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Monopoly Capital in the time of digital platforms: a radical approach to the Amazon case

Andrea Coveri, Claudio Cozza and Dario Guarascio*

The paper applies the radical view of Monopoly Capitalism to the digital platform economy. Based on the seminal ideas of Hymer and Zeitlin that led Cowling and Sugden to define the large monopolistic firm as a means to plan production from a single strategic decision-making centre, we attempt to develop a framework where digital platforms are conceived as an evolution of large transnational corporations. Power and control, in our view of monopoly capitalism, are thus to be understood not only in terms of market relations, but rather as levers for coordinating global production and influencing world societies. Applying this framework to the Amazon case, we highlight the key analytical dimensions to be considered: not only does Amazon dominate other firms and suppliers through its diversification and direct control of data and technology; its power is also linked to global labour fragmentation and uneven bargaining power vis-à-vis the world's governments, as in the tradition set by Hymer and Cowling.

Key words: Monopoly Capital, Monopoly power, Digital platforms, Amazon, Transnational corporations
JEL classifications: L12, L22, P12

To be radical, or to be a scientist, is the same thing; it is a question of trying to go to the root of the matter. For Marx, this meant trying to uncover the "economic laws of motion of modern society," that is, first of all, seeing society as an organism in motion constantly changing and developing as it moves from its beginning to its end, and second of all, searching in the economy, i.e., in changing conditions of production and exchange, for the underlying basis of this motion. (Hymer, 1978, p. 16)

1. Introduction

Just before the Covid-19 pandemic broke out, a cover of *The Economist* (number 9182, February 2020) was dedicated to 'Big tech's run', asking whether a time of 'techlash' – that is consumers and regulators turning against giant tech firms—was over or not. After over a year of pandemic, several events suggest why it is bound to last: to name just a few, we witness even sharper income polarisation; dramatic job losses alongside

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Address for correspondence: Claudio Cozza, Department of Economic and Legal Studies, University of Naples 'Parthenope', Via Generale Parisi 13, 80132, Naples, Italy; email: claudio.cozza@uniparthenope.it
*University of Urbino 'Carlo Bo' (AC); University of Naples 'Parthenope' (CC); and Sapienza University of Rome (DG)

a huge accumulation of wealth by the Big Tech CEOs; and growing concerns about the ownership and use of more and more personal data by *digital platforms*.

However, a comprehensive theory on the nature of these firms and the reasons behind their astonishing rise is still lacking. As we see it, this is also due to a widespread adoption of a notion of 'power' merely in terms of 'market power', while big tech corporations—especially large digital platforms like Amazon, Facebook and Google—usually operate across markets and countries by establishing hierarchical and semi-hierarchical relations with the formally independent actors they interact with. In this context, as we will contend below, defining their sectoral scope and with it their 'market power' can often be misleading.

An alternative and more comprehensive connotation of power, as emerges from Monopoly Capital theories, is totally *excluded* from the mainstream debate on digital platforms. This is hardly surprising, as (mainstream) economists often ignore previous analyses that have uncomfortable (radical) political economy implications. Let us consider the classical economists: while portions of their ideas have been *included* in mainstream economics—such as Smith's invisible hand or Ricardo's comparative advantages—others, like an objective theory of value or analysis of social classes, have been *excluded*. Needless to say, the most excluded has been Karl Marx, probably because of the political implications of his analysis: at the end of the nineteenth century an entire school of thought was formed to replace the Marxian theory of value with that of subjective utility.[1] This exclusion concerns a scientist who, conversely, made the effort to *dialectically include* in his critical analysis all the contributions of his predecessors, especially Smith's and Ricardo's.

Similarly, other radical economists of the twentieth century have based their analyses on the *inclusion* of previous and dominant theories into their reflections. Such is the case of Stephen Hymer, whose neoclassical analysis of large transnational corporations (TNCs) evolved into an analysis of imperialism, and indeed Keith Cowling, who started from an industrial organisation background to develop a theory of Monopoly Capitalism that, during his life, evolved into a novel theory of the firm based on the notion of 'control'.

In this work we argue that this notion of 'control' is key to understanding the rationale behind contemporary capitalism and, in particular, the rise of 'ubiquitous' digital platforms, suggesting that the latter share a number of characteristics already anticipated by Monopoly Capital scholars, notably Hymer (1970, 1972); Cowling (1982) and Cowling and Sugden (1987, 1998). Indeed, digital platforms give rise to major theoretical and regulatory challenges when their power is analysed relying exclusively on a standard market-based approach. First, the platform business model is based on the monopolisation of all personal, behavioural and economic information flowing through the network they control (Zuboff, 2019). This means that the distribution of information is radically asymmetrical, effectively preventing the deployment of any competitive market mechanism. Second, the tendency of platforms to operate across sectors and to cross-subsidize market sides relying on selective below-marginal-cost strategies makes most of the standard criteria used to measure market distortions and dominant positions—for example market shares, mark-up levels, gap between actual and competitive prices—useless.

[1] In Bohm-Bawerk's words, '[a] national economics that leaves out the theory of subjective value is built on air' (quoted in Bonar, 1888, p. 5).

For these reasons, one of the world's leading digital platforms, Amazon, has been epitomized by the current Chair of the Federal Trade Commission (FTC) as 'an antitrust paradox' (Khan, 2016).

In our view, the difficulties in understanding (and of antitrust policies in successfully dealing with) the platforms' pervasive power are due to a fundamental flaw affecting mainstream economic analyses: the exclusion of a 'non-market' conception of power, with the result of leaving control, subordination, dependence and exploitation out of the picture. Accordingly, we build on some of the most relevant insights of Monopoly Capital theory and focus precisely on the (non-market) power of control to investigate the nature and increasing dominance of tech giants, that is digital platforms. In particular, we argue that the theoretical cornerstone concerns the relentless urge of platforms to *extend their control in all possible directions: over labour, governments, suppliers, competitors, clients*. Here, we identify four drivers through which control is exerted and power is accumulated.

First, *growth and diversification* (Kenney et al., 2021). By dominating 'strategic' sectors and services (e.g. logistics, online advertising and profiling, cloud services) that are instrumental (complementary) for many other goods to be produced, distributed and sold and relying on predatory prices to enter high-value product segments, digital platforms expand their sectoral scope increasing the amount of value extracted from markets and third parties (e.g. Amazon's increasing cut of sellers' revenues). Second, *R&D and technological investments* (Zuboff, 2019; Rikap and Lundvall, 2020). By investing heavily and selectively in technological domains—such as Big data, Cloud computing, Artificial Intelligence (AI), Machine Learning (ML) – that are key to controlling information networks and their physical counterparts, digital platforms lock-in and 'subsume' to their strategies those interacting with them (e.g. users trading privacy for the access to social networks, consumers facing high switching cost, third parties that cannot avoid relying on platforms to advertise or sell their products). Third, *labour fragmentation and surveillance* (Alimahomed-Wilson and Reese, 2020). Contrary to the widespread idea that digital platforms employ a small number of well-paid high-skilled workers free to unleash their own creativity (Vallas and Schor, 2020), platform operations and value capture rely on fragmentation, surveillance and (direct and indirect) exploitation of a large and geographically dispersed workforce (Bogliacino et al., 2019; Tubaro et al., 2020). Digital networks are in fact powered by millions of individuals scattered around the world and subject to heavy workloads combined with unprecedented levels of control of their performance at work—for example online worker training, AI algorithms and 'polishing' web contents, Amazon Mechanical 'Turkers' (De Stefano and Aloisi, 2019); blue collars employed in platform-related logistics facilities. Not surprisingly, a considerable share of the platforms' strategic actions and investments are directed at maintaining tight control over these workers (Delfanti, 2021). Fourth, *governments and 'retaliatory power'* (Ietto-Gillies, 2002, 2019). Given the scale of their activities, their control of a politically vital asset like private information and their *de facto* alliance with a strongly locked-in customer base (Culpepper and Thelen, 2020; Stark and Pais, 2021), platforms can counter hostile institutions and regulations (e.g. regulations aimed at limiting the appropriation of personal data, increasing taxation, reducing the scope of their activities or protecting the workforce directly and indirectly employed by platforms). To this end, they leverage a retaliatory power going far beyond that of the earlier transnational corporations (Rahman and Thelen, 2019).

Our contribution adds to the extant literature by exploring each of these drivers of power accumulation with the aim to show how the pursuit of increasingly pervasive control over both the economic and technological domains, extending even to the political domain, represents the multifaceted and unifying element characterising digital platforms. Moreover, the conceptual framework provided is further qualified through application to the Amazon case, with the aim to assess whether the strategic decisions which inform its business model bear out our theoretical reconstruction.

