Dr Aysegul Bugra, Matthew Channon, Dr Ozlem Gurses, Dr Antonios Kouroutakis and Dr Valentina Rita Scotti – Written evidence (AIC0051)

Response to the Call for Evidence of the House of Lords Select Committee on
Artificial Intelligence

The Respondents (in alphabetical order):
Dr. Aysegul Bugra, Director of NASAMER (Dr. Nusret-Semahat Arsel International Business Law Implementation and Research Center); Assistant Professor, Koç University
Matthew Channon, Lecturer and Ph.D Candidate, University of Exeter
Dr. Ozlem Gurses, Associate Professor, King's College
Dr. Antonios Kouroutakis, Assistant Professor, Instituto de Empresa
Dr. Valentina Rita Scotti, Post-doctoral Research Fellow, Koç University

The respondents submit this written evidence in their personal capacity.

Yours sincerely,

The pace of technological change

1. What is the current state of artificial intelligence and what factors have contributed to this? How is it likely to develop over the next 5, 10 and 20 years? What factors, technical or societal, will accelerate or hinder this development?

1.1. AI is currently rather at an experimental stage, but at the same time its progress is rapid. Its emergence in our daily life will be incremental and will strengthen its presence progressively. Thus, the mark of AI will be evaluated ex post (like the birth of the modern state with the Westphalian Treaties). Without doubt, the strict regulation of AI will hinder the development of AI, but the competition between the divergent regulatory regimes (ie in the EU, US, and in China) will accelerate its development. We foresee a development of AI in several fields. In the military sector, killer-robots and robot-interrogators will begin operating. Unmanned Aircraft Systems (UAS) or drones are already in use, and there exists a growing demand for non-military use of robots in the civil environment for a number of governmental functions like policing, border control, search and rescue, fire-fighting, ground traffic surveillance, and pollution control.

1.2. Furthermore, there is significant development of Advanced Drivers' Assistance systems (ADAs), along with Telematics, which are undoubtedly leading to safer roads and greater understanding of driving patterns, making it

both easier and cheaper to insure vehicles. This alongside the development of Connected and Autonomous Vehicles (CAVs), will have a significant impact on how vehicles are used and owned. This is a trillion dollar market being driven by the government, manufacturers and a number of technological startup companies, with the aim of making roads safer, travel easier whilst saving substantial amounts of money. CAVs are at a relatively early stage, with vehicles currently being tested at Level 3 (SAE International Standard J3016), with projects underway to introduce CAVs to the public (see in particular Volvo's 'Drive me' Project). In the next 20 years it is likely that a number of 'smart cities' will be developed, with CAVs being used as taxis rather than the public owning a car. Car Pooling is already beginning to take up, with a number of companies such as Bla Bla Car (from Axa) entering the market.

1.3. Robots are also used in medical procedures and operations such as in diagnostic systems, robot-assisted surgery and therapy, and rehabilitation systems; industrial robots are used in manufacturing sectors; and finally, there are service robots for personal and domestic use, such as robots that will help the elderly or take over household chores. The new developments will soon include robots for child-caring and sex-bots.

2. Is the current level of excitement which surrounds artificial intelligence warranted?

Impact on society

3. How can the general public best be prepared for more widespread use of artificial intelligence?

3.1. One of the most problematic impact is on human employment. Day by day we hear about AI being used for employers to perform the tasks that used to performed by human employees. This seems to be the greatest concern in the society for obvious reasons. Employers are likely to prefer to employ robots rather than humans is robots are employed more cheaply compared to humans. Moreover, robots are likely to be able to work longer hours than humans and thus, likely to be more productive. The question is whether AI will outperform humans at almost every cognitive tasks? The areas that AI are and will be used is the first issue that should be addressed. Is there going to be a restriction in terms of developing AI in a way replacing human power in employment? The answer to this questions may seem to be straightforward, however, restricting research will not be favoured by researchers. On the other hand, protecting human rights will have to be considered in terms of the employability of humans. Thus, some restrictions in terms of the areas that AI may be employed and the number of AI that will be permitted per employer will likely to be considered.

