

PRODUCT LIABILITY

OCTOBER 2018

IN THIS DOUBLE ISSUE

Understanding the integration of artificial intelligence and the Internet of Things and their application to U.S. product liability litigation is critical to the defense of modern products. Increasing connectivity has blurred the lines between the seller of a product and the end user, creating the potential for a post-sale hybrid duty based on the access to information and the ability to act to protect the consumer. Understanding the implications of this technology is the first step to preparing your defense.

Also in this issue, the acceleration and increasingly complex nature of the robot and artificial intelligence market have caught the attention of the European Union, prompting it to launch a survey among Member States with a view to drafting specific regulations and even creating the concept of legal personality of robots. Below is a brief overview of the future legal obligations that have been suggested at a European level and of the discussions that are currently raging.

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Introduction to AI and IoT Issues in Product Liability Litigation

ABOUT THE AUTHOR



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"Robots cannot be sued."¹

I. Artificial Intelligence: What's New is Old.

Product liability litigation has always focused on the functions and feature of the product. From the initial design to the warnings and instructions for use that accompany a product, every aspect has been scrutinized in the eyes of the law. Industrial machines have integrated programmable logic controllers ("PLC") with relays, interlocks and light sensors for decades. In many machines the

PLC decides what action to take based upon its programming and the input received from sensors. These "logic" systems operate on virtually every mechanized product available today from punch presses to the most advanced automobiles. From basic input decisions such as keyless entry on an automobile and interlocking gates on a press to more complex decision making such as voice recognition, programmable logic systems have advanced to a level where the actions taken by these machines appear to mimic human comprehension as opposed to the designed, pre-programmed actions they

¹ *United States v. Athlone Indus., Inc.*, 746 F.2d 977, 979 (3d Cir. 1984).

are. At some point in our history, within the last 20 years, the nomenclature used to describe this complex series of input driven “if-then” choices began to be described as artificial intelligence (“AI”).

Merriam-Webster defines artificial intelligence as a “branch of computer science dealing with the simulation of intelligent behavior in computers” and “the capability of a machine to imitate intelligent human behavior.”² Notice the definition of artificial intelligence describes it as a mere “simulation” or way to “imitate” human reaction and not self-consciousness. This distinction is critical in the eyes of product liability litigation. We, as a society, are not yet at the stage where a machine can be said to have cognition, independent thought or free will.³ Even the most advanced computer learning algorithms are just that, programs telling the machine what and how to learn. These programming choices define and determine how the computer will learn and what action it will take based upon the input

received. Science fiction movies often depict a futuristic dystopian society where machines advance past their programming to some form of independent thought. It seems that in every movie where the machines gain consciousness their first decision is to eliminate mankind, except when they have been programmed to first do no harm.⁴ This nuance, the ability to place restrictions on a program and ultimately control what action or inaction is taken, inevitably brings us back to the realization that no matter what science fiction writers tell us, machines that incorporate artificial intelligence are just that—machines capable of programming and control. Artificial intelligence is therefore a mere component part subject to the same scrutiny that exists within the traditional notions of product liability law.

The change in nomenclature from a PLC to artificial intelligence has been driven by both marketing efforts and the need to distinguish the increased complexity and

² <https://www.merriam-webster.com/dictionary/artificial%20intelligence> (last visited Aug. 12, 2018).

³ True artificial intelligence or decision making wholly independent of its creator runs afoul of the current notions of causation. See e.g. *Palsgraf v. Long Island R. Co.*, 248 N.Y. 339 (N.Y. 1928) In the context of our current artificial intelligence capability, it is the machine’s design, or more precisely, that of its programming that informs the action. That said, if artificial intelligence advances past the programming into an unknown and truly independent act, how then can we blame the creator for the independent acts caused by this artificial intelligence? Commentators have suggested the law bend the notion of causation allowing for variations of responsibility known as the “Turing Registry.” Curtis E.A. Karnow, *Liability for Distributed Artificial Intelligences*, 11 Berkeley Tech. L.J. 147, 175 (1996). While such proposals provide a solution to a specific problem they also create the