The article is organized as follows. Section 2 reviews the literature on digital platforms highlighting the economic and political aspects which have fostered their growth. In Section 3, we recall the notions of control and power in Hymer and Cowling, and outline our theoretical framework. In Section 4 we apply our framework to digital platforms, highlighting similarities and discontinuities with respect to the transnational corporations investigated by Monopoly Capital scholars. We then focus on the Amazon case and make use of our conceptual framework to explore the deep logic behind its strategy and operations. Section 5 summarises the main findings of the work and discusses some policy implications.

2. Digital platforms: a brief review of the literature

From an historical point of view, the power of digital platforms can be traced back to an act of 'virtual colonization'. It was December 1991 when, in a purely 'Polanyian' fashion, the bipartisan-supported Al Gore-sponsored 'High Performance Computing Act' transformed a public space, the Internet, hitherto free from capitalistic accumulation, into an arena wherein value creation, capture and centralisation would soon take place on an unprecedented scale with extraordinary rapidity.[2] This is what Greenstein (2000, p. 410) called 'the commercialization of the Internet'. From then on, the fears of those warning Capitol Hill about 'letting the structure and management of the network [Internet] becom[e] dominated by just a few, powerful private-sector gatekeepers' (O'Mara, 2020 p. 291) were progressively substantiated. By 2021, the four largest US tech companies, including the three major digital platforms—Amazon, Google and Facebook—were together worth more than the entire Tokyo Stock Exchange. Amazon alone is worth more than Germany's entire Dax index. Notably, this scenario does not appear to have been affected by the US Congress 2020 investigation into 'Amazon, Apple, Google and Facebook dominance' or discussion of new antitrust laws targeting digital corporations (Popiel, 2020).

Interestingly, the business model of digital platforms came to the fore less than two decades after the 'shareholder revolution' that shifted power from large Fordist companies to financialised multinationals relying on aggressive outsourcing, asset stripping and labour-saving strategies (on this point, see Rahman and Thelen, 2019). In a shareholder value-oriented world, stock price was the core metric of success, and share value rested heavily on hitting analysts' quarterly profit projections (Lazonick and O'Sullivan, 2000; Krippner, 2005). Conversely, with the advent of digital platforms, 'short-termism' seems to fade away: digital corporations often report low operating profits and show a business model which is orientated to the reinvestment of cash

[2] As O'Mara (2020) documents in detail, the network upon which the Internet was built, the National Science Foundation Network (NFSNET), was aimed at empowering academic research without allowing any commercial use. No less significantly, the knowledge and technology base underlying the NFSNET is the result of decades-long public investment programmes.

flows, especially in R&D activities. In other words, financial capital *seems* to have suddenly become 'patient', being attracted by the prospect of large platform companies dominating the entire economic space in the medium to long run.

In academic research, the increasing market concentration due to the remarkable rise of platforms and data-related business models has contributed to the flourishing of studies in a number of disciplinary domains, including management, economics, sociology, political science, antitrust, labour and media studies (see, among others, Evans and Gawer, 2016; Kenney and Zysman, 2016, 2020; Montalban et al., 2019; Culpepper and Thelen, 2020; Peck and Phillips, 2020; Feldman et al., 2021; Schüßler et al., 2021). In particular, literature on the economics of information technology has identified several mechanisms which may lead to a growing concentration of digital markets (for an extensive survey, see Calvano and Polo, 2021). Digital platforms—especially those known as transaction platforms, for example Amazon, Airbnb, eBay and Uber—compete in what Rochet and Tirole (2003, 2006) have called two-sided (or even multi-sided) markets, that is markets that involve two groups of agents and in which the benefit of one group joining a platform depends on the size of the other group joining the platform (Evans, 2003; Parker and Van Alstyne, 2005; Armstrong, 2006; Evans and Schmalensee, 2008). These markets typically give rise to (i) network effects, both direct and indirect; (ii) economies of scale, due to their cost structure and data-driven business model; and (iii) greater product differentiation, thanks to the huge amount of data that platforms are able to gather. It follows that network externalities and a cost structure such that high fixed costs are combined with little or no marginal costs (causing average costs to fall dramatically as size increases) allow platforms to displace new entrants and consolidate a dominant position in the market (Varian et al., 2004). Furthermore, these network effects lie behind the strong lock-in syndrome characterising customers and third parties relying on platforms (Parker et al., 2016). Although network effects existed prior to online platforms, today these effects are magnified by the business model of modern digital platforms, whose expansion relies on capturing, storing and processing data from millions of users on the web by means of sophisticated computer algorithms (Evans and Gawer, 2016).

In this regard, the growing dominance of platforms largely relies on their increasingly pervasive control of all the relevant information flowing through society (Kenney and Zysman, 2016, 2020). To quote Rahman and Thelen (2019, p. 178), platforms gain unprecedented power 'through their capacity to extract and harness immense amounts of data in ways that allow them to operate as critical intermediaries and market makers [achieving a] level of market dominance that inspires comparison to classic monopolies of the nineteenth and twentieth centuries corporations'. In other words, by owning and controlling data, platforms dictate the terms of interaction between workers and employers, buyers and sellers, clients and contractors, creators and viewers and advertisers and consumers. To use an expression made popular by Zuboff (2015), the growth of the platforms over time implies therefore a continuous improvement and refinement of the 'technology of surveillance'.

According to Zuboff (2015, 2019), the accumulation of surveillance assets relies on two key factors, namely technology and network size. First, large platforms like Amazon, Facebook or Google invest relentlessly and selectively in technologies and knowledge domains that ensure dominance in data mining and processing, that is data storage, cloud computing, artificial intelligence and machine learning (McKinsey, 2017; Fanti et al., 2020; Kenney et al., 2021). By holding on to their persistent technological

advantage these platforms are able to constitute an inescapable gateway for those who need to search for information (e.g. Google), digitise and produce services and contents (e.g. Amazon Web Services, UpWork), work (e.g. Amazon Mechanical Turk, Uber), buy and sell (e.g. Ebay, Amazon marketplace, Alibaba), communicate (e.g. Facebook, Instagram) or advertise products and services (e.g. Google). Second, as the networks increase in size and scope, the amount of data the platform can syphon out grows, too. It follows that the degree and stringency of its control over the economic space also increases; in fact, as the efficiency and economic value (reflected by the trend in the platforms' stock prices) of the network rises, network users are increasingly locked-in on both the supply and the demand side (for a thorough discussion, see Parker et al., 2016).

Nonetheless, Rikap (2021) highlighted a significant dichotomy in the operation of platforms. On the one hand, they promote the centralisation of capital through mergers and acquisitions (M&As) (see also Brancaccio et al., 2018), while on the other, unlike the traditional monopolies analysed by Baran and Sweezy (1966), platforms rely on a vertical disarticulation of the value chain.[3] In other words, unlike the transnational corporations of the last century 'whose advantages were related to the size of their tangible capital, intellectual monopolies [i.e., large digital platforms] concentrate intangible assets, while deconcentrating tangible ones' (Rikap, 2022, p. 439). More remarkably, Rikap and Harari-Kermadec (2020) pointed out that in most analyses within the Monopoly Capital tradition, planning relations between individual capitals competing or exchanging in the market were substantially excluded. In other words, these scholars lucidly recognised the monopolistic character of capitalism as it was emerging; yet, as Rikap and Harari-Kermadec (2020, p. 5) wrote, 'planning outside the factories – as a power relation of subordination that takes over the subordinate individual capital's capacity to organize and coordinate its production processes—is still absent [in these authors].' Conversely, as we further contend below, considerations on this type of 'planning outside of factories' – theoretically overcoming the 'predominance of competition' – can be found in Hymer's and Cowling's contributions.

