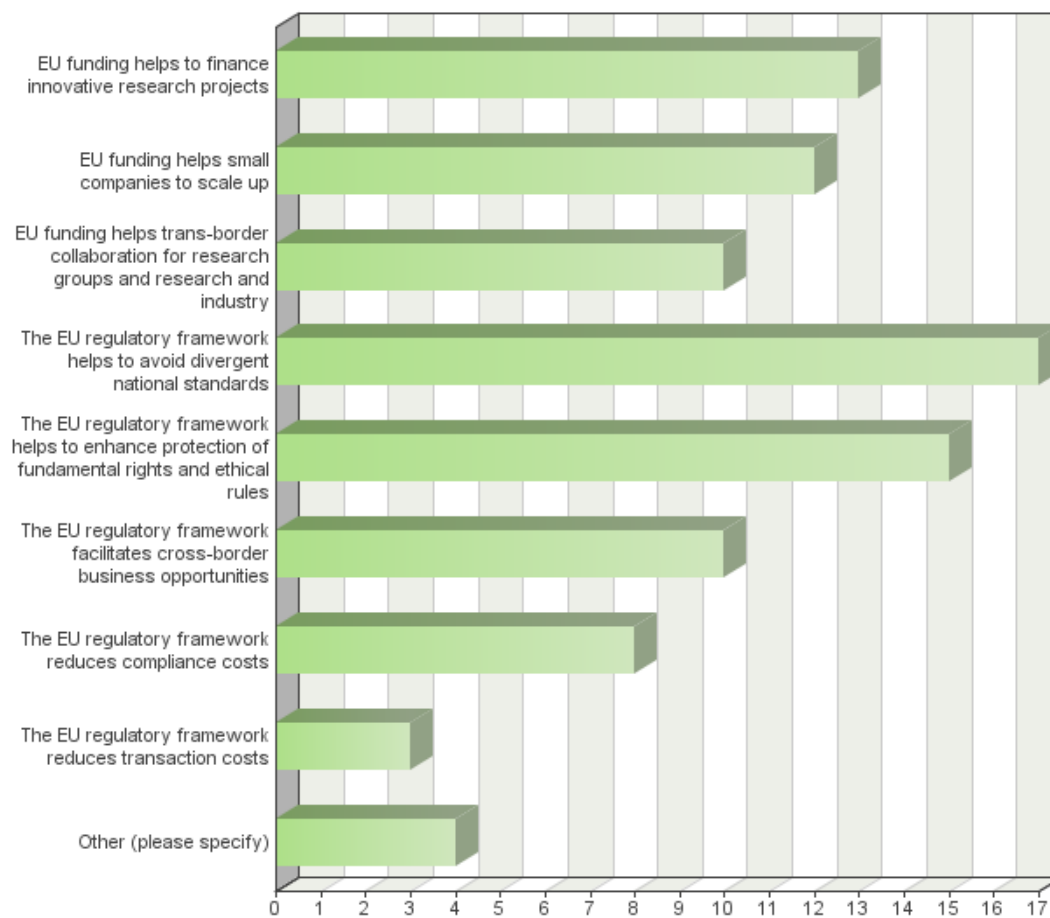
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
EU funding helps to finance innovative research projects	13	13	14.13%	44.83%	44.83%	46.43%	46.43%
EU funding helps small companies to scale up	12	25	13.04%	41.38%	86.21%	42.86%	89.29%
EU funding helps trans-border collaboration for research groups and research and industry	10	35	10.87%	34.48%	120.69%	35.71%	125%
The EU regulatory framework helps to avoid divergent national standards	17	52	18.48%	58.62%	179.31%	60.71%	185.71%
The EU regulatory framework helps to enhance protection of fundamental rights and ethical rules	15	67	16.3%	51.72%	231.03%	53.57%	239.29%
The EU regulatory framework facilitates cross-border business opportunities	10	77	10.87%	34.48%	265.52%	35.71%	275%
The EU regulatory framework reduces compliance costs	8	85	8.7%	27.59%	293.1%	28.57%	303.57%
The EU regulatory framework reduces transaction costs	3	88	3.26%	10.34%	303.45%	10.71%	314.29%
Other (please specify)	4	92	4.35%	13.79%	317.24%	14.29%	328.57%
Sum:	92	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	4.24	Minimum:	1	Variance:	5.37	
Median:	4	Maximum:	10	Std. deviation:	2.32	

Total answered: 28

Text input

More transparency by AI companies on their policies, for instance their ethical and safety policies.

The definition of EU rules and guidelines on data access and ownership, would avoid the cost of local divergent views on those fundamental topics that could lead to unfair business practices as well as restrain the full potential of products technologies

Nos remitimos a la amplia explicación reseñada en respuestas anteriores.

See the reference to the concept of 'harmonisation', at section 3.

We agree with Rapporteur Mady Delvaux (S&D, LU) who said: "A growing number of areas of our daily lives are increasingly affected by robotics. In order to address this reality and to ensure that robots are and will remain in the service of humans, we urgently need to create a robust European legal framework".

Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).

N/A

Apart from dedicated funding for general and applied AI research, we believe that the EU could help encourage more dialogue and cooperation on the long-term research goals within the field in order to help accelerate the search for safe and beneficial general artificial intelligence.

Question 47

Are there areas in your industry where potential innovation and growth based on new technological developments are at a standstill, due to a lack of or outdated EU law and policy? *
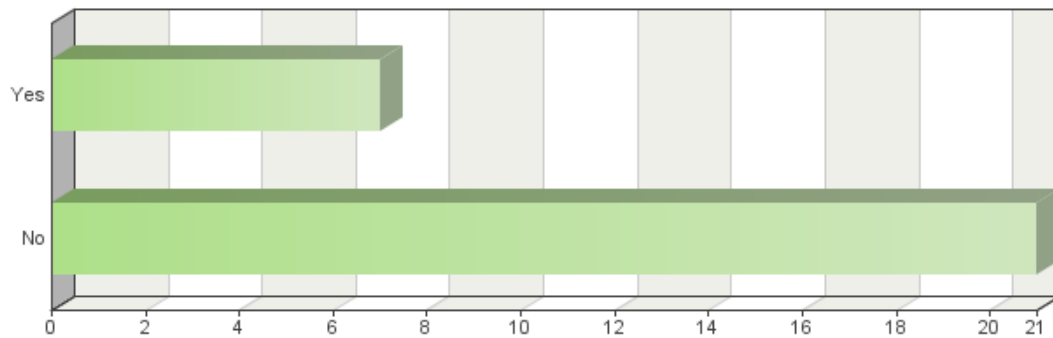
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Yes		7	7	24.14%	24.14%	25%	25%
No		21	28	72.41%	96.55%	75%	100%
Sum:		28	-	96.55%	-	100%	-
Not answered:		1	-	3.45%	-	-	-
Average:	1.75	Minimum:	1		Variance:	0.19	
Median:	2	Maximum:	2		Std. deviation:	0.44	

Total answered: 28

Question 48

You have indicated that EU law and policy is lagging behind your industry/organisation's needs, what in your opinion are the main problems? Please explain: (optional)

Text input
First, the AI is not possible to be call "electronic person", machines are things, no has got rights. -the protection is for human rights and workers rights. If a machine adopts the term of electronic person, it will have right to preside or to associate with a mercantile company and therefore to be rich. It can not be a wealthy AI or run a business, it would be the end of our system. Money corrupts everything.
The current EU law and Policy an data access and ownership should be improved to better define rights and obligations of actors involved in the value chain. In the automotive industry case, the enhanced benefits on safety and CO2 emissions reduction ca, be achieved by a full and fair access to data generated by sensors on the vehicle and its parts.
Privacy law needs to be updated for AI and for the use of Big Data. Even the GDPR is already outdated due to the nature and power of data processing systems. EU legislation and regulation should make it easier for data to be shared while maintaining strong sanctions against organisations that abuse privacy. Also there are signs that EU policy is considering the application of economic regulation (competition law) to organisations on the basis of the quantities of data they hold. The EU should hold off on this and wait to see how practices evolve. There is no evidence that consumers are being harmed from a competition law perspective from the digital economy.
We need a framework of legal responsibility for robots/AI

Question 49

You have indicated that EU law and policy is lagging behind your industry/organisation's needs, what in your opinion is the financial impact of those issues being unresolved? (Please provide estimate if possible): (optional)

Text input
read more in: http://postuladosroboticos.blogspot.com.es/2007/11/treaties-on-artificial-intelligence.html, and all POSTULATES ROBOTICS in internet
no data available
We haven't quantified this.
Recent research estimates that AI could double annual economic growth rates by 2035 for 12 developed countries that generate more than 50% of the world's economic output, and boost labor productivity by up to 40%. This potential will not be achievable if regulations exist that act as barriers to continued innovation of AI.
A disincentive to use AI in the context of professional work

Question 50

You have indicated that EU law and policy is lagging behind your industry/organisation's needs, what in your opinion can be done to address the situation? What types of measures/incentives/investments are necessary? At what level? (Please explain): (optional)

Text input
The cost of non-european harmonised Policy in dealing with connectivity emerging issues could risk to create a market with local different rules that can be unmanageable when value chain actors operate from different locations. This would result into increased litiogation cases with relative costs and negative impacts on businesses involved. EU binding rules or at least Framework guidelines (ideally sector specific) would help reduce the risks mentioned above.
The EU should not develop economic regulation to address anxiety about the use of data.
• Stimulate the development and deployment of innovative applications of AI, including its use in the public sector and innovative applications of AI to address public and societal challenges • Support and incentives can be provided for development and implementation of relevant programs and tools that can help more people develop needed skills
Ensure standardisation and uniform rules in regulated environments, but no additional administrative burden that could impede innovation, such as registration of robots, or an approval system for research and innovation activities. Regulation and legislation may need to be revised, but for individual sectors.

Question 51

What is the net impact of increased digitalisation and automation in your industry/organisation on employment? *
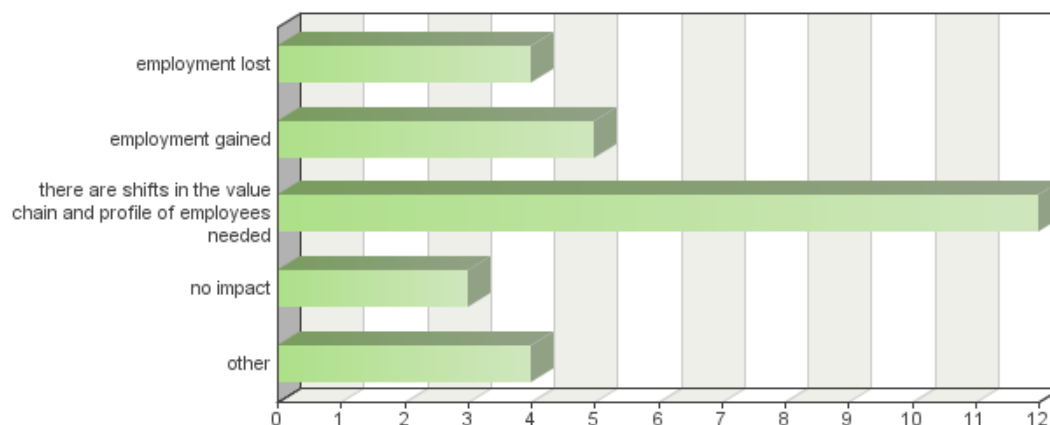
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
employment lost	4	4	13.79%	13.79%	14.29%	14.29%
employment gained	5	9	17.24%	31.03%	17.86%	32.14%
there are shifts in the value chain and profile of employees needed	12	21	41.38%	72.41%	42.86%	75%
no impact	3	24	10.34%	82.76%	10.71%	85.71%
other	4	28	13.79%	96.55%	14.29%	100%
Sum:	28	-	96.55%	-	100%	-
Not answered:	1	-	3.45%	-	-	-

Average:	2.93	Minimum:	1	Variance:	1.48	
Median:	3	Maximum:	5	Std. deviation:	1.21	

Total answered: 28

Text input

Employment will change, not increase or decrease.

Les compétences requises et profils demandés évoluent, les employés doivent être formés, certains emplois vont disparaître et de nouveaux vont émerger

Les compétences requises et profils demandés évoluent, les employés doivent être formés, certains emplois vont disparaître et d'autres émerger. Par exemple, après installation d'une cellule robotisée en industrie, le métier de l'opérateur évolue vers celui de programmateur/superviseur de cellule.

While preserving a strong manufacturing identity, the tyre industry will face the reality of new challenges in dealing with data elaboration for tyre development (skilled me-chem-tronic-engineers are needed), new services (IT developer, on field personnel). Within the production process, the increased automation of machines and presence of sensors might bring to a shift from products repair to preventive maintenance activities.

Respondemos a esta cuestión de forma exhaustiva y detalla en las cajas de texto de las dos próximas preguntas ("Ha indicado que los avances en el ámbito de la robótica y la inteligencia artificial tienen un efecto en el empleo en su sector. Sírvase explicarlo, es decir, dónde están esas pérdidas o ganancias ¿Qué tipo de cambios en los perfiles de empleo están teniendo lugar? ¿Qué perfiles de empleado están en peligro, y cuáles son solicitados? ¿Qué tipo de medidas respaldaría a escala de la UE al objeto de abordar los efectos en el mercado laboral y las estructuras de empleo? (facultativo)" y "¿Qué medidas debe adoptar la UE para hacer frente a los riesgos sociales y económicos relacionados con los avances y la utilización de la robótica y la inteligencia artificial en su sector? (facultativo)")

It is not within the scope of EDRi's work.

We also consider the shifts in the value chain and profile of employees needed important.

Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).

N/A

In the areas of AI R&D as well as consulting related to narrow AI applications we witness a strong employment gains.

education and (re-)training of workforce need to be increased, job profiles will change, and employee profiles will change

This question is out of our scope of work.

The digitisation of industry may lead to increasing job polarisation, with growth in both low-paying and high-paying jobs but a loss of middle-paying jobs. That is a challenge to the whole of society and not just to roboticists.

Question 52

You have indicated that developments in robotics and AI have an impact on employment in your industry. Please explain, i.e. where are the gains or losses? What type of shifts in employment profiles are taking place? Which employee profiles are at risk, and which profiles are in demand? What kind of measures at EU level you would support to address the impacts on the labour market and employment structures? (optional)

| Text input |
| --- |
| All the employees are at risk. Blue and white collar |
| Different skills will be needed in the future. Repetitive labour will disappear. Not only low educated labour but also high educated labour. People will need to learn how to handle AI technology applications. Education should facilitate this. |
| As a company working on the ethics of technology, progress in this field means more work and more jobs, as there is more demand for our services to tackle ethical, privacy and acceptability issues. |
| Big business using AI to work on Big Data can be a competitive stumbling block, until these algorithms trickle down in price and up in usability. |
| Les problèmes principaux: le parc machines installé est vieillissant, la compétitivité décroît, la concurrence internationale est de plus en plus rude. |
| Employee lacking computer skills are at risk. Demand for technical engineers, software engineers and data analist |
| same comment as the question above For the Automotive sector, the needs have been identified through the Automotive skills Council and can be consulted in the following link: http://euautomotiveskillscouncil.eu/ |
| En UGT hemos analizado más de 50 estudios de entidades de prestigio relacionados con el impacto de la digitalización del trabajo: desde la OCDE a la Universidad de Oxford, pasando por el Foro Económico Mundial, el Banco Mundial, Bank of America, Bankinter, Citibank, Caixabank y el Banco de Inglaterra, los análisis de la Administración Obama, la Comisión Europea y la OIT, hasta los confeccionados por consultoras como Accenture, McKinsey y PwC. Y todos ellos, hasta los más optimistas, coinciden en sus conclusiones: la Cuarta Revolución Industrial destruirá empleo neto en un primer momento. Es una conclusión unánime. Las discrepancias entre los diferentes estudios estriban en el número total neto de empleos perdidos y si, como en anteriores revoluciones industriales, con el paso de un largo tiempo, la progresiva adaptación de la fuerza de trabajo pueda revertir esta masiva destrucción de empleo. El análisis de las metodologías aplicadas a estos estudios - tanto aquellos que especulan con crecimientos de empleo en determinados sectores, como aquellos que cuantifican en millones de puestos de trabajo las pérdidas de empleo- junto con nuestro conocimiento del mercado laboral español y del comportamiento histórico de nuestra economía, nos permiten vaticinar que la maquinización podría destruir entre medio millón y 750.000 de empleos netos en los próximos 5 a 10 años. De este modo, la tasa de paro, sino ponemos medidas, podría ascender hasta un 22-24%, del cual un 18% sería estructural. Se trata de una visión tecno-realista y en absoluto catastrofista, sino real y plenamente coincidente con las que efectúan todas las organizaciones consultadas. |
| It is not within the scope of EDRi's work. |
| AI can be an important mean of addressing critical challenges such as: falling productivity, aging workforce and increased global competition. Certain groups are also excluded from the economic sector because of location, language barriers or impairments: AI and machine learning are opening up opportunities to solve even bigger societal challenges. In our opinion it's important that technology is deployed in a thoughtful way, alongside government economic policies that mitigate against risks. |
| Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages). |
| As we have mentioned, we witness a strong employment gains in the areas of AI R&D as well as consulting related to narrow AI applications. We are continuously seeking for talent globally. We look for highly skilled and creative AI researchers, SW developers and consultants which are able to put results of our basic R&D in commercial use. |
| The robotics' sector growth will have a significant employment effect in Europe. Impact in user industries (automotive, general industries, also SMEs etc.) expected to have positive net effect as well due to productivity increase. Most likely, jobs will be shifted from jobs in the production to adjacent services (marketing, sales, distribution) within the companies as well as services losely linked to that (third-party service providers). EU should analyse effects in an own study (e.g. similar methodology as OECD study- http://www.oecd-ilibrary.org/social-issues-migration-health/the-risk-of-automation-for-jobs-in-oecd-countries_5jlz9h56dvq7-en). |
| There is no widely held consensus on whether AI will create more jobs than it replaces, but there is general agreement that AI will shape the future of work as a result of the following effects, which are discussed in more detail below: • Reorganization of businesses that can lead to replacement of existing jobs and creation of new jobs; • Creation of new models of work, including the flexible work models typical of the platform economy; and • Shortage of required skills. Some more concrete concerns are whether the benefits of AI will be evenly distributed among labor groups (or will be focused in the highly skilled ones). A number of recent reports quantified the extent to which jobs may be directly replaced by automation, including a widely quoted estimate from University of Oxford that 47% of total US employment is at risk due to computerization; a World Bank estimate that 57% of jobs in OECD countries could be automated; and a recent paper estimating that each robot deployed per thousand workers decreased employment by 6.2 workers and wages by 0.7%. Recent announcements from BlackRock, the world's largest investment fund company, and Bridgewater, the world's largest hedge fund, that they were relying more on AI and data-driven models to improve returns for customers are clear indications that job replacements will extend to white-collar positions as well. Policy measures to be considered by governments: • Commit to computer science • Invest in training and certification for technology and cognitive skills for people at all stages of the work continuum and different levels of education • Encourage innovative uses of AI • Support research on the impact of technology on the workforce and national economy and better metrics • Modernize tax and labor laws to consider the task workers • Partner and collaborate with others |

Recent breakthroughs in AI and machine learning are opening up opportunities to solve even bigger societal challenges. Many countries are experiencing falling productivity, an aging workforce, and increased global competition. Certain groups are excluded from the economic sector because of location, language barriers or impairments. AI can be an important means of addressing such critical challenges. It is important that technology is deployed in a thoughtful way, alongside government economic policies that mitigate against risks.

The EU should take legislative action to protect the rights of users in the contact of AI and robots, to develop binding technologically-neutral digital security measures and create incentives for connectivity and competition. The EU is best place to take those actions to ensure harmonisation benefiting both users and market players. Generally, regarding users' right to data protection and privacy, while some aspect of the use of algorithms are addressed under the EU General Data Protection Regulation, further legislation will be needed to address the use and creation by robots and AI, and their impact on human rights. Similarly, specific rules for digital security should be developed for this specific context. Data protection authorities should also be equipped - from a technical and financial perspective - to address new emerging issues related to the increased use of AI and robots.

As an international public policy think tank, our answers reflect the economy as a whole, and not just the think tank sector. As Rob Atkinson, president of the Information Technology and Innovation Foundation (ITIF), wrote on April 21, 2017 in National Review, many often-cited studies about the supposedly devastating impact AI will have on employment are fundamentally flawed, particularly "The Future of Employment" (Frey and Osborne, 2013), PwC's 2017 Economic Outlook report, and World Economic Forum's 2016 report, "The Future of Jobs." For example, Frey and Osborne found that 47 percent of U.S. jobs could be eliminated by technology over the next 20 years, yet apparently include occupations in this estimate that have little chance of being automated, such as fashion models. Better studies, such as ITIF's "Think Like an Enterprise" and McKinsey Global Institute's "A Future That Works," portray the impact of AI and robotics on employment much more accurately. For example, McKinsey estimates that 50 percent of work activities could be automated, but only 5 percent of jobs could actually be fully automated. The vast majority of AI will be complementary to occupations–an AI system will help a doctor do her job better, not replace her. As AI and automation proliferate, certain occupations will grow while others decline, particularly lower-skilled occupations. To the extent that AI will impact these occupations however, the EU is well-positioned to take advantage of this situation, as according to the European Commission's analysis, "Skills under-utilisation across countries in 2014," 40 percent of EU workers are overqualified for their jobs. As low-skill occupations decline and high-skill occupations grow, these workers can transition to more fulfilling, higher-paying positions.

The influences of robots on the job market cannot easily be elaborated and proven scientifically and several studies branding robots as job killers have been intensively criticised. However, Eurobarometer data show that 73% of Europeans are concerned about robots stealing people's jobs. It has even been argued that up to 47% of jobs can be automated within the next 20 years, suggesting the possibility of mass technological unemployment. However, these warnings disclose neither an understanding of robotics in different applications, nor of the functioning of labour markets. The consensus among labour economists is that technological progress since the industrial revolution in the 19th century has not caused an increase in unemployment in the long run. In many countries, the installation of more robots has led to higher productivity, along with improved working conditions, safety levels, product quality and overall quality of life.

No employee profiles at risk. More AI means more needs in highly skilled developers and data scientists. + more needs in methodology development.

Question 53

What measures, should the EU adopt to address societal and economic risks related to the development and use of robotics and AI in your field? (optional)

Text input
Universal Basic Income. A new model of taxing
Start initiatives to help people and societies change, accept, and exploit new technologies.
Provide a rights-based regulatory framework that can promote the good practices that can become global standards. GDPR is a good step in this direction, as well as the work of WP29. However, EU institutions do not always show awareness of the need to uphold a 'EU model? when it comes to technological uptake.
Design an ethics common core ruleset.
Il serait nécessaire de soutenir l'investissement productif. En effet, la technologie et son accessibilité contribuent à lutter à "armes égales" face à la concurrence internationale. Il est également impératif de travailler sur l'acceptation sociale de la robotique (information, pédagogie, formation à l'usage des nouvelles technologies, qui sont les conditions de la réassurance des parties prenantes). Par ailleurs, le développement de ces nouvelles technologies pourrait être soutenu par le biais de mesures fiscales incitatives, comme un amortissement accéléré lors de l'acquisition d''une solution robotique, ou des programmes d'aide à l'acquisition de solution robotique pour les primoaccédants et les PME. Enfin, l'UE devrait également se pencher sur un cadre éthique.
Make robotics Low Tech and available to everyone. Ultimately the development of Robots and Robotic applications should be as easy as playing with Lego. Not exclusive to a limited of high demand engineers and companies.
Availability of skilled resources capable to face industry Manpower needs could be jeopardized across the EU. Unless a Community action is put in place for an educational upgrade on most required profiles.
Del mismo modo, la maquinización aumentará la desigualdad a porcentajes desconocidos hasta la fecha. Los empleos que se perderán serán los menos cualificados, los que comprendan tareas repetitivas, rutinarias o fácilmente previsibles. Precisamente el empleo más precario en derechos y remuneración. Los informes que más profundizan sobre el impacto de la digitalización de las actividades en términos de formación académica o por remuneración son los confeccionados por el National Science and Technology Council, organismo dependiente de la Casa Blanca estadounidense y por la OCDE. El primero de ellos estima que los trabajadores que ganan menos de 20$ la hora tienen hasta un 83% de riesgo real de automatización de su puesto de trabajo. En España, el 15% de los trabajadores ganan menos de 10 euros la hora y otro 15% gana unos 6,6 euros. Es más, el salario medio en España está por debajo de dicho margen: 15,7 euros. Por otro lado, la OCDE afirma que el 50% de los trabajadores con estudios menores a la educación secundaria están en riesgo de perder su empleo por la automatización. En España hay 5,11 millones de trabajadores con estudios inferiores a la segunda etapa de educación secundaria, bajo el peligro de esa espada de Damocles. En conclusión, desde UGT estamos en disposición de asegurar que, si no ponemos remedio con antelación, la maquinización del trabajo emanada de la Cuarta Revolución Industria aumentará hasta límites desconocidos hasta la fecha, redundando en pérdidas masivas de empleo y aumentando la desigualdad social. Para finalizar, las propuestas de UGT para reencaminar esta situación las hemos expuesto en la parte primera de este Cuestionario, por lo que nos remitimos a ellas al objeto de no ser repetitivos ni consumir más espacio.
Robotics and AI need a harmonised framework legislation that maintains the high level standard of protection for the fundamental rights of EU citizens and thereby supports innovation. The range of potential harms is wide and is likely to grow. In fact, while first generation robots will be likely to create physical harm to humans (due to malfunctions in mechanics, software design or network failures), evolution in the nature of AI and robotics are likely to lead to an evolution in the types of harm that may be cause.. As explained above, some of the risks can be addressed by a good implementation and enforcement of the GDPR. The ePrivacy reform is essential to ensure privacy, confidentiality of communications, trust and security in the digital environment. Other types of legislation covering product liability and safety are needed.
The EU should adopt strong measures to safeguard fundamental rights, with reference in particular to privacy and human dignity.
i.e: scaling-up reskilling programs, hackathons and open challenges around mitigating the risks of AI and robotics, vocational training, gather and publish best-practices and case studies.
Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).
In terms of development of general-purpose AI, at the current level of knowledge the EU should encourage AI developers to work in cooperative ways in order to discourage the build-up of race dynamics between AI companies / developers. As there is very high uncertainty about the future of AI development, the EU should encourage further cooperative and multidisciplinary research, including areas such as AI safety, societal and economic impacts of AI. Having considered the high level of uncertainty, the EU should limit any regulatory activities before there are sound findings of above described research available.
Assess cost of "non-robotics use" (similar to cost of non-Europe). Unified pragmatic approach to data protection regultion and data ownership issues on an European level.
Policy makers should consider: - Continuing broad dialogues between governments, business, researchers, civil society and others on how AI can be shaped to maximize its potential and mitigate its risks and impacts. Throught these dialogues, these stakeholders can interact and learn from each other, prioritize issues of societal importance, and more importantly, work together to track challenges and develop workable solutions as new issues emerge. An inclusive approach that continues to value multi-disciplinary and multi-stakeholder contributions and actions can motivate a more open and collaborative model to policy development that would be appropriate for adapting to rapidly evolving technologies going forward. They also facilitate development of more principle- and evidence-based policy frameworks that can lead to more meaningful regulations, where desirable outcomes that are aligned with the vision of a more humanistic AI are encouraged.; - Encouraging the application of AI to address public and social challenges;

Support experiments in scaling-up reskilling programs, support hackathons and open challenges around mitigating the risks of AI and robotics, vocational training, gather and publish best-practices and case studies

The development of robotics laws can be highly philosophical and challenging. In that context, the original laws of robotics developed by science fiction author Isaac Asimov offers some basis for reflection: A robot may not injure a human being or, through inaction, allow a human being to come to harm A robot must obey the orders given by human beings except where such orders would conflict with the first law A robot must protect its own existence as long as such protection does not conflict with the first or second laws Robots and AI should be built by humans for humans' interests. Research and developments must be carried out in a way that fundamental rights are protected and respected. Despite positive intention, however, robots and connected machines might be involved in accidents or create accidents; the question of liability becomes central. The Massachusetts Institute of Technology (MIT) for instance looked into the liability of connected vehicles. "How should the car be programmed to act in the event of an unavoidable accident? Should it minimize the loss of life, even if it means sacrificing the occupants, or should it protect the occupants at all costs? The answers to these ethical questions are important because they could have a big impact on the way self-driving cars are accepted in society. Who would buy a car programmed to sacrifice the owner?". From an ethical, philosophical or, even cultural perspective, any of these answers might be correct or argued for, which is why it will be crucial to request wide public participation in the development of these rules to ensure that society is, as comfortable as one can be, with the final rules." Further to the liability question, designers may be required to provide access to the source codes related to AI and robots to investigate accidents and damage caused. Lastly, the creation of specific legal status for robots - or even cyborgs in the long run - could be envisaged to address their place and role in society, as well as larger liability issues. Finally, specific protection against surveillance (including tracking) of devices must be provided - perhaps though the reform of the e-Privacy Directive - to ensure users' privacy. Devices surveillance put any users at risk and can be particularly invasive for vulnerable users, including children. Examples of such practices exist as demonstrated by the Norwegian Consumer Council who brought up privacy complaints against the surveillance capabilities of the doll Cayla. Research from the MIT Media Lab on robots and children highlighted the potential of robots to help and entertain children but also to change their behaviour after short term interaction. Conclusion from a workshop on this issue also indicated that "Researchers must also address data collection and analysis methods, as there are already problems resulting from commercialized products using the cloud to collect children's data, raising concerns of threatening their privacy."

The EU should adopt measures to strengthen vocational training and re-skilling programs, as well as increase investment in using AI and data to personalize learning, which could be a boon to re-skilling efforts.

euRobotics agrees strongly with the parliamentary resolution that changes in the jobs market is a key issue and believes that the teaching of digital skills, as well as lifelong learning, will grow in importance. Research and initiatives such as the Future Work Lab, which opened recently in Germany to showcase and develop approaches to future industrial work, not necessarily with robots, should be supported. The evaluation in Europe of socio-economic factors not only in relation to national output but also to other criteria like the overall well-being of society, as in Bhutan, should be considered.

Testing / staging environments. Access to pilot experimentations at EU level.

Question 54

Which industry (sector) do you think will experience fastest economic growth in the next three-five years, due to the development and application of robotics and AI? (Maximum three answers): *
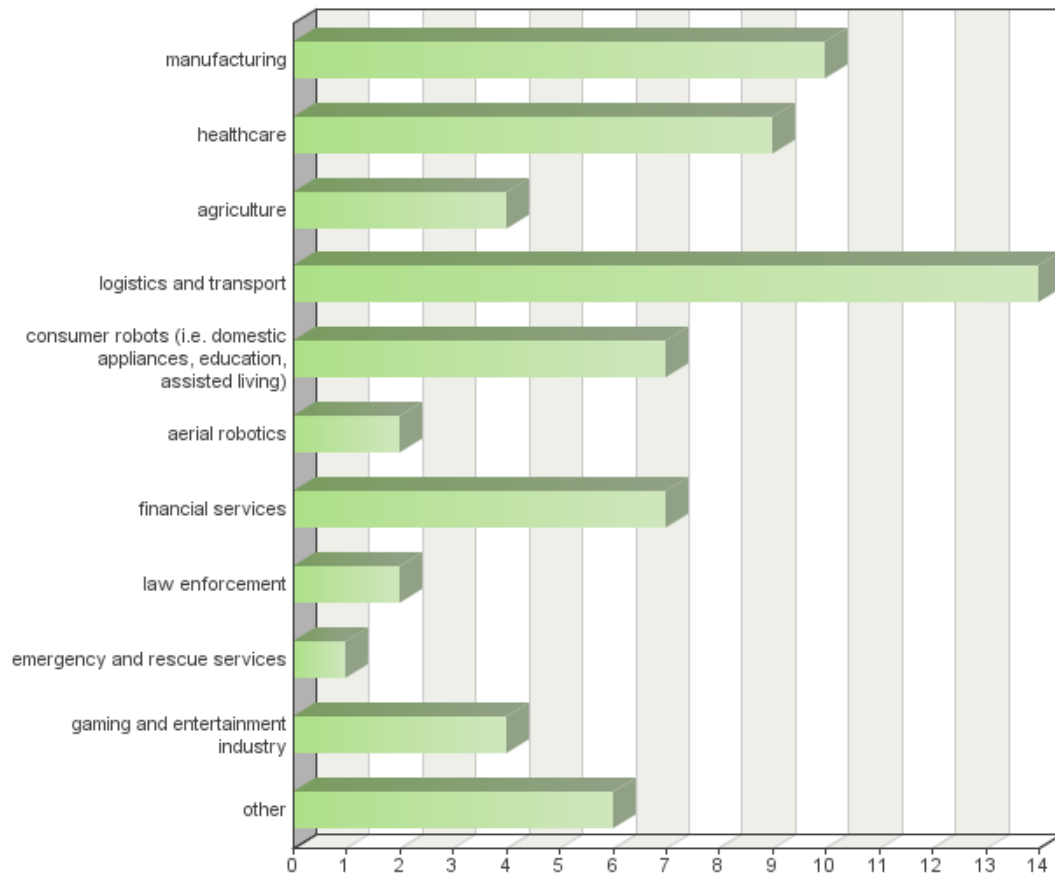
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
manufacturing	10	10	15.15%	34.48%	34.48%	35.71%	35.71%
healthcare	9	19	13.64%	31.03%	65.52%	32.14%	67.86%
agriculture	4	23	6.06%	13.79%	79.31%	14.29%	82.14%
logistics and transport	14	37	21.21%	48.28%	127.59%	50%	132.14%
consumer robots (i.e. domestic appliances, education, assisted living)	7	44	10.61%	24.14%	151.72%	25%	157.14%
aerial robotics	2	46	3.03%	6.9%	158.62%	7.14%	164.29%
financial services	7	53	10.61%	24.14%	182.76%	25%	189.29%
law enforcement	2	55	3.03%	6.9%	189.66%	7.14%	196.43%
emergency and rescue services	1	56	1.52%	3.45%	193.1%	3.57%	200%
gaming and entertainment industry	4	60	6.06%	13.79%	206.9%	14.29%	214.29%
other	6	66	9.09%	20.69%	227.59%	21.43%	235.71%
Sum:	66	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	5.5	Minimum:	1	Variance:	15.92
Median:	4	Maximum:	13	Std. deviation:	3.99

Total answered: 28

Text input

ALL SERVICE WORKS

I was just about to tick all, but I have instead chosen the ones I think would encounter this first and or strongest. My next three would be marine robotics (fishery and others), nursing and health and education.

Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).

N/A

IoT based services and hardware

energy and transportation, medical robotics

This question is out of our scope of work.

Almost all the sectors mentioned could grow as a result of using physical robots. euRobotics does not represent pure AI technology actors and therefor is unable to comment on the impact of pure AI.

Question 55

In your opinion, what are the key policy areas where EU intervention is most urgent? (max. three) *
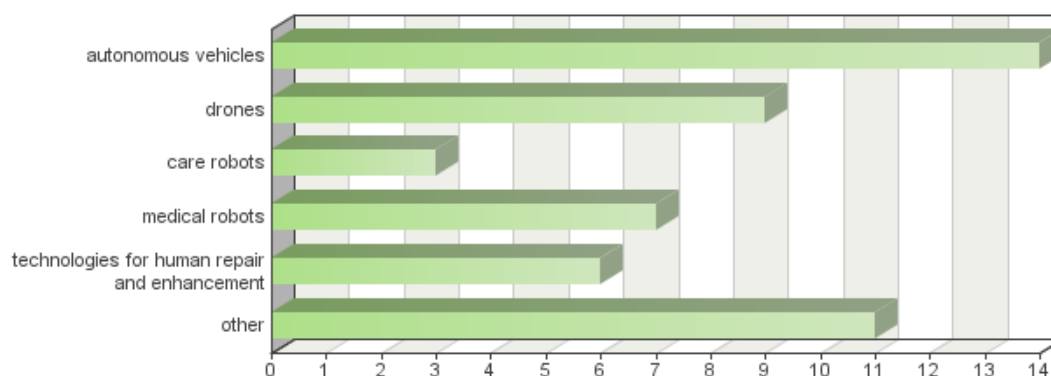
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
autonomous vehicles		14	14	28%	48.28%	48.28%	50%	50%
drones		9	23	18%	31.03%	79.31%	32.14%	82.14%
care robots		3	26	6%	10.34%	89.66%	10.71%	92.86%
medical robots		7	33	14%	24.14%	113.79%	25%	117.86%
technologies for human repair and enhancement		6	39	12%	20.69%	134.48%	21.43%	139.29%
other		11	50	22%	37.93%	172.41%	39.29%	178.57%
Sum:		50	-	100%	-	-	-	-
Not answered:		1	-	-	3.45%	-	-	-
Average:	3.3	Minimum:	1		Variance:	3.89		
Median:	3	Maximum:	6		Std. deviation:	1.97		

Total answered: 28

Text input
AI is more urgent than robotics
The area of the replacement of hum decisions by AI decisions, for instance for loans, credit rating, health treatments etc.
AI-based (or machine learning based) algorithms for predicting customer/client behaviour and coupling this with marketing and production optimisation.
"technologies for human repair and enhancement", if this refers to implanted devices.
Not applicable. GDV responds from the perspective of liability insurance only (insuring manufacturers or users of robots/AI against third-party claims for damages).
N/A
The complexity of AI systems is growing beyond human understanding. At the same time, there will be (economic) pressure to adopt more and more AI-based solutions as they increase productivity in many areas. This will increase our dependence on AI applications. The EU should focus on research on value alignment and/or control techniques in order to ensure that the AI systems are safe and beneficial to humans. At the moment, there is a global lack of government supported initiatives at sufficient scale towards these ends. The EU could become a global leader in the support of this effort.
It is yet too early to intervene in terms of regulating specific policy areas in the context of AI & Robotics.
All of the above. Human rights and security challenges of Robotics and AI are cross-cutting issues that should be addressed together, instead of developing a patchwork of legislation which will be lengthy and would risk letting some activities and users effectively unprotected. Those challenges and risks should be addressed and applied in a technology-neutral manner, with the flexibility to develop sector specific rules for more granular issues.
Research and development for industrial robotics
We as an association cannot prioritise the given answer options; many fields are relevant and we would need to know the exact status for each one to be able to assess the most urgent needs.

Question 56

You are welcome to provide feedback to all six themes above, or selectively, only to those you find most urgent for your industry/organisation. Please select area(s) on which you would like to provide the answers. *
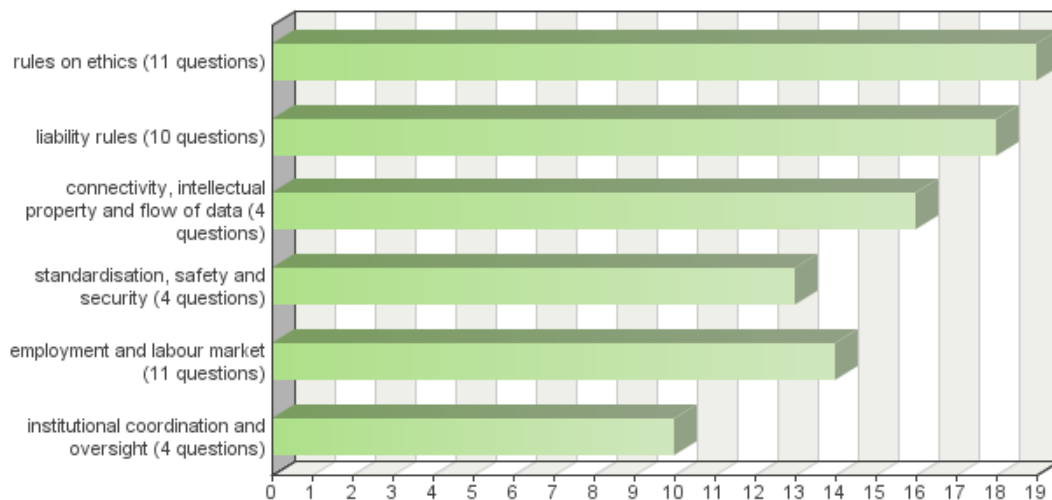
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
rules on ethics (11 questions)	19	19	21.11%	65.52%	65.52%	67.86%	67.86%
liability rules (10 questions)	18	37	20%	62.07%	127.59%	64.29%	132.14%
connectivity, intellectual property and flow of data (4 questions)	16	53	17.78%	55.17%	182.76%	57.14%	189.29%
standardisation, safety and security (4 questions)	13	66	14.44%	44.83%	227.59%	46.43%	235.71%
employment and labour market (11 questions)	14	80	15.56%	48.28%	275.86%	50%	285.71%
institutional coordination and oversight (4 questions)	10	90	11.11%	34.48%	310.34%	35.71%	321.43%
Sum:	90	-	100%	-	-	-	-
Not answered:	1	-	-	3.45%	-	-	-

Average:	3.17	Minimum:	1	Variance:	2.81
Median:	3	Maximum:	6	Std. deviation:	1.68

Total answered: 28

Question 57

In your opinion, what are the main risks related to the use of autonomous robots and AI? (max. three choices) *

Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
human safety	7	7	15.22%	24.14%	24.14%	36.84%	36.84%
freedom	2	9	4.35%	6.9%	31.03%	10.53%	47.37%
privacy	11	20	23.91%	37.93%	68.97%	57.89%	105.26%
integrity	1	21	2.17%	3.45%	72.41%	5.26%	110.53%
dignity	2	23	4.35%	6.9%	79.31%	10.53%	121.05%
self-determination	6	29	13.04%	20.69%	100%	31.58%	152.63%
non-discrimination	4	33	8.7%	13.79%	113.79%	21.05%	173.68%
security	6	39	13.04%	20.69%	134.48%	31.58%	205.26%
personal data protection	4	43	8.7%	13.79%	148.28%	21.05%	226.32%
other, please explain	3	46	6.52%	10.34%	158.62%	15.79%	242.11%
Sum:	46	-	100%	-	-	-	-
Not answered:	10	-	-	34.48%	-	-	-

Average:	5.93	Minimum:	1	Variance:	10.37	
Median:	6.5	Maximum:	11	Std. deviation:	3.22	

Total answered: 19

Last choice text input
All of the above principles/rights are at potential risks and are inter-linked. Unless all of the above principles/rights are protected through robust safeguards, we should not pursue the development of robotics and AI.
These technologies pose few, if any, risks that will not be mitigated by existing market forces and policies
They are different for robotics and pure AI technologies and depend strongly on the sector where the technology is applied.

Question 58

Do you support the introduction of a common European definition for a smart robot? *
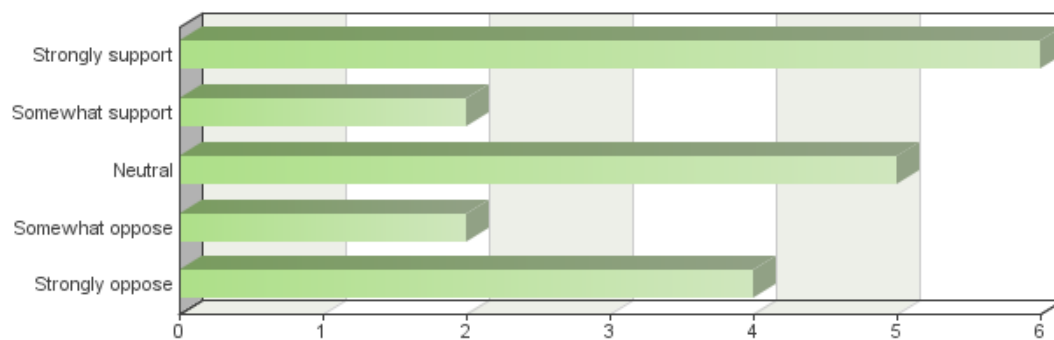
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		6	6	20.69%	20.69%	31.58%	31.58%
Somewhat support		2	8	6.9%	27.59%	10.53%	42.11%
Neutral		5	13	17.24%	44.83%	26.32%	68.42%
Somewhat oppose		2	15	6.9%	51.72%	10.53%	78.95%
Strongly oppose		4	19	13.79%	65.52%	21.05%	100%
Sum:		19	-	65.52%	-	100%	-
Not answered:		10	-	34.48%	-	-	-
Average:	2.79	Minimum:	1		Variance:	2.4	
Median:	3	Maximum:	5		Std. deviation:	1.55	

Total answered: 19

Question 59

In your opinion what key specific characteristics of a smart robot must be reflected in the definition of an autonomous robot *

Levels Acquires autonomy through sensors and/or by exchanging data with its environment (inter-connectivity) and trades and analyses data

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	5	5	17.24%	17.24%	62.5%	62.5%
Important	2	7	6.9%	24.14%	25%	87.5%
I do not know	1	8	3.45%	27.59%	12.5%	100%
Sum:	8	-	27.59%	-	100%	-
Not answered:	21	-	72.41%	-	-	-

Average:	1.88	Minimum:	1	Variance:	2.98
Median:	1	Maximum:	6	Std. deviation:	1.73

Total answered: 8

Levels It is self-learning from experience and by interaction

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	6	6	20.69%	20.69%	75%	75%
Important	1	7	3.45%	24.14%	12.5%	87.5%
I do not know	1	8	3.45%	27.59%	12.5%	100%
Sum:	8	-	27.59%	-	100%	-
Not answered:	21	-	72.41%	-	-	-

Average:	1.75	Minimum:	1	Variance:	3.07
Median:	1	Maximum:	6	Std. deviation:	1.75

Total answered: 8

Levels Has a physical support

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	2	2	6.9%	6.9%	25%	25%
Important	2	4	6.9%	13.79%	25%	50%
Neutral	2	6	6.9%	20.69%	25%	75%
Not at all important	2	8	6.9%	27.59%	25%	100%
Sum:	8	-	27.59%	-	100%	-
Not answered:	21	-	72.41%	-	-	-

Average:	2.75	Minimum:	1	Variance:	2.5
Median:	2.5	Maximum:	5	Std. deviation:	1.58

Total answered: 8

Levels Adapts its behaviour and actions to its environment

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	5	5	17.24%	17.24%	62.5%	62.5%
Important	2	7	6.9%	24.14%	25%	87.5%
I do not know	1	8	3.45%	27.59%	12.5%	100%
Sum:	8	-	27.59%	-	100%	-
Not answered:	21	-	72.41%	-	-	-

Average:	1.88	Minimum:	1	Variance:	2.98
Median:	1	Maximum:	6	Std. deviation:	1.73

Total answered: 8

Levels It is not alive in the biological sense

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	4	4	13.79%	13.79%	50%	50%
Important	1	5	3.45%	17.24%	12.5%	62.5%
Neutral	1	6	3.45%	20.69%	12.5%	75%
Not at all important	2	8	6.9%	27.59%	25%	100%
Sum:	8	-	27.59%	-	100%	-
Not answered:	21	-	72.41%	-	-	-

Average:	2.38	Minimum:	1	Variance:	3.12
Median:	1.5	Maximum:	5	Std. deviation:	1.77

Total answered: 8

Text input
CAN NOT LEARN BY AUTONOMY
Collects, trades and analyses personal data
A robot is an instantiation of AI.
It is important to further specify point 2 and indicated if that the smart robot is using AI as it is the only possibility for the robot to developed beyond initial programmation.
Answer option 1: 'trade' of data not necessary in many cases. Physical support is needed, in our association, we do not consider pure AI systems. All other answers depend of the concrete application field or sector.

Question 60

Do you support the establishment of a registration system for advanced robots at EU level? *
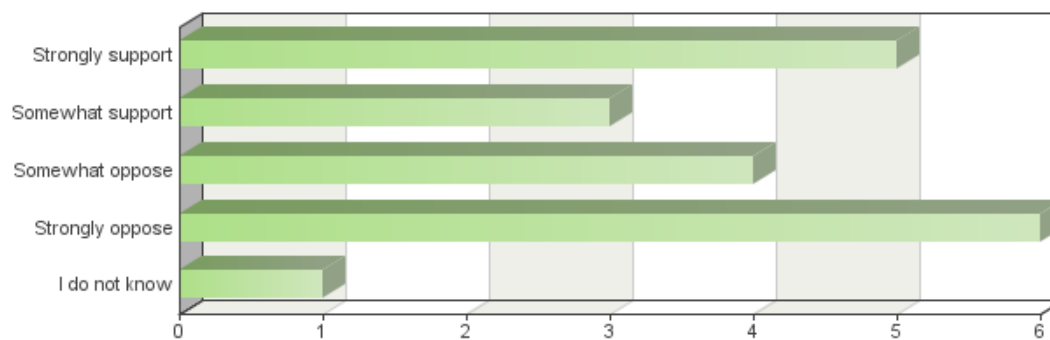
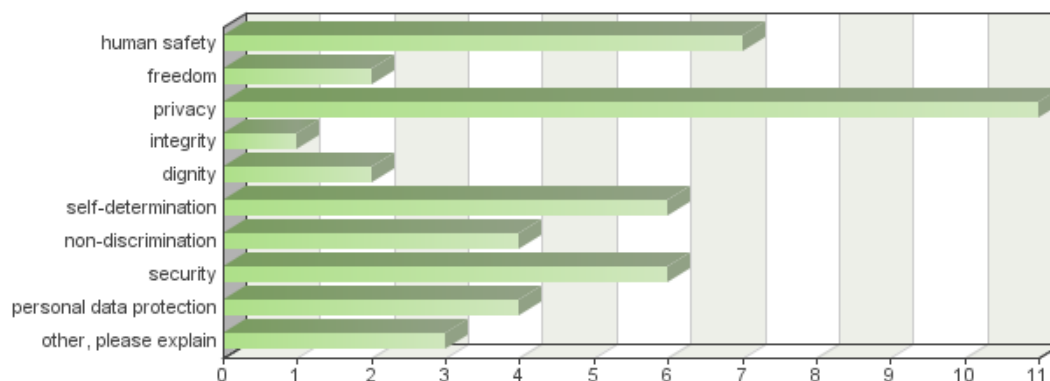## Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		5	5	17.24%	17.24%	26.32%	26.32%
Somewhat support		3	8	10.34%	27.59%	15.79%	42.11%
Somewhat oppose		4	12	13.79%	41.38%	21.05%	63.16%
Strongly oppose		6	18	20.69%	62.07%	31.58%	94.74%
I do not know		1	19	3.45%	65.52%	5.26%	100%
Sum:		19	-	65.52%	-	100%	-
Not answered:		10	-	34.48%	-	-	-
Average:	3.32	Minimum:	1		Variance:	3.23	
Median:	4	Maximum:	6		Std. deviation:	1.8	

Total answered: 19

Question 61

In your opinion, this EU level registration system for advance robots should: *

Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
be compulsory and apply only for specific categories of robots	1	1	3.45%	3.45%	12.5%	12.5%
be compulsory for all advanced robots	4	5	13.79%	17.24%	50%	62.5%
be voluntary for all advanced robots but compulsory for specific categories of robots	1	6	3.45%	20.69%	12.5%	75%
be voluntary for all advanced robots	1	7	3.45%	24.14%	12.5%	87.5%
other, please specify	1	8	3.45%	27.59%	12.5%	100%
Sum:	8	-	27.59%	-	100%	-
Not answered:	21	-	72.41%	-	-	-

Average:	2.62	Minimum:	1	Variance:	1.7
Median:	2	Maximum:	5	Std. deviation:	1.3

Total answered: 8

Last choice text input
Outside our scope of work.

Question 62

Do you support the establishment of an EU level framework for socially and ethically conscious technological development? *
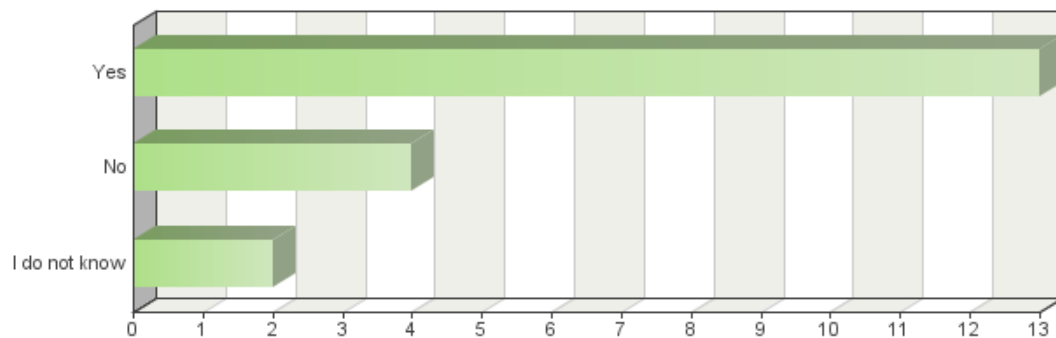
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Yes		13	13	44.83%	44.83%	68.42%	68.42%
No		4	17	13.79%	58.62%	21.05%	89.47%
I do not know		2	19	6.9%	65.52%	10.53%	100%
Sum:		19	-	65.52%	-	100%	-
Not answered:		10	-	34.48%	-	-	-
Average:	1.42	Minimum:	1		Variance:	0.48	
Median:	1	Maximum:	3		Std. deviation:	0.69	

Total answered: 19

Question 63

In your opinion, an EU ethical framework should apply to robots from the stage of *

Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
design		10	10	28.57%	34.48%	34.48%	76.92%	76.92%
production		6	16	17.14%	20.69%	55.17%	46.15%	123.08%
development		9	25	25.71%	31.03%	86.21%	69.23%	192.31%
modification		5	30	14.29%	17.24%	103.45%	38.46%	230.77%
use		5	35	14.29%	17.24%	120.69%	38.46%	269.23%
Sum:		35	-	100%	-	-	-	-
Not answered:		16	-	-	55.17%	-	-	-
Average:	2.69	Minimum:	1		Variance:	1.99		
Median:	3	Maximum:	5		Std. deviation:	1.41		

Total answered: 13

Question 64

Please indicate how important or unimportant you consider the following measures to support socially and ethically conscious technological development? *

Levels A guiding ethical framework for the design, production and use of robots.
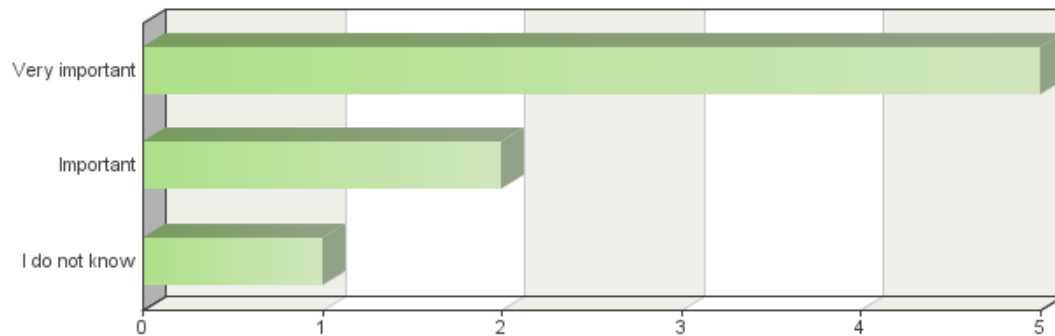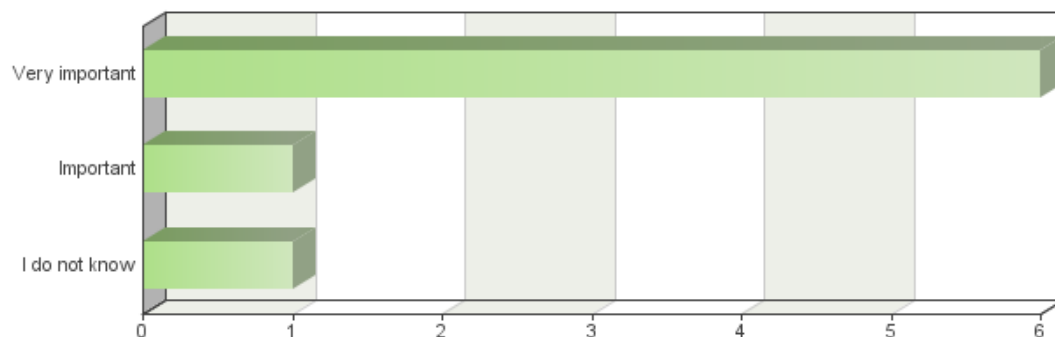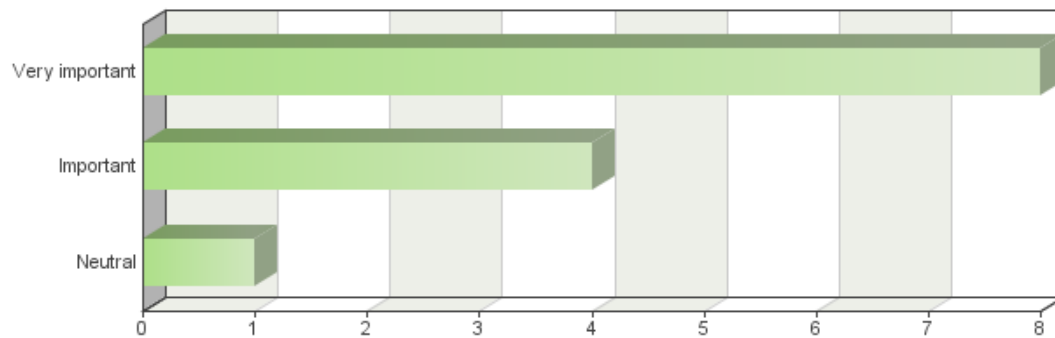

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	8	8	27.59%	27.59%	61.54%	61.54%
Important	4	12	13.79%	41.38%	30.77%	92.31%
Neutral	1	13	3.45%	44.83%	7.69%	100%
Sum:	13	-	44.83%	-	100%	-
Not answered:	16	-	55.17%	-	-	-

Average:	1.46	Minimum:	1	Variance:	0.44
Median:	1	Maximum:	3	Std. deviation:	0.66

Total answered: 13

Levels Financial support for research projects that, among other issues, address social, ethical, legal and economic challenges raised by the technological development and its application.
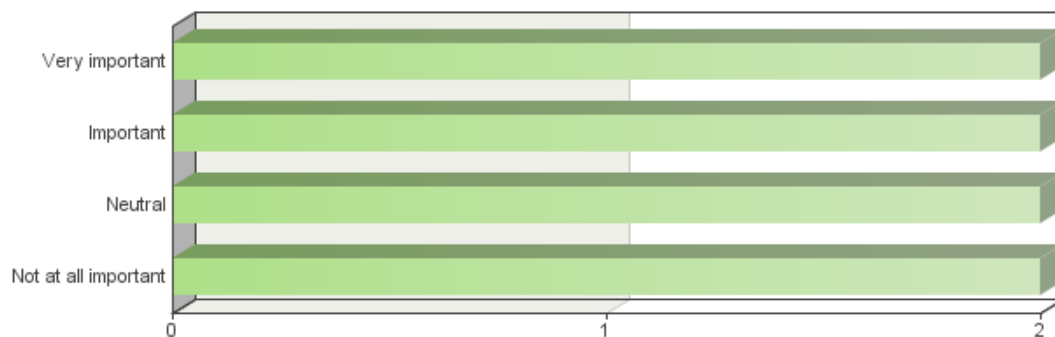
Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	7	7	24.14%	24.14%	53.85%	53.85%
Important	5	12	17.24%	41.38%	38.46%	92.31%
Neutral	1	13	3.45%	44.83%	7.69%	100%
Sum:		13	-	44.83%	-	100%	-
Not answered:		16	-	55.17%	-	-	-

Average:	1.54	Minimum:	1	Variance:	0.44
Median:	1	Maximum:	3	Std. deviation:	0.66

Total answered: 13

Levels Development and support of research programmes at EU level that include a mechanism for short-term verification of the outcomes, to understand what real risks and opportunities are associated with the dissemination of these technologies.
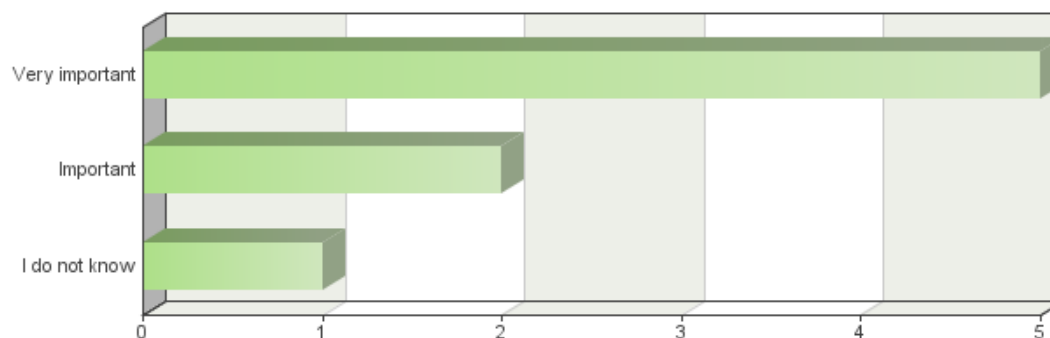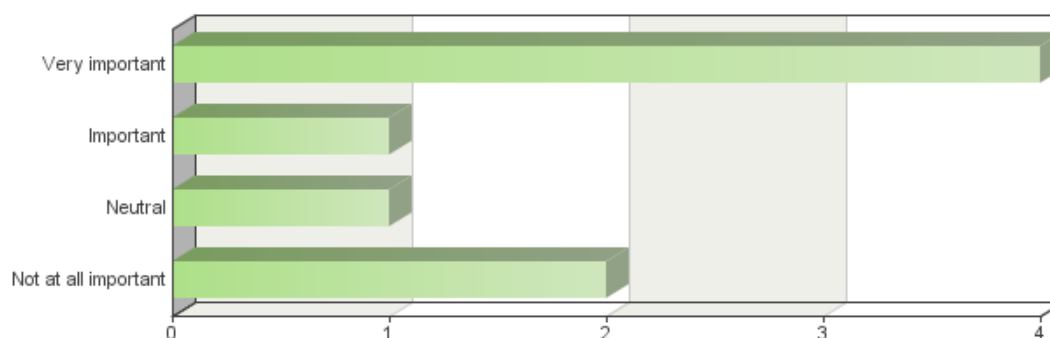

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	6	6	20.69%	20.69%	46.15%	46.15%
Important	5	11	17.24%	37.93%	38.46%	84.62%
Neutral	1	12	3.45%	41.38%	7.69%	92.31%
Not at all important	1	13	3.45%	44.83%	7.69%	100%
Sum:		13	-	44.83%	-	100%	-
Not answered:		16	-	55.17%	-	-	-

Average:	1.85	Minimum:	1	Variance:	1.31
Median:	2	Maximum:	5	Std. deviation:	1.14

Total answered: 13

Levels Development and support of initiatives and programmes that facilitate smoother transition of socio-ethical technologies from research to commercialisation on the market.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	6	6	20.69%	20.69%	46.15%	46.15%
Important	3	9	10.34%	31.03%	23.08%	69.23%
Neutral	3	12	10.34%	41.38%	23.08%	92.31%
I do not know	1	13	3.45%	44.83%	7.69%	100%
Sum:	13	-	44.83%	-	100%	-
Not answered:	16	-	55.17%	-	-	-

Average:	2.08	Minimum:	1	Variance:	2.08	
Median:	2	Maximum:	6	Std. deviation:	1.44	

Total answered: 13

Text input

We feel AI companies themselves should finance research projects that, among other issues, address social, ethical and legal challenges. This also concerns the issue of research to commercialisation on the market.

The ethics framework should be developed through multistakeholder approaches, and be principles-based, not prescriptive. It should apply to AI systems in general, and not just robots. Should be developed in coordination with other frameworks under consideration (e.g., Japan AI R&D guidelines, and the OECD project being started).

