



Online platforms: Economic and societal effects

STUDY

Panel for the Future of Science and Technology

EPRS | European Parliamentary Research Service

Scientific Foresight Unit (STOA)

PE 656.336 – March 2021

EN

Online platforms: Economic and societal effects

Online platforms such as Google, Amazon, and Facebook play an increasingly central role in the economy and society. They operate as digital intermediaries across interconnected sectors and markets subject to network effects. These firms have grown to an unprecedented scale, propelled by data-driven business models. Online platforms have a massive impact on individual users and businesses, and are recasting the relationships between customers, advertisers, workers and employers. This has triggered a public debate on online platforms' economic dominance and patterns of pervasive data collection. This study presents an analytical synthesis of the literature, to assess the effects of online platforms on the economy and society. The report provides evidence of positive impact, and documents a set of important issues not fully addressed by existing European Union regulation and enforcement. The consensus is that there is a need to strengthen the current law enforcement and regulation of the platform economy. This report welcomes the proposed digital markets and digital services acts, and offers a series of policy options for competition and innovation, working conditions and labour markets, consumer and societal risks, and environmental sustainability.

AUTHORS

This study has been written by Professor Annabelle Gawer, Surrey Business School, University of Surrey (main author), Dr Nick Srnicek, King's College London, at the request of the Panel for the Future of Science and Technology (STOA) and managed by the Scientific Foresight Unit, within the Directorate-General for Parliamentary Research Services (EPRS) of the Secretariat of the European Parliament.

ADMINISTRATOR RESPONSIBLE

Mihalis Kritikos, Scientific Foresight Unit (STOA)

To contact the publisher, please e-mail stoa@ep.europa.eu

LINGUISTIC VERSION

Original: EN

Manuscript completed in March 2021.

DISCLAIMER AND COPYRIGHT

This document is prepared for, and addressed to, the Members and staff of the European Parliament as background material to assist them in their parliamentary work. The content of the document is the sole responsibility of its author(s) and any opinions expressed herein should not be taken to represent an official position of the Parliament.

Reproduction and translation for non-commercial purposes are authorised, provided the source is acknowledged and the European Parliament is given prior notice and sent a copy.

Brussels © European Union, 2021.

PE 656.336

ISBN: 978-92-846-7745-0

doi: 10.2861/844602

QA-03-21-077-EN-N

<http://www.europarl.europa.eu/stoa> (STOA website)

<http://www.eprs.ep.parl.union.eu> (intranet)

<http://www.europarl.europa.eu/thinktank> (internet)

<http://epthinktank.eu> (blog)

Executive Summary

Today, all 'big tech' companies are digital platforms. They are among the most valuable firms in the world. The combined market capitalisation of just four companies Alphabet-Google, Amazon, Apple, and Facebook exceeded US\$5.7 trillion in December 2020. This amount is greater than the market capitalisation of the entire Euronext stock exchange and a third of the value of the whole Standard & Poor's 100 index of United States stocks. Amidst a global recession caused by the Covid-19 pandemic, these companies have not only been resilient, but in fact, leading beneficiaries of the widespread moves towards remote work, social distancing, and online shopping. This study aims to provide a thorough overview, based on a state-of-the-art literature review, of these platform companies' most significant effects on the economy, on workers, and more broadly on society. This report provides evidence of the positive impact of online platforms. It also documents a set of important issues not fully addressed by existing European Union (EU) regulation and enforcement. The consensus is that there is a need to strengthen the current law enforcement and regulation of the platform economy. This report welcomes the proposed Digital Markets and Digital Services acts, and offers a series of policy options for competition and innovation, working conditions and labour markets, consumer and societal risks, and environmental sustainability. These policy options aim to address the issues and mitigate the risks associated with online platforms to ensure that the digital economy operates in a way that sustainably benefits people, businesses, and society.

Characteristics of Digital Platforms

Online platforms play a prominent role in creating digital value that underpins current and future economic growth in the EU. This report uses the terms 'platforms', 'online platforms' and 'digital platforms' interchangeably, to mean digital services that facilitate interactions via the internet between two or more distinct but interdependent sets of users (whether firms or individuals). Examples of such online platforms include online marketplaces, app stores, search engines, social media and platforms for the collaborative economy. Despite the variety of sectors that they operate in and the diversity of activities they facilitate, online platforms share common economic, business, and governance characteristics in creating and capturing value. These include: the generation of economies of scale and scope; network effects, which can lead to winner-take-all monopolistic positions; business models involving cross-subsidisation across platform sides; pervasive data generation, and data capture and usage; and the fact that platforms act as private regulators of their ecosystems which include businesses and individual users, effectively running as private turfs the business relationships, data exchanges, and transactions that they facilitate.

