CCIA Comments in Response to the Canadian Competition Bureau's Discussion Paper on Algorithmic Pricing and Competition

The Computer & Communications Industry Association (CCIA)[1] welcomes the opportunity to submit comments in response to the Canadian Competition Bureau's (CCB) Discussion Paper on Algorithmic Pricing and Competition (Discussion Paper) released for public comment on June 10, 2025.[2]

Algorithmic pricing, as broadly defined by the CCB, is the process of using automated algorithms to set or recommend prices for products or services, often in real time, based on a set of data inputs.[3] It is gaining worldwide adoption across various sectors and industries, both online and offline,[4] such as hospitality,[5] concert tickets,[6] and ridesharing.[7] Moreover, algorithmic pricing is an evolution in dynamic pricing, following a straight line back to coupon clipping and the "buy-two-get-one" specials that can be found in grocery aisles.[8] More recent iterations of algorithmic pricing are further automated through the use of artificial intelligence

[1] CCIA is an international, not-for-profit trade association representing a broad cross-section of technology and communications firms. For over fifty years, CCIA has promoted open markets, open systems, and open networks. The Association advocates for sound competition policy and antitrust enforcement. CCIA members employ more than 1.6 million workers, invest more than $100 billion in research and development, and contribute trillions of dollars in productivity to the global economy. For more, visit www.ccianet.org.

[2] Canada Competition Bureau, "Algorithmic pricing and competition: Discussion paper" (Jun. 10, 2025), https://competition-bureau.canada.ca/en/how-we-foster-competition/education-and-outreach/publications/algorithmic-pricing-and-competition-discussion-paper#sec02-3.

[3] *Id.*

[4] OECD (2023), Algorithmic Competition, "OECD Competition Policy Roundtable Background Note," at 11, www.oecd.org/daf/competition/algorithmic-competition-2023.pdf; The Danish Competition and Consumer Authority (DCCA) found that the number of job postings asking for staff with skills related to price algorithms in Denmark more than tripled between 2007 and 2018 (Danish Competition and Consumer Authority (2021), Prisalgoritmer - og deres betydning for konkurrencen (Princing algorithms - and their significance for competition), at 4, https://www.kfst.dk/media/yecpmmxu/prisalgoritmer.pdf.); The UK Competition and Markets Authority ('CMA') found that there was evidence of increasing use of pricing algorithms in offline markets, such as large supermarkets and the retail sale of gasoline (Competition & Markets Authority, "Pricing algorithms Economic working paper on the use of algorithms to facilitate collusion and personalised pricing" (Oct. 8, 2018), at 19, https://assets.publishing.service.gov.uk/media/5bbb2384ed915d238f9cc2e7/Algorithms_econ_report.pdf.

[5] *See, e.g.* KSolves, "Dynamic Pricing in Hospitality: Optimize Room Rates with Real-Time Data" (Mar. 12, 2025), https://www.ksolves.com/blog/machine-learning/dynamic-pricing-in-hospitality#:~:text=What%20is%20Dynamic%20Pricing%20in,making%20money%20and%20filling%20rooms ; The Globe and Mail, "Airlines increasingly using dynamic pricing for everything from luggage to legroom" (Jul. 25, 2023), https://www.theglobeandmail.com/investing/personal-finance/household-finances/article-airlines-dynamic-pricing-baggage-rates.

[6] *See, e.g.* Pricefx, Ticketmaster's Dynamic Pricing: What it is and How it Works" (Jul. 17, 2024), https://www.pricefx.com/learning-center/ticketmasters-dynamic-pricing-what-it-is-and-how-it-works#:~:text=At%20its%20core%2C%20Ticketmaster's%20approach,the%20number%20of%20seats%20available.

[7] *See, e.g.* CBC News, "Uber started using 'algorithmic pricing' in Canada. Is that a good or bad thing?" (Oct. 14, 2024), https://www.cbc.ca/news/business/uber-algorithmic-pricing-canada-1.7350399.

[8] *See,* National Bureau of Economic Research Working Papers, Aviv Nevo and Catherine Wolfram, "Prices and Coupons for Breakfast Cereals" (Feb. 1999), at 4, https://www.nber.org/system/files/working_papers/w6932/w6932.pdf/.