3. Theoretical background: the notions of 'power' and 'control' in Hymer and Cowling

An appropriate starting point to appreciate Hymer's and Cowling's views on Monopoly Capitalism is Hymer's analysis of the firms' *efficiency contradictions* (Hymer, 1970). In this work, Hymer clearly detects the extension of control as a means for large (transnational) corporations to organise an international division of labour: 'multinational corporations are torn in two directions. On the one hand, they must adapt to local circumstances in each country. This calls for decentralised decision making. On the other hand, they must coordinate their activities in various parts of the world and stimulate the flow of ideas from one part of their *empire* to another. This calls for centralised controls' (ibid., 1970, p. 445, emphasis added). This contradiction is further qualified by Hymer in a subsequent work concerning the *law of uneven development*, in which he identifies a tendency towards 'a hierarchical division of labour between geographical regions corresponding to the vertical division of labour within the firm. It would tend

[3] A similar phenomenon led Bellofiore (2011, p. 107) to coin the expression 'centralization without concentration'.

to centralize high-level decision-making occupations in a few key cities […] and confine the rest of the world to lower levels of activity and income' (Hymer, 1972, p. 114).[4]

An extension of Hymer's notion of control within an industrial organisation framework is offered by Keith Cowling. Cowling (1982, p. 5) is 'interested in demonstrating the extent of capitalist control over the degree of monopoly, and thus over the distribution of income, […] to isolate those factors which determine the degree of monopoly'. Cowling therefore represents an 'attempt at merging together macro and micro elements through the links between monopoly power, degree of monopoly and macro analysis' (Ietto-Gillies 2005, p.160). In this way, Cowling steps away from mainstream economics without adopting the purely macroeconomic approach of twentieth-century Marxism. Consequently, 'his radical counterparts sometimes labelled his approach as "Neoclassical Marxism"' (Pitelis and Tomlinson, 2017, p. 187). Interestingly, a common feature between Hymer and Cowling is that, in their earlier analyses, they both seem to touch on the key point of their theoretical approach without making it explicit. In this respect, when Cowling (1982, chapter 4, also based on Cowling *et al.*, 1980) deals with 'mergers and managerialism', he is implicitly interested in developing a broader analysis aimed at providing a new theory of the transnational firm, and this will be only made explicit in his subsequent works with co-authors (Cowling and Sugden, 1987, 1994, 1998; Cowling and Tomlinson, 2005, 2011).

In this context, what is worth emphasising for our purposes is the shift that these authors accomplished by moving from an analysis focused on the internal characteristics of the firm—where Hymer's contributions can be interpreted in line with contemporary authors like Penrose and Chandler (Pitelis, 2002) – to a theoretical perspective which includes firms' external relations in order to plumb the depths of the economic and political nature of giant corporations. In particular, taking the latter perspective makes it possible to highlight the power relations that inform the bargaining position of firms towards other firms, labour and governments. What results is, therefore, a definition of the firm as a 'means of coordinating production from one centre of strategic decision-making', extended to a cross-border coordination in the case of the transnational corporations (Cowling and Sugden, 1987, p. 12).

Most importantly, the notion of 'control' which results from this perspective is not merely concerned with the *internal* ability to coordinate resources as in the Penrosean tradition. Rather, it is a form of *power* as an *external relation* towards other economic and institutional actors, namely firms, suppliers, trade unions and governments. To use Cowling and Sugden's words, 'the power to make strategic decisions is the power to plan the overall direction of production in the firm. This includes the power broadly to determine a firm's geographical orientation, its relationship with rivals, with governments and with its labour force' (Cowling and Sugden, 1998, p. 64). In this regard, the 'concept of control *only* refers to the control of strategic issues' for giant transnational corporations (ibid., p. 66). Consistently, the notion of 'control' should be conceived as defined by Zeitlin (1974): 'the power to make strategic decisions includes the ability to plan a corporation's relationships with other corporations, its

[4] Interestingly, Hymer moved on from a (mainstream) theory of the firm's behaviour to an analysis of imperialism centred on multinational corporate capital. However, Hymer's later notion of control is in line with the ideas expressed in his PhD thesis at MIT (1960, published in 1976). As Pitelis states, 'it is often implied in the literature that there has been a break in Hymer's thought, between his PhD and his Marxist phase, apparently attributed to ideology', although the same author demonstrates that 'there is less of a break in Hymer's thought than it is often believed' (Pitelis, 2002, p. 20).

relationships with governments and employees, and its geographical orientation' (see Branston et al., 2006, p. 191). In this respect, Cowling and Sugden (1998) endorsed a shift from a market-oriented to a production-oriented perspective, and opposed what they considered the 'excessive concern with markets and exchanges' (ibid., p. 60) at the core of the mainstream theory of the firm—according to which all exchanges 'external' to firms' legal boundaries should be conceived as market transactions, that is as purely inter-firm market relationships. Cowling and Sugden's conceptualisation of the modern corporation is thus remarkably different to the neoclassical theory of the firm because, while both approaches rely on the seminal study by Coase (1937), mainstream economists have focused almost exclusively on his idea of transaction costs. Conversely, building also on the criticisms already advanced by Pitelis and Sugden (1986) to the neoclassical view of the managerial control of the firm, Cowling and Sugden stress what they consider the most important Coasian insight, namely the concept of economic planning within (and then outside) the firm.

This conceptualisation has gained even more prominence with the modern fragmentation of production on an international scale. In this context, the market power held by leading firms in global value chains (GVCs) has allowed them to largely benefit from transactions with formally independent suppliers around the globe (Gereffi et al., 2005; Buckley and Strange, 2015; Dallas et al., 2019; Strange and Humphrey, 2019). However, power asymmetries between lead firms and contractors providing outsourcing activities should not be merely conceived in terms of market relations. Weaker firms competing to become suppliers of lead firms are implicitly required to change their internal structure and competences to win this race. In other words, their internal organisation of production is not completely free, but is constrained by the standards and explicit requirements imposed by lead firms. While the market transaction is the act that formally calls for this type of supplier adaptation, the latter is fundamentally dictated by the planning power of lead firms which largely hold the ability to decide on life or death of these suppliers. From an evolutionary perspective, the supplier structural adaptation is a matter of survival, an externally imposed 'need' that is only 'confirmed' when a successful transaction occurs. Suppliers may even have to change their internal structure in advance in order to conclude what is formally a market agreement with the lead firm, even in cases in which it does not eventually occur (unsuccessful transaction).

Importantly, this notion of power has a broader application that extends to the analysis of power relationships between giant firms and a wide range of other actors. For example, to the extent that subcontractors must adapt to the needs of giant firms to survive, the former will shape their employees' working conditions accordingly (e.g. by demanding a longer or heavier working day). The planning power of TNCs has thus an (indirect) impact on the workforce employed by suppliers involved in their production networks. Similarly, global wage arbitrage can be interpreted as a form of production planning on a global scale by multinationals, allowed by the liberalisation of goods and capital flows and aimed at organising production according to the advantages provided by different regions (the latter being due to several factors, including trade unions' weakness). Moreover, according to the *naive* neoclassical view, the market is dominated by the controlling power of consumers (i.e. the sovereignty of consumers), whose consumption choices are dictated by individual preferences. Conversely, according to the Monopoly Capital approach, the command exerted on production and labour organisation by giant corporations may also shape the behaviour of workers

as 'consumers'. On the one hand, the *composition* of the output is dictated by TNCs, which retain control over what, how and where to produce. On the other, consumer preferences are largely shaped by advertising strategies set by TNCs' strategies, as the targeted marketing strategies based on the harnessing of user data carried out by modern digital platforms. Finally, the extension of TNCs' power also has an impact on market regulation and government public spending decisions. While the latter retain a certain discretion—whose direction is basically dictated by the balance of power among social groups—TNCs' strategies on the type, scale and location of factories and headquarters greatly affect public policies aimed at, for example, supporting employment by attracting foreign investments.

To sum up, in the tradition of Hymer and Cowling, the power of control wielded by a few giant corporations goes beyond pure market power to involve a wider spectrum of actors and affect different domains. In this perspective, the progressive extension of capitalist control over the whole of society is carried out by a decreasing number of decision-making centres due to the increasing centralisation of capital. Nevertheless, Cowling and Sugden (1998) ultimately offered a rather optimistic view on the possibility of achieving 'an alternative non-hierarchical system […] relating to flexible specialisation and industrial districts' (ibid., p. 82) meant to go 'beyond capitalism'. This view also inspired other theories of large corporations that pay special attention to the wider public interest (e.g. Branston et al., 2006; Cowling and Tomlinson, 2011) and raise concerns about cases of 'strategic failures' (e.g. Cowling and Tomlinson, 2000, on Japan; Branston et al., 2012, on finance). However, we believe there is even more room to exploit Hymer's and Cowling and Sugden's conception of the large monopolistic firm as a means of coordinating and planning production from a unique centre of strategic decision-making, especially when digital platforms are at stake. Accordingly, in the following sections we adopt this theoretical perspective to analyse the power of control exerted by digital platforms in general and by Amazon in particular.

4. Power, control and digital platforms

4.1 Digital platforms as an evolution of large transnational corporations

In this section we argue that digital platforms, particularly those controlling large networks and operating as *de facto* infrastructures (e.g. Amazon, Apple, Facebook, Google—see, among others, Rahman and Thelen, 2019; Kenney et al., 2020, 2021), can be seen as a data-driven evolution of the transnational corporations described by Hymer, Cowling and Sugden. Consistently, if for these authors *control* is the key to understand the very nature of corporations, for digital platforms control over the economic space is an 'existential objective' (Parker et al., 2016).

