AMENDMENTS
1 - 75

Draft opinion
Kaja Kallas
(PE583.918v01-00)

Civil law rules on robotics
(2015/2103(INL))
Amendment 1
Martina Werner

Draft opinion
Recital A

Draft opinion
A. whereas robot-human teams could be 85%\(^1\) more productive than either on its own; and robots by enhancing capabilities of humans will reduce risks of human errors,

Amendment
A. whereas robot-human teams could be 85%\(^1\) more productive than either on its own; and robots by enhancing capabilities of humans will reduce risks of human errors, whereas robotics should focus on complementing human capabilities and not on replacing them; whereas the large-scale use of robotics has the potential to bring about the long-term transformation of work and represents an education and training challenge;

\(^1\) According to research from MIT following joint experience with Carmakers BMW and Mercedes-Benz.

Amendment 2
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Recital A

Draft opinion
A. whereas robot-human teams could be 85%\(^1\) more productive than either on its own; and robots by enhancing capabilities of humans will reduce risks of human errors,

Amendment
A. whereas robot-human teams could be 85%\(^1\) more productive than either on its own; and robots by enhancing capabilities of humans will reduce risks of human errors, while a significant number of existing jobs are considered to be at risk of automation over the next twenty years;

\(^1\) According to research from MIT following joint experience with Carmakers BMW and Mercedes-Benz.
Amendment 3
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Recital B

Draft opinion

B. whereas the Union holds a leading position in industrial robotics, with a share of more than 25 %\(^2\) of supply and use;

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2


Amendment

B. whereas the Union holds a leading position in industrial robotics, with a share of more than 25 %\(^2\) of supply and use; \textit{and whereas maintaining that leading position and share is therefore an industrial strategy priority};

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2


Or. it

Amendment 4
Michał Boni, Krišjānis Kariņš, Henna Virkkunen

Draft opinion
Recital B

Draft opinion

B. whereas the Union holds a leading position in industrial robotics, with a share of more than 25 %\(^2\) of supply and use,

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2


Amendment

B. whereas the Union holds a leading position in industrial robotics, with a share of more than 25 %\(^2\) of supply and use, \textit{growth in this market is estimated at 8-9% per annum} \(^{2a}\);

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2


Amendment 5
Martina Werner

Draft opinion
Recital B a (new)

Draft opinion

Amendment

Ba. whereas robots convert digital data into physical actions and, accordingly, there is a close link between robotics (and artificial intelligence) and industrial digitisation; whereas similar issues are emerging in a host of areas, and an eye must be kept on interplay between possible legislative initiatives;

Or. de

Amendment 6
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Recital B a (new)

Draft opinion

Amendment

Ba. whereas more substance needs to be given to the Commission’s work to establish and achieve industrial policy, research, economic and legal objectives in the field of robotics within the framework of the completion of the digital single market, as this is a strategic means of adapting European society to the needs of the 21st century;

Or. it
Amendment 7
Michał Boni, Henna Virkkunen

Draft opinion
Recital B a (new)

Draft opinion

Amendment

B a. whereas the development of robotics technology indicates human-robot interactions in terms of the relationship between humans and robots, in terms of the duration of these interactions and in terms of design issues affecting human interactive robots for psychological enrichment;

Or. en

Amendment 8
Enrico Gasbarra

Draft opinion
Recital B a (new)

Draft opinion

Amendment

Ba. whereas the sale and production of robots rose significantly between 2010 and 2014, with an increase of almost 30% in 2014 alone, particularly in the electronics industry;

Or. it

Amendment 9
Barbara Kappel

Draft opinion
Recital B a (new)
Ba. whereas experts predict that robots will replace humans in one-third of today's traditional professions by 2025, altering economics and our approach to machine use as we know it,

Or. en

Amendment 10
Notis Marias

Draft opinion
Recital B a (new)

Draft opinion
Amendment

Ba. whereas the prevalence of robotics and AI and their increasingly widespread applications have provoked a variety of reactions and objections;

