ARTIFICIAL INTELLIGENCE, ROBOTS & SELF-DRIVING CARS

WHAT IS IT?

Artificial intelligence, robots and self-driving cars are all sub-sets of an umbrella catch-all, automation. Automation - defined as the technology by which a process or procedure is performed without human assistance - has been around for years in the form of timer-enabled appliances, cruise control, Roombas and auto-responders for email campaigns. What's changed over the past 15 years, however is that technology advancements in the field of artificial intelligence have birthed a new generation of sophisticated automated machines such as self-driving cars, surgical robots and chatbots - capable of learning and refining performance based on prior input. As machines that impact our daily lives become intelligent, they test the limits of our existing laws and require an evaluation of whether new regulatory systems are necessary.

WHY NOW?

The rise of AI is fueled by two factors. First, and most obviously, technology advances drive AI but so too does big data which enables machines to learn faster and more effectively. At the same time, big data also creates demand for intelligent systems that can glean meaning from raw data. See *generally* J. Canton *From Big Data to Artificial Intelligence*, Huffington Post (7/5/2016). also the which in turn, have and drawn investor interest. A recent *Artificial Intelligence: The Next Digital Frontier*, McKinsey (June 2017) estimates that companies spent between $26 billion to $39 billion on AI systems in 2016, with highest adoption rates in high tech, telecom and financial services. The mobile robotics market is likewise poised for growth, with global spending on robotics (ranging from software and hardware to robotic receptionists and service providers) expected to reach $135 billion by 2019, according to Fortune (2/24/2016). Self-driving cars, whose performance is improved by AI (P. Els, *How AI Is Making Self-Driving Cars Smarter*, Robotics Trends (2016)) is also a growth market, with F10 million self-driving cars expected to take to the roads by 2020. See Forbes (3/3/20107). Finally, chatbots are another type of AI development gaining popularity. Chatbots are still in their nascency but use is expected to surge in the coming years. A 2017 survey reports that 80% of businesses want a chatbot in place by 2020.

KEY LEGAL ISSUES:

Tort & Products Liability: To date, most cases involving tort liability and robots are capable of resolution under traditional liability principles - with plaintiffs arguing negligent design or failure to warn and the manufacturer attempting to attribute blame to human factors - e.g. use of a product in a manner not intended. A recent lawsuit against Da Vinci, a robot operated by doctors through use of a joystick and employed in surgery is instructive. Trial Begins Over Allegedly Defective Robot, CVN.com (April 2016). The plaintiff - who was injured during hysterectomy surgery - argued that the company failed to warn her of FDA findings regarding DaVinci's dangers, or to take notice of the harm caused by the device in other cases across the country. The DaVinci manufacturers argued that the damage was caused by the plaintiff's failure to follow her doctor's instructions post-surgery. The case ultimately settled.

The results of NTSB's investigation into a fatality involving a self-driving Tesla suggest that until automated systems improve, both man and machine may share responsibility for injury. In the Tesla case, the car's driving manual states that the self-driving system should only be used on highways with clear lane markings and medians. The driver, however, did not heed this warning and when a tractor trailer crossed into the Tesla's lane, the system did not recognize it, causing a crash that instantly killed the driver. Nevertheless, NTSB concluded that the driver was not entirely at fault because Tesla's design lacked sufficient controls to compensate for user abuse. See NTSB Investigation of Tesla Autopilot Crash, Wired, 9/13/2017.

As robots and self-driving cars become more sophisticated, traditional tort principles may not be sufficient for resolution of claims. Consider, for example, a legal chat bot operating in accordance with rules developed by attorneys but that gives an inaccurate response to a user. Under tort law, the bot would not be liable for legal malpractice - but should it be? Consider further that the bot boasts of attorney involvement in development - does that representation heighten the standard of care? Once robots become sufficiently advanced that they can operate largely free of human interference, the issues raised with respect to liability may require a new paradigm for resolution. See e.g., R. Calo, Robotics and Lessons of Cyberlaw, 103 Cal. Law Rev. (2015) (arguing that existing tort law not capable of resolving future issues relating to robots); B. Browne, *Self-Driving Cars: On the Road to a New Regulatory Era*, Journal of Law Technology and the Internet (2017)(suggesting need for new regulatory regime to govern self-driving cars).

