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ΕΠΙΤΡΟΠΗ ΑΝΤΑΓΩΝΙΣΜΟΥ
HELLENIC COMPETITION COMMISSION

HELLENIC COMPETITION COMMISSION
ANNUAL REPORT



ΕΠΙΤΡΟΠΗ ΑΝΤΑΓΩΝΙΣΜΟΥ
HELLENIC COMPETITION COMMISSION

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ΕΠΙΤΡΟΠΗ ΑΝΤΑΓΩΝΙΣΜΟΥ

Message by the President of the HCC

Professor Ioannis Lianos



The HCC's Annual Report 2021

The year 2021 was once again marked by the coronavirus pandemic (COVID-19), a fact that still affects all of humanity and creates daily challenges in our life, coupled with soaring prices in many basic and vital consumer goods. Crisis phenomena are also predisposing to long-term economic consequences, and the HCC, has already since 2020, launched proceedings and investigations to address various market phenomena.

In addressing these, the HCC has initiated various actions. Indeed, year 2021 could be “named” as the most productive in our history so far.

Among others, the HCC carried out the most unannounced inspections in a single year ever; it launched a series of inquiries in different markets and sectors; issued 75% more decisions compared to the annual average in the last decade; 3 sector inquiries have been initiated and 2 concluded; while we have also been able to reduce the average age of pending cases from almost 8 years in 2019 to a little more than 1 year in 2021.

In the following pages, the reader can read about the activities of the HCC for the year 2021.

The Annual Report's 2021 special topic: Computational Competition Law and Economics

Following a “tradition” initiated in the last two annual reports, the HCC Annual Report 2021 also contains the “Special Topic” section. The ‘Special Topic’ section focuses on and highlights each year a key topic of interest to the wider “competition community” in Greece and abroad.

The HCC welcomes and provides the space to personalities from the field of competition worldwide to share their various views, analyses, thoughts and concerns on important issues relevant to the market and competition, regarding trends and scientific developments. In this way, the “floor” is given for the presentation of developments and / or trends concerning society, the economy and competition, thus presents to the readers a more specific part of the daily life of the administration and the staff of the HCC.

For the 2021 Annual Report the special issue concerns the topic of “Computational Competition Law and Economics”.

We would like to thank all those who have contributed to the 2021 Annual Report.

Chapter

1

Messages
and Main
Topic

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IOANNIS LIANOS

President of the Hellenic Competition Commission; Professor of Competition Law and Public Policy, Faculty of Laws, University College London

The promise of computational economics for competition authorities

The broader picture

The turn towards computational competition law and economics provides a good illustration of the impact of technological transformation on the role and work of competition authorities¹. It becomes essential to engage with the possible use of new computational technologies in competition law enforcement in view of the recent emphasis put by competition authorities worldwide on climate change and environmental and social sustainability, which call for a broader methodological framework going beyond the analysis of the parameters of output and price, as well as the need to monitor digital markets in a more systematic way.

These new computational methods do not only impact on competition law enforcement techniques, but also involve the use of new analytical methods and the development of a different conceptual framework for making causal arguments in competition law. Competition law has not yet engaged with complex systems science, in particular the fields of computational economics², but will need to do so in the near future. Such approaches become crucial the more competition authorities need to explore correlated systems, where (business) conduct occurs at various scales, “so the complexity gradually increases as one examines the system in greater and greater detail”³.

Complexity science concepts, tools and methodologies form increasingly part of the competition law enterprise⁴. This will raise similar, if not more complex, methodology questions as those raised by the “more economic approach”: the integration of economic thinking and arguments in competition law during the last three decades in Europe⁵.

¹ For a detailed discussion, see HCC, Computational Competition Law and Economics – An Inception Report (January 2021), available at <https://www.epant.gr/en/enimerosi/publications/research-publications/item/1414-computational-competition-law-and-economics-inception-report.html> ; See also the Computational Antitrust Project at Codex, University of Stanford, available at <https://law.stanford.edu/codex-the-stanford-center-for-legal-informatics/computational-antitrust/> ; I. Lianos, Re-orienting Competition Law, (2022) 10(1) Journal of Antitrust Enforcement, 1–31 available at <https://academic.oup.com/antitrust/article-abstract/10/1/1/6538741> from which part of this article draws upon.

² L. Tesfatsion, Agent-Based Computational Economics: Growing Economies From the Bottom Up, (2002) 8(1) Artificial Life 55; L. Tesfatsion & K.L. Judd (eds.), Handbook of Computational Economics (North Holland, 2006).

³ A. F. Siegenfeld, Y. Bar-Yam, An Introduction to Complex Systems Science and its Applications, (2020) Complexity arXiv:1912.05088, 3.

⁴ For an assessment of the use of complexity science in competition law, see I. Lianos, Competition Law for a Complex Economy, (2019) 50 IIC - International Review of Intellectual Property and Competition Law 643–648; I Lianos, Competition Law for the Digital Era: A Complex Systems’ Perspective (August 30, 2019), available at <https://ssrn.com/abstract=3492730>.

⁵ See, I. Lianos & C. Genakos, Econometric evidence in EU competition law: an empirical and theoretical analysis, in I. Lianos & D. Geradin (eds.), Handbook on European Competition Law – Enforcement and Procedure (Edward Elgar, 2013), 1.

Some Applications

The area of cartel enforcement, in which competition authorities may rely on ‘market-based’ evidence focusing on the detection of coordinated oligopolistic price elevation, including ‘price patterns’ in the industry, evidence of price elevation and facilitating practice constitutes a good field for the application of computational methods.

The use of computational methods (algorithms) offers additional opportunities for detecting collusion more accurately on the basis of Big Data evidence. They complement existing digital technologies used for competition law enforcement, such as online whistleblower tools. Cartel screening relies on an econometric analysis of data. However, by-hand econometric analysis has limitations, as it solely depends on human resources. Digital technology developments shift manual analysis of data to automatic cartel detection.

Software tools developed by competition authorities have different designs, as they differ in both set of collected bidding information and indicators they analyse. Existing software screenings rely on a linear model and use simple tests, mostly easy to deceive by astute colluders. Big data and advanced machine learning techniques might offer a possible solution to this problem, as they provide the possibility to find nontrivial collusive patterns that econometrics could not foresee and they may build non-trivial tests on these patterns. The main advantage of current screening tools is the analysis of large amounts of procurement data, which is infeasible if this was done by humans. Advanced machine learning techniques should enable the employment of effective cartel detection criteria on the basis of Big Data in other areas of competition law enforcement..

The institutional setting

Upon taking up the role of head of the HCC, the HCC moved immediately to a pluriannual research and development project in order to enhance our computational capabilities. In March 2020, the HCC launched the HCC Economic Intelligence and Data Analytics Platform, which is an effort to integrate and keep updated multiple external data sources in common database schema and provide visualization tools for data exploration and screening. The Platform also integrates a screening method to detect anti-competitive practices – including cartels, excessive pricing and exclusionary pricing – from the analysis of market data (in particular prices), taking advantage of new legislation enabling the authority to have mandated access to primary data regarding prices by the main supermarkets in the country, the distribution system for petrol stations, and the Athens central market for vegetables and fruits. This enables the authority to follow daily the level of prices for more than 2000 product codes across the country and to be able to use a time series since January 2020

⁶ For a presentation of the platform, see HCC, Computational Competition Law and Economics, Issues, Prospects – an Inception Report (January 2021), available at

<https://www.epant.gr/en/enimerosi/publications/research-publications/item/1414-computational-competition-law-and-economics-inception-report.html>.

and for some products a few years earlier⁶. However, the transition from a linear model with hand-crafted weights to advanced machine learning techniques (such as neural networks or random forests) requires big training data sets containing examples of collusive and competitive behaviour. The creation of such data sets demands a huge number of man-hours to analyze the data at hand (e.g. procurement data) and annotate whether it is competitive or not, and thus may be enhanced with collaboration between competition authorities.

More and more competition authorities also hire data scientists and put in place special units in order to assist them in developing advanced forensic techniques and data analytics.

Some competition authorities in the EU have already proceeded to the appointment of a chief technology officer and specific units. Moreover some authorities have already acquired experience in using Big Data or AI (machine-learning or deep-learning solutions) in cartels detection and in the analysis of data obtained during a cartel investigation.

In Greece, we established at the HCC in October 2020 a forensic IT unit, which cooperates with number data scientists, who are acting as external experts for the authority. Moreover, the Commission is investing in its expandable Big Data Management Infrastructure Platform/dash-board, tailor made for the authority by an external contractor where real-time public data from different sources (Price Observatory of Supermarkets, fuel prices, vegetables and fruits prices, public procurement data, etc.) is automatically uploaded and updated every day or many times per week. Furthermore, the HCC has appointed experts to design a program, drawing raw data from unstructured information available in the national public procurement database and other sources. This data will be mainly used for cartel-detection but will also offer an integrated data analytics environment with various tools/apps, on the basis of bespoke programmes and /or available off the shelf software tools to visualise and analyse data. Finally, we completed in April 2021 the recruitment process of a chief technology officer and his team of data-scientists who joined the HCC for a renewable mandate of two years.

The development of new legal standards for initiating investigations

Of particular interest for the further development of such techniques and tools is the adaptation of legal standards for initiating investigations.

Usually competition authorities act upon complaints or general market information that is provided to them either by market participants or through a systematic monitoring of different economic sectors, for instance by examining generalist or specialised press or through organised meetings with economic actors. However, the emergence of the Internet and the development of Big Data analytics provide competition authorities with multiple other sources of information that are publicly available or can be harvested through web-scraping tools. Scraping is a method for crawling web sites and automatically extracting structured data on it. The use of algorithms may greatly facilitate the data collection

process, as well as data analysis. Such tools have already been used in competition law investigations⁷. Furthermore, the use of data visualization, natural language processing and predictive analytics may enable the systematic monitoring of entire economic sectors in order to decipher various patterns that may raise red flags with regard to the presence of anticompetitive behaviour.

Particular applications include the use of Web-scraping in order to scale up evidence gathering, the use of geocoding that may enable competition authorities to analyse locations of competitors in merger analysis or the development of mechanisms to facilitate e-discovery by using a machine learning models, such as TexRank, or by employing predictive coding tools, which use a subset of documents (“seed documents”) in order to train computer algorithms to make predictions over the content of the other documents⁸. The software analyzes documents and ‘scores’ them for relevance to the issues in the case. The results of this categorisation exercise are then validated through a number of quality assurance exercises. These are based on statistical sampling—the sampling being fixed in advance depending on what confidence level and what margin of error are desired. This sampling is further reviewed (blind) by a human. The process of sampling is repeated as many times as required to bring the overturns to a level within agreed tolerances, and so as to achieve a stability pattern, each use of the predictive coding process being bespoke for that case. This technology saves time and reduces costs. Advanced network analysis may also facilitate the visualization and assessment of interactions between various economic players, as well as the analysis of large datasets of emails through specialized software, such as Tovek.

The development of such technologies may appear at first sight to blur the distinction between regulators and competition authorities, as they provide competition authorities the possibilities to continuously map and monitor economic activity in various sectors of the economy and explore the feedback loops and other indirect effects that may be in operation between them. Hence, it becomes important to expand the mapping jurisdiction of competition authorities to also cover situations in which the authority does not act having launched a sector enquiry or a market investigation, lest a competition law enforcement case, but proceeds to establish continuous intelligence gathering about the operation of the economy. This power is now provided to the HCC by Article 14(2) of the new Greek Law on Competition, as voted by Greek Parliament on January 20th, 2022. There is now legal basis for the HCC to send RFIs to undertakings in order to gather data and complete its market mapping research programme. The tool will be used in order to prepare a bi-annual “State of Competition Report” that will be submitted to Parliament and will eventually guide not just the enforcement action of the authority but also more broadly in the regulatory and legislative process in this policy area.

⁷ European Commission, Case AT.39740 Google Search (Shopping), paras 614-618.

⁸ See, S. Hunt, Data, technology and analytics in competition enforcement: building a new professional capability and offering December 2019, available at PowerPoint Presentation (concorrenca.pt).



Adapting new legal standards for the assessment of evidence

The use of computational tools may require some adaptation to the legal standards put in place to limit the discretion of competition authorities to launch investigations and in particular initiate inspections. Similar constraints may be put to the use of predictive approaches on the basis of data analytics in view of the required standards of evidence.

This computational turn also demands different strategies of engagement and new methodologies. It brings to the forefront of the economic enquiry simulation approaches that rely less on theory and more on conjectures and patterns that temporarily fit.

In simple economics, models are constructed for the purposes of prediction and are derived from a set of first principles, which often include assumptions as to the abilities and motives of the underlying agents with these being linked through mathematical reasoning and deduction with axioms, the latter being associated with the notion that “social systems tend toward equilibrium states”.⁹ In contrast, the computational models are used as mapping tools.¹⁰ They provide the foundation for computational experiments and, thus, aim to generate only inductive proof. In these models, “abstractions maintain a close association with the real-world agents of interest” and “uncovering the implications of these abstractions requires a sequential set of computations involving these abstractions”.¹¹ These computational models should enable the consideration of the complicated preference structures of both the population and its heterogeneity in order to account for their more elaborate set of choices. Of course, this raises interesting questions about causal claims with Big Data, which seem to rely on “variational induction” and eventually “the identification of phenomenological laws which may hold only locally in specific contexts”, and how different this is with regard to causal claims that are built on the hypothetico-deductive model of economics, that is very much dependent on theoretical hypothesis, on the basis of deduction from certain generalised features of our experience and practices (premises) to

⁹ J. Miller and S. Page, *Complex Adaptive Systems* (Princeton University Press, 2007), 59.

¹⁰ *Ibid*, 36.

¹¹ *Ibid*, 65.

infer that the world must be like to make the existence of these experiences and practices possible (conclusion), which will then be verified or disproved by empirical evidence.¹² In any case, the purpose of the inquiry should not only be to understand the empirical or actual phenomena, as they relate to events and state of affairs, but to grasp the functioning of the real economy, that is the structures, powers, mechanisms and tendencies that form the background conditions for such phenomena to be produced.

The development of new tools/methodologies for competition law: agent based modelling

One of the tools that is often used to generate these computational models is ‘agent-based modelling’. It attempts to depart from the abstraction of the underlying agents in a system by combining all agents into a single simplified and representative agent. It brings the role of networks as spaces of interaction to the fore and has important implications on the understanding of power relations within systems. Computational models may also allow for a greater heterogeneity of the agents the interactions of whom will be modelled. For instance, it may allow for the developing of “an ecology of agent types, each relying on different behavioural governing mechanisms”.¹³ Although as mentioned above, computational models cannot completely dispense with the constitution of representative agents. This enables theorists to construct computation models from the bottom-up, with any abstraction being focussed “over the lower-level individual entities that make up the system”.¹⁴ The model also integrates learning and adaptation as a by-product of this direct interaction. As such, it incorporates frameworks for emergence with the model being flexible enough that “new unanticipated features” may naturally arise within the model.¹⁵

Agent-based modelling thus accounting for different attributes, such as the size, the business model, as well as the specific ownership structure and corporate governance of undertakings, and could also integrate a dynamic perspective, by designing these agents to be adaptive through learning. A similar modelling can be done for various sociological categories of individuals, such as “investors”, “labour”, “consumers”, accounting for their income, education or wealth level, varying degrees of rationality, thus not relying on the average behaviour of individuals defined in abstracto but on the basis of their real attributes and those the theory/hypothesis to be tested considered important. The model may not focus on price-system intermediated interactions but also centre on or combine non-price ones. It may be possible to also develop a typology of realistic rule-sets to be applied to all or categories of agents, as well as different agent environments (taking into account the different spheres of competition – markets, ecosystems, sectors) that fully account for the

¹² For an interesting discussion, see W. Pietsch, *Big Data* (CUP, 2021).

¹³ J. Miller and S. Page, *Complex Adaptive Systems* (Princeton University Press, 2007), 101.

¹⁴ *Ibid*, 66.

¹⁵ *Ibid*, 69.

complexity of these interactions and relationships (for example, competition, cooperation, co-opetition, ownership, control, influence) and open up to various behavioural frameworks that fit the research question asked (this will be different, for instance, if the research focuses on the impact on privacy, prices and output, quality, innovation, democracy, among other dimensions). The interactions to take into account may be financial flows, unique visitors metrics and time spent on a website, information exchange/data flows, the expression of emotions (“likes”, “dislikes”, “friends”, “followers”) in order to determine the “ties” between the various agents and the topography of the network.

The economic process would thus be modelled as a dynamic system of interacting agents. The topology of such interactions between agents is complex as the scale of the system/environment the agent-based model aims to explain is driven by the specific social phenomenon of interest. The tool may enable competition authorities to better capture emerging phenomena, and to improve their understanding of the broader social impact of the examined behaviour in the context of a specific jurisdiction, not only at a purely abstract level, but taking into account a more realistic depiction of the status and motives of the agents. One should also note the limitations of such tools, in view of the important complexity of adaptive systems, and the evidential value of simulation methods in legal processes. However, the tool may be employed more safely for case selection and prioritization. It may also enable a better and quicker filtering of the situations in which more elaborate competition law analysis is needed¹⁶, as well as provide solid evidence upon counterfactuals for competition law investigations.



Conclusion

The development and use of new computational techniques in competition law enforcement will have important implications to the theory and practice of competition law, to a certain extent similar to those generated by the turn to a more economic approach and the systematic use of economics in competition law a couple of decades ago. We are at the beginning of a new antitrust revolution that will bring similar reforms to the institutional design of competition authorities than those undertaken with regard to the use of economic analysis, including an adaptation of the institutional setting and organization of competition authorities, as well as of evidence rules and procedure to this new reality.

With the recent recruitment of a chief technology officer with his team of data-scientists, as well as with the development of a forensic IT unit, the HCC aims to invest heavily the following years in the systematic use of computational competition law and economics tools, to increasingly rely on agent-based modelling (at first for case generation and prioritization) and to produce the groundwork that could facilitate the transposition of such knowledge in its own competition assessment work, and eventually that of other competition authorities.