Or. el

Amendment 11
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Recital B b (new)

Draft opinion
Amendment

Bb. whereas the great influx of robotics and various AI applications will have a systemic impact on our productive and industrial organisation, as determined by new features that make it qualitatively different from the current organisation;

Or. it
Amendment 12
Enrico Gasbarra

Draft opinion
Recital B b (new)

Draft opinion

Amendment

Bb. whereas the development of robotics could result in greater efficiency and savings for the internal market and European production, while reducing human exposure to harmful and hazardous conditions;

Or. it

Amendment 13
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Recital B c (new)

Draft opinion

Amendment

Bc. whereas these new features will have consequences for every member of the public, not only in terms of energy and the environment, but also in terms of social and political organisation, and whereas these therefore necessitate action by the public authorities in respect of the productive and industrial system which may differ qualitatively from the action currently taken;

Or. it

Amendment 14
Enrico Gasbarra

Draft opinion
Recital B c (new)
Believes that robotics plays a key role in improving the competitiveness and productivity of the European economy; calls on the Commission to promote a pro-innovation policy in robotics, facilitating integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in robotics, essential for companies to scale up in Europe;

Believes that robotics plays a key role in European reindustrialisation, in helping to reverse the trend towards relocation and in improving the competitiveness and productivity of the economy, and therefore in developing a society that is less tied to working time, thereby freeing up more human and financial resources for personal improvement and the intellectual, creative and social aspects of shared lives; calls on the Commission to promote a pro-innovation policy in robotics, facilitating integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in robotics, essential for companies to scale up in Europe;
1. Believes that robotics plays a key role in improving the competitiveness and productivity of the European economy; calls on the Commission to promote a pro-innovation policy in robotics, facilitating integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in robotics, essential for companies to scale up in Europe;

Amendment 17
Barbara Kappel

Draft opinion
Paragraph 1

1. Believes that robotics plays a key role in improving the competitiveness and productivity of the European economy; believes that increased efforts in innovation and research in robotics can help Europe to become a global standard setter in this field; calls on the Commission to promote a pro-innovation policy in robotics, facilitating integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in robotics, essential for companies to scale up in Europe;

Or. en
Amendment 18
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 1

1. Believes that robotics *plays* a key role in improving the competitiveness and productivity of the European economy; calls on the Commission to promote a pro-innovation policy in robotics, facilitating integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in robotics, essential for companies to scale up in Europe;

Amendment

1. Believes that robotics *and artificial intelligence play* a key role in improving the competitiveness and productivity of the European economy; calls on the Commission to promote a pro-innovation policy in robotics *and artificial intelligence*, facilitating integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in robotics *and artificial intelligence*, essential for companies to scale up in Europe;

Or. en

Amendment 19
Ivan Jakovčić

Draft opinion
Paragraph 1

1. Believes that robotics plays a *key* role in improving the competitiveness and productivity of the European economy; calls on the Commission to promote a pro-innovation policy in robotics, *facilitating* integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in robotics, essential for companies to scale up in Europe;

Amendment

1. Believes that robotics plays a *major* role in improving the competitiveness and productivity of the European economy; calls on the Commission to promote a pro-innovation policy in robotics, *ensuring* integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in, *and action on*, robotics, essential for companies to scale up in Europe;

Or. hr
Amendment 20
Zigmantas Balčytis

Draft opinion
Paragraph 1

1. Believes that robotics plays a key role in improving the competitiveness and productivity of the European economy; calls on the Commission to promote a pro-innovation policy in robotics, facilitating integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in robotics, essential for companies to scale up in Europe;

Amendment

1. Believes that robotics plays a key role in improving the competitiveness and productivity of the European economy; calls on the Commission to promote a pro-innovation policy in robotics, facilitating integration of technologies in value chains, and to assess the need to modernise legislation or develop European guidelines to ensure a joint approach in robotics, essential for companies to scale up in Europe; believes that Europe should make better use of the available scientific potential, increase the EU’s attractiveness by attracting the best specialists in this field, and orient itself towards global markets;

