The workshop on liability in the area of autonomous systems and advanced robots/IoT took place on 13 July 2017 and was organised in the context of the structured dialogue announced in the Communication of January 2017 on "Building a European Data Economy". Stakeholders showed a great interest in the workshop on liability which was documented by a high number of registrations (132). During the workshop, a lively and in-depth discussion about questions regarding liability focusing on the specificities of autonomous systems and advanced robots/IoT-Systems compared to "traditional" machinery evolved.

After introductions by Salla Saastamoinen (Director, Directorate A, DG JUST) and Pearse O'Donohue (Acting Director, Directorate E, DG CNECT) representatives from DGs JUST, CNECT and GROW presented the Commission work undertaken so far. Juha Heikkilä (Head of Unit DG CNECT A1) described the Commission activities in the context of robotics and artificial intelligence (AI), the political context within the Digital Single Market Strategy and the significant funding provided in this area since 2004. Heikkilä also pointed to the huge potential of growth which autonomous and IoT systems have, but also mentioned concerns and public fears. According to the 2017 Special Eurobarometer for 88 % of respondents robots and AI are technologies that require careful management.

The existing European legal framework on product safety was presented by Orsolya Csorba (Deputy Head of Unit DG JUST E4) and Felicia Stoica (Policy Officer DG GROW C3). While Csorba explained the concept of the General Product Safety Directive 2001/95/EC and the functioning of the RAPEX-System, Stoica described the specific rules on product safety in the EU with focus on the Machinery Directive 2006/42/EC, the Radio Equipment Directive 2014/53/EU and the role of Standardization.

MEP Delvaux, the rapporteur of the EP resolution on Civil Law Rules on Robotics, presented the preliminary results of the EP public consultation on robotics and AI. She emphasized that most of the respondents (73 %) had positive attitudes towards robotics and AI, that a large majority (90 %) supported public regulation and that this regulation should be done at EU and/or international level (96%).

Hans Ingels (Head of Unit DG GROW B1) reported on the interim results of the evaluation of the Product Liability Directive 85/374/EC (PLD) which includes a study and public consultation. He stated that only a few respondents to the public consultation were in favour of new legislation in this area, while some respondents would prefer a revision of the PLD or guidelines clarifying its rules. A broad

---

1 COM 2017 (9).
majority of the respondents (68\%) believed that the PLD would strike a fair balance between the interests of producers and those of consumers.

Hans Graux (Deloitte) presented preliminary findings of the joint CNECT/JUST study “Emerging issues of data ownership, interoperability, (re)usability and access to data, and liability” and the public consultation\(^6\) in this context. He noted a certain appetite for a revision of the PLD and pointed to several deficiencies of the current legal regime. It was not clear if software could be regarded as a product within the meaning of the PLD and the concept of defect was not well-suited for self-learning systems. According to the preliminary findings, a gap in the law existed, for example, for the consequences of installed or not installed updates by the user. Furthermore, across Member States quite different liability concepts existed.

In the first cluster Dominik Boesl (KUKA AG) explained the development of robotics and stressed that robots equipped with AI were currently at a scientific stage. He stated that he did not expect autonomous robots to enter the market soon. Robotics and in particular automation would change the world like fire, electricity and the internet did before. Autonomous driving and delivering drones would belong to the daily life.

In the discussion, the BDI (Association of German industries) and Orgalime (European Engineering Industries Association) stated there was no need to revise the existing legislation on liability. These statements were heavily criticized by Uwe Haas (consultant at Roboconsult, former secretary general of euRobotics) who said that this approach could result in stifling innovation and argued that a detailed discussion was needed rather than just repeatedly asserting the current legal framework was fit for purpose.

Some of the participants from the academia developed ideas on liability concepts. Prof Ernst Karner (Institute for European Tort Law (ETL) at the University of Vienna) suggested to broaden the scope of the PLD and to introduce strict liability for particularly dangerous autonomous and IoT-Systems. He also expressed that there was a need for specific rules which could follow the concept of vicarious liability: robots act as assistants similar to human assistants and the liability should be designed accordingly. Andrea Bertolini stated the most important challenge was to achieve a fair compensation of victims and suggested the adoption of a "risk-management approach" whereby the entity most suited to manage the risks should be liable (usually the producer).

While some participants advocated for general rules, others pointed out that previous attempts to harmonise tort law failed. On the other hand, it was mentioned that sector specific regulation at EU level could cause fragmentation of laws which may potentially harm innovation. Furthermore, Prof Bernhard Koch (University of Innsbruck) argued that sector specific regulation would favour certain groups of victims over others and pointed to another fundamental problem, the different standards of proof in the national procedural laws. One participant was in favour of the development of an own legal status for robots with cognitive capacities. Prof Bernhard Koch argued that claims against robots were pointless because robots lack assets.

Issues on product safety were widely discussed. Prof Koch stated that it would be decisive to determine which level of safety should be expected on the market. For him the key question was what kind of risks should be allowed on the market. Another participant underlined that under

---

existing rules, products must be safe and that existing safety requirements also apply to embodied self-learning software.

It was discussed whether or not individual decisions made by self-learning systems can be tracked back. One participant explained that the decision making process is based on an assessment of huge amounts of data by the system and the reason for making a certain decision cannot be explained.

The second cluster dealt with the complexity of autonomous systems and advanced robots, especially with issues on the detection of defects and the burden of proof.

The first speaker, Daniel Schönberger (Google), presented Google’s research activities in the area of robotics, AI and Machine learning. He underlined the importance to distinguish between AI, robotics and connected devices as only a few robots will use AI. He also explained different ways of learning (machine and deep learning) and programming and pointed to the possibility to freeze the system if it is considered sufficiently good or to shut it down if not. Now, training sets can be controlled and therefore the legal discussion should focus on the hardware which usually causes the damage.

The second speaker, Christoph Schmon (BEUC), presented the consumers’ perspective on liability. The current legal framework is not fit for digital technologies, he stated. Schmon explained aspects of the PLD which do not reflect technological developments: definition of liable person, burden of proof, development risk defence, concept of causality. In practice, it would be very difficult for injured consumers to retrace the way back from damage to a possible defect, even if the device was equipped with an event data recorder. Schmon stressed that even if the consumer gets access to an available data event recorder, he would be overwhelmed by the sheer mass of data. According to him, the development of principles on tort law which are fit for different forms of IoT-Systems would be challenging. He supported the concept of strict liability and called for a European working group.

In the following discussion Andrea Bertolini agreed that data event recorders would not solve any problem for the consumer, but could be useful for establishing liability ultimately between the different market players in the value chain. Together with some other participants he preferred a "one-stop-shop" solution where the victim only has to deal with one debtor, with the producer as liable person. The producer, he argued, is best-suited to analyse the data provided by the event data recorder and to prepare claims against third parties, like service providers. Also the operator was discussed as possible "one-stop-shop" for liability claims of victims. The participants seemed to agree that the proof of the defect might be very difficult for the injured party, especially when it comes to connected and complex systems.

The third cluster focussed on liability and cyberattacks. Susanne Bieller (EUnited Robotics) and Renaud Di Francesco (Sony) gave an informative overview of new challenges and possible options to protect autonomous systems and advanced robots against unwanted external interventions.

Dirk Staudenmayer (Head of Unit DG JUST A2) in his conclusion thanked all the participants. He concluded that the workshop had shown the importance of liability issues in the context of smart autonomous systems and advanced robots/IoT and the need to further analyse the potential challenges to existing liability regimes arising from these technological developments.