¹⁶ See, for a discussion, I. Lianos, and A. McLean, Competition Law, Big Tech and Financialisation: The Dark Side of the Moon (September 15, 2021), available at <https://ssrn.com/abstract=3930565>.

[illegible]

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HCC Data Analytics: Present & Future

The Hellenic Competition Commission is trying to be of the pioneers in Europe in the use of Big Data and Artificial Intelligence technologies in competition law. As part of its digital transformation, the platform "HCC Data Analytics and Economic Intelligence" was created, an infrastructure with state-of-the-art technologies to help the researchers of the Hellenic Competition Commission monitor the various sectors of the Greek economy.

The purpose of the HCC Data Analytics and Economic Intelligence (DAECI) platform is to create an easy-to-use data analysis environment, with the aim of collecting market data from publicly available databases in real time, storing them in a local database, editing, visualizing and analyzing them, as well as the development of screening tools using Machine Learning in order to detect anti-competitive practices (market screens) in various sectors of the Greek market.

The main sources for data collection so far (in the first year of operation of the DAECI platform) are e-katanalotis (Market Observatory) for monitoring food prices as well as the basic products of the Greek household, OKAA (Central Markets and Fisheries Organization) and Eurostat for monitoring fruit prices, vegetables, meats and fish, as well as fuelprices.gr for fuel prices in the Greek market. The platform uses existing APIs to extract the information it needs, but possesses the extensibility to manage other types of data that can help the work of the Competition Commission such as standalone files (eg .csv, .xlsx,

.pkl) and/or direct links to other databases within the Commission.

After data collection there is always the possibility of errors during data entry, especially if done by a human. For this reason, input data are processed in order to remove anomalies such as gaps at various intervals, inconsistent data types (typographical errors, etc.) or incorrect categorization. The platform, to solve the above, undertakes the creation of new product categories and their integration into its database using Natural Language Processing (NLP).

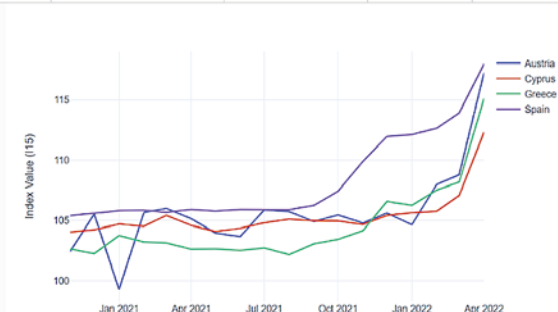
The DAECI platform provides the user with specially designed dashboards for market monitoring so that quantitative analysis can be performed immediately and reporting can be made easier. The user has the ability to select the type of visualization from various types of diagrams (box plot, time series diagram, deviation range plot, custom basket plot) and at the same time make changes to its parameters to make it easier to explore the data during modeling time. In more detail, the time series chart identifies price trends for different products and categories, for one or more companies. The graph gives a more detailed picture of price changes by category or product using measures such as quartiles, median, safety margin and extremes. The deviation range diagram describes the minimum, average and maximum selling price of catches per month, for each month. To create the custom basket diagram, a default basket was created, indicative of the average Greek household, with 16 popular categories

Eurostat Food Price Monitor

Product category: Beef
Reference country: Greece
Countries to compare: Austria x Cyprus x Spain
Select date (YYYY-MM): 2022-04

Export

Country	Last measurement: 2022-04	Difference with Greece	YoY change (%)	MoM change (%)
Austria	117.25	2.13	11.52	7.79
Cyprus	112.32	-2.8	7.4	4.9
Greece	115.12	0	12.19	6.42
Spain	117.98	2.86	11.41	3.56



based on the analysis of the Consumer Goods Research Institute (IELKA), weighing the product categories with the 2019 Consumer Price Index Authority (ELSTAT). The above diagrams give the possibility to select different time units (daily, weekly, day of the week, monthly), selection of the appropriate meter per case (average, median), observation of values with or without seasonality, definition of the desired monitoring period, descriptive and statistics for selected quantities, data mining and direct comparisons between charts.

For the analysis of the data with Machine Learning algorithms, the experience and knowledge of HCC experts were used both for the design stage and for the implementation stage. So far, we have created a two-step screening mechanism to allow fast data-driven prioritization of

Commission cases. Upon selection of a time period and some potentially suspicious products to investigate, the screening mechanism produces various relevant metrics (e.g. T-tests, Log-Differences in Differences) and a diagram to help the user assess whether the counterfactuals show unusual and suspicious changes in the prices of the products under consideration. Finally, the mechanism calculates the expected value of the suspicious product and it is identified if there is a structural break in the time series.

All of the above bring the Commission one step closer to its original goal which is none other than mapping the Greek market and having intelligent tools at its disposal to monitor the state of competition among firms. Many steps need to be taken in the coming years. First among them is the expansion of the infrastructure to integrate

new types and data sources (the ΔΙΑΓΕΙΑ, TAXIS, Athens Stock Exchange, ΓΕΜΗ, the National Electronic Public Procurement System (ΕΣΗΔΗΣ) and finally the Central Electronic Registry (ΚΗΜΔΗΣ).

More sophisticated metrics will be added to identify and quantify anti-competitive behaviors. In addition, Machine Learning methods will be applied through specialized models with the aim of (1) predicting market prices, in order to detect quantitative anomalies, (2) categorizing market products with common behavior. In its final form, the Platform will be a system that will scan the data of Greek markets under monitoring continuously and point out via Artificial Intelligence suspicious practices to be examined by the relevant Directorates of the Commission. It will also provide explanations of its recommendations to be

used as supporting material for prosecution of cases. Moreover, it will aid ongoing investigations, first by allowing files seized through formal investigative methods to be integrated on the Platform on a per-case basis and, second, by the application of Machine Learning and Graph Analysis for collusion detection, and Text Analysis for analyzing communications suspected as anti-competitive. This will benefit the Commission's staff as it will save many man-hours spent manually analyzing huge volumes of data, which could otherwise be better used in other projects where technology and Artificial Intelligence can not yet provide solutions. The ultimate goal is the goal of the HCC itself: benefit Greek society through better market oversight, allowing markets to be more competitive and transparent.



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Artificial Intelligence, antitrust, and the more technological approach

Within the mass of literature devoted to describing and analyzing the impact of artificial intelligence (AI) in the modern economy and society, a significant part is represented by studies addressing the use of algorithms by firms to predict market trends, customize services and set prices. Apparently, we live in the age of algorithms. Indeed, decision-making is increasingly transferred to algorithms. As consumers, we are surrounded by connected devices that make independent decisions and are guided by digital personal assistants. Hence, we should understand how their computational process works and probably react by becoming algorithmic consumers. On the supply side, the widespread use of algorithms is also affecting the competitive landscape in which firms operate. The wide-scale use of algorithms, in particular those used for dynamic price setting, raises competition concerns. Notably, pricing software may facilitate collusive outcomes and even lead to new form of collusion.

Because antitrust rules have been designed to deal with human facilitation of coordination, they require some form of mutual understanding among firms focusing on the means of communication used by players in order to coordinate. Mere interdependent conduct or collusion without communication (conscious parallelism) is lawful. Hence, competition policy has traditionally struggled with tacit collusion. The main concern is that algorithms (in particular, self-learning algorithms) may amplify the oligopoly problem, expanding the grey area between unlawful explicit

collusion and lawful tacit collusion.

The risks posed by algorithmic collusion have fueled a lively debate and two approaches have emerged. Some scholars consider AI collusion to be a realistic scenario and question the ability of current antitrust rules to deal with algorithmic-facilitated coordination. In a world that has dispensed with the need for meetings, conversations, and price announcements, current antitrust rules appear unfit to detect and challenge these new forms of collusion. Other scholars point to the lack of evidence, downplaying algorithmic collusion as merely speculative and considering this scenario to be based on strict underlying assumptions, hence very difficult to achieve. Further, some scholars urge focus on the potential anticompetitive use of blockchain technology arguing that blockchain solutions might facilitate both the sharing of competitively sensitive information and the implementation of anticompetitive agreements, especially when they involve the use of smart contracts.

Against this background, policy makers and competition authorities have so far endorsed a wait-and-see approach. According to the UK Competition and Markets Authority, the mechanisms by which algorithms could have an additional impact beyond traditional risk factors are quite speculative and algorithmic pricing is more likely to exacerbate 'traditional' risk factors (such as transparency and the speed of price setting), thereby facilitating collusion in markets which are already susceptible to

human coordination. In a similar vein, the French and German antitrust authorities, as well as the UK Digital Competition Expert Panel, have concluded that, in the situations considered so far, the current legal framework is sufficient to tackle possible competitive concerns, without disregarding the possibility of revising the antitrust toolkit and regime should further evidence of algorithmic collusion emerge.

Moreover, algorithms may also bring pro-competitive benefits and even be used to detect collusion between firms to ensure competitive prices. Indeed, as highlighted by the European Commission in its White Paper on Artificial Intelligence, AI may represent an additional useful tool for antitrust law enforcement. By the same token, in its report on computational competition law and economics, the Hellenic Competition Commission noted that the potential of AI in the processing of large amounts of data and pattern recognition offers relevant opportunities

for competition law enforcement, hence antitrust authorities should increasingly rely upon the use of algorithms and AI-powered analytical tools.

To this aim, several competition authorities have started relying on data science experts by appointing chief technology officers and putting in place special information technology units in order to assist them in developing advanced forensic techniques and data analytics. Further, the European Parliament recently voted a resolution calling on the Commission to promote the introduction of AI and computational competence courses in all European schools, universities and educational institutions.

Against this background, the initiatives of the Hellenic Competition Commission on computational antitrust are commendable as they strengthen expertise and knowledge to better understand the role of algorithms and AI. After all, antitrust is not (and should not be) a lawyers-only club.



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Computational Antitrust – Essay for the Hellenic Competition Commission

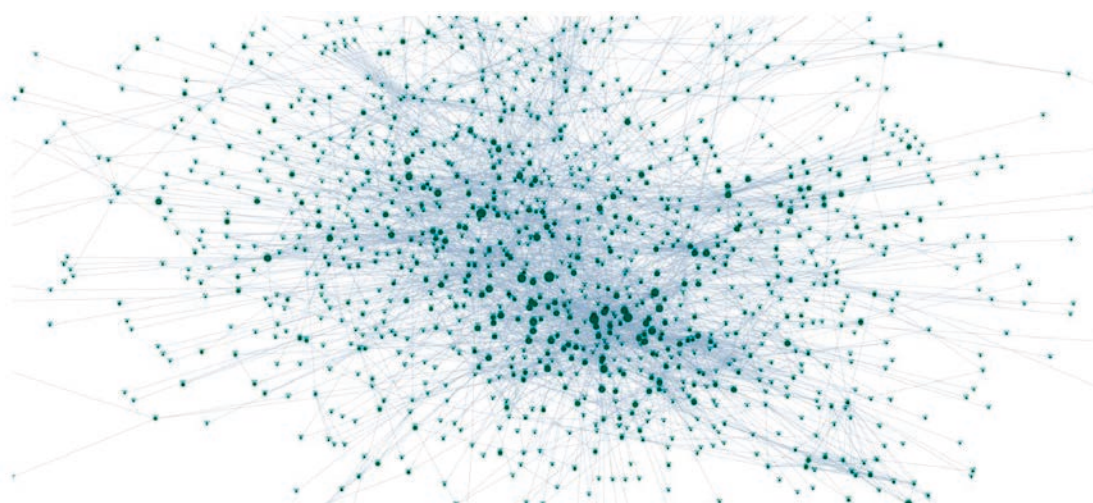
In 2020, the Autorité decided to create a dedicated digital unit¹ in order to strengthen its resources in digital areas. Launched in September of the same year, the digital economy unit is composed of four people (including two data scientists) and among its objectives, one of them is to develop new digital and computational tools allowing the Autorité to deepen its understanding of the digital sectors and to facilitate the works of the cases handlers. The following presents some achievements the unit has done so far.

First, the Autorité has collaborated with the ministry of foreign affairs to develop a digital tool called **“open terms archives”²** aimed at following the evolution of the terms of services for the main online service providers. Large digital companies hold today a central position, enabling them, through their ToS, to transform their practices and values into de facto standards which are at the heart of many aspects of our existence and our economies. With this tool, the case handlers will be able to verify the compatibility of these contractual frameworks with national and

supranational law and also make sure that they comply with previous commitments. It creates transparency in the practices of digital players.

During this collaboration, the Autorité worked on a tool to better visualize the differences between two versions of a same document. The code is available on the Autorité’s github³ under a MIT license in order to facilitate its reuse and we have also provided a demo.

The Autorité is also engaged in an on-going project aiming at identifying the quotes between all the decisions and opinions within the FCA ranging from 2009 to 2021 in order to unveil the underlying graph (see picture below) and trying to identify automatically the reasons why they are quoted. For example, the most cited decision is actually one dating back from 2007 focusing on the market for high-speed Internet access (decision 07 D 33). The Autorité aims to publish an article describing the method used and the early results obtained by the end of the year. The code used to achieve it will also be released



Picture 1: Overview of the Graph of the Autorité’s decisions. The nodes are the Autorité’s decisions and the edges the quotes between decisions

¹<https://www.autoritedelaconcurrence.fr/en/press-release/autorite-creates-digital-economy-unit>

² <https://opentermsarchive.org/en>

³<https://github.com/AutoriteDeLaConcurrence>

on an open-sourced basis at the same time and the final graph will also be made available online.

Even if the project is of interest of itself, we hope that it would also be able to help the Autorité's case handlers to identify more easily and rapidly the most relevant decisions and opinions regarding their cases.

The Autorité is also involved in the second phase of the DATACROSS project⁴ which aims to improve the prototype tool assessing corruption risk factors in firms' ownership structure (risks of collusion, corruption and money laundering in the European single market). It will be useful for cartel detections collaboration with other agencies. In parallel, the Autorité has also begun working on its own detection tool for collusion in public procurements based on the open-access databases available in France (DECP, BOAMP, INPI, etc.) combined with in-house indicators (to be built). The main challenge the Autorité is facing is that only winning bids are available on these open-access databases...

Furthermore, the Autorité proposes on

its website **an interactive map**⁵ which geolocalizes more than 300 companies fined between 2009 and 2020. Crafted with open and free solutions, it aims at presenting in an innovative and interactive way the work carried out by the Autorité. Further, the underlying data is made available on Data.gouv.fr⁶ so that it can be reused in the framework of new projects.

Unfortunately, since the time period covered stops in 2020, the Decision 21-D-16 of July 09, 2021 regarding obstruction practices by Nixon where the Autorité fined the Nixon Group 5 000 € for obstructing the Autorité's investigation, conducted on behalf of the Hellenic Competition Commission, is not on the map. We plan to update this map every 2 or 3 years so it should appear in the next publication.

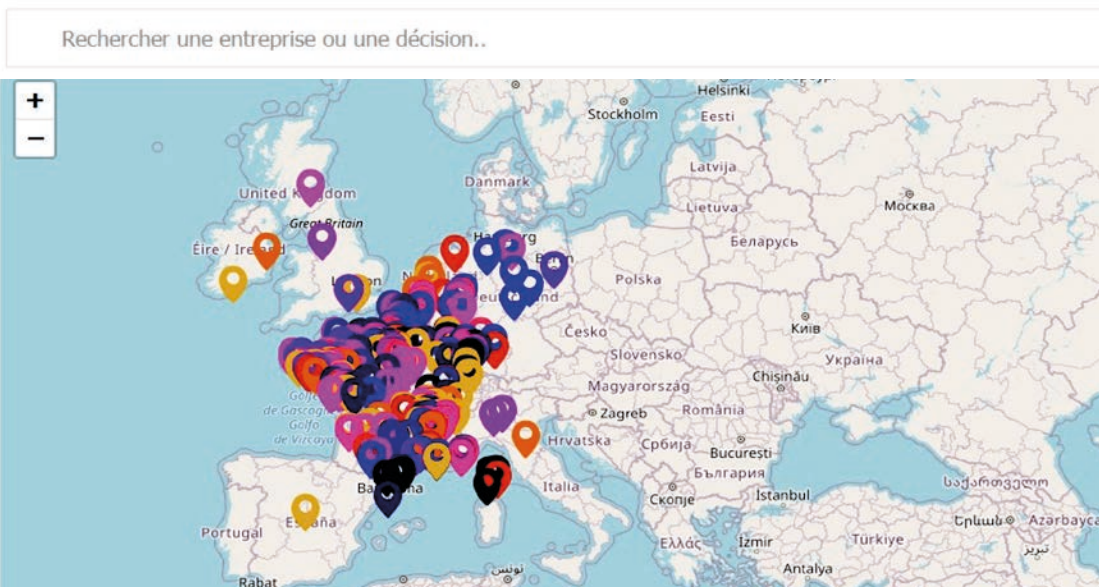
Finally, the digital economy unit is currently developing a variety of automated tools for on-going cases investigated by the competition units within the Autorité. We will share the technology we have developed for those cases in due course.

⁴<https://www.transcrime.it/en/datacross-ii-kick-off-meeting/>

⁵<https://www.autoritedelaconurrence.fr/en/key-figures>

⁶<https://www.data.gouv.fr/en/datasets/entreprises-sanctionnees-financierement-par-lautorite-de-la-concurrence-entre-2009-et-2020/>

CARTE DES SANCTIONS 2009-2020



Picture 2: Glimpse of the interactive map, centred here on Europe. No firms based in Greece were fined between 2009 and 2020.

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The opinions expressed in this article are the sole responsibility of the author and do not necessarily represent the position of the CNMC, unless expressly indicated.

The importance and possibilities of public procurement data in competition law enforcement. The Spanish case.

It is safe to say that for years, we have been living in the era of data, of the digitisation of practically all our activities and all productive sectors. This exponential increase in the volume of information available, and of the tools that allow it to be exploited, should not be a foreign concept to the competition authorities, who should know how best to take advantage of this availability.