Data-related technologies allow giant platforms to improve their command over the actors they interact with in at least two ways. First, leading platforms like Google or Amazon seek to maintain or increase the competition among complementors while retaining a certain degree of control over the overall digital (and physical) architecture (Gawer and Cusumano, 2014). With this approach it is possible to stimulate complementors' innovativeness, intangible and competence sharing to syphon out what is more strategic and valuable in their production. This is an 'implicit monopoly' of both actual and potential innovation which also relies on strategic M&A operations. Taking advantage of a persistently growing pool of financial resources, digital platforms

leverage M&A policies to consolidate their position along the key technological trajectories as well as warding off the potential competition of the most promising innovative companies.[5] In fact, the centrality of digital platforms in ecosystems wherein innovation is fundamentally based on technological complementarity and common standards (e.g. the iOS and Android operating systems for the development of smartphone apps), combined with their large financial capabilities, allows them to promote strategic M&As aimed at increasing their relative economic power (Kenney et al., 2021).[6] By the same token, as noted by Zhu and Liu (2018), platforms like Amazon use data to detect and in some cases penetrate the market segments that show the greatest potential for success, competing directly with third-party sellers. The result is that many third-party vendors—despite having previously developed successful products—are pushed out of the market, thereby further consolidating the 'market control' exerted by the marketplace orchestrator. In addition, by including new markets within the network perimeter, giant tech corporations increase the dependence of those relying on them by resizing or altogether eliminating market alternatives—for example Uber vs the traditional taxi, Amazon's marketplace vs third parties' own websites, Facebook and Instagram vs competing social networks.

These elements may contribute to heightening the degree of dependence that both customers and suppliers have on platforms. On the one hand, once a supplier or a third-party seller has to rely on a given platform to reach all or most of her customer base the alternatives become either surviving by submitting to the strategic decisions of the platform (e.g. grant a certain discount, modify products in a certain way, avoid using competing platforms), or exiting the market altogether. On the other hand, the broader, more heterogeneous and efficient the content of the network turns out to be (e.g. number of friends and participants in a social network, goods and services sold on the online marketplace), the greater will be the cost that customers have to bear should they wish to leave the platform because of unilaterally undesirable actions performed by the latter (Parker et al., 2016). Accordingly, the larger and more diverse the network, and the vaster the amount of information owned by the platform, the more effective will be the retaliatory actions that the latter can take to prevent resizing of the network itself.

Second, thanks to the technological infrastructure combined with monopolisation of access to information gateways, the digital platforms are able to concentrate an immense amount of power in their hands while the asset ownership and risks remain highly decentralised (Vallas and Schor, 2020; Kenney et al., 2021). Going beyond the transnational corporation analysed by Monopoly Capitalism scholars, the platform can therefore exert an improved form of 'architectural control' by positioning itself as the *de facto* leader of an international division of labour originating beyond the confines of the company. As argued, this provides the platform with the ability to subsume, adapt and profit from the innovative efforts made by its formally independent complementors. As noted by Durand and Milberg (2020), the data centralisation

[5] The use of M&As as a strategy for consolidating economic power of TNCs is also central to Monopoly Capital theory. We thank an anonymous reviewer for pointing this out.

[6] For example, Google promoted 260 acquisitions from February 2001 to October 2021 (more than 12 deals per year on average) ranging from AI, Big data analytics, cloud computing, robotics to smart glasses. Apple carried out 126 acquisitions from 1988 to August 2021 (almost 4 deals per year on average). Finally, the number of acquisitions made by Facebook from August 2005 to October 2021 is 92 (more than 5 deals per year on average). Full lists of acquisition deals concluded by large digital corporations are available here: https://www.economicliberties.us/big-tech-merger-tracker/ (last access: 6 December 2021).

which results from the platforms' capability to generate, control and manage information allows these firms to exert a 'panopticon control' over value chains and learn from their partners' business procedures, thereby improving (at almost no cost) their innovation capabilities. This interpretation also sheds light on the logic behind the innovation ecosystems having giant technology corporations as major orchestrators. For example, the App Store owned by Apple represents a powerful tool for leveraging third-party applications, thereby accelerating innovation at a pace Apple could not have achieved with in-house developers alone (Rikap, 2018). In this way, digital platforms take advantage of a potentially unlimited pool of external innovators, whose fortunes increasingly depend on being able to join—albeit in a subordinate position—the innovation ecosystem controlled by the digital platforms themselves. Again, what is worth emphasising for our purposes is the strategic behaviour adopted by large tech corporations, which—thanks above all to their financial, organisational and data-based assets—allows them to pursue an orchestration of economic actors populating their production and innovation networks, often resembling an effective extension of their strategic planning power outside their formal boundaries. Taking up previous insights offered by Cowling and Sugden (1987), we therefore stress that the boundaries of these giant corporations end up being extended as their internal production planning is effectively combined with the direct and indirect subordination of the formally independent suppliers and institutional actors they globally interact with.

Another important discontinuity that can be detected when comparing digital platforms with the TNCs of the last century concerns the transnationality dimension. As emphasized by Balcet and Ietto-Gillies (2020), TNCs' localisation strategies can give companies considerable advantages that 'derive from the existence of different regulatory regimes […] in different countries' (ibid., p. 109). As summarized by the authors, 'the regulatory regimes that are most likely to confer advantages to the company as a whole are the following: (a) fiscal regimes allowing companies to take advantage of different tax rates or custom tariffs in different countries; (b) currency regimes which allow taking advantages of current and expected changes in exchange rates; (c) regimes of industrial policy with diverse incentives for foreign investors and/or for investment in special regions; (d) regulations regarding environmental standards; and (e) rules and regulations regarding the social security system and, in particular, the different regimes regarding labour and its organization' (ibid.). In this respect, it is worth noting that the internationalisation of large digital platforms has taken a different form from that of earlier TNCs. As recently pointed out by Ietto-Gillies (2022), the platforms call into question the traditional view of transnationalisation based on the acquisition of foreign assets (e.g. plants, machinery and equipment) through the promotion of foreign direct investments. In fact, digital platforms such as Alphabet, Facebook, Amazon 'appear to have low levels of fixed assets and specifically foreign ones, yet they have large amounts of sales and revenue in many countries; some, in most countries of the world' (ibid., p. 4). This is due to some peculiar features of the platforms' technological and organisational set-up, which can be summarised as follows: (i) digital services are largely not location-bound; (ii) reduced need for fixed investments to ensure reproducibility and transferability of digital services; (iii) non-coincidence between the array of services used by platforms' users (e.g. access to Facebook and YouTube—the latter owned by Google—is free of charge) and the sources of platforms' revenue (e.g. paid advertising by third-party vendors on the platforms). These factors could provide digital platforms with a particular transnational advantage over traditional TNCs. This

would derive from the possibility of combining global wage and regulatory arbitrage with effective labour control and greater production flexibility enabled by 'lighter' foreign fixed assets.[7]

When strategies aimed at exerting control over labour are involved, digital platforms show both similarities to and discontinuities with the picture Cowling and Sugden (1987, 1994) traced with respect to the corporations of the last century.[8] A primary aspect concerns the workforce directly employed by digital platforms; in this regard, a significant segmentation is observed. On the one hand, we find a circumscribed group of high-skilled high-wage workers, often owning company stocks, who are charged with managing the network's digital infrastructures (e.g. cloud, servers, algorithms), analysing data, performing research and developing related technologies. For the platforms, attracting the best expertise in fields ranging over physics, mathematics and computer science is vital to maintain efficiency and maximize the value of the network, ensure its ubiquity and make users increasingly dependent on it. The leading platforms engage in keen competition for these skills.[9] On the other hand, there are staff employed in the low value-added phases of the production process (e.g. Amazon's logistics workers, the 'click-workers' that moderate contents and 'clean' Facebook, Google or YouTube interfaces). Although important for the functioning of the network, this workforce is highly fragmented and workers are mostly hired on insecure terms, earn very low wages and often lack adequate welfare protection.[10]

A second aspect concerns the tighter control that platforms exert on the workforce thanks to advanced technological devices combined with peculiar techno-organisational practices, for example individual monitoring tools ensuring that given production targets be met (like Amazon's electronic bracelet—for a thorough analysis, see Delfanti, 2021), or 'gamification' to stimulate competition among workers. These strategies allow for a great advance in the surveillance of workers, and giant tech corporations use this 'surveillance power' for motion time systems to optimise business production planning and prevent any form of labour organisation (Prassl, 2018).[11]

[7] We thank an anonymous reviewer for bringing this point to our attention.