Question 65

You have indicated that a guiding ethical framework should be elaborated and adopted at EU level. In this context, how important are the following initiatives/codes of conduct? *

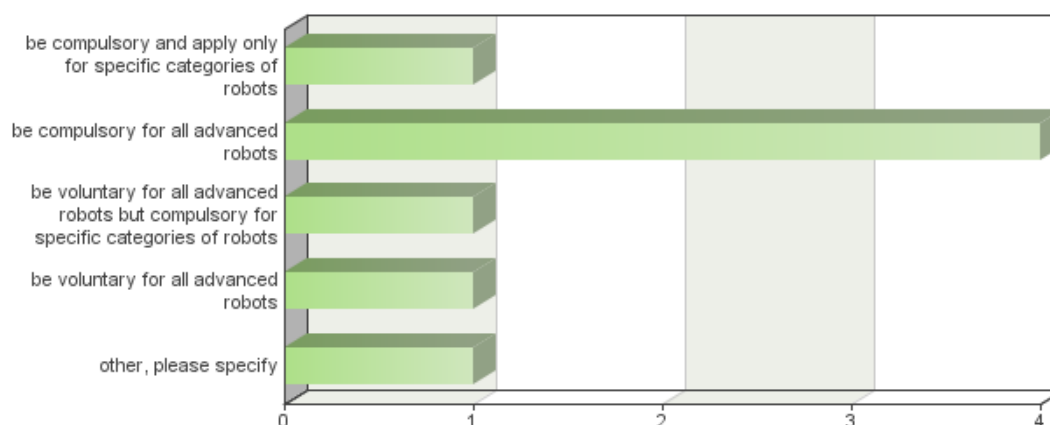## Levels A code of conduct for robotic engineers.
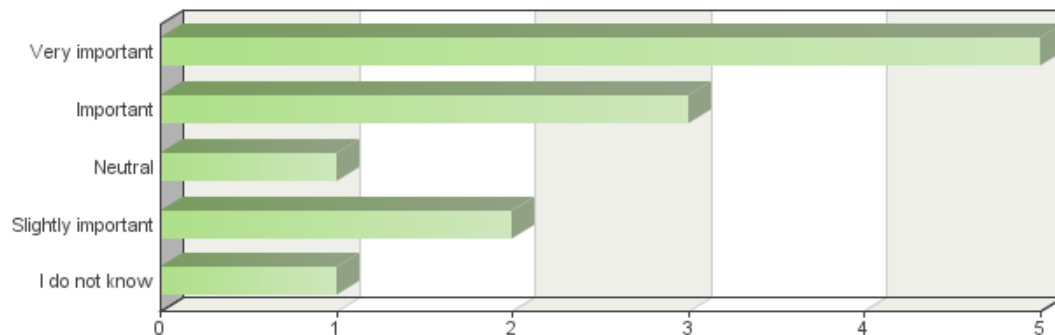
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	5	5	17.24%	17.24%	41.67%	41.67%
Important	3	8	10.34%	27.59%	25%	66.67%
Neutral	1	9	3.45%	31.03%	8.33%	75%
Slightly important	2	11	6.9%	37.93%	16.67%	91.67%
I do not know	1	12	3.45%	41.38%	8.33%	100%
Sum:	12	-	41.38%	-	100%	-
Not answered:	17	-	58.62%	-	-	-

Average:	2.33	Minimum:	1	Variance:	2.61
Median:	2	Maximum:	6	Std. deviation:	1.61

Total answered: 12

Levels A code for research ethics committees when reviewing robotics and protocols.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	5	5	17.24%	17.24%	41.67%	41.67%
Important	4	9	13.79%	31.03%	33.33%	75%
Neutral	2	11	6.9%	37.93%	16.67%	91.67%
I do not know	1	12	3.45%	41.38%	8.33%	100%
Sum:	12	-	41.38%	-	100%	-
Not answered:	17	-	58.62%	-	-	-

Average:	2.08	Minimum:	1	Variance:	2.08
Median:	2	Maximum:	6	Std. deviation:	1.44

Total answered: 12

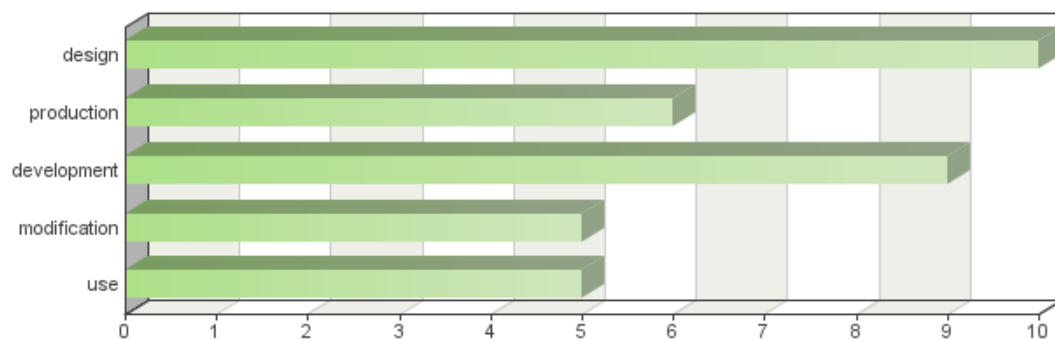# Levels Model licences for designers and users.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	2	2	6.9%	6.9%	16.67%	16.67%
Important	1	3	3.45%	10.34%	8.33%	25%
Neutral	5	8	17.24%	27.59%	41.67%	66.67%
Slightly important	1	9	3.45%	31.03%	8.33%	75%
Not at all important	1	10	3.45%	34.48%	8.33%	83.33%
I do not know	2	12	6.9%	41.38%	16.67%	100%
Sum:	12	-	41.38%	-	100%	-
Not answered:	17	-	58.62%	-	-	-

Average:	3.33	Minimum:	1	Variance:	2.79
Median:	3	Maximum:	6	Std. deviation:	1.67

Total answered: 12

Text input

Considering the high level of technical complexity we feel users should not be targeted with licences for usage.

Beyond code of conducts, the EU must develop binding rules to be applied from the design stage of robots and AI (some of them, already exists in the GDPR), to ensure that users fundamental rights are not left to voluntary conducts from business but based on binding requirement, which also enable a right to redress.

Question 66

You have indicated that a code of conduct for robotic engineers should be elaborated and adopted at EU level. In this context, what in your view are the most important principles that should be included in the code of conduct? *

Levels Principle of beneficence – robots should act in the best interests of humans.
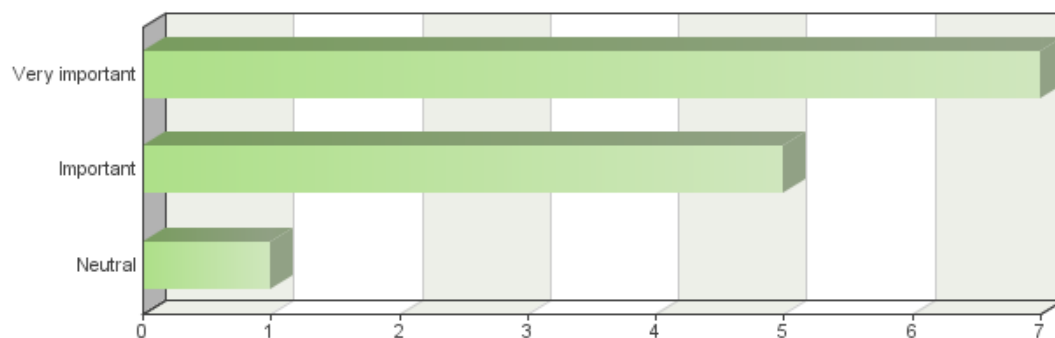

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		7	7	24.14%	24.14%	87.5%	87.5%
Important		1	8	3.45%	27.59%	12.5%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1.12	Minimum:	1		Variance:	0.12	
Median:	1	Maximum:	2		Std. deviation:	0.35	

Total answered: 8

Levels Non-maleficence – the doctrine of 'first, do not harm', whereby robots should not harm a human.

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		8	8	27.59%	27.59%	100%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1	Minimum:	1		Variance:	0	
Median:	1	Maximum:	1		Std. deviation:	0	

Total answered: 8

Levels Autonomy – the capacity to make an informed, un-coerced decision about the terms of interaction with robots.
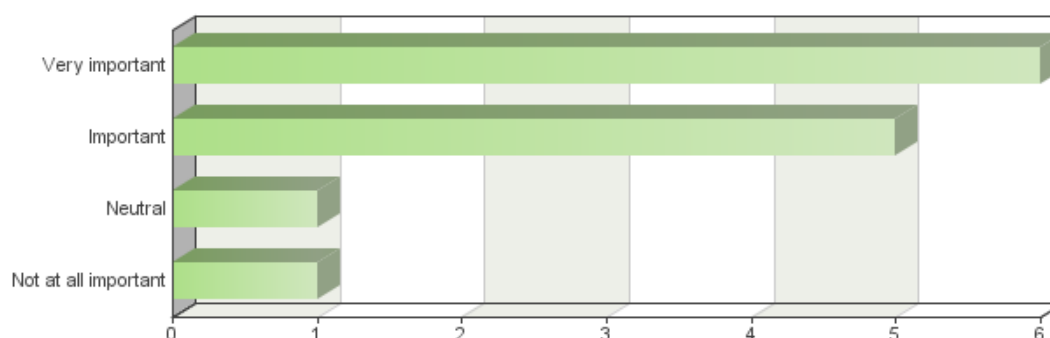

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		6	6	20.69%	20.69%	75%	75%
Important		1	7	3.45%	24.14%	12.5%	87.5%
Neutral		1	8	3.45%	27.59%	12.5%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1.38	Minimum:	1		Variance:	0.55	
Median:	1	Maximum:	3		Std. deviation:	0.74	

Total answered: 8

Levels Justice – fair distribution of the benefits associated with robotics and affordability of homecare and healthcare robots in particular.
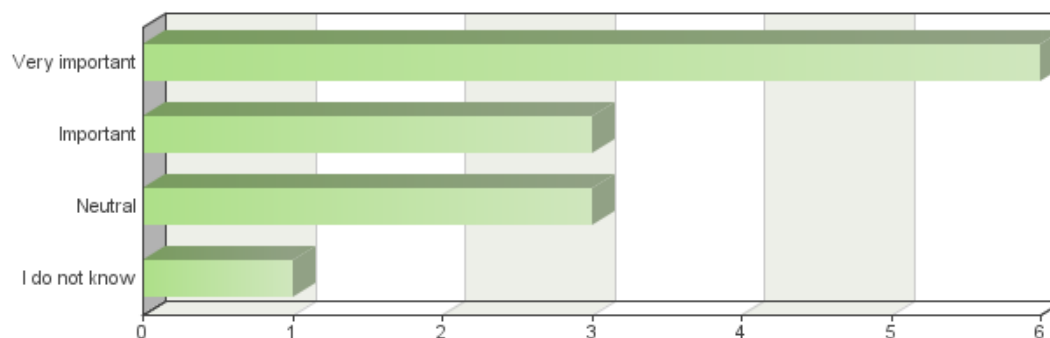
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	6	6	20.69%	20.69%	75%	75%
Neutral	1	7	3.45%	24.14%	12.5%	87.5%
Slightly important	1	8	3.45%	27.59%	12.5%	100%
Sum:	8	-	27.59%	-	100%	-
Not answered:	21	-	72.41%	-	-	-

Average:	1.62	Minimum:	1	Variance:	1.41
Median:	1	Maximum:	4	Std. deviation:	1.19

Total answered: 8

Levels Precautionary principle – anticipating potential safety impacts of outcomes and taking due precautions, proportional to the level of protection, while encouraging progress for the benefit of society and the environment.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	5	5	17.24%	17.24%	62.5%	62.5%
Important	3	8	10.34%	27.59%	37.5%	100%
Sum:	8	-	27.59%	-	100%	-
Not answered:	21	-	72.41%	-	-	-

Average:	1.38	Minimum:	1	Variance:	0.27
Median:	1	Maximum:	2	Std. deviation:	0.52

Total answered: 8

Levels Inclusiveness – allowing for participation in the decision-making process by all stakeholders involved in, or concerned by, robotics research activities.

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		7	7	24.14%	24.14%	87.5%	87.5%
Neutral		1	8	3.45%	27.59%	12.5%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1.25	Minimum:	1		Variance:	0.5	
Median:	1	Maximum:	3		Std. deviation:	0.71	

Total answered: 8

Levels Accountability – anticipating and accounting for the social, environmental and human health impacts that robotics may impose on present and future generations.
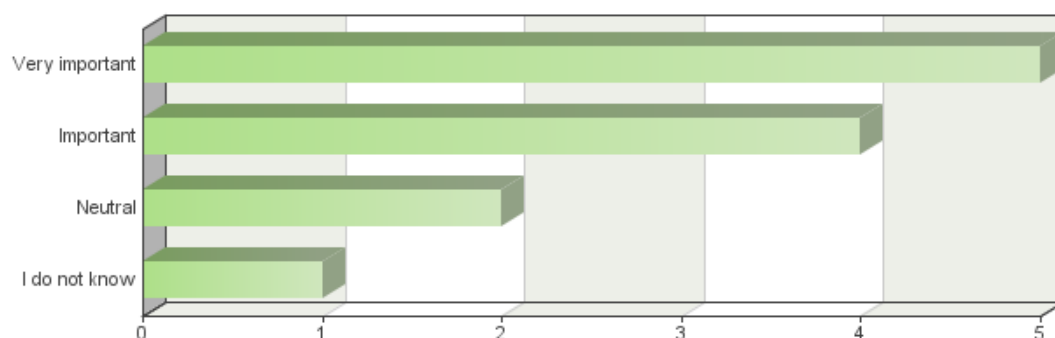
Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		8	8	27.59%	27.59%	100%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1	Minimum:	1		Variance:	0	
Median:	1	Maximum:	1		Std. deviation:	0	

Total answered: 8
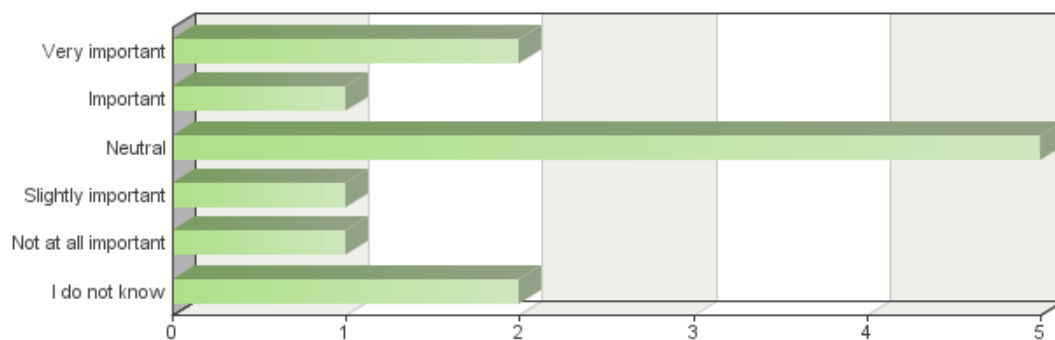
Levels Safety

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		8	8	27.59%	27.59%	100%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1	Minimum:	1		Variance:	0	
Median:	1	Maximum:	1		Std. deviation:	0	

Total answered: 8

Levels Reversibility

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		7	7	24.14%	24.14%	87.5%	87.5%
Neutral		1	8	3.45%	27.59%	12.5%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1.25	Minimum:	1		Variance:	0.5	
Median:	1	Maximum:	3		Std. deviation:	0.71	

Total answered: 8

Levels Privacy

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		7	7	24.14%	24.14%	87.5%	87.5%
Important		1	8	3.45%	27.59%	12.5%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1.12	Minimum:	1		Variance:	0.12	
Median:	1	Maximum:	2		Std. deviation:	0.35	

Total answered: 8

Levels Transparency

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		5	5	17.24%	17.24%	62.5%	62.5%
Important		3	8	10.34%	27.59%	37.5%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1.38	Minimum:	1		Variance:	0.27	
Median:	1	Maximum:	2		Std. deviation:	0.52	

Total answered: 8

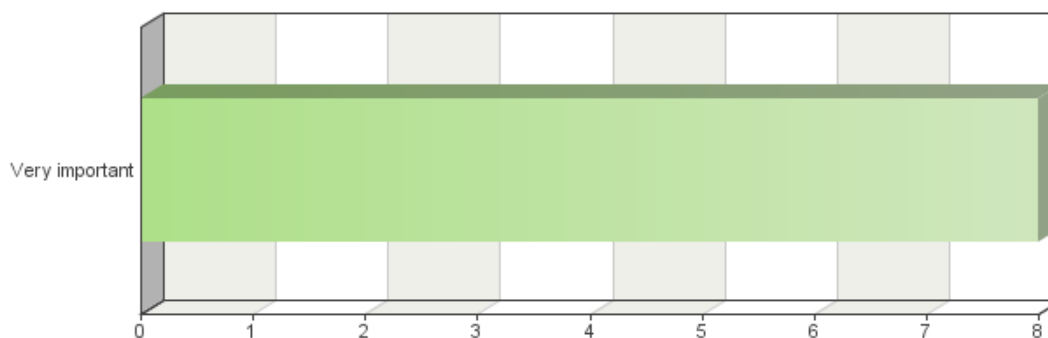# Levels Maximising benefit and minimising harm
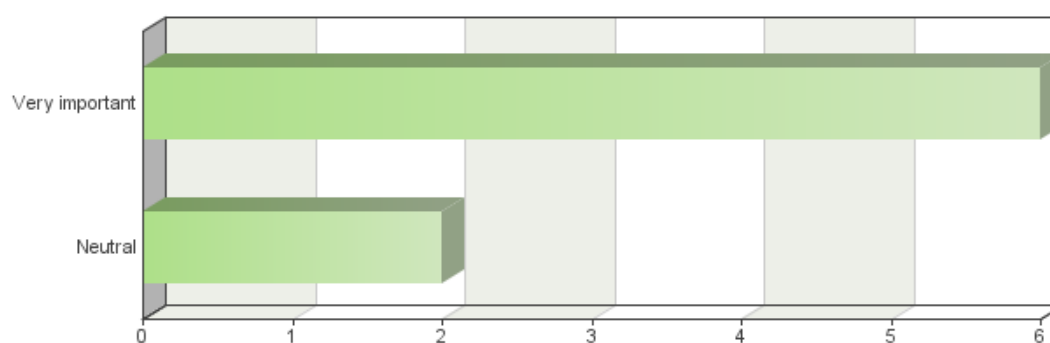
Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important		6	6	20.69%	20.69%	75%	75%
Neutral		2	8	6.9%	27.59%	25%	100%
Sum:		8	-	27.59%	-	100%	-
Not answered:		21	-	72.41%	-	-	-
Average:	1.5	Minimum:	1		Variance:	0.86	
Median:	1	Maximum:	3		Std. deviation:	0.93	

Total answered: 8

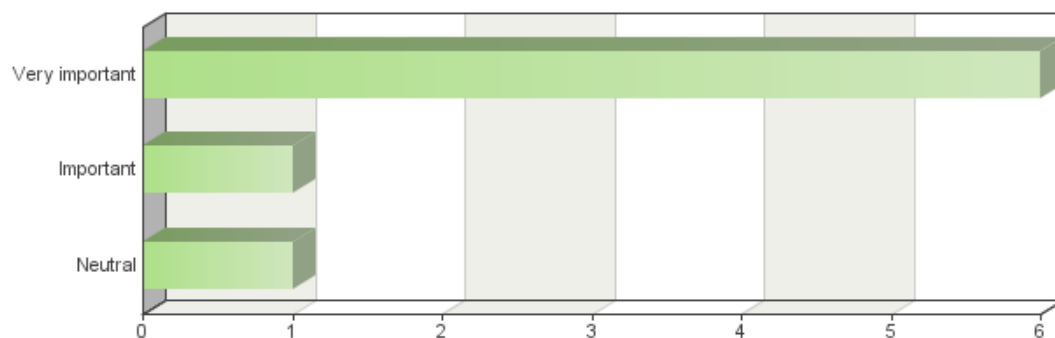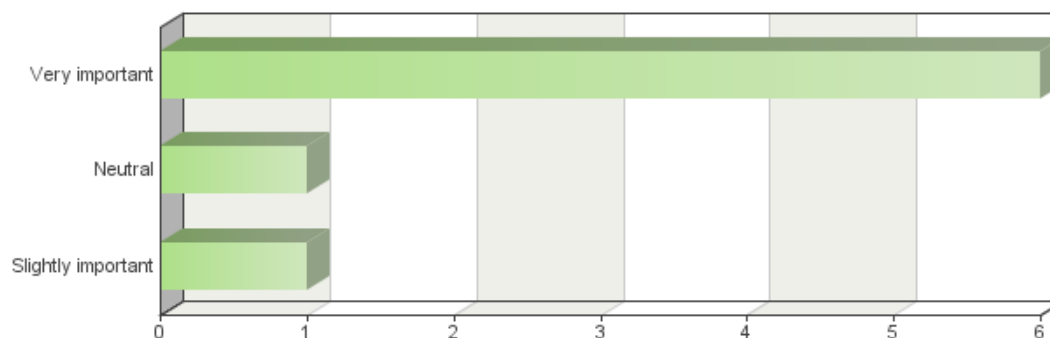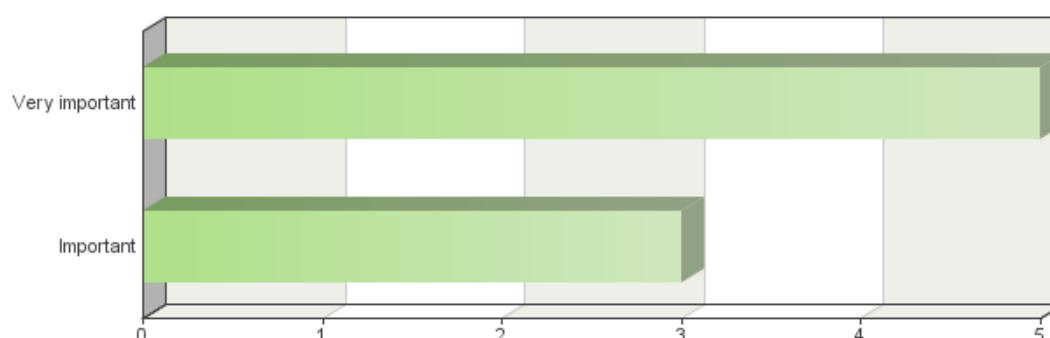# Levels Respect for fundamental human rights

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	7	7	24.14%	24.14%	87.5%	87.5%
Neutral	1	8	3.45%	27.59%	12.5%	100%
Sum:	8	-	27.59%	-	100%	-
Not answered:	21	-	72.41%	-	-	-
Average:	1.25	Minimum:	1	Variance:	0.5	
Median:	1	Maximum:	3	Std. deviation:	0.71	

Total answered: 8

Text input

ROBOTS CAN NOT REPRODUCATE OR CREATE NEW ROBOTS WITHOUT HUMAN SUPERVISION

Where above is stated 'human' or 'humans', it should also state 'and humanity'.

Transparency - getting detailed information about a complex AI system (if it's even possible) will not be the best route to ensure that system is operating fairly or predictably. A full appreciation of any risk will require placing the AI system in its wider social context, and considering the data it's processing, the factors its weighing and the outcome. Governments should partner with industry to further develop principled approaches to AI development that account for these systems inscrutability, which may include, among other things, international standards focused on these issues.

Question 67

Should you have further observations about general principles and ethical issues guiding development, engineering and use of advanced robots or AI, please share your experience or suggestions here.

Text input
ROBOTS CAN NOT REPRODUCE OR CREATE NEW ROBOTS WITHOUT HUMAN SUPERVISION ROBOT CANNOT COPY HUMAN BODY, THEY MUS BE DIFFERENT ROBOT CANNOT MIXED WITH HUMAN BODY, only for heal people or repair accident damages, fortuite damages not for reach out better works READ POSTULATES ROBOTICS
We feel the Principles of robotics (https://www.epsrc.ac.uk/research/ourportfolio/themes/engineering/activities/principlesofrobotics/) and the 23 Asilomar AI Principles (https://futureoflife.org/ai-principles/) should be included in the EU policies on advanced robots and AI.
Guidelines should be specific and adapted to technical language and processes. Not just state general principles that should be observed but also propose ways to achieve compliance in auditable ways.
I think EU has the possibility of attaining a unique platform here. If we can agree on a common core ethical platform, then everyone, from German Automakers to French sociologist to Italian financial institutions will have a label of trustworthiness, which other countries or economic areas will have a great difficulty attaining.
- Concernant l'éthique, il nous semble que l'Union Européenne devrait donner des orientations générales basées sur le socle de droit communautaire existant et les valeurs qu'il recouvre (dignité de la personne notamment) - Dans le cadre de ces réflexions liées à l'éthique, il convient d'opérer une distinction fondamentale entre le rôle politique et législatif des instances européennes et le rôle technique et normatif des instances de normalisation comme l'ISO ou le CEN. Concernant la robotique, son expansion rapide et son évolution ont conduit à la reconnaître comme un domaine d'importance stratégique par l'ISO, qui lui a affecté un comité technique indépendant depuis fin 2015 (ISO TC 299). Il couvre désormais à lui seul la normalisation dans le domaine robotique à l'exception des jouets et des applications médicales. Cet ISO TC 299 travaille déjà sur l'ensemble des sujets liés aux évolutions technologiques de la robotique. - Concernant les questions de terminologie, celles-ci sont également traitées au sein de l'ISO TC 299 WG1. C'est pourquoi la définition d'un "robot intelligent" relève de la compétence de cette instance, et sous réserve que cette expression soit appropriée (il existe différents domaines de la robotique).
Comment regarding the definition of "autonomous robots" (Section 1: Ethics", second question): First and foremost, it must be clarified what are the differences between smart robots, autonomous robots, cyber-physical systems and others. Paragraph 1 of the Adopted Text of Resolution on Civil Law Rules on Robotics refers to "cyber-physical systems, smart autonomous robots and their subcategories, (…) smart robot", without better clarifying what is the aimed target for the terminology. Besides the openness and width of the definition, it needs a technologically neutral approach that is necessary, given the novelty of the technology. Technology neutral regulatory approaches are needed in order not to hamper, rather foster innovation, and for they extend the legal effects of existing and future regulatory frameworks.
Without prejudice to future contributions, COMECE would like to highlight the capital importance of high ethical, human-centred standards in the domain or robots and AI. National ethical frameworks should still play a central role, in the light of the specific traditions and sensibilities existing in the Member States. While not taking a final position at this stage on the opportunity or not to adopt a Code of Ethical Conduct for Robotics Engineers, we would consider particularly relevant the considerations proposed in this regard in the Annex of the EP Resolution concerning "Fundamental Rights", "Precaution" and "Privacy". In this context, we welcome the work being done by the European Commission in supporting national authorities on the issue of "connected toys", in relation to the need to ensure that they guarantee a full respect the privacy and security of children. We would encourage the European Parliament to also deepen its reflection on this specific subject. On the topic of ethics and robotics, at the EU level we would deem the European Group on Ethics in Science and New Technologies to be the more appropriate and natural body to be entrusted with the relevant reflection and advice. A key starting point should be the idea that in this area, ethics should still and exclusively be referred to the human, and not directly to robots, which should always remain objects under human responsibility.
The EU should focus on research on value alignment and/or control techniques in order to ensure that the AI systems are safe and beneficial to humans. At the moment, there is a global lack of government supported initiatives at sufficient scale towards these ends. The EU could become a global leader in the support of this effort. At the level of our own activities, in our R&D roadmap towards general-purpose AI, we emphasize that at a certain stage of AI's development we will subject it to training in a curriculum focused on the acquisition and understanding of human values and universal ethical principles. This is a part of our effort to create an advanced AI able to better understand human desires and adapt to serve human needs, maintaining highest ethical standards. We see this as a major effort of a same importance as algorithmic research, and we would be interested to cooperate (potentially with the EU support) on such kind of curriculum learning with other research groups.
We oppose a common EUROPEAN definition for a smart robot, as we see it of high importance that such a definition is agreed on at international level, as the current definition of a robot (see ISO 8373:2012). It is seen necessary to distinguish smart robots from software-bots and autonomous cars. The former lack a physical support, the latter still falls under the definition of a car (although containing some aspects that also are true for smart robots), with its very specific already existing regulation.
I think that other EU law and National laws can apply to the design and behaviour of robots. Liability laws can be brought into effect. Also if An AI is behaving in a discriminatory or otherwise dangerous fashion then not much change would need to be made to existing law to hold its originator, or owner (depenidng on circumstances) accountable.

Microsoft's vision for AI is one where machines and humans work together to enable greater societal progress and equality, and where AI is made available to everyone (through cloud services) to empower every person and organization. As technologies play an increasing role in mediating people's lives online and offline, it is essential that appropriate design, economic and social choices be made to ensure that those technologies are deemed trustworthy by individuals and society at large – and be regarded as respectful, and inclusive, helping society to progress by empowering all peoples and organizations. The computational power and learning capabilities of machines must be coupled with the sensitivity and emotional intelligence of humans. Simply put, technologies need to be people-centered by design. This humanistic approach to AI can be realized if relevant stakeholders from business, government, civil society and the research community collaborate on shared principles and ethical frameworks. AI should: 1. Be designed to assist humanity 2. Be transparent 3. Maximize efficiencies without destroying the dignity of people 4. Be designed for privacy 5. Have algorithmic accountability so that humans can undo unintended harm 6. Guard against bias Complementing the above are considerations for everyone who is developing, deploying and using these technologies: 1. Empathy 2. Education (knowledge and skills) 3. Creativity 4. Judgment and accountability A common vision, with shared principles, will enable all stakeholders involved to shape the future of AI and realize a universally desired future. An important step was taken when Amazon, DeepMind/Google, Facebook, IBM, Apple and Microsoft came together to form the Partnership on AI to address opportunities and challenges with AI to benefit people and society. Its mission is to "study and formulate best practices on AI technologies, to advance the public's understanding of AI, and to serve as an open platform for discussion and engagement about AI and its influences on people and society." The companies involved agreed to a set of shared tenets that reflect the above principles. Microsoft has also been collaborating with researchers from the Oxford Internet Institute and the Alan Turing Institute to map the ethical challenges and opportunities in the field of Advanced Medical Data Analytics and AI & Health broadly. One of the large areas, where the need for further research has been identified, is Data Donation for the purposes of Advanced Medical Analysis. The research institutes will join forces with other thought health leaders to build recommendations for what should an Ethical Code for Data Donation include.

It is too early to develop such frameworks at this stage in the development of AI, and there is no need for such measures at present.

Any ethical guidelines should be established in a multidisciplinary manner with the robotics and humanities communities working together, to ensure that they are robust, comprehensible and thus powerful. The association recommends strongly that adherence to any ethical framework is voluntary. However, an institution like the European Parliament might be too remote from an engineer's day-to-day life to produce a practical framework. Therefore, euRobotics suggests that academia and industry should offer to provide ethicists to assist the Parliament or other drafting body. An ethical framework is proposed in an annex to the resolution. Given the pace at which robotics is developing, euRobotics supports some of the parts of the proposal, such as: including safety at the workplace and a potential dehumanisation of certain environments. The robotics community believes that autonomous and highly-intelligent robots could, in principle, constitute a threat to humankind, but usually only as a theoretical or very long-term possibility. The association believes that the discussion should focus on the question: are the benefits of robots worth the eventual risks? The resolution's demand that no user should make robots function as weapons is a very sensitive topic and requires further discussion. Non-EU countries might use robots as weapons and prompt questions about responses or protection of human soldiers.

Question 68

Please indicate whether you agree or disagree with the following statement 'The current EU regulatory framework on liability is sufficient to address new developments in robotics and AI' *

Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
I totally agree, no modifications/amendments are necessary to the current liability rules	9	9	50%	31.03%	31.03%	50%	50%
I somewhat agree, however some modifications/amendment are necessary to the current rules on non-contractual liability	2	11	11.11%	6.9%	37.93%	11.11%	61.11%
I somewhat agree, however some modifications/amendment are necessary to the current rules on contractual liability	1	12	5.56%	3.45%	41.38%	5.56%	66.67%
I somewhat agree, however in addition to the current legally binding rules, the EU needs to adopt non-legislative instruments such as guidelines and codes of conduct specifically related to robotics and AI	2	14	11.11%	6.9%	48.28%	11.11%	77.78%
I totally disagree, major modifications to the current liability framework are necessary	2	16	11.11%	6.9%	55.17%	11.11%	88.89%
I do not know	1	17	5.56%	3.45%	58.62%	5.56%	94.44%
Other, please specify	1	18	5.56%	3.45%	62.07%	5.56%	100%
Sum:	18	-	100%	-	-	-	-
Not answered:	11	-	-	37.93%	-	-	-

Average:	2.72	Minimum:	1	Variance:	5.15
Median:	1.5	Maximum:	8	Std. deviation:	2.27

Total answered: 18

Last choice text input
See comment at the end of the section.

Question 69

Do you agree with the following statement 'Robots should have a specific legal status'? *
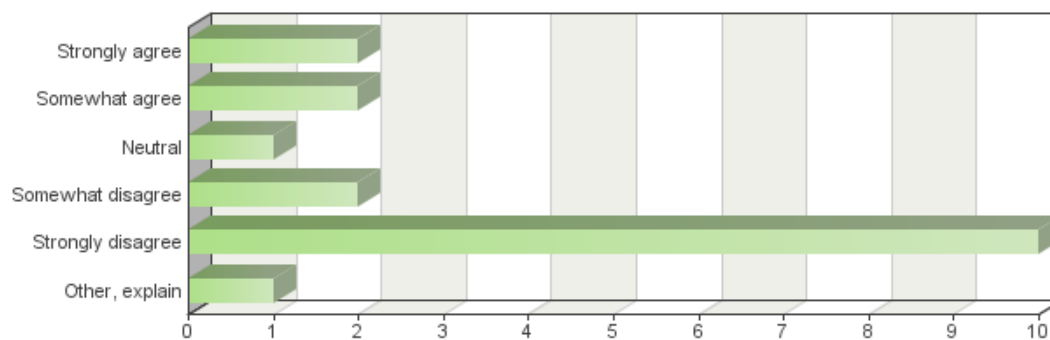
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly agree		2	2	6.9%	6.9%	11.11%	11.11%
Somewhat agree		2	4	6.9%	13.79%	11.11%	22.22%
Neutral		1	5	3.45%	17.24%	5.56%	27.78%
Somewhat disagree		2	7	6.9%	24.14%	11.11%	38.89%
Strongly disagree		10	17	34.48%	58.62%	55.56%	94.44%
Other, explain		1	18	3.45%	62.07%	5.56%	100%
Sum:		18	-	62.07%	-	100%	-
Not answered:		11	-	37.93%	-	-	-
Average:	4.11	Minimum:	1		Variance:	2.69	
Median:	5	Maximum:	7		Std. deviation:	1.64	

Total answered: 18

Last choice text input

The current system works quite well and we do not see the need for a new 'status' for robots, they stay machines and we, as developers and/or users, can and should keep control.