The combination of these data and tools represents an opportunity for the competition authorities, allowing them, among other things, to make a firm commitment to ex officio detection, in particular by boosting the detection of cases of bid rigging or collusion in public procurement. Matters such as massive data analysis, automating tasks using algorithms, and extracting and processing information through machine learning techniques, can be highly useful tools for competition authorities, which have to adapt their structures to this new reality.

The purpose of this article is to present, very briefly, the Spanish situation with respect to public procurement data and the challenges and solutions that have been developed by the CNMC, using new techniques including incipient artificial intelligence.

The importance of public procurement and its relationship with the defence of competition is an ongoing priority for the CNMC. Beyond the different advocacy actions, it is worth noting that the downloading by the CNMC of public tender data goes back to 2015. The public sector procurement platform is the centralised website for information on public contracting processes in Spain, including those carried out at the state, regional and local levels, which makes it an excellent

source of data for bid-rigging cases.

The quality and quantity of the data housed in the Public Sector Procurement Platform has improved notably thanks, among other things, to various regulatory changes, and as a result the potential use of the data by this Commission has increased substantially. However, it is also worth noting some characteristics of said database that may reduce its usefulness, and the actions that the CNMC has implemented in this regard in order to improve it.

First, although the quality of the data has increased since the platform was released, it still contains errors and inconsistencies, such as impossible execution dates. Generally, each contracting body manually fills in the data on this platform, which may lead to typographical mistakes.

Using a database with incorrectly entered data could lead to significant errors when obtaining aggregated results. In order to solve this issue, CNMC has built its own public procurement database based on the selected download of certain information from the Platform, which is then automatically filtered and cleaned of obvious errors. In this new database the data is categorised according to quality levels.

This step, which could be considered of minor importance, becomes essential in terms of obtaining valid results when globally processing the data.

Secondly, although the Public Sector Procurement Platform includes a large quantity of information, it does not currently offer structured data on unsuccessful bids. This data is essential for analysing bid-rigging

risk indicators as well as for implementing an automated screening system.

To resolve this situation, the CNMC's Economic Intelligence Unit (EIU) has developed its own algorithm that reads the documents attached to each tender. It identifies the companies that did not win the tender and returns this information directly, as structured data.

Lastly, related to the above-mentioned issue, it is noted that part of the information included in the Platform is in an unstructured format (texts in Word, pdf, photographs, etc.), which makes it practically impossible to process it at an aggregate level. To do this, based on this database, the EIU has developed an instant free-text search engine for tenders in any field in the database through a very simple and user-friendly interface. This tool not only searches the structured data (such as the tender price, award price, dates or awardee companies, among other things) but is also able to search for any concept or sentence (unstructured information) written on attached documents, regardless of its format.

It also permits instant multiple selection criteria in different categories (type of contract, amount, contracting body, place of performance, etc.). Additionally, as it has been developed in-house, the different weights given to each value can be modified when returning the results.

These three examples allow us to demonstrate the complexity involved in obtaining and processing public procurement data in the fight against bid rigging. It is therefore evident that the existence of public databases is just the tip of a very complex iceberg, and it is recommendable to employ all the tools available for dealing with the data. In the specific case of the CNMC, although what we have described does not constitute a system of screening or red flags per se, it is a very important and necessary first step, and greatly facilitates day-to-day work.



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A Roadmap for Computational Antitrust

Computational antitrust is concerned with the automation of antitrust procedures and analyses.¹ The field is at the crossroads between computational law (i.e., applying computer-based problem-solving methods in law)² and antitrust.

Because the economy is complexifying, computational antitrust is bound to play a central role in the years ahead of us. One can only command the Hellenic Competition Commission for playing an active role in the space. The agency is a dynamic member of the Stanford Computational Antitrust project that aims to foster and disseminate research in the space.³

The project gathers over 65 competition agencies, legal and computer sciences researchers. In this short contribution, I explore the potential and challenges of computational antitrust based on my knowledge and experience directing the Stanford project.

1. Why computational antitrust

Enforcers currently detect 13% to 17% of illegal cartels.⁴ The detection rate is likely to

fall even lower without computational tools. On the one hand, the amount of leniency applications is reducing worldwide.⁵ On the other, the world produced 44 zettabytes of data in 2020.⁶ We will produce over 2,000 zettabytes of data in just 15 years from now.⁷

Detecting anticompetitive behaviors will increasingly amount to searching for a needle in a haystack.

Even after detecting practices, agencies face issues analyzing the data. For example, the European Commission had to analyze 1.7 billion search queries in the Google Shopping case.⁸ And on top of quantity, the nature of the data also creates challenges. Antitrust analysis is primarily static; it focuses on prices and output. But modern issues require more dynamic analysis. Computational antitrust can help the detection and analysis of practices.

2. How to compute antitrust law

2.1. Existing solutions

First, computational antitrust can start from the inside of each agency. Researchers

¹Thibault Schrepel, Computational Antitrust: An Introduction and Research Agenda, 1 STANFORD COMP. ANTITRUST 1 (2021) (introducing computational antitrust)

²Michael Genesereth, What is Computational Law?, STANFORD LAW SCHOOL, CODEX (Mar. 10, 2021) <https://perma.cc/SDK9-BGBL>; CodeX, The Stanford Center for Legal Informatics, <https://perma.cc/R3ZN-Z6GM>.

³Stanford Computational Antitrust, <https://perma.cc/89DW-WFHW>.

⁴For Europe, see Emmanuel Combe, Constance Monnier and Renaud Legal, "Cartels: The Probability of Getting Caught in the European Union," Bruges European Economic Research Papers (2008). For the United States, see Peter G. Bryant and Edwin Eckard, "Price Fixing: The Probability of Getting Caught," 73 REV. ECON. STAT., 531, 531 (1991).

⁵See Johan Ysewyn & Siobhan Kahmann, The Decline and Fall of the Leniency Programme in Europe, 1 CONCURRENCES, 44, 45 (2018) ("In 2014 there were 46 leniency applications, which dropped to 32 applications in 2015, and finally only 24 applications have been registered in 2016."); Charles McConnell, Type A Leniency Applications Down, US DOJ Official Says, GLOBAL COMPETITION REVIEW (Jun. 15, 2018) <https://perma.cc/88UH-XEZA>.

⁶Jeff Desjardins, How Much Data Is Generated Each Day?, WORLD ECONOMIC FORUM (Apr. 17, 2019) <https://perma.cc/7EVX-PN6P>. One zettabyte equals one trillion gigabytes.

⁷Statista, Digital Economy Compass, 6 (2019).

⁸Commission, Antitrust: Commission Fines Google € 2.42 Billion for Abusing Dominance as Search Engine by Giving Illegal Advantage to Own Comparison Shopping Service, European Commission (Jun. 27, 2017), <https://perma.cc/49UU-UTBU>.

have shown how agencies can code their decisions and identify new patterns out of network analysis. For example, one could visualize the share of tying cases amongst antitrust litigation and adjust public policy accordingly—either allocate more or fewer resources to related issues.⁹

The French competition agency is engaged in such a network analysis with the goal of better understanding the case law.¹⁰ Also, unsupervised machine learning can help cluster past decisions and identify decisional criteria to rationalize decision-making processes.¹¹

Second, computational tools can help gather external data. Market screening tools can rely on web scraping or natural language processing (“NLP”), where the agency provides the machine with documentation to detect (anti)competitive patterns. In this vein, Australia uses NLP to analyze trends among consumer complaints.¹² Greece has a system to gather data from different sources to detect potential infringements.¹³

Brazil uses graphs on corporate relationships between companies to detect potential minority shareholding issues.¹⁴

Third, agencies can rely on computational solutions to better analyze practices and mergers after they have collected data. For instance, agencies can rely on computational models to assess the competitive nature of mergers to measure the fitness of a company (i.e., a measure of a firm’s ability to translate size into growth).¹⁵ Agencies can also use NLP to cluster documents according to their anticompetitive likelihood, something Australia is doing.¹⁶ The UK and Mexico are also using new solutions to analyze big data.¹⁷ El Salvador uses computational tools to analyze its documentation after dawn raids.¹⁸

2.2. Tomorrow’s solutions

Tomorrow, agencies will design APIs to transfer data from agencies to companies and vice versa.¹⁹ Using real-time data, agencies monitor and automatically assess

⁹Felix B. Chang et al., *Doctrinal Implications of Computational Antitrust*, 1 STANFORD COMP. ANTITRUST 117, 127 (2021) (shows the frequency of tying practices in private antitrust cases).

¹⁰The Adoption of Computational Antitrust by Agencies: 2021 Report, 2 STANFORD COMP. ANTITRUST 78, 93 (ed. Thibault Schrepel & Teodora Groza, 2022).

¹¹Anthony J. Casey & Anthony Niblett, *Micro-Directives and Computational Merger Review*, 1 STANFORD COMP. ANTITRUST 132, 142 (2021) (explores how to create micro-directives based on 30,000 transactions).

¹²The Adoption of Computational Antitrust by Agencies: 2021 Report, 2 STANFORD COMP. ANTITRUST 78, 79 (ed. Thibault Schrepel & Teodora Groza, 2022); also, Fabiana Di Porto et al., “I See Something You Don’t See”: A Computational Analysis of The Digital Services Act And The Digital Markets Act, 1 STANFORD COMP. ANTITRUST 84, 108 (2021) (uses NLP to analyze contributions to the European Commission).

¹³*Ibid.* at 95.

¹⁴*Ibid.* at 83.

¹⁵Robert Zev Mahari et al., *Time for a New Antitrust Era: Refocusing Antitrust Law to Invigorate Competition in the 21st Century*, 1 STANFORD COMP. ANTITRUST 52, 53 (2021) (proposes “an early warning system, supported by new computational techniques and empirical data, that seeks to identify mergers that will likely undermine competition”).

¹⁶The Adoption of Computational Antitrust by Agencies: 2021 Report, 2 STANFORD COMP. ANTITRUST 78, 82 (ed. Thibault Schrepel & Teodora Groza, 2022).

¹⁷*Ibid.* at 98, 105.

¹⁸*Ibid.* at 91.

¹⁹The Adoption of Computational Antitrust by Agencies: 2021 Report, 2 STANFORD COMP. ANTITRUST 78, 86 (ed. Thibault Schrepel & Teodora Groza, 2022) (uses computational tools to alert companies when legislation is changing).

remedies. In the meantime, machine learning will inform companies about their compliance with agencies' orders.²⁰

Policymakers and regulators will also use agent-based modeling to simulate the effects of decisions and policies.²¹ Agent-based modeling offers a chance to create a computer simulation in which one can introduce agents with unique preferences and monitor how they react to changes in their environment. And to be sure, tomorrow's most promising computational solutions are yet to be invented.

3. Challenges to computational antitrust

There are several challenges to computing antitrust law. First, there is an institutional challenge. Agencies shall acquire the expertise to develop and run computational tools. Building organizational capacity will require integrating data and computer scientists within decision-making processes.²²

Second, not every sub-field of antitrust can be computed. One can automate predatory pricing analysis because it relies on known and fixed variables such as average marginal costs and average total costs. Computers can calculate these variables. But automating the analysis of innovation-related practices is differently difficult and subjective.

Third, new computational tools are to be developed. And the development of these tools begs the question of their ownership. Should they be developed by private companies, one may fear these companies will capture their functioning.²³ Should agencies develop them independently, one could worry they will be too few.

Fourth, one may question the role of computational antitrust. There are significant legal issues that cannot be dealt with using computational tools, for example, ensuring a fair trial, assessing fundamental rights,



²⁰Jay L. Himes et al., Antitrust Enforcement and Big Tech: After the Remedy Is Ordered, 1 STANFORD COMP. ANTITRUST 64, 83 (2021) (argues that “computer automation can assist decree enforcement”).

²¹Thibault Schrepel, Using Agent Based-Modeling in Antitrust Law, YOUTUBE (Jun. 26, 2021) <https://perma.cc/Q73L-ZAQ4> (demos different types of agent-based modeling).

²²Cary Coglianese & Alicia Lai, Antitrust by Algorithm, 2 STANFORD COMP. ANTITRUST 1, 14 (2022) (describes the decisions managers of antitrust authorities will need to make before using computational tools).

²³Catalina Goanta & Jerry Spanakis, Discussing the Legitimacy of Digital Market Surveillance, 2 STANFORD COMP. ANTITRUST 44, 54 (2022) (argues that “outsourcing public interest technology to market actors can have a long-term role in the development of capacity and architecture in public authorities”).

etc.²⁴ And even when computational tools can assist processes and analyses, one may want to create standards to bind agencies to balance computable versus non-computable elements.

Fifth, computational antitrust raises issues of procedural fairness. In the case of public enforcement, agencies will be required to explain the results they have reached using computational tools. They will have to find the right balance between providing companies with transparency (or accountability²⁵) while maintaining the efficiency of their tools (i.e., not exposing their limitations to companies that could develop adversarial solutions).

Sixth, computational tools have inherent limits that agencies shall seriously

consider. For example, new tools can help better predict merger output with merger simulations leveraging machine learning.²⁶ Still, predictions are always limited by elements that one cannot compute, such as Black Swans—unpredictable events. To limit this pitfall, agencies shall rely on complexity theory to better model the effect of a new decision or policy on the entire ecosystem in which companies evolve.²⁷

All things considered, the limits of computational antitrust call for a dedicated research agenda.²⁸ One can only congratulate the Hellenic Competition Commission for moving the calendar forward. It's time to fight fire with fire.



²⁴ Marcela Mattiuzzo & Henrique Felix Machado, Algorithmic Governance in Computational Antitrust—a Brief Outline of Alternatives for Policymakers, 2 STANFORD COMP. ANTITRUST 23, 33 (2022) (raises the issue of State discretion using computational tools).

²⁵ Daryl Lim, Can Computational Antitrust Succeed?, 1 STANFORD COMP. ANTITRUST 38, 50 (2021) (“[a]ccountability attempts to explain what both the algorithms and their users seek to achieve”).

²⁶ Oliver Budzinski & Victoriia Noskova, Prospects and Limits of Merger Simulations as a Computational Antitrust Tool, 2 STANFORD COMP. ANTITRUST 56, 73 (2021)

²⁷ Nicolas Petit & Thibault Schrepel, Complexity-Minded Antitrust (2022) 1, 20 <https://perma.cc/R7RN-P4PG> (provides agencies with actionable items for implementing complexity science in antitrust law).

²⁸ Research is required to help and support the adoption of computational tools the European Parliament is calling for, see European Parliament, Artificial Intelligence in a Digital Age: European Parliament Resolution of 3 May 2022 on Artificial Intelligence in a Digital Age, 172 (2020/2266(INI)) (“[c]alls on the Member States to substantially increase funding for and the technical capacity of competition authorities in order to ensure the effective and swift enforcement of competition rules in the fast-paced and complex digital economy”).

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Towards Eco-Logical Antitrust

Rethinking antitrust in the digital era

Digitalization has brought about a new challenge for the competition authorities around the world. Zygmunt Bauman metaphorically referred to the new economic reality as 'Light Capitalism' (as opposed to the traditional 'Heavy Capitalism') and described its challenges for the regulators as follows:

The passengers of the 'Light Capitalism' aircraft discover to their horror that the pilot's cabin is empty and that there is no way to extract from the mysterious black box labelled 'automatic pilot' any information about where the plane is flying, where it is going to land, who is to choose the airport, and whether there are any rules which would allow the passengers to contribute to the safety of the arrival. (Bauman, 2006, p. 59)

Digital platforms can engage a large number of users and complementors and wield enormous economic and social power through algorithmic collusion, personalized pricing, control of consumer choice, and other features which the 'automatic pilot' enables. Antitrust authorities are supposed to regulate digital giants and other actors of the digital economy, but the economics of digital platforms and platform ecosystems is not sufficiently understood and some of its parts are even perceived by regulators as a 'black box'.

Historically, antitrust emerged as a solution to complex economic puzzles. Back in the late 19th century, the Standard Oil trust took over most oil refineries in the U.S. by constantly reorganizing their business and adapting to the new regulatory environment. The Encyclopedia Britannica calls this structure the 'Mother Trust' defined as 'a maze of

legal structures, which made its workings virtually impervious to public investigation and understanding' (Britannica, 2020). The suite of approaches and tools developed at the early age of antitrust was specifically tailored to dealing with the proliferation of such complex trust-based structures.

Over time, however, antitrust was growing increasingly detached from the economic reality it is called upon to address and has eventually transformed into a set of rather formalist and unbending practices. In this legal and institutional environment, the new digital 'trusts' have been successful in escaping oversight and regulation by exercising new degrees of adaptivity and flexibility enabled by complex webs of locked-in complementors, consumers and even rivals (often turning into what are called 'frenemies') which they create and maintain. This challenges the competition authorities to rethink their methods of defining, measuring, and protecting economic competition.

Ecology for antitrust

Moore (1993) famously coined the term 'ecosystem' to describe emerging networked businesses such as Apple and IBM. 'Digital platform ecosystem' (DPE) quickly became the common denomination for the new business model in the digital era. We argue that, beyond providing figurative metaphors, ecology can offer effective approaches to model and understand the complexity and dynamics of digital platform ecosystems. In what follows, we discuss three modelling approaches that are widely used in ecology – game theory, network science, and agent-based modeling – and their potential applicability to DPEs.

Game theory is an approach to model strategic interaction of agents and emergence of cooperation in social dilemmas where individual agents are prompted to avoid cooperation even though it is beneficial for all if everyone cooperates. 'Strategic interactions' occur when agents independently optimize their behavior in response to other agents' actions, a setting which describes decentralized behavior of rational agents. In this setting, agents are expected to collectively settle in an equilibrium, a configuration from which no agent has an incentive to deviate unilaterally. In nature, cooperation is as abundant as competition and many theories and modelling approaches have been developed in ecology to explain and predict this phenomenon (e.g., Hauert et al., 2006; Nowak, 2012). A firm deciding to join a DPE is an act of cooperation as an ecosystem business model may require complementors to share data and profits. Hence, a game-theoretic approach can be suitable to understand this process and inform regulators regarding the to-be-expected scope of the collective action and its sustainability. Several collective-action models addressing some aspects of this phenomenon have already been presented in the literature very recently (e.g., Liu et al., 2022; Zhiwen et al., 2020; Wu et al., 2021), however, the variety and richness of issues and complexities involved in the collective action in the context of digital platforms call for a more extensive modelling and analysis effort.