Or. It

Amendment 21
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Paragraph 1 a (new)

Draft opinion

1a. Points out that robotics, like any other technological innovation, must be subject to in-depth preventive assessment to identify, along with its evident benefits, its potential risks; special attention must also be awarded to identifying any long-term structural risks, such as the possible increase in technological unemployment, and the social consequences thereof on the welfare system, or the possible increase in industrial concentration;
Amendment 22
Martina Werner

Draft opinion
Paragraph 1 a (new)

Draft opinion

1a. Is convinced that robotics is an area in which there are still many uncertainties as to how it will evolve; calls therefore on the Commission to enter into continuous dialogue with the relevant stakeholders - e.g. industry, trade unions and the research community - in order to be able to respond appropriately and promptly to technological developments;

Amendment

Or. en

Amendment 23
Neoklis Sylikiotis, Paloma López Bermejo, Sofia Sakorafa, Xabier Benito Ziluaga

Draft opinion
Paragraph 1 a (new)

Draft opinion

1a. Stresses that the development of robotics in the EU will have a strong impact on industrial relations. Believes that this impact should be addressed in a balanced manner so as to promote the reindustrialisation and allow also the workers to enjoy the productivity gains for example by reducing the working time without loss of salary;

Amendment

Or. de
Amendment 24
Barbara Kappel

Draft opinion
Paragraph 1 a (new)

Draft opinion

1 a. Stresses that increased use of robotics provide the possibility to boost the reindustrialization efforts of the European Union; believes a sound civil law framework for robotics paired with the necessary digital infrastructure will not only increase productivity and innovation but also can help to overcome the investment crisis;

Or. en

Amendment 25
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 1 a (new)

Draft opinion

1 a. Believes that the shortening of the time passed from innovation to industrialisation should be encouraged through the wider use of robotics and artificial intelligence, and facilitated by the growth of scalable SMEs especially in the field of 3D printing;

Or. en

Amendment 26
Martina Werner

Draft opinion
Paragraph 1 b (new)
Draft opinion
Amendment

1b. Notes that non-EU countries have recognised the strategic importance of robotics and are challenging the EU’s global-market leadership through, for instance, takeovers of European manufacturers; calls on the Commission to devise an industrial strategy that addresses the role of strategically significant sectors such as robotics and sets out how the EU can retain jobs, growth, know-how and much of the value chain;

Or. de

Amendment 27
Neoklis Sylkiotis, Paloma López Bermejo, Sofia Sakorafa, Xabier Benito Ziluaga

Draft opinion
Paragraph 1 b (new)

Draft opinion
Amendment

1b. Considers that in order to maximize the benefits of robotics, it must not to be used for a mere substitution of workers, but it must help to create more quality jobs and scale-up the whole production of a company;

Or. en

Amendment 28
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Paragraph 2

Draft opinion
Amendment

2. Stresses that innovation in robotics and artificial intelligence require digital
2. Stresses that innovation in robotics and artificial intelligence require digital
infrastructure that provides ubiquitous connectivity; calls on the Commission to set a framework that will meet the connectivity requirements for the Union’s digital future;

Or. it

Amendment 29
Michał Boni, Krišjānis Kariņš, Henna Virkkunen

Draft opinion
Paragraph 2

2. Stresses that innovation in robotics and artificial intelligence require digital infrastructure that provides ubiquitous connectivity; calls on the Commission to set a framework that will meet the connectivity requirements for the Union’s digital future;

Amendment

2. Stresses that innovation in robotics and artificial intelligence require digital infrastructure capable to integrate robotics technology within the current systems and society as well as that provides ubiquitous connectivity; calls on the Commission to set a framework that will meet the connectivity requirements for the Union’s digital future;

Or. en

Amendment 30
Enrico Gasbarra

Draft opinion
Paragraph 2

2. Stresses that innovation in robotics and artificial intelligence require digital infrastructure that provides ubiquitous

