Abstract

In today's technological landscape, rapid advancements in Artificial Intelligence (AI) are transforming industries, enhancing efficiency, and creating innovative solutions to complex problems. However, the disruptive nature of AI also presents significant challenges, particularly in consumer protection and competition. This essay examines the implications of AI on these areas within Singapore, highlighting the limitations of current legislation and proposing necessary updates. AI's capacity to exploit cognitive biases through manipulative designs, such as dark patterns, raises concerns about consumer autonomy and the effectiveness of the Consumer Protection (Fair Trading) Act (CPFTA). The essay underscores the inadequacy of existing rules in addressing AI-driven manipulative practices that undermine free consumer choice.

Furthermore, AI-driven data collection fosters anti-competitive behavior, as companies with vast data repositories can tailor pricing strategies to hinder competition. The current Competition Act lacks specific provisions to address the abuse of data-driven market dominance, necessitating updated regulatory frameworks. Additionally, the emergence of algorithmic collusion, where AI facilitates tacit cooperation without explicit agreements, challenges the traditional understanding of anti-competitive practices.

To address these issues, the essay advocates for a proactive regulatory approach by the Competition and Consumer Commission of Singapore (CCCS), alongside a comprehensive, long-term solution through new AI-specific legislation. This legislation could integrate features from the EU's Digital Services Act and Artificial Intelligence Act, providing clear guidelines on ethical AI use. The new AI act can

delineate liability, empower regulatory investigations, and establish consumer redress mechanisms. Such legislation would ensure that as AI continues to evolve, Singapore's legal framework remains robust, protecting consumers and maintaining fair competition in an increasingly AI-driven market.

In today's technological landscape, we are witnessing unprecedented developments in technology, especially in Artificial Intelligence (AI). AI, which involves the simulation of human intelligence processes by machines, is rapidly becoming integral to various aspects of our lives, from healthcare and finance to transportation and entertainment. These technologies are certainly disruptive and have potentials to enhance efficiency, improve decision-making, and create innovative solutions to complex problems, potentially saving lives and transforming industries. As we navigate this technological revolution, it is essential to address the accompanying challenges. While AI may operate with speed and accuracy beyond human capabilities, it lacks common sense and is inherently indifferent to ethics and legal compliance (Faella and Romano, 2019), bringing significant implications especially in consumer protection and competition.

Some new issues—like privacy infringements and algorithmic biases—have already surfaced, prompting lawmakers to carefully manage the use of them. In this context, it is timely to assess the robustness and readiness or Singapore's competition and consumer protection rules. Through highlighting new issues relating to competition and consumer protection with the advent of AI, the essay analyses and explains the potential shortcomings of current legislations and guidelines before making suggestions on how competition and consumer protection rules should evolve in the age of AI. More specifically, the essay argues for a new 'umbrella' AI legislation that regulates businesses' use of it.

Manipulative Designs and Dark Patterns (Consumer Protection)

The maturation of AI is likely to exacerbate manipulative architectural designs, often referred to as dark patterns. Many of these web designs, which include tactics like

nagging and confirm shaming, exploit consumer biases to induce decisions that might not have been made under a more transparent design (Brenncke, 2023). Businesses can leverage AI to enhance the effectiveness of these patterns through personalised manipulation and adaptive user interfaces. Such designs exploit consumers' cognitive limitations, hindering their ability to make free and informed choices. This is particularly detrimental to vulnerable consumers, whether due to permanent factors like age or mental infirmity, or transient states such as emotional distress, leaving them highly susceptible to sophisticated but unethical marketing tactics (Guerra, 2023). It is hence conceivable that consumers act against their best interests.

Neoclassical economics traditionally assumes that consumers are rational decision-makers who can act in their self-interest through informed and rational decisions (Trzaskowski, 2024). It is therefore sufficient for general consumer protection legislations to address only practices that are blatantly deceptive and unfair. However, as AI advances and becomes better at understanding and influencing consumer behaviour, the relevance of previously held economic assumptions gets increasingly precarious. This might lead to an increasingly blurring of the line between persuasion and coercion. Distinguishing between acceptable 'nudges' and immoral manipulations hence gets more challenging. For example, the practice of nagging relies on persistent repetition to wear down consumers. While it does not mislead or manipulate them in a traditional sense, and thus does not fit neatly into conventional consumer protection rules, it remains unethical and unfair to consumers (Hung, 2021).

