Volume 1, No. 1 | January–February 2018

The Journal of Robotics, Artificial Intelligence & Law

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The Journal of Robotics, Artificial Intelligence & Law
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THE JOURNAL OF ROBOTICS, ARTIFICIAL INTELLIGENCE & LAW (ISSN 2575-5633 (print) /ISSN 2575-5617 (online) at $495.00 annually is published six times per year by Full Court Press, a Fastcase, Inc., imprint. For customer support, please contact Fastcase, Inc., 711 D St. NW, Suite 200, Washington, D.C. 20004, 202.999.4777 (phone) 202.521.3462 (fax) or email customer service at support@fastcase.com.

Publishing Staff
Publisher: Morgan Morrissette Wright
Journal Designer: Sharon D. Ray
Cover Art Design: Juan Bustamante

Cite this publication as:

The Journal of Robotics, Artificial Intelligence & Law (Fastcase)

A Full Court Press, Fastcase, Inc., Publication

Editorial Office

711 D St. NW, Suite 200, Washington, D.C. 20004
https://www.fastcase.com/

POSTMASTER: Send address changes to THE JOURNAL OF ROBOTICS, ARTIFICIAL INTELLIGENCE & LAW, 711 D St. NW, Suite 200, Washington, D.C. 20004.

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ISSN 2575-5633 (print)
ISSN 2575-5617 (online)

Everything Is Not *Terminator*

AI Today is the Wireless Industry in the 1990s

John Frank Weaver*

I frequently joke that I have two practices: really old law (dirt, real estate) and really new law (artificial intelligence and other forms of emerging technology). The primary area where these two practices overlap is the Internet of Things ("IoT") and wireless infrastructure, where clients acquire properties for wireless communications facilities, *i.e.*, antennas, and obtain the necessary permitting for those facilities. Expanding existing wireless networks in anticipation of 5G and the billions of expected IoT devices is a tremendous challenge,[1] but similar in many ways to the one the wireless industry first encountered in the 1990s, when the consumer cell phone market began to register broadly in public consciousness. Working in both the artificial intelligence ("AI") and wireless telecommunications legal fields, it is hard not to draw parallels between the wireless sector in the 1990s and the AI sector today.

Niche Technology Ready to Become Mainstream

In 1993, when Congress first started negotiating and drafting the Telecommunications Act of 1996 ("TCA"), approximately 16 million Americans owned a cell phone,[2] meaning they were used regularly by approximately six percent of the country. In other words, wireless technology was a niche market, with much of the use concentrated in the commercial sector. However, the technology's popularity was already taking off, and by the time President Clinton signed the TCA into law, 44 million Americans, 17 percent of the country, owned a cell phone.[3] Today, of course, almost everyone has a cell phone and the total number of wireless subscribers in the United States in larger than the actual population of the country.[4]

AI appears to be in the same position today. The commercial sector is an early adopter, with companies like Facebook and Google (among others) re-organizing their businesses around AI.[5]

Robotics, Artificial Intelligence & Law / January–February 2018, Vol. 1, No. 1, pp. 51–57.

ISSN 2575-5633 (print) /ISSN 2575-5617 (online)

However, consumers have not widely embraced the technology, as only 10.5 percent of people use AI regularly.[6] That seems likely to change as the functionality of AI-based applications available to consumers will continue to expand.

Businesses Laying the Groundwork for Growth

The growth of the wireless industry was predicted by the spectrum sales that began following the Omnibus Budget Reconciliation Act of 1993, which authorized the Federal Communications Commission ("FCC") to sell monopoly rights to radio spectrum via competitive bidding.[7] Wireless providers like Verizon and AT&T need those rights for their antennas and their customers' phones to properly receive and transmit signals. Between December 1, 1994, when the FCC created the Wireless Telecommunications Bureau ("WTB"), and March 5, 2002, the WTB conducted 45 separate spectrum auctions with a total of 21,853 licenses awarded and sales of nearly $42 billion recorded.[8] Anyone paying close attention to this activity would have realized that the companies making these investments expected widespread growth in the wireless field.