[8] As stressed by Ietto-Gillies (2002, p. 51), linking Hymer's and Cowling & Sugden's reflections on labour fragmentation, 'a natural extension of this idea of control as removal of conflicts is in the area of control over labour which is considered by Hymer (1970 and 1972) […] The fragmentation of labour over many nation-states allows the TNCs to exercise wider control over labour in strategies of divide and rule (Cowling and Sugden, 1987; Sugden, 1991) and to remove conflicts with labour'. See also Balcet and Ietto-Gillies (2020).

[9] 'Amazon, Facebook and others in tech will commit $300 million to the White House's new computer science push', *Vox.com*, https://www.vox.com/2017/9/26/16364662/amazon-facebook-google-tech-300-million-donald-trump-ivanka-computer-science; 'Amazon, Google Poised for Race to Hire High-Tech Talent', *The Wall Street Journal*, https://www.wsj.com/articles/amazon-google-chase-software-developersbut-not-the-same-ones-1542133719; 'STEM education as a diversity driver in tech', *AboutAmazon.com*, https://www.aboutamazon.com/news/community/stem-education-as-a-diversity-driver-in-tech; 'Google, Microsoft, Apple, Amazon, and tech's battle for the hearts and classrooms of teachers', *GeekWire*, https://www.geekwire.com/2018/google-microsoft-apple-amazon-techs-battle-hearts-classrooms-teachers/ (last access: 15 May 2021).

[10] A study conducted by Cantarella and Strozzi (2018) on European and US crowdworkers finds that the latter earn about 70.6% less than 'traditional' workers with comparable ability, while working only a few hours less per week.

[11] 'Amazon patents wristband that tracks warehouse workers' movements', *The Guardian*, https://www.theguardian.com/technology/2018/jan/31/amazon-warehouse-wristband-tracking; 'If Workers Slack Off, the Wristband Will Know', *The New York Times*, https://www.nytimes.com/2018/02/01/technology/amazon-wristband-tracking-privacy.html; 'Amazon expands gamification program that encourages warehouse employees to work harder', *The Verge*, https://www.theverge.com/2021/3/15/22331502/amazon-warehouse-gamification-program-expand-fc-games (last access: 30 May 2021).

Finally, relaxation of government constraints on their actions and lightening of the tax burden are also strategic objectives of the corporations analysed by authors including Cowling and Sugden (1987, 1994); Ietto-Gillies (2002, 2019), and Balcet and Ietto-Gilies (2020). Digital platforms also show a formidable leap forward in this respect, as attested in the first place by the huge amounts of money these companies have spent on lobbying to dissuade governments from taking measures that could limit their economic power—for example, Facebook, Amazon, Apple and Google together spent over US$20 million on lobbying in the first half of 2020 alone,[12] showing a growing trend compared to previous years (UNCTAD, 2019). Secondly, the strong reliance on intellectual properties combined with their global scale make shifting the tax burden easier for giant platforms than for traditional, tangible-intensive corporations (Prasad and Sounderpandian, 2003; Rikap, 2022). Thirdly, as Culpepper and Thelen (2020) have pointed out, the dependence of increasingly large masses of consumers on their services provides platforms with a *de facto* 'consensus base' that is likely to discourage governments from hostile actions.

To sum up, the ability of digital platforms to leverage data to expand their dominance can be conceived as an updated and extended version of that 'power of control' described by Cowling and Sugden (1987, 1994). Nonetheless, the platforms' power involves a multiplicity of dimensions, which may show at least partial differences according to the specific digital platform investigated. Accordingly, in the next section we apply our framework to analysis of the Amazon case.

4.2 The Amazon case

If digital platforms represent an evolution of the capitalist enterprise towards a greater concentration of power and control, Amazon can be seen as the role model.[13] Established in 1994 as an e-commerce book retailer, it now operates over a wide array of sectors including retail (e-commerce and brick-and-mortar), logistics, video, music, entertainment (e.g. gaming platforms like Twitch), data storage and web-services, financial services for both consumers and firms (e.g. Amazon Pay), smart devices (e.g. Alexa, Amazon Halo) and autonomous cars (e.g. Amazon Zoox). Notably, just a few years after starting its activities in the USA, Amazon achieved geographical expansion, gaining massive market shares all over the world, excluding China (where similar national platforms operate). Such ubiquity is reflected in some of Amazon's most popular nicknames: 'the everything' and 'the everywhere store' (Rikap, 2022).

Indeed, there is nothing strictly new in the case of Amazon. Like other transnational corporations (Cowling and Sugden, 1987; Ietto-Gillies, 2002), Amazon expands geographically in pursuit of further demand; it relies on innovation and outsourcing to reduce costs and extract more value from labour (Balcet and Ietto-Gillies, 2020); it invests in marketing and advertising to influence customers, aiming to make the latter as dependent as possible on its services (Culpepper and Thelen, 2020); and it lobbies to obtain favourable regulations from governments and devises strategies to reduce to the bare minimum the taxes it has to pay (Zingales, 2017).

[12] 'Big Tech spends over $20 million on lobbying in first half of 2020, including on coronavirus legislation.' *CNBC*, https://www.cnbc.com/2020/07/31/big-tech-spends-20-million-on-lobbying-including-on-coronavirus-bills.html (last access: 16 May 2021).

[13] The Amazon case has recently been analysed by Kenney et al. (2021). These authors propose an analytical framework composed of eight vectors of expansion, highlighting that once a platform like Amazon develops its technological, organisational and financial advantage, it can not only quickly scale up in its original business, but also leverage its assets in one industry to enter new industries.

What marks a discontinuity concerns the pervasiveness of the control that Amazon exerts over the economy by means of a 'decentralised' concentration of power (Kenney et al., 2021). In fact, reflecting the picture that Cowling and Sugden (1998) propose of control being maintained on *strategic issues* by giant firms, Amazon expands its reach over a multitude of markets while investing exclusively in those assets and technologies that allow it to maintain tight control over its digital and physical networks. Moreover, as for other large digital platforms (e.g. Google, Facebook), extracting and harnessing data are key to accumulating economic power and control (Zuboff, 2015, 2019). In this case, however, power reaches well beyond controlling data gateways.

On the one hand, by rapidly expanding the number of goods available on its marketplace (Kenney and Zysman, 2020), Amazon has become the first option for an increasing number of customers, as well as wholesale and third-party sellers all over the world.[14] In turn, this opens the way to 'predatory' pricing strategies (Rikap, 2022), mainly based on discounts and market subsidisation, through which new markets and sectors are continuously penetrated. As a result, together with its reach, Amazon increases the amount of data usable to further refine market strategies as well as empowering the AI algorithms governing the platform. On the other hand, control strategies also extend to the 'physical world', as attested in the first place by the direct management of warehouse and logistics services, or in other words, the physical counterpart of Amazon's virtual marketplace. By maximizing efficiency and reducing bottlenecks, Amazon ensures that the goods customers may want to purchase are actually 'a click away' from their doorstep (Culpepper and Thelen, 2020). Secondly, the penetration into brick-and-mortar retail sectors needs stressing. In this case, control assumes the form of 'omnichannel' retailing. By leveraging the power and resources acquired thanks to its dominant position in the e-commerce industry, Amazon makes strategic investments to offer the widest possible range of products (e.g. books, grocery, but also autonomous—i.e. self-driving—electric vehicles), including items that are less easily manageable online such as perishable goods (e.g. fresh food). In this way, Amazon aims to gain prominent positions in high value-added industries and counter the actions of direct competitors such as Walmart.

This pervasiveness is rewarded by the financial market, with Amazon's share value registering a sharp rise in recent years. In fact, as of February 2021, Amazon's market capitalisation was US$1,557 trillion, making it the most valuable US-based internet company. As Figure 1 shows, this occurred although Amazon had accumulated relatively small profits compared to total revenues since its birth (see also Khan, 2016). Thus, these data reveal that it is the expectation of further expansion that drives Amazon's market value.[15] As previously mentioned, this circumstance could also lead one to suppose that capital has become 'patient', pursuing reward in the longer term rather than very short-term profits. On closer inspection, however, this argument can be further developed. As noted by Rikap (2022, pp. 455–456), '[a]s far as the stock price keeps rising, shareholders will still benefit in the short-term'. Consequently, we should be wary of concluding that investors' hunger for overnight profits has vanished with the advent of digital platforms.

[14] Amazon operates both as first-party seller, setting the prices and directly selling the goods provided by wholesale suppliers; and as third-party seller, allowing third parties to retail goods using its marketplace on specific terms and conditions.

