CALL FOR INFORMATION: DIGITAL ECOSYSTEMS, BIG DATA AND ALGORITHMS

1. INTRODUCTION

In the last decade, there has been a marked trend towards the digitalization of the Portuguese economy. In 2019, the Portuguese Competition Authority (AdC – Autoridade da Concorrência) published the report "Digital Ecosystems, Big Data, and Algorithms",[1] addressing the challenges that the digital transition entails for competition policy.

The COVID-19 pandemic has accelerated this digitalization,[2] in particular, with regard to the services that facilitate communication and distance learning, teleworking and e-commerce. Between April and December 2020, 15.6% of the employed population in Portugal often preferred to work at home, using information and communication technologies.[3] In 2020, there was a significant increase in the proportion of consumers who made purchases via e-commerce and a surge in the average number of orders per consumer.[4]

The digital sector has been one of the AdC's priorities. The AdC's mission is to ensure compliance with competition rules in Portugal so that markets are efficient, there is an optimal allocation of resources and the interests of consumers.

To fulfill this role, it is important to monitor digital markets and their specificities. This includes the emergence of new business models based on multi-sided platforms that aggregate users, the creation of new markets or even disruptive effects in already established markets.

Digital markets are characterized by large volumes of data, network effects, economies of scale and scope, among other features, that raise important new challenges and competition risks. Digitalization has also entailed a greater use of algorithms by companies, such as algorithms to monitor the market or to aid consumers in searching for products. Notwithstanding these benefits, the prevalence of algorithms can also pose new challenges to competition.

2. CALL FOR INFORMATION

To contribute to a context that maximizes the benefits that can arise from the digital transition, **the AdC is launching a call for information to all interested parties**. The responses will contribute to the identification of possible barriers to entry or expansion, including firms' strategies that may hinder competition, in the digital sector, in Portugal.

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[1] AdC, "Digital Ecosystems, Big Data and Algorithms", July 2019, available in Portuguese and in English.
[2] McKinsey, "Europe's digital migration during COVID-19: Getting past the broad trends and averages", 24.07.2020, available here.
[3] INE Indicators, 23.04.2021, available here.
[4] INE Indicators, 20.10.2021, available here.

The call for information includes a set of questions (p. 7) to which the AdC invites all interested parties to respond. Other information can also be shared with the AdC if considered relevant.

All interested parties are invited to submit their contributions to the AdC, within **30 working days (until December 16)**, to the email address consultapublica@concorrencia.pt.

In replying to this call for information, please provide a brief description of the entity, company or your profile.

In response to this call for information, and given the right of access to administrative information and the applicable procedural regime of ongoing or concluded procedures,[5] please identify which information is deemed confidential due to business secret or other due justification, as they otherwise may be made public. It is further informed that, under legal terms, the AdC may ensure anonymity, provided that this is requested in a substantiated manner. Please attach to your response the non-confidential versions of any documents containing confidential information. The non-confidential responses will be made available at the website of the AdC.

The failure to identify any information as confidential may entail its disclosure to third parties wishing to exercise their right to access information.

In case you would like to request any clarification regarding this call for information, you may contact Rafael Longo or João Araújo, by calling +351 21 790 20 00, or by sending an e-mail to rafael.longo@concorrencia.pt and joao.araujo@concorrencia.pt.

3. MAIN BARRIERS TO ENTRY AND EXPANSION IN THE DIGITAL SECTOR

3.1. Network effects

In the digital sector, many products/services have more value to users the greater the number of users of those products/services. When this happens, there are network effects in the market. This confers a competitive advantage to the largest players and can create a tendency towards concentration in these markets.

There may be network effects because users want to interact with each other. For instance, users value social networks where they can stay in touch and share content with family and friends. Likewise, a seller wants to be in a marketplace with a large number of customers.

The information collected about user activity can also generate network effects by improving products offered to another group of users on another side of the platform. For example, in

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[5] Namely under the terms and for the purposes of Article 17 of the Code of Administrative Procedure and Law No. 26/2016, of 22 August.

the case of a social network with users and advertisers, data collected about users can improve the service offered to advertisers.

Network effects may also be shared across products, in which case the number of users of product A increases the value of product B to users. Because of this type of network effects, digital services may be integrated in ecosystems of products. Sharing data between products/services, in the same ecosystem, is an example of this type of network effects, that may increase the platform's value.

3.2. Economies of scale and scope

The cost structure in the digital sector can be characterized by economies of scale, namely those related to the need of collecting, storing, processing and analyzing information. In particular, it may require investments in specific infrastructure, such as servers, or in the development and enhancement of algorithms.

The modular nature of digital products and the fact that their development requires common skills can also generate economies of scope. These may also enable the integration of digital services into product ecosystems.

3.3. Switching costs

Switching costs are the barriers experienced by users to substitute a given product for a competing product. For this reason, they can confer an advantage to incumbent products and reduce market contestability.

There are different types of switching costs. New products may require a registration or data transfers. For instance, a user signing up for a new social network may be interested in transferring their photos from another social network they already use. New products may also entail learning costs to users, as, for example, new products use different user interfaces or have features that the user has to adapt to. Switching may also imply search costs to discover new products or their features. Finally, there are psychological costs, such as salience effects or consumer inertia that can limit switching to a competing product.

4. COMPETITION POLICY CHALLENGES IN THE DIGITAL AGE

4.1. Exclusionary strategies in the digital sector

Firms in the digital sector may have incentives to implement strategies to exclude competitors already present in the market, as well as potential entrants. Strategies based on weakening the conditions for entry and expansion of entrants may violate the Portuguese Competition Act,[6] when implemented by firms with a dominant position. Incumbents can also have *gatekeeper* status if they take a central role in the market, where they organize and determine all or most of the activity in the market.

