April 30, 2017

Re: Response to the European Parliament's Public Consultation on Civil Law Rules on Robotics

Dear Sir or Madam,

On behalf of the Center for Data Innovation (datainnovation.org), we are pleased to submit these answers in response to the European Parliament's public consultation on Civil Law Rules and Robotics.

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.

The Center welcomes this public consultation and it is encouraging that the European Parliament is engaged on this issue. However, the Center is concerned that the tone of this public consultation and the types of questions it asks indicates a strong anti-AI and automation bias, suggesting that the European Parliament intends to adopt a policy framework for AI that is based on the precautionary principle and fear, rather than one that is based on encouraging innovation.

Sincerely,

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1. BACKGROUND

- The aim of the consultation is to launch a broad based debate with a wide range of stakeholders as a follow-up on the European Parliament report on Civil Law Rules on Robotics ((2015/2103(INL)). The current public consultation will contribute to possible further European Parliament initiatives.
- 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).
- 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.
- This consultation will also 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.
- 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.

2. QUESTIONS AND SUGGESTED RESPONSES

1. INFORMATION ABOUT THE RESPONDENT

You are replying as:

An organisation or a company

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

The Center for Data Innovation

Your full name (first name, last name):
Daniel Castro, Joshua New, Nick Wallace

Email address:

dcastro@datainnovationorg, jnew@datainnovation.org, nwallace@datainnovation.org

Is your organization included in the Transparency Register?

No

Please indicate the type of organisation or company:

Think tank

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

Yes

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

Yes

How many employees does your company have?

1-9

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

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

Belgium

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).

Other service activities

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

No

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

Yes

2. SPECIALISED QUESTIONNAIRE

-This questionnaire is addressed to a more specialised audience of key stakeholders, such as industries that are involved or may become involved in areas related to robotics and artificial intelligence; consumer organisations representing existing or future consumers; academics; public authorities or other professionals involved with robotics and artificial intelligence in a professional capacity.
-The specialised questionnaire is structured in two parts: in Part 1 (15 questions) we wish to explore your experiences, and preferences, and the impacts on your industry of the technological development of robotics and AI; in Part 2 (6 sections) we welcome views on the concrete policy options as developed in the draft report by the European Parliament Committee on Legal Affairs.

PART 1: CHALLENGES, KEY ISSUES AND IMPACTS OF TECHNOLOGICAL DEVELOPMENTS IN THE AREA OF ROBOTICS AND AI ON YOUR INDUSTRY/ORGANISATION

In this section, we seek your views on the challenges, key issues and impact that your organisation/industry faces as a result of technological developments in the area of robotics and artificial intelligence. Please justify your choice(s). Where possible, please provide references to any evidence, data, reports or studies.

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

Other (please specify): Boosts productivity

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

-EU legal framework
-National legal framework (non-robotics)
-Human resources, i.e. employee skills or training
-Public attitudes/acceptance
-Technical issues related to the development of the technology
-Technical issues related to testing and application of technology

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.

-Better regulatory framework
-Measure to facilitate public acceptance
-Other (please specify): Measures to promote adoption of AI and robotics in leading EU industries

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.

-Better regulatory framework
-Better market incentives
-Other (please specify): Increased research and development funding

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.

-Better regulatory framework
-Measures to facilitate public acceptance
-Other (please specify): Increased research and development funding

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)
-Societies benefit from more efficient use of resources
-Societies benefit from more sustainable use of resources
-Societies benefit from better quality of life through innovation and technological solutions (i.e. in services, in healthcare)
-Companies benefit from new business opportunities
-Other (please specify): 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.

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?

-EU funding helps to finance innovative research projects
-EU funding helps trans-border collaboration for research groups and research and industry
-The EU regulatory framework helps to avoid divergent national standards
-The EU regulatory framework facilitates cross-border business opportunities
-The EU regulatory framework reduces compliance costs
-The EU regulatory framework reduces transaction costs

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?

Yes

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

There are shifts in the value chain and profile of employees needed.

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)

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.

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)

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.

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):

-Manufacturing
-Agriculture
-Law enforcement

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

-Autonomous vehicles

PART 2: YOUR ORGANISATION'S VIEWS ON THE POLICY OPTIONS DEVELOPED IN THE DRAFT REPORT ON CIVIL LAW RULES ON ROBOTICS ((2015/2103(INL))

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 here.