A digital platform ecosystem can be conceived of as a network of economic agents – firms and products they produce – interacting with each other. Likewise, in

ecology, ecosystems can be represented as networks of species interacting with each other through feeding and other kinds of relationships. Network science has been extensively used in ecology to unravel the role of the network structure for the functioning of the ecosystem. For example, the famous complexity-stability debate articulates two opposing views: complexity either promotes or hinders stability. Depending on the specifications of both notions and on the research methods used, evidence has been found in support of each of the two views (Ives & Carpenter, 2007). Other studies employed network science in ecology to investigate the role of weak links (Neutel et al., 2002), to identify keystone species based on their network centrality (Martín González, et al., 2010) and to analyze sustainability of food webs based on information theory (Ulanowicz, 2004), among many others. Very recently, some researchers have started to explore if and how network science could be useful in understanding and regulating DPEs. As one notable example, Lianos & Carballa-Smichowski (2022) suggested using network centrality metrics to measure market power. The wealth of theoretical and empirical insights accumulated in ecology could be used as a source of inspiration by researchers and regulators who are looking into the relations between ecosystems network structure and its functioning.

Agent-based modelling (ABM) is a modelling approach that has gained popularity across various disciplines (Axelrod, 2006) including ecology and economics. ABM simulates complex systems at the level of individual agents which allows to represent agent heterogeneity and their dynamic interactions.

Detailed modelling of agent behaviour at the micro level allows obtaining and analyzing patterns emerging from this behaviour at the macro level. In ecology, agent-based modelling, also called individual-based modelling, has been used extensively to model plant and animal communities. This modelling delivered assessments of the impact of various disturbances on these communities, which are more nuanced than those obtained by other, more aggregated modelling (DeAngelis & Grimm, 2014). For example, (Railsback & Johnson, 2014) used an individual-based model to disentangling the complex relationships among availability of natural habitat, delivery of ecosystem services, and crop production. (Farmer & Foley, 2009) set a research ambition for agent-based modelling in economics suggesting that '[i]n principle, it might even be possible to create an agent-based economic model capable of making useful forecasts

of the real economy'. 'Useful' in this context would mean more accurate and/or more detailed (among other criteria) compared to forecasts provided by the standard tools for economic forecasting and analysis, i.e. General Equilibrium-based models and statistical models. To the best of our knowledge, (Poledna et al., 2020) present a macroeconomic ABM that, as of now, has come closest to realizing this ambition. As the power of agent-based modeling lies in its ability to represent behavior and bounded rationality, this approach to modelling appears particularly suitable to simulate the dynamics of individual digital platform ecosystems as well as entire digital economies. Indeed, by design, DPE members engage in complex power relationships with each other and employ diverse strategies to succeed on the market going beyond a mere profit maximization approach. These two features, among others, make DPE



dynamics more complex and unlike that of the conventional economic agents thus making the case for ABM. Developing an ABM that would represent a specific real-life digital ecosystem(s) is not straightforward, though, as this would require specifying behavior rules. This in turn requires detailed research on the behavior of DPEs and data to support model calibration.

Conclusions

Digital giants can successfully evade traditional antitrust scrutiny. Competition authorities need new tools which would

provide them with better understanding of digital economy actors and effective policy assessment. Game theory, network science, and agent-based modelling are three promising approaches to inspire and inform the development of new tools for antitrust. Widely applied in ecology, they provide powerful methodologies to model and analyze natural ecosystems as complex adaptive systems. Since digital platform ecosystems also develop as complex adaptive systems, transferring these methodologies to the digital economy context is justified.

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Using machine learning to develop widely applicable and valid cartel screens

Rationale

The total public procurement market in the EU – i.e. the purchases of goods, services, and public works by governments (excluding public utilities) – amounts to about €2 trillion, or about 13 percent of total GDP (European Commission, 2016)¹ (data for 2014). The share of public procurement in GDP is likely to increase further in the next few years, due to increased state intervention in the economy and greater investment in health care. However, anti-competitive behaviour is a major problem in these public procurement markets. The extra costs that collusion imposes are borne directly by the state, hence the public. Given the large volumes of spending, even a small percentage increase in prices translates into substantial budgetary implications and welfare losses.

The goal of this essay is to demonstrate how recent advances in data analytics and machine learning can help detect cartels in public procurement, with particular focus on Europe. The presented findings are based on a recently published report by the Government Transparency Institute titled “Public procurement cartels: A systematic testing of old and new screens” (Adam et al, 2022).²

Underlying conceptual framework

Detecting cartels can be especially difficult, due to a wide variety of different cartel types. Thus a high diversity of indicators is required

to detect distinct collusion strategies. We follow the categorization of procurement collusion schemes introduced by Tóth et al (2014)³ and Fazekas - Tóth (2016)⁴, which is based on three dimensions: a) elementary collusion techniques, b) forms of rent-sharing, and c) resulting market structure.

Elementary collusion techniques describe companies’ bidding behaviour that ensures that contracts are won by the agreed supplier. Therefore, indicators are needed that can detect bidding patterns in public procurement data. Second, colluding companies can agree on several different forms of rent allocation mechanism that can be potentially captured by a different set of cartel screens. Third, different market structures can emerge from different collusion techniques and from different forms of rent-sharing. Coordination often leads to highly concentrated market structures; however, colluding suppliers can effectively imitate competitive market structure if the cartel uses time to evade competition.

All the possible combinations of these dimensions can form a distinct collusion strategy. Therefore, as strategies vary by these measurable dimensions it is important to consider a variety of cartel screens and potentially combine them by these theoretical scenarios. In the report we present several different indicators that can be used to detect a variety of different cartel strategies.

¹ European Commission. (2014). Commission Staff Working Document Accompanying the White Paper “Towards More Effective EU Merger Control”. Brussels.

² Adam, I., Fazekas, M., Kazmina, Y., Teremy, Zs., Tóth, B., Rosario Villamil, I. & Wachs, J. (2022): Public procurement cartels: A systematic testing of old and new screens, Working Paper series: GTI-WP/2022:01, Budapest

³ Tóth, B., Fazekas, M., Czibik, Á., & Tóth, I. J. (2014). Toolkit for detecting collusive bidding in public procurement: With examples from Hungary. Budapest: Government Transparency Institute.

⁴ Fazekas, M., & Tóth, B. (2016). Assessing the potential for detecting collusion in Swedish public procurement. Stockholm: Swedish Competition Authority.

Data

One of the main advantages of this strategy is that these indicators can be measured and tested using readily available administrative datasets on public procurement tenders. We use public procurement data with unprecedented scope and detail from six European countries (namely France, Hungary, Latvia, Portugal, Spain, and Sweden) and merge them with cartel cases manually collected from country specific sources of court rulings. This strategy enabled us to link 77 proven cartel cases (from the different countries) to public procurement data based on the name of the involved companies and the date of the ruling.

Methodology

Using these proven cartel cases we aim to identify valid cartel screens, that is indicators or combinations of indicators which accurately predict cartels in the data. As an initial exploratory step we look at individual indicators but as expected based on our conceptual framework postulating that cartels are diverse, no one indicator works well on predicting all the different cartel strategies.

Therefore, we turn to machine learning combining individual indicators in a flexible way for producing a robust risk prediction. We apply a random forest supervised machine learning-based approach which makes use of a set of known cartel and non-cartel cases, by labelling contracts won by cartel and non-cartel members as the outcome variable.

The algorithm learns from the collusion risk factors and control variables, serving as predictors or features, how best to predict that label (Huber et al, 2020)⁵. This method is particularly well suited for datasets where the same outcome may be the result of multiple different combinations of predictor values (James et al, 2015)⁶. Once the optimal model is identified using the test-train samples made up of proven cartel and non-cartel cases, it becomes possible to make predictions to the full universe of contracts in a country assuming that cartel behaviours in the whole economy are comparable to the uncovered, proven cases.

Results

In the final model we use a pooled dataset – from the 6 countries – of 13,640 contracts of which 5,476 were awarded to cartel members during the cartel period. We use a before-after approach indicating that we compare contracts of cartel companies before the cartel was revealed to those won by them afterwards.

The best random forest model achieved a respectable accuracy (ratio of correctly predicted cases/all the cases) of 89.7% on the test set (precision=84.1%, recall=89.3%). Albeit accuracy slightly decreases to 82% when control variables are excluded. While the overall prediction performance of the model is quite high, we also expect the relationships within the model to correspond to theoretical predictions. We can establish that several indicators, such as the Hirschman-Herfindahl

⁵ Huber, M., Imhof, D., & Ishii, R. (2020). Transnational machine learning with screens for flagging bid-rigging cartels. Université de Fribourg.

⁶ Gareth James, Daniela Witten, Trevor Hastie & Robert Tibshirani (2021). An Introduction to Statistical Learning: With Applications in R. 2nd edition, Springer, London.

Index (HHI, measuring market concentration), procurement subcontracting and the number of bids for contracts are important features to predict cartels.

However, looking into the directions and shapes of each predictors' impact on the predicted collusion probability, we find a varied and complex picture. For example, the most influential elementary collusion indicator, HHI, is associated with a markedly higher predicted collusion probability when market concentration is low, while medium levels of HHI are associated with a close to average predicted probability of collusion. Regarding subcontracting, the absence of subcontractors leads to a markedly lower prediction than their presence. Considering

the number of bidders the pattern is markedly U-shaped with a single bidder and more than 8 bidders leading to a somewhat higher predicted collusion probability.

These results highlight the large potential in applying machine learning algorithms to predict collusion in public procurement. Well-defined, complex algorithms can find new patterns in the data while also considerably increasing prediction accuracy and overall generalizability.



Chapter

2

The HCC

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Hellenic Competition Commission (HCC): www.epant.gr

The HCC is an Independent Administrative Authority and enjoys administrative and financial autonomy. It also has distinct legal personality and may be a party to any kind of trials/legal proceedings on its own right. The President sits at the top in the HCC's chain of hierarchy.

**Plenary of the
Competition Commission
8 Members**

General Directorate:

82 staff

(65 Case Handlers, 17 Administrative Staff)*

*(Not-including staff seconded to other services,
but including staff on long-term leave)

The HCC's Board

The HCC Board comprised of the following members in 2021:

- President of the HCC:

Ioannis Lianos, *Professor of Competition Law and Public Policy, Faculty of Laws, University College London*

- Vice-President of the HCC:

Kalliopi Benetatou, *Ph.D., Economist, Athens University of Economics and Business*

- **Commissioners-Rapporteurs, Members of the Board:**

1. **Panagiotis Fotis**, *Ph.D., Economist, Athens University of Economics and Business*
2. **Ioannis Stefatos**, *Economist*
3. **Maria Ioannidou**, *Senior Lecturer in competition law, School of Law, Queen Mary, University of London*
4. **Maria Ioanna Rantou**, *LLM, Attorney-at-law*

- **The other Members of the Board of the HCC (serving on a part-time basis) are:**

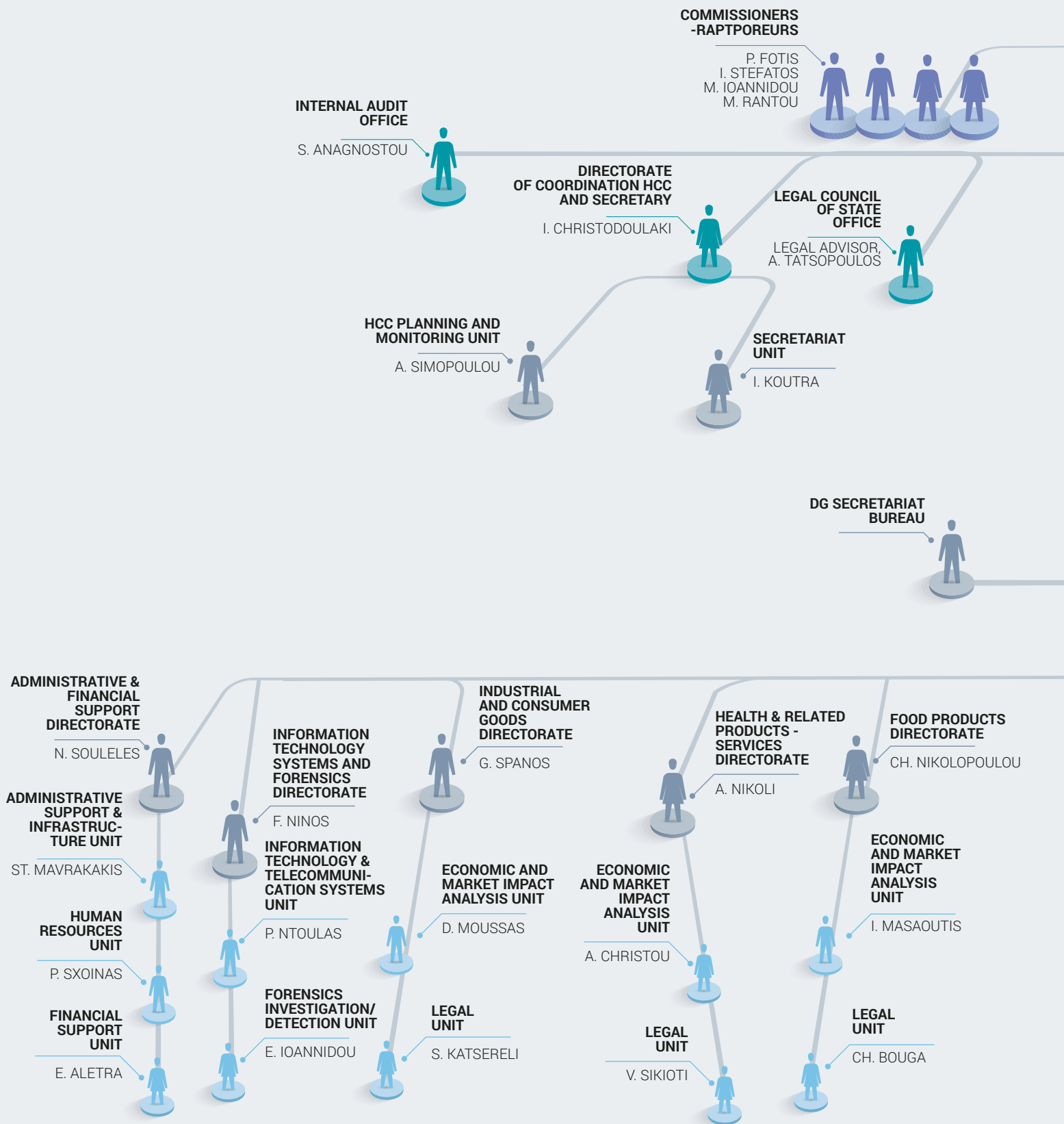
1. **Sotirios Karkalakos**, *Professor, University of Piraeus,*
2. **Ioannis Petroglou**, *Ph.D., Attorney-at-law*

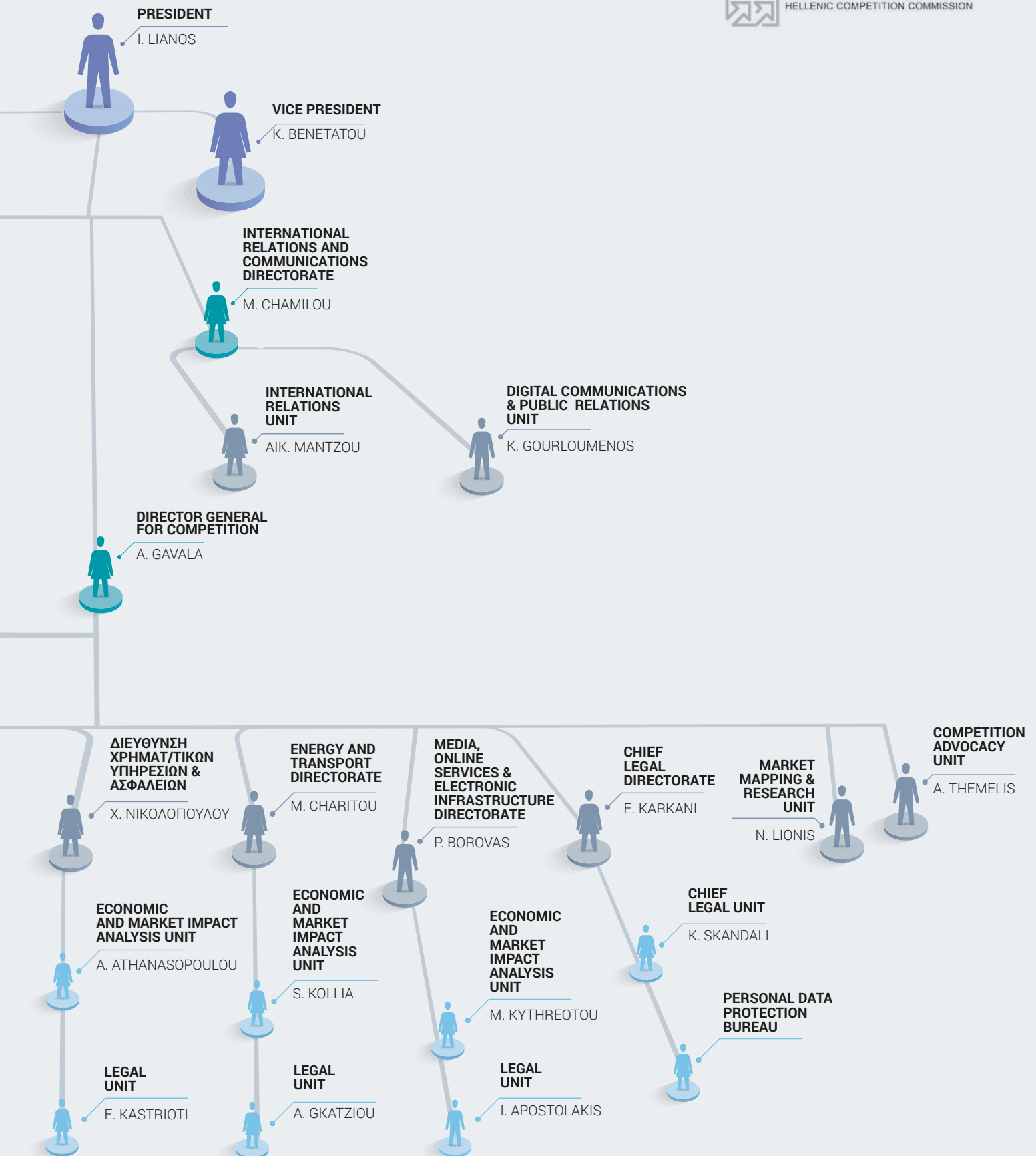
and their alternate Members of the Board:

1. **Michael Polemis**, *Assistant Professor, University of Piraeus and*
2. **Afroditi Adamakou**, *Attorney-at-law, EMLE*

(For more details see: <https://www.epant.gr/en/ea/the-commission.html>)

Organizational Chart of the HCC







COVID19

2021 – The HCC in highlight

The year 2021 was marked as a period of **vigorous action** taken by the HCC. The **COVID-19 pandemic** coupled with the phenomenon of **soaring prices** were the focus of public and the HCC's concern.