3.2. One of the most important ways in which the public can be prepared is in education, there are undoubtedly significant issues relating to the public's perception of AI. There is a wariness that AI will cause a threat to the general

public and it is important early on, to ensure that the public are aware of how AI is developed and how it will benefit daily life. Without adequate education, it is unlikely that AI will become popular amongst most of the public.

3.3. The use of AI may also affect the protection of the right to privacy and security, making the introduction of new laws necessary also in these fields for controlling AI activities related to sensitive data and for sanctioning any violations that may occur. Finally, it cannot be ignored that the development of AI and of robotics may produce also the need to legislate about whether they should have legal personality, as was suggested in the European Parliament Committee on Legal Affairs Draft Report (with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)) dated 31 May 2016 (hereinafter referred to as the 'EP Report').

3.4. A regulatory intervention will therefore be unavoidable in order to safeguard social cohesion put in danger in case AI will replace human activities without rules aimed at controlling it. This risk will particularly arise with respect to robots that will operate in households and will have direct interaction with people. For instance the emergence of sex-bots designed to replace sexual activities among people may have the following double effect: as they will be provided to their owners for sex without the need for consensus, this may have an impact on the owners' perception of consensus for sex, which consequently may alter their interaction with their potential partners, and in longer term may accordingly also affect the reproductive cycle, due to the fact that people may start finding it easier to buy sex-bots than to search for a partner. Similarly, we submit that specific regulation will also be required regarding household robots that are used in child or elderly-care as they are expected to affect the social skills and attachment patterns of the part of the population that will receive such care.

4. Who in society is gaining the most from the development and use of artificial intelligence and data? Who is gaining the least? How can potential disparities be mitigated?

4.1. The answer to the first question is very broad. The use of AI may be little more than a minor nuisance if your laptop crashes or gets hacked, or it becomes all the more important if an AI system controls cars or airplanes or automated trading systems. It is questionable if an AI can perform a medical surgery or defend a criminal at a court or decide on a case as judges do. Whilst in some areas humans can easily be replaced by AI some others do not seem to be as open to AI. AI can be programmed for some tasks which are performed more or less always in the same way – as routine tasks. For instance, lifting and carrying heavy materials. They can be designed to carry them in some certain orders, to stop when needed and carry on when needed and delivery at the destination. On the other hand, an AI is unlikely to be able to negotiate an agreement or bargain or enter into any type of discussions in which - as the saying goes - one

conversation leads to another. Disparities are unavoidable in terms or the use of AI.

4.2. Entities such as insurance companies and companies able to generate and process big data will particularly gain as they will be able to foresee consumers' reactions and choices. This will strengthen their share in the market economy at the expense of a competitive market economy. Such potential benefits could be mitigated with the strengthening of the regulatory power of the competition authorities.

4.3 There is nothing to say, however, that all of society cannot benefit significantly from the use of AI. Particularly with regards to CAVs. For example, one particular positive in relation to CAVs is in relation to the environment. Current conventional vehicles cause significant environmental pollution, however, with CAVs the environmental damage caused by vehicles will almost certainly significantly be reduced. Moreover, benefits should be felt throughout the economies with CAVs, by reducing accidents by up to 90 percent, there are significant financial savings to be made, for example in hospitals, where there will be less people injured as a result of road accidents.

Public perception

5. Should efforts be made to improve the public's understanding of, and engagement with, artificial intelligence? If so, how?

5.1. This is inevitable. Considering the areas that AI is used, it is inevitable that the number of humans who either benefit from the service of AI or whose jobs are replaced by AI will elevate day by day. Humans have already been working with AI and as such areas will enlarge the need for public awareness on AI will be required even more heavily. One of the ways of increasing public awareness is the use of media – especially TV and radio shows by which it is possible to reach vast amount of people at the same time. At schools it may be necessary to introduce classes to teach the impact of AI to school pupils. That may also help them understand the professions which will be open to them and will not be threatened by AI or in which they can work with an AI.