Question 70

Please indicate to what extent you agree or disagree with the each of the following statements related to the type of legal status robots should have: *

Levels Robots should be regarded as natural persons (i.e. humans).
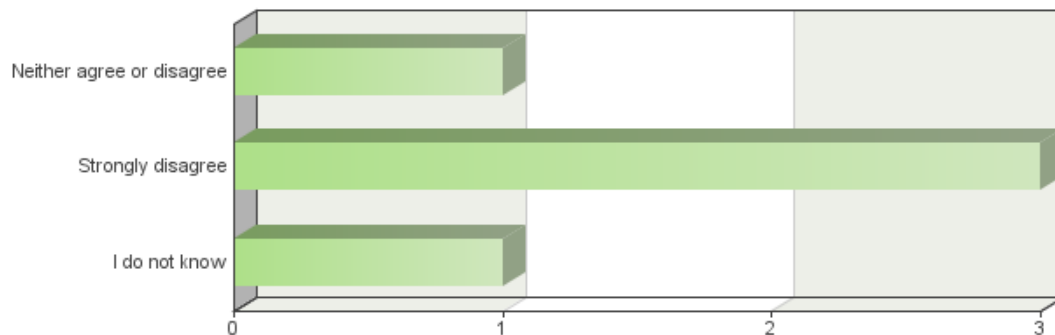
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Neither agree or disagree	1	1	3.45%	3.45%	20%	20%
Strongly disagree	3	4	10.34%	13.79%	60%	80%
I do not know	1	5	3.45%	17.24%	20%	100%
Sum:	5	-	17.24%	-	100%	-
Not answered:	24	-	82.76%	-	-	-

Average:	4.8	Minimum:	3	Variance:	1.2	
Median:	5	Maximum:	6	Std. deviation:	1.1	

Total answered: 5

Levels Robots should be regarded as legal persons (i.e. companies).
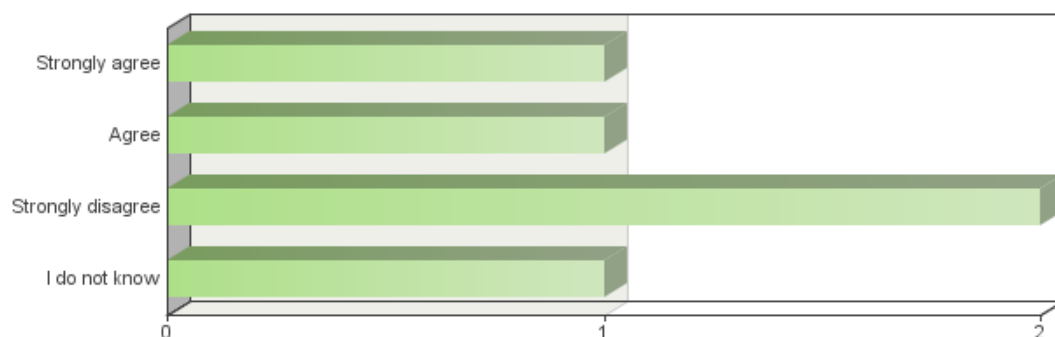
Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly agree		1	1	3.45%	3.45%	20%	20%
Agree		1	2	3.45%	6.9%	20%	40%
Strongly disagree		2	4	6.9%	13.79%	40%	80%
I do not know		1	5	3.45%	17.24%	20%	100%
Sum:		5	-	17.24%	-	100%	-
Not answered:		24	-	82.76%	-	-	-
Average:	3.8	Minimum:	1		Variance:	4.7	
Median:	5	Maximum:	6		Std. deviation:	2.17	

Total answered: 5

Levels Robots should be regarded as animals or objects.

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly disagree		4	4	13.79%	13.79%	80%	80%
I do not know		1	5	3.45%	17.24%	20%	100%
Sum:		5	-	17.24%	-	100%	-
Not answered:		24	-	82.76%	-	-	-
Average:	5.2	Minimum:	5		Variance:	0.2	
Median:	5	Maximum:	6		Std. deviation:	0.45	

Total answered: 5

Levels A new category should be created, with its own specific features and implications as regards attribution of rights and duties, including liability for damages.

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly agree		3	3	10.34%	10.34%	60%	60%
Agree		2	5	6.9%	17.24%	40%	100%
Sum:		5	-	17.24%	-	100%	-
Not answered:		24	-	82.76%	-	-	-
Average:	1.4	Minimum:	1	Variance:		0.3	
Median:	1	Maximum:	2	Std. deviation:		0.55	

Total answered: 5

Text input

A new category should be created in which the AI/robot producer should always carry the responsibility for the actions taken by the robot and the AI system.

I would consider both the status of legal companies and a specific status, or a variation between the two depending on the autonomy of the robot

Question 71

Please indicate to what extent you support or oppose each of the following statements related to the allocation of risks related to the use of autonomous robots: *

Levels Strict liability for manufacturers
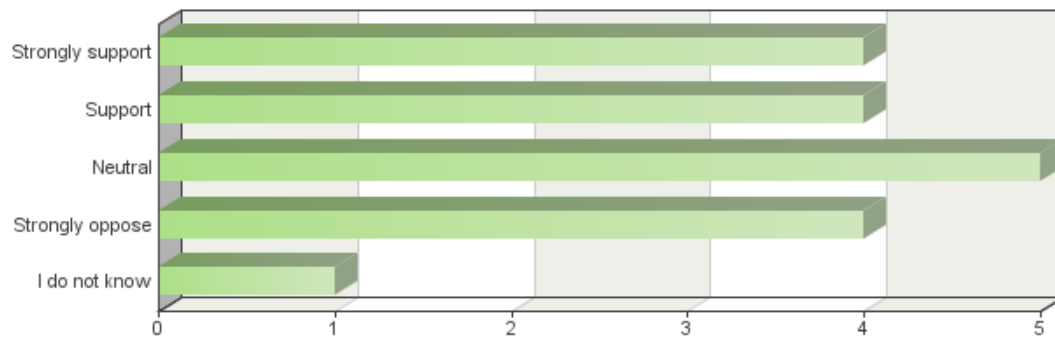
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	4	4	13.79%	13.79%	22.22%	22.22%
Support	4	8	13.79%	27.59%	22.22%	44.44%
Neutral	5	13	17.24%	44.83%	27.78%	72.22%
Strongly oppose	4	17	13.79%	58.62%	22.22%	94.44%
I do not know	1	18	3.45%	62.07%	5.56%	100%
Sum:	18	-	62.07%	-	100%	-
Not answered:	11	-	37.93%	-	-	-

Average:	2.94	Minimum:	1	Variance:	2.64
Median:	3	Maximum:	6	Std. deviation:	1.63

Total answered: 18

Levels Strict liability for owners

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	2	2	6.9%	6.9%	11.11%	11.11%
Support	5	7	17.24%	24.14%	27.78%	38.89%
Neutral	5	12	17.24%	41.38%	27.78%	66.67%
Strongly oppose	5	17	17.24%	58.62%	27.78%	94.44%
I do not know	1	18	3.45%	62.07%	5.56%	100%
Sum:	18	-	62.07%	-	100%	-
Not answered:	11	-	37.93%	-	-	-

Average:	3.22	Minimum:	1	Variance:	2.42
Median:	3	Maximum:	6	Std. deviation:	1.56

Total answered: 18

Levels Strict liability for users

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Support	5	5	17.24%	17.24%	27.78%	27.78%
Neutral	7	12	24.14%	41.38%	38.89%	66.67%
Strongly oppose	5	17	17.24%	58.62%	27.78%	94.44%
I do not know	1	18	3.45%	62.07%	5.56%	100%
Sum:	18	-	62.07%	-	100%	-
Not answered:	11	-	37.93%	-	-	-

Average:	3.44	Minimum:	2	Variance:	1.79
Median:	3	Maximum:	6	Std. deviation:	1.34

Total answered: 18

Text input

impossible d'établir un régime strict de responsabilités car il ne tient pas compte du contexte

Les relations contractuelles définissent au cas par cas les responsabilités de chaque partie et suffisent ; il est impossible d'établir un régime strict car il ne peut pas tenir compte du contexte.

Strict liability for service provider should also be considered

On one hand there are complex questions related to liability frameworks, on the other hand it may be too early to significantly change existing liability frameworks. In our opinion at the moment is no need to create new robotics and AI-specific liability rules. The current core liability principle is that those who cause foreseeable harm should be the ones that are liable. This can and should be applied to these technologies, the same way it is applied to all other tools.

Manufacturers are already subject to strict liability under the Product Liability Directive (Council Directive 85/374/EEC of 25 July 1985) (PLD). The PLD fully applies to manufacturers of robotic systems. It has implemented a well-balanced system of liability by providing a high level of protection to injured parties while at the same time taking into account manufacturers' legitimate interest. It thereby promotes technological innovation and economic prosperity. The PLD has proven its effectiveness. There is no need for further liability regulations covering producers of robotic systems. Especially, it would be unnecessary and even counter-productive to assign primary or exclusive liability to the producer instead of the owner/operator for all scenarios where a robotic system causes damage. Thereby, the system's owner or operator would be relieved from all responsibility for any damage caused by the system's operation, whatever the cause. This would be inequitable. This would be inequitable. It is a well-established concept of liability that anyone creating, sustaining or controlling a potential source of particular danger must take responsibility and be accountable if damage occurs as a consequence. Thus, liability primarily falls on the owner or operator of a source of particular danger. Liability should only be allocated to the producer under the principles currently set out in the PLD. While the injured party is free to take direct action against the producer, in many cases it will be easier and quicker to recover damages against the user. The owner/operator can take action against the producer where a product defect was the ultimate cause for the damage.

The liability of the agent buying and implementing the robot in a given space / application should be high - mandatory risk assessment for robotic installations in all EU countries (as already required e.g. in Germany).

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We understand there are complex questions related to liability frameworks, At the same time it may be too early to significantly change existing liability frameworks. We see no need to create new robotics and AI-specific liability rules. The current core liability principle is that those who cause foreseeable harm should be the ones that are liable. This can and should be applied to these technologies, the same way it is applied to all other tools.

Today, responsibility for damage caused by a robot clearly lies either with the manufacturer or the user. As the European Parliament considers new robots to be so intelligent that they might take decisions on their own, it discussed the idea of electronic personhood for robots. It thought that they might also need their own insurance system, along with a central agency that registers every robot in use within the EU. This could lead to extensive bureaucracy out of proportion to the possible advantages. euRobotics believes that the current system works quite well and does not see the need for a new status for robots. Even if artificial intelligence makes robots more powerful in the future, they would still be machines and human developers and users could and should keep control.

For more advanced AI: self responsibility, with a legal personality (as a legal company or specific) with duties to be insured

Question 72

Please indicate your opinion regarding which issues related to the regulation of liability and damages require the most urgent intervention at EU level: *
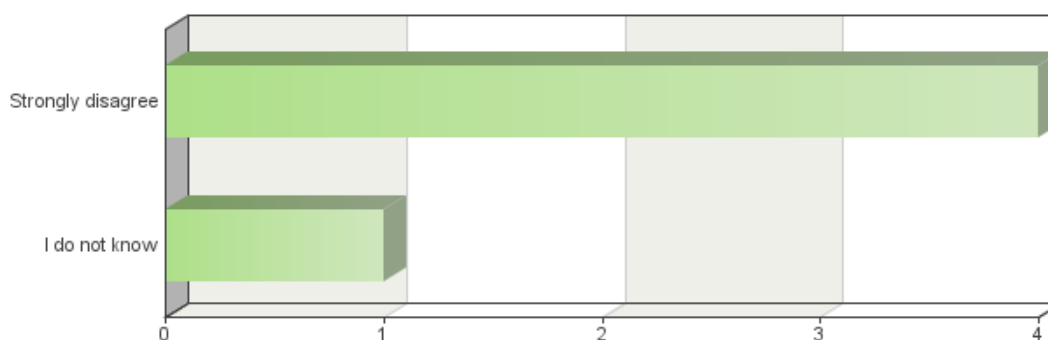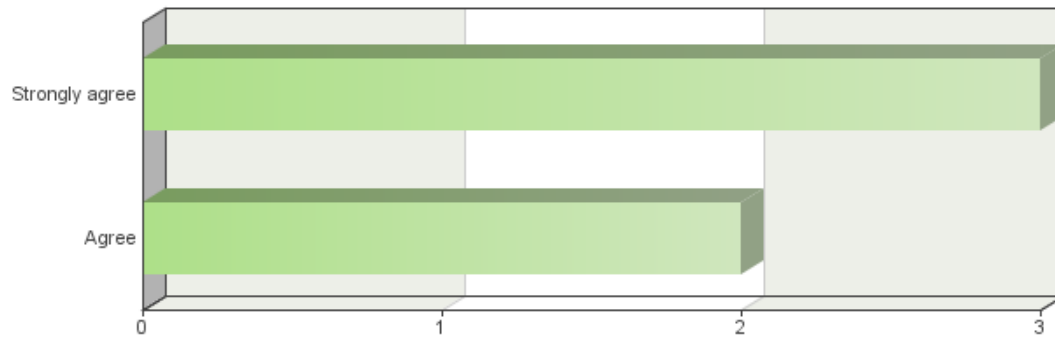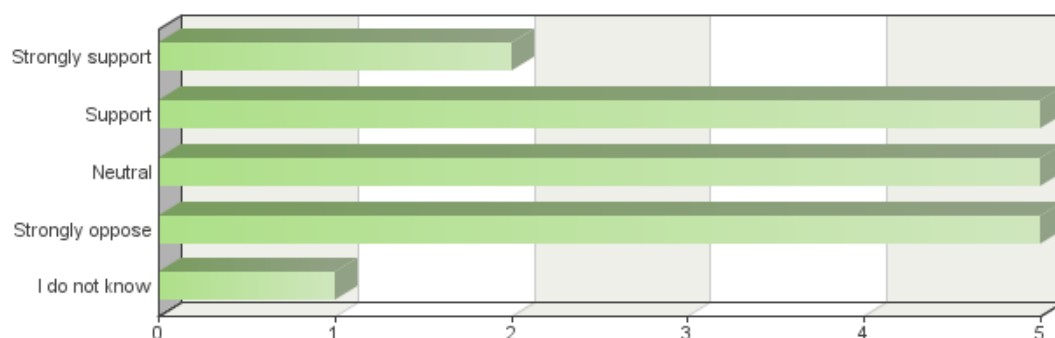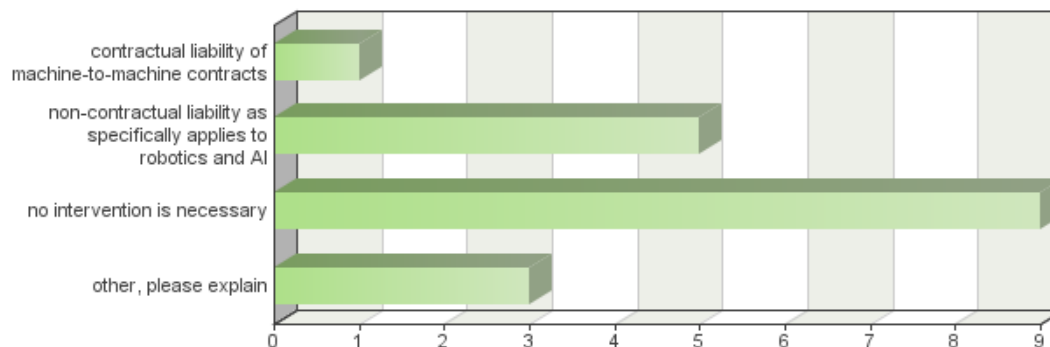

Frequency table

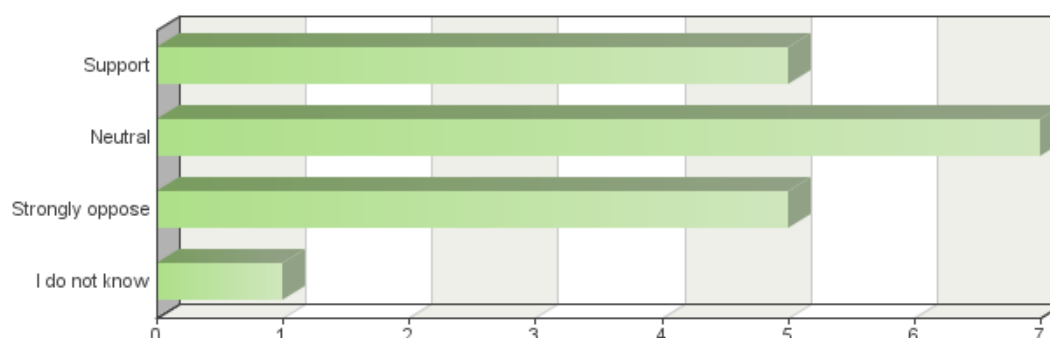| Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
contractual liability of machine-to-machine contracts	1	1	3.45%	3.45%	5.56%	5.56%
non-contractual liability as specifically applies to robotics and AI	5	6	17.24%	20.69%	27.78%	33.33%
no intervention is necessary	9	15	31.03%	51.72%	50%	83.33%
other, please explain	3	18	10.34%	62.07%	16.67%	100%
Sum:	18	-	62.07%	-	100%	-
Not answered:	11	-	37.93%	-	-	-

Average:	2.78	Minimum:	1	Variance:	0.65
Median:	3	Maximum:	4	Std. deviation:	0.81

Total answered: 18

Last choice text input

support of related research

--

euRobotics suggests leaving this to the individual sectors.

Text input

Neben den Regeln zur außervertraglichen Haftung (s.o.) könnten auch die Regelungen zur vertraglichen Haftung anzupassen sein.

Before any regulation in the area is possible, we need further understanding of underlying issues.

Question 73

Please indicate to what extent you support or oppose the establishment of an obligatory insurance scheme for damages caused by autonomous robots: *
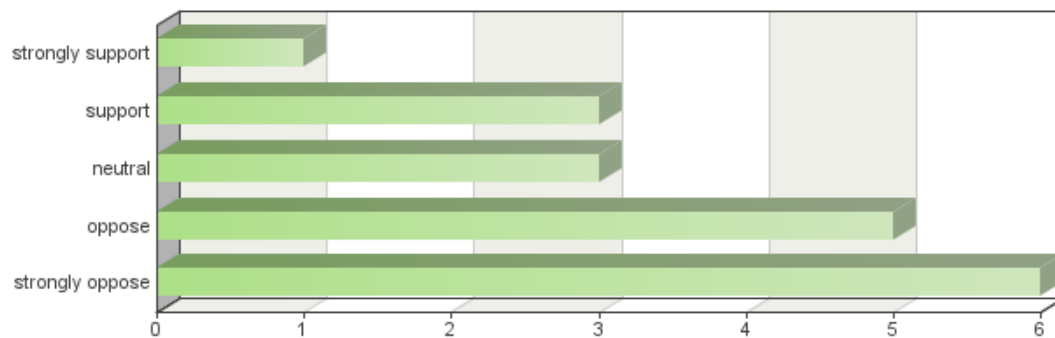
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly support		1	1	3.45%	3.45%	5.56%	5.56%
support		3	4	10.34%	13.79%	16.67%	22.22%
neutral		3	7	10.34%	24.14%	16.67%	38.89%
oppose		5	12	17.24%	41.38%	27.78%	66.67%
strongly oppose		6	18	20.69%	62.07%	33.33%	100%
Sum:		18	-	62.07%	-	100%	-
Not answered:		11	-	37.93%	-	-	-
Average:	3.67	Minimum:	1	Variance:	1.65		
Median:	4	Maximum:	5	Std. deviation:	1.28		

Total answered: 18

Question 74

Please provide suggestions as to what should be the scope of the coverage of this insurance scheme, i.e. what risks it should cover: (optional)

Text input

tort (non contractual liability) contractual liability damages from malfunctioning

Question 75

Please indicate to what extent you support or oppose the establishment of a compulsory insurance and compensation fund
*
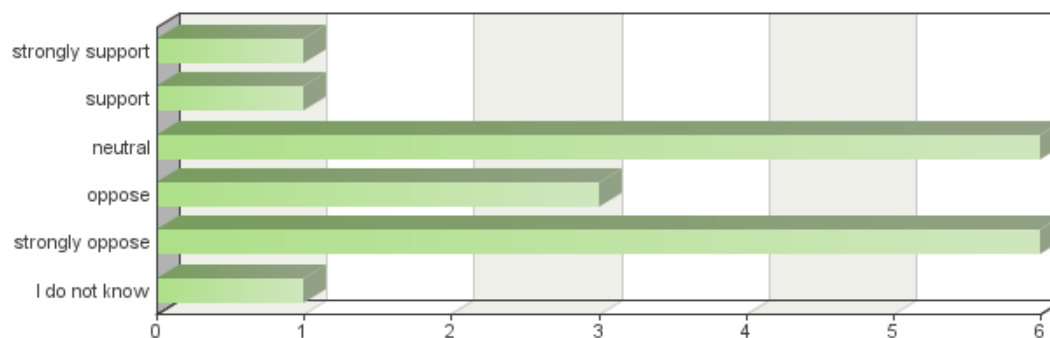
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly support	1	1	3.45%	3.45%	5.56%	5.56%
support	1	2	3.45%	6.9%	5.56%	11.11%
neutral	6	8	20.69%	27.59%	33.33%	44.44%
oppose	3	11	10.34%	37.93%	16.67%	61.11%
strongly oppose	6	17	20.69%	58.62%	33.33%	94.44%
I do not know	1	18	3.45%	62.07%	5.56%	100%
Sum:	18	-	62.07%	-	100%	-
Not answered:	11	-	37.93%	-	-	-

Average:	3.83	Minimum:	1	Variance:	1.68
Median:	4	Maximum:	6	Std. deviation:	1.29

Total answered: 18

Question 76

Please provide suggestions as to how this compulsory insurance scheme should be operated: (optional)

Question 77

Should you have further observations about liability issues please share your experience or suggestions here: (optional)

Text input

The COMECE Secretariat expresses its concern for the recommendation made in Para 59, f) of the recent European Parliament resolution on Civil Law Rules on Robotics, according to which the Commission should reflect on the possibility of "...creating a specific legal status for robots… so that at least the most sophisticated autonomous robots could be established as having the status of electronic persons responsible for making good any damage they may cause, and possibly applying electronic personality to cases where robots make autonomous decisions or otherwise interact with third parties independently". The human person is the foundation of every legal order. For a natural person, legal personality derives from his/her existence as a human person. That personality implies rights and duties that are exercised within the frame of human dignity. Placing robots on the same level as human persons would be at odds with Art. 6 UDHR, which states that "Everyone has the right to recognition everywhere as a person before the law". The European Parliament's proposal also contradicts the very concept of responsibility, based on ultimate human rights and duties. Responsibility rooted in legal personality shall only be exercised in presence of a certain capacity for freedom. Freedom is more than autonomy. As underlined in the study published by the European Parliament's Policy Department for "Citizens' Rights and Constitutional Affairs" on "European Civil Law Rules in Robotics" "Legal personality is assigned to a natural person as a natural consequence of their being human; …its assignment to a legal person is based on legal fiction. Legal persons are able to act within the legal sphere solely because there is a human being behind the scenes to represent it…". Furthermore, a legal person exists only because of an initial expression of human will. However, in the case of robots, the EP Resolution links their possible legal personality to their alleged "autonomous features/decision-taking" (Recitals Z, AF). We share the conclusions of the same study, according to which "...it would be inappropriate and out-of-place not only to recognise the existence of an electronic person but to even create any such legal personality. Doing so risks not only assigning rights and obligations to what is just a tool, but also tearing down the boundaries between man and machine, blurring the lines between the living and the inert, the human and the inhuman" (p. 16). While the European Parliament's Resolution leaves the question open, other passages imply granting "legal personality" to robots (Recitals AB, AC), without any solid scientific and technological grounds (e.g. see the considerations on "unpredictable behaviour" of robots at Recital AI). Legal consequences have been grossly overlooked: legal personality does not apply only to liability. Recognising legal personality to robots could open up possibilities for their capability of having a full range of legal rights and duties (e.g. under contract law, copyright law and even family law). Issues related to the use of "law enforcement machines" at the borders could also come into play. We would not be in favour of using for robots rules on liability for animals, which would lead to an unacceptable shift towards considering robots as belonging to the area of "the living". Existing applicable legal regimes relying on liability of humans already provide viable legal solutions: e.g. provisions on defective products; rules about liability for damages or injury caused by things in one's care. On the theme of liability, we would also recommend clarifications with regard to the terms "trainer" and "training" used in Paragraph 56 of the Resolution and on the legal implications of this passage.

Existing and established principles of liability for damage caused to third parties have proven themselves, fully apply to robotics and are fit for purpose to address the risks posed by their manufacture and use. They should not be tampered with lightly. Manufacturers are already subject to strict liability under the PLD. The "digital revolution" has only just started, and as yet we are unable to predict with any accuracy where it will take us. When contemplating rules on liability in this context, the European institutions would be well advised to take a selective and targeted approach, thereby considering the differing risks specific to various types of robots and their uses. In this field especially, there can be no "one size fits all" as "robotics" is a general term covering a wide variety of differing appliances and uses. In particular, great care must be taken not to stifle a promising sector of great economic prospect and huge potential benefits to mankind. Fully autonomous and self-learning robots that are able to operate completely independent of a human are a prospect for the (distant) future. If and when they should become a reality, strict liability could arguably be introduced to specifically address their operation or use. Rules on liability are necessarily abstract and operate with indeterminate legal terms and expressions, as they need to apply to a large variety of individual cases. E. g., when exactly does a robotic system fail to "provide the safety a person is entitled to expect", and is therefore defective under the PLD? Their abstract nature constitutes the great strength of existing liability regimes, but this frame needs to be "filled" with rules and norms for the safe manufacture and use of any kind of appliance or device. Where a harmonized EU approach would, thus, be highly beneficial is in developing strong product safety rules, industry norms and standards governing the various types of appliances and uses loosely subsumed under the term "robotics/AI". These should be flanked by rules and standards on the safe operation of robots, perhaps to include certification requirements for marketing and a registration system for operating certain classes of robots. Such rules and standards are pre-requisites to establishing and allocating liability for third-party damage to the responsible person, be that the manufacturer in the case of a defective product or the owner/user where damage is caused by a non-defective system. This will require substantial further research, which the EU should encourage and promote as a matter of the highest priority. In addition to the above stated, please take into account our response to Q1 under "Other issues and further information".

In response to the establishment of a compulsory insurance and compensation fund: Insurance Europe does not support a compulsory insurance scheme for robotics. Compulsory insurance only works in specific cases and when certain market pre-conditions are met; such as the availability of sufficient claims data, a high level of standardisation and plentiful insurance capacity to manage risks and cover claims. This is not the case for robotics. In addition, the different technological innovations falling under the broader category of "robotics" present different risks and raise different liability issues. Because of these differences, a single regulatory approach to all such emerging technologies would not work. Instead of boosting the insurance market, a compulsory insurance scheme would likely lead to a less dynamic insurance market and high premiums. This is because an obligation to insure new risks without sufficient information and data would oblige insurers to factor into their premiums the uncertainty around future claims. This could in turn deter producers of innovative, emerging technologies from placing their products on the market. In addition, Insurance Europe strongly advises against introducing funds as a complementary mechanism to insurance. Such funds can introduce moral hazard; a situation in which producers feel less responsible for potential accidents caused by their products because the fund is financed either by taxpayers (for state-owned funds) or jointly by the producers (for funds capitalised by sectoral levies). This situation could lead to producers lowering their safety standards. On the other hand, insurance can incentivize producers to ensure their products are safe and fit for use, lowering the risk exposure factored into their premiums. In addition, insurance offers several public policy advantages over a compensation fund, including: risk-based premiums to ensure claims can be sufficiently covered; skilled expertise that facilitates the swift payment of claims; and legal solvency obligations to avoid undercapitalization. Regarding further observations about liability issues: Insurance Europe stresses that there should not be a single regulatory approach to emerging technologies. Not all emerging technologies – nor robots – are the same. Different technological innovations, even within the same area, present very different risks and raise different liability issues. Robots can vary a lot in features and their use determines their level of risk. In any discussions on liability and insurance of emerging technologies, policymakers must take into account existing and applicable European and national legislation to avoid overlapping legislation.

In general we support establishment of voluntary insurance scheme. However, in order to be able to establish any insurance scheme it must be possible to understand and assess related risks.

Regarding the type of legal status: robots should be regarded as objects, and have the same status that machines and means of transport have.

Existing law should be able to take care of most problems. Manufacturers of sophisticated / potentially harmful robots should be required to know where they are and how they are being used. Owners, however, should be held liable for use that is against guidelines laid down by manufacturers / regulatory authorities.

We strongly support robust consumer protections, including with regard to "smart" and other IoT devices, and we believe that the existing consumer acquis, including the Product Liability Directive, the Consumer Rights Directive, and (depending on how they are amended) the upcoming draft digital content and physical goods directives, are fit for purpose, and we are not aware of any evidence suggesting that new liability rules directed at such devices are necessary. Consumers should be protected against the harms caused by defects in IoT devices to the same extent they are protected against defects in other devices. We are not aware of any evidence, however, that existing consumer protection and liability regimes are deficient in providing those protections. New liability rules targeted solely at smart devices could lead to legal and business uncertainty and deter investment in innovative new products in the (still quite nascent) smart device sector. That said, differences in these regimes across Member States may in some cases impose barriers to consumers being able to obtain effective relief, while also imposing administrative and other costs on businesses operating on a pan-European basis (costs that particularly difficult to bear for SMEs). Accordingly, while we do not see the need for new liability rules, the Commission's ongoing efforts to further harmonize this area across Member States could provide value to both consumers and suppliers. Determining responsibilities and associated liabilities in connection with the use of AI is an area that will need further consideration and will likely need to be re-examined over time as the technology evolves. At this point, policy makers should avoid strict liability regimes, as these may deter the development of and investment in these promising technologies. At the same time, development of trustworthy AI systems should be encouraged.

In line with the difficulty in defining robots and robotics is the question of whether we can create general laws for robots or need to create laws specific to the vast ranges of applications, capabilities and appearances. The resolution calls for new laws for four types of robots: autonomous means of transport; care robots; medical robots; and human repair and enhancement. euRobotics questions whether it would be possible or useful to group these very different systems and applications under the same laws. Also, for each of the systems there are existing regulatory guidelines, e.g. the EU machinery directive, International Organisation for Standardisation (ISO) and International Electrotechnical Commission (IEC) standards and EU directives for medical devices or remotely-piloted aerial systems. Standards represent the most effective way to ensure high levels of product safety and to provide prior certainty to manufacturers. Instead of new regulatory measures it would probably be more efficient to update the existing ones since these are already well-known, highly adapted and internationally approved.) The robotics community suggests creating a new certification process for autonomous robots (a modernised 'Turing test'), with a robot providing answers to some basic questions such as "What is it doing?" and "Why is it doing it?" The resolution called for every autonomous robot to have a black box inside, allowing decisions based on artificial intelligence to be reformulated in a human-comprehensible form. However, the robotics community stresses that it is a particularity of artificial intelligence that not every decision-making step can really be rationalised in a human-comprehensible form. Thus, the idea might be hard to realise, especially when it comes to systems using deep-learning technologies.