Amendment

2. Stresses that innovation in robotics and artificial intelligence require digital infrastructure that provides ubiquitous
connectivity; calls on the Commission to set a framework that will meet the connectivity requirements for the Union’s digital future; considers that the internal market and European industry would benefit from the rapid introduction of a uniform legal and regulatory framework for robotics, so as to endow Member States with modern and effective common standards ahead of further technological developments;

Or. it

**Amendment 31**
**Barbara Kappel**

**Draft opinion**
**Paragraph 2**

**Draft opinion**

2. Stresses that innovation in robotics and artificial intelligence require digital infrastructure that provides ubiquitous connectivity; calls on the Commission to set a framework that will meet the connectivity requirements for the Union’s digital future;

**Amendment**

2. Stresses that innovation in robotics and artificial intelligence require digital infrastructure that provides ubiquitous connectivity; calls on the Commission to set a framework that will meet the connectivity requirements for the Union’s digital future; calls on the Member States to continue to expand broadband internet also in structurally weak regions;

Or. en

**Amendment 32**
**Notis Marias**

**Draft opinion**
**Paragraph 2**

**Draft opinion**

2. Stresses that innovation in robotics and artificial intelligence require digital infrastructure that provides ubiquitous connectivity;

**Amendment**

2. Stresses that innovation in robotics and artificial intelligence require digital infrastructure that provides ubiquitous connectivity;
connectivity; calls on the Commission to set a framework that will meet the connectivity requirements for the Union’s digital future; connectivity: calls on the Commission to set a framework that will meet the connectivity requirements for the Union’s digital future, while respecting the environment, public health and the principle of personal data protection;

Amendment 33
Neoklis Sylikiotis, Paloma López Bermejo, Xabier Benito Ziluaga

Draft opinion
Paragraph 2 a (new)

Draft opinion

Amendment

2 a. Believes that in order to implement a socially balanced framework on robotics that allows the development of European industries without mass destruction of jobs, social partners, both trade union and industry, have to be involved and considered at EU, Member States and industry level;

Or. en

Amendment 34
Henna Virkkunen, Michał Boni

Draft opinion
Paragraph 2 a (new)

Draft opinion

Amendment

2 a. Stresses that fostering the digital skills has to be included in all the teaching and training from the early school years to higher education and vocational training; also the companies have to put effort in keeping the skills of their employees up-to-date;

Or. en
Amendment 35
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 2 a (new)

Draft opinion

2 a. Underlines that unhindered connectivity is a prerequisite to growth and innovation; calls on the Commission to ensure that access to broadband and 5G networks is accompanied by equal treatment of traffic in the spirit of the net neutrality principle;

Or. en

Amendment 36
Jean-Luc Schaffhauser

Draft opinion
Paragraph 3

Draft opinion

3. Strongly believes that interoperability between systems, devices and cloud services, based on security and privacy by design, are essential for enabling real time data flows enabling robots to become more flexible and autonomous; asks the Commission to promote an open environment, from open standards and innovative licensing models, to open platforms and transparency, in order to avoid lock-in in proprietary systems that restrain interoperability;

Amendment

3. Strongly believes that interoperability between systems, devices and cloud services, based on security and privacy by design, are essential for enabling real time data flows enabling robots to become more flexible and autonomous; regards it as essential to promote high encryption standards for robot-server interaction in order to prevent leakage of essential strategic data or a malicious machine takeover; insists that it is essential to foster synergies between semiconductor producers, business software vendors and cloud IT service providers so as to ensure that Europe leads the way in the miniaturisation of industrial robot control.
Amendment 37
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Paragraph 3

3. Strongly believes that interoperability between systems, devices and cloud services, based on security and privacy by design, are essential for enabling real time data flows enabling robots to become more flexible and autonomous; asks the Commission to promote an open environment, from open standards and innovative licensing models, to open platforms and transparency, in order to avoid lock-in in proprietary systems that restrain interoperability;