(AI), which can aid human decision-making in designing pricing recommendations without needing advanced technical expertise.[9]

I. General Considerations on Pricing Algorithms

Pricing algorithms are designed to improve the pricing process and leverage data for better decision-making. Such algorithms are widely used across a variety of businesses and industries, allowing for price optimization by analyzing factors such as cost, demand, and competitor pricing. Different variants of pricing algorithms include naïve methods, economic modeling-based tools, price-testing experiments, and advanced proprietary systems, among many others.[10] Algorithms can promote disruptive innovation that results in new and innovative products, enabling products and pricing that can be tailored to meet the specific needs of the consumer.[11]

As the Discussion Paper highlights, pricing algorithms can improve market efficiency and foster innovation, as they allow companies to manage their inventories more efficiently[12] and encourage disruptive innovation by helping new firms enter the market with better pricing strategies.[13] This results in greater choice and lower prices for consumers. While the Discussion Paper notes that there may be potential concerns associated with pricing algorithms,[14] such as the potential for enabling predatory pricing schemes, or hub-and-spoke collusion models among competitors using the same pricing algorithms or data sets, these risks are not inherent in or unique to pricing algorithms; instead the behaviors that could lead to potentially anticompetitive use of pricing algorithms are already addressed under existing competition law.[15] Collusive and

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[9] Maxime Cohen, Tim Spittle, and Jimmy Royer, "Assessing Algorithmic Versus Generative AI Pricing Tools," Law360 (Sep. 16, 2024), at 1 https://awards.concurrences.com/IMG/pdf/09_assessing_algorithmic_versus_generative_ai_pricing_tools.pdf?131922/42aebf21014630038a3aed75e8e56a345df8be22f4420b7791d9cd24a82f73e3.

[10] *Id.,* at 2. https://awards.concurrences.com/IMG/pdf/09_assessing_algorithmic_versus_generative_ai_pricing_tools.pdf?131922/42aebf21014630038a3aed75e8e56a345df8be22f4420b7791d9cd24a82f73e3.

[11] Mercatus Center, Cody Taylor, "The Case for Algorithmic Pricing: Consumer Welfare, Market Efficiency, and Policy Missteps" (May 14, 2025), at 7, https://www.mercatus.org/research/policy-briefs/case-algorithmic-pricing-consumer-welfare-market-efficiency-and-policy.

[12] Competition & Markets Authority, "Pricing algorithms Economic working paper on the use of algorithms to facilitate collusion and personalised pricing" (Oct. 8, 2018), at 20, https://assets.publishing.service.gov.uk/media/5bbb2384ed915d238f9cc2e7/Algorithms_econ_report.pdf.

[13] OECD (2023), Algorithmic Competition, "OECD Competition Policy Roundtable Background Note," at 10, www.oecd.org/daf/competition/algorithmic-competition-2023.pdf.

[14] *Supra* n. 2.

[15] Government of Canada, Competition Act (R.S.C., 1985, last amended on Dec. 2023), Section 45, https://laws.justice.gc.ca/eng/acts/C-34/section-45.html.

predatory behaviors are already illegal regardless of whether an algorithm is used. Moreover, the use of algorithmic pricing does not appear to increase the likelihood of said behavior occurring, and may in fact reduce the risk of such behavior.[16]

Accordingly, should competition concerns arise in the context of use of a pricing algorithm, those concerns are best addressed under existing robust competition laws, such as section 79 of the Competition Act.[17]

II. Procompetitive and Consumer Benefits of Pricing Algorithms

Algorithms provide many procompetitive benefits, and can create substantial efficiency gains and reduce costs for both supply and demand sides of a transaction.[18] On the demand side, they can reduce search costs by providing consumers with a range of suitable products with comparable information.[19] Price monitoring and AI product recognition tools help increase consumers' ability to consider more products, thereby increasing competitive pressures for suppliers to keep costs low. Pricing algorithms can likewise benefit the supply side by reducing barriers to entry for small entrants, thereby increasing competitiveness, and reducing costs through improved production processes and enhanced worker productivity.[20]

In many cases, this dynamic pricing also results in consumers receiving lower and more competitive prices for various goods and services. In addition to consumers using price comparison tools and dynamic pricing to help get the best deals at any given time, and can lead to targeted discounts for consumers, allowing them access to better deals.[21]

Dynamic pricing allows businesses to signal important information about the relative availability of products, offering customized pricing depending on specific consumer needs. Airlines have long relied on dynamic pricing to provide significant benefits for consumers.[22] For

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[16] Lea Bernhardt & Ralph Dewenter, "Collusion by code or algorithmic collusion? When pricing algorithms take over," European Competition Journal (2020), Vol. 16(2–3), at 312–342, https://doi.org/10.1080/17441056.2020.1733344.