Digital platforms create value by facilitating exchanges/transactions and through fostering innovation. They provide a structure that can take advantage of digital technologies' low search costs to generate efficient matches between globally connected users. Platforms also increase the efficiency of trade through lower search costs and low reproduction and verification costs. Digital platforms also facilitate innovation by enabling third-party firms such as software developers to build enormous quantities of complementary products or services.

Platforms' Effects on Consumers, Businesses, Competition, and Innovation

Digital platforms are uniquely positioned to create and capture value in the digital economy. Platform services can bring substantial benefits to consumers while being provided free of charge to users. Yet digital goods generate a large amount of consumer welfare that is currently not captured in gross domestic product (GDP) measures. While GDP is often used as a proxy for well-being, consumer surplus is a better measure of consumer well-being. Research on this issue routinely demonstrates that consumers place a significant financial value on a range of online services, assigning multiple thousands of dollars of value to search engines and digital maps.

Digital platform companies also make large investments in research and development. Amazon, Alphabet (the parent company of Google), Microsoft and Apple all feature in the top 10 companies for

global spending on research. These high levels of investment in research and innovation are likely to deliver significant benefits for these businesses, their consumers, and society. In addition, innovation platforms such as Apple's iOS or Google's Android provide business opportunities for millions of application developers who innovate on new applications, facilitating the development of apps that they can then distribute globally through app stores.

Propelled by their deep reach into our lives, shaping how people work, communicate, shop and entertain themselves, digital platform companies have reached a place of centrality in the economy. That centrality to the economy has only deepened during the Covid-19 pandemic. Yet there is also a wide range of discussion around the ways in which the largest digital platforms have abused their power. These issues include anti-competitive practices, mass-harvesting of user data, and failure to tackle illegal or harmful digital content. These issues are further detailed in the report.

Platforms' Effects on Employment and the Social Fabric

In the platform economy, a wide variety of novel jobs have emerged. Following much of the literature, these different jobs can be categorised into (1) on-demand work and (2) crowdwork. These jobs are organised via digital platforms, including apps and websites, and all of them focus on short-term work (hence they are often called the 'gig economy'). While organised digitally, on-demand work requires offline labour involving tasks such as cleaning, ride sharing, delivering, caring, maintenance, etc. that must be physically carried out in geographically specified locations. Crowdworkers use platforms to find clients who require their services, which are then provided virtually rather than in-person.

The most prominent element of platform work is how it often relies upon and expands a non-standard employment relation. Much platform work relies on contracts where workers are not defined as employees, but instead as (depending on the language of particular legal systems) 'independent contractors', 'self-employed', 'contingent workers', or simply 'gig workers'. These employment contracts are flexible, temporary, or otherwise casual and the rights traditionally accorded to employees are largely or entirely absent.

Proponents of platform work argue that it allows many people who would otherwise struggle to find jobs to find one. In contrast, critics argue that it allows people to be fired without any recourse or explanation. The evidence suggests that both are right. For proponents, the ability to work from home, flexible working time, low barriers to entry, ability to skip unpaid training, and potential for avoiding social biases are all given as reasons why these platforms enable more people to find wage labour. The pathway into the labour force has indeed been eased for many, especially groups that traditionally struggle to find work. The flipside of this ease of hiring is that the non-standard employment relationship enables platforms to fire workers just as rapidly. The platform economy is truly on-demand for these workers, subject to consumer demand and management whims, and equally as likely to enable more work as it is to hastily remove workers.

While there is a wide range of possible incomes in the gig economy, the vast majority of the work is low waged – with crowdwork typically being paid less than offline work. A handful of workers do manage to make a significant amount, but the overall distribution is vastly unequal as most struggle to make much. Despite the low wages, many workers do find the work useful for its flexibility. The work's flexibility can help some people accommodate other responsibilities, e.g. caring responsibilities, to work schedules. Yet in the end, flexibility is more often than not insecurity. The 'self-employed' status that workers supposedly chose is more the result of businesses evading their responsibilities towards workers. This evasion of responsibilities is most clearly expressed in the shift of responsibility for risks. Whereas the standard employment contract aimed to balance risks between workers, businesses, and governments, platform work instead transfers risk almost entirely onto individual workers.