Amendment

3. Strongly believes that interoperability between systems, devices and cloud services, which must be based on security and fundamental rights by design, are essential for enabling real time data flows enabling robots to become more secure, flexible and autonomous; asks the Commission to define the role of the European research and innovation system in promoting an open environment, from open standards and innovative licensing models, to open platforms and transparency, in order to avoid lock-in in proprietary systems that restrain interoperability;

Amendment 38
Ivan Jakovčić

Draft opinion
Paragraph 3

3. Strongly believes that interoperability between systems, devices and cloud services, based on security and privacy by design, are essential for enabling real time data flows enabling robots to become more flexible and autonomous; asks the Commission to promote an open environment, from open standards and innovative licensing models, to open platforms and transparency, in order to avoid lock-in in proprietary systems that restrain interoperability;

Amendment

3. Strongly believes that interoperability between systems, devices and cloud services, based on security and privacy by design, are essential for enabling real time data flows enabling robots to become more flexible, autonomous, and efficient; asks the Commission to promote an open environment, from open standards and innovative licensing models, to open platforms and transparency, in order to avoid lock-in in proprietary systems that restrain interoperability;
promote an open environment, from open standards and innovative licensing models, to open platforms and transparency, in order to avoid lock-in in proprietary systems that restrain interoperability; Commission to promote an open environment, from open standards and innovative licensing models, to open platforms and transparency, in order to avoid lock-in in proprietary systems that restrain interoperability;

Amendment 39
Michel Reimon on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 3

Draft opinion

3. Strongly believes that interoperability between systems, devices and cloud services, based on security and privacy by design, are essential for enabling real time data flows enabling robots to become more flexible and autonomous; asks the Commission to promote an open environment, from open standards and innovative licensing models, to open platforms and transparency, in order to avoid lock-in in proprietary systems that restrain interoperability;

Amendment

3. Strongly believes that interoperability between systems, devices and cloud services, based on security and privacy by design, is essential for enabling real time data flows enabling robots and artificial intelligence to become more flexible; asks the Commission to promote an open environment, from open standards and innovative licensing models, to open platforms and transparency, in order to avoid lock-in in proprietary systems that restrain interoperability;

Amendment 40
Michał Boni, Krišjānis Kariņš, Henna Virkkunen

Draft opinion
Paragraph 3 a (new)

Draft opinion

3 a. Stresses that a high level of safety, security and privacy of data used for the communication between people and
robots and artificial intelligence, together with high quality of voice recognition systems, has to be ensured; calls on the Commission and Member States to support and incentivise the development of the necessary technology, including security by design and channels of communication;

Amendment 41
Michał Boni, Krišjānis Kariņš, Henna Virkkunen
Draft opinion
Paragraph 3 b (new)

Draft opinion

Amendment

3 b. Stresses that education, research, development and training activities on learning and teaching coding and robotics are an essential part of the innovation economy;

Amendment 42
Michał Boni, Henna Virkkunen
Draft opinion
Paragraph 3 c (new)

Draft opinion

Amendment

3 c. Underlines that a high level of safety and security of data used for the communication between people and robots and artificial intelligence, together with high quality of voice recognition systems, has to be ensured; calls on the Commission and Member States to support and incentivise the development of the necessary technology, including security by design and channels of
communication;

Or. en

Amendment 43
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Paragraph 4

Draft opinion

4. Notes that data access is key to innovation in machine learning algorithms; calls on the Commission to implement an ambitious strategy on Open and free flow of data;

Amendment

4. Notes that data access respecting fundamental rights rules is central to innovation in machine learning algorithms and to their scientific and industrial exploitation; calls on the Commission to implement an ambitious strategy on Open and free flow of data, under which the protection afforded by the public authorities ensures that SMEs, start-ups and academic and citizens’ organisations can participate on an equal footing with major transnational organisations; points out that such data access calls for a thorough overhaul of the current regulatory framework applicable to copyright;

Or. it

Amendment 44
Martina Werner

Draft opinion
Paragraph 4

Draft opinion

4. Notes that data access is key to innovation in machine learning algorithms; calls on the Commission to implement an ambitious strategy on Open and free flow of data;

