

**Before the  
Federal Trade Commission  
Washington, DC 20580**

In the matter of

Competition and Consumer Protection  
in the 21st Century Hearings

Project Number P181201

**COMMENTS OF PUBLIC KNOWLEDGE**

*9. The consumer welfare implications associated with the use of algorithmic decision tools, artificial intelligence, and predictive analytics.<sup>1</sup>*

Consumer protection, fairness, and competition policy in today's digital economy require substantially stronger enforcement of antitrust law, more aggressive use of existing regulatory powers and new laws to fill in important policy gaps. Public Knowledge commends the FTC for launching this proceeding and a series of public hearings to examine competition and consumer protection in the 21st century, and today offers some initial observations and ideas to consider on the topics the Commission has identified as central to its inquiry. We will augment these ideas through our participation in Commission workshops and through follow up filings as the Commission refines the focus of its efforts.

The recent explosion in internet distribution of goods and services, growing dependence of democratic processes on nondiscriminatory and open digital communications platforms, and ongoing market dominance of entrenched media and communications companies makes it imperative for the FTC to become more vigilant and assertive to protect incipient and potential competition, to apply all qualitatively relevant elements to its consumer welfare analysis, and to update its consumer protection enforcement to reflect the complexities of the digital marketplace. As an expert agency with a specific mandate from Congress, it is also important for the FTC to inform lawmakers and the public of market imperfections and problems it lacks the tools and resources to address

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<sup>1</sup> Public Knowledge staff John Bergmayer, Allie Bohm, Ryan Clough, Harold Feld, Meredith Rose, Kory Gaines, Dylan Gilbert, and Gus Rossi contributed to the comments filed in this proceeding.

and to propose policy adjustments that would more effectively address inequities in the oversight of today's economy.

Today, we are highlighting a number of the complexities and issues regarding application of FTC authority to the digital economy and the exploding internet economy in response to the Commission's request for comment. Rather than delineate precisely what deserves treatment under antitrust, consumer protection or some new legal authority, we instead highlight many of the problems that deserve careful attention, definition, further analysis and refinement before precise policy action should be considered. We offer this as a first step because we believe:

- the explosion of the digital market calls first for understanding precisely what is going wrong and therefore deserves fixing;
- identifying what are the best policy tools available to fix the problems;
- evaluating how best to apply existing policy tools; and
- proposing new policy tools to address problems that fall between the gaps under existing law.

This document contains our comments relating to the consumer welfare implications associated with the use of algorithmic decision tools, artificial intelligence, and predictive analytics.

We look forward to working with the FTC and all other stakeholders to flesh out the details of the concerns raised in our comments and propose meaningful policy adjustments and enforcement practices to help the Commission fully protect competition and consumers in the digital marketplace.

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Pervasive data collection and advances in machine learning are enabling a boom in algorithmic decision tools, artificial intelligence (AI), and predictive analytics. Nowhere is that more apparent to consumers than in the context of targeted advertising. Predictive analytics allow a customized online experience for each individual consumer, and the data suggest that a majority of consumers prefer targeted advertising, because it reduces irrelevant ads, helps them to discover new, relevant products, and/or makes online

shopping easier.<sup>2</sup> Nonetheless, the popular support for targeted advertising may hide the downsides of algorithmic decision tools, artificial intelligence, and predictive analytics more generally.

There are several ways artificial intelligence may harm consumer welfare. First, it may facilitate higher prices and reduce competition. In some homogenous markets, vendors may be able to engage in tacit collusion through AI systems.<sup>3</sup> Algorithms can monitor prices and other terms of sale,<sup>4</sup> giving companies a more detailed view of the market in nearly real-time,<sup>5</sup> allowing them to adjust to market changes more quickly and reliably,<sup>6</sup> and diminishing their need to cut prices to stay competitive.<sup>7</sup>