[15] On 16 June 16 2017, Amazon announced it was buying the upscale grocery food chain Whole Foods for US$13.7 billion. An hour later, Amazon's shares were up 3%, pushing the company's value up by US$14 billion. Basically, Amazon bought the sixth US supermarket chain without shelling out a penny (Eisen, 2017).

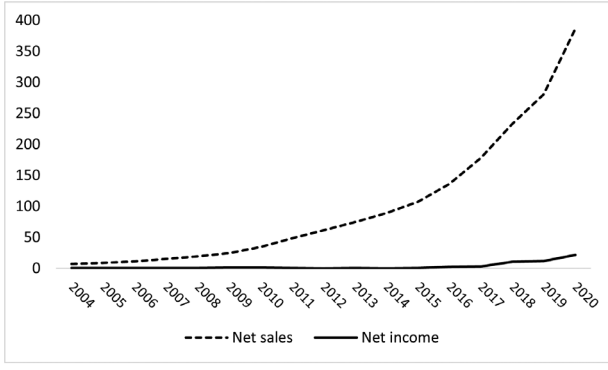

Fig. 1. *Annual net sales and net income of Amazon, 2004–20.*
Source: Authors' elaboration on data sources from Statista.com.
Note: Data are expressed in billion US dollars.

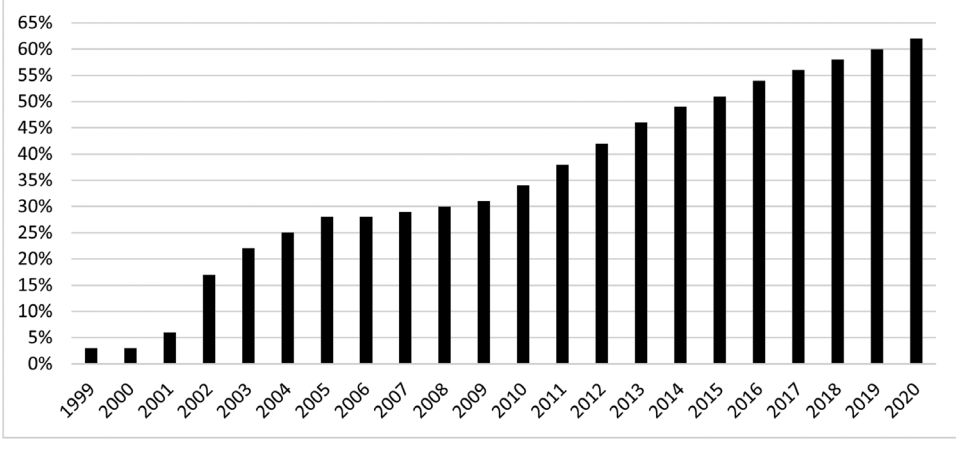

Fig. 2. *Share (%) of physical gross merchandise sales on Amazon by independent third-party sellers as opposed to Amazon's own first-party retail sales.*
Source: Authors' elaboration on data retrieved from Statista.com.

Overall, Amazon's strategies to enforce and expand its control over the economic system are complex and heterogeneous and recall elements typical of the 1990s' transnational corporations while introducing brand new ones (Rahman and Thelen, 2019). A preliminary comprehensive assessment of these elements is presented below.

4.2.1 *Growth and diversification of the digital marketplace*. The number of markets and sectors included in Amazon's marketplace is constantly increasing (Kahn, 2016; Rikap, 2022; Kenney et al., 2021). As the numbers of countries and subscribers grow, so does the number of vendors and sellers relying on Amazon to expand their markets. By exploiting cross-subsidisation techniques— that is using the resources accumulated in a certain market or sector to offer below-cost prices and penetrate new markets and sectors (Rochet and Tirole, 2003) – Amazon is thus further expanding and diversifying its marketplace (Haucap and Heimeshoff, 2014). In this regard, Figure 2 shows the

trend in the third-party sellers' share of gross merchandise sold on Amazon over the last twenty years. Notably, this magnitude saw rapid growth after the Great Financial Crisis of 2008, reaching 62% in 2020, meaning that just over a third of products sold on Amazon's marketplace are Amazon-branded. The only way to reconcile this apparently negative datum for Amazon with the consolidation of its economic and financial dominance is by interpreting the former as a rough indicator of Amazon's growing power to expand its network by subordinating an increasing number of independent actors to its own advantage.

This also increases the amount of data to be used for targeted marketing strategies aimed at binding existing customers and attracting additional ones. The tools used to extract value from suppliers and vendors are, in turn, commission, advertising and fulfilment fees (which Amazon charges when it directly manages packaging and delivery). Although vendors can choose whether to rely on Amazon's fulfilment services, those who want to take advantage of frontline services such as Amazon Prime are obliged to pay the fees.[16] Similarly, advertising fees become *de facto* mandatory under penalty of loss of visibility (and customers) on the marketplace. Overall, as the marketplace has grown in size, Amazon's fee share has grown substantially, reaching roughly 30% according to recent estimates (Mitchell et al., 2020).

No less significantly, the product sectors wherein Amazon relies on its own branded goods to compete directly with sellers using the same marketplace has also increased. This strategy is implemented both as a deterrent, to ensure that suppliers and vendors comply with the platform's strategy, and as a traditional way of expanding market shares (Zhu and Liu, 2018). The main purpose is twofold: destroying the attractiveness of digital and physical alternatives to the Amazon marketplace while increasing control over the platform's users. Notably, as control increases, the autonomy of customers (affected by data harnessing, targeted marketing and induced consumption behaviour; Culpepper and Thelen, 2020) and of suppliers and sellers (informally forced to follow Amazon's pricing strategies and discount policies; Mitchell et al., 2020) decreases. From this point of view, cost-cutting strategies—based on job reduction and low wages, and aimed at preventing exit from the marketplace—are the same as those used by industrial subcontractors in the 1980s and 1990s: at the bottom of 'pyramidal structures of subcontracting relations […] a large number of highly substitutable small sweatshops compete in order to obtain their place in the network' (Sacchetti and Sugden, 2003, pp. 683–684).

4.2.2 *Data and technology.* A large share of Amazon investments concerns assets and technologies related to big data extraction, storage and analytics. Technological leadership is pursued relying on both R&D and patenting, as well as strategic M&As aimed at incorporating start-ups, complementors and competitors holding high-potential innovations.

[16] Amazon Prime is a paid service offered by Amazon, which allows customers to benefit from the possibility of rapid delivery, as well as various other services (e.g. Prime Music, Prime Video, Prime Reading). On 9 December 2021, Italy's antitrust regulator fined Amazon nearly US$1.3 billion. In particular, the Italian Competition Authority accused Amazon of preventing the association of the 'Prime' label with third-party sellers who do not use Amazon's own logistics service (i.e. Fulfillment by Amazon—FBA) with the aim of encouraging its adoption by merchants on Amazon's marketplace. This is one of the largest penalties imposed on a US tech giant in Europe. Amazon has announced that it will appeal. See 'Amazon is fined $1.3 billion in Italy over antitrust violations', *The New York Times*, https://www.nytimes.com/2021/12/09/business/amazon-italy-fine.html (last access: 15 December 2021).

Amazon is indeed among the top R&D spenders in the world and ranked as the top R&D spender in 2020, recording a US$42.74 billion spending on 'technology and content'. By the end of the third quarter of 2021, that amount had already increased to US$52.79 billion (+23.5% in just three quarters).[17] Estimates show that if Amazon's pure R&D spending were lower than reported as 'technology and content' spending, it would still be higher than that of Alphabet and much larger than that of Microsoft, Apple and Google (Fox, 2021).[18] This is also reflected in the number of inventions patented by Amazon. In fact, the growth of its patent portfolio since 2010 has been astonishing. The number of patents granted to Amazon in 2010 was 121; this number increased to 1,153 in 2015 and 2,396 in 2019, while in 2020 it was 2,244. This made Amazon the 11th company with the largest number of patents registered in the world in 2020, ahead of, for example Google (1817) and Facebook (938), but behind, for example Microsoft (2905) and Apple (2791).[19]

Key technologies underlying the expansion of Amazon's power include cloud computing, machine learning and AI (Fanti et al., 2020; Rikap, 2022). Investments in cloud computing and data storage technologies are crucial to the growth of one of Amazon's key branches, namely Amazon Web Services (AWS).[20] Indeed, patents on cloud computing and data storage technologies dominate Amazon's patent portfolio. On the one hand, increasing size and technological capabilities in terms of cloud computing and storage are important *per se* for the management of Amazon's overall digital infrastructure. On the other hand, by leveraging those capabilities Amazon has succeeded in becoming one of the leading cloud and web-service providers in the world. This has added a considerable source of revenue, further enhancing the platform's ability to capture and analyse data (Kenney et al., 2021).

