

# **Competition and Consumer Protection Implications of Algorithms, Artificial Intelligence, and Predictive Analytics**

*Remarks at Competition and Consumer Protection in the 21<sup>st</sup> Century*

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## **Introduction**

Good morning and welcome to the seventh FTC hearing on competition and consumer protection in the 21<sup>st</sup> century. This is an incredibly important series of events, and we have fantastic panelists who have important and interesting things to say. It will help us create a record that will be useful for a long time to come.

Let me start by giving a couple of disclaimers. First, everything I say today in this brief introductory speech will be only my personal remarks, not necessarily the views of the Federal Trade Commission or any Commissioner. I also want to thank Howard Law School for hosting this event—it's a pleasure to be here. The other disclaimer I need to give is that this event is being photographed and webcast. It will be posted to the FTC website, and by participating in this event, you consent to these terms.

I thought I would start by talking briefly about why we are holding hearings on competition and consumer protection in the 21<sup>st</sup> century, and why we are doing a hearing on artificial intelligence. I know Professor Gavil mentioned this yesterday, and I'd like to echo the important educational purpose of these hearings. At the Federal Trade Commission, we are very much in study and learning mode on the issue of antitrust and its application to modern and developing technologies. We think debate and discussion are critical to the development of good competition policy in these areas. We recognize that we, like everyone in the world, have a lot to learn on these topics and a lot to consider. It is incredibly important to bring together thought leaders on these issues so we can have the kind of debate that will inform our decision-making.

Fact are critical; understanding is critical. When you are developing regulatory or enforcement philosophies, it's vital that you have a robust foundation in fact and a robust foundation in theory. As we began the process of putting hearings together and began surveying the antitrust landscape, one of the things that was immediately apparent was that there is a lot of discussion, but no collection of fact, thinking and theory that would enable the development of policy on the foundation that I just mentioned. Recognizing that the gap in the underpinnings of enforcement, Chairman Simons recognized one way to address this was to convene a series of hearings modeled on those that Chairman Pitofsky convened.

## **Algorithms, Artificial Intelligence, and Machine Learning**

Let me turn now to algorithms, artificial intelligence and machine learning more specifically. To say that there is a robust debate about the role these rapidly advancing technologies are playing in our everyday lives, in society at large, and in antitrust enforcement greatly understates the issue. A few days ago the New York Times quoted Facebook's founder as stating that in the next

five to ten years, Facebook will develop artificial intelligence that outperforms humans in all “human” senses, including cognition.<sup>1</sup> Data scientists at Google have made similar projections. If you read the book *Sapiens*, you will find at the end of it a discussion about whether or not humanity is on a path to replacing itself with some form of artificial intelligence, which has long been the source of fictional speculation in films like *Terminator*.

There is of course a lot of skepticism about this. One of the things I learned about artificial intelligence when I spoke at a conference in Brussels about a year ago is that there’s a lot of discussion among lawyers about the implications of artificial intelligence and algorithms, but nobody in the room understood how the technologies worked or what their capabilities were. In the course of that conference, one of the panelists referenced a paper by Kai-Uwe Kühn and his co-author Professor Tadelis discussing empirical work considering what algorithms and artificial intelligence are actually capable of doing.<sup>2</sup> At the time, that was considerably in tension with the views of the lawyers in the room, which may have been informed by *Terminator*. That reemphasized to me the importance of developing a foundation and understanding of what these technologies can do.

With that, let me discuss these technologies and their implications. When I talk about these technologies, I am going to use the term technologies broadly, but I mean to group algorithms, artificial intelligence and machine learning together. I recognize that doing that is inaccurate, that these are not the same things, though they arguably represent points on a continuum of machine approaches to solving problems. There are considerable differences between machine learning and simple algorithms, between different kinds of artificial intelligence, all of which may have different implications for policy. For the purpose of today’s brief remarks, however, I am not going to delve into those differences; I am going to treat them monolithically.

We heard yesterday from companies and experts involved in the technological side about how some of these technologies are used in the marketplace, and about some potential consumer protection implications that arise in this area. Today, we are going to talk more about competition policy. The first panel is going to consider whether algorithms can collude or might be able to do so in the future. We will have another discussion that talks about competition, innovation and market structure questions that revolve around the use of these technologies. Finally, we will have a panel that wraps up by talking about legal and regulatory issues going forward.

These are hot issues around the world, and I think it would be fair to say that 95% of upcoming competition law conferences involve, at least in part, panels on algorithms, artificial intelligence, machine learning, and the implications for antitrust policy. The U.S. antitrust agencies submitted a paper to the OECD competition committee last year that provides an overview and discussion

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<sup>1</sup> See <https://www.nytimes.com/2018/11/05/opinion/artificial-intelligence-machine-learning.html?rref=collection%2Fsectioncollection%2Fopinion&action=click&contentCollection=opinion&region=rank&module=package&version=highlights&contentPlacement=6&pgtype=sectionfront>.

<sup>2</sup> See Kühn and Tadelis, *Algorithmic Collusion* (2017), available at [http://www.cresse.info/uploadfiles/2017\\_sps5\\_pr2.pdf](http://www.cresse.info/uploadfiles/2017_sps5_pr2.pdf).

of some of our thinking on these topics, in particular on algorithms and collusion.<sup>3</sup> We noted in that paper that consumers have benefited a lot from these technologies, not just because they drive economic growth but because they provide low-priced services, higher quality goods and services, more choices, and innovative new products.