The HCC carried out **the most unannounced inspections** (in terms of number of inspected undertakings) it has ever organised in a similar period of time in the past. It launched a **series of inquiries in different markets and sectors** of the economy triggered by indications of anti-competitive practices.

2021 was also a milestone year for the HCC, both in terms of its efficiency (albeit with reduced staff, **75% more decisions** were issued compared to the average of the previous decade), as well as in terms of «range» of its interventions as, for the first time in its history, the HCC unfolded **a broad strategy**

which included regulatory interventions (in the construction and press distribution sectors), sector inquiries in key sectors of the national economy to **enhance the HCC's case generation**, (e-commerce, fintech, waste recycling and management, medical services and health insurance), **innovative tools** to boost the competitiveness of the national economy (the sustainability sandbox), various actions **to promote competition** (competition advocacy) **and cooperation** with different bodies (in particular, consumer associations and small and medium-sized businesses), but also an **increase in the number of cases** initiated following complaints as well as ex officio, also due to the support provided by the new HCC's **whistleblowing tool**.

In particular, a great effort was put forth in 2021 to increase the number of Cases brought before the Commission. Especially **in 2020 the number of decisions taken was 25 while in 2021 it was 40**.



2021

Also the number of **dawn raids** increased significantly from **7 (68 companies) to 17 (101 companies)**.

The significant efforts of the HCC staff continued and the **average age** of pending cases before the Commission was reduced **from approximately 8 years in September 2019 to 1.4 years in 2020, and to 1.1 in 2021**.

It is noteworthy that the completion of the pending cases did not limit the HCC's activity to improve its effectiveness relating to the cases investigated by the Directorate-General for Competition and assigned to a Commissioner-Rapporteur for consideration in plenary. On the contrary, there has been an **increase of more than 50% since 2019 in the cases assigned to a Commissioner Rapporteur for priority examination**.

These substantial results, as well as the investments that have been made over the last two years in **staff training** and **transfer of know-how**, in the use of the most **advanced logistics infrastructure and software**, in attracting **experts of international standing** to strengthen our work as well as in improving the HCC's efficiency and internal organisation, enable us to step up our efforts in detecting anti-competitive practices and addressing the phenomenon of high prices, as never before. Of course, the **strengthening and renewal of the HCC's human resources** and the provision of the necessary incentives to reward the significant effort made by our officials, are necessary conditions to achieve our objectives more effectively to the benefit of consumers and the national economy.

2021 - The HCC in numbers Completed

9

Decisions
issued /
16.2m
Euro fines

23

Complaints

13

Ex-officio
investigations

17

Dawn raids in
101 companies

862

Questionnaires
sent

17

Merger
Notifications

8

Other
Research

1

Completed
Sector
Inquiry

3

Investigations on
implementation
of Decisions

89

Inquiries from
European and
International
organizations

145

Responses
to questions
& petitions of
MPs submitted
to the Greek
Parliament

22

Responses
to questions
from public
bodies and
organizations

113

Responses
to citizens'
questions

79

Responses
to business'
questions

10

Responses
to preliminary
rulings

37

Representations
in ECN working
groups &
international
conferences

5

Conferences /
public
consultations

Initiation / Ongoing

119

Investigations
in various
sectors of the
Greek economy

44

Complaints

27

Ex-officio
investigation

5

Sector Inquiries

4

Other
investigations

6

Cases about
compliance
with Decisions

11

Notified
concentrations

1

Regulatory
intervention

1

Case of request
for investigation

5

Other cases

2021 – The HCC's Actions & Advocacy

The HCC has been particularly active throughout 2021, a year that is a critical point in the history of the HCC since, due to the multiple and dynamic phenomena, the HCC was placed at the center of economic and social developments inside and outside Greece. The HCC's actions are multidimensional and are distinguished by both their pluralism and innovation, the scientific approach and investigation of the market and its conditions in various sectors; the immediacy of multiple interventions in critical market developments to ensure the public interest; the international presence and scope; the new technological applications that came into force to strengthen the work of the HCC; and the interactive relationship of the HCC with businesses and consumers.

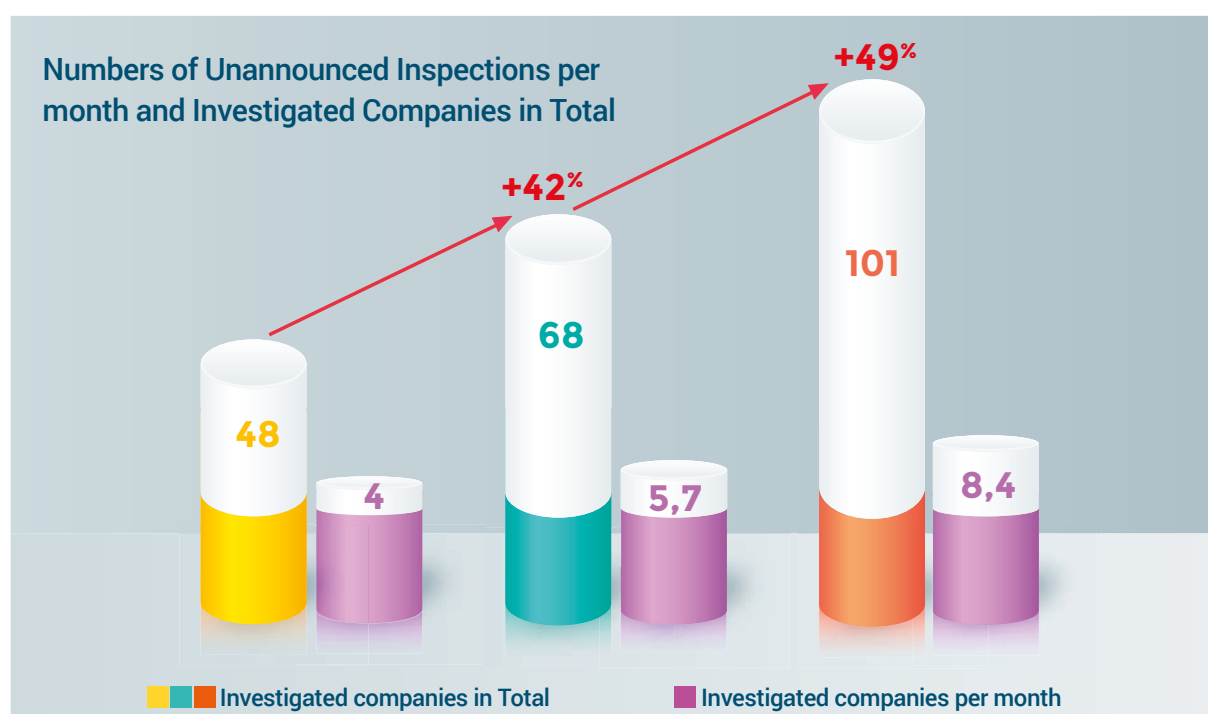
Investigations

Dawn Raids

The HCC carried out 17 dawn raids in 101 companies, compared to 7 dawn raids in 2020 in 68 companies. In addition, as shown in the chart below, in 2021 the number of companies investigated per month increased to 8.4, compared to 5.7 in 2020 and 4.0 in 2019, showing an increase of 49% in 2021, from 42% in 2020 in relation to 2019.

Other Investigations – energy market

The HCC, in follow-up to its actions in key sectors of the economy, and in the context of the effective ex post application of competition rules in the electricity sector, launched on 16.12.2021 an ex-officio investigation in the market for the retail supply of electricity to low voltage customers. Following a preliminary investigation and monitoring of the specific market, the HCC proceeded with investigative measures in eighteen (18) undertakings active in this market to identify any anti-competitive practices under Law 3959/2011 and the Treaty on the Functioning of the European Union (TFEU).



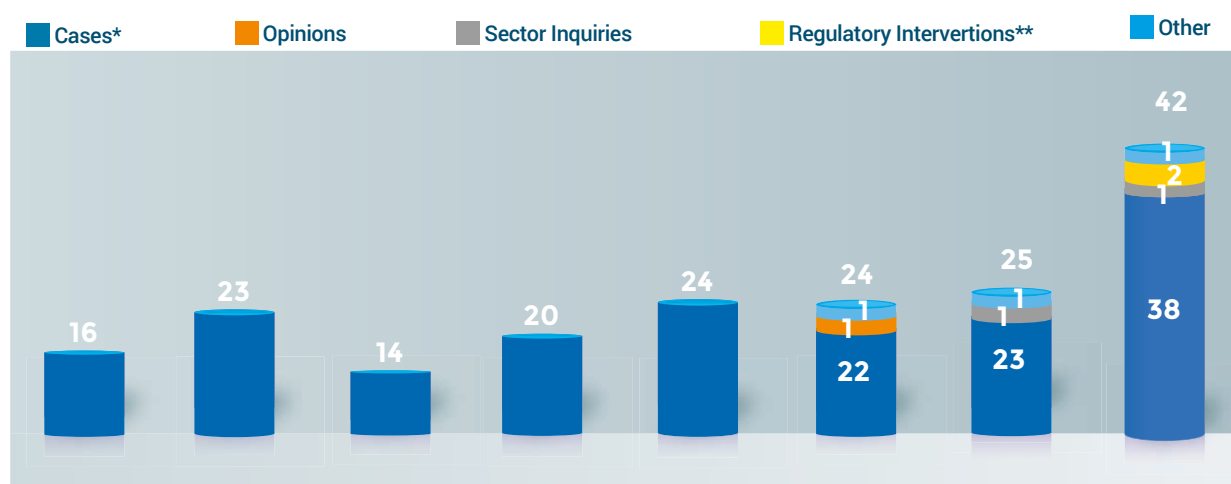
Finally, the HCC, in cooperation with the Regulatory Authority for Energy (RAE), which is in charge of the ex ante control of competition in the energy sector, is closely monitoring the price increases occurring worldwide partly because of the current pandemic, as these increases may have an impact within the Greek territory. It has also set up a working group consisting of HCC's officials, in collaboration with experts from foreign and domestic universities, such as the University of Cambridge, the University of East Anglia and the Athens University of Economics and Business to closely monitor the market.

Increase in decision-making and reduction on pending case time

The HCC set up a Task Force in the end of 2019, consisting of a sufficient number of staff who were relieved of any other duties and who worked at a super-intensive pace under the supervision of the competent supervisors and directors, and in record time examined a large number of pending cases (dating back to before 2011), completing this mission with great success. A second Task Force was set up in January 2020 to complete pending cases brought before the Commission before 2016.

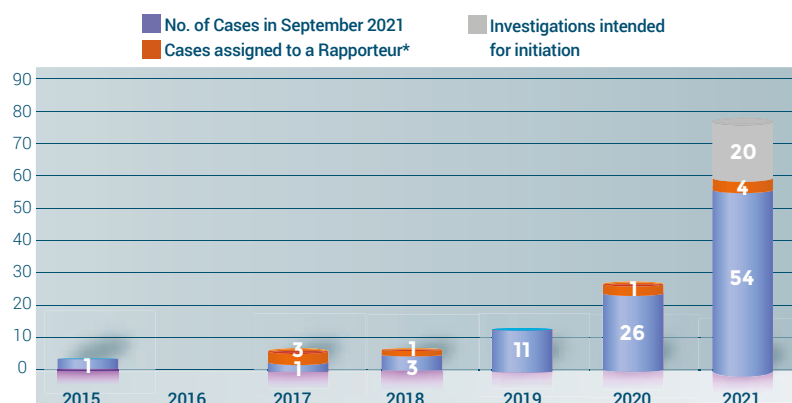
Continuing this work, 2021 was also a milestone year for the HCC, both in terms of its efficiency (with 10% less staff, 75% more decisions were issued than the average of the previous decade), the variety of cases, but also on reducing the time of pending cases to 1.1 years on average.

HCC DECISIONS 2014 - 2021

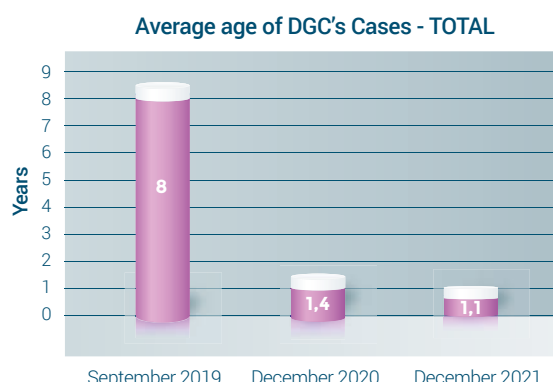


* Ex-officio investigations - Complaints - Mergers - Settlements - Commitments - Interim Measures - Obstructions etc.

** In regulatory interventions, HCC Opinions of the year 2021 have been published.



* The cases assigned to a Rapporteur have a four-month time-line for completion, with the possibility of a two-month extension upon HCC President's approval. Source: DGC (assisted by the Advocacy Unit), Processing: Directorate of Coordination and Secretariat.



Covid-19 Competition Task Force

The Directorate-General for Competition (DGC) of the HCC, as early as the outbreak of the pandemic, systematically monitors the economic data in various sectors, with emphasis on healthcare products and services, consumer commodities and foodstuffs regarding, on the one hand, possible price increases in basic consumer goods (such as, indicatively, sanitary, agricultural and food products), as well as SARS-CoV-2 diagnostic tests, throughout the value chain and, on the other hand, regarding any shortages of these products.

In 2021 the Task Force has started updating its ex-officio investigation in the markets for the supply of coronavirus detection tests and antibody tests. In addition, a number of initiatives have been taken:

Public announcements relating to future price increases from associations of undertakings and other professional bodies

In October 2021, following press reports on price increases in the markets for the supply of traditional meals in the Athens region, restaurant services in the Larissa region and bakery products in the Patras region, the HCC had already contacted specific Business Associations in order to draw their attention so that they refrain from any anti-competitive practices.

In this context, the aforementioned Business Associations were asked to refrain from any such conduct and to promptly inform their members of their obligations to comply with competition rules. Furthermore, the HCC informed all undertakings as well as associations of undertakings operating in the Greek market, at either local or national level, about potential cartels and concerted practices, in breach of competition law, between competing companies aiming at establishing, recommending and imposing an intended future price or discount for products or services that a company supplies or may supply or that a company purchases or may purchase.

Pricing of PCR and Rapid Tests in the Greek market

On 14.10.2021, the HCC informed citizens by a press release that, under the relevant Ministerial Decision [no. 98491/9.9.2021 (GG B'4181/9.9.2021)], price caps were set for SARS-CoV-2 diagnostic tests carried out in private diagnostic laboratories, private clinics and also in other retail outlet, such as pharmacies. In particular:

- "1. For the diagnostic test for SARS-CoV-2 based on the molecular Real Time - PCR method:
 - a) a maximum price for service providing (analysis of sample etc.) is set at forty euros (40 €), including charges for the required reagents and consumables, and
 - b) a maximum price for sampling in private diagnostic laboratories and private clinics is set at twenty euros (20€).
2. For the rapid antigen detection (RAD) test for the detection of SARS-CoV-2, a maximum price, charged for service providing (analysis etc.), including charges for the required reagents and consumables, and sampling in private diagnostic laboratories, private clinics as well as in any other retail outlet, is set at ten euros (10€)."

The tests, carried out in private diagnostic laboratories, private clinics, pharmacies and other handling points, can be charged at lower prices and up to the price-caps referred to above. Therefore, professionals licensed to carry out SARS-CoV-2 diagnostic tests or antigen detection tests are entirely free to offer the price of their own choice, capped at the amounts specified in the Ministerial Decision.

In the above context, the Panhellenic Pharmaceutical Association, in compliance with the HCC's recommendation calling for the alignment of the Association's announcements to its members with competition law, a) posted on its website the revocation of its letter number 3364 / 26.7.2021 [Panhellenic Pharmaceutical Association | Possibility of pharmacists to perform rapid tests with a fee of 20 euros plus VAT – Document revocation (pfs.gr)] and b) posted on its website, and notified to all the national pharmaceutical associations the letter under ref. no. 8009/01.10.2021 of the HCC as well as the Association's reply letter under ref. No 4493/11.10.2021, in order to make clear to all its members that the prices referred to in Ministerial Decision no. 98491/9.9.2021 for SARS-CoV-2 diagnostic tests or antigen detection (RAD) tests shall be understood as maximum and not as fixed prices.

Finally, in view of the recent increase in demand for SARS-CoV-2 diagnostic tests using the molecular Real Time - PCR or the rapid antigen detection (RAD) method, in view of the increased transmissibility of the Omicron variant, the HCC is already collecting data and updating the assessment of the PCR & Rapid test supply markets for the period extending from January 2021 to January 2022.

Sector Inquiries

The year 2021 has been an opportunity for the HCC to complete, update and initiate several Sector Inquiries in certain areas of the economy of particular interest to consumers and businesses. From Super-Markets to Fintech and E-commerce, to Health Services and Waste Management, the Sector Inquiries of the HCC demonstrate the diversity of challenges that the Greek economy faces and the systemic actions undertaken by the HCC to address these challenges.