AI companies are engaging in similar activities and making similar investments in AI products. Google alone is introducing numerous AI-based products that suggest significant research and development and indicate the company expects serious interest from a large consumer market. Those products include:

- AI personal assistant products, like Google Assistant and Google Home;
- Google Maps' increased ability to analyze current traffic using location data from smartphones and offer faster routes; and
- Gmail's "smart reply," which analyzes the email chain you're reviewing to suggest brief responses, a function that potentially presages an inbox that responds to email for you.[9]

Additionally, Google, Facebook, Amazon, and other likeminded companies are spending big money to acquire AI talent and companies. For example, the top 20 AI recruiters are spending more than $650 million annually to hire skilled AI developers, while those same companies are making deals for AI startups like Amazon's nearly $20 million purchase of harvest.ai and Google's $500 million purchase of DeepMind.[10]

Autonomous technology companies, which rely on AI in their products, are also actively testing their products. Numerous cities, including San Francisco, Pittsburgh, Boston, and Austin, have self-driving cars undergoing tests on their roads.[11] And although Federal Aviation Administration ("FAA") regulations make it difficult to test (and impossible to operate) autonomous drones,[12] some companies have experimented with autonomous delivery drones in either rural, sparsely populated areas of the United States or in other countries where drone regulations are more forgiving.[13] In many ways, these investments are more significant and suggest greater market development than the wireless spectrum auctions in the 1990s.

Regulatory Development in Anticipation of Market Development

As noted above, the two primary federal laws that Congress put in place in the early and mid-1990s to govern the development and expansion of the wireless industry were the Omnibus Budget Reconciliation Act of 1993 and the Telecommunications Act of 1996. While the 1993 Act permitted the FCC to auction spectrum to enable the wireless industry's growth, the Telecommunications Act of 1996 gave increased authority to the FCC to regulate the industry. Among other things, it commanded the FCC to consider improving the efficiency of spectrum use and encouraging competition and providing services to the largest feasible number of users when managing the wireless spectrum.[14] It also specifically preserved local zoning authority for the actual siting of antennas and wireless infrastructure, subject to some limitations,[15] seeking to balance "the carrier's desire to efficiently provide quality service to customers and local governments' primary authority to regulate land use."[16] Numerous municipalities were eager regulators, enacting wireless communications facilities both before the TCA and shortly thereafter.[17] In some ways, this regulatory activity was disproportionate to the actual market impact of wireless communications, but it suggested that the market would get much larger.

Government activity and regulation affecting AI is on the same path today. The FAA is actively regulating drones, including prohibiting autonomous drones.[18] Five states, plus the District of Columbia, have enacted legislation to govern self-driving cars.[19]

Two states, Arizona and Massachusetts, have executive orders providing government guidance to autonomous vehicle developers that want to conduct tests in those states.[20] The U.S. House of Representatives recently passed legislation that would create the framework for regulating autonomous vehicles nationwide.[21] That legislation follows the 2016 report, *Federal Automated Vehicles Policy*, that the federal Department of Transportation published.[23]

In fact, 2016 was a big year for federal interest in AI. Although no regulations or statutes were enacted to specifically address AI, Washington spent considerable time and resources on the technology. The Obama administration created the Subcommittee on Machine Learning and Artificial Intelligence under the Committee on Technology of the National Science and Technology Council, authorizing it to "monitor the state of the art in machine learning and artificial intelligence (within the Federal Government, in the private sector, and internationally)… to coordinate the use of and foster the sharing of knowledge and best practices about machine learning and artificial intelligence by the Federal Government, and to consult in the development of Federal research and development priorities in machine learning and artificial intelligence."[23] Three separate high-level federal studies were released, addressing AI and the role states and Washington should have in governing the technology.[24] The Senate Committee on Commerce, Science, & Transportation held a hearing solely on AI, indicating this would be the first of many because of AI's expected importance.[25] This level of government interest in AI is similar to the interest numerous levels of government took in wireless technology in the 1990s.

Given the similarities between the two sectors, it is fair to expect innovation and growth in the market, but also significant regulatory and governing activity, in the next few years. This column will report on that activity and also advocate for it. As will be made clear in upcoming issues, we will likely need a federal statute, akin to the TCA, that sets the regulatory framework for AI and empowers a federal agency to appropriately regulate the industry.

Stay tuned.

Notes

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