Question 78

Please indicate to what extent you support or oppose the following statements on the necessity for EU action(s) related to connectivity, intellectual property rights, and the flow of data? The EU should take action(s) ... *

Levels To develop a balanced approach to intellectual property rights when applied to hardware and software standards, and codes that protect innovation and at the same time foster innovation.
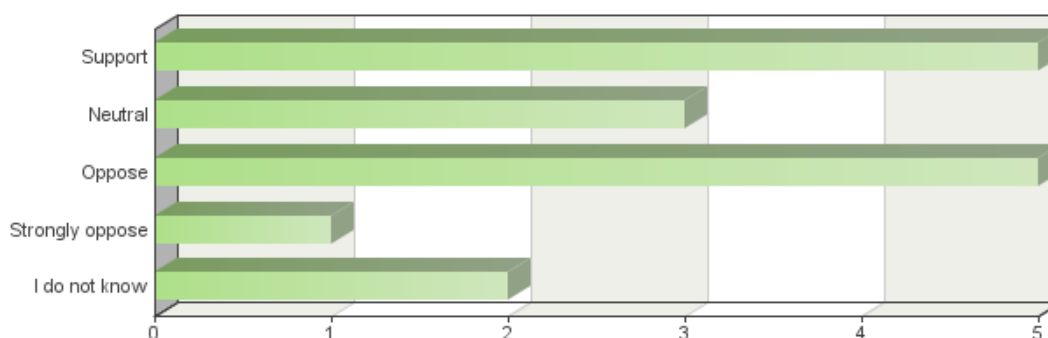
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Support	5	5	17.24%	17.24%	31.25%	31.25%
Neutral	3	8	10.34%	27.59%	18.75%	50%
Oppose	5	13	17.24%	44.83%	31.25%	81.25%
Strongly oppose	1	14	3.45%	48.28%	6.25%	87.5%
I do not know	2	16	6.9%	55.17%	12.5%	100%
Sum:	16	-	55.17%	-	100%	-
Not answered:	13	-	44.83%	-	-	-

Average:	3.5	Minimum:	2	Variance:	1.87
Median:	3.5	Maximum:	6	Std. deviation:	1.37

Total answered: 16

Levels To support a horizontal and technology neutral approach to intellectual property applicable to the various sectors in which robotics could be employed.

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Support	1	1	3.45%	3.45%	6.25%	6.25%
Neutral	5	6	17.24%	20.69%	31.25%	37.5%
Oppose	4	10	13.79%	34.48%	25%	62.5%
Strongly oppose	1	11	3.45%	37.93%	6.25%	68.75%
I do not know	5	16	17.24%	55.17%	31.25%	100%
Sum:	16	-	55.17%	-	100%	-
Not answered:	13	-	44.83%	-	-	-

Average:	4.25	Minimum:	2	Variance:	1.93
Median:	4	Maximum:	6	Std. deviation:	1.39

Total answered: 16

Levels To elaborate criteria for an 'own intellectual creation' for copyrightable works produced by computers or robots.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Neutral	4	4	13.79%	13.79%	25%	25%
Oppose	5	9	17.24%	31.03%	31.25%	56.25%
Strongly oppose	4	13	13.79%	44.83%	25%	81.25%
I do not know	3	16	10.34%	55.17%	18.75%	100%
Sum:	16	-	55.17%	-	100%	-
Not answered:	13	-	44.83%	-	-	-

Average:	4.38	Minimum:	3	Variance:	1.18
Median:	4	Maximum:	6	Std. deviation:	1.09

Total answered: 16

Levels To foster development of standards for the concept of privacy by design.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	4	4	13.79%	13.79%	25%	25%
Support	1	5	3.45%	17.24%	6.25%	31.25%
Neutral	2	7	6.9%	24.14%	12.5%	43.75%
Oppose	1	8	3.45%	27.59%	6.25%	50%
Strongly oppose	3	11	10.34%	37.93%	18.75%	68.75%
I do not know	5	16	17.24%	55.17%	31.25%	100%
Sum:	16	-	55.17%	-	100%	-
Not answered:	13	-	44.83%	-	-	-

Average:	3.81	Minimum:	1	Variance:	4.3	
Median:	4.5	Maximum:	6	Std. deviation:	2.07	

Total answered: 16

Levels To foster development of standards for the concept of privacy by default.

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		4	4	13.79%	13.79%	25%	25%
Support		1	5	3.45%	17.24%	6.25%	31.25%
Neutral		3	8	10.34%	27.59%	18.75%	50%
Strongly oppose		3	11	10.34%	37.93%	18.75%	68.75%
I do not know		5	16	17.24%	55.17%	31.25%	100%
Sum:		16	-	55.17%	-	100%	-
Not answered:		13	-	44.83%	-	-	-
Average:	3.75	Minimum:	1		Variance:	4.33	
Median:	4	Maximum:	6		Std. deviation:	2.08	

Total answered: 16

Levels To foster development of standards for the concept of informed consent.

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		4	4	13.79%	13.79%	25%	25%
Support		2	6	6.9%	20.69%	12.5%	37.5%
Neutral		1	7	3.45%	24.14%	6.25%	43.75%
Oppose		4	11	13.79%	37.93%	25%	68.75%
I do not know		5	16	17.24%	55.17%	31.25%	100%
Sum:		16	-	55.17%	-	100%	-
Not answered:		13	-	44.83%	-	-	-
Average:	3.56	Minimum:	1		Variance:	4.13	
Median:	4	Maximum:	6		Std. deviation:	2.03	

Total answered: 16

Levels To foster development of standards for the concept of encryption.
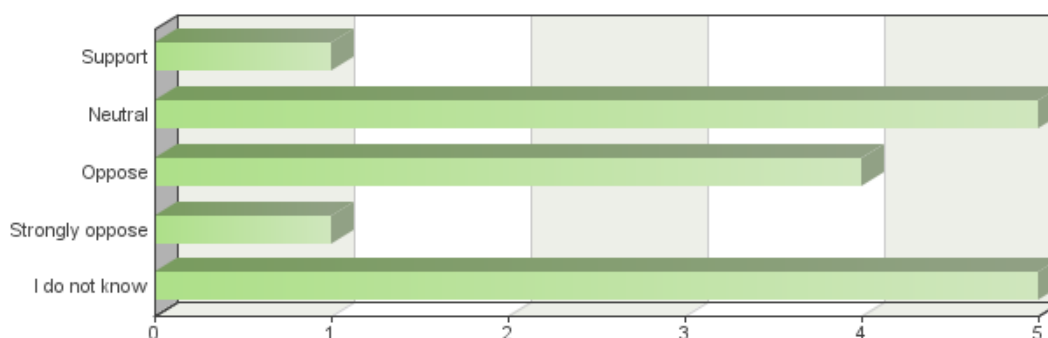
Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		3	3	10.34%	10.34%	18.75%	18.75%
Support		2	5	6.9%	17.24%	12.5%	31.25%
Neutral		3	8	10.34%	27.59%	18.75%	50%
Oppose		4	12	13.79%	41.38%	25%	75%
I do not know		4	16	13.79%	55.17%	25%	100%
Sum:		16	-	55.17%	-	100%	-
Not answered:		13	-	44.83%	-	-	-
Average:	3.5	Minimum:	1		Variance:	3.33	
Median:	3.5	Maximum:	6		Std. deviation:	1.83	

Total answered: 16

Levels To elaborate criteria to ensure that the use of personal data as a 'currency' does not lead to a circumvention of the basic principles governing the right to privacy and data protection.
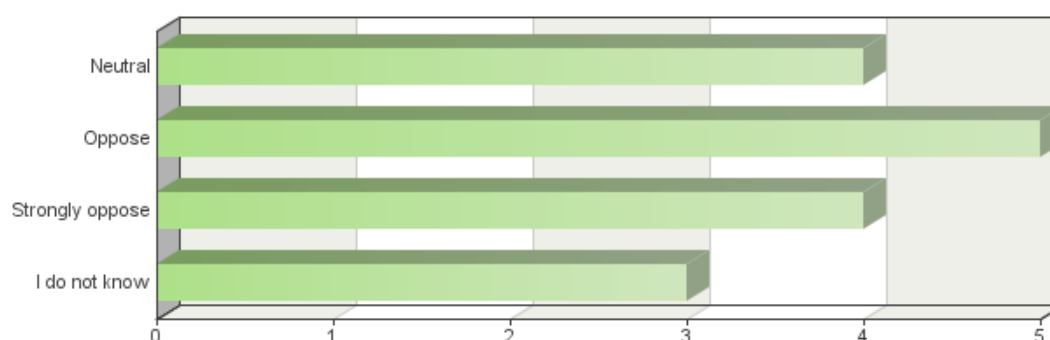
Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		4	4	13.79%	13.79%	25%	25%
Support		3	7	10.34%	24.14%	18.75%	43.75%
Neutral		1	8	3.45%	27.59%	6.25%	50%
Oppose		2	10	6.9%	34.48%	12.5%	62.5%
Strongly oppose		2	12	6.9%	41.38%	12.5%	75%
I do not know		4	16	13.79%	55.17%	25%	100%
Sum:		16	-	55.17%	-	100%	-
Not answered:		13	-	44.83%	-	-	-
Average:	3.44	Minimum:	1		Variance:	4.13	
Median:	3.5	Maximum:	6		Std. deviation:	2.03	

Total answered: 16

Levels To set a framework that will meet the connectivity requirements for the EU's digital future.
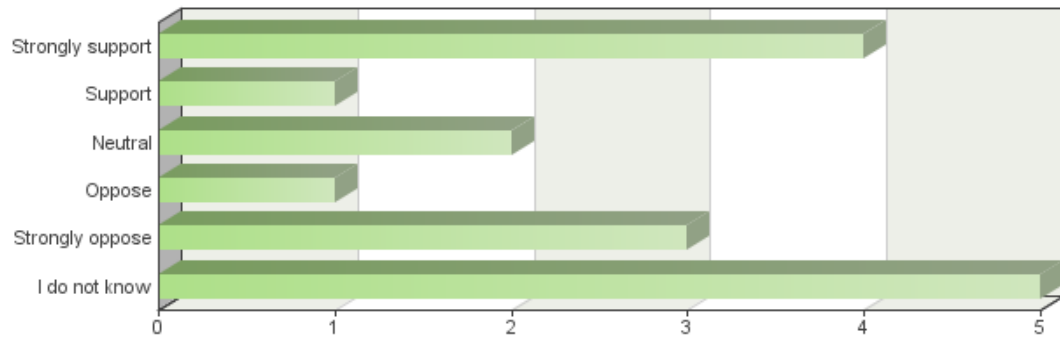

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		4	4	13.79%	13.79%	25%	25%
Support		1	5	3.45%	17.24%	6.25%	31.25%
Neutral		4	9	13.79%	31.03%	25%	56.25%
Oppose		4	13	13.79%	44.83%	25%	81.25%
I do not know		3	16	10.34%	55.17%	18.75%	100%
Sum:		16	-	55.17%	-	100%	-
Not answered:		13	-	44.83%	-	-	-
Average:	3.25	Minimum:	1		Variance:	3.13	
Median:	3	Maximum:	6		Std. deviation:	1.77	

Total answered: 16

Levels To set a framework to ensure that access to broadband and 5G network is fully in line with the net neutrality principle.
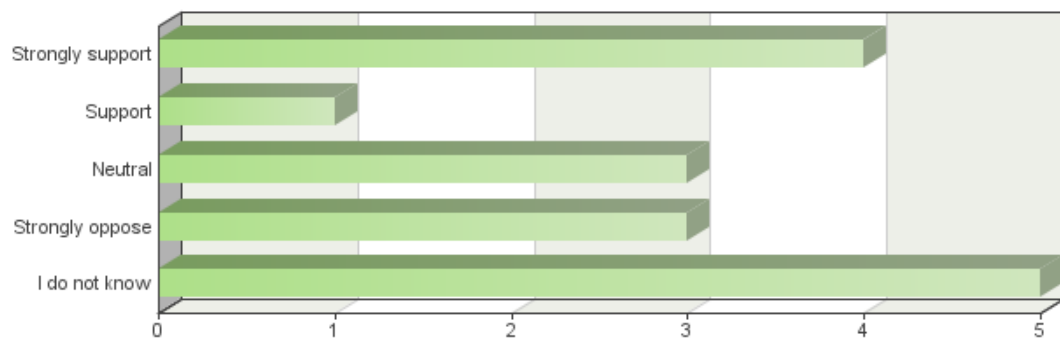
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	4	4	13.79%	13.79%	25%	25%
Support	2	6	6.9%	20.69%	12.5%	37.5%
Neutral	4	10	13.79%	34.48%	25%	62.5%
Oppose	2	12	6.9%	41.38%	12.5%	75%
Strongly oppose	1	13	3.45%	44.83%	6.25%	81.25%
I do not know	3	16	10.34%	55.17%	18.75%	100%
Sum:	16	-	55.17%	-	100%	-
Not answered:	13	-	44.83%	-	-	-

Average:	3.19	Minimum:	1	Variance:	3.36	
Median:	3	Maximum:	6	Std. deviation:	1.83	

Total answered: 16

Levels To ensure that civil law regulations are consistent with Regulation (EU) No 2016/679 (the General Data Protection Regulation).
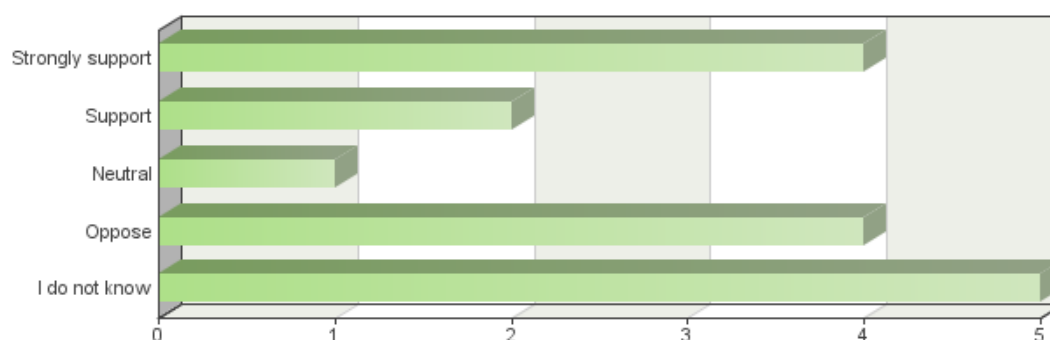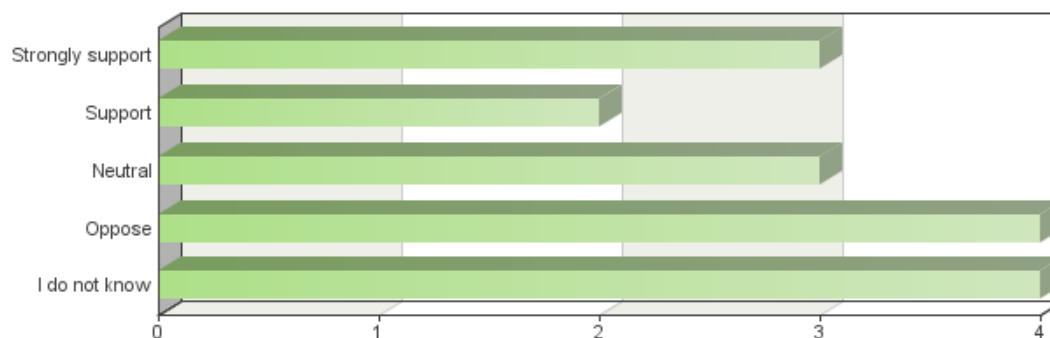
Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		3	3	10.34%	10.34%	18.75%	18.75%
Support		4	7	13.79%	24.14%	25%	43.75%
Neutral		3	10	10.34%	34.48%	18.75%	62.5%
Oppose		3	13	10.34%	44.83%	18.75%	81.25%
Strongly oppose		1	14	3.45%	48.28%	6.25%	87.5%
I do not know		2	16	6.9%	55.17%	12.5%	100%
Sum:		16	-	55.17%	-	100%	-
Not answered:		13	-	44.83%	-	-	-
Average:	3.06	Minimum:	1		Variance:	2.73	
Median:	3	Maximum:	6		Std. deviation:	1.65	

Total answered: 16

Levels To review rules and criteria regarding the use of cameras and sensors in robots.
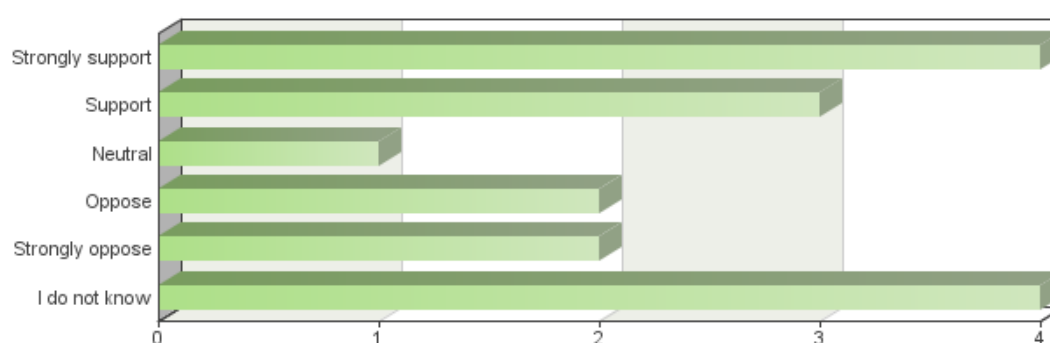

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		4	4	13.79%	13.79%	25%	25%
Support		2	6	6.9%	20.69%	12.5%	37.5%
Neutral		1	7	3.45%	24.14%	6.25%	43.75%
Oppose		4	11	13.79%	37.93%	25%	68.75%
Strongly oppose		1	12	3.45%	41.38%	6.25%	75%
I do not know		4	16	13.79%	55.17%	25%	100%
Sum:		16	-	55.17%	-	100%	-
Not answered:		13	-	44.83%	-	-	-
Average:	3.5	Minimum:	1		Variance:	3.87	
Median:	4	Maximum:	6		Std. deviation:	1.97	

Total answered: 16

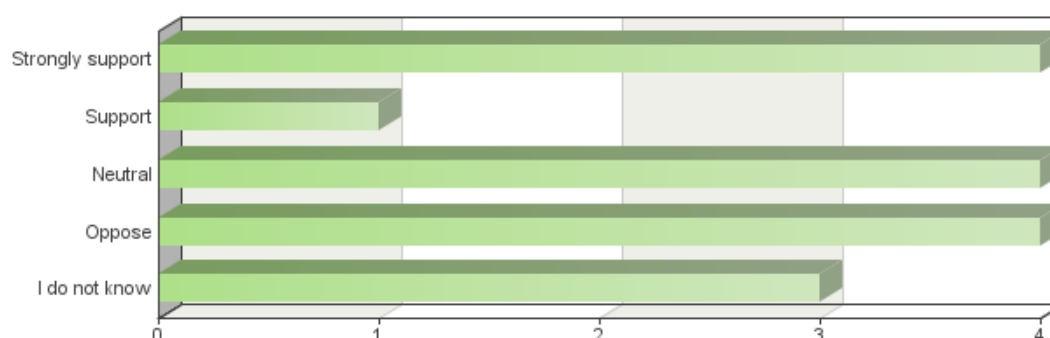## Levels To ensure transparent mechanisms for data subjects.

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		4	4	13.79%	13.79%	25%	25%
Support		2	6	6.9%	20.69%	12.5%	37.5%
Neutral		3	9	10.34%	31.03%	18.75%	56.25%
Oppose		3	12	10.34%	41.38%	18.75%	75%
I do not know		4	16	13.79%	55.17%	25%	100%
Sum:		16	-	55.17%	-	100%	-
Not answered:		13	-	44.83%	-	-	-
Average:	3.31	Minimum:	1	Variance:		3.7	
Median:	3	Maximum:	6	Std. deviation:		1.92	

Total answered: 16

Levels To ensure that appropriate remedies are available for data subjects in compliance with EU data protection law.
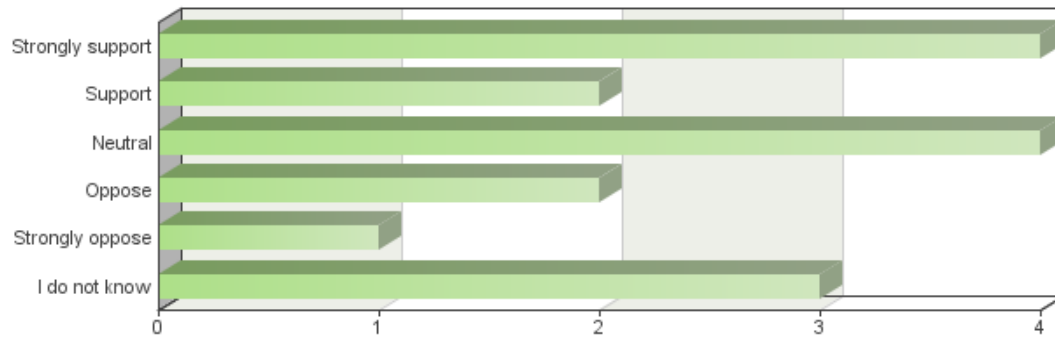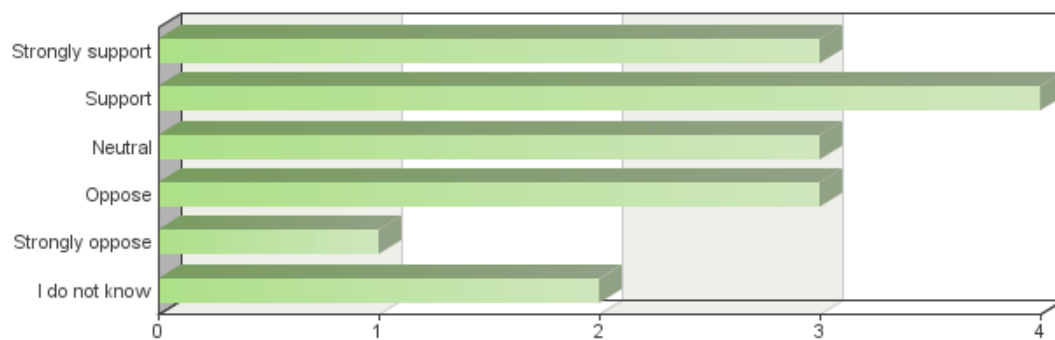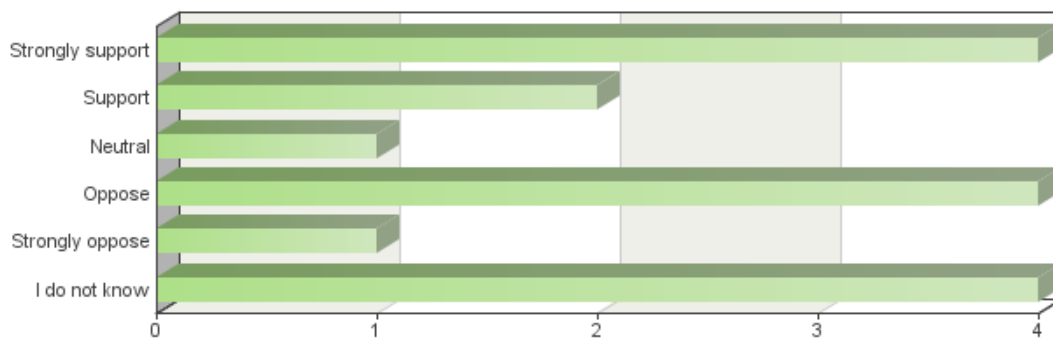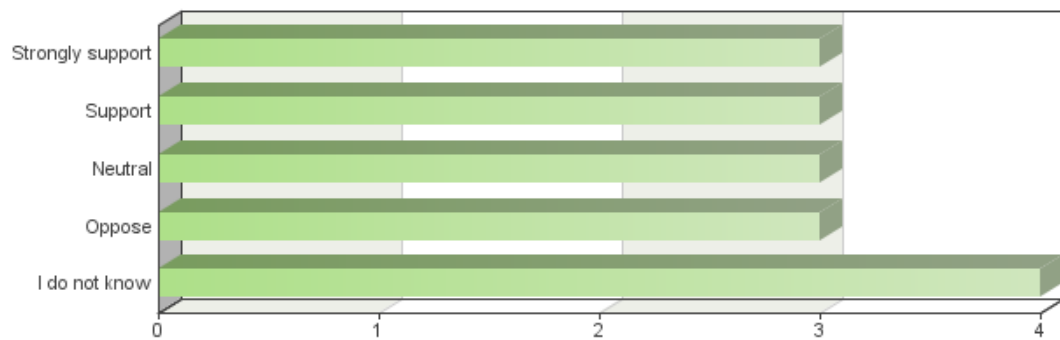
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	3	3	10.34%	10.34%	18.75%	18.75%
Support	3	6	10.34%	20.69%	18.75%	37.5%
Neutral	3	9	10.34%	31.03%	18.75%	56.25%
Oppose	3	12	10.34%	41.38%	18.75%	75%
I do not know	4	16	13.79%	55.17%	25%	100%
Sum:	16	-	55.17%	-	100%	-
Not answered:	13	-	44.83%	-	-	-

Average:	3.38	Minimum:	1	Variance:	3.45	
Median:	3	Maximum:	6	Std. deviation:	1.86	

Total answered: 16

Text input
Intervenir dans la définition de normes produits liées à l'innovation risquerait de la freiner ; de surcroît, ce n'est pas le rôle des instances communautaires.
Point 1.1 makes little sense as a consultation question, as it is hard to oppose a balanced approach to anything.. Point 1.2 is too broad to be able to elicit meaningful responses. Works produced by AIs shall not be given the status of intellectual creation. From a legal perspective, Ada Lovelace correctly argued in 1843: "the Analytical Engine has no pretensions whatever to originate anything. It can do whatever we know how to order it to perform". Creativity is defined in terms of human consciousness [Bridy, A. (2012). Coding creativity: copyright and the artificially intelligent author. Stan. Tech. L. Rev., 1]. EDRi also supports what stated in the opinion of the Industry, Research and Energy committee (ITRE) of the EU parliament which "cautions against the introduction of new intellectual property rights in the field of robotics and AI that could hamper innovation and exchange of expertise [Paragraph 11, ITRE Opinion of the 15-11/2016 for the Committee on Legal Affairs with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL))].
With regard to the review of rules and criteria regarding the use of cameras and sensors in robots, our indication is based on the idea that they would have a limitative effect, protect privacy and have the human body out of the commercial scope.
The GDPR is not fit for purpose in the world of robots and AI. It needs to be reconsidered.

Question 79

What issues related to developments in the robotics and AI sector should the EU address as a matter of priority? (max. three choices) *
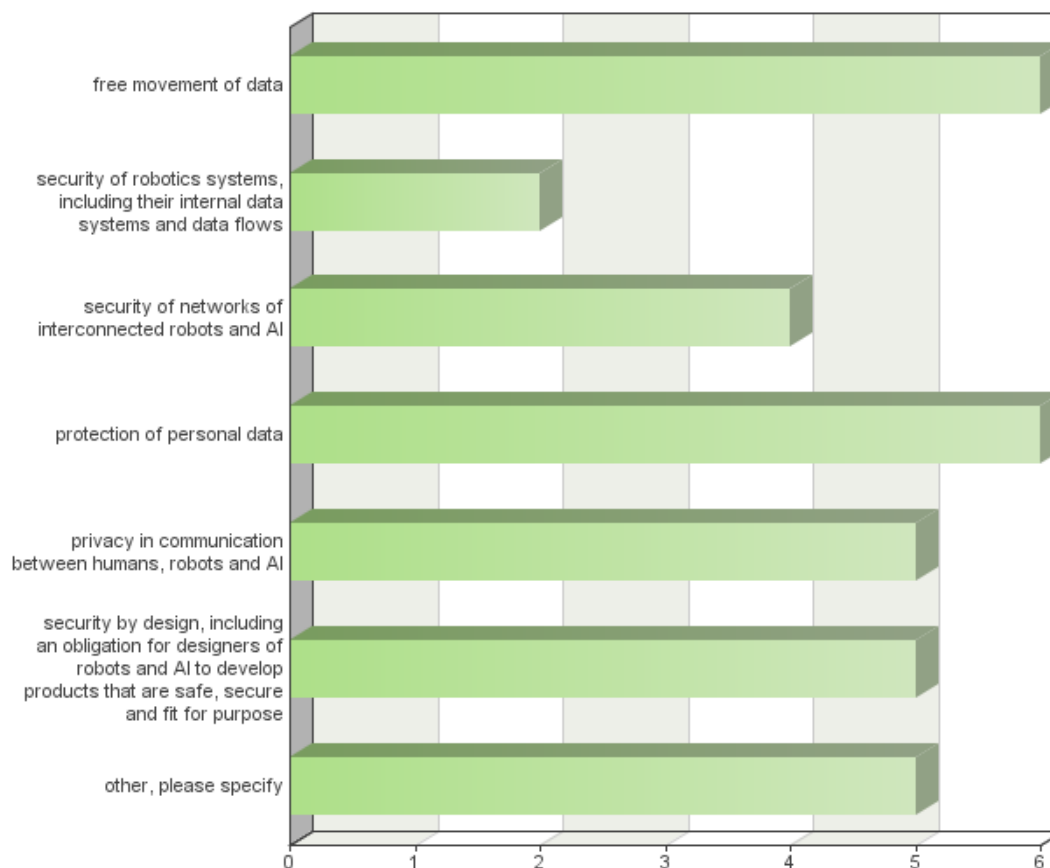
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency by choice	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
free movement of data	6	6	18.18%	20.69%	20.69%	37.5%	37.5%
security of robotics systems, including their internal data systems and data flows	2	8	6.06%	6.9%	27.59%	12.5%	50%
security of networks of interconnected robots and AI	4	12	12.12%	13.79%	41.38%	25%	75%
protection of personal data	6	18	18.18%	20.69%	62.07%	37.5%	112.5%
privacy in communication between humans, robots and AI	5	23	15.15%	17.24%	79.31%	31.25%	143.75%
security by design, including an obligation for designers of robots and AI to develop products that are safe, secure and fit for purpose	5	28	15.15%	17.24%	96.55%	31.25%	175%
other, please specify	5	33	15.15%	17.24%	113.79%	31.25%	206.25%
Sum:	33	-	100%	-	-	-	-
Not answered:	13	-	-	44.83%	-	-	-

Average:	4.12	Minimum:	1	Variance:	4.23
Median:	4	Maximum:	7	Std. deviation:	2.06

Total answered: 16

Last choice text input
safety research
Clear liability rules, testing zones

As note, the protection of personal data is extremely relevant and addressed under the GDPR. It is unclear at the moment if further would be necessary, which is why this option was not selected.

Text input

When robotics, AI, and interconnected technologies are implemented together, the data that they collect and generate become more important as they could deal with very sensitive (e.g. health) and personal (e.g. relationship) information. In theory, such data can be anonymised (pseudo-anonymised, to be precise) to remove the personally identifiable information to protect individual privacy. However, the third parties who gain access (either legally or illegally) to this immense amount of personal data have proved that the privacy guarantees can fall short. See, for example: Big data: the broken promise of anonymisation, Thomas, M. (2014), https://www.gresham.ac.uk/lectures-and-events/big-data-the-broken-promise-of-anonymisation As regards communication, there are different types of, and actors involved in communication. There is verbal communication, between humans and machines; digital communication, between humans and machines and among machines; and there are different communication transmissions systems (satellite, radio, wireless, audio/visual, LAN, etc). All these types of communication suffer from security, privacy and confidentiality issues . As an example, verbal commands require the robot to have an embedded audio recorder. The ways in which the recorder is activated is more or less privacy friendly if they fail to ensure appropriate authorisation and authentication mechanisms. For instance, voice activated recorders undertake constant recording for activation on speech and may or may not have a "listen and forget" technology in place. This works differently in robots that have an on/off button for voice commands . Robots should also embed technologies that embed privacy and security by design and by default principles to diminish the risks of, for example, privacy and security breaches. However, the even bigger problem lies in identifying liabilities in cases of harm caused to people.

EU actions towards research to ensure that robots and AI are safe and beneficial.

The EU should be slow to interpret existing data protection rules for Robots. A wait and see approach is better.

Clear liability rules and designated zones for testing

As indicated in answer to question 2 in Section 2, there are existing regulatory guidelines for each of the four types of robots considered in the resolution (autonomous means of transport, care robots, medical robots, and human repair and enhancement). They include the EU machinery directive, ISO and IEC standards and EU directives for medical devices or remotely-piloted aerial systems. Standards represent the most effective way to ensure high levels of product safety and to provide prior certainty to manufacturers. euRobotics believes that Instead of introducing new regulatory measures it would probably be more efficient to update existing internationally-approved ones.

Question 80

In your opinion, what are the biggest (1) benefits and/or (2) obstacles and deficiencies related to intellectual property rights, connectivity, and flow of data in the current EU regulatory framework?