Surveillance and control is another area that has undergone significant changes in platform work. Instead of concentrating a workforce in a single physical workplace, digital platforms have enabled decentralised control and coordination of a large and dispersed group of workers, enabling companies

to both maintain an outsourced group of workers as well as a standardised service. This algorithm management, underpinned by changes in technology, has given rise to a new set of affordances for control.

Another key feature of this work is that it is often difficult to organise workers into collective organisations such as trade unions. Most obviously, these platforms lack workplaces in any traditional sense. Workers are often incentivised and coerced into direct competition with each other – further hindering any sort of collective action. And significant legal hurdles presently exist to any incipient collective organisation. Yet, despite the challenges and in the face of new forms of digital surveillance, workers have been experimenting and learning new ways to organise and effectively voice their interests. So, while in many ways, platform workers have been blocked from traditional means of collectively organising and exerting pressure, they are nonetheless demonstrating significant innovation.

Platforms' Effects on Consumer and Societal Risks

Following their general approach to regulation, many platform companies have sought to evade regulations around public safety. Perhaps the most prominent issue here is the safety of customers that use ride-sharing platforms. There have been numerous reports of sexual assault, physical violence, and even kidnapping by drivers. Another key safety issue is vehicular accidents. On the one hand, more vehicles on the road should lead to more accidents. On the other hand, the ease and (artificial) affordability of ride-hailing may reduce things like drunk driving. The evidence here is mixed, with studies finding that the introduction of a ride-sharing platform leads to the reduction of drunk driving and accidents in some places but not in others. Another issue for consumers is the lack of accountability that is common on many of these platforms. Customers often find it difficult to get assistance when something goes wrong.

In terms of social risks, the focus here is on environmental risks including climate, health, and the more fundamental concern of 'surveillance capitalism'. The first of these is related to the impact brought about by the surge in ride-sharing services. As a result of their popularity, many cities have seen significant surges in the numbers of vehicles on their streets. The end result has been significant increases in vehicle miles travelled overall and in traffic congestion in many cities. Moreover, ride-sharing services are largely linked to reduced use of more environmentally friendly public transport options. Unsurprisingly then, these platforms are linked with significant increases in pollution and carbon emissions.

Digital platforms' ever-increasing collection and analysis of quantified data also create privacy risks that can affect individual users and have implications for society. Concerns around these issues have focused on the consequences for humans of engaging continuously and often unwittingly with organisations (the digital platforms) which appear to offer them 'free' services, whereas users are in fact enrolled into pursuing another goal, the platforms' goals, who aim to manipulate users' behaviours for the benefit of paying third-parties.

In addition, the influence of the digital platforms on the news media has been under increased scrutiny and focus since the 2016 US presidential elections. Much of the focus has been on fake news and foreign governments' interference in elections through such platforms. But the influence of digital platforms on the news and journalism ecosystem goes deeper than the spread of fake news. The rise of digital platforms has severely disrupted the business model of news and disintermediated news production and consumption. The business model disruption has reduced the incentive to produce original reporting, and the platform algorithms have rewarded the production of visceral and emotive content.

As the time of writing this report, another major public health concern has emerged in the form of Covid-19. This global pandemic has impacted nearly every aspect of work, but platform workers have been particularly hard hit due to their precarious position. As a result of their employment status as self-employed, these workers have been excluded from things like sick pay, unemployment benefits, and most government schemes related to coronavirus. While employees have seen extensions to sick leave

and unemployment leave, as well as the widespread adoption of various short-time work schemes, platform workers have largely lacked access to these provisions. This lack of social protections means that workers have often had to choose between working or going into poverty.