inevitable slippery slope of liability and causation. If we allow the creator to be even partially responsible for the independent acts of the product, then what is to stop us from imputing liability to third parties for the poor decisions made by natural intelligence as a result of bad input (i.e. parents, teachers, bullies etc.).⁴ Compare *The Terminator* (1984) with *I, Robot* (2004) and *Bicentennial Man* (1999) wherein the latter use the application of The Three Laws created by science fiction author Isaac Asimov as a pre-programmed design feature to prevent harm. The Three Laws state that a robot may not injure a human being or, through inaction, allow a human being to come to harm. Further, a robot must obey the orders given [to] it by human beings except where such orders would conflict with the First Law and that a robot must protect its own existence as long as such protection does not conflict with the First or Second Laws. Asimov, Isaac, *Runaround* (1950).

sophistication in the “intelligent” selection these machines are programmed to make. This is distinguished from machine learning, which is using the programming and input data to create predictive models to mimic the human decision making process. Regardless, whether the program is described as a logic system, artificial intelligence or machine learning, it is just another component part of the product in the eyes of the law. Thus, it is just as susceptible to failure as a door latch or to problems caused by the inadequacies of an instruction or warning. The scrutiny artificial intelligence receives is no different than any other product liability claim. As a result, the defense of such products follows the traditional model requiring an understanding the design aspects of the artificial intelligence, the input received, and how the machine is programmed to react to such input. However, such information is not as readily observable as a fractured gear, a failed relay or an omission in an instruction manual.

The decision making process or “intelligence” of such machines is wholly dependent upon the information or input received. Just as humans require information and historical experience to form a judgment and make a decision, so too do today’s “intelligent” machines. The design of the intelligence can create a technological challenge for attorneys defending such products just as the programming language of the PLC did decades ago. Programming changes, input storage and static memory in a product

utilizing artificial intelligence create the same discovery hurdles litigators have grappled with throughout the history of product liability litigation. Just as metallurgists are utilized to better understand defect claims of fatigue failure, so too are programmers used as consultants to review and interpret the data preserved. The only difference is the sheer amount of data available within the ever increasing complexities of programs utilizing artificial intelligence. These challenges have become even more complex with the advent of the Internet of Things (“IoT”), connecting each of these artificially intelligent products to the Internet and each other.

II. The Internet of Things: The Benefits and Perils of Connectivity.

The Internet of Things describes the connectivity and interaction of any device to each other and the Internet. In the consumer market, this includes everything from our smart phones and security systems to refrigerators and even lawn-mowers. Virtually every aspect of modern life is enhanced in some way by this ubiquitous connectivity which, at its core, involves the receipt and transfer of information. Estimates range from 26 to 30 billion connected devices will be in use by 2020.⁵ The economic impact of IoT ranges from \$1.46 trillion to \$3 trillion during the same time-frame. As such, legal issues deriving from these connected products will play a role in the prosecution and defense of virtually every product liability matter involving machines going forward. We are

⁵ MacGillivray, Carrie, Worldwide Internet of Things Forecast Update, 2015-2019, International Data Corporation (IDC), February 2016.

already seeing the dramatic impact these connected products can have in litigation scenarios across a wide range of cases. It is commonplace to utilize smartphone data to determine the location of individuals (or at least their phone) in automobile accident cases not to mention family or criminal law. Personal consumer devices track virtually every aspect of an individual's life from where they are, how fast they are going, how many steps they take and even their heart rate. Consider the usefulness of such data when defending a personal injury case involving significant medical limitations. While the testimony of the injured party and the retained physician may reflect a sedentary life, the individual's smart phone and fitness tracker paint a much different picture. Such data has become the DNA evidence of civil litigation. Jurors trust the output of the electronic devices and unlike DNA evidence, most, if not all, jurors have firsthand experience with such devices.