Is this a one-way street and are these technologies only beneficial? Is there a basis for competition policy concern? Clearly, there is. Despite the benefits these technologies can bring to consumers, it is easy to see the possibility that competitive dynamics could be put into play by the use of them. Let me discuss a couple of specific examples. First, is it possible that artificial intelligence could collude by itself? Imagine a situation in which machines are engaging in cognition. Is it possible that these machines could collude in the sense of explicitly agreeing on price, output, customer allocation, or market allocation? And if so, what does that mean for antitrust policy? For example, how does one put a machine in jail?

Second, and possibly of much more short-term significance, is it possible for machines to reach oligopoly outcomes more quickly or more sustainably than can humans? This is a small digression, but one of the foundational principles of merger policy is the prevention of mergers that would allow firms to acquire the ability to achieve an oligopoly outcome in price or output. What I mean by that is in a non-cooperative oligopoly, you could nevertheless have a situation of reduced output or increased prices, which moves toward a cartel or monopoly outcome. Because a relatively small number of firms can reach the conclusion that it is in their interest to restrict output or raise price, and the cumulative effect of doing so is beneficial to all, the payoff is good if market participants collude, even without doing so explicitly. This does not involve direct communication, meeting in the back rooms of restaurants in New York, like the book publishers did in the e-books case. It doesn't involve the kind of conduct for which you can go to jail. This is a large concern in merger policy, because once a merger occurs that creates this kind of condition, there is not much antitrust enforcers can do about it. Section 1 of the Sherman Act does not reach this, so we spend a great deal of time thinking about mergers that might enable that outcome to occur in order for us to prevent it. The question, then, is can algorithms collude in the sense of independently reaching an outcome that results in increased price or reduced output, and do it better than humans can?

A third possibility considers whether this technology could achieve or cement market power by enabling unilateral strategies, for example, by acquiring or destroying competitors before they become a threat? Is it possible that the use of sophisticated technology to survey the landscape to monitor activity will enable dominant firms to identify potential threats and extinguish them before they become real threats in some way that is superior to current human capabilities? If so, we would then need to consider what we can do about that.

A broad category also exists of other, unanticipated possible things that could occur, but about which we don't know yet. For example, could algorithms increase price discrimination? Price discrimination is not necessarily a bad thing; in many contexts, it is welfare enhancing, but it also may have other implications.

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<sup>3</sup> See Note by the United States, U.S. Department of Justice and the U.S. Federal Trade Commission on Algorithms and Collusion, DAF/COMP/WD(2017)41, *available at* [https://one.oecd.org/document/DAF/COMP/WD\(2017\)41/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2017)41/en/pdf).

If we assume any of these things do occur, we have to ask what we could do about it. Going back to the non-cooperative oligopoly point for a moment, let's assume that it is possible for algorithms independently to determine for each of their firms to pursue a pricing or output strategy that cause prices to rise or output to fall toward a monopoly or cartel-like outcome. But, again by assumption, each algorithm is simply implementing the most rational economic choice for the company using it at any given time. Is our solution for that to require companies to program their algorithms to behave irrationally or to make bad decisions? Is that a logical consequence of antitrust policy? Is it a necessary consequence? I raise that not because I think that is the right outcome or the actual set of choices we would have, but because I want to suggest that it is not enough to identify potential problems. We need to think about possible solutions and the implications of those solutions, assuming a problem exists.

Fundamentally, at this early stage in the development of these technologies, it is very difficult to see where this is going to go in the next ten or twenty years. We don't fully understand it today. That, in fact, is the purpose of the hearings on these issues. We want to determine whether these technologies are likely to sharpen competition, reduce competition, do both, or do neither, and how do we address those issues.

I also think there are grounds for caution here. We want to be very careful not to regulate or enforce without the kind of empirical, fact-based, theoretical framework I mentioned earlier. Ignorance is not a path to wise policy. I've read suggestions occasionally that we don't really understand artificial intelligence, we don't know what it is going to do, and therefore we should regulate it. That may be so in a sectoral regulator context, but I think it is terrible competition policy. What competition policy needs and what we have historically emphasized—and this is a point that former FTC Chairman Bill Kovacic has made—is that we need to do the R&D first before we develop policy.<sup>4</sup> That process is incremental, and we are always learning and iterating to improve what we do. But, we do not act before we have some understanding. Bill called it the R&D of competition policy and said it is part of the DNA of what we do in antitrust. It's critically important, and that is what these hearings are about.

## **Conclusion**

On that note, I thank our panelists in advance. The record this will generate will provide the foundation of the policies we need to consider in the future. I'm grateful to everyone for making the time to be here today.

Thank you.

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<sup>4</sup> See ANTITRUST SOURCE, Aug. 2008, 1, at 5, 17, *available at* [https://www.americanbar.org/content/dam/aba/publishing/antitrust\\_source/Aug08\\_FullSource8\\_6f.pdf](https://www.americanbar.org/content/dam/aba/publishing/antitrust_source/Aug08_FullSource8_6f.pdf).