[17] Government of Canada, Competition Act (R.S.C., 1985, last amended on Dec. 2023), Section 79, https://laws.justice.gc.ca/eng/acts/C-34/section-79.html.

[18] OECD, "Executive Summary of the Roundtable on Algorithmic Competition" (Jun. 14, 2023), at 3, https://one.oecd.org/document/DAF/COMP/M(2023)1/ANN4/FINAL/en/pdf.

[19] *Id.*

[20] *Id.*

[21] *See*, *e.g.*, OECD, Directorate for Financial and Enterprise Affairs, Competition Committee, Background Note by the Secretariat, "Personalised Pricing in the Digital Era" (Nov. 28, 2018), at 7, https://one.oecd.org/document/DAF/COMP(2018)13/en/pdf; Consumers Council of Canada, "Dynamic Pricing – Can consumers achieve the benefits they expect" (2017), at 14, https://www.consumerscouncil.com/wp-content/uploads/sites/19/2020/03/809323_ccc_dynamic_pricing_final_report_web.pdf.

[22] *Supra* n. 18.

example, the marginal cost of an extra seat on a half-empty flight is close to zero. Selling that seat for $89 to a price-sensitive student who would never pay $289 is pure surplus for both sides. As such, consumer welfare may increase because products are more efficiently allocated to consumers on the inelastic portion of the demand curve—those who place the highest value on the product.[23]

Standard economic theory shows that dynamic personal pricing generally increases social welfare through expansion of total output, increasing market access to lower-income consumers.[24] More seats flown, more riders carried, and more shows streamed translate into increased consumer surplus for groups that would otherwise be priced out of the market.[25] For example, one study analyzing dynamic price surging in Uber found that surge pricing increases total consumer welfare by 2.15 percent of gross revenue—or $0.25 per trip—relative to uniform pricing.[26]

Moreover, dynamic pricing can benefit consumers by providing targeted discounts and lower prices than those of other competitors. Lower-income consumers may benefit from lower prices and the ability to purchase products that they otherwise could not afford.[27]

III. The Benefits of AI in Algorithmic Pricing

The unprecedented global growth and transformative potential of AI has enabled it to offer significant benefits to businesses and consumers alike, such as reducing human error and enhancing efficiency and innovation. AI is not a single technology but rather an array of related, but distinct, technologies, which may be applied in significantly different contexts. Applying

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[23] *See e.g.,* Kevin R. Williams, Yale University, Cowles Foundation for Research in Economics, Discussion Paper no. 2103U3, "The Welfare Effects of Dynamic Pricing: Evidence from Airline Markets" (Aug. 2017, updated Aug. 2021), at 36 https://cowles.yale.edu/sites/default/files/2022-09/d2103-u3.pdf. Notably, dynamic pricing for price-sensitive consumers is not a new phenomenon. For example, long before algorithms, brick-and-mortar retailers relied on paper coupons. Clipping a 25-cent cereal coupon signaled the shopper had a more elastic demand curve—willing to hunt for savings—so the manufacturer could lower a price for that subgroup without cutting the shelf price everyone else saw.

[24] *See e.g.,* CCIA, "Personalized Discounts, Public Gains: The Welfare Case for Algorithmic Pricing," (Jul. 8, 2025), https://ccianet.org/articles/personalized-discounts-public-gains-the-welfare-case-for-algorithmic-pricing/; Benjamin Reed Shiller, "First-Degree Price Discrimination Using Big Data," Brandeis University (Jan. 6, 2014), at 19 https://www.brandeis.edu/economics/RePEc/brd/doc/Brandeis_WP58R2.pdf.

[25] Jinho Jung et. al., Food Ethics, "Societal Implications of Personalized Pricing in Online Grocery Shopping," at 7-8 link.springer.com/article/10.1007/s41055-024-00142-0.