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[6] Law No. 19/2012, of 8 May.

Incumbents may resort to exclusionary strategies to protect their products and ecosystems. These strategies typically rely on harnessing network effects and switching costs as barriers to entry and market expansion.

Competition in terms of the number of users is particularly important in markets characterized by network effects. Firms can thus seek to i) attract and retain users; ii) prevent user leakages to competitors; and iii) bar competitors access to users.

An incumbent may try to exclude its competitors from the market by favoring its own products in its ecosystem – self-preferencing.

Firms may induce consumers to use its own products and discourage the use of competing products. For example, an incumbent may impose on users of a key product, such as an operating system, a requirement to use a favored product, such as a browser. Greater prominence or visibility of the favored product may also be a form of self-preferencing.

To discourage the use of competing products, an incumbent may prevent or technically hinder the joint use of the key product and the competing product. It can also degrade the quality of that joint use just for the competing product. Therefore, for instance, an incumbent's browser could have access to data or greater compatibility with its own operating system.

4.2. Algorithms and competition

Digitalization may lead to a greater use of algorithms that aid firms' decisions on strategic variables and facilitate product discovery.

In 2019, 37% of companies active online in Portugal surveyed by the AdC reported using software to monitor their competitors' online prices. In the same questionnaire, 7.9% of companies indicated using algorithms that set prices automatically.[7]

Companies can use **monitoring algorithms** to obtain more complete and up-to-date information about the market. These can be combined with **pricing algorithms** that assist the company in setting prices.

The use of algorithms may reduce the costs associated with changing prices, allow consumers to compare prices and intensify competition between firms.

However, these algorithms are not without risk if they are used to implement strategies of price collusion (or other variables) between competitors, harming consumers. These algorithms can make it easier to detect any deviations from a pricing agreement between companies. The use of a common algorithm by competitors in a concentrated market may also raise competition concerns when it is implemented to facilitate collusive behavior between companies.

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[7] AdC, "Digital Ecosystems, Big Data and Algorithms", July 2019, available in Portuguese and in English.

Other more sophisticated pricing algorithms may be able to reach a collusive agreement even though they are not designed for that purpose. This fact, however, does not make companies any less responsible for the effects these algorithms have on the market.

Ranking, search and recommendation algorithms allow companies to show consumers the products that are most relevant to them. In markets where there is a large number of products/services available, it may be difficult for consumers to choose the most suitable one. In this situation, companies highlight a selection of these products (e.g., using feedback from other consumers or data collected about the buyer), streamlining the choice by the buyer. These algorithms, therefore, allow a more personalized offer to each user.

However, these algorithms may raise competition concerns, given the influence they have on final decision of consumers. In particular, these algorithms may be instrumental in strategies to exclude competitors.

Questions

Barriers to entry and expansion, and exclusion strategies in the digital sector

1. What are the main difficulties experienced in setting up firms and in expanding into new digital markets in Portugal?

2. Which products/services do you use and for which you consider there is a reduced capacity for substitution by other products/services (including the possibility of self-supply)?

3. If the respondent is a firm:

   a. How does your activity depend on the products/services you identified in question 2?

   b. What other alternatives are available in the market to the aforementioned services (including the possibility of self—supply)? What are your main advantages and disadvantages compared to the products/services your company uses?

   c. Is the acquisition of these products/services preceded by negotiation? If so, please describe the negotiation of the terms and conditions associated with these products/services.

   d. Do you consider that the terms and conditions for the use of these products/services limit, in any sense, competition in the market?

   e. Did the acquisition of these products/services imply any limitation in contracting alternative or related products/services (e.g., exclusivity clauses)?

   f. Do you consider that the company that provides these products/services uses them to favor other products/services of its own? How? What is the impact of this favoring on your company's activity?

4. Do you consider that business activity in the digital sector is disturbed by any unnecessary legal or regulatory requirements? Why do you consider these requirements unnecessary?

5. Do you consider there are switching costs in the digital markets that you are concerned about? Which ones? What kind of intervention could reduce these costs and facilitate consumer mobility?

6. Are there entry costs in the digital sector that you are concerned about? Which ones? Do you think these entry costs have a negative effect on competition? What kind of intervention could minimize this impact?

Algorithms

7. Are there any examples of the use of algorithms by firms that you believe the AdC should pay attention to? If yes, why?

8. In your opinion, are there other pertinent benefits or concerns related to algorithms that you feel are important to highlight, in addition to those identified in this document?

9. With regard to the prevalence of monitoring and pricing algorithms, are the figures referred to, in this document, in line with your perception?

10. How do you expect the use of these type of algorithms to evolve in Portugal?

11. Is there any situation that has raised competition concerns associated with the use of algorithms?

12. Please share other relevant information

Non-exhaustive list of products/services in the digital sector: i) e-commerce; ii) marketplaces and related intermediation services; iii) online classified ads services; iv) FinTech and InsurTech; v) online search, general or specialized; vi) social networking and content sharing services; vii) interpersonal communication at a distance; viii) operating systems; ix) cloud computing, servers and online storage; x) digital advertising and associated services; xi) telecommunications; xii) online news, content aggregators and other online media; xiii) online ride hailing; xiv) online delivery services; xv) audio, video and video game streaming; xvi) Internet of Things aimed at businesses and consumers; xvii) map search and visualization services; xviii) goods and services related to virtual and augmented reality; xix) app stores for electronic devices; xx) applications for electronic devices; xxi) machine translation services; xxii) online traffic monitoring and analysis services; among others.