Amendment

4. Notes that data access is key to innovation in machine learning algorithms; calls on the Commission to implement an ambitious strategy on Open and free flow of data; points in this connection to the Commission’s ‘Free Flow of Data’
initiative and stresses that, as regards robotics, it should address data exchange and trading within the digital industry while taking full account of personal data protection and intellectual property law;

Or. de

Amendment 45
Jean-Luc Schaffhauser

Draft opinion
Paragraph 4

Draft opinion

4. Notes that data access is key to innovation in machine learning algorithms; calls on the Commission to implement an ambitious strategy on Open and free flow of data;

Amendment

4. Notes that data access is key to innovation in machine learning algorithms; calls on the Commission to implement an ambitious strategy on data localisation and exploitation in Europe by genuinely European actors;

Or. fr

Amendment 46
Michał Boni, Krišjānis Kariņš, Henna Virkkunen

Draft opinion
Paragraph 4

Draft opinion

4. Notes that data access is key to innovation in machine learning algorithms; calls on the Commission to implement an ambitious strategy on Open and free flow of data;

Amendment

4. Notes that data access is key to innovation in machine learning algorithms; calls on the Commission to implement an ambitious framework and strategy on Open and free flow of data;

Or. en

Amendment 47
Martina Werner
Draft opinion
Paragraph 4a (new)

Draft opinion
Amendment

4a. Stresses that digital and related technical developments, such as robotics, represent new challenges for businesses, in particular SMEs, with a view to safeguarding their data and intellectual property; calls on the Commission to analyse cybersecurity risks on the basis of a sector-specific approach; calls furthermore on the Commission to take up the issue of robotics in connection with cybersecurity strategy (COM(2016)410) and include it in the discussions of the projected high-level group on cybersecurity;

Or. de

Amendment 48
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 4a (new)

Draft opinion
Amendment

4a. Stresses that in the continental European understanding of authors’ rights, intellectual creation is tied to the personality of the author; therefore artificial agents such as robots and artificial intelligence cannot be perceived of as authors and information produced by them shall not be eligible for copyright protection;

Or. en
Amendment 49
Michał Boni, Henna Virkkunen

Draft opinion
Paragraph 4 a (new)

Draft opinion

4 a. Notes that robotics Technology has the potential to transform lives and work practices, raise efficiency and safety levels, provide enhanced level of services. Its impact will grow over time as will the interaction between robots and people;

Or. en

Amendment 50
Barbara Kappel

Draft opinion
Paragraph 4 a (new)

Draft opinion

4 a. Calls on Member States to prepare the education sector to be responsive to the challenges posed by robotics for future generations;

Or. en

Amendment 51
Michał Boni, Henna Virkkunen

Draft opinion
Paragraph 4 b (new)

Draft opinion

4 b. Strongly believes that in the medium term robotics technology will have a far more influential effect on the competitiveness of non-manufacturing industries such as agriculture, transport,
healthcare, security and utilities;

Amendment 52
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 4 b (new)

4 b. Points out that the technological development in the field of autonomous machines, for example cars and drones, should be accompanied by solutions to the new ethical challenges;

Amendment 53
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 4 c (new)

4 c. Points out that developments in the field of vital medical applications such as robotic prostheses, should not reduce the autonomy and self-determination of persons carrying them; therefore a person carrying such a device is to be considered the full owner of the respective device and all its components, including software source code; considers this necessary to retain the means to support these vital devices; for example if maintenance, repairs or enhancements, including software updates fixing malfunctions and
vulnerabilities, are no longer carried out by a supplier; therefore additionally suggests the creation of independent trusted entities that retain the technology necessary to provide persons carrying these devices with such care; including the means to assemble and install software updates on the device; supports creating an obligation for manufacturers to provide these independent trusted entities with comprehensive design instructions as well as source code to this end, similar to the legal deposit of publications to a national library;