In the business environment, examples of how IoT has infiltrated the courtroom are equally as pervasive. Onboard GPS data has been used for decades to determine a truck drivers compliance with Department of Transportation regulations and to make employment decisions. Now product manufacturers have the ability to remotely monitor a fleet of trucks and make recommendations in real time regarding fleet and individual vehicle productivity and maintenance. Such capabilities can allow a business to reduce its overall fuel consumption, avoid maintenance interruptions and failures and improve efficiency and productivity across a number of metrics. Such capabilities are no longer in the in the exclusive control of the end user

or purchaser of a product. Manufacturers have the capability to monitor the information to create sales leads, provide specialized and focused services to end users and to improve their products. Indeed, products utilizing IoT technology provide a wealth of information to those who know how to interrogate the code and analyze the output. While the utility of such information in the business setting is obvious, the question of who owns the data and who has a responsibility and/or duty to act on behalf of the end user is not. Therein lies the issue with connectivity.

From smart meters that monitor surges within the power grid to temperature sensors that can predict the overheating and failure of a component, these connected devices are in a place to provide more detailed and reliable data to litigators and the finder of fact. Further, often these connected products utilize artificial intelligence to take action or make decisions based upon the input received. For example your "smart" thermostat monitors the temperature and humidity in your house and adjusts the temperature according to the input it receives on your preferences and that of your family. Your connected irrigation system may decide not run if rain is in the forecast or if the ground is saturated. In today's connected world you can control the hue of the lighting in your home at different times of the day and even dispense a treat to your pet from wherever you may be (even your living room). In the industrial and manufacturing sector, these connections have much broader applications not only in supply chain and business to business interactions but with the end user. This direct connection between the product

manufacturer and the end user throughout the life of a product has never existed in our history nor have the broader legal implications created as a result.

While maintaining a comfortable temperature in our home is important to us personally, maintaining the proper temperature in a data center for a banking institution is critical to their business. Overtemperature events may result in catastrophic failures, loss of data, downtime and business interruption. When such events occur, who is responsible for the loss? Is it the end user who has a duty to maintain the products and monitor the temperature of the data center to avoid failure or the manufacturer who has access to the same or superior data? Similarly, while an unsightly lawn may make you the pariah of your neighborhood, the failure of a commercial farm's irrigation system may cost millions and destroy an entire crop damaging the livelihood of the farmers who increasingly rely on such technology. In such scenarios, litigation will ensue and questions will be raised on who had a duty to take action. These questions will turn on who had access to the information and what representations they made to the end user, if any.

IoT connectivity allows businesses to control a drill on an oil rig, monitor the location and status of a fleet of trucks, determine how much power is being used by a homeowner and inform the manufacturer of a product what service has been done and what service is required. This connection allows manufacturers to monitor the use, functions and status of their products and sell additional services to its customers to improve productivity, enhance the functions

of the products and avoid down time. From automatic updates to the software to troubleshooting mechanical problems, the ability of the manufacturer to interrogate and perform diagnostic checks on a machine owned by an end user has blurred the once clear line of when the product leaves the care, custody and control of the manufacturer. Indeed, the advent of this technology has fostered expectations that the sale of a product will include services to monitor and protect the end user from failures, expensive repairs and downtime. These developments create new legal implications for how a manufacturer advertises and sells their products and services. Consider, for example, manufacturers advertising that through IoT connectivity they "possess the same or better data than the customer." If true, what obligations exist on the manufacturer to act on the data? The answer may be none, however, what if the manufacturer claims to be able to "provide services based on data in real time" with access to "better data" than the end user? If the manufacturer is in possession of "better" information showing an eminent failure and is in a possession to divert a shutdown, do they have a duty to act? In the absence of a service contract one might conclude that no duty exists. However, with IoT integration many manufactures are touting their ability to predict failures and take proactive measures to reduce a customer's risk of down-time and business interruption. These representations are akin to marketing on the relative safety of a product. No in-house counsel would ever allow their marketing department to claim that a product could "predict injuries, take proactive measures to prevent injuries or mitigate those injuries"

for the simple reason that a manufacturer cannot insure against all unforeseeable act for the life of the product. As IoT becomes more ubiquitous, manufacturers will need to consider the potential implications created by marketing a machine's ability to use predictive modeling and artificial intelligence to avoid business interruption.