5.2. Some care, however, needs to be taken to ensure that the public do not get negative understanding of AI. For example in relation to CAVs there is potential that every accident that occurs will get widespread media coverage, causing negative public perception. Whilst freedom of media is important, it is equally important that media coverage is accurate, particularly when it is human fault rather than the fault of technology.

Industry

6. What are the key sectors that stand to benefit from the development and use of artificial intelligence? Which sectors do not?

6.1. AI will have a spill-over effect in most industries in the long term; however the ones that will immediately be affected are insurance, manufacturing (some manufacturing tasks will be completely replaced by robots, and in other fields it is expected that humans and robots (cobots) will have a co-operative relationship), healthcare, transport (public and otherwise), start up technology companies, telematics and defense.
With respect to insurance of robots, the below points must be considered:

a. Robots as products and challenges in the product liability insurance sphere

6.2. Robots other than the ones having reached a level of autonomy whereby they could be granted electronic personality would fall under the scope of the Directive 85/374/EEC concerning liability for defective products. The Directive is however arguably not sufficient to cover the damages occasioned by the new generation of robots which may not have reached full autonomy yet which would still interact with their environment in a unique and unforeseeable manner as their adaptive and learning abilities increase. Between products of manufacturers in the traditional sense of the word and fully autonomous electronic persons, these semi-autonomous robotics could nevertheless be insured under product liability insurance policies. Moreover, robots can, for instance, cause moral damages arising from their prolonged interaction with people and liability systems together with the scope of product liability policies may accordingly be matters that would require further analysis.

b. Compulsory insurance

Employer's liability insurance

6.3. Robotics are used in work places and they increasingly replace human beings. Whether they are considered as employees akin to their human counterparts and having similar rights and obligations or as products will potentially depend on their level of autonomy. In several jurisdictions including the UK, employers are required to insure employees against personal injury and death that occur in the course of their employment. The question in the next few years will therefore be how employers' liability insurance will apply in the form of insuring robotics as employees. It is likely that employer's liability insurance will not apply to AI. However, some other types of insurance which have already been developed in the insurance market may do. It will be necessary to identify what type of insurance will be required by the employers who employ AI.

Public liability insurance

6.4. It is likely that an AI will perform its tasks which are programmed by a human. If an AI causes damage to third parties the human in question will need public liability insurance. The EP Report proposed a registry for fully autonomous robots, a compulsory insurance scheme whereby producers or users of robots would have to take out insurance cover, the establishment of a compulsory

insurance fund for any third party loss caused by uninsured robots where donations for the development of robotics could also be made. These proposals would be relevant if the UK seek to attempt to regulate public liability insurance for fully autonomous robots.

Motor Insurance
6.5 As with current conventional vehicles, CAVs will need to be insured on roads and all public places when they are being used to ensure that victims of road accidents are adequately compensated. This presents a significant challenge as liability will often shift away from the driver's insurer to the manufacturer's insurer, causing significant future legal dilemmas. The proposed UK system in the Automated and Electric Vehicles Bill of a 'dual insurance' system, whereby both manufacturer's and driver's insurance fall within one policy is a potential solution to this. There are, however, a number of legal issues which arise, involving cross-border travel, liability chains and insurance scope which will need to be thought of in the future.

c. Fully autonomous robots and life insurance
6.6. An issue that can possibly arise in the future is whether it could be possible to provide insurance cover on the 'life' of artificial intelligence machines. This possibility currently transcends the borders of traditional life insurance policies. On the other hand it is anticipated that the recognition of fully autonomous robots as electronic persons could theoretically give rise to the query of whether, for example, people under the care of such AI machines could have insurable interest based on their ties of affection in the 'survival' thereof and therefore could take out life insurance policies on their lives. A tentative answer, if any, could lie in whether there can theoretically exist a degree of autonomy which could accord the abilities of thinking and hermeneutics to AI machines which is a query yet to be shed light upon. If answered in the affirmative, insurance industry would need to offer policies drafted specifically for insuring the lives of AI machines.