Or. en

Amendment 54
Michał Boni, Krišjānis Kariņš, Henna Virkkunen

Draft opinion
Paragraph 4 c (new)

Draft opinion

Amendment

4 c. Believes that medicine robots continue to make inroads into the provision of high accuracy surgery and in performing repetitive procedures. They have the potential to improve outcomes in rehabilitation, and provide highly effective logistics support within hospitals;

Or. en

Amendment 55
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 4 d (new)
4 d. Underlines that the growing use of robotics in the manufacturing but also in all areas of human life require assessment and measures to ensure that the social and environmental aspects are properly addressed;

Or. en

Amendment 56
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Paragraph 5 – introductory part

5. Calls on the Commission to increase its support in the mid-term review of the MFF for the Horizon 2020 funded SPARC programme and to promote a collaborative environment between the research community, standardisation bodies and the private sector;

Or. it

Amendment 57
Michał Boni, Krišjānis Kariņš, Henna Virkkunen

Draft opinion
Paragraph 5 a (new)

5 a. SMEs and specially Start Ups are particularly important and form a vital part of the robotics landscape in terms of establishing component supply chains, driving innovation, opening up new markets and filling niches with valuable
products and services. Stresses that the PPP will drive entrepreneurship, Start Ups and SMEs;

Amendment 58
Michał Boni, Krišjānis Kariņš, Henna Virkkunen

Draft opinion
Paragraph 5 b (new)

Draft opinion

5 b. Notes that Europe must face the challenge of growing an innovation based community where SME and global companies can work together to innovate producing robotic technology on global scale. Achieving open innovation and creating a strong component market place are important strategic objectives;

Amendment 59
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Paragraph 6

Draft opinion

6. A legislative initiative on robotics and artificial intelligence should provide legal certainty without stifling innovation;

Amendment

6. Any legislative initiative, in any field, on robotics and artificial intelligence should provide legal certainty without stifling innovation, in a manner compatible with the aims of the whole of European society and with the benefits which it expects these new technologies to have for all its members, without exception;
Amendment 60
Jean-Luc Schaffhauser

Draft opinion
Paragraph 6

Draft opinion
6. A legislative initiative on robotics and artificial intelligence should provide legal certainty without stifling innovation;

Amendment
6. A legislative initiative on robotics and artificial intelligence should provide legal certainty, without stifling innovation, on the basis of data use and storage in the EU by European actors;

Or. fr

Amendment 61
Martina Werner

Draft opinion
Paragraph 6

Draft opinion
6. A legislative initiative on robotics and artificial intelligence should provide legal certainty without stifling innovation;

Amendment
6. A legislative initiative on robotics and artificial intelligence should provide legal certainty without stifling innovation; comprehensive consultation of the relevant stakeholders is necessary in order to ensure that balance;

Or. de

Amendment 62
Michal Boní, Krišjānis Kariņš, Henna Virkkunen

Draft opinion
Paragraph 6

Draft opinion
6. A legislative initiative on robotics and artificial intelligence should provide legal certainty without stifling innovation;

Amendment
6. A legislative initiative on robotics and artificial intelligence should provide legal certainty without stifling innovation

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in this fast evolving technology field:

Or. en

Amendment 63
Ivan Jakovčić

Draft opinion
Paragraph 6

Draft opinion

6. A legislative initiative on robotics and artificial intelligence should provide legal certainty without stifling innovation;

Amendment

6. A legislative initiative on robotics and artificial intelligence should provide legal certainty and guarantee privacy without stifling innovation;

Or. hr

Amendment 64
Michał Boni, Krišjānis Kariņš, Henna Virkkunen

Draft opinion
Paragraph 6 a (new)

Draft opinion

6 a. Notes that robotics and AI are of an integrated-industry portfolio. Points out that Big Data analytics, sensors and innovative business models are re-designing framework for 4th Industrial Revolution;

Amendment

Or. en

Amendment 65
Lefteris Christoforou

Draft opinion
Paragraph 6 a (new)
The legislative initiative should differentiate between a "natural person" and a "legal entity" so that a constructed legal personality is not alien to law;