- Sector inquiry on **Basic Consumer Goods / Super-Markets**: Following the publication of the Interim Report, the public consultation, as well as the analysis of the updated data collected during 2020, the Hellenic Competition Commission (HCC), published its Final (market study) Report in the field of production, distribution and marketing of basic consumer goods and in particular food products, as well as cleaning and personal hygiene products (05.03.2021). An executive summary (in English) of the findings is available in the following link https://www.epant.gr/files/2021/supermarkets/exec_sum_supermarkets_final_en.pdf. Further information on the scope and purpose of the sector inquiry is available in the dedicated webpage (in English) <https://www.epant.gr/en/enimerosi/sector-inquiry-into-basic-consumer-goods.html>.
- Sector inquiry into **Fintech**: sending Questionnaires to businesses (March 2021) and publication of the interim report (22.12.2021). An executive summary (in English) of the findings is available in the following link https://www.epant.gr/files/2021/fintech/executive_summary_Interim_report_Fintech.pdf. Further information on the scope and purpose of the sector inquiry is available in the dedicated webpage (in English) <https://www.epant.gr/en/enimerosi/sector-inquiry-into-fintech.html>.
- Sector inquiry into **E-commerce**: sending Questionnaires to businesses (March 2021) and publication of the interim report (02.08.2021). An executive summary (in English) of the findings is available in the following link https://www.epant.gr/files/2021/Ecommerce_Executive_Summary_en.pdf. Further information on the scope and purpose of the sector inquiry is available in the dedicated webpage (in English) <https://www.epant.gr/en/enimerosi/sector-inquiry-into-e-commerce.html>.

- Sector inquiry into **Provision of Private Health Services and related Insurance Services**: initiation of the inquiry (5.7.2021) and conducting of the first tele-conference (26.10.2021). Further information on the scope and purpose of the sector inquiry is available in the dedicated webpage (in English) <https://www.epant.gr/en/enimerosi/health.html>.
- Sector inquiry into **Waste Management and Recycling Sectors** in specific waste categories: initiation of the inquiry (16.07.2021) and conducting of the first tele-conference (18.11.2021). Further information on the scope and purpose of the sector inquiry is available in the dedicated webpage (in English) <https://www.epant.gr/en/enimerosi/wastemanagement.html>.

Sustainable Development and Competition

At a time when the phenomenon of climate change is taking on great proportions, the need to accelerate the transformation of the Greek economy, through the adoption of environmentally friendly actions to the benefit of consumers and citizens and also as a means of gaining competitive advantage for businesses, becomes urgent.

In this context, in 2021, the HCC made two innovative moves, the joint publication with the Netherland Authority for Consumers and Markets (ACM) of a Technical Report on Sustainability and Competition and also the proposal to create a sandbox for sustainable development

Technical Report on Sustainability and Competition

Following the Staff Discussion Paper of the General Directorate of Competition on Competition Law and Sustainability (16/12/2020) and the successful tele-conference (28/09/2020) with Her Excellency the President of the Hellenic Republic, Ms K. Sakellaropoulou giving the welcoming speech, the HCC in collaboration with the Netherland Authority for Consumers and Markets (ACM) jointly commissioned to outstanding experts the drafting of a technical report on sustainability and competition.

Among the conclusions of the Staff Discussion Paper was the need for the HCC to facilitate the transition to a green economy and support innovation, taking into account possible externalities from generation to generation through the use of new tools and approaches, in order to understand consumer behavior. The two authorities invited Professors Anastasios Xepapadeas, Eftihios Sartzetakis and Roman Inderst, to compile a technical report drawing on concepts and tools, mainly from environmental economics, to answer the question of what forms of quantitative assessment could be applied to take account of the broader social benefits in a green circular economy, in competitive assessments.

It should be noted that HCC with ACM are currently co-leaders to the initiative undertaken by the Horizontals and Abuse Working Group of the European Competition Network for the coordination of a group of EC member-countries, including France, Germany, Finland, Hungary, Luxembourg and Ireland in order to draft a document with the views of all participants on a series of issues for the integration of the notion of



sustainability in competition law and economics. Further information as well as links to the various documents and events can be found in the following link <https://www.epant.gr/en/enimerosi/press-releases/item/1287-press-release-technical-report-on-sustainability-and-competition.html>.

Sandbox for Sustainability and Competition

The proposal for the creation and implementation of the Sandbox for Sustainable Development: this is an initiative that follows from the various national, European and global level initiatives on the issue of sustainable development. The HCC has been one of the few authorities active in the promotion of sustainability. The HCC has initiated an innovative idea to generate a sandbox for the promotion of business initiatives which promote sustainable business solutions. This will allow the industry to experiment with new business formats that aim to realise more quickly and efficiently sustainability goals, and which involve cooperation between competing undertakings or even more permanent changes in market structure. More information on the Sandbox project can be found in the following link (in English) featuring the public consultation for the creation of the Sandbox <https://www.epant.gr/en/enimerosi/sandbox.html>.

The Sustainability Sandbox idea has generated interest from around the world (the Antitrust Section of the American Bar Association also contributed to the public consultation) and has been hailed by other international organisations such as “Business at OECD” (BIAC) (see e.g. comments to the OECD Competition Committee for its Roundtable on Environmental Considerations in Competition Enforcement [https://one.oecd.org/document/DAF/COMP/WD\(2021\)58/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2021)58/en/pdf)).

Technological Developments / Digital Services / Data Analysis

The HCC has specifically invested in innovation and digital upgrades over the last two years. In this context, taking into account the need for digital transformation of public services especially during the pandemic period, the HCC's website provides modernized digital services to businesses, public bodies and citizens.

Digital Services

In 2021 the website for digital services was updated with the addition of a number of features. Specifically, digital services offered through the HCC's website are the following:

- Anonymous Provision of Information (Whistleblowing)
- Electronic submission of a request for a tele-meeting / tele-conference with officials of the HCC
- Online submission of a complaint using the complaint form.
- Notification of a merger operation electronically using the relevant notification form.
- Electronic submission of an application for derogation from the obligations of companies for suspension of a merger.
- Online submission of a commitment proposal.
- Electronic submission of intervention in a case as a third party.
- Electronic submission of a request (from public bodies) / query for an opinion on free competition issues.
- Possibility of electronic information on the payment of the fee 1/000 of art. 17 of Law 3959/2011 and submitting an application for its return.
- Electronic submission of general questions.

Whistleblowing tool

In investing further in digitally upgrading the services offered to consumers and business as well in incorporating the most innovative solutions and tools to address anti-competitive practices that harm the Greek economy and consumers, the HCC created an anonymous information system (whistleblowing platform) and made various efforts for its promotion, including the presentations in the mass media (tv/ radio stations) and social media.

The HCC proceeded in creating a secure digital environment for the reporting/submission of anonymous information, following the standards of the respective digital tools (whistleblowing) used by the European Competition Commission, as well as other Competition Authorities in the EU (e.g., Germany, Sweden, Denmark).

The whistleblowing platform was put to operation on March 2021 and has developed to become an extremely successful tool for the HCC – various investigations and interventions have already been initiated from

information received over the platform. The whistleblowing platform is also a tool to reach businesses and consumers residing in rural areas and in islands where the economies are considered as “closed economies”. More information can be found in the following link <https://www.epant.gr/en/enimerosi/press-releases/item/1344-press-release-anonymous-reporting-of-information-whistleblowing.html>.

It is also worth noting that, on the last day of 2021, the HCC initiated a nationwide communication campaign to promote the whistleblowing system, see further <https://www.epant.gr/en/enimerosi/press-releases/item/2067-press-release-return-of-dividend-to-the-state-budget-for-the-fiscal-years-2020-and-2021.html>.

Data Analytics and Economic Intelligence Platform

The HCC, collaborated and developed with a group of experts a specialised tool - platform (the HCC Data Analytics and Economic Intelligence Platform). The platform draws and processes, inter alia, data collected by the “e-katanalotis” (e-consumer) platform of the General Secretariat for Consumer Affairs, the e-fuels database, and data collected by the Central Market and Fishery Organisation (CMFO), monitors consumer goods and foodstuff prices in supermarkets, fresh products and diesel/petrol, systematically and almost on a daily basis, to detect possible concerted practices.

The Platform was presented to the public in April 2021. The Platform is a leading real-time data collection tool at pan-European level for a number of sectors of the Greek economy while, at the same time, it provides the possibility for processing, displaying and analysing this data. The Platform also has a built-in tool for detecting possible suspicious price discrepancies. The integration of data in the Platform started with the price data for basic consumer goods from ekatanalotis. Subsequently, it became possible to gradually integrate price data for vegetables, fruits and meat from 2017 (OKKA.gr) and fuel from 2015 (fuelprices.gr).

Through the use of these new technologies, the HCC has at its disposal a wide range of market investigation methods (market statistics and surveys prepared for a number of products every 15 days, sending questionnaires to companies which increased by more than 1980% in 2020 compared to those sent in 2019, interviews and statements by market players and operators, unannounced on-site inspections], while it now has also the possibility of real-time market monitoring through the Data Analytics and Economic Intelligence Platform.

Further information can be found in the following links <https://www.epant.gr/en/enimerosi/press-releases/item/2086-press-release-presentation-of-the-platform-hcc-data-analytics-and-economic-intelligence.html> and <https://www.epant.gr/en/enimerosi/press-releases/item/1373-press-release-presentation-of-the-hcc-data-analytics-and-economic-intelligence-platform.html>

Guides

Competition & SMEs

In 2021 the HCC developed an Information Guide for Small and Medium Businesses (SMEs), which provides SMEs with information in relation to their rights and obligations under competition law. The Guide contains the critical information that every SME needs to know both about the practices that it should avoid applying in the market, but also the information that it needs to know for its protection from anti-competitive practices that it may experience from larger companies that negatively affect it. The purpose of the Guide is to empower SMEs within the digital economy by providing examples of anti-competitive practices they may face in the market and which they should disclose to the HCC which should take action for the enhancement of competition.

It is worth noting that this sector of the economy is of particular importance to the Greek economy since SMEs create more than half of the added value in the Greek economy and account for 99,9% of businesses in Greece. The HCC has developed this Guide so as to enhance knowledge in relation to competition law to the thousands of SMEs in the country. More information about the Guide is available in the following link <https://www.epant.gr/en/enimerosi/smes.html>. It is also worth noting that this initiative follows the development of the “Learn About Us” Guide for the general public in late 2020, available at <https://www.epant.gr/en/enimerosi/learn-about-us.html>.

Law-making procedures

The HCC has continued to provide its opinion and views on legislation for the operation of various market segments as well as to cooperate with the Secretary-General for Trade & Consumer Protection to formulate national policy on European legislative initiatives. In addition, it has cooperated with Ministries for the formulation of other laws (e.g., flea markets bill, public procurement bill, media).

Of foremost importance is the provision of opinion, views and consultation on draft legislation for the transposition of Directive 2019/1 into Greek legal order and the revamp of Law 3959/2011 (Greek competition Act), during last year (2021). Law 4886/2022 amending Greek Competition Act was enacted in January 2022 (GG Bulletin A 12/24.01.2022).

Congresses-Conferences

During 2021, the HCC held five (5) conferences / teleconferences including tele-consultations. The conferences were conducted via the Internet using a Full HD Studio created for the needs of digital communication and are part of the general framework of the digital communication reform of the Competition Commission, based on which the Commission hopes to have more direct contact with both companies and with consumers and citizens, for the benefit of the development of the Greek economy. Videos of the conferences are available on the EA channel at www.youtube.com.

- Digital International Conference (04.02.2021) by the HCC and the Economics and Policy Academy on: «The intersection between Competition and Regulation: Prospects for Reform». Invited speakers were high officials from Greece and abroad, including the Deputy Prime Minister Panagiotis Pikrammenos, the Minister of Development and Investment, Adonis Georgiadis, the former Deputy Prime Minister Evangelos Venizelos, the former Minister Stefanos Manos, the former Italian Prime Minister and former European Commissioner for Competition Mario Monti, Presidents of the Greek, Belgium, Israeli and Lithuanian Competition Commissions, and the OECD, Presidents of Greek Regulatory Authorities, as well as academics (see <https://www.epant.gr/en/enimerosi/press-releases/item/1301-press-release->

digital-international-conference-the-intersection-between-competition-and-regulation-prospects-for-reform.html).

- International Competition Law and Policy Training - Consumer Associations: The Hellenic Competition Commission (“HCC”) together with BEUC, the European Consumer Organisation, held a competition law and policy training on Monday, 28 June and Tuesday, 29 June 2021. The training was part of a series of actions of the HCC in order to strengthen the participation of consumer associations in the implementation of competition law. It was the second training event organised by the HCC following the one on March 16, 2021, in collaboration with the Cypriot Commission for the Protection of Competition. For more information on the first training event, see <https://www.epant.gr/en/enimerosi/press-releases/item/2075-press-release-conference-on-training-of-consumer-associations.html>.
- Digital conference “The Promise of Computational Competition Law and Economics”: The HCC and the BRICS Competition Law and Policy Centre co-organised in May 2021 an international online Conference on “The Promise of Computational Competition Law and Economics”, supported by the Journal of Competition Law and Economics (see <https://www.epant.gr/en/enimerosi/press-releases/item/1399-press-release-digital-conference-the-promise-of-computational-competition-law-and-economics.html> and <https://www.epant.gr/en/enimerosi/press-releases/item/1411-press-release-international-digital-conference-the-promise-of-computational-competition-law-and-economics.html>).
- Tele-conference for the Sector Inquiry into Provision of Private Health Services and related Insurance Services (26.10.2021), see <https://www.epant.gr/en/enimerosi/health.html>.
- Tele-conference for the Sector Inquiry into Waste Management and Recycling Sectors in specific waste categories (18.11.2021), see <https://www.epant.gr/en/enimerosi/wastemanagement.html>.

Other scientific conferences on competition law

In addition the HCC also participated in the annual conference (October 2021) 5th International Competition Law Conference on Competition Law & Policy, entitled “With Challenge comes Change”, organised by Nomiki Bibliothiki SA, which is a usual forum on competition law and policy issues in Greece, (see <https://www.epant.gr/en/enimerosi/press-releases/item/2090-press-release-5th-international-conference-on-competition-law-policy.html>).



Other key advocacy initiatives

In parallel to the above initiatives, in 2021 the HCC also completed certain other key advocacy initiatives. Certain of these are worth noting, namely:

- The HCC took the initiative to develop its relations with commercial chambers and other related organisations (e.g. Athens Chamber of Commerce; Thessaloniki Chamber of Commerce; Hellenic Confederation of Commerce and Entrepreneurship (ESEE); Hellenic Confederation of Professionals, Craftsmen & Merchants (GSEVEE) etc.) for the promotion of the Guides it has created and for enhancing its advocacy efforts.
- The HCC has “targeted” various market audiences and participants that were never previously engaged with competition policy, although they are actively participating in the economic life of the country. Most notably, apart from reaching out to commercial chambers and other related commercial organisations (see above), it has developed further its advocacy efforts with consumer organisations in Greece (INKA, KEPKA, EKPOIZO).
 - In March 2021 it conducted a competition training event together with the Commission for the Protection of Competition of Cyprus for Greek and Cypriot consumer organisations, see further <https://www.epant.gr/en/enimerosi/press-releases/item/1424-press-release-training-of-consumer-associations.html>
- An additional noteworthy initiative has been the training of personnel from the Economic Corps of the Greek Army. The Greek Army is involved as a contracting authority in various procurement projects, and the HCC has provided training in relation to competition law and, in particular, on issues of bid rigging prevention and drafting of bids.

Cooperation with other Independent Authorities

The purpose of the HCC is to develop an ecosystem of cooperation with other independent authorities and public bodies in order to improve the effectiveness of its work and its deterrent character.

- The HCC developed an enhanced cooperation with other independent regulatory Authorities over the last couple of years. In 2021, it signed a Memorandum of Cooperation with the Regulatory Authority of Ports, see <https://www.epant.gr/en/enimerosi/press-releases/item/2081-press-release-memorandum-of-cooperation-between-the-competition-commission-and-the-regulatory-authority-of-ports.html>
- In the context of EA’s cooperation with the Energy Regulatory Authority (RAE), with which the Memorandum of Cooperation of 25.9.2020 has been signed, and following previous meetings, a meeting was held in November 2021 (on 17.11.2021) between the Presidents of the two Authorities and their executives, at the offices of RAE, where a constructive dialogue and exchange of views took place on the critical issues that have risen in the field of electricity in Greece, both at the level of wholesale supply and at the level of retail, especially recently, and discussed ways of joint and cooperative action of the Authorities to address and resolve them for the benefit of consumers.

International Cooperation

International cooperation with Competition Authorities

Over the last year for the first time, the HCC’s administration proceeded with a strategic plan to strengthen its international presence and influence in shaping competition policies, both in the Eastern Mediterranean

and the Balkans as well as at European level and internationally, thus reinforcing the role of Greece in these fora. In this regard, the HCC has recently taken initiatives to strengthen and extend cooperation at a bilateral level not only with the competition authorities with which it maintains traditional relations such as with the authorities of the EU countries (especially Cyprus, with which it has already signed a Memorandum of Cooperation), but also with the competition authorities of Albania, Armenia, North Macedonia, while the signing of a Memorandum of Cooperation with the Competition Authority of Egypt –with which a broader cooperation at regional level will also be encouraged– as well as with the Competition Authority of Bosnia and Herzegovina. Furthermore, initiatives concerning cooperation with other competition authorities in the near future are already under way (for example, with the Competition Authorities of Serbia, Morocco, Israel, the US Federal Trade Commission, among other countries) mainly aiming at providing mutual update on legislative developments, decisions and competition enforcement procedures, information exchange, cooperation in the transfer of know-how and implementation of joint projects.. Further, acknowledging the importance of the HCC's international presence and the need to enhance its role in the wider geographic area, a special Directorate of International Relations and Communications was set up within the HCC, and a dedicated webpage was developed, allowing the public to follow up on the various HCC's initiatives. See <https://www.epant.gr/en/international.html>.