The Covid-19 pandemic has also increased the reliance from individuals, businesses, and governments on online platforms. The pandemic also sharpens the focus on the trade-offs that policy-makers face when attempting to balance privacy protections with public health. This risk is increased by the extreme reliance on a small number of digital platforms. Contact-tracing apps, associated with systematic testing, have been touted as a promising solution to limit the spread of the virus. This type of surveillance raises serious concerns as it poses significant risks to privacy, civil rights, and civil liberties. The extent to which tracking can be performed in a way that would respect individual civil liberties is still unclear. This is another example of how various issues (limited competition, privacy, data sharing, civil liberties) interact.

EU Regulation and Main Regulatory Challenges

The report presents a summary of EU regulation on platforms and currently identified regulatory challenges. The European Commission has developed a regulatory agenda on online platforms to create a trusting, lawful and innovation-driven online platforms environment in the EU. While most applicable policies and regulations were not designed explicitly for online platforms, in 2019, the EU introduced a new EU regulation, the Platform-to-Business (P2B) Regulation. This P2B Regulation was specifically aimed to promote a better trading environment for online platforms' business users, resolve problems associated with unfair practices between online platforms and their business users, and promote transparency in these business relationships. The European Commission also created an Observatory of the Online Platform Economy in 2018, which monitors the platform economy's evolution to support the Commission's work on online platforms. In December 2020, the European Commission unveiled its proposals for a new Digital Markets Act (DMA) and a new Digital Services Act (DSA) as part of its new legislative initiative, the digital services acts 'regulatory package'.

In terms of the regulatory challenges concerning platforms' effects on consumers, businesses, competition, and innovation, the report highlights four in particular: the limits of traditional antitrust analysis and tools; the violation of privacy and competition by the accumulation of data; the platforms' systemic avoidance of sectoral regulations; and the difficulties in tackling illegal and harmful content online.

On the issue of platforms' impact on labour markets, while there are various directives in matters around non-standard employment, until recently, there was little in the way of regulation directly oriented towards platform work. The European Agenda for the Collaborative Economy (2016) aims to set out principles for the digital economy and platform work. It is significant for several reasons. First, it sets out an EU definition of a 'worker'. Second, this communication argues that sectoral regulations should apply to platforms that are service providers and not mere intermediaries. The Directive on Transparent and Predictable Working Conditions is an updating of the 1991 Written Statement Directive, intending to increase the transparency around working conditions for those in non-standard contracts. It does so by mandating several new provisions for non-standard work. More recently, there is the Council Recommendation on Access to Social Protection for Workers and the Self-Employed. This proposal stems from the principles of the European Pillar of Social Rights and explicitly aims to tackle the issue of non-standard workers having difficulties accessing social protection.

The regulatory challenges that arise from platform employment include the miscategorisation of platform employees; the disproportionate power of platforms over workers; and the low wages facing many platform workers.

Policy Options

The consensus of the reports and studies conducted in recent years is that there is a need to strengthen the current law enforcement and regulation of the platform economy. This report recommends, in the first place, an enforceable code of conduct for gatekeeper platforms. It is important to prevent harm, rather than relying exclusively on the current enforcement approach that focuses only on punishing harm after it has occurred. Platform firms with a high degree of market power should not abuse the power they derive from their monopolistic or dominant position to compete and should be prevented from using exclusionary practices, foreclosing markets or exploiting customers to the degree that they would not achieve under competitive positions.

This report agrees with the concerns expressed in the majority of reports that competitive issues associated with digital platform firms' behaviours are so wide-ranging and self-reinforcing that existing legislative powers are not sufficient to address them.

The report welcomes the proposals in the European Commission's proposed Digital Markets Act and the Digital Services Act, which take policy and regulation in the right direction in Europe. It broadly supports the DMA, the new ex-ante regulatory framework that aims to ensure that online platform ecosystems controlled by large online platforms benefitting from significant network effects remain fair and contestable, particularly in situations where such platforms act as 'gatekeepers'. It also broadly supports the DSA that aims to modernise and create an EU-wide uniform framework on the handling of illegal or potentially harmful content online, the liability of online intermediaries for third-party content, the protection of users' fundamental rights online and bridging the information asymmetries between the online intermediaries and their users.

Where the report differs from the DMA and the DSA proposals is in calling for (1) a stronger merger control regime for gatekeeper platforms; (2) that each gatekeeper platform should have its own tailored enforceable Code of Conduct; (3) greater scope for national authorities to intervene where there are country-specific issues; (4) a new users' right to reasonable inferences to curtail the generation of 'high-risk inferences', i.e., those that are privacy-invasive, reputation-damaging, and have low verifiability. In addition, one of the central issues raised in the DSA is the treatment of illegal content discussed in Section 6.1. The report does not offer alternative policy options on this topic, as the Commission's DSA proposals in this area appear broadly appropriate.

