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Mr Chairman, ladies and gentlemen,

I am very grateful to have been given the opportunity to take part in this excellent forum and to contribute to this panel on risks of AI-networks.

By way of a brief introduction to my background: the Saarland University's main focus is on Informatics as well as on disciplines which are relevant to Information Technology. In addition, the Saarland University's campus is home to two Max-Planck-Institutes and to the German Centre for Artificial Intelligence. Legal aspects of AI are currently one of the main fields of interest of my Institute.

At this moment, AI is a really hot topic in Germany and it is a topic which interests research, business and those in politics equally. Autonomous cars are of particular interest in Germany, of course. The strategy of the German Federal Government is summarised in the so-called Digital Agenda 2025, which is available on the Internet. The current discussion gives special attention to the initiative of the European Parliament of February this year on the civil law regulation of autonomous systems.

When we talk about the risks of AI-networks, we must first establish what the unique aspects of AI and AI-networks actually are.

From a legal perspective, the essential characteristic of AI is the autonomy which it enables. The autonomy becomes evident when a system equipped with AI, a so-called autonomous system, carries out an action. Such an action can be of a physical nature; such as, driving or producing; or of a legal nature such as ordering goods.

To me, the unique characteristic of an AI-network is the interaction of an autonomous system. The specific risks of AI-networks can therefore be described as those risks which arise from the interaction of autonomous systems.

There are various types of risks, of course, and, from a legal perspective, I would like to summarise them in three categories.

- Autonomous systems can cause damage, for example as a result of an accident involving an autonomous car.

- Legal dealings can lead to undesired commitments, for example the ordering of goods which are not required.

- Autonomous systems can breach statutory provisions, for example through criminal statements on the internet or driving too fast and so on.

From a legal point of view, there are different ways of minimising these risks. I can only add some keywords here.

- Various methods of compensation for damages caused are currently being discussed. Ideas which have been put forward include communitarisation, the establishment of compensation funds or compulsory insurance and, in particular, questions of civil law liability. An aspect under particular consideration is the question of strict liability and exactly who is liable then: the operator of an autonomous system, its user, or the producer of the product?

State supervision of autonomous systems is necessary but it is not yet clear in which areas it should be implemented. It is not contentious that it should extend to the safety of autonomous cars but should it also extend to all types of autonomous systems, including robots used in industry or smart technology in our homes?

The avoidance of breaches of statutory provisions by autonomous systems must be incentivised by the law. The duties to control a system placed on users, operators and manufacturers will play a much larger role in the future than is currently the case with conventional machines.

We need new legal instruments which will supplement the instruments which already exist. So, with regard to machine learning, the education and guidance of self-learning systems must be regulated by law. There must be standards for the specification of machine learning as well as clear obligations on intervention in order to prevent damage.

Further, we should consider whether Robots can themselves be addressees of legal provisions. Some colleagues are considering whether Robots can be held criminally responsible. The European Parliament is going as far as to examine whether Robots can be entitled to legal rights and be given the status of an e-person. My personal view is that we need to develop a system of statutory provisions which apply directly to the autonomous system instead of its operator only. These concepts, which would massively change traditional legal thinking, highlight the enormous challenges we are faced with from autonomous systems and AI-networks.

What kind of legal regulation of research and development of AI networks is required?

I am convinced that binding statutory regulations which govern the development, creation and use of AI-networks are necessary. Guidelines can support the development of such a legal

framework as they can provide assistance to the international organisations as well as to national legislators.

The establishment of guidelines for the development of autonomous systems and AI-networks however must conform to high standards.

The guidelines have to be recognised and accepted internationally and, in particular, their content must be sufficiently certain. They must be so clear that it is possible to derive binding regulations from them.

To give an example, a guideline dealing with accountability should clarify exactly what is meant by the term accountability for the research and development of autonomous systems as well as for the liability of the manufacturers, operators and users of such a system.

To sum up, the development of such guidelines, which can form the basis of binding statutory provisions, is no doubt a challenging task but one which, to my view, is well worth the effort.

Thank you very much for your attention.