In this section, we look for views on the key issues and possible policy options for the development of a European framework on robotics and artificial intelligence from the point of view of your organisation/industry. Please justify your choice(s). Where possible, please provide references to any evidence, data, reports or studies. This section is organised around six main themes (blocks):>

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.
-rules on ethics (11 questions)
-liability rules (10 questions)
-connectivity, intellectual property and flow of data (4 questions)
-standardisation, safety and security (4 questions)
-employment and labour market (11 questions)
-institutional coordination and oversight (4 questions)

SECTION 1: ETHICS

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

Other (please explain/free text): These technologies pose few, if any, risks that will not be mitigated my existing market forces and policies.

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

-Strongly oppose

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

-Strongly oppose

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

No

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:

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.

SECTION 2. LIABILITY

The use of autonomous machines in our society is linked to inherent potential risks. A robot's behaviour may have civil law implications, both in terms of contractual and of non-contractual liability. The liability rules are central as regards attribution of rights and duties, including liability for damages.

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' (multiple choices are possible)

-I totally agree, no modifications/amendments are necessary to the current liability rules

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

-Strongly disagree

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:

	Strongly support	Support	Neutral	Oppose	Strongly oppose	I do not know
Strict liability for manufacturers					X	
Strict liability for owners					X	
Strict liability for users					X	

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

-No intervention is necessary

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

-Oppose

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

-Neutral

SECTION 3: CONNECTIVITY, INTELLECTUAL PROPERTY RIGHTS, AND THE FLOW OF DATA

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)...

	Strongly support	Support	Neutral	Oppose	Strongly oppose	I do not know
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.				X		
To support a horizontal and technology neutral approach to intellectual property applicable to the various sectors in which robotics could be employed.				X		
To elaborate criteria for an 'own intellectual creation' for copyrightable works produced by computers or robots.					X	
To foster development of standards for the concept of privacy by design.					X	
To foster development of standards for the concept of privacy by default.					X	
To foster development of standards for the concept of informed consent.				X		
To foster development of standards for the concept of encryption.				X		

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.					X	
To set a framework that will meet the connectivity requirements for the EU's digital future.				X		
To set a framework to ensure that access to broadband and 5G network is fully in line with the net neutrality principle.					X	
To ensure that civil law regulations are consistent with Regulation (EU) No 2016/679 (the General Data Protection Regulation).				X		
To review rules and criteria regarding the use of cameras and sensors in robots.					X	
To ensure transparent mechanisms for data subjects.				X		
To ensure that appropriate remedies are available for data subjects in compliance with EU data protection law.				X		

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

-Free movement of data
-Other (please specify/free text max. 250 words): Clear liability rules and designated zones for testing

In your opinion, what are the biggest obstacles and deficiencies related to intellectual property rights, connectivity, and flow of data in the current EU regulatory framework?

-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.

SECTION 4: STANDARDISATION, SAFETY AND SECURITY

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 ...'

	Strongly agree	Agree	Disagree	Strongly disagree	I do not know
for future competition in this field.			X		
to foster innovation.			X		
to avoid fragmentation of the international market.			X		
to guarantee a high level of product safety.			X		
to guarantee consumer protection.			X		

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

	Very important	Important	Neutral	Slightly important	Not at all important	I do not know
EU involvement in the international harmonisation of technical standards, in particular together with the European Standardisation Organisations and International Organization for Standardization.			X			
Revision of EU legislation in light of development of robotics and AI.			X			
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.			X			

SECTION 5. EDUCATION AND EMPLOYMENT

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) ...'

	Strongly support	Support	Neutral	Oppose	Strongly oppose	I do not know
to support women in information and communication technologies (ICT).		X				
to modernise educational systems to boost e-skills and competences.		X				

to support training and retraining of people already in the labour market.	X					
to support occupational health and safety at work.		X				
to support the involvement of social partners.			X			
to reduce inequalities and social exclusion.		X				
to develop mechanisms for job security, i.e. working and career patterns shaped by digitalisation.		X				
to systematically monitor what types of jobs and tasks are taken by robots.			X			
to systematically monitor what new types of jobs are created as a result of developments in robotics and AI.			X			
to systematically analyse what societal challenges arise.			X			

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'.

-Agree

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:

-Strongly disagree

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:

-Strongly disagree

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'.

-Strongly disagree

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'.

-Strongly disagree

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'.

-Strongly disagree

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'.

-Strongly disagree

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

-None

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'.

-Strongly disagree

Should you have further observations about education and employment, please share your experience or suggestions here:

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.

SECTION 6. INSTITUTIONAL COORDINATION AND OVERSIGHT

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

-Other (please specify): 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.

PART 3: OTHER ISSUES AND FURTHER INFORMATION

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

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.

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)

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.