While the Competition and Consumer Commission of Singapore (CCCS) has issued comprehensive guidelines for businesses, the Consumer Protection (Fair Trading)

Act (2003) (CPFTA) largely maintains a caveat emptor (buyer beware) stance. This places substantial or even burdensome responsibility on consumers to make sound transactional decisions in the age of AI. For example, while the CPFTA explicitly prohibits various forms of misrepresentation, consumers are left to fend for themselves against those tactics which are not dishonest or deceptive but can still significantly influence their behaviour in unethical ways. What is especially worrying is that there will be more of such practices that exploit cognitive impairments and compromise consumers' authentic freewill. There is hence a growing need to enhance consumer protection legislations.

Data and abuse of dominant position (Competition)

AI-driven data collection enables businesses to create profit-maximising pricing strategies that may hinder competition. Data is indispensable for understanding consumer characteristics, as information about browsing, purchase, and search histories inform businesses about consumer preferences and willingness to pay (Seele et al, 2021). These data are readily accessible during routine business operations.

For instance, an online retailer can personalise its offerings based on a consumer's activity. If a consumer frequently visits high-end electronics pages, buys premium gadgets, and searches for luxury tech products, the retailer can infer a high willingness to pay. Consequently, the retailer might show higher-end models and premium accessories, optimising its pricing strategy to align with the consumer's spending habits.

In the future, market share and power will be closely correlated with data. Businesses that collect and analyse large amounts of purchasing behaviour data can

influence selling prices and increase profits through tailored sales strategies. Extensive data collection also creates significant barriers to entry for new competitors (Kumar and Suthar, 2023). Established companies with large datasets can offer better prices, products, and services, making it difficult for newcomers to attract customers and compete effectively. For example, the European Commission found that Amazon used non-public business data to distort fair competition on its platform (European Commission, 2022). Thus, abuse of dominant positions increasingly revolves around the ability to collect and process large amounts of data inaccessible to competitors.

The current Competition Act (2004) provides limited guidance on what constitutes an abuse of dominance concerning data collection and utilisation. While consumers' data protection is governed by the Personal Data Protection Act (2012) (PDPA) and broad principles in CCCS's guidelines may apply, such as the prohibition of exclusionary behaviour that 'forecloses markets or weakens competition', explicit provisions against data abuse are lacking. The government's stance on this issue remains to be clarified, highlighting the need for updated regulatory frameworks to address data-driven market dominance effectively.

Algorithmic collusion (Competition)

Evidently, AI has reshaped the competitive dynamics in markets. New forms of anti-competitive behaviour have also surfaced. One prominent example is algorithmic collusion. Algorithmic collusion, unlike traditional collusion which involves direct communication between competitors, makes use of algorithmic pricing (AP) to facilitate anti-competitive behavior without explicit coordination (Kuipers and Rampersad, 2024). AP involves using sophisticated algorithms to make pricing

decisions to increase firms' profits. This trend does not appear to be a passing one. As the volume of digital transaction increases and software technology advances, such practice can be expected to become increasingly common for firms to improve operational efficiency.

However, one concerning aspect is that no direct communication between competitors is required for AP to have anti-competitive effects. AP may inhibit competition and sustain collusion without human intervention (Mehra, 2016). While current algorithms are not advanced enough to collude unless explicitly designed to do so, the upcoming second-generation AP based on Machine Learning (ML) has the potential to learn collusive behaviour independently. This means that even if humans set legitimate goals such as profit maximisation, self-learning algorithms might determine that coordination or collusion is the optimal strategy (Calvano et al, 2019). Whether intentional or not, the rise of AI is expected to make tacit cooperation much easier to achieve, more stable and, ultimately, more frequent, even among large groups of competitors.

Section 34 of the Competition Act (2004) prohibits agreements between undertakings, decisions by associations of undertakings, and concerted practices that prevent, restrict, or distort competition within Singapore, with certain exclusions. While the first two categories require some degree of communication, and thus algorithmic collusions do not fall under 'agreements' or 'decisions', the notion of 'concerted practices' remains pertinent.

The Act does not explicitly define 'concerted practices,' but the CCCS clarifies in its guideline that a concerted practice can exist if parties, without entering into an agreement, 'knowingly substitute the risks of competition with co-operation'

(Competition and Consumer Commission of Singapore, 2022). The challenge in categorising algorithmic collusion as a concerted practice lies in proving the firms 'knowingly' cooperated, as it is difficult to demonstrate that companies using AI for pricing strategies *consciously* collaborated. Moreover, establishing any form of 'cooperation' among them poses a significant practical challenge.

