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Robotics and law: Key legal and regulatory implications of the robotics age (Part I of II)

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A B S T R A C T

In this edition, we explore some of the legal, regulatory and ethical implications of robots and robotic systems and applications. We begin by giving our view of why this emerging technology will become increasingly prevalent and why it is important that lawyers and regulators play an important role in its development. We go on to address the key legal, regulatory and ethical issues in respect of specific types of robotics, including automated vehicles and healthcare robots. We also focus on the impact that robotics will have on core legal practice areas, including data protection, intellectual property, consumer protection and commercial contracting. Our objective is to identify the key legal and regulatory implications of robotics, and to start a dialogue about how our existing legal framework might need to adapt and change to meet the demands of the robotics age. In the next edition, we will continue our focus on key legal issues in respect of different types of robotics and core legal practice areas relevant to the discussion.

Guest Editorial – David Bisset, Founder of Itechnic LTD**

Robotics and autonomous systems is being hailed as the fourth industrial revolution. Its impact will be felt more widely than either the computer or communications revolutions that preceded it. This special edition explores this impact in the context of the law and the role the law will have in shaping products and services that employ robots and deliver autonomy.

While the computerisation and widespread communication of data has transformed and disrupted various industries, the addition of systems able to make autonomous decisions, build knowledge from unstructured data and act physically in the world has the potential to be highly disruptive, both of existing value chains and through the creation of novel and innovative products and services. Mixing this technical disruption with economic and demographic pressures and changes to the global flow of trade the effect of autonomy and robotics will be far reaching: in the home, at work and in our cities, hospitals, farms, supermarkets and in the infrastructure we rely on.

There are indications that people are becoming less trusting of technology, more wary of its long term impact and particularly so of "AI"-based technologies that appear, or are portrayed as, intrusive and controlling. They are beginning to understand that their personal data is valuable and that it can be used profitably by others. Robots will be able to collect data

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and more importantly contextualise it, on a scale never before possible. In return we will be offered new kinds of services that filter choices, interact sympathetically and reduce complexity. Robots will become the tools that we use to increase productivity, utility and efficiency; robot vacuum cleaners have already saved millions of hours of time. But within this there will be a digital divide, work patterns will favour flexibility and those that can retrain, products will persuade, perhaps unethically, and autonomy will replace human centred services based on cost alone. User acceptance will be critical to uptake and acceptance will be based on trust.

Effective law and regulation create trust, and for robotics to grow and develop trust will be an important commodity: trust in brands, trust in functions, trust in privacy, trust in a fair market. While current legal frameworks are robust enough to handle some of the challenges that autonomous and robotic products and services will bring, they will need to adapt and develop to respond both to new areas of commerce, government action and personal choice.

Robotics and autonomous systems are at very early stages of development and it will be at least a decade before the full extent of this impact is felt. Yet we can see now the first stages of this revolution; how it will change travel, how we are cared for and how we work. The technical impact cannot be treated in isolation; there will be an accompanying socio-economic impact: on value chains and on people. With these changes comes an expectation that the law will protect and regulate. This special edition begins to set out how that might happen and where the focal points of change might be.

1. Introduction

Like all new technologies, robotics will go through a series of stages before it eventually becomes mainstream.

As of now, 2016, this new technology is in the midst of rapid growth, rapid advancement, huge public interest, spurious reporting and a general lack of appreciation as to its capabilities.

From the sensational headlines of 'Killer Robots will destroy Humanity' to more mundane matters of software programmes which replicate previous human tasks and thus replace a person inputting data, the robotics industry is at a nascent stage of development and understanding.

This is precisely why it is now that legislators, regulators, scientists, philosophers and anyone else who is interested need to understand the importance to the future development of society of such technologies and the inherent dangers associated with some of the disciplines that contribute to the general definition of 'robotics'.

It is not very long ago that computers were seen as machines that boffins played with in the basements of big government buildings and therefore were of little, if any, relevance to the way people lived their daily lives.

Spring forward to the mid-1990s and you have the development of the home PC, networked computing, the internet and e-commerce. These, coupled with later developments around mobile technologies and social media, have completely changed the way we communicate, the way we do business and the way we access information.

Traditional industries – publishing, advertising, banking – have all been affected to a greater or lesser degree and some been changed forever, for example the music industry. New industries have been created and giant companies established in less than a decade (Google and Facebook, for example).

Robotics will have a similar impact. No longer will robots just sit in fixed positions and build cars – they will interact with humans in the workplace, at home and generally. It is the ambitious aim of our special publication on robotics and law – spread across two editions – to set out some thoughts and guidance as to where such developments will have the greatest impact and deal with how the legal system will need to adjust.

Let us not forget that law has traditionally been quite slow to deal with technological developments – which is hardly surprising given the time it takes to develop good 'law' as opposed to the ever increasing speed with which the digital world is changing. This is not to say that English law, for example, does not have the capacity to deal with new technologies from their inception, because the laws of contract and tort have been developed over hundreds of years to deal with new concepts very easily. This capacity will remain but, of course, where case law cannot develop quickly enough to deal with new situations, then statute and regulation will be required.

The debate has just started and our hope is that it continues and expands in order that the undoubted advantages that robotics technologies will deliver will not be outweighed by the challenges and dangers that will present themselves.

1.1. *What is a robot?*

The definition of a 'robot' as set out in Oxforddictionaries.com is as follows:

> *"A machine capable of carrying out a complex series of actions automatically, especially one programmable by a computer".*

This definition makes it clear that we are talking about a 'machine', which could be anything from a software program to a fully humanoid shaped 'device', just so long as it performs a task or series of tasks automatically without the need for human control or guidance.

There is another definition, however:

> *"A machine resembling a human being and being able to replicate certain human movements and functions automatically".*

This is the more popular understanding of what a 'robot' is but, with reference to the above, it does not tell the complete picture.

Some financial services functions are now performed by robotic software programs without a human being in sight. This function is no less 'robotic' than a humanoid shaped robot answering the telephone with a standard set of responses – all it requires is for the robot to act automatically time and again within its given parameters and in response to external events.

Robots, therefore, have been around for years. The recent raft of publicity, however, is centred not on robots *per se* but on the way that we, as humans, will begin to interact with them. The more technologically advanced the robot is, the more