Robots & Copyright Law: Currently, robots are not eligible to hold copyrights. The latest edition of the Copyright Office's Compendium states that "[the office] will not register works produced by a machine or mere mechanical process that operates randomly automatically without any creative input or intervention from a

human author." Without copyright protection, works created by AI machines, for which the human author of the machine is not directly responsible, fall into the public domain. But Kalin Hristov argues that the Copyright Act is outdated and may limit the willingness of programmers and owners of AI devices to invest resources in the future development of AI if they cannot potentially gain copyright protection. See Hristov, *Artificial Intelligence and the Copyright Dilemma*, 57 IDEA 431 (2017).

Autonomous Vehicles and New Laws: For some innovation, new laws are needed to fill gaps and resolve uncertainty. For example, Wisconsin, Idaho and Virginia have all enacted laws allowing delivery bots to operate statewide. See Wisconsin Legalizes Delivery Bots, OnMilwaukee.com (June 23, 2017). On the other hand, in December 2017, San Francisco adopted rules that crack down on cargo and delivery bots: companies are limited to three robots a piece, with nine total for the City. Bots are also relegated to low population industrial areas, can't travel more than three miles and hour and require human monitoring. See Sa*n Francisco Made Things Much Tougher for Robotic Delivery Startups*, TechCrunch (12/07/2017).

Regulation of self-driving cars is far more complicated. Currently, DOT has issued guidelines and best practices for self-driving cars (See NHTSA Guidance (2017) - though this latest iteration has been criticized for removing best practices on privacy which earlier versions included. the General Accounting Office (GAO) also released a report entitled, Automated Vehicles: Comprehensive Plan Could Help DOT Address Challenges (November 27, 2017) which recommends that "The Secretary of Transportation should develop and implement a comprehensive plan to better manage departmental initiatives related to automated vehicles." Both the GAO report and a Congressional Research Service (CRS) Report on Issues in Autonomous Vehicle Deployment, (September 19, 2017) reference existing regulatory tools and model state policies to address challenges of self-driving vehicles.

Criminal Conduct: Last year in Switzerland, a chatbot was arrested, reported VentureBeat. The bot's coders deployed it to spend $100 in Bitcoin each week on the darkweb. As programmed, the bot returned counterfeit and illicit products which were displayed at a public auction, at which point the bot was arrested. The incident raises legal questions such as (1) are bot developers exempt from liability if ownership of the algorithm cannot be conclusively proven, (2) could bot developers be made liable for crimes committed by the bots if they can't convince the authorities that the codified avatar (bot persona) was acting autonomously or in the public interest and (3) could a bot develop artificial intelligence outside the developer's (original) control, such as while operating independently in open source environments and interacting live with humans who influenced its bad conduct or caused it to make bad decisions?

Data & Privacy: Because many AI-powered systems collect information from users (e.g., a medical diagnosis chatbot seeking information on symptoms) either to provide assistance or improve performance of the system, they raise the same privacy concerns as IoT devices. See Sections on IoT, Cybersecurity & Data Privacy.

Future Trends & Opportunities: AI-powered robots, chatbot and self-driving cars is still very much an emerging industry - and fully intelligent systems independent of any human intervention are still a few years off. For that reason, this is a great field to get involved in at the ground floor, with an opportunity to help shape the law as these technologies evolve. AI, Robots & Self-Driving cars also raise more complex questions that may require policy resolution - such as whether intelligent can operate with *mens rea*, practice law or medicine (and if so, will they need a license?) and similar issues.