These questions are just the beginning of the impact AI and IoT will have on products in the industrial and consumer markets. As product manufacturers increasingly act as intermediaries between the end users data and the product, new duties could emerge. Further, the old duties of ensuring that a product is free from manufacturing, design and warning defects at the time it leaves the care, custody and control of the manufacturer may be extended as a result of this connectivity. The ability manufacturers now possess to gather and analyze a customer's critical information from their product post-sale and take action to avoid or mitigate loss will inevitably lead to questions concerning what, if any, duty to take action exists. While the robots cannot be sued, their manufacturers can.

Legal Regime Applicable to Robots and AI – What do Europeans Think?



ABOUT THE AUTHOR

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The age of domination by robots and other artificial intelligence (AI) has not yet arrived. However, their exponential development gives rise to a very high number of questions regarding the status they should be given in society, including from a legal standpoint.

Thanks to AI and advanced probabilistic and neuronal techniques, robots are already able to learn, grow in, experience, and influence their environment. It is impossible to deny the fact that in a few years' time, highly autonomous "humanoid" robots will assist human beings in all everyday tasks. For this reason, the European Commission has launched more than 120 research projects in the field of robotics under the supervision of SPARC – The Partnership for Robotics in Europe to make the European Union competitive on the global market.

Furthermore, the European Commission has announced the publication, by the end of 2018, of a code of ethics in response to a Statement on Artificial Intelligence, Robotics and "Autonomous" Systems by the European Group on Ethics in Science and New Technologies in March 2018. According to this Group, *"Advances in AI, robotics and so-called "autonomous" technologies have ushered in a range of increasingly urgent and complex moral questions. Current efforts to find answers to the ethical, societal and legal challenges that they pose and to orient them for the common good represent a patchwork of disparate initiatives. This underlines the need for a collective, wide-ranging and inclusive process of reflection and dialogue, a dialogue that focuses on the values around*

which we want to organise society and on the role that technologies should play in it."

As a result, now is the time to think about potential future problems. This is why European bodies have started to increasingly focus on these issues, launching lively societal and legal discussions.

The European Union's Ambition on the Question of Autonomous Robots

The European Union (EU) has very recently started to take an interest in the issue, in light of the extraordinary progress in robotics made easier by the development of surprising AI. Indeed, to prepare for and anticipate the development of "intelligent and autonomous robots", the European Parliament first adopted, on February 16, 2017, a resolution with *"recommendations to the Commission on Civil Law Rules on Robotics."*

In this resolution, the Parliament expressly requests that the Commission submit a proposal for a directive on civil law rules on robotics, including the creation of *"a specific legal status for robots in the long run, so that at least the most sophisticated autonomous robots could be established as having the status of [responsible] electronic persons."* The European Parliament has thus decided to encourage a significant overhaul of the applicable laws in European countries and enable the creation of a "robotic personality".

Furthermore, the Parliament is urging the Commission to adopt a common European definition of the different categories of robots, to create a robot registration system

for traceability purposes and a dedicated European agency. A *"Charter on Robotics"* is also mentioned to lay down the basic *"ethical principles to be respected in the development [...] of robots."*

The European Parliament defends the idea that the question of "intelligent and autonomous robots" has to be settled at a European level so as to *"ensure the same degree of efficiency, transparency and consistency in the implementation of legal certainty throughout the European Union for the benefit of citizens, consumers and businesses alike"*.

How Could the "Robotic Personality" Suggested by the EU Translate?

If the EU decides to sanction the principle of a "robotic personality", this new status will have to be defined with a complete set of rules. In such a case, robots would enjoy rights and have obligations; they could also perform a certain number of legal acts depending on their level of autonomy.