Moreover, pervasive data collection allows companies to develop detailed profiles of their customers' psychologies<sup>8</sup> and willingness to pay.<sup>9</sup> This enables "personalized pricing strategies"<sup>10</sup> with precise manipulations of consumer choices.<sup>11</sup> These insights into, and power over, customer behavior ultimately may help firms maximize profit to the net detriment of their customers.<sup>12</sup> The potential of artificial intelligence to limit consumer choice is even greater with digital assistants, like Amazon's Alexa, Google Home, Apple's HomePod, and Siri. As consumers switch from web-based searches to digital assistants, they may do less comparison shopping, as digital assistants increasingly respond to queries

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<sup>2</sup> David Kirkpatrick, *Study: 71% of consumers prefer personalized ads*, MARKETING DIVE, May 9, 2016, <https://www.marketingdive.com/news/study-71-of-consumers-prefer-personalized-ads/418831/>.

<sup>3</sup> E.g. A. Erachi & M.E. Stucke, Note, *Algorithmic Collusion: Problems and Counter-Measures*, 25 OECD ROUNDTABLE ON ALGORITHMS & COLLUSION, 1, 6 (2017).

<sup>4</sup> *Id.*

<sup>5</sup> Maurice E. Stucke & Ariel Ezrachi, *How Pricing Bots Could Form Cartels and Make Things More Expensive*, HARV. BUS. REV., Oct. 27, 2016, <https://hbr.org/2016/10/how-pricing-bots-could-form-cartels-and-make-things-more-expensive>.

<sup>6</sup> Michal S. Gal, *Algorithmic-Facilitated Coordination: Market and Legal Solutions*, CPI ANTITRUST CHRONICLE, May 2017, <https://www.competitionpolicyinternational.com/wp-content/uploads/2017/05/CPI-Gal.pdf>.

<sup>7</sup> A. Erachi & M.E. Stucke, Note, *Algorithmic Collusion: Problems and Counter-Measures*, 25 OECD ROUNDTABLE ON ALGORITHMS & COLLUSION, 1, 6 (2017).

<sup>8</sup> Ryan Calo, *Digital Market Manipulation*, 82 GEO. WASH. L. REV. 995 (2014).

<sup>9</sup> A. Erachi & M.E. Stucke, Note, *Algorithmic Collusion: Problems and Counter-Measures*, 25 OECD ROUNDTABLE ON ALGORITHMS & COLLUSION, 1, 12 (2017).

<sup>10</sup> *Id.*

<sup>11</sup> Michal Gal & Niva Elkin-Koren, *Algorithmic Consumers*, 30 HARV. J. OF L. & TECH. 309, 324 (2017).

<sup>12</sup> Ramsi A. Woodcock, *The Power of the Bargaining Robot*, CPI ANTITRUST CHRONICLE, May 2017, <https://www.competitionpolicyinternational.com/wp-content/uploads/2017/05/CPI-Woodcock.pdf>; see also Michal S. Gal, *Algorithmic-Facilitated Coordination: Market and Legal Solutions*, CPI ANTITRUST CHRONICLE, May 2017, <https://www.competitionpolicyinternational.com/wp-content/uploads/2017/05/CPI-Gal.pdf>.

with a single response rather than a menu of options.<sup>13</sup> This is one example of a larger phenomenon that merits scrutiny: when algorithms determine what is “relevant” to a particular consumer, and consumers are unaware of the options they never see.<sup>14</sup>

This informational filtering can be particularly harmful for marginalized communities—for example, when employers consciously use amassed data and algorithms to keep older workers from seeing certain job postings,<sup>15</sup> or when landlords use data and algorithms to prevent racial minorities from seeing certain housing advertisements.<sup>16</sup> Even when humans are not intentionally aiming for such outcomes, the training data used to “teach” artificial intelligence often reflect entrenched historical biases, and artificial intelligence often magnifies those biases. For example, researchers at Carnegie Mellon and the International Computer Science Institute found that user “profiles . . . pegged as male were much more likely to be shown ads for higher-paying executive jobs than those . . . identified as female – even though the simulated users were otherwise equivalent.”<sup>17</sup>

As artificial intelligence is increasingly used to determine who sees a job posting or apartment listing, whose resume makes it through an initial screen, whether someone is offered a credit card, or what level of financial aid she receives,<sup>18</sup> the training data in these systems becomes particularly important. Artificial intelligence is taught correlation, not causation. A training data set that features CEOs of Fortune 500 companies, for example, is likely to privilege male job applicants. A training data set that features historical home loan

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<sup>13</sup> See Maurice E. Stucke & Ariel Ezrachi, *How Digital Assistants Can Harm Our Economy, Privacy, and Democracy*, 32 BERKELEY TECH L.J. 1239, 1268 (2017).