[26] Juan Camilo Castillo, "Who Benefits from Surge Pricing?" (Nov. 8, 2024), at 45, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3245533.

[27] *See, e.g.,* Trevor Wagener, "Demystifying Algorithmic Pricing: How Smart Prices Stretch Small Budgets," Project Disco (Jul. 1, 2025), https://project-disco.org/innovation/demystifying-algorithmic-pricing-how-smart-prices-stretch-small-budgets/; San Francisco's Clipper START card program, https://www.sfmta.com/fares/clipper-start.

rules designed for one type of AI or one context to another situation can hinder the development of new forms of AI and create, rather than reduce, harm.[28]

AI is reshaping algorithmic pricing by enabling faster, dynamic, data-driven pricing adjustments in real-time. AI allows firms to analyze large amounts of data to optimize prices and increase customer satisfaction. This shift is disrupting traditional competition dynamics by creating lower costs and higher efficiencies.

In particular, the advent of generative AI has the potential to transform existing businesses and industries and already pioneers solutions across various sectors, contributing to more diverse choices for consumers and more innovation. In the context of algorithmic pricing, large language models (LLMs), which are trained on vast quantities of text data and can identify and utilize statistical relationships from it, are flexible tools that can help businesses create data-based pricing models that are responsive in real time.[29] For example, a business could provide an LLM with information on a product's marginal cost, as well as past market prices and volumes, and explicitly ask the LLM for a pricing recommendation that maximizes the long-term profits. By adding further contextual information, such as inventory levels, supply chain information, or other market parameters, LLMs can provide users with more sophisticated pricing models.[30]

AI vendors, including startups, are also gaining greater access to third-party models and tools, which offer tailored strategies for market entry, optimization of machine learning frameworks, and other resources. LLMs help reduce barriers to market entry by providing access to companies that cannot afford specialized and costly pricing tools, potentially helping to increase competitiveness in markets where gathering pricing intelligence and being reactive to market dynamics is cost-prohibitive.[31]

As pricing algorithms continue to develop and diversify, the use of different, sophisticated AI algorithms platforms can foster competition by helping companies maximize profits and provide better value to consumers. In sectors such as e-marketplaces where pricing algorithms are used extensively,[32] they benefit firms by reducing the costs of setting prices, and

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[28] CCIA, "Understanding AI: A Guide To Sensible Governance" (Jun. 26, 2023), at 2, https://ccianet.org/library/understanding-ai-guide-to-sensible-governance/.

[29] *Supra* n. 9, at 3.

[30] *Id.*

[31] *Supra* n. 9, at 5.

[32] Le Chen, Alan Mislove, & Christo Wilson., "An empirical analysis of algorithmic pricing on ama- zon marketplace," International World Wide Web Conference Committee (2016) at 1, https://mislove.org/publications/Amazon-WWW.pdf.

can thereby increase consumer surplus.[33] Research has shown that as different sophisticated AI pricing tools are developed and deployed extensively on platforms, the likelihood of collusive activity is actually reduced.[34] Policymakers should refrain from adopting general, one-size-fits-all rules on algorithmic pricing, since algorithms have highly varied and often competition-enhancing impacts. Should competition concerns arise in relation to pricing algorithms, existing competition laws are best equipped to address these invariably nuanced, case-specific issues while avoiding the inadvertent stifling of pro-competitive, pro-consumer benefits.[35]

IV. Conclusion

Algorithmic pricing can provide significant procompetitive benefits to consumers, as well as a number of efficiencies to companies. Additionally, algorithmic pricing helps new firms by lowering barriers to market entry and encouraging disruptive innovation with better pricing strategies. Generative and sophisticated AI-powered algorithms and platform competition help increase competitive dynamism, reducing the possibility of collusion. In case any potential competition concerns may arise in the future, these can be addressed under existing competition laws.

CCIA is pleased to provide these comments and looks forward to continuing to engage on these important issues with the Bureau.

[33] J. Manuel Sanchez-Cartas & Evangelos Katsamakas, "AI pricing algorithms under platform competition," Electronic Commerce Research (Jan. 29, 2024), at 3, https://doi.org/10.1007/s10660-024-09821-w.
[34] *Id.*, at 25.
[35] *Id.*, at 24.