7. How can the data-based monopolies of some large corporations, and the 'winnertakes-all' economies associated with them, be addressed? How can data be managed and safeguarded to ensure it contributes to the public good and a well-functioning economy?
7.1. Data management and its product shall be "patented" for a certain and limited period of time like the drug patents. The patent of data management will be a win-win model for both the companies and the society, as the companies will have the incentive to manage data, and once they become patent free, then the society as a whole will benefit.

Ethics
8. What are the ethical implications of the development and use of artificial intelligence? How can any negative implications be resolved?

8.1. Undeniably, the use of services provided by robotics will impact on the employability of people. On the one hand, human workforce will be displaced in vast numbers, but also a reduction of human wages will occur. Notably, Bill Gates had proposed introducing "robot tax" to compensate for the loss of human jobs. This has a potential of discussing a new form of positive rights in the form of an entitlement to the profits from the robots' workforce.

8.2. Besides the possible challenges to security and employment, there is also the risk that the cohabitation with robots, having unlimited capacity of recording and processing data, multiplies the threats to the protection of sensitive information. The possibility that robots may modify, share or hide some personal data has a relevant impact in several fields, ranging from intellectual property (already challenged by the emergence of ITC) to the protection of sensitive States data and of personal data. The latter meaning that a violation of the right to privacy could occur. The robotics designers may have to develop procedures that will require valid consent to be given before the recording of personal data by AI machines.

8.3. Finally, a quite problematic use of AI is in times of war. For instance, killer robots which are in practice lethal autonomous weapons - like weapons of mass destruction - may pose a threat to humanity and violate internationally recognized rules in times of conflict.
Please refer to the response provided for Q11 for other countries' and institutions' approach to ethical implications of AI.

8.4. There are some perceived ethical issues in relation to CAVs with the 'Trolley Problem', the decisions to be made by the vehicle in determining who to drive into if the vehicle cannot stop. This ethical dilemma is largely overplayed, as it is often argued that the problem should not suffice if CAVs are developed safely.

9. In what situations is a relative lack of transparency in artificial intelligence systems (so called 'black boxing') acceptable? When should it not be permissible?

9.1. Black boxing safeguards tech privacy, however there is a need to strike a balance when a compelling state interest (such as in the case of the occurrence of a criminal offense, terrorism etc) requires transparency. The battle between black boxing and the state interest was revealed during the recent case before the US courts regarding the Syed Farook case, who was a terrorist using an iphone while the Federal Government wanted to access his phone.
It seems that there is a need for a special process before an independent tribunal that shall examine such cases in order to strike the appropriate balance between the protection of tech secrets and the state interest for law enforcement.

The role of the Government

10. What role should the Government take in the development and use of artificial intelligence in the United Kingdom? Should artificial intelligence be regulated? If so, how?

10.1. There are aspects such as the process of data, the black boxing, and insurance of robots that need regulation, as existing laws need to be adjusted and tailored to the challenges arising from AI. All the stakeholders must be represented and engaged in any effort toward regulation of AI, namely NGOs (representing consumers and disabled), municipalities, black box producers, autonomous vehicle manufacturers etc.

10.2. The UK Government's response to CAVs in particular has been positive, particularly with regards to insurance regulation. It is clear that the Government is taking on board views of all to ensure effective insurance regulation and this is seen in the Automated and Electric Vehicles Bill.

Learning from others

11. What lessons can be learnt from other countries or international organisations (e.g. the European Union, the World Economic Forum) in their policy approach to artificial intelligence?

11.1. One of the questions that will have to be tackled in the future is whether autonomous robots shall have 'electronic personality' and should be registered. These issues were addressed in the EP Report. Moreover the European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)) highlighted the points of liability, intellectual property rights and the flow of data, ethical principles, research and innovation, standardisation-safety-security, human repair and enhancement, and environment.

Several State jurisdictions, such as the USA, Japan, China and South Korea are considering, and to a certain extent have already taken regulatory actions with respect to robotics. For instance South Korea released a robot ethics charter in 2007 and approved the Intelligent Robot Development and Supply Promotion Act in 2008. Furthermore the German Federal Ministry of Transport and Digital Infrastructure published a Report on 20th June 2017 on the ethics of Automated and Connected Cars.

2 September 2017