Twinning Programme in Morocco

The awarding of the Morocco Twinning Programme «Renforcement des capacités institutionnelles du Conseil de la Concurrence», aiming at strengthening the institutional capacity and operation of the Competition Council of the Kingdom of Morocco (CdC), was announced following a competitive selection process. The implementation of the programme is awarded to a consortium led by the Hellenic Competition Commission (HCC), in cooperation with the National Competition Authorities of Poland and Italy. The Project Leader of twinning programme is the President of the HCC, Mr. Ioannis Lianos. It is pointed out that this awarding is of major importance for our country (and its relations with the Kingdom of Morocco), taking into consideration that it is the first time that the Hellenic Competition Commission participates in a Twinning Programme taking a leading role as it represents Greece as the Member State Project Leader.

The HCC's international cooperation is thus recognised and its role over the last two years is enhanced, a period during which the Commission's administration has proceeded with a strategic plan to strengthen its presence and influence in shaping competition policy at a European and international level. The programme also strengthens the relations of Greece and the European Union with Morocco and in general with the North Africa region. At the same time, close cooperation with other National Competition Authorities within and beyond Europe contributes to improving the effectiveness of the HCC by transfer of know-how between the HCC and the other authorities in the context of their cooperation.

The main objective of twinning programme is to provide support to the Competition Council of Morocco for the important work accomplished so far regarding the development of competition law enforcement in Morocco, the strengthening of economic competitiveness and the development of the private sector in the country, while supporting the process of regulatory convergence towards the requirements of the EU's acquis and implementation of international best practices. In particular, the project aims at: (i) strengthening the professional capacity of the Moroccan Competition Council's members with a view to effectively carrying out its new activities, in accordance with the requirements of the European good practices; and (ii) strengthening the promotion of a competition law culture in the country.

Cooperation between the HCC and the OECD

In the context of the long-standing co-operation between the Hellenic Competition Commission (HCC) and the OECD, information exchange meetings took place in March and April 2021 between the HCC leadership team and OECD Regulatory Policy Division officials.

During these meetings, the HCC presented to the OECD colleagues its ongoing work on the digital transformation of the authority, the simplification of its procedures, including the preparation and publication of a Manual of Procedures, the reform of its organizational structure so as to enhance inter-disciplinary collaboration, as well as its efforts to adopt best practices for HR management, and in particular the systems put in place in order to identify priorities and to manage tasks and collective projects. At the end of the meetings, and following a stimulating discussion, the HCC and the OECD's Regulatory Policy Division officials noted that the reforms adopted by the HCC implement innovative good practices and may provide insights for public authorities in Greece as well as in other countries, in order to improve public governance. The parties agreed to continue discussions and enhance their co-operation in the following fields of activity: promoting modernization of public administration and the reform of public services and in particular enabling HCC to present its work and projects to other Greek Governmental services, and public administration services in other countries, as an example of simplification and modernization work; promoting digital governance and greater transparency/simplification by enabling the development of user-oriented public services, in particular digital services for the public; supporting the HCC's effort to design Key Performance Indicators (KPIs) that are fit for its mission and to elaborate a new system of evaluation for its staff/different governance units. The President of the HCC, Ioannis Lianos, welcomed the opportunity to collaborate with the OECD Regulatory Policy Division in this important endeavor, emphasizing the aim of the HCC to improve its effectiveness and impact, and to use new digital technologies in all aspects of its work, for the benefit of consumers, businesses and the economy overall. For further information see <https://www.epant.gr/en/enimerosi/press-releases/item/1387-press-release-cooperation-between-the-hcc-and-the-oecd.html>.

It is also worth mentioning that the President of the HCC has been re-elected as a regular member to the Competition Committee Bureau of the Organisation for Economic Co-operation and Development (OECD) for the year 2022. The President of the HCC will serve this office for a second consecutive term having successfully fulfilled his term for the year 2021. For further information see <https://www.epant.gr/en/enimerosi/press-releases/item/1625-press-release-the-re-election-of-the-president-of-the-hcc-to-the-2022-competition-committee-bureau.html>.

Collaboration with other Organizations, Institutions and Universities/ stakeholders

In parallel with the above initiatives, the HCC set up expert committees of internationally renowned researchers from Greece and abroad to support the Commission's work with know-how, both in terms of market mapping and the digital economy.

The HCC is in constant communication with businesses, consumers and other bodies (such as the Greek Confederation of Industries, SMEs representatives, Chambers of Commerce and Consumer Organisations mentioned above), while through public statements and attempts to communicate the policy of the Authority

on important issues such as the application of competition law in a time of economic crisis, since the economic crisis is not an excuse for anti-competitive practices that affect consumers, especially the most economically weak.

The HCC is also in close collaboration with Universities in Greece.

Universities

In promoting further competition advocacy to geographic areas and sectors of the economic life that face significant problems and bottlenecks, the HCC has also developed partnerships with organisations that have a key role in the social/economic life of rural regions. In particular the HCC has signed an MOU with the University of the Aegean.

Priority was given to the creation of a joint working group for maritime cabotage in order to create a digital space and an application to facilitate the participation of citizens (citizens science) in monitoring the operation of the relevant markets. Actions will include educating and raising public awareness, especially of students and researchers on competition issues. The team will work, among other things, to expand the HCC Economic Intelligence platform of the Hellenic Competition Commission and to process data from the prices applied to coastal and ferry connections in Greece, creating a database and special data processing algorithms (data analytics) in real time, which will be based on an application (app) that will be developed by the University of the Aegean and where citizens and consumers may enter price information with the aim to raise the awareness of the citizens against anticompetitive practices (competition advocacy), see further <https://www.epant.gr/en/enimerosi/press-releases/item/1422-press-release-memorandum-of-cooperation-between-the-hellenic-competition-commission-and-the-university-of-the-aegean.html>.

Following from the above, the HCC has signed a Memorandum of Understanding with the Athens University of Economics and Business (AUEB), with the aim to consolidate and strengthen cooperation between the Parties. In pursuance of their objectives, the parties agreed, in particular, on a joint action plan including, inter alia: Cooperation between HCC's officials and AUEB's research teams, aimed at the development of joint research activities and know-how exchange; Upskilling, training, accreditation of knowledge, skills and professional qualifications of the HCC's officials, on the basis of recognised standards; Development of special «internship programmes» for AUEB's students (undergraduate, postgraduate, doctoral or postdoctoral) at the HCC; Collaboration on existing or new academic programmes and design or creation of co-financed joint Programmes; Providing support to research activities in connection with the preparation of Diploma and Doctoral Theses, the topics of which fall within the thematic area of Competition law and economics, as well as of the applied data science; Development of a programme of targeted initiatives to create a climate of understanding and cooperation between the Parties (thematic meetings, conferences, lectures, workshops); Co-organisation of scientific or research activities (e.g. conferences, workshops, events); Submission of proposals to co-financed national, European or international projects; Optimal utilisation of new financing/support instruments, see further (in English) <https://www.epant.gr/en/enimerosi/press-releases/item/1325-press-release-memorandum-of-understanding-between-the-hcc-and-the-athens-university-of-economics-and-business-aueb.html>. The HCC has also signed an MOU with the MSc in Energy: Strategy, The HCC has

also signed an MOU with the MSc in Energy: Strategy, Law & Economics, of the Department of International & European Studies of the University of Piraeus. The joint action plan including, inter alia: Cooperation between HCC's officials and MSc's research teams, aimed at the development of joint research activities and know-how exchange; Development of special «internship programmes» for MSc's students (postgraduate, doctoral or postdoctoral) at the HCC; Collaboration on existing or new academic programmes and design or creation of co-financed joint Programmes; Providing support to research activities in connection with the preparation of Diploma and Doctoral Theses, the topics of which fall within the thematic area of Competition law and economics, as well as of the applied data science; Development of a programme of targeted initiatives to create a climate of understanding and cooperation between the Parties (thematic meetings, conferences, lectures, workshops); Co-organisation of scientific or research activities (e.g. conferences, workshops, events); Submission of proposals to co-financed national, European or international projects; Optimal utilisation of new financing/support instruments, see further <https://www.epant.gr/en/enimerosi/press-releases/item/1464-press-release-mou-between-hcc-and-msc-in-energy-of-university-of-piraeus.html>.

Other communications

The HCC has published two (2) newsletters throughout the year. These can be found in the HCC's website (in English) at the following link <https://www.epant.gr/en/enimerosi/publications/newsletters.html>.

In addition, it published a video "panorama" of the main activities of the HCC during the last two years, see further <https://www.epant.gr/en/enimerosi/press-releases/item/2104-press-release-video-panorama-of-the-main-activities-of-the-hcc-during-the-last-two-years.html>. <https://www.epant.gr/en/enimerosi/dimosieyseis/ektheseis-pepragmenon/item/1885-ekthesi-pepragmenon-tou-2020.html>.

Enhancing Transparency and Sound Management

Return of dividend amounting to 4.316.603,02€ to the State budget for the fiscal years 2020 and 2021

The Hellenic Competition Commission (HCC), in the context of the sound management of its finances and in accordance with the provisions of par. 5 of article 17 of law 3959/2011 (Government Gazette Issue: A' 93) returned, for the first time after 2016, a dividend in the state budget of a total amount of €1,860,603.02, resulting from the surplus (income-expenses) of the fiscal year 2020.

In addition, from the analysis of financial data and based on forecasts, the fiscal year 2021 is expected to close with a significant surplus (income-expenses), which will allow the return of a dividend to the State budget of an amount that will reach €2,456,000.00. This amount has been registered in the budget of the Hellenic Competition Commission, which is approved by the General Accounting Office for the fiscal year 2022, when it will be returned.

Chapter

3

2021
Selected
HCC's Decisions

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2021 – Selected HCC's Decisions

Some of selected decisions and interventions in 2021 are noted below.

- **The HCC, adopted Decision No 755/2021**, according to which, the company ATHONIKI TECHNIKI SA ("ATHONIKI") violated Article 1 of Law 3959/2011, as in force, and Article 101 TFEU and was fined €5.828,55. Following an ex officio investigation in tenders for public infrastructure projects, the Directorate General for Competition conducted a dawn raid on 25.01.2017 during which a document was identified. The document evidenced the involvement of the undertaking ATHONIKI in collusion regarding a tender for a public infrastructure project, i.e. the construction of a motorway in Crete (Gournes-Chersonisos motorway). Said tender forms part of a broader cartel of tenders for public works, which has been previously examined by the HCC and for which three decisions have been issued (HCC 642/2017 Settlement Decision, HCC 647/2017 and HCC 748/2021 Settlement Decision). ATHONIKI participated in anti-competitive practices and more specifically a) has entered into an agreement with other members of the cartel, prior to the submission of the financial offer, with regard to i) which joint venture would submit the winning bid, ii) which undertakings would submit cover biddings and iii) the monetary compensation for the companies submitting the cover bids and b) exchanged sensitive commercial information with the other cartel members. The HCC found that ATHONIKI has infringed Article 1 of Law 3959/2011, as in force, and Article 101 TFEU and imposed a fine of € 5.828,55.
- **The HCC Decision No 748/2021** according to the simplified Settlement Procedure (Article 25a of Law 3959/2011 and Decision No 704/2020) following the settlement proposal submission by the undertaking MESOGEOS S.A. Following the settlement procedure, the HCC imposed a reduced fine amounting to € 4,954.

Following an ex officio investigation in tenders for public infrastructure projects, the Directorate General for Competition conducted a dawn raid on 25.01.2017 during which a document was identified. The document evidenced the involvement of the undertaking MESOGEOS S.A. in collusion regarding a tender for a public infrastructure project, i.e. the construction of a motorway in Crete (Gournes-Chersonisos motorway). Said tender forms part of a broader cartel of tenders for public works, which has been previously examined by the HCC and for which two decisions have been issued (HCC 642/2017 Settlement Decision and HCC 647/2017).

MESOGEOS admitted to have participated in anti-competitive practices and more specifically a) to have agreed with other members of the cartel, prior to the submission of the financial offer, with regard to i) which joint venture would submit the winning bid, ii) which undertakings would submit cover biddings and iii) the monetary compensation for the companies submitting the cover bids and b) to have exchanged sensitive commercial information with the other cartel members.

- **The HCC in its Decision No. 742/2021**, of simplified settlement procedure, according to the provisions of Article 25a of the Greek Competition Act and HCC Decision 704/2020 on the procedure, decided to approve the official settlement proposals submitted by the following companies i) TOI TOI (HELLAS) SA, ii) EUROPRICE ENVIRONMENTAL LTD, iii) A.F. DRAGONAS M. LTD (GLAROS), iv) ALBA TEXTILE AGENCY LTD and v) NEILOS RECYCLING - SOLID WASTE MANAGEMENT - ENVIRONMENTAL PROTECTION SYSTEMS S.A.. Therefore the HCC imposed reduced fines for infringements of article 1 of L. 3959/2011, amounting to a total amount of €199.491 to the various undertakings involved, that is, the amount of €60.078 to TOI TOI (HELLAS) SA, the amount of €52.942 to EUROPRICE ENVIRONMENTAL LTD, the amount of €13.259 to A.F. DRAGONAS M. LTD (GLAROS), the amount of €72.954 to ALBA TEXTILE AGENCY LTD and the amount of €258 to NEILOS RECYCLING - SOLID WASTE MANAGEMENT - ENVIRONMENTAL PROTECTION SYSTEMS S.A..

Based on the investigation and what was accepted by the undertakings involved, during the settlement process, it emerged that the above undertakings, in pairs, entered into horizontal agreements aimed to collude and allocate markets before submitting bids to tenders for installation, removal and cleaning of chemical toilets for public organizations and private bodies. Regarding the duration of the above collusive behavior in pairs, this bore the characteristics of a single and continuous infringement as the individual agreements/concerted practices adopted in years 2011, 2012, 2013, 2014 and 2015, presented time continuity and common features, i.e. characterized by identity of objectives, methods and stakeholders. According to the reasoning of the decision, these practices were identified as agreements between the undertakings involved regarding bid rigging, which seek to restrict competition by object. In the case examined, Article 101 TFEU did not apply as there was no evidence of an impact on intra-EU trade.

- **The HCC examined in its Decision No 731/2021**, a complaint lodged against undertakings operating in the market for the provision of security services followed by an ex-officio investigation of Directorate-General for Competition ("GDC"), for violation of articles 1 L. 703/1977 and 1 L. 3959/2011 and 101 of the Treaty on the Functioning of the European Union ("TFEU"), which did not cooperate under the previous settlement procedures, and in particular against a) MONDIALPOL HELLAS SECURITY SERVICES S.A., b) ESA SECURITY SOLUTIONS S.A.

According to the grounds of the HCC's Decision, SEEYA, through the Sectoral Collective Agreements ("SCAs") of 2009 and 2010, aimed at fixing the price of the security services provided, by arranging the profit of the employers-members of the association and causing distortion of price competition in the market for tenders for security services. It becomes obvious that the said anti-competitive action of SEEYA had as its object the

distortion of competition in breach of articles 1 par. 1 L. 3959/2011, 1 par. 1 L. 703/1977 and 101 TFEU. There was also evidence of an exchange of information concerning, in particular, financial bids between settling companies and the sole trader KALOGERAKIS SECURITY, in the context of their participation in tenders launched in the years 2010 and 2011. The above bids, which were also the object of the information exchange under consideration, compared with the figures contained in the statements of award of the respective body, entirely matched the final bids. In particular, the tendering procedures were distorted by the undertakings in question by way of submission of cover bids, through the exchange of information, by the sole trader KALOGERAKIS SECURITY, with the pre-agreed aim to award the project to one of the settling companies. By virtue of article 25 par. 2 of L. 3959/2011 on the maximum level of a fine, as laid down by law, the fine calculated for the participation of the “SECURITY SERVICES TRADE ASSOCIATION” (SEEYA) in the cartel was zero.

In the context of the case under consideration, in addition to the bid-rigging practices adopted by the sole trader KALOGERAKIS SECURITY, the HCC also investigated, with regard to their compatibility with the provisions of Article 1 of Law 703/1977 and Law 3959/2011, the practices that were implemented by the settling company, ESA SECURITY SOLUTIONS S.A. and MONDIALPOL HELLAS SECURITY SERVICES S.A., for two (2) tenders concerning an equal number of public procurement contracts within the period 2009 -2010. The HCC ruled that there was insufficient evidence that the above practices conflict with the provisions of article 1 of Law 703/1977 and / or Law 3959/2011. In particular, it was noted that the Authority’s investigation did not bring forward any evidence of the alleged unlawful concerted practices aiming at the submission of the matched bids in the tenders referred to in the complaint.

- **The HCC with its Decision No. 741/2021**, imposed upon the company ELTEPE SA (currently ENDIALE SA) a fine totalling EUR 111.600 for infringing Articles 2 of Greek Law 3959/2011 (the Greek Competition Act) and 102 TFEU in the Greek market for waste oils management. The case was initiated following 3 complaints by the companies GREEN OIL AEVE, ESK OIL AEVE, as well as the Association of Collectors of Waste Oils alleging infringements of the Greek Competition Act and the TFEU in the Greek markets for waste oils management (which includes the collection, treatment and remediation/ recycling of waste lubricant oils) by the companies ELTEPE SA, CYCLON HELLAS (now LPC SA), ELTEPE Kinopraxia as well as a natural person.

The structure of the market for waste oils management in Greece has undergone distinct “phases”, depending on the applicable legal framework in any given period. More specifically, prior to 2004, ie before the establishment of a System for Alternative Administration of Waste Lubricant Oils Collection in Greece, the market had two distinct levels of economic activity: a) the collection of waste lubricant oils, and b) the remediation/ recycling of such oils. Subsequently, after 2004, when ELTEPE’s Alternative Administration of Waste Lubricants Oils Collection System started operating,

an additional layer of economic activity was introduced, that of the organisation and operation of waste lubricants oils management systems. The third phase starts in 2013, at which point ELTEPE's Alternative Administration System stopped acting as "intermediary", which buys and sells waste oils, but only carries out the qualitative and quantitative control of such waste oils in the Greek market, operating like an "ecosystem" as it operates as a platform that connects the economic activities of different companies in order to provide services to different groups of users.