Moreover, Amazon's patent portfolio includes a wide range of patents in technological fields associated with surveillance practices and smart objects. Regarding surveillance (Zuboff, 2015), technologies like facial and motion recognition are particularly important for Amazon, serving for an array of devices to maximize control and thus the value extracted, of workers employed in its warehouses (Hanley and Hubbard, 2020; Delfanti, 2021). These devices are developed and implemented both for direct surveillance of the workforce and, through data mining, for design of labour-saving process innovations. Similarly, investments in robotics aim at boosting efficiency while reducing the share of human labour involved in the packaging and shipping processes (Delfanti and Frey, 2021). Furthermore, Amazon has strengthened its control over logistics infrastructures and operations in recent years, investing heavily in technologies related to autonomous guided vehicles (AGV) and drones, as well as developing geolocalisation technologies aimed to monitor and increase the productivity of the drivers and delivery staff.

As for smart objects, their development is largely tied to Amazon's patents in AI technologies, including machine learning algorithms. Patents in these technologies

[17] Data retrieved from *macrotrends.net* (last access: 15 December 2021).

[18] This clarification is necessary since Amazon does not explicitly report R&D expenditure in its financial statements.

[19] Data retrieved from *Statista.com* (last access: 15 December 2021) based on the US Patent and Trademark Office (USPTO).

[20] Amazon's AWS segment—a cloud computing platform that allows businesses to rent space on a server network—generated net sales of US$45.4 billion and operating income of $13.5 billion in fiscal 2020. This is the Amazon segment reporting the highest operating income (it accounts for approximately 59% of the total operating income). Amazon controls about a third of the global cloud market, nearly double its next closest competitor, that is Microsoft Azure (UNCTAD, 2021, pp. 39–40).

account for the largest share of Amazon's patent portfolio after cloud computing.[21] Amazon's patents in natural language recognition include disruptive product innovations like Alexa (Kenney and Zysman, 2020). The latter is a digital personal assistant designed to create a 'smarter' environment allowing the assisted individual to purchase a good from the marketplace or Amazon Prime Video with a simple voice command. As in the case of the Kindle e-book reader, introduced by Amazon's research labs in 2007, a product innovation like Alexa increases users' dependence on the company's services providing more scope for data harnessing and control.

Finally, from 1998 to June 2021, Amazon carried out 115 acquisitions (slightly less than 5 deals per year on average) targeting firms operating in sectors where the platform was aiming to penetrate and consolidate its market power (e.g. retail, food, logistics, fintech and media), as well as in key technological fields such as AI, drones and wearables.[22] More precisely, during the 1990s and the first decade of the twenty first century, Amazon's acquisitions concerned companies engaged in the sale of books and music, but also in developing online payment technologies, web information services and digital content provision and even data mining and data warehousing services. During this period, Amazon has promoted just over 30 deals. However, since 2010, the pace of Amazon's acquisitions has remarkably increased. In this regard, Figure 3 reports the number of Amazon's acquisitions from 2010 to 2020 by target sector.

According to the Bureau van Dijk *Zephyr* database, Amazon completed 74 acquisitions over this period.[23] More than two-thirds (53) concerned sectors related to software publishing and programming activities (33) as well as data processing and web portals (20). Notably, these include investments in artificial intelligence platforms, 3D modelling software and facial recognition products (Zaroban, 2018). Other firms

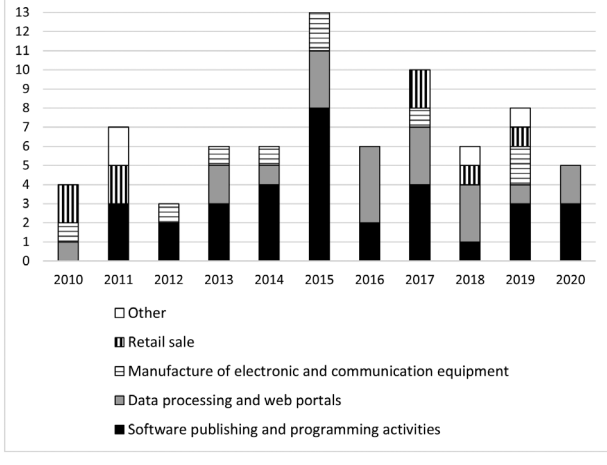

Fig. 3. *Number of Amazon's acquisitions by target industry, 2010–20.*
Source: Authors' elaboration on Bureau van Dijk *Zephyr* database.

[21] Amazon's patent figures are from Forbes (2019) and were updated as of 4 July 2019.

[22] Recent examples of Amazon's cross-industry penetration aptitude include its acquisition of Metro Goldwyn Mayer (MGM) Studios for US$8.45 billion on May 2021. This deal is the Amazon's second largest acquisition to date, behind its $13.7 billion purchase of Whole Foods in 2017. An almost complete list of Amazon's acquisitions is available at https://www.economicliberties.us/big-tech-merger-tracker/ (last access: 6 December 2021).

[23] Missing data in the *Zephyr* database prevents us from including Amazon M&As before 2010.

targeted by Amazon over this period were those operating in manufacturing of communication equipment (9) and retail companies (8), especially grocers and bricks-and-mortar retailers, with the aim of expanding its physical shops—which, in turn, are used by Amazon to promote its hardware products and expand its digital shop by facilitating returns of online orders.

4.2.3 *Labour fragmentation and surveillance.* Amazon's workforce can be broken down into two main components. First, there is a limited group of high-skilled workers, mostly concentrated in the Science, Technology, Engineering, and Mathematics (STEM) area. These are employed in knowledge-intensive activities related to the management of Amazon's digital infrastructures and the development of new products and processes. These workers are primarily located in Silicon Valley and are a key resource in pursuit of the company's technology and growth strategies (O'Mara, 2020). The majority of the global workforce employed by Amazon, however, is made up of staff in logistics warehouses and fleets engaged in deliveries. In addition, there are the so-called 'crowd workers' (Berg et al., 2018), managed by the Amazon Mechanical Turk (AMT) labour platform (De Stefano and Aloisi, 2019). These workers perform online micro-tasks related to the maintenance and 'cleaning' of Amazon's digital interfaces (e.g. checking image layout, reporting and correcting typos—on this point, see Tubaro et al., 2020) and are paid very little. Hara et al. (2018) provides hourly wage estimates in AMT and find that the mean income ranges from US$3.13 to $3.48 per hour worked, while the median income ranges from $1.77 to $2.11 per hour worked, with only 4.2% of workers earning more than the federal minimum wage. Likewise, Lehdonvirta (2018) finds that the largest share of tasks on AMT provides very modest rewards, that is between $1 and $2 per hour worked.

Workers employed in logistics and delivery, as well as AMT crowd workers, are exposed to very high levels of fragmentation, in turn dictated mainly by technological, organisational and institutional factors. First, as outlined above and documented by Delfanti and Frey (2021), Amazon makes significant technological investments aimed at supervising workers, transmitting orders as effectively as possible, evaluating performance in real time, and imposing sanctions. Second, organisational practices—for example intense work rhythms, frequent shift changes, gamification—contribute to worker isolation and fragmentation (Prassl, 2018; Doorn and Chen, 2021). Third, Amazon openly opposes unionisation by promoting anti-union campaigns within warehouses and by switching contractors when workers employed by the latter manage to organise and join unions. This combination of elements contributes to high levels of worker alienation, allowing Amazon to extract a large amount of value from its workforce.

Finally, the practice of outsourcing also greatly contributes to weakening the workers' bargaining power. In fact, alongside those directly employed by Amazon in logistics and delivery, a large share of workers are hired by external companies to carry out tasks auxiliary to the logistics and shipping operations. These workers often earn lower wages and are exposed to worse working conditions, thereby generating downward competition within Amazon's overall workforce.

4.2.4 *Governments and retaliatory power.* For digital platforms, the most contested regulations are those tending to restrict the ability to extract and use personal data. Hampering their key strategic tool for exercising control, these regulations meet with fierce opposition (Houser and Voss, 2018). Moreover, Amazon implements strategies

to ward off regulatory constraints—especially those related to worker protection—and reduce to the bare minimum the tax it has to pay. With regard to the latter aspect, Amazon takes advantage of its international dimension by locating warehouses where it can benefit from local tax credits (Kenney et al., 2021), and locating its headquarters in countries with relatively low corporate taxes.[24] Regarding the countermeasures against regulatory constraints, a non-negligible portion of the resources accumulated through its core activities are invested in lobbying activities (Public Citizen, 2021).