As discussed above, it is difficult to separate the concept of personality from the concept of liability; robot liability also has to be defined. However, the resolution provides that *"at least at the present stage the responsibility must lie with a human and not a robot."*

The European Parliament, in its resolution, calls on the Commission to *"establish a compulsory insurance scheme"* for owners of autonomous robots to be able to compensate victims in the event of damage caused by their robot. It also suggests the creation of a compensation fund, potentially

financed by designers and programmers, for cases where the owners of robots failed to take out insurance.

Lastly, the resolution calls for the mandatory registration of all autonomous robots placed on the market to ensure traceability and transparency where these robots would cause damage.

According to the EU, a "robotic personality" would be the ability for the robot to act economically and socially – but the robot's owner would have liability in the event it causes damage. The designers, manufacturers and other programmers would also be partially liable as they would participate in financing a compensation fund for the victims of robots.

A Lively Debate

Many European legal commentators are pondering over the necessity of new liability rules for robots. Indeed, according to some, the rules that already exist in the domestic laws of the Member States are sufficient to tackle the arrival of "intelligent and autonomous" robots.

In direct response to the European Parliament's resolution, a statement was published by over 150 political leaders, AI/robotics researchers and industry leaders, physical and mental health specialists and law and ethics professionals to criticize the adopted approach. In their view, "*creating a legal status of electronic 'person' would be ideological and non-sensical and non-pragmatic.*" The signatories of this statement, though

without suggesting a concrete legal approach, indicate that:

- *"A legal status for a robot can't derive from the Natural Person model, since the robot would then hold human rights, such as the right to dignity, the right to its integrity, the right to remuneration or the right to citizenship, thus directly confronting the Human rights. This would be in contradiction with the Charter of Fundamental Rights of the European Union and the Convention for the Protection of Human Rights and Fundamental Freedoms.*
- *The legal status for a robot can't derive from the Legal Entity model, since it implies the existence of human persons behind the legal person to represent and direct it. And this is not the case for a robot.*
- *The legal status for a robot can't derive from the Anglo-Saxon Trust model also called Fiducie or Treuhand in Germany. Indeed, this regime is extremely complex, requires very specialized competences and would not solve the liability issue. More importantly, it would still imply the existence of a human being as a last resort – the trustee or fiduciary – responsible for managing the robot granted with a Trust or a Fiducie."*

And yet, if one analyzes the works of French legal commentators, a lot of them believe that the liability rules for damage caused by others (children or animals) could be sufficient and be applicable to autonomous robots. Indeed, many consider that the legal rules applicable to robots could be

compared to those applicable to children in the sense that this type of liability is based on the principle that "others", robots in this case, do not have any analytical ability. In such a case, the owner will be considered to have authority over the robot and hence be liable. If we were to apply the legal rules for animals, the robot would be considered as having no awareness of the impact of its actions. The owner would then have the obligation to keep the robot and protect third parties from it.

As a result, there would not necessarily be any reason to establish new specific liability rules for robots. This keeps in mind that general rules are better than restrictive rules for innovation, research and development.

Others believe that the concept of personality is defined as the ability to have rights (right to an identity, right to live and right to dignity) and obligations. When a person fails to comply with obligations or denies the rights of others, that person's civil liability can be triggered leading to the obligation to compensate the damage caused and that person's criminal liability could even be established with deprivation of liberty being one of the potential consequences. The personality and inherent liability would be closely related to the human being. For personality to exist, there must be "self-awareness"; for liability to be established, there must be "moral awareness", which means that the person at stake must be able to grasp of the impact of his/her actions.

Based on this assumption, it is difficult to imagine, in the long run, a "robot-person". Indeed, a robot, even though autonomous,

is not aware of itself or of its actions. In spite of all the feats enabled by AI, the behavior of the robot, as human as it may be, will remain just that, artificial. Personality should, therefore, remain a singular trait of human beings. A specific AI personality, just like the moral personality of businesses, should hence be created.

There is robust debate concerning how the legal system should treat technology in the future, with everyone agreeing that the space occupied by robots in our daily life will only grow. The objective now is to find balance between complete exoneration of manufacturers and zero consequences in the event of misuse by consumers.

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