All the undertakings involved in the present case are active in the Greek markets for waste oils management (which includes different stages/ sub-markets concerning the collection, treatment and remediation/recycling of waste lubricant oils). More specifically: ESK OIL AEVE and the Association of Collectors of Waste Oils (complainants), as well as ELTEPE Kinopraxia, are active in the collection of waste lubricant oils; ELTEPE SA has operated, since 2004, the only authorized waste oils management system active in Greece (Alternative Administration of Waste Lubricants Oils Collection System). It is noted that other systems have requested to be authorized by the Greek authorities throughout the years, but their requests have been rejected; GREEN OIL AEVE (complainant) as well as CYCLON SA are active in the remediation/ recycling of such oils.

The complainants essentially allege that ELTEPE SA abused its dominant (de facto monopolistic) position in the market for waste oils management, through several different practices, in order to exclude other market players from that market, as well as from the relevant upstream (remediation/ recycling of such oils) and downstream (collection of such oils) markets. The complainants stress that other companies belonging to the same Group as ELTEPE SA were active in the upstream and downstream markets, respectively.

It should be noted that the HCC specifically considered the possibility of justifying, following a proportionality assessment, the company's behavior as not constituting an abuse, taking into consideration the company's claims of environmental protection, also in view of the principles of sustainable development and of the methodology set out in the HCC's recent Technical Report on Sustainability and Competition published in January 2021. However, the HCC concluded that ELTEPE did not provide any evidence of a possible objective justification that could establish that the said exclusivity clauses were necessary in order to increase the effectiveness of the overall management of waste lubricant oils as regards environmental protection and sustainable development.

Further with its Decision No. 741/2021, the HCC found that the company ELTEPE SA infringed Articles 2 of the Greek Competition Act and 102 TFEU, given that agreements it concluded during the period from 1.1.2004 up until 15.1.2013 with companies active in the collection as well as the remediation/ recycling of waste lubricant oils, contained exclusivity clauses, resulting to an abuse of ELTEPE SA's dominant position in the relevant market. For the reasons set out above, the HCC imposed a fine of EUR 111.600 upon ELTEPE SA. In addition, the HCC found that, during the period from 2.8.2004 up

until 1.8.2008, ELTEPE SA infringed (the now abolished) Article 2a of Law 703/1977, which prohibited the abuse of economic dependence, without imposing a fine for this infringement. The HCC also required that ELTEPE SA omits similar practices in the future and threatened the company with a fine, in case the HCC decides in the future that the above-mentioned infringements continue or are repeated.

The HCC dismissed the complaints of GREEN OIL AEVE, ESK OIL AEVE and the Association of Collectors of Waste Oils as to their remainder.

- **Decision No. 730/2021** in relation to infringements of Articles 1 and 2 of Greek Law 3959/2011 and Articles 101 and 102 TFEU in the Greek wholesale market for general purpose gas appliances by “RESOUL S.A.”, following a complaint by one of its (former) distributors as well as an ex officio investigation initiated by the Directorate General for Competition (“DGC”) of the Hellenic Competition Commission (“HCC”). The case concerns vertical agreements concluded between RESOUL S.A. and its wholesalers/distributors during the period 2008-2012 containing the following anti-competitive restraints: resale price maintenance, restriction of passive (and active, for a certain period) sales, and non-compete obligation clauses, as well as containing terms (exclusivity obligations and target rebates) that comprise an abuse of RESOUL’s dominant position in the Greek wholesale market for general purpose gas appliances. In addition, RESOUL abused its dominant position in the above-mentioned market for the period 2005-2019 by offering to the super market chains’ distribution channel target rebates.

According to the decision, RESOUL has consistently and for a long period – over a decade – held very large market shares, i.e. exceeding 70%, in the Greek wholesale market for general purpose gas appliances, while its products are “must have items” largely preferred by final consumers. RESOUL distributes its products to the final consumers almost exclusively through super markets, which buy RESOUL’s products either directly from RESOUL or via RESOUL’s wholesalers/distributors. RESOUL has annual agreements with a number of wholesalers/distributors, to which specific territories within Greece are allocated (or exclusively allocated particularly for the period 2010 – 2012), while it also has annual agreements with super markets covering the entire of the Greek territory.

RESOUL’s agreements with its distributors contained, from 2008 to 2012, restraints as regards resale prices, the territories within which the distributors were allowed to resell RESOUL’s products and their ability to distribute competing brands, as well as individualized target rebates. The aforementioned terms were all removed from the relevant agreements in 2013. Most of RESOUL’s agreements with supermarkets, from 2005 to 2019, contained clauses pertaining to a rebate scheme including individualized and retroactive target rebates based on each supermarket’s purchases of RESOUL’s products during the previous year.

According to the HCC decision, RESOUL has infringed Articles 1 of Greek Law 3959/2011 and 101 TFEU during the period 2008-2012, by imposing upon its wholesalers/distributors

anticompetitive vertical restraints, namely retail price maintenance, restriction of passive sales (as well as active sales, particularly for the period 2008-2009), and single branding obligations.

In addition, according to the HCC decision, RESOUL holds a dominant position in the Greek wholesale market for general purpose gas appliances and has abused said dominant position during the period 2008-2012, by imposing exclusivity obligations upon its distributors. These contractual terms, in conjunction with the offering of target rebates, aimed at maintaining and/or strengthening its dominant position in the relevant market, thereby excluding competitors and limiting their growth possibilities, in breach of Articles 2 of Greek Law 3959/2011 and 102 TFEU. Finally, according to the HCC decision, RESOUL has abused its dominant position in the Greek wholesale market for general purpose gas appliances during the period 2005-2019, by offering to the supermarkets loyalty inducing rebates based on individualized targets. Said rebates were granted retroactively to all purchases and not only to those purchases in excess of the target and aimed at maintaining and/or strengthening RESOUL's dominant position in the relevant market, thereby excluding competitors and limiting their growth possibilities, in breach of Articles 2 of Greek Law 3959/2011 and 102 TFEU.

The HCC imposed a fine of EUR 1.100.547,11 upon RESOUL for the infringements of Articles 1 and 2 of Greek Law 3959/2011 and 101 and 102 TFEU described above. The following factors have been taken into account and led to the reduction of the fine that would have otherwise been imposed: (a) the prolonged financial crisis, which has also affected the sector concerned (reduction by 30% of the fine); and (b) RESOUL's cooperation with the HCC beyond its legal obligation to do so during the administrative process (a further reduction by 25% of the fine). The HCC also required that RESOUL omits similar practices in the future. Finally, the HCC threatened a fine against RESOUL, in case the HCC decides in the future that the above-mentioned established infringements continue or are repeated.



- **By its decision no.728/2021**, the HCC approved, pursuant to Art. 8(3) of Greek Law 3959/2011, the proposed transaction notified on 8/1/2021, concerning the acquisition of joint control by “ALPHA SATELLITE TELEVISION SA” (which operates the Greek TV station “ALPLHA”) and “NEW TELEVISION SA” (which operates the Greek TV station “STAR”) over the company “GREEN PIXEL PRODUCTIONS SA” (a company active mainly in the production of television programs, movies and videos).

In examining the notified concentration, the HCC carried out for the first time a thorough analysis of all the levels of the TV value chain. Taking into account the views submitted by the notifying parties, by other companies operating TV stations in Greece, and by TV production companies, as well as taking into consideration the relevant precedents and case law at EU and national level, the HCC defined the following markets as relevant product markets for the purposes of the concentration: (a) the market for the production, supply and acquisition of TV content (upstream market) – in which the target company operates; and (b) the market for retail provision of TV services to end customers (downstream market) – in which the notifying parties operate. In both cases, the whole of the Greek territory is considered as relevant geographic market.

The HCC first looked into whether it could be considered that the two notifying parties constitute a single economic entity and, therefore, their control over the target company could be attributed to a single company. In particular, according to settled case law and the European Commission’s Guidelines, the full function character of a joint venture is established when such joint venture: (a) operates on a market; (b) performs the functions normally carried out by undertakings operating on the same market; and (c) has access to sufficient resources including finance, staff, and assets (tangible and intangible) in order to conduct on a lasting basis its business activities.

The HCC noted that, in principle, the pre-existing close family ties between the persons exercising control over the aforementioned parties are not in themselves a decisive factor in establishing the existence of a single economic entity in the case at hand, both in view of EU case law as well as precedents at national level. It is therefore necessary to consider whether, in addition to the existence of family ties, there are further economic links on the basis of which significant central management can be established between the notifying parties. For the purposes of this evaluation, an authority can take into account further evidence of financial and administrative dependence of the two companies or of the existence of control rights and decisive influence in the behaviour of each company, and analyse, in a case by case basis, the existence of shares, other contractual relationships and sources of funding (ie the existence of structural links). Ultimately, the key question is not whether the undertakings in question have a separate legal personality, but whether or not they act together on the market as a single unit.

Following an analysis of the evidence at hand, the HCC concluded that it cannot be established with certainty that, in the present case, which concerns the acquisition of

joint control by “ALPHA SATELLITE TELEVISION SA” and “NEW TELEVISION SA” (STAR) over the company “GREEN PIXEL PRODUCTIONS SA”, the existence of close family ties between the shareholders who control the two notifying parties is sufficient in itself to establish the existence of a high degree of consolidation and of significant central management between ALPHA and STAR, so that it could be said that they form a single economic entity (especially in light of the absence of other structural links and evidence leading to such a conclusion).

In any event, the HCC pointed out that in order to classify a transaction as a concentration and not as an action of a single entity, one must take into consideration the relationships between the companies that pre-dated the specific transaction (in this case the acquisition of joint control over GREEN PIXEL). Therefore, for the purposes of this concentration and in view of the previous HCC Decision no. 679/2019, the HCC finds that the two companies do not have the character of a single economic entity.

With regard to the competitive assessment of the notified transaction, it is noted that the concentration in question results in mainly vertical relationships, as it involves companies operating at different levels of the supply chain.

The HCC examined possible non-coordinated effects of the concentration and concluded that the concentration at hand is not likely to either restrict downstream rivals' access to important input (input foreclosure) or to foreclose upstream rivals by restricting their access to a sufficient customer base (customer foreclosure). The HCC further examined possible coordinated effects and concluded that the concentration in question is not likely to lead to coordinated effects in any of the affected markets. Finally, the HCC also considered the possibility of coordination of the behaviour of the parent companies (“spillover effects”), and concluded that the concentration has neither the object of coordinating the competitive behaviour of the parent companies, nor such coordination is likely to occur as a result of this specific transaction. It is pointed out, however, that any other possible future form of coordination/ cooperation at horizontal or vertical level between the two parent companies, either in itself or in combination with the existence of close family ties between the shareholders controlling the two parent companies, may be subject of review by the HCC under Articles 1 and 2 of the Greek Competition Act, while further consolidation of the sector may be reviewed pursuant to Article 11 of the Greek Competition Act.

In its decision no. 728/2021, the HCC found that the proposed concentration, while falling within the scope of Art. 6(1) of the Greek Competition Act, does not raise any serious doubts as to its compatibility with the competition rules in the relevant markets involved.

- **The HCC's Decision No. 737/2021**, following the request put forth by DEPA COMMERCIAL S.A. for review of the Commitments undertaken by the company, under HCC Decision No 551/VII/2012, as amended by Decisions No. 589/2014, 596/2014, 618/2015, 631/2016, 651/2017 and 723/2020.

The HCC examined, based on the relevant Statement of Objections (SO) by the Rapporteur, pursuant to Article 25(6) of Law 3959/2011, the request of DEPA COMMERCIAL S.A. for review of the Commitments undertaken by the company under HCC Decision No. 551/VII/2012, as amended by Decisions No. 589/2014, 596/2014, 618/2015, 631/2016, 651/2017 and 723/2020.

In the light of all the case-file evidence and the positive opinion of the Regulatory Authority for Energy (RAE), the HCC unanimously decided, under its decision No 737/2021, the following:

- o There has been a substantial change in the circumstances on which HCC Decision No. 551/VII/2012, as amended and applicable, was based regarding the Commitments undertaken by DEPA COMMERCIAL S.A. and
 - o The acceptance of the request of DEPA COMMERCIAL S.A. for its exemption from each one of the Commitments No 1, 2, 4, 5, 6 and 7 adopted by HCC Decision No. 551/VII/2012.
- **The HCC, assessed the competition conditions and the effectiveness of the commitments undertaken by ATTICA GROUP under Decision No. 658/2018** ("Commitment Decision"), in order to decide, under provision B5 of the Decision, the removal or extension, in whole or in part, of the commitments under provisions B1-B5 for a maximum of (3) three years.

The HCC decided (decision no. 734/2021):

- o removing obligation B2a for the non-increase of itineraries at the relevant markets of passengers, private cars and trucks from / to Attica and the island of Ios with effect from 27.04.2021,
- o partially extending B2st commitment for three (3) more years, namely from 27.04.2021 to 26.04.2024,
- o removing the part of the commitment concerning the obligation of the company not to exploit, on its own or through an affiliated undertaking, or through another dependent third party, the fast ferry HSWHigh-speed 4, within the Greek territory, with effect from 27.04.2024,
- o extending the part of the commitment that concerns the activation of a Third-Competitor and the obligation of decommissioning the company's ship from the relevant markets for which there is a commitment for not increasing the itineraries,
- o extending the rest of the commitments (B1-B3) provided for in Decision 658/2018, for three (3) more years, namely from 27.04.2021 to 26.04.2024.

- **By means of its decision No. 726/2021**, and pursuant to commitment term A.1.2 due to decision no. 650/2017, the HCC, sitting in plenary session, decided the extension of commitment terms A.1 – A.1.1 due to its decision no. 650/2017 for one more year. In particular, according to the HCC's decision, given the assessment of the effectiveness of the above mentioned commitment terms and the competitive conditions of fresh cow milk market in Greece, the HCC decided the extension of commitment terms A.1 – A.1.1 due to its decision no. 650/2017 for one more year, that is, from 21.10.2020 up to 20.10.2021. In addition, the HCC decided to exclude the organic milk from the calculation of minimum guaranteed price. The HCC considers that the validity of the Commitment in relation to the market for the supply of raw cow's milk should be extended for one more (last) year, on the one hand, in order to further strengthen the bargaining position of dairy producers vis-à-vis the companies DELTA – MEVGAL and, on the other hand, on the grounds, without prejudice to the implementation of the Commitment to date with a time delay by MEVGAL and, in part, also by DELTA, that the Commitment, as far as it was implemented, was effective, taking into account in particular that, for the coming year, any constraints of any kind that existed in its timely, and therefore effective, implementation have been eliminated. In this regard, the HCC considers that the quantities of organic milk purchased by the parties should be excluded from the calculation of the minimum guaranteed price of fresh cow's milk per prefecture, from 01.01.2021 and for as long as the commitment A.1 - A.1.1 provided for in HCC Decision no. 650/2017 remains valid, so that during this period the undertaken commitment is consistent with the meaning and purpose of HCC Decision no. 650/2017.



- **HCC is continuing its regulatory intervention in the Press Distribution Sector.**

The ex officio procedure was initiated in January 2021 and its purpose is to examine the conditions of competition in the above sector of the economy. During March and April 2021, the HCC issued its first interim report and launched a public consultation. Subsequently, it issued its second interim report (07.10.2021). More information can be found in the following links (in English) <https://www.epant.gr/en/enimerosi/press-releases/item/1273-press-release-decision-for-the-initiation-of-a-regulatory-intervention-procedure-market-investigation-in-the-press-distribution-sector-in-accordance-with-article-11-of-law-3959-2011.html> and <https://www.epant.gr/en/enimerosi/press-releases/item/1371-press-release-market-investigation-in-the-press-distribution-sector.html>, and <https://www.epant.gr/en/enimerosi/press-releases/item/1576-press-release-market-investigation-in-the-press-distribution-sector-hcc-second-interim-report.html> and also <https://www.epant.gr/en/enimerosi/press-releases/item/2100-press-release-extension-of-the-deadline-of-the-public-consultation-for-regulatory-intervention-in-the-press-distribution-sector.html>.

- **A regulatory intervention has also been initiated in the construction sector.**

Following the first Opinion of the Hellenic Competition Commission (HCC), the HCC, based on article 11 of Law 3959/2011, published the views submitted during the public consultation and the publication of the second is expected. In short, the HCC's views focused on the lack of conditions of effective competition in the construction industry, with an emphasis on the largest 6th and 7th class construction companies, taking into account the structure of this industry.

The text first presents the legal framework of public procurement, with emphasis on recent changes, the framework of PPP contracts and concessions, as well as the competitive conditions in the construction sector, both in terms of demand and supply, in order to highlight those characteristics that exacerbate the lack of competition in some of the sub-markets of the industry. These may apply to all construction companies in the industry regardless of their size. The issue of common ownership by competing companies in the sector is also analyzed, given the oligopolistic structure of the high-value public works subsector. For further information see <https://www.epant.gr/en/enimerosi/investigation-construction.html>.

The HCC's Decisions in Court

The Athens Administrative Court of Appeals (AACA) and the Council of State, review all HCC's decisions on the merits. In 2021 they issued and notified to the HCC **twenty (20) final judgments** in 2021 (**15 AACA Decisions and 5 Council of State Decisions**). Out of those decisions:

- In **thirteen (13)** cases (8 AACA and 5 Council of State Decisions) the HCC Decisions were upheld in their totality, that is the relevant appeals against HCC Decisions were rejected.
- In **three (3)** cases (all AACA Decisions), the HCC Decisions were partly upheld, given that the decisions were upheld on their merits but the relevant appeals were accepted with regard to the reduction of the fines imposed on the appellants.
- In **two (2)** cases of applications for suspension of enforcement of HCC Decision, these were accepted until the discussion of the appeals.
- In **two (2)** cases (both AACA Decisions), some past HCC Decisions were rejected.



Notes

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ΕΠΙΤΡΟΠΗ ΑΝΤΑΓΩΝΙΣΜΟΥ
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