<sup>14</sup> Michal Gal, *Algorithmic Challenges to Autonomous Choice*, at !3 (2017).

<sup>15</sup> Julia Angwin, Noam Scheiber, & Ariana Tobin, *Facebook Job Ads Raise Concerns About Age Discrimination*, NYTIMES, Dec. 20, 2017, <https://www.nytimes.com/2017/12/20/business/facebook-job-ads.html>.

<sup>16</sup> Julia Angwin, Ariana Tobin, & Madeleine Varner, *Facebook (Still) Letting Housing Advertisers Exclude Users By Race*, PROPUBLICA, Nov. 21, 2017, <https://www.propublica.org/article/facebook-advertising-discrimination-housing-race-sex-national-origin>.

<sup>17</sup> Sarah Wachter-Boettcher, *Why You Can't Trust AI to Make Unbiased Hiring Decisions*, TIME, Oct. 25, 2017, <http://time.com/4993431/ai-recruiting-tools-do-not-eliminate-bias/>.

<sup>18</sup> Saranya Vijayakumar, *Algorithmic Decision-Making*, HARV. POL. REV., June 28, 2017, <http://harvardpolitics.com/covers/algorithmic-decision-making-to-what-extent-should-computers-make-decisions-for-society/>; Will Knight, *Biased Algorithms Are Everywhere, and No One Seems to Care*, MIT TECH. REV., July 12, 2017, <https://www.technologyreview.com/s/608248/biased-algorithms-are-everywhere-and-no-one-seems-to-care/>.

data is more likely to match Black and Latino borrowers to higher priced products, because historically, Blacks and Latinos have been targeted for riskier financial products.<sup>19</sup>

In short, absent conscious intervention, algorithmic decision tools, artificial intelligence, and predictive analytics are likely to discriminate against the same groups of people who have traditionally been discriminated against – racial and religious minorities, lesbian, gay, bisexual, and transgender people, women, low income households, and those with disabilities. Moreover, because many people assume that machines are immune from bias, the use of algorithmic decision tools, artificial intelligence, and predictive analytics is likely to obscure these biases, making them harder to confront and more dangerous to society and to consumer welfare.<sup>20</sup> For this reason, in addition to considering how to regulate and oversee training data, the Federal Trade Commission should consider when and how it may be necessary to encourage and/or require transparency for algorithms themselves, to lift the veil on opaque decision-making processes and enable consumers to better understand how algorithmic decisions are made and what predictive analytics say about them.<sup>21</sup>

Algorithmic decision tools, artificial intelligence, and predictive analytics hold great potential for consumers; however, there must be conscious intervention to ensure that these tools do not simultaneously increase and obscure discrimination, limit competition and consumers' options, and increase prices for consumer goods.

Respectfully submitted,  
Public Knowledge  
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<sup>19</sup> Gillian B. White, *Why Blacks and Hispanics Have Such Expensive Mortgages*, THE ATLANTIC, Feb. 25, 2016, <https://www.theatlantic.com/business/archive/2016/02/blacks-hispanics-mortgages/471024/>.

<sup>20</sup> Will Knight, *Biased Algorithms Are Everywhere, and No One Seems to Care*, MIT TECH. REV., July 12, 2017, <https://www.technologyreview.com/s/608248/biased-algorithms-are-everywhere-and-no-one-seems-to-care/>.

<sup>21</sup> See *Algorithmic Transparency: End Secret Profiling*, EPIC, <https://epic.org/algorithmic-transparency/> (last accessed Aug. 13, 2018).