Text input
Lack of political interest and willingness to collaborate
The protection of Intellectual Property (patent, trade marks etc.).
cf Consultation sur l'économie des données actuellement en cours
As regards intellectual property, one of the biggest obstacles for the expansion of robots and AI in the EU regulatory framework is that rules on intellectual property and neighbouring rights are sometimes too much in favour of the right holders, which is to the detriment of security and safety. One of the concern related to network-connected autonomous robots is in fact that interoperability will be ensured both technically and legally. The current regulation would not permit such interoperability, as right holders do not want to share valuable information in relation to, for instance, source codes, input data, and construction details. In this regard, the parliament's proposal to permit the access to such information when needed "to investigate accidents and damage caused by smart robots, as well as in order to ensure their continued operation, availability, reliability, safety and security" is welcome. As regards connectivity, the EU still has to conduct efforts to achieve better connectivity. EDRi encourages to sustain community networks: https://edri.org/open-letter-community-networks-essential-providing-affordable-internet-access/ In addition, new technological developments must respect the "Regulation 2015/2120 laying down measures concerning open internet access. Regarding the "flow of data", a clarification of what it is being referred to would be welcomed (see, e.g. https://edri.org/free-flow-of-data/). With regard to the flow of personal data, the GDPR addresses any issues that could arise. Therefore, a new legislative proposal is not needed. There are many more issues regarding privacy, security and the protection of personal data that should be considered.
A pan-EU mobile telecom licence regime would benefit consumers.
Flow of Data: The current legal challenges and uncertainty associated with cross-border data flows are the biggest deficiency related to the flow of data. To further AI, it is critical that laws facilitate intercompany and cross-border data flows that are protected through appropriate technical and legal measures and not otherwise prescribe the location of data. While well-intentioned, overly restrictive cross-border transfer rules can be difficult to implement, damaging to the economy, and ineffective at addressing the primary privacy concerns associated with AI. A more effective approach would be to adopt regulation aligned with global standards that protect personal data regardless of its location. Such an approach can also help to improve resiliency and security and make AI services more efficient by reducing latency. It will then be incumbent on AI companies to make sure that personal data is managed according to relevant local law, regardless of the location to which it is transferred.
The General Data Protection Regulation ensures free flow of data while providing a high level of protection for the fundamental right to data protection. Furthermore, the ongoing review of the e-Privacy Directive should complete this work and provide robust protection for the right to privacy and confidentiality of communication, which will protect users and bring trust in the IoT and connected device market. Finally, as mentioned earlier, to unleash the potential of AI and robotics, the EU must not only put in place and implement measures for the protection of fundamental rights and robust rules on digital security but also incentivise investment in networks. As of today, several rural areas and regions of Europe rely on poor connectivity.
-Strong intellectual property rights are important to allow private firms to recoup investments in AI -5G is important for this space. As long as EU member states continue to manage spectrum on the national level, rather than adopt EU-wide spectrum rules, 5G deployment will lag. -The EU should promote the free flow of data internationally and prevent member states from restricting the free flow of data.

Question 81

Should you have further observations about connectivity, intellectual property rights, and the flow of data, please share your experience or suggestions here: (optional)

Text input
There should be a responsibility for the infringement of Intellectual Property and IP rules should be applied on artificial intelligence and the robot's performance.
In relation to question 2, it is important to stress the importance of the security of networks of interconnected robots and AI, which has been partially discussed in answer 3. - there is a need for clear rules on the real-life testing of the autonomous robots. Rules on robots shall be created having an idea of how these robots behave in real life; - field testing shall not be taken as a definitive evidence of potential behaviours, relations, effects. Robots' AI can change constantly depending on the context and environment they are put into, and keep on building on an own behaviour the more they learn from real life events; - a clear risk-based product liability should be introduced for putting robots on the market without transparency about their algorithms and allowing users to audit and fix security and safety issues; - before putting into the market products whose potential behaviour is still so uncertain under so many perspectives and whose risk of harming people and networks is so high, a very thorough impact assessment has to be done;
AI needs access to vast and diverse data sets in order to train algorithms. Existing data-access laws, including privacy, copyright, open government data and antitrust data access, may need to be updated to help enable the benefits of AI. For example, governments should weigh privacy interests against the benefits of AI insights based on access to data. Although copyright laws should protect the expressive value of a work, they should not restrict the analysis of creative works to extract data that can lead to useful AI insights in ways that do not compete with copyright owners. Governments can also play an important role in speeding the transformational impact of AI by encouraging companies to contribute data to common pools for data analysis, with results shared in ways that do not disclose trade secrets or proprietary information. In addition, governments should ensure that all data they collect or fund is available to the public for analysis, subject to privacy and national security considerations.

Question 82

Please indicate, whether you agree or disagree with the following statements: 'the development of EU standards in the field of AI and robotics technologies are of key importance ...' *

Levels for future competition in this field.
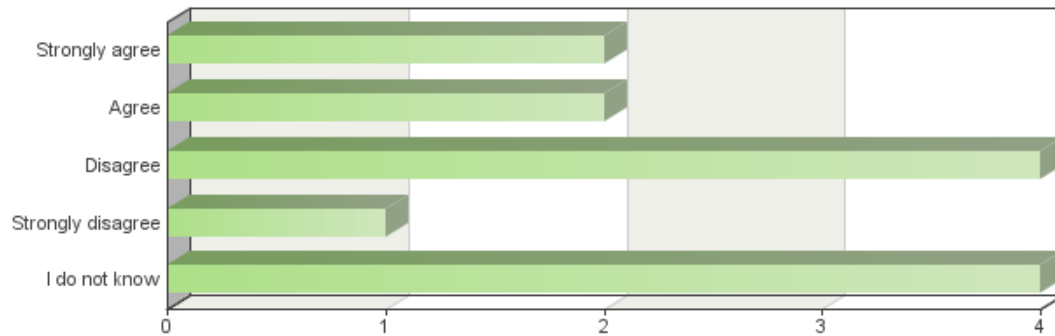
Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly agree		2	2	6.9%	6.9%	15.38%	15.38%
Agree		2	4	6.9%	13.79%	15.38%	30.77%
Disagree		4	8	13.79%	27.59%	30.77%	61.54%
Strongly disagree		1	9	3.45%	31.03%	7.69%	69.23%
I do not know		4	13	13.79%	44.83%	30.77%	100%
Sum:		13	-	44.83%	-	100%	-
Not answered:		16	-	55.17%	-	-	-
Average:	3.23	Minimum:	1		Variance:	2.19	
Median:	3	Maximum:	5		Std. deviation:	1.48	

Total answered: 13

Levels to foster innovation.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly agree	1	1	3.45%	3.45%	7.69%	7.69%
Agree	2	3	6.9%	10.34%	15.38%	23.08%
Disagree	5	8	17.24%	27.59%	38.46%	61.54%
Strongly disagree	1	9	3.45%	31.03%	7.69%	69.23%
I do not know	4	13	13.79%	44.83%	30.77%	100%
Sum:	13	-	44.83%	-	100%	-
Not answered:	16	-	55.17%	-	-	-

Average:	3.38	Minimum:	1	Variance:	1.76	
Median:	3	Maximum:	5	Std. deviation:	1.33	

Total answered: 13

Levels to avoid fragmentation of the international market.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly agree	3	3	10.34%	10.34%	23.08%	23.08%
Agree	3	6	10.34%	20.69%	23.08%	46.15%
Disagree	4	10	13.79%	34.48%	30.77%	76.92%
Strongly disagree	1	11	3.45%	37.93%	7.69%	84.62%
I do not know	2	13	6.9%	44.83%	15.38%	100%
Sum:	13	-	44.83%	-	100%	-
Not answered:	16	-	55.17%	-	-	-

Average:	2.69	Minimum:	1	Variance:	1.9	
Median:	3	Maximum:	5	Std. deviation:	1.38	

Total answered: 13

Levels to guarantee a high level of product safety.

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly agree		3	3	10.34%	10.34%	23.08%	23.08%
Agree		2	5	6.9%	17.24%	15.38%	38.46%
Disagree		4	9	13.79%	31.03%	30.77%	69.23%
Strongly disagree		1	10	3.45%	34.48%	7.69%	76.92%
I do not know		3	13	10.34%	44.83%	23.08%	100%
Sum:		13	-	44.83%	-	100%	-
Not answered:		16	-	55.17%	-	-	-
Average:	2.92	Minimum:	1		Variance:	2.24	
Median:	3	Maximum:	5		Std. deviation:	1.5	

Total answered: 13

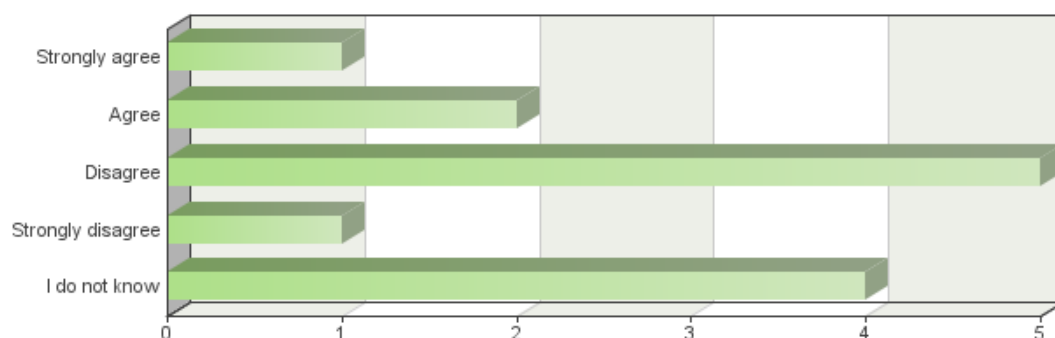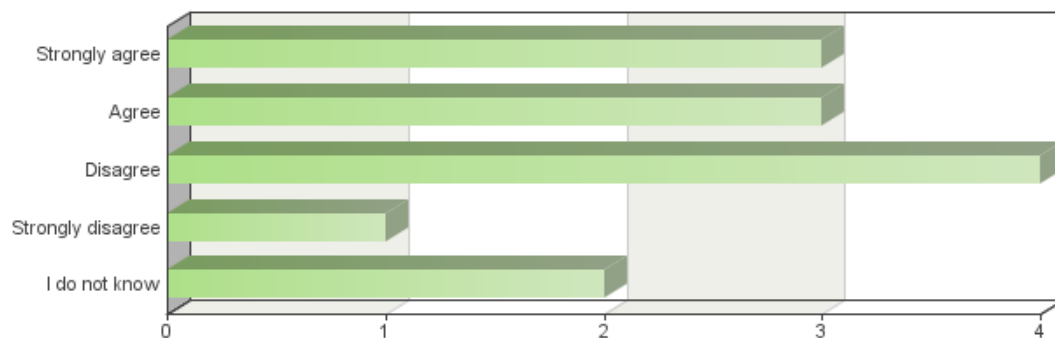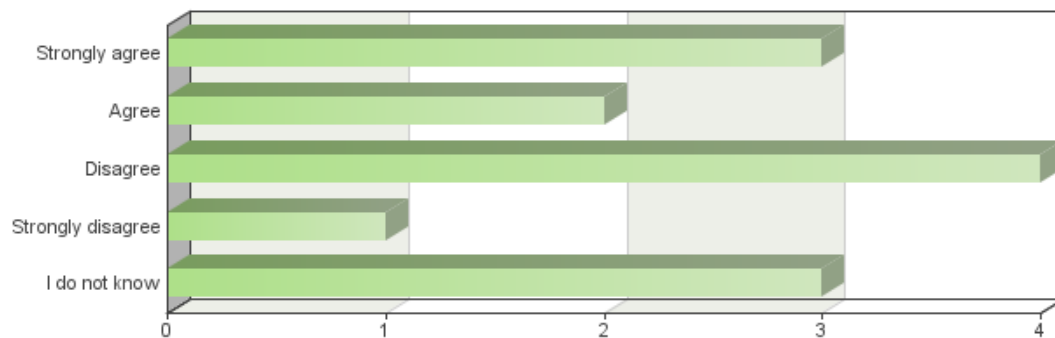## Levels to guarantee consumer protection.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly agree	4	4	13.79%	13.79%	30.77%	30.77%
Agree	1	5	3.45%	17.24%	7.69%	38.46%
Disagree	4	9	13.79%	31.03%	30.77%	69.23%
Strongly disagree	1	10	3.45%	34.48%	7.69%	76.92%
I do not know	3	13	10.34%	44.83%	23.08%	100%
Sum:	13	-	44.83%	-	100%	-
Not answered:	16	-	55.17%	-	-	-

Average:	2.85	Minimum:	1	Variance:	2.47
Median:	3	Maximum:	5	Std. deviation:	1.57

Total answered: 13

Text input
La normalisation s'effectue au niveau international et ces principes sont déjà ancrés (cf ISO TC 299 pour la robotique)
We strongly agree that there is a need for developping standards in the field of AI and robotics in all metioned points, but on an international level. Having additional European standards will hamper the competitiveness of European companies in the global context.
These benefits can be achieved without EU standards per se.
Standard efforts on aspects of AI can contribute positively to policy discussions in clarifying some of the concerns expressed. For example, standards can specify a definition for fairness, or certification procedures for AI systems. The recently launched IEEE Standards Project P7000 "Model Process for Addressing Ethical Concerns During System Design" that is part of its broader Global Initiative for Ethical Considerations in the Design of Autonomous Systems is an example of such an effort. Standards organizations such as NIST can also coordinate development of testbeds for AI systems or development of data sets for training these systems. EU-only technical standards will not help drive innovation in Europe. Europe can lead the definition of international standards that reflect its values.
Standards should not be restricted to the EU. The EU should play a key role in developing global standards.

Question 83

Please indicate how important or unimportant the following EU actions in the area of standardisation, safety and security, are for your industry? *

Levels EU involvement in the international harmonisation of technical standards, in particular together with the European Standardisation Organisations and International Organization for Standardization.
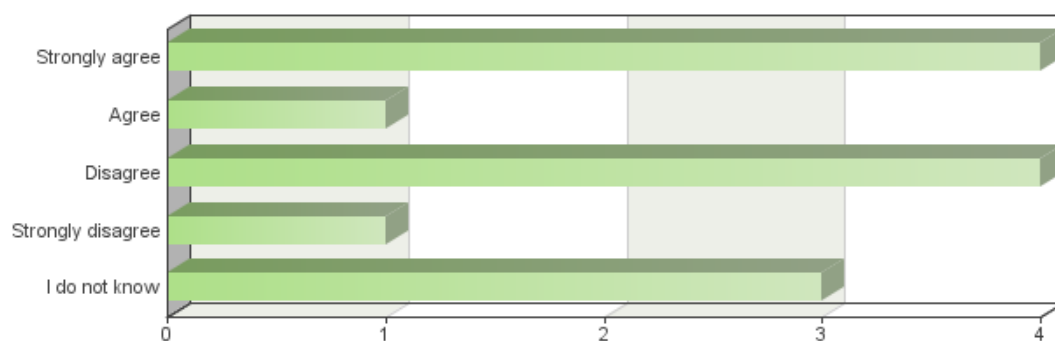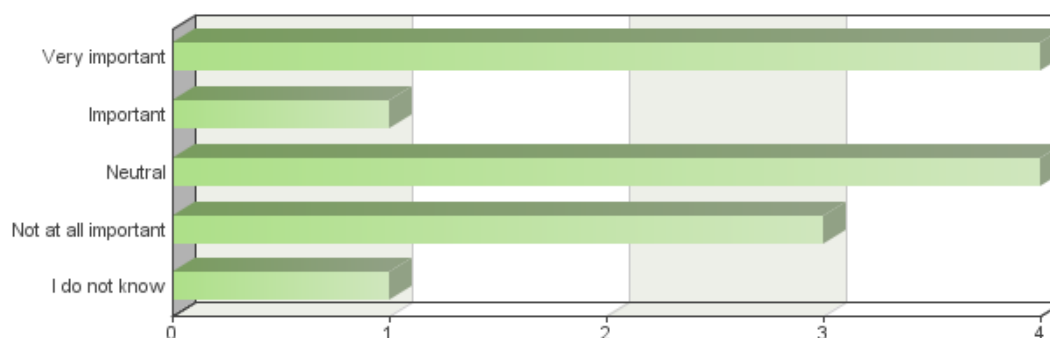

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	4	4	13.79%	13.79%	30.77%	30.77%
Important	1	5	3.45%	17.24%	7.69%	38.46%
Neutral	4	9	13.79%	31.03%	30.77%	69.23%
Not at all important	3	12	10.34%	41.38%	23.08%	92.31%
I do not know	1	13	3.45%	44.83%	7.69%	100%
Sum:	13	-	44.83%	-	100%	-
Not answered:	16	-	55.17%	-	-	-

Average:	3	Minimum:	1	Variance:	3.17
Median:	3	Maximum:	6	Std. deviation:	1.78

Total answered: 13

Levels Revision of EU legislation in light of development of robotics and AI.
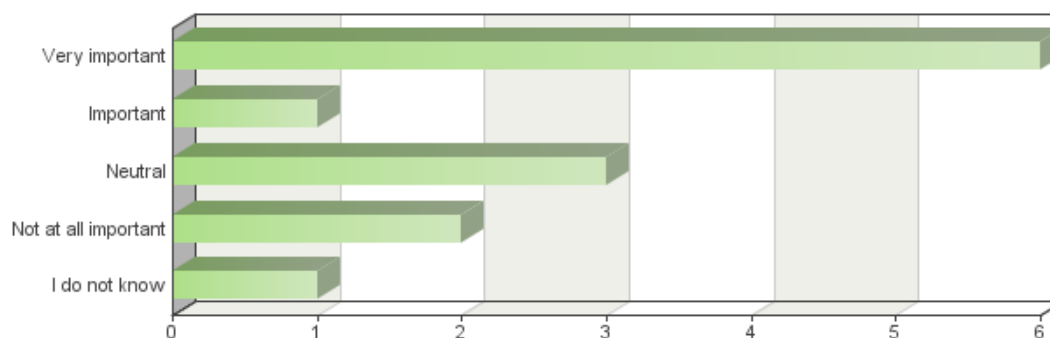
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	6	6	20.69%	20.69%	46.15%	46.15%
Important	1	7	3.45%	24.14%	7.69%	53.85%
Neutral	3	10	10.34%	34.48%	23.08%	76.92%
Not at all important	2	12	6.9%	41.38%	15.38%	92.31%
I do not know	1	13	3.45%	44.83%	7.69%	100%
Sum:	13	-	44.83%	-	100%	-
Not answered:	16	-	55.17%	-	-	-

Average:	2.54	Minimum:	1	Variance:	3.27
Median:	2	Maximum:	6	Std. deviation:	1.81

Total answered: 13

Levels Elaboration of uniform criteria across all EU Member States which individual Member States should use in order to identify areas where experiments with robots are permitted.
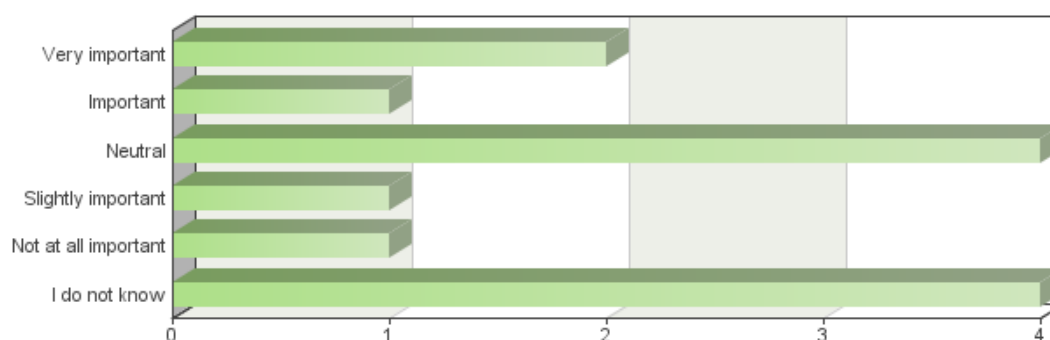
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Very important	2	2	6.9%	6.9%	15.38%	15.38%
Important	1	3	3.45%	10.34%	7.69%	23.08%
Neutral	4	7	13.79%	24.14%	30.77%	53.85%
Slightly important	1	8	3.45%	27.59%	7.69%	61.54%
Not at all important	1	9	3.45%	31.03%	7.69%	69.23%
I do not know	4	13	13.79%	44.83%	30.77%	100%
Sum:	13	-	44.83%	-	100%	-
Not answered:	16	-	55.17%	-	-	-

Average:	3.77	Minimum:	1	Variance:	3.53
Median:	3	Maximum:	6	Std. deviation:	1.88

Total answered: 13

Text input

The EU should also strive for consensus with the IEEE (http://standards.ieee.org/news/2016/ethically_aligned_design.html).

See previous responses and https://edri.org/eprivacy-directive-document-pool/

In the long run, the regulation will need to adjust to profoundly changing reality, where robots and AI will constitute a basis of economy and will have significant influence on all areas of human activity. However, at the current situation it is premature to legislate as there is high uncertainty about future developments, and legislation could bring about adverse side effects. This might harm development and deployment of robots and AI in the Europe Union thus reducing the EU global competitiveness. In addition, it is highly probable that new, more sophisticated approaches to regulation will be necessary. Most probably, these approaches will use AI systems.

The revision of EU legislation should be done for individual sectors.

Question 84

In your opinion, what are the biggest (1) benefits and/or (2) obstacles and deficiencies in the current EU regulatory framework related to standardisation, safety and security for robotics and AI?"

Text input
The biggest obstacles are the lack of a specific legal status for (smart) robots and AI and the lack of stringent rules for transparency of AI companies' policies.
1= principle of self-certification of machinery enables innovation. 2= lack of clear regulatory framework for robotics, reduces the need for standardisation, safety and secrity
Among the main obstacles is high level of complexity and in particular uncertainty of future developments in the area of AI research. As we have mentioned, in many areas of AI and robotics it is premature to legislate as there is currently high uncertainty about future developments, and legislation could bring about adverse side effects. This might harm development and deployment of robots and AI in the Europe Union, thus reducing the EU global competitiveness. Moreover, the large potential of AI research to solve societal challenges and save lives in the near future may be significantly reduced by inappropriate regulation.
Legislation aimed at protecting provacy is not fit for purpose in the age of robotics and AI. There are signs that the EU wishes to blur the distinction between privacy regulation and competition law in the treatment of data.

Question 85

Should you have further observations about standardisation, safety and security, please share your experience or suggestions here:

Text input

The machinery directive would benefit greatly by adding essential requirements for robotics. Discussion proposal Lely: Addition of Robots to MD. By Jan Willem Rodenburg Article 1 Add: h) robots Excluded: Same as in current scope MD, meaning: - Robots for use in fairgrounds and/or amusement parks - Robots put into service for nuclear purposes - Robot weapons, including firearms - Robots for transport by air, on water and on rail - Autonomous vehicles - Robots for military or police purposes. Add: 7. Supplementary essential health and safety requirements for robots. 7.1 General Robots must meet all the relevant essential health and safety requirements described in this chapter. 7.1.1 Definitions a) Robot Actuated mechanism programmable in two or more axes with a degree of autonomy, moving within its environment, to perform intended tasks b) Industrial robots Automatically controlled, reprogrammable multipurpose manipulator, programmable in three or more axes, which can be either fixed in place or mobile for use in industrial automation applications. c) Autonomous vehicles vehicles which can drive themselves without human supervision or input. d) Service robots Robot that performs useful tasks for humans or equipment excluding industrial automation applications e) Household robots Robot or a robotic device intended to be used as household and similar electrical appliances f) Medical Robots Robot or a robotic device intended to be used as MEE(medical electrical equipment) and MES or MES(medical electrical system) g) Personal care robots Service robot that performs actions contributing directly towards improvement in the quality of life of humans, excluding medical applications h) Personal carrier robots Personal care robot with the purpose of transporting humans to an intended destination i) Physical assistant robots Personal care robot that physically assists a user to perform required tasks by providing supplementation or augmentation of personal capabilities j) Mobile servant robots Personal care robot that is capable of travelling to perform serving tasks in interaction with humans, such as handling objects or exchanging information k) Level of Autonomy ??? 7.1.2 General requirements Robots must be designed, constructed or equipped in such a way that the usage of the robot does not engender any unacceptable risks for humans and domestic animals where relevant. 7.1.3 Controls Robot controls must be designed to have sufficient reliability, to eliminate or reduce the risks resulting from the loss of controls. 7.1.4 Override Override by humans must be possibly in all conditions, to divert direct risks. Override shall not introduce new risks. 7.1.5 Speed Robots operating at speed above 300 mm/s must be equipped with means to detect humans and capable of initiating a safety stop. 7.1.6 Detection All equipment used for detection of humans must be sufficiently reliable, taking into account all reasonable foreseeable risks and level of Autonomy 7.1.7 Breaking Robots must be designed, constructed or equipped with sufficient breaking means. 7.1.8 Power & Force limiting Robots must be designed, constructed or equipped in such a way taking in account the maximum forces (N) and energy (J) that can be applied on a human without any harm. 7.1.9 Mass inertia Robots must be designed, constructed or equipped in such a way that mass inertia does not engender risks for persons. 7.1.10 Robot systems Any machinery, equipment, devices, external auxiliary axes or sensors supporting the robot performing its task must be taken into account in such way that robot systems do not engender risks for persons. 7.2 Risks due to movement of the carrier Personal carrier robots must be designed, constructed or equipped in such a way that the acceleration or deceleration of the carrier does not engender risks for persons. 7.3 Risks due to interaction of robots with dependent persons. Medical carrier robots and Personal care robots must be designed, constructed or equipped in such a way that interaction with dependent persons does not engender risks for those persons. 7.4 Risks due to the stability of robots Mobile robots must be designed, constructed or equipped in such a way that stability of the robot does not engender risks for persons. 7.5 Risks due to robots interacting Robots must be designed, constructed or equipped in such a way that robots interacting do not engender risks for persons. 7.6 Risks due unauthorized access to robot Robots must be designed to eliminate or reduce the risks resulting from unauthorized /undesired access, such as hacking. 7.7 Risks due to robots interaction with persons Robots (such as collaborate robots) must be designed, constructed or equipped in such a way that robots interacting with persons do not engender ergonomic risks for persons. 7.8 Risks due to the operating environment of robots Mobile Robots must be designed constructed or equipped in such a way that robots do not engender risks for persons while operating in demanding environments, such as out door.

Much more public support, including from the EU, needs to be provided to the multidisciplinary research in the area of safety of general-purpose AI. This includes research on how to align the utility function of AI with human values. We will probably need to develop an approach which will ensure that AI systems learn what users want without detailed instructions or rules allowing for so called scalable oversight. Public funding of AI safety research should be viewed as best prevention against much more severe consequences with which we may need to deal in the future.

European efforts to define standards, safety and security should focus on collaboration with other markets that share the same concern for dignity safety and rights of humans. ESO and ISO efforts should focus on fundamental agreement on key principles, allowing other collaborative methods such as internationally recognized consortia and open source software to drive rapid progress on technical interoperability.

Question 86

Please indicate to what extent you support or oppose the following statements related to the necessity for EU action(s) in the area of education and employment in the context of technological developments in robotics and AI: 'the EU should take action(s) ...' *

Levels to support women in information and communication technologies (ICT).
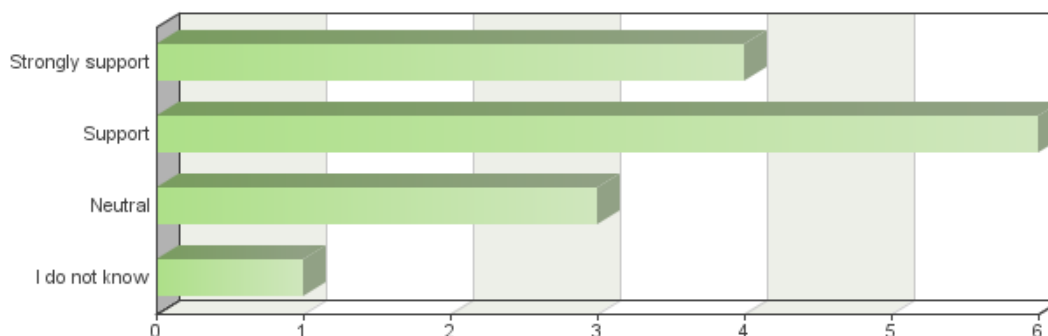
Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		4	4	13.79%	13.79%	28.57%	28.57%
Support		6	10	20.69%	34.48%	42.86%	71.43%
Neutral		3	13	10.34%	44.83%	21.43%	92.86%
I do not know		1	14	3.45%	48.28%	7.14%	100%
Sum:		14	-	48.28%	-	100%	-
Not answered:		15	-	51.72%	-	-	-
Average:	2.21	Minimum:	1		Variance:	1.72	
Median:	2	Maximum:	6		Std. deviation:	1.31	

Total answered: 14

Levels to modernise educational systems to boost e-skills and competences.

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	7	7	24.14%	24.14%	50%	50%
Support	7	14	24.14%	48.28%	50%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-
Average:	1.5	Minimum:	1	Variance:	0.27	
Median:	1.5	Maximum:	2	Std. deviation:	0.52	

Total answered: 14

Levels to support training and retraining of people already in the labour market.

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	9	9	31.03%	31.03%	64.29%	64.29%
Support	5	14	17.24%	48.28%	35.71%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-
Average:	1.36	Minimum:	1	Variance:	0.25	
Median:	1	Maximum:	2	Std. deviation:	0.5	

Total answered: 14

Levels to support occupational health and safety at work.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	5	5	17.24%	17.24%	35.71%	35.71%
Support	6	11	20.69%	37.93%	42.86%	78.57%
Neutral	2	13	6.9%	44.83%	14.29%	92.86%
I do not know	1	14	3.45%	48.28%	7.14%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	2.07	Minimum:	1	Variance:	1.76
Median:	2	Maximum:	6	Std. deviation:	1.33

Total answered: 14

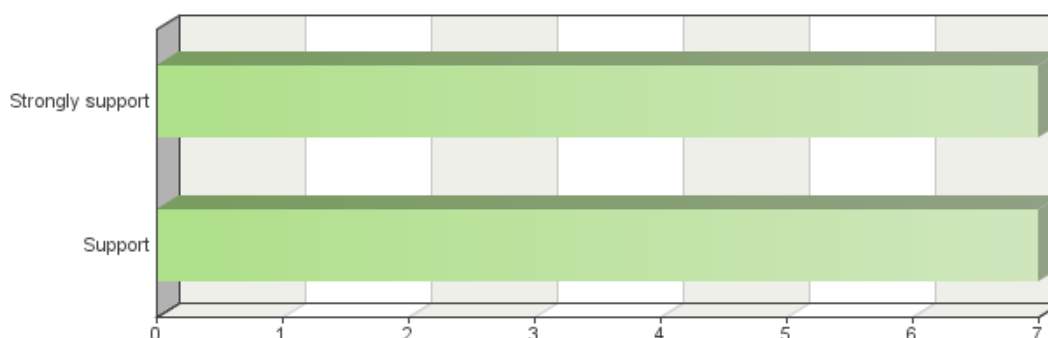## Levels to support the involvement of social partners.

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		2	2	6.9%	6.9%	14.29%	14.29%
Support		7	9	24.14%	31.03%	50%	64.29%
Neutral		4	13	13.79%	44.83%	28.57%	92.86%
I do not know		1	14	3.45%	48.28%	7.14%	100%
Sum:		14	-	48.28%	-	100%	-
Not answered:		15	-	51.72%	-	-	-
Average:	2.43	Minimum:	1	Variance:		1.49	
Median:	2	Maximum:	6	Std. deviation:		1.22	

Total answered: 14

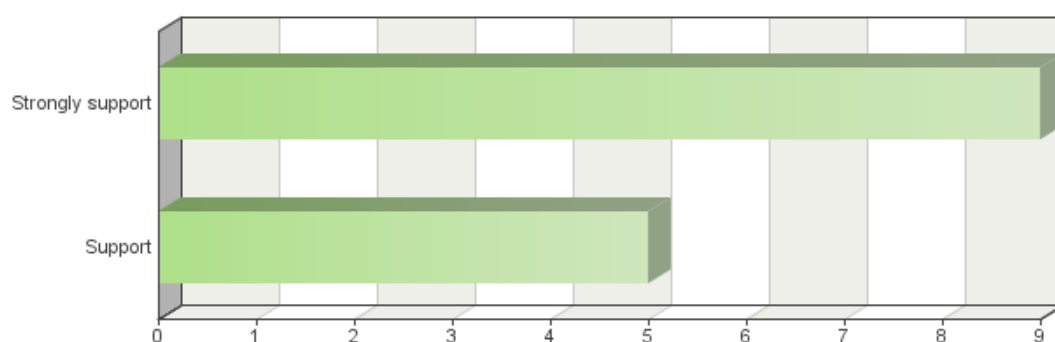## Levels to reduce inequalities and social exclusion.