Or. en

Amendment 66
Martina Werner

Draft opinion
Paragraph 7

7. Together with robotics engineers the Commission should develop a code of ethical conduct aimed at guiding their activities;

7. Together with robotics engineers, industry, trade unions, the research community and society, the Commission should develop a code of ethical conduct aimed at guiding their activities;

Or. de

Amendment 67
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 7

7. Together with robotics engineers the Commission should develop a code of ethical conduct aimed at guiding their activities;

7. Together with civil society, engineers, and academia the Commission should develop a code of ethical conduct aimed at guiding robotics and artificial intelligence development activities;

Or. en
Amendment 68
Henna Virkkunen, Michał Boni

Draft opinion
Paragraph 7

7. Together with robotics engineers, the Commission should develop a code of ethical conduct aimed at guiding their activities;

7. Together with robotics engineers, end-users and other stakeholders, the Commission should develop a code of ethical conduct aimed at guiding their activities;

Or. en

Amendment 69
Dario Tamburrano, Tiziana Beghin, David Borrelli, Laura Ferrara, Laura Agea

Draft opinion
Paragraph 7 a (new)

7a. Considers that the Commission should open a debate on the transformative effects that the widespread use of robotics and AI systems is predicted to have on social protection systems, with the aim of establishing which innovations in European distribution and solidarity mechanisms will be needed to maintain — or even improve — our social protection standards, at all stages of people’s lives and regardless of their employment status;

Or. it

Amendment 70
Neoklis Sylikiotis, Paloma López Bermejo, Sofia Sakorafa

Draft opinion
Paragraph 7 a (new)
7 a. Ensure that any future legal framework for robotics shall also develop consistent rules on liability in the field of penal law and war crimes, in order to avoid crimes without criminal accountability;

Or. en

Amendment 71
Enrico Gasbarra

Draft opinion
Paragraph 7 a (new)

7a. Calls for particular attention to be paid to the ethical and internal market implications of production tests for new robotics technologies;

Or. it

Amendment 72
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 8

8. Recommendations regarding licences should respect contractual freedom and leave room for innovative licensing regimes.

8. Recommendations regarding licences should respect contractual freedom and leave room for innovative licensing regimes; **cautions against the introduction of new intellectual property rights in the field of robotics and artificial intelligence that could hamper innovation and the exchange of expertise;**
Amendment 73
Michal Boni

Draft opinion
Paragraph 8 a (new)

**Draft opinion**

8 a. Stresses that development of robotics and artificial intelligence will forever change the landscape of the workplace. That may create new liability concerns and eliminate others. Underlines that the legal responsibility need to be clarified from both business sight model, as well as the workers design pattern, in case emergency or problems occur;

**Amendment**

8 a. Measures to ensure that the growing use of robotics and artificial intelligence brings economic, social and environmental benefits, while tackling any negative consequences that arise;

Amendment 74
Michel Reimon
on behalf of the Verts/ALE Group
Julia Reda, Jan Philipp Albrecht

Draft opinion
Paragraph 8 a (new)

**Draft opinion**

8 a. Stresses that development of robotics and artificial intelligence will forever change the landscape of the workplace. That may create new liability concerns and eliminate others. Underlines that the legal responsibility need to be clarified from both business sight model, as well as the workers design pattern, in case emergency or problems occur;

**Amendment**

8 a. Measures to ensure that the growing use of robotics and artificial intelligence brings economic, social and environmental benefits, while tackling any negative consequences that arise;

Amendment 75
Michal Boni
Draft opinion
Paragraph 8 b (new)

Draft opinion

8 b. Notes that development of robotics technology will require more understanding for the common ground needed around joint human-robot activity, which should be based on two core interdependence relationships as predictability and directability. These two interdependence relationships are crucial for determining what information need to be shared between humans and robots and how a common basis between humans and robots can be achieved in order to enable smooth human-robot joint action;

Or. en