Approach and potential solutions

Lawmakers have several approaches to address the development of AI. One crucial method involves regulatory agencies like the Competition and Consumer Commission of Singapore (CCCS) adopting an ex-ante, proactive, and preventive approach. The CCCS can establish guidelines for businesses on the ethical use of AI and outline what constitutes unfair or unacceptable practices concerning competition and consumer protection. Additionally, the CCCS, along with the Consumers Association of Singapore (CASE), can facilitate memorandums of understanding (MOUs) between major online retailers to agree on ethical marketing and competition practices. However, this approach must be reinforced by an ex-post liability regime to ensure business compliance. This can be achieved through several means.

Firstly, because AI is arguably still in its early stages, the government can amend or improve the Consumer Protection (Fair Trading) Act (CPFTA) and the Competition Act to address AI-related issues in the short term. For instance, it has been argued that the most promising provision to tackle dark patterns is the undue influence principle present in business law and the CPFTA (Hung, 2021; Guerra, 2023; Brenncke, 2023). This might involve developing unfair practice 14 of the CPFTA. To determine ‘undue influence’ in dark patterns, one could use the undue influence test

under class 1, where the ‘independence of decision was substantially undermined’. To address the abuse of dominance in data collection, Singapore can adopt an approach like Japan’s, where business entities possessing data must share ‘indispensable’ data with other companies. Refusal to provide access to data without justifiable reason is illegal under competition law and is viewed as an abuse of dominant position (Hayashi and Arai, 2019). Nevertheless, such amendments must be carefully studied by legal and industry experts to assess their feasibility in Singapore’s context. The main argument is that Singapore can improve relevant legislation to address AI issues in the short term.

In the long run, it is impractical and unwise to constantly amend legislation. Frequent changes and updates to guidelines can adversely impact business operations and the market. Legislative inconstancy can hinder businesses from aligning their plans and actions with the rules. Moreover, frequent amendments can stifle technological advancement due to profound uncertainties. Significant capital investment is required for researching and developing new technological capabilities, and this capital risks being wasted if the government decides that new capabilities are not permitted. With AI potentially being one of the most important engines of growth for Singapore, businesses need stable guidelines and principles on how to develop new technologies and capabilities.

Proposed new AI legislation, its objective and advantages

In the long run, introducing new AI legislation may be appropriate. This legislation can combine features of EU’s approach to combatting AI problems. For example, the Digital Services Act (DSA) prohibits manipulative digital business operations, such as distorting or impairing consumer’s ability to make free and informed decisions

(Brenncke, 2023). Moreover, the proposed Artifical Intelligence Act (AI Act) provides guidance on how businesses can develop and use their AI capabilities ethically ensuring that AI benefits people and society (Kuipers and Rampersad, 2024). The most important advantage of this proposed new legislation is that it is lex specialis, capturing complex AI-related issues AI rather than taking a fragmented approach through multiple legislations. Several other advantages follow.

Firstly, the new AI legislation allows clear delineation of liability. In the case of anticompetitive practices, the chain of liability may well extend from software or hardware developers to resellers and end users (Faella and Romano, 2019). Determining who should be held liable for anticompetitive decisions and actions of AI may not be straightforward. AI agents may only be acting on behalf and in the interest of firms, but firms may also have limited ability to influence AI development. Assigning liability to a single party can be detrimental and harmful to AI development, especially when it sends a ‘chilling effect’. The new AI act can resolve this by assigning liability explicitly and equitably.

Secondly, the new AI legislation can empower regulatory agencies to conduct investigations. CCCS is empowered by the CPFTA and Competition Act to conduct investigation. Similarly, the new AI legislation can give regulatory agencies the power to investigate businesses’ use of AI to ensure compliance with legal rules or determining liability. This is important as AI becomes increasingly complex. Investigations allow detailed reviews and assessments of self-learning algorithms’ features and functionalities, considering the data processed and the instructions coded in the algorithm to ensure legal compliance.

Lastly, the new AI legislation elucidates the remedies available to consumers. The new law can establish explicit pathways for victims to seek redress, including defining which agency to approach for support, and the type of remedies available. It can also specify the criteria and methods for calculating compensation, ensuring victims receive fair and adequate restitution. This includes outlining how to assess damages caused by AI actions and the process for filing a claim.

By 2045, the computer's processing ability is expected to exceed that of humans, marking a transition where technological development and evolution shift from human to computer (Hayashi and Arai, 2019). A world once considered science fiction may soon be our reality with the drastic progress of AI. It is timely to accept that we live and will live in a very different environment from when current legislations were enacted. Consequently, when computers and technology become formidable forces, consumers require a wider range of legal tools to resist abuse by traders, to correct the inherent power imbalance arising from information asymmetry and bargaining power.

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