Frequency table

Levels		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support		4	4	13.79%	13.79%	28.57%	28.57%
Support		8	12	27.59%	41.38%	57.14%	85.71%
Neutral		2	14	6.9%	48.28%	14.29%	100%
Sum:		14	-	48.28%	-	100%	-
Not answered:		15	-	51.72%	-	-	-
Average:	1.86	Minimum:	1	Variance:		0.44	
Median:	2	Maximum:	3	Std. deviation:		0.66	

Total answered: 14

Levels to develop mechanisms for job security, i.e. working and career patterns shaped by digitalisation.
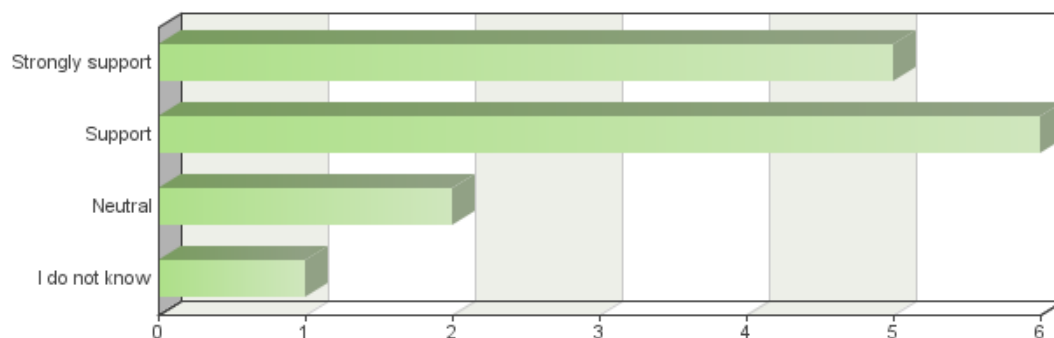
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	2	2	6.9%	6.9%	14.29%	14.29%
Support	5	7	17.24%	24.14%	35.71%	50%
Neutral	6	13	20.69%	44.83%	42.86%	92.86%
I do not know	1	14	3.45%	48.28%	7.14%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	2.57	Minimum:	1	Variance:	1.49
Median:	2.5	Maximum:	6	Std. deviation:	1.22

Total answered: 14

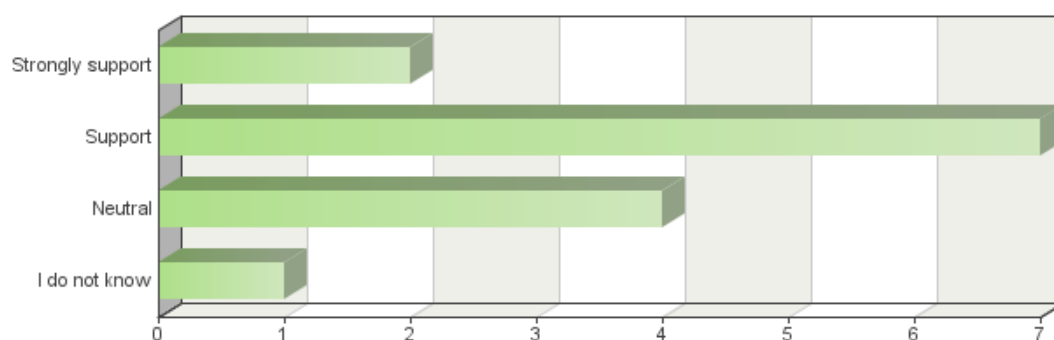## Levels to systematically monitor what types of jobs and tasks are taken by robots.
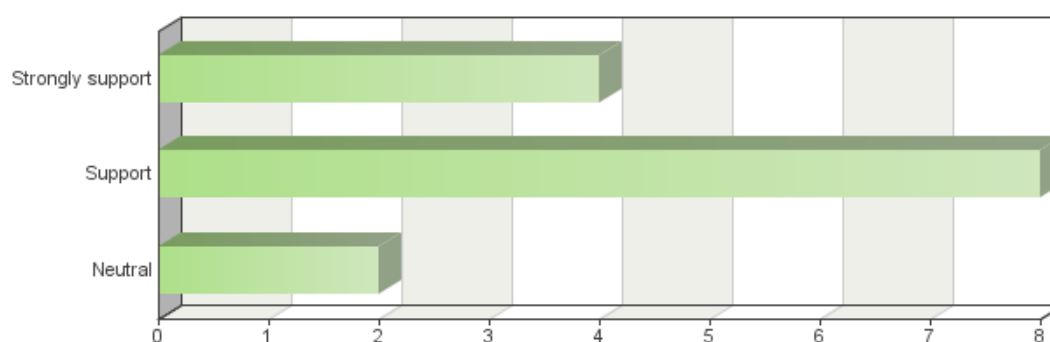
Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	4	4	13.79%	13.79%	28.57%	28.57%
Support	5	9	17.24%	31.03%	35.71%	64.29%
Neutral	4	13	13.79%	44.83%	28.57%	92.86%
Oppose	1	14	3.45%	48.28%	7.14%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	2.14	Minimum:	1	Variance:	0.9
Median:	2	Maximum:	4	Std. deviation:	0.95

Total answered: 14

Levels to systematically monitor what new types of jobs are created as a result of developments in robotics and AI.
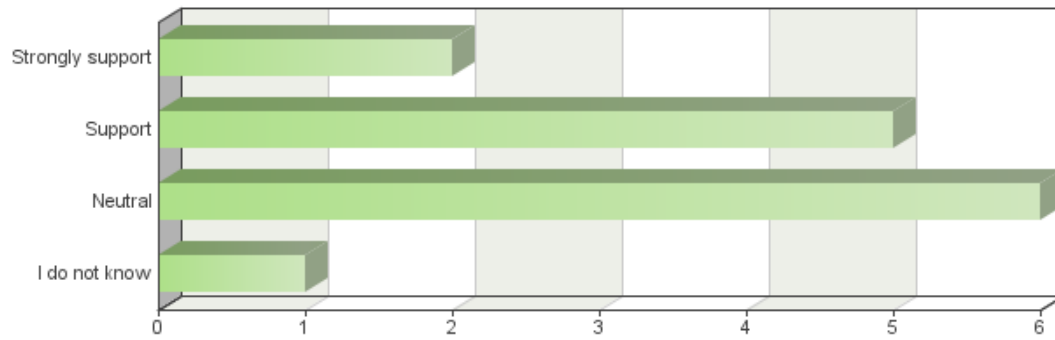

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	3	3	10.34%	10.34%	21.43%	21.43%
Support	8	11	27.59%	37.93%	57.14%	78.57%
Neutral	3	14	10.34%	48.28%	21.43%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	2	Minimum:	1	Variance:	0.46
Median:	2	Maximum:	3	Std. deviation:	0.68

Total answered: 14

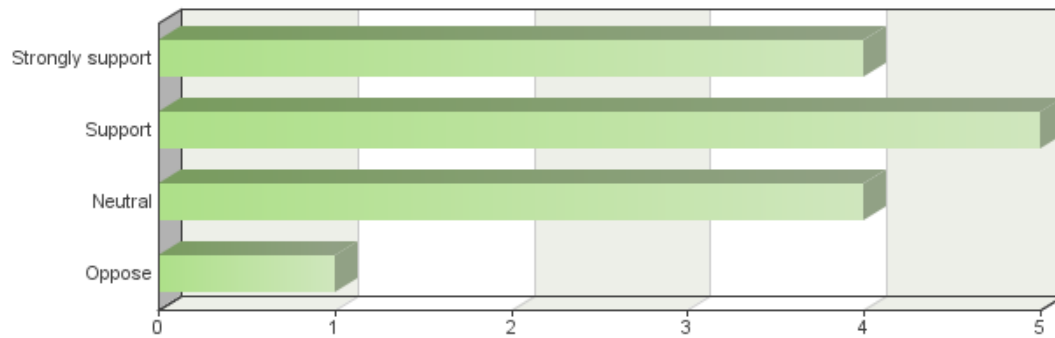## Levels to systematically analyse what societal challenges arise.

Frequency table

Levels	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Strongly support	7	7	24.14%	24.14%	50%	50%
Support	4	11	13.79%	37.93%	28.57%	78.57%
Neutral	2	13	6.9%	44.83%	14.29%	92.86%
I do not know	1	14	3.45%	48.28%	7.14%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	1.93	Minimum:	1	Variance:	1.92
Median:	1.5	Maximum:	6	Std. deviation:	1.38

Total answered: 14

Text input

Multi-disciplinary approach seems to be the one which brings the most fruits for hardest problems in the area of general-purpose AI development. In short term, we need computer scientists, machine learning experts, software engineers, neuroscientists, cognitive scientists, behavioral psychologists, sociologists, economists, and more. Apart from support of e-skills and algorithmic thinking the education systems need modernisation in order to increase the ability to learn and re-learn new skills and competences.

The evaluation in Europe of socio-economic factors not only in relation to national output but also to other criteria like the overall well-being of society, as in Bhutan, should be considered.

Question 87

Based on the developments in your industry related to and resulting from use of robots and AI, please indicate whether you agree or disagree with the following statement:

'there is mismatch between skills available on the labour market and the skills necessary'. *
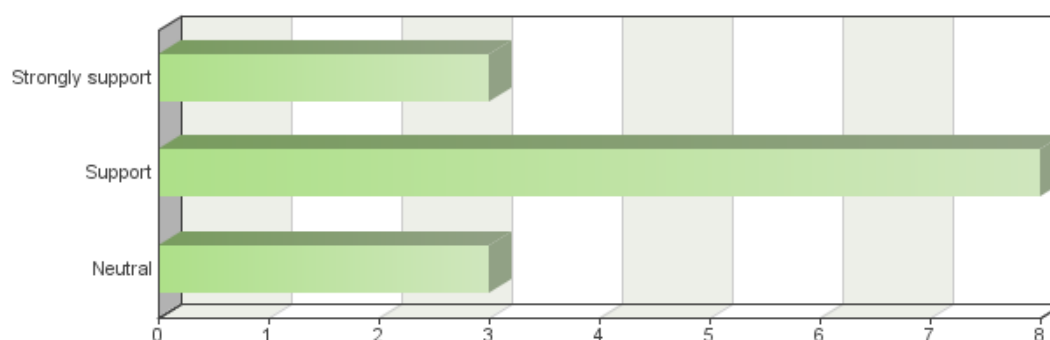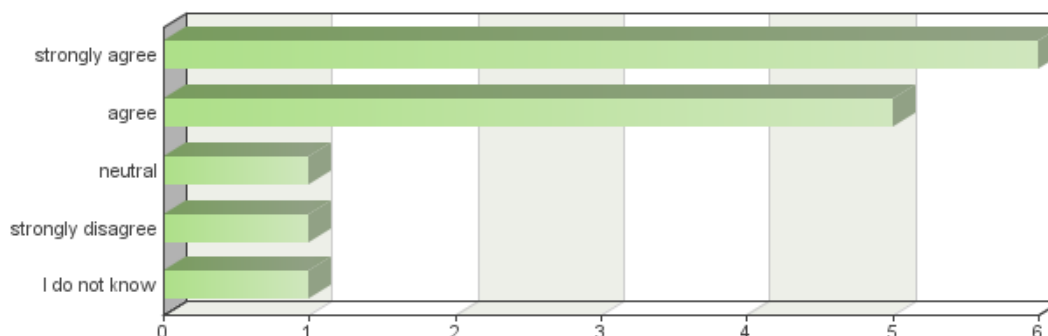

Frequency table

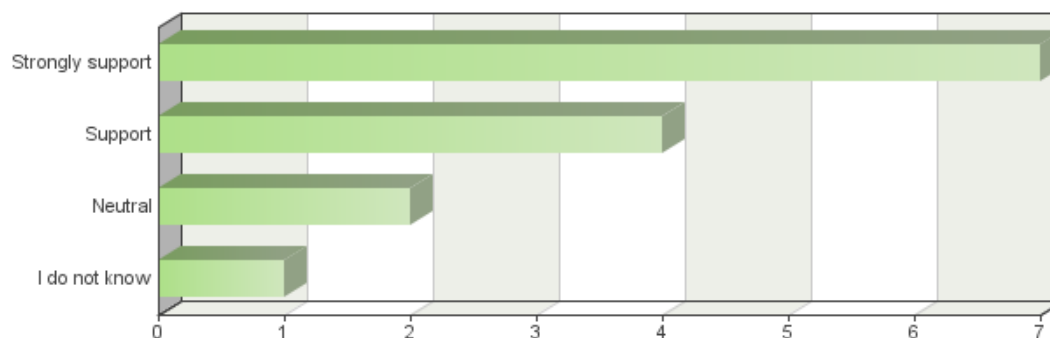| Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly agree		6	6	20.69%	20.69%	42.86%	42.86%
agree		5	11	17.24%	37.93%	35.71%	78.57%
neutral		1	12	3.45%	41.38%	7.14%	85.71%
strongly disagree		1	13	3.45%	44.83%	7.14%	92.86%
I do not know		1	14	3.45%	48.28%	7.14%	100%
Sum:		14	-	48.28%	-	100%	-
Not answered:		15	-	51.72%	-	-	-
Average:	2.14	Minimum:	1		Variance:	2.44	
Median:	2	Maximum:	6		Std. deviation:	1.56	

Total answered: 14

Text input
Information, pédagogie et formation des salariés aux nouvelles technologiques sont nécessaires pour anticiper les évolutions des compétences.
Tal y como hemos explicado en anteriores preguntas, el diferencial entre las competencias digitales que requiere el mercado de trabajo y las necesidades transformativas de la industria dista mucho de la preparación que ostentan los trabajadores y trabajadoras españolas. Por tanto, queremos insistir en este punto en que es necesario acometer un gran plan formativo de carácter sectorial y transversal, dotado con fondos suficientes, que mejore sustancialmente la formación continua en el puesto de trabajo, la educación reglada tanto en sus primeras etapas como en ámbitos universitarios y de formación profesional, y optimizar al máximo las políticas activas de empleo a desempleados. Todo ello con el fin de acomodar las habilidades digitales de la fuerza de trabajo a las que se demandan desde las empresas, mejorando la empleabilidad de los primeros y la competitividad de las segundas.
There is a shortage of skilled researchers who could immediately start working on AI research and development.
The skills required are the ability to learn new skills.

Question 88

Please indicate to what extent you agree or disagree with the introduction of corporate reporting requirements on the extent and proportion of the contribution of robotics and AI to the economic results of a company for the purpose of social security contributions: *
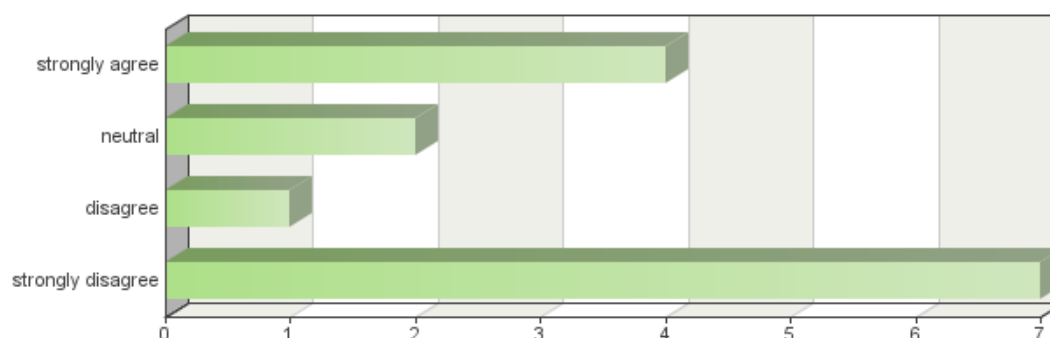
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly agree	4	4	13.79%	13.79%	28.57%	28.57%
neutral	2	6	6.9%	20.69%	14.29%	42.86%
disagree	1	7	3.45%	24.14%	7.14%	50%
strongly disagree	7	14	24.14%	48.28%	50%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	3.5	Minimum:	1	Variance:	3.19	
Median:	4.5	Maximum:	5	Std. deviation:	1.79	

Total answered: 14

Text input

Although it's very complicated to define what is a robot that should pay social security, we have to try it. Is a vending machine such kind of robot?

cf lien vers un argumentaire Symop sur le sujet en fin de questionnaire
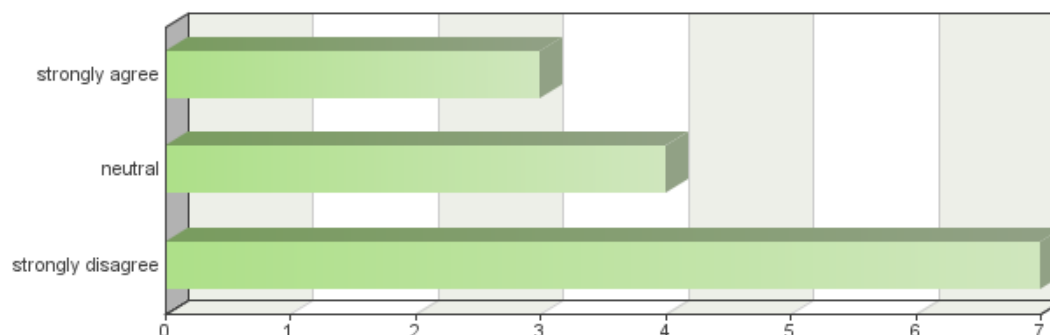
Desde el punto de vista de UGT, es crucial remodelar el sistema impositivo y de contribución a la seguridad social cuando las empresas acometan el reemplazo masivo y sostenido de trabajadores humanos por máquinas o software. Nuestros actuales esquemas de contribuciones referenciadas al factor trabajo, tenderán a carecer de sentido si cada vez hay menos asalariados en activo, sin perder de vista que las compañías mejorarán de forma exponencial su productividad, y por ende, sus beneficios empresariales. Si hace 100 años, en plena eclosión de la primera revolución industrial, surgió la necesidad social de crear impuestos sobre las personas para redistribuir la riqueza que los propietarios de las tierras acumulaban al sustituir a los agricultores por maquinaria pesada y tractores, en el momento histórico que vivimos con una nueva revolución industrial a las puertas, quizás haya llegado el momento de plantearnos una acción de semejante envergadura.

In terms of methodology, it seems impossible to derive such a reporting mechanisms which would be possible to apply across various sectors without creating significant administrative burden. It is probably also impossible to divide the contribution of AI and human intelligence when the AI is used as an advisor to human workers. In addition, rapid technology development may bring about various new possibilities, such as certain kind of merging of human and artificial intelligence. It seems much more rational to use current proven ways of taxation such as value added tax and tax on corporate profits.

Robots are no different in economic terms than other machines - such as electric screwdrivers or dishwashers. They are machines and should not be regulated as a new category of being / worker. Regulating them as a new category of being / workers invites measures that could be take which would negate the economic benefit of robots. We are in a transitional period. The EC needs to wait and see. It is better to address the impact of the market's interaction with technology than to try to control this interaction.

Question 89

Please indicate to what extent you support or oppose introduction of corporate reporting requirements on the extent and proportion of the contribution of robotics and AI to the economic results of a company for the purpose of taxation: *

Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly agree		3	3	10.34%	10.34%	21.43%	21.43%
neutral		4	7	13.79%	24.14%	28.57%	50%
strongly disagree		7	14	24.14%	48.28%	50%	100%
Sum:		14	-	48.28%	-	100%	-
Not answered:		15	-	51.72%	-	-	-
Average:	3.57	Minimum:	1		Variance:	2.73	
Median:	4	Maximum:	5		Std. deviation:	1.65	

Total answered: 14

Text input

cf lien vers un argumentaire Symop sur le sujet en fin de questionnaire

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Similares argumentos a los expuestos en la respuesta anterior podrían aplicarse sobre las contribuciones a la seguridad social. Sin asalariados y trabajadores que aporten al sistema de pensiones, no será posible sostener el pago de pensiones, ni de sistemas sanitarios eficientes y universales. El planteamiento eventual de un mundo laboral sin trabajadores debe obligarnos a cambiar los actuales paradigmas de redistribución de la riqueza para construir un Estado del Bienestar 4.0. En resumen, si el factor trabajo desaparece, porque se ha sustituido por una máquina, debemos reformular radicalmente el actual sistema impositivo y de contribución a la seguridad social.

In terms of methodology, it seems impossible to derive such a reporting mechanisms which would be possible to apply across various sectors without creating significant administrative burden. It is probably also impossible to divided the contribution of AI and human intelligence when it is use as an advisor to human workers. In addition, the rapid technology development, may bring about various new possibilities such certain kind of merging of human and artificial intelligence. It seems much more rational to use current proven ways of taxation such as value added tax and tax on corporate profits.

Robots are not a new category of economic capital. They are machines. Reporting requirements will be a burden that will make EU companies less competitive against other regions who are very unlikely to impose such a requirement.

Question 90

Please indicate whether you agree or disagree with the following statement:

'considering developments in the area of robotics and AI, social security systems need to be adjusted to provide appropriate protection to employees'. *
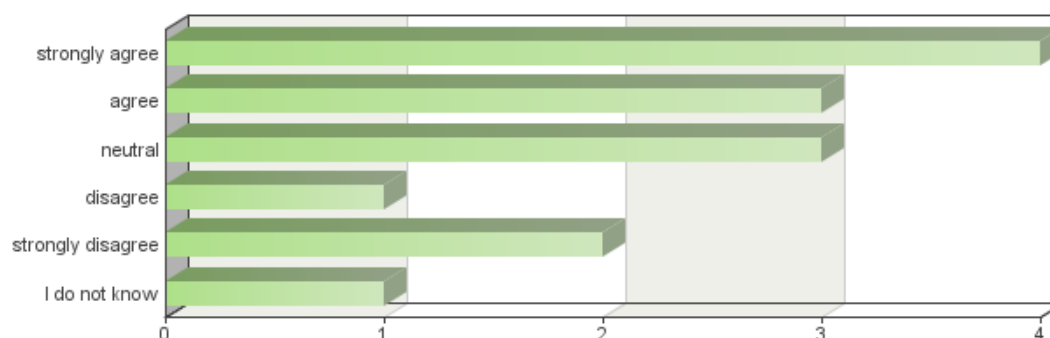
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly agree	4	4	13.79%	13.79%	28.57%	28.57%
agree	3	7	10.34%	24.14%	21.43%	50%
neutral	3	10	10.34%	34.48%	21.43%	71.43%
disagree	1	11	3.45%	37.93%	7.14%	78.57%
strongly disagree	2	13	6.9%	44.83%	14.29%	92.86%
I do not know	1	14	3.45%	48.28%	7.14%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	2.79	Minimum:	1	Variance:	2.8
Median:	2.5	Maximum:	6	Std. deviation:	1.67

Total answered: 14

Text input
We should ensure that people can adapt. There will be plenty of jobs.
Véanse las respuestas a las dos preguntas precedentes.
In the long run, we may need to find new innovative ways how to share the economic benefits across society. It seems of crucial importance to support multidisciplinary research into this area, which is currently under-researched.
The nature of work is changing and these changes are being driven by technology and new economic models that are supported by new technology. The state needs to change its relationship with workers, for example requiring that they save more and taxing them on the basis that they will need to save more of their income over a working life that will see more career changes and often insistent earning patterns.
An in-depth analysis of the effects of robotics (and AI) would be necessary to answer that question

Question 91

Please indicate whether you agree or disagree with the following statement:

'considering developments in the area of robotics and AI, labour laws need to be adjusted to provide appropriate protection to employees'. *
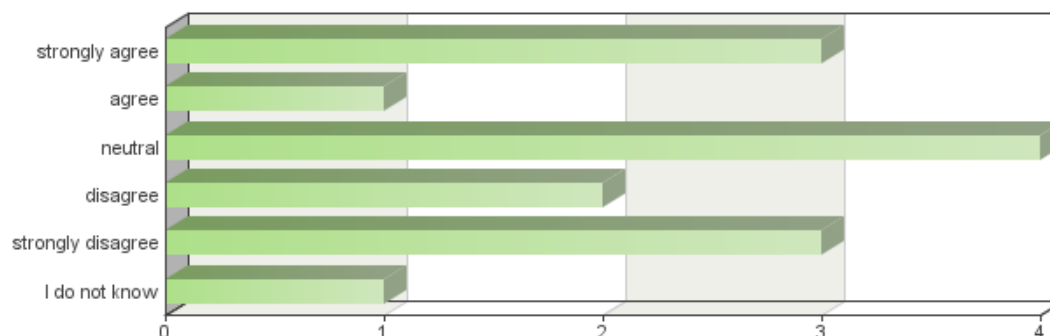
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly agree		3	3	10.34%	10.34%	21.43%	21.43%
agree		1	4	3.45%	13.79%	7.14%	28.57%
neutral		4	8	13.79%	27.59%	28.57%	57.14%
disagree		2	10	6.9%	34.48%	14.29%	71.43%
strongly disagree		3	13	10.34%	44.83%	21.43%	92.86%
I do not know		1	14	3.45%	48.28%	7.14%	100%
Sum:		14	-	48.28%	-	100%	-
Not answered:		15	-	51.72%	-	-	-
Average:	3.29	Minimum:	1		Variance:	2.68	
Median:	3	Maximum:	6		Std. deviation:	1.64	

Total answered: 14

Text input

Protection o redistribution of wealth?

Absolutamente: la explosión de la robótica y la IA acabarán impeliendo un cambio en las leyes laborales. Además de todo lo dicho hasta este momento, desde UGT también vemos con preocupación la posibilidad de que el paulatino abaratamiento del despido en España anime a muchos empresarios a reemplazar a sus plantillas por máquinas pagando cantidades irrisorias; o incluso como ya apuntan muchas voces, sin abonar liquidación alguna, alegando que la falta de adaptación al entorno digital debe ser causa objetiva de despido, y por tanto, debe efectuarse de forma gratuita para el empleador. UGT exige acordar un Nuevo Contrato Social Digital, donde los trabajadores puedan defender justamente su derecho al trabajo en pie de igualdad, confeccionando, a través del consenso y el Diálogo Social, leyes laborales ecuánimes que consoliden unas mínimas garantías salariales, sociales y de dignidad profesional para todos los trabajadores.

It seems impossible to adjust the labor laws in order to bring required benefits as the business models and organization of production and services provision will be changing rapidly with technology developments. On the other hand, certain changes of labor laws may reduce the EU competitiveness.

Governments do need to take measures to assist workers in disrupted areas of the economy. But employers should not be directly made responsible for this. The key point is that it must happen but it should not be left to employers. It requires stronger action at the state level.

Question 92

Please indicate whether you agree or disagree with the following statement:

'restrictions or a ban on partial or total automation of certain tasks or jobs should be introduced in order to guarantee safety'. *
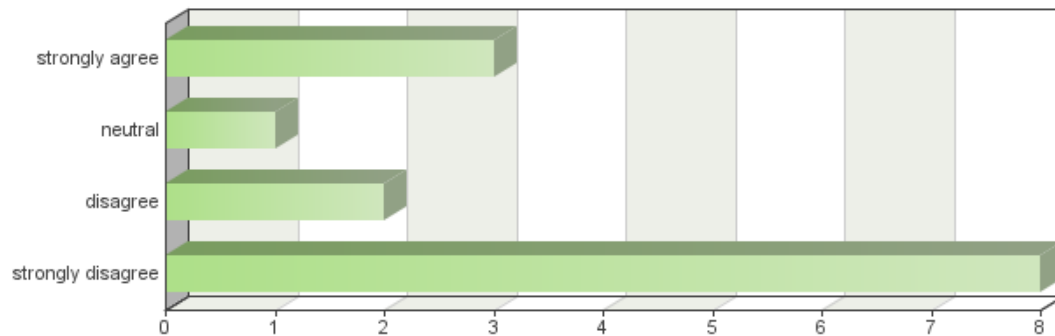
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly agree	3	3	10.34%	10.34%	21.43%	21.43%
neutral	1	4	3.45%	13.79%	7.14%	28.57%
disagree	2	6	6.9%	20.69%	14.29%	42.86%
strongly disagree	8	14	27.59%	48.28%	57.14%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	3.86	Minimum:	1	Variance:	2.75
Median:	5	Maximum:	5	Std. deviation:	1.66

Total answered: 14

Text input
That will only lead to those tasks be moved to elsewhere, out of reach of EU legislation.
- Une orientation éthique européenne apporterait un cadre permettant de garantir la sécurité - Certaines finalités d'automatisation contribuent à l'amélioration des conditions de travail et apportent à l'opérateur de nouveaux outils
Bajo el principio de prevención y seguridad, entendemos que la convivencia de humanos y robots en los lugares de trabajo debe ser evaluada con la máxima precisión y cautela. No sólo desde el punto de vista de la integridad física del trabajador, que debe estar por encima de cualquier interés cremátistico, sino también desde el punto de vista de dirimir responsabilidades en caso de accidente en el lugar de trabajo. Al igual que ocurre con los vehículos autónomos, en caso de accidente, debe clarificarse, a priori y sin ningún género de duda, quién asume la responsabilidad: el empresario propietario de la máquina o el que la arrienda, la empresa que realiza el mantenimiento del artilugio, su fabricante o el diseñador de su software de comportamiento. En conclusión, cualquier inclusión de robots o máquinas autónomas en los espacios de trabajo frecuentados por humanos debería tener una evaluación previa de los riesgos y un análisis de los procesos, siempre antes de su puesta en producción.
In order to regulate effectively we will need to find new innovative ways of regulation. Traditional restrictions or bans will be of limited effectiveness while potentially bringing about adverse side effects.
This should be decided on a case by case basis. Regulators do not have enough information to determine whether a ban is necessary or not. They could be closing off significant areas of economic benefit.
The resolution says that no user should make robots function as a weapon. This also has to be intensively discussed, since it is a very sensitive topic. Other countries would probably use robots as weapons and it can be a question of competition or protection of human soldiers if and how robots could be used as weapons.

Question 93

Please indicate whether you agree or disagree with the following statement:

'restrictions or a ban on partial or total automation of certain tasks or jobs should be introduced in order to guarantee respect of fundamental human rights'. *
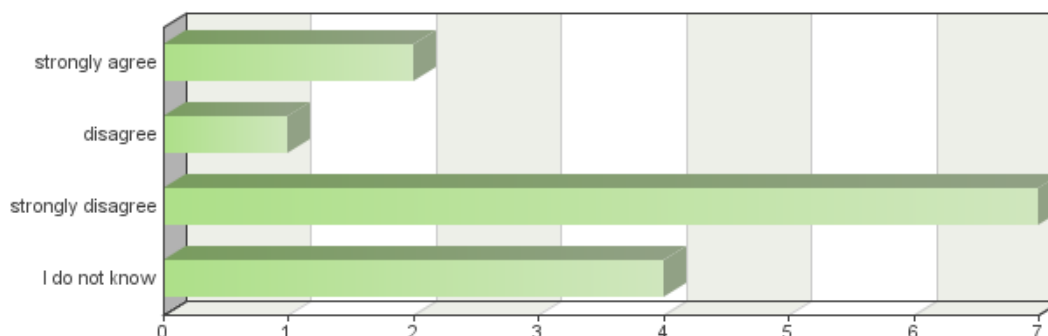
Frequency table

Choices		Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly agree		2	2	6.9%	6.9%	14.29%	14.29%
disagree		1	3	3.45%	10.34%	7.14%	21.43%
strongly disagree		7	10	24.14%	34.48%	50%	71.43%
I do not know		4	14	13.79%	48.28%	28.57%	100%
Sum:		14	-	48.28%	-	100%	-
Not answered:		15	-	51.72%	-	-	-
Average:	4.64	Minimum:	1		Variance:	2.71	
Median:	5	Maximum:	6		Std. deviation:	1.65	

Total answered: 14

Text input

THE ROBOTS NUMBER SHOULD BE LIMITED IN COMPANIES/CORPORATIONS

- Une orientation éthique européenne apporterait un cadre permettant de garantir le respect des droits findamentaux

The statement is not sufficiently specific in order to provide reasoned opinion.

This will need to be determined on a case by case basis. For example in Japan care robots are already in development. The Japanese are culturally more comfortable with this. The EC should not legislate for what are cultural assumptions. Cultural assumptions may change.

The resolution says that no user should make robots function as a weapon. This also has to be intensively discussed, since it is a very sensitive topic. Other countries would probably use robots as weapons and it can be a question of competition or protection of human soldiers if and how robots could be used as weapons.