Furthermore, like the 1990s' corporations, Amazon relies on its 'retaliatory power' to neutralise undesired regulation and influence governments. In advanced economies characterised by a considerable downsizing of manufacturing employment and widespread job insecurity in the service sector, the thousands of new jobs that may result from the establishment of a new Amazon warehouse are very attractive to national and local governments. Accordingly, Amazon can leverage this circumstance to pursue forms of blackmail, for example by threatening to move a plant if regulatory and fiscal conditions become unfavourable.[25] According to Culpepper and Thelen (2020, p. 290), however, the ability of platforms like Amazon to influence governments has additional and distinguishing features. In fact, '[u]nlike previous generations of large companies on which the broader economy came to depend, such as railways or utility companies, today's largest platforms enjoy a tight, even intimate, connection to their users…platform firms that achieve a certain economic scale—which need not reach monopoly proportions—benefit from the direct relationship they enjoy with a large number of consumers who rely on the platform as it becomes integrated into the fabric of their daily lives.' In other words, dominant platforms cultivate and benefit from a privileged alliance with consumers providing a formidable source of opposition to regulation that threatens these corporations' strategies (Stark and Pais, 2021).[26]

To conclude, we argue that the elements listed so far (i.e. expansion and diversification, technological investment and data harnessing, labour fragmentation and surveillance and actions to counter what are seen as hostile government moves) can be interpreted as part of a single strategy aimed at increasing control over the economy. In other words, the main strategic objective of the modern giant platforms is to extend their hierarchical power beyond the boundaries of the enterprise by controlling all the relevant physical and digital gateways so as to condition the decisions taken by consumers, suppliers, governments and other stakeholders. In this context, the ultimate goal is to extract as much value as possible from both the work directly employed by the platform and, indirectly, from the labour of those who depend on the platform to

[24] The headquarter of Amazon EU is in Luxembourg. This year, out of record sales of €44bn (UK£38bn) Amazon did not have to pay any corporation tax to the Grand Duchy (see 'Amazon had sales income of €44bn in Europe in 2020 but paid no corporation tax', *The Guardian*, https://www.theguardian.com/technology/2021/may/04/amazon-sales-income-europe-corporation-tax-luxembourg; last access: 16 May 2021).

[25] This is a 'retaliatory power' analogous to that discussed by Balcet and Ietto-Gillies (2020) with respect to traditional manufacturing TNCs.

[26] It should be noted that multiple forces are at work in this regard. On the one hand, consumers eager to take advantage of the platform's services are likely to become Amazon's allies; on the other hand, small retailers and small and medium-sized businesses that pay ever-increasing commissions to enter the market may be willing to vote against any government that facilitates Amazon. Our thanks go to an anonymous reviewer for pointing this out.

continue their economic activities (e.g. locked-in suppliers, vendors, self-employed; see Kim, 2017; Weise, 2019). In this regard, Amazon proved to be a paradigmatic combination of old and new (Peck and Phillips, 2020). One face—the one appearing on televisions, smartphones and devices—is that of continuous innovations, unbeatable prices and cutting-edge entertainment content. The old face, which Amazon shows only inside its warehouses, resembles a new form of Taylorism characterised by high levels of surveillance, alienation and exploitation of labour.

5. Concluding remarks

In this paper we have sought to provide an analysis of the dominance assumed by giant digital platforms in contemporary capitalism, following in our approach the radical perspective opened up by the Monopoly Capitalism scholars. In particular, we have offered a framework that should highlight how crucial Hymer's and Cowling's theoretical heritage may prove for an understanding of current monopoly power in the digital platform economy. Moreover, we have argued that giant digital platforms play a major role in the process of progressive extension of capitalist control over the whole society, with the latter unfolding from a decreasing number of decision-making centres. Leading digital platforms should therefore be seen as planning actors whose objective is to extend their control over the wide range of actors they interact with, be they suppliers involved in their production and innovation network, workers, users or governments. Furthermore, we have applied our framework to analysis of Amazon, one of the most powerful and at the same time most peculiar digital platforms of our times. In doing so we have been able to highlight the multiplicity of aspects that, in our opinion, provide support for our reconstruction. More precisely, we have identified the four dimensions along which Amazon exerts its power of control, namely: expansion and diversification of its digital marketplace; monopolisation of commodified data and technology leverage; fragmentation and surveillance of the workforce; and strong bargaining power vis-à-vis governments.

We conclude this work with three final remarks. The first concerns the struggles that call into question the command exerted by digital platforms over labour. While our contribution has mainly focused on the nature of the power of giant platforms from a radical perspective, it is worth stressing that this power is not indisputable and can be challenged. New forms of organisation and mobilisation by platform workers have indeed emerged over the last years, especially across advanced capitalist economies (e.g. Italy and the UK), aimed at claiming better (and safer) working conditions and higher wages (see, *inter alia*, Vallas, 2018; Chesta et al., 2019; Alimahomed-Wilson and Reese, 2020; Cini et al., 2021). As regards Amazon, in April 2021, after an aggressive anti-union campaign by the Seattle-based corporation (Greene, 2021; Greenhouse, 2021; Sainato, 2021), warehouse workers in Alabama (US) failed to unionise. In Europe the ability of unions to organise Amazon workers has been not that difficult, and it seems to be growing. Major strikes by Amazon workers were held in Germany in 2013, in France in 2014, in Italy in 2017 and in Spain in 2018 (Massimo, 2021). In March 2021, the first national strike along the entire Amazon supply chain took place in Italy. It should also be noted that workers' struggles are likely to have played an important role in prompting governments to introduce laws to make digital platforms pay 'fair' taxes and to strengthen platform workers' rights. Examples include the new global corporate tax

recently introduced by the G20[27]; and the recent European Commission's proposed directive 'to improve the working conditions of people working through digital labor platforms',[28] which probably would never have come to light without the organisation and mobilisation of platform workers in Europe (even if its approval and effectiveness cannot yet be taken for granted).

The second remark concerns some policy aspects that can be derived from our analysis. In particular, we suggest that a progressive strategy aimed at both economic and political democracy should strive towards the decommodification of personal data through socialisation of data and platform infrastructures. Following the Marxian tradition, we contend that any market-based antitrust policy would in fact risk being short-sighted insofar as it fails to tackle the private property of the crucial asset of capitalism in the twenty-first century. Similarly, as stressed by Rikap (2021), more stringent privacy protection policies risk further intensifying the privatisation of data, as by fostering private ownership of the latter they contribute to the privatisation of knowledge. Conversely, as a public good, data could be effectively managed for the benefit of society as a whole; since data feed the algorithms that we all use, they are crucial to improvement of the services we all need. Although this discussion goes far beyond the scope of the present paper, we suggest that the dialectical challenge should therefore concern the struggle to democratically manage data for society as a whole without foregoing the opportunities they can provide for shared prosperity. Accordingly, the overthrow of modern Monopoly Capitalism—pursued through socialisation of data and their definition as digital global public goods—might well create scope for renewed technological and social feasibility of democratic social planning, also allowing for new forms of democracy.

As a final remark, we suggest that the approach we have followed could be worth extending to further investigate the historical evolution of Monopoly Capital to date. In fact, in neglecting the powerful explanations of capitalist control provided by Hymer's and Cowling's contributions, economic theory is still lagging behind the rapid advance of contemporary capitalism. What we see today appears to be largely a manifestation of what Hymer and Cowling foresaw, namely the outcome of a tendency towards concentration of monopoly power in the hands of a few giant corporations. 'As John Powers, President of Charles Pfizer Corporation, has put it, "Practise is ahead of theory and policy"' (Hymer, 1972, p. 115). Scanning the names of the major profit-makers after two years of pandemic, it can readily be seen how much the theories of Monopoly Capitalism may still have to teach us.

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[27] In the last days of October 2020, the G20 agreed on a minimum 15% global tax rate to be applied to overseas profits of multinational firms with more than 750 million euros (US$868 million) in sales globally (136 OECD countries excluding Kenya, Nigeria, Pakistan and Sri Lanka signed the agreement proposed by the G20). This new tax—that should come into effect at global level in 2023—is aimed at discouraging multinationals from shifting profits and tax revenues to low-tax countries regardless of where their sales are made (Gottlieb, 2021). However, it should be noted that the 15% rate agreed by the G20 is still far below the top average corporate rate in OECD countries (very close to the global average corporate statutory tax rate) of 23.51%, with the latter being constantly decreased since the 1980s (Asen, 2020).

[28] See https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6605 (last access: 15 December 2021).

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Conflict of interest statement

We state that no conflicts of interest relate to the submission of this work by the authors. We certify that we have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

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