Question 94

Please indicate, in which areas you consider that the use of fully autonomous robots should be banned or restricted: *
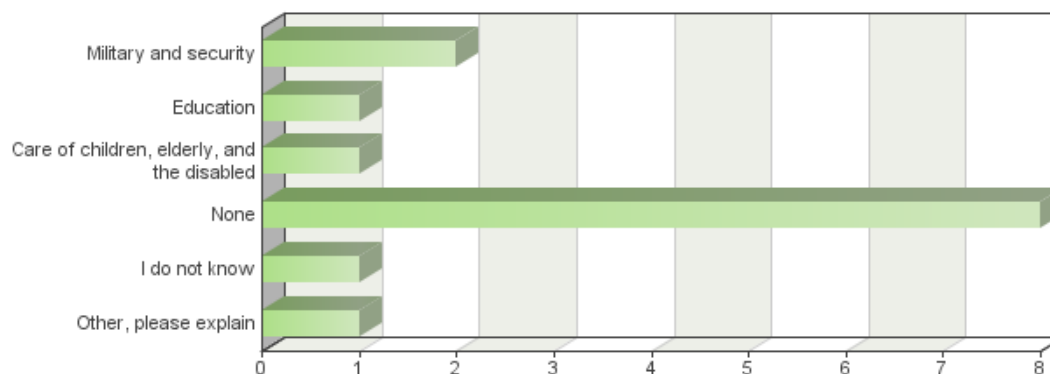
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
Military and security	2	2	6.9%	6.9%	14.29%	14.29%
Education	1	3	3.45%	10.34%	7.14%	21.43%
Care of children, elderly, and the disabled	1	4	3.45%	13.79%	7.14%	28.57%
None	8	12	27.59%	41.38%	57.14%	85.71%
I do not know	1	13	3.45%	44.83%	7.14%	92.86%
Other, please explain	1	14	3.45%	48.28%	7.14%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	10.57	Minimum:	5	Variance:	8.88	
Median:	12	Maximum:	14	Std. deviation:	2.98	

Total answered: 14

Text input

Innovation can not be banned.

Une interdiction de principe de ces robots viendrait étouffer le déploiement d'une solution qui pourrait répondre à certains besoins existants, émergents ou à venir et pourrait freiner l'innovation. Si l'homme et la machine sont complémentaires, l'homme décidera toujours des fonctionnalités potentielles de la machine et de son degré d'autonomie. Il conviendrait simplement d'être vigilant sur l'utilisation faite de certains robots autonomes qui pourraient conduire à une forme d'isolement social, ce qui revient à s'intéresser à nouveau aux orientations éthiques.

We would also suggest to consider areas like Military and security, Care of children, elderly and the disabled and Healthcare.

The EU should work with the international community in order to establish and implement a global ban on the use of AI in autonomous weapons.

In the case of military and security it is very likely that use of robots in warfare would allow for better monitoring and accountability in relation to war crimes. Also Robots would be less inclined to commit war crimes. However the potential that they could be programmed to do so should be examined. Robot actions on the battle field are more likely to lead a trail of data that would implicate their users / owners / manufacturers - hence manufacturers, users, and owners would be more likely to think twice about useing robots to commit war crimes.

Question 95

Please indicate whether you agree or disagree with the following statement:

'in the light of the possible effects on the labour market of robotics and AI, a general basic income should be introduced'. *

Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
strongly agree	3	3	10.34%	10.34%	21.43%	21.43%
neutral	4	7	13.79%	24.14%	28.57%	50%
disagree	2	9	6.9%	31.03%	14.29%	64.29%
strongly disagree	3	12	10.34%	41.38%	21.43%	85.71%
I do not know	2	14	6.9%	48.28%	14.29%	100%
Sum:	14	-	48.28%	-	100%	-
Not answered:	15	-	51.72%	-	-	-

Average:	3.57	Minimum:	1	Variance:	3.03
Median:	3.5	Maximum:	6	Std. deviation:	1.74

Total answered: 14

Text input

To make people happy, we should provide them with jobs not money. Money doesn't make people happy. A sense of being significant does.

Desde el punto de vista de UGT es necesario establecer de una Renta Básica Universal Condicionada. En un gran número de casos, el reemplazo de un trabajador por un algoritmo o por una máquina robotizada no solo supondrá la pérdida de su empleo: también supondrá la pérdida de su empleabilidad. Quizás la mejor forma de ver esta casuística es poniendo un ejemplo (perfectamente plausible). El estudio de Frey y Osborne tasaba la probabilidad de automatización de los puestos de trabajo asociados a la atención telefónica en un 99%. Aunque quizás sea un porcentaje excesivo, sin duda los sistemas de reconocimiento de voz, de habla sintética y de inteligencia artificial cada vez están más capacitados para sustituir, de forma muy extensa, a los humanos en esta actividad. Las personas que pierden este empleo, no podrán encontrar otro de similares características, porque simplemente no existirán. --- La respuesta continúa en la caja de texto siguiente por las limitaciones de texto -----

In the medium to long run, we may need to find new innovative ways how to share the economic benefits across society. It seems of crucial importance to support multidisciplinary research into this area which is currently under-researched. The research may use already available AI systems to help find viable solutions.

This requires careful research The outcome of current experiments with basic income in Europe should be awaited.

The European Union and Member States should put forward pro-innovation policies that will reap the benefits of the new employment opportunities created by AI. These should include improved professional trainings and education programmes, with a clear focus on digital skills. Such programmes should be implemented jointly with the industry and private and public research organizations already working on AI. There should be an active debate about what policy options will help society take advantage of the opportunities presented by AI and robotics. This also includes an ongoing discussion about changes to the social safety net.

Question 96

Should you have further observations about education and employment as related to the issues of robotics and AI please share your experience or suggestions here

| Text input |
| --- |
| PEOPLE SHOULD SHOW AFFECT FOR PEOPLE AND NOT MACHINES. PEOPLE MUST BE TAUGHT BY PEOPLE AND NOT BY MACHINES |
| ---- Viene de la pregunta anterior ------ Y cambiar a otro empleo, tampoco será una opción para muchos de ellos. La automatización adyacente de otros campos restringirá las ofertas de empleo en actividades que puedan considerarse análogas, por lo que estos colectivos necesitarán reciclarse de forma profunda, cuestión que no será posible para todos por muchos motivos, pero sobre todo por carecer una formación básica adecuada que propicie un cambio de registro laboral. Es fácilmente entendible que un operador de atención telefónica no pueda reconvertirse en un programador de brazos robóticos, donde es más probable que sí existan oportunidades de empleo. Este escenario generará ingentes bolsas de personas sin empleo mientras el mercado laboral se ajusta a su nuevo contexto, personas que serán vulnerables y que es preciso proteger solidariamente mediante los mecanismos que provee el Estado del Bienestar. Y una de ellas debe ser la Renta Básica Universal Condicionada, dirigida a aquellos trabajadores que no puedan adaptarse a esta nueva realidad, aunque no sería la única red de protección que debemos evaluar: la Administración Obama ya perfiló medidas salariales complementarias como el fondo de desempleo tecnológico. |
| http://www.oecd-ilibrary.org/social-issues-migration-health/the-risk-of-automation-for-jobs-in-oecd-countries_5jlz9h56dvq7-en |
| Appropriate training in occupations that are complimentary to automation, along with new technology services and tools, will be essential to help individuals develop new skills and connect with new jobs. New technology tools can also better help more people develop so-called middle skills – the types of technical skills that can ensure that those with less than a college degree can not only learn valuable new skills, but obtain the certifications and credentials that will be valuable in the workplace. Microsoft's AI platform services and toolkits will make these powerful technologies available to anyone with appropriate training, thus "democratizing AI." New data tools such as LinkedIn's Economic Graph enable cities and states to help those in government match worker training and economic development resources with the strongest opportunities in the market. These issues represent the next frontier for innovation in workforce public policy. New potential initiatives at national and EU level can promote broader education and training, bring labor laws into the 21st century, and ensure portable benefits and a stronger safety net for part-time and independent workers, or participating in the expanding tech-based gig/sharing economy. Business and government need to work together to explore and define innovative solutions to these issues. The needs of people at all stages of the workforce continuum should be considered – students, unemployed and underemployed workers, and employed workers who help gaining new skills to ensure their long-term employability. AI needs to be incorporated into curricula at public and private institutions, technical training institutions, and professional training for continuing education and workforce development. Business and government need to work together to prioritize investments in STEM education, and training and re-training of the workforce to align skills with needs. Moving forward, continued strong public- and private-sector support of research and studies on the scientific and the socioeconomic challenges of AI will be critical to ensuring that people and society get the most out of AI advances. **** Civil society and various Inter-Governmental Organizations (IGOs) such as the UN are starting to raise concerns about respect for human rights. These dialogues are at the beginning, aiming to identify challenges to human rights and inject relevant principles into AI development as the technologies advance. Microsoft is actively participating in these dialogues, and human rights are already integrated into the proposed AI principles for humanistic AI as well as the tenets for Partnership on AI. We co-founded the Global Network Initiative and, since 2006, have had a formal commitment to respect human rights as a signatory of the United Nations Global Compact. Microsoft enhanced this commitment when we published our Global Human Rights Statement in 2012. |
| The notion of the so-called fourth industrial revolution brought about by the proliferation of AI and automation is largely overblown. The rate at which these new technologies will change the economy and society is much slower than most believe, as it takes a long time for these technologies to achieve widespread adoption. |

Question 97

In your opinion, in order to provide the technical, ethical and regulatory expertise on developments in the area of robotics and AI: *
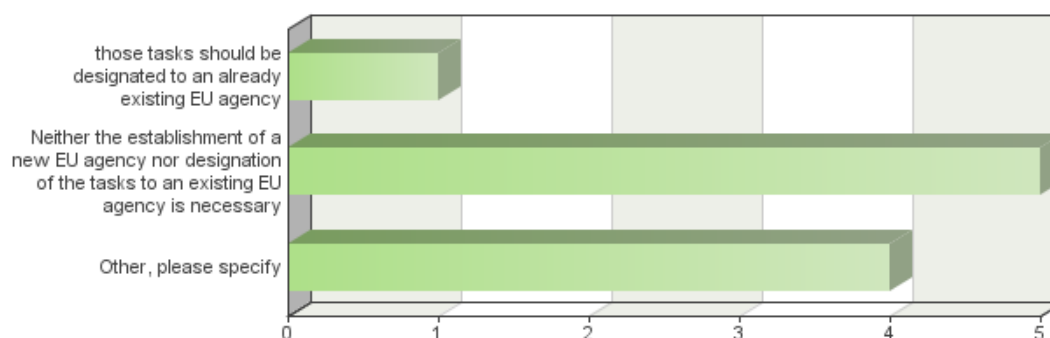
Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
those tasks should be designated to an already existing EU agency	1	1	3.45%	3.45%	10%	10%
Neither the establishment of a new EU agency nor designation of the tasks to an existing EU agency is necessary	5	6	17.24%	20.69%	50%	60%
Other, please specify	4	10	13.79%	34.48%	40%	100%
Sum:	10	-	34.48%	-	100%	-
Not answered:	19	-	65.52%	-	-	-

Average:	3.7	Minimum:	2	Variance:	1.34
Median:	3	Maximum:	5	Std. deviation:	1.16

Total answered: 10

Last choice text input

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Text input

We support that robotics and AI are given much higher priority at the EU level due to their potential to solve societal challenges, as well as increase global competitiveness of the EU. At the same time there are many under-researched areas including the AI safety and societal impacts. This may be centered in one agency or could be distributed in several agencies.

I believe that existing law is generally adequate. Some changes will be required. A new agency will be likely to treat robots as something special when, in fact, robots and AI are many different things. The possibility that a new agency would inflict unnecessary regulations on a lot of harmless technology, due to placing them in certain categories is very real.

This is an important policy issue that will need further consideration and will likely need to be re-examined as different types of AI systems emerge. A narrow focus on agency at this point ignores other compelling aspects of AI, and may discourage potential innovation and investments.

It would be beneficial to have an EU-level body focusing on robotics and AI, however instead of an agency, the EU should establish a new directorate focusing on technological advancement by promoting research development, encouraging innovation, and accelerating adoption. This directorate should not focus on ethical or regulatory issues.

This may lead to very bureaucratic efforts that bear no relation to the possible advantages.

Question 98

You have indicated support for the establishment of a new EU-level European agency for robotics and artificial intelligence. In your opinion, what task(s) should this agency fulfil? *

No data to report

Question 99

You have indicated support for tasks related to robotics and AI to be designated to an existing EU agency, which agency do you propose? *

Frequency table

Choices	Absolute frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative frequency
European Agency for the operational management of large-scale IT Systems in the area of freedom, security and justice	1	1	3.45%	3.45%	100%	100%
Sum:	1	-	3.45%	-	100%	-
Not answered:	28	-	96.55%	-	-	-

Average:	2	Minimum:	2	Variance:	
Median:	2	Maximum:	2	Std. deviation:	

Total answered: 1

Question 100

Should you have further observations about institutional cooperation and oversight, please share your experience or suggestions here

Text input
READ ALWAYS "ROBOTNIK 4.0"
Robotics should lead to simplification. We would not be in favour of the creation of a new dedicated EU Agency: robotics is an extremely sectorial domain that can be covered in broader contexts (e.g. innovation and technology); and it is important to curb excessive multiplication of Union structures. The EU already has the main task of protecting human beings in the enjoyment of their fundamental rights and in their capacity to consume: we would support the strengthening of this mission within the existing administrative framework. On the other hand, we are not certain that interaction between humans and robots is an EU primary competence.
Although Microsoft understands the long-held desire of machine learning technologies and the public to focus on transparency as a potential tool for understanding the limits and benefits of algorithmic decision-making, oversight by regulators should concentrate on the inputs, analysis, and "overall fairness" of the final outcome. And given the potential that algorithmic technologies could provide in helping societies, government should avoid creating technology-specific regulations that might unwittingly curb the likely economic and societal benefits this technology could bring.
euRobotics welcomes efforts to clarify ethical, legal and socio-economic aspects of existing robotics and of future developments, such as smart systems with increasing autonomy. These questions have been considered by others; including in The IEEE Global Initiative for Ethical Considerations in Artificial Intelligence and Autonomous Systems, the knowledge4innovation initiative and the French government's March 2017 paper Toward a Controlled, Useful and Demystified Artificial Intelligence.

Question 101

Please provide details of any other issues related to robotics and AI to which you would like to draw the European Parliament's attention, or which you consider should be addressed. (optional)

Text input

With the internet and the largely software-based nature of AI, there are no national boundaries for artificial intelligence. While it is of utmost importance the EU drafts legislation on smart robots and AI, it is also essential for the EU to seek international legal frameworks to regulate smart robots, AI and AI companies.

AI involved in training/retraining/education can combine with emerging knowledge within neuro enhancement, be one of the significant game changes of the future. The question is: Do you trust the company (perhaps a world brand with a first income based on advertising) programming your child's teacher to only and solely teach the curriculum and not steer or engender a particular bias?

Desde UGT consideramos que, aunque es evidente que la robótica y la IA son cuestiones que deben analizarse y debatirse de forma abierta, pública y con todos los interesados, no deberían acaparar todo el foco de la discusión, que debería extenderse a la digitalización del trabajo como concepto más amplio. Así, existen otros aspectos complementarios a la aparición de los robots que el Parlamento Europeo debería abordar, como los que enumeramos a continuación: • La Economía Colaborativa, GIG o crowd-working: El nuevo taylorismo digital; una modalidad precarizadora que subdivide el trabajo hasta la más absoluta depreciación y que muchas plataformas online están ofreciendo a pequeñas y medianas empresas. • La hiperconectividad: Las nuevas tecnologías están provocando que muchos trabajadores estén permanente vinculados a su actividad laboral, lo que deriva en un verdadero riesgo psicosocial. • La profundización de la Brecha de Género, que se hace más grande entre hombres y mujeres en entornos tecnológicos y que relega a la mujer a un papel cada vez más secundario. • La seguridad y la integridad física de los trabajadores en un entorno de convivencia con máquinas u operando en realidad aumentada. ¿Quién es el responsable si una máquina o un robot falla? ¿La compañía empleadora, el fabricante del robot, la empresa que diseñó el software, la sociedad aseguradora? • Weareables o dispositivos ponibles: dispositivos electrónicos como pulseras, collares, anillos que registran y miden la actividad del trabajador sin una regulación ad hoc. • Teletrabajo: es preciso ahondar en su regulación, actualizando el Acuerdo Marco de 2002. Todas estas tendencias deben integrarse en una amplia revisión de lo que supone la digitalización del empleo desde un punto de vista global y que incluya la robótica y la IA.

Artificial intelligence is currently evolving as a way to generate a new kind of knowledge. This knowledge - especially in sectors such as health, transport but also for sciences, the humanities and education - has traditionally been looked after by the state to ensure it will and can be used in public interest. Artificial intelligences, however, are currently developed by the private sector. While European research and companies should be strengthened, the European Union should also take up a pro-active role to ensure such knowledge remains in the public, for example by providing a framework for open data.

- As to the question whether robots should have a specific legal status: Robots should be regarded as objects, not animals or natural or legal persons. It is not warranted to endow robots, however advanced or autonomous, with an own legal personality. However autonomous robots may become, it is humans who design, manufacture, program and put robots into circulation, and it is humans who operate or use them. Thus, it should be the respective humans to take responsibility (be held liable) for damage caused by the use of robots. - As to the question whether an obligatory insurance scheme for damages caused by autonomous robots should be established: Additional obligatory insurance requirements are unnecessary and even counter-productive. A free voluntary insurance market is best able to provide tailored insurance solutions that are designed to cover the individual insured's risks and liabilities for an adequate premium. Insurance solutions are readily available to cover both owners' and operators' and manufacturers' liability for all kinds of robotics/AI. Manufacturers already buy extensive product liability insurance on a voluntary basis and as a matter of course according to our experience. Due to the complexity and heterogeneity of the subject of robotics (drones vs. fridges vs. autonomous vehicles etc.), a compulsory insurance system reflecting these differences would be difficult to implement. Compulsory insurance of necessity introduces a "one size fits all" approach when defining minimum requirements. These tend to be orientated towards higher risks. Insureds with a lower risk profile are forced to buy an excessive level of insurance protection that is unnecessary and uneconomical (higher premiums). Particularly exposed insureds, on the other hand, may be deterred from purchasing the (higher) level of insurance that would be appropriate for their individual risk profile, as a lower level of protection would come cheaper and still meet legal requirements. - As to the question whether a compulsory insurance and compensation fund should be established: Compensation funds are unnecessary and detrimental. The insurance industry is fully able to provide cover for manufacturers and owners/operators. But the very existence of a fund would disincentivize manufacturers and operators from buying adequate levels of insurance and thereby pose a moral hazard: Manufacturers and operators who do buy extensive insurance would be penalized with higher costs (not only in insurance premiums, but also in contributions to the fund), whereas those who fail to do so not would be rewarded by the fund's taking over part or all of their liability despite saving on costs. Manufacturers could also be discouraged from developing and implementing a high level of product safety as the fund would pay out regardless of whether they invest in product safety or not. As a result, the level of victim protection could actually decrease by deterring the use and development of innovative safety technologies and procedures.

In our effort to develop general AI, we put emphasis on the importance of big picture thinking. This is why we started an independent AI Roadmap Institute. The goals of the Institute are to: - Study, map and compare technical AI roadmaps, as well as AI safety and futuristic roadmaps in an unbiased and agnostic manner, - Encourage 'big picture' thinking by advocating the creation of roadmaps towards human-level artificial intelligence, - Analyze and compare forward-looking roadmaps that outline approaches to be taken towards general artificial intelligence, - Identify the fastest and safest path towards general AI by identifying dead ends and open research problems on which the community should focus. We believe that the Institute will encourage more dialogue and cooperation on the long-term research goals within the field, and will help accelerate the search for safe and beneficial general artificial intelligence. https://www.roadmapinstitute.org/

EUnited Robotics position paper on the EP report on civil law rules on robotics: http://eu-nited.net/robotics/upload/pdf/2017-04-25_PositionPaper_CivilLawRulesofRobotics.pdf

euRobotics recommends using a clear and realistic image of robotics. The resolution refers to fictional figures like Frankenstein's creature and cites the well-known and over-stressed robot laws by Isaac Asimov that were just laws for robots, not for humans. Such references might induce fears about robots that have only very little, if anything, to do with the reality of robotics. Instead, euRobotics considers it important to use and to strengthen a realistic view of current and future robot systems that are in most cases less sophisticated, and thus less threatening, than the wider public thinks. It is crucial to provide a reality check by clarifying what robots can do today and what they might do in future.

Question 102

Please provide references to any studies or documents that you think are relevant for this consultation. If possible, please provide links. (optional)

Text input
Please consult Joanna Bryson on this: http://www.cs.bath.ac.uk/~jjb/index.html
"Traité de droit et d'éthique de la robotique civile" - Nathalie Nevejans : https://www.leh.fr/edition/p/traite-de-droit-et-d-ethique-de-la-robotique-civile-9782848746685 "5 bonnes raisons de refuser la taxation des robots" http://www.symop.com/5-bonnes-raisons-de-refuser-la-taxation-des-robots/ "4 enjeux pour l'avenir de la robotique" http://www.symop.com/4-enjeux-pour-lavenir-de-la-robotique/
Queremos llamar la atención sobre el estudio "Harnessing revolution: Creating the future workforce" de Accenture, en ensayo que está pasando desapercibido, pero que consideramos de vital importancia (https://www.accenture.com/us-en/insight-future-workforce-today). Este informe demuestra que, si se duplicase la tasa de los profesionales que desarrollarán habilidades digitales, la cuota de los trabajos con riesgo de ser totalmente automatizados en EE.UU. en 2025, se reduciría del 10% al 4%. El mismo proceso en Reino Unido y Alemania daría como resultado reducciones del 9% al 6% y del 15% al 10%, respectivamente. Las afirmaciones empíricas que demostrarían este ensayo vienen a confirmar los planteamientos realizados por UGT en respuestas anteriores sobre la importancia de la formación para evitar el desempleo y la precariedad laboral en un contexto de mecanización del trabajo.
European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs on "European Civil Law Rules in Robotics" (2016) "Traité de droit et d'etique de la robotique civil" by Nathalie Nevejans (Collection Science, étique et societé, Bordeaux, January 2017). Concerning human enhancement, COMECE published already in 2009 the "Avis de la Cellule de réflexion bioéthique sur les perspectives d'amélioration de l'homme (« human enhancement ») par des moyens technologiques (available at the link http://www.comece.eu/dl/kskLJKJOMnNJqx4KJK/20090525PUBIO_FR.pdf.
A framework document explaining main principles behind our general AI research: https://arxiv.org/abs/1611.00685 The GoodAI Roadmap to general AI: https://www.goodai.com/roadmap
EUnited Robotics position paper on the EP report on civil law rules on robotics: http://eu-nited.net/robotics/upload/pdf/2017-04-25_PositionPaper_CivilLawRulesofRobotics.pdf OECD study "The Risk of Automation for Jobs in OECD Countries": http://www.oecd-ilibrary.org/social-issues-migration-health/the-risk-of-automation-for-jobs-in-oecd-countries_5jlz9h56dvq7-en "It's Going to Kill Us!" and Other Myths About the Future of Artificial Intelligence, ITIF: https://itif.org/publications/2016/06/06/its-going-kill-us-and-other-myths-about-future-artificial-intelligence Robots at work study, London School of Economics: http://cep.lse.ac.uk/pubs/download/dp1335.pdf Study on robots creating jobs by the Interntional Federation of Robotics: http://eu-nited.net/robotics/upload/pdf/Update_Study_Robot_creates_Jobs_2013.pdf Study on Robots and Employment from RockEU project: https://www.eu-robotics.net/cms/upload/downloads/Rockeu1/2016-08-16_RockEU_deliverable_D3.4.1_-_part1.pdf
-Daniel Castro and Joshua New, "The Promise of Artificial Intelligence," Center for Data Innovation, October, 2016, http://www2.datainnovation.org/2016-promise-of-ai.pdf -Robert D. Atkinson, "'It's Going to Kill Us!' and Other Myths About the Future of Artificial Intelligence," Information Technology and Innovation Foundation, June, 2016, http://www2.itif.org/2016-myths-machine-learning.pdf -Robert D. Atkinson, "Think Like an Enterprise: Why Nations Need Comprehensive Productivity Strategies," Information Technology and Innovation Foundation, May, 2016, http://www2.itif.org/2016-think-like-an-enterprise.pdf -Ben Miller and Robert D. Atkinson, "Are Robots Taking Our Jobs, or Making Them?," Information Technology and Innovation Foundation, September, 2013, http://www2.itif.org/2013-are-robots-taking-jobs.pdf -James Manyika et al., "A Future That Works: Automation, Employment, and Productivity," McKinsey Global Institute, January, 2017, http://www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works
Regarding ethics, the following organisations or initiatives should be considered: http://responsiblerobotics.org; http://standards.ieee.org/develop/indconn/ec/autonomous_systems.html; http://www.roboticgovernance.com.

Question 103

Please provide information on any successful initiatives at regional, national or international level related to robotics and AI that could support the European Parliament in considering further actions. (optional)

Text input
Principles of robotics (https://www.epsrc.ac.uk/research/ourportfolio/themes/engineering/activities/principlesofrobotics/) The 23 Asilomar AI Principles (https://futureoflife.org/ai-principles/)
I recommend accessing the NERRI project on Neural Enhancement and it's engagement with the public. The article here mentions specifics about approaches: https://link.springer.com/article/10.1007/s11569-017-0287-4 (doi:10.1007/s11569-017-0287-4)
Alliance industrie du futur http://media.wix.com/ugd/7f22a7_e2cd7bd3420543d5b58bdde29fbb4c02.pdf RSPME http://www.robotstartpme.fr/
Programme Robot Start PME (action collective nationale française visant à soutenir les PME dans l'introduction de leur premier robot industriel): http://www.robotstartpme.fr Exemples de modernisation des PME françaises http://exemples-aif.industrie-dufutur.org/
It is indeed important to notice that the US has created 'public' bodies, although through their boards they are strongly linked to economic interests. -> Open AI and The Future of Life. https://openai.com/ https://futureoflife.org A 'national' (although US linked) centre: Leverhulme Centre for the Future of Intelligence http://lcfi.ac.uk/
The AI Roadmap Institute provides a platform for discussing and comparing roadmaps towards general AI, and welcomes researchers at the EU and the international levels to join the dialogue. The Institute will be happy to provide support for impactful AI research workshops and related conversations initiated by the EU. https://www.roadmapinstitute.org/
As indicated previously, euRobotics agrees strongly with the parliamentary resolution that changes in the jobs market is a key issue and believes that the teaching of digital skills, as well as lifelong learning, will grow in importance. Research and initiatives such as the Future Work Lab, which opened recently in Germany to showcase and develop approaches to future industrial work, not necessarily with robots, should be supported. To respond to this consultation, euRobotics has consulted its whole community, including academics, research organisations and companies throughout Europe. It has also consulted the European Robotics Association group (EUnited Robotics) in the European Engineering Industries Association (EUnited), with which it has worked closely since its foundation. This widespread discussion has produced comments from people working on all aspects of robotics, which has ensured that the views expressed above have emerged from detailed and practical knowledge and understanding of the issues. We as euRobotics are willing to be involved in further discussions.

Question 104

Please provide information on any negative experiences or impacts at regional, national or international level related to robotics and AI that could support the European Parliament in considering further actions. (optional)

Text input
For examples please check our website: http://www.fullai.org/
En este apartado queremos aportar varias informaciones de diversas fuentes. Por un lado, un interesantísimo estudio confeccionado por Daron Acemoglu, del Instituto de Tecnología de Massachusetts, y Pascual Restrepo, de la Universidad de Boston, llamado "Robots y Trabajos: Evidencia de los Mercados de Trabajo de Estados Unidos", que señala que en las áreas expuestas a los robots industriales, entre 1990 y 2007, "tanto el empleo como los salarios disminuyen de manera robusta y significativa (en comparación con otras áreas menos expuestas)". Los autores del estudio indican que un robot por cada mil trabajadores, reduce la relación empleo-población entre 0.18 y 0.34 puntos porcentuales y baja los salarios entre 0.25 y 0.50 por ciento. Es decir, por cada nuevo robot que se suma a la industria manufacturera, se reduce el empleo en 5.6 trabajadores. Este estudio, por su carácter científico y su profundidad, debería tenerse muy en cuenta. Por otro lado, nos gustaría compartir qué opina una parte del empresariado y representantes del capital sobre la maquinización del trabajo. En España, un prestigioso bufete que asesora a la patronal de empresarios ha afirmado que "se debe revisar la posibilidad de que el empresario pueda llevar a cabo despidos individuales objetivos por falta de adaptación del trabajador a los cambios tecnológicos". En EEUU, un exdirigente de McDonalds afirmó que "Es más barato comprar un brazo robótico por 35.000$ que contratar a un empleado ineficiente que gana15$ la hora por embolsar patatas fritas". Ambas afirmaciones, aunque puedan circunscribirse a meras declaraciones de intenciones parciales, sesgadas o aisladas, representan un claro indicio de lo que podría pasar si no regulamos de forma justa y social la maquinización y digitalización masiva del empleo.
We need to act fast, as this development is moving fast and the EU's role should be to steer it; other than with the 'information superhighway' where our laws, directives and regulations were always a little bit behind.
There are a wide variety of examples of AI's positive impact on the economy and society that the European Parliament should consider. • Wearable camera company Narrative has developed a game called Autimood, powered by Microsoft's Project Oxford Emotion application program interface, which uses machine learning to interpret emotions in facial expressions, which allows parents of children with autism to help their children improve their ability to recognize emotions. Autimood uses a wearable camera that takes pictures every 30 seconds, and at the end of the day the Project Oxford Emotion API tags emotions in each picture so children can attempt to identify emotions and receive feedback. • Descartes Labs has adapted deep-learning image-analysis software to analyze satellite photos of farmland to forecast crop yields faster and more accurately than official government estimates. The software can produce estimates of crop production on a weekly basis by comparing daily photographs of 3 million square kilometers of corn farms with less than a one percent margin of error, allowing farmers, insurers, commodities traders, and governments to make more informed decisions. • IBM has created a machine-learning tool called Deep Thunder that analyzes historical weather and environmental data to provide targeted weather analysis, with a resolution as high as 0.2 miles, so companies can factor weather into business-planning decisions. For example, a retailer can use Deep Thunder to estimate the impact weather will play on consumer purchasing decisions and preemptively adjust its stock of items accordingly. • The Qatar Computing Research Institute has developed an open-source tool called Artificial intelligence for Disaster Response (AIDR) that uses machine learning to monitor and analyze Twitter posts and automatically compile Twitter activity related to a particular crisis to aid humanitarian response. In a test during the 2013 flooding in Pakistan, volunteers trained AIDR on tweets related to the crisis, and it could determine if new tweets were related to the Pakistan floods, based on their text, time stamp, and geotag, with 80 percent accuracy. Getting as much information about a crisis, with minimal effort, as quickly as possible can help emergency responders better prioritize resources and make more informed decisions. • Researchers at the Massachusetts Institute of Technology have developed a machine-learning system that can predict variations in wind speeds over time to help power companies more quickly evaluate potential locations for wind farms. Traditionally, a power company will gather 12 months of wind-speed data to evaluate a potential wind-farm location, but the machine-learning system can produce more accurate models with just three months of data by correlating data from multiple sites and weather stations. • A start-up called Orbital Insight uses AI to analyze satellite imagery of forests over time to detect early warning signs of illegal logging that can prompt intervention before any trees are cut down. The system can flag changes that might go unnoticed by humans, such as new roads, which could indicate a new logging operation, as well as learn to identify changes that occur before major cutting to improve its warning system. • Italian dairy producer Granarolo implemented a machine-learning tool that analyzes data about sales estimates and planned promotions, which can increase sales 30-fold, to forecast how much its dairy farms should produce and when. Because dairy is perishable, overestimating demand for a particular period can result in large quantities of wasted products, while underestimating demand can cause diaries to miss out on potential sales. With its forecasting tool, which learns to identify the relationship between Granarolo's thousands of promotions per year and demand fluctuations, Granarolo was able to significantly increase its forecast reliability, reduce inventory levels and delivery times by 50 percent, and increase sales. • An EU-funded project called the Autonomous Vehicle Emergency Recovery Tool (AVERT) uses a system of four autonomous robotic platforms that coordinate with each other to position themselves under a vehicle suspected of having an explosive device and move it to a safe location. AVERT uses sensor technology called LIDAR to map its environment and automatically develop an extraction route for suspicious vehicles in situations where it is too dangerous or difficult to use normal bomb-disposal tools. • A start-up called X2AI has created an artificial-intelligence program named Karim that uses natural language processing to have conversations with users in Arabic via text message and analyzes their emotional states to provide recommendations that can help improve their mental health. X2AI has partnered with the disaster-relief nonprofit Field Organization Team to raise awareness about X2AI in refugee camps, where many have experienced emotional trauma. Karim is not intended to replace traditional counseling, but rather serve as a supportive "friend" for refugees in camps where mental-health services are rare. • As part of the Dutch government's European Truck Platooning Challenge, a fleet of autonomous trucks has successfully traveled over 2,000 kilometers by platooning—monitoring each other's speed, proximity, and the road to drive close together to improve efficiency, much like bicyclists drafting off each other. It is difficult for human truck drivers to platoon, given the level of coordination required to do it safely, but platooning autonomous trucks can reduce fuel consumption by up to 15 percent and can also reduce congestion.