More specifically, in line with the proposed DMA, it is recommended that the European Parliament legislate to introduce a new regulatory ex-ante regime for platforms comprising both pro-competitive interventions and the development of an enforceable code of conduct for gatekeeper platforms. However, in contrast to the European Commission's approach, this report proposes that each 'gatekeeper' platform should have its own tailored enforceable code of conduct, in line with the United Kingdom Competition and Market Authority recommendations.¹

It is also recommended that policies are put in place to ensure freedom of competition. Therefore, the report welcomes the DMA's proposals for ensuring openness, neutrality, interoperability, and on-platform competition. In terms of openness, platforms should not impose undue restrictions on users' ability to use other platforms or service providers that compete with the platform. For neutrality, platforms should not mislead users or unduly influence competitive processes or outcomes by employing means to self-preference their own services or products over competitors' services or products. The report recommends regulations to impose interoperability of systems and greater personal data mobility to increase competition and consumer choice.

Regarding merger control, the report finds that the DMA proposal does not go far enough to address merger control for gatekeeper platforms, given that it only asks for *merger notification*. It recommends strengthening the current competition framework that assesses mergers. It proposes that the

¹ UK Competition and Market Authority, 'Market Study Final report on Online Platforms and Digital Advertising', 23.

competition authorities should assess whether, on balance, a merger is expected to be beneficial or harmful, accounting for the scale of the impacts and their likelihood. The criteria to assess impact should go far beyond just impacts on prices and instead include aspects such as data monopolies, privacy risks, and impacts on innovation. This report concurs with the Vestager report proposal of a new set of questions to assess acquisitions that involve a dominant platform or ecosystem. These questions are: (1) Does the acquirer benefit from barriers to entry linked to network effects or data use? (2) Is the target a potential or actual competitive constraint within the technological/user's space or ecosystem? (3) Does its elimination increase market power within this space, notably through increased barriers to entry? And, (4) If so, is the merger justified by efficiencies? Given these criteria, especially the barriers to entry linked to data use, the report shares many experts' concerns over the European Commission's clearance of Google's acquisition of Fitbit.

Regarding fairness vis-à-vis consumers, the report is in broad agreement with the DMA and the DSA and recommends strengthening legislation. The report suggests the following rules: non-discrimination, fair terms; controllability of algorithmic decisions, artificial intelligence, and reviews; and access to justice for users. **Non-Discrimination:** Platforms must not discriminate against individual suppliers or users seeking access to the platform. **Fair Terms:** Platforms must trade on fair and reasonable contractual terms, without exploitative pricing or behaviour. **Controllability of Algorithmic Decisions, AI, and Reviews:** Platforms must be transparent and fair about the working of their algorithms, and this needs to be controllable. This provision does not imply that companies have to disclose the algorithm to the regulator, but that case of infringement, liability must still be ascribed directly to the company. **Access to Justice:** Platforms must be answerable to an independent arbitration mechanism. Platforms should bind themselves to an arbitration system for disputes between the platform and users, be they individual consumers or business users.

In addition, users should not be reduced to sources of data or be deliberately manipulated by platform firms to prevent them from making legitimate decisions or making decisions contrary to their interests. In broad agreement with the DSA, the report recommends that platforms should not design interfaces and services that aim to manipulate users into restricting their choices, to mislead them, or to elicit addictive behaviour. Users' privacy should also be respected. In agreement with the DSA, it is recommended that platforms must offer users a real choice on the use of data, including which data for which application, from which sources, and related to the combination of data. The report extends the DSA proposals in suggesting that this should also extend to inferred data and platforms should offer users the right to reasonable inferences, and to curtail or eliminate the generation of 'high-risk inferences', that are privacy-invasive, reputation-damaging, and have low verifiability in the sense of being predictive or opinion-based.

As for enforcement, the report recommends that the regulation of platforms should also institutionalise a robust and adaptive set of enforcement mechanisms. This institutional design should aim to combine the advantages of regulation with its power to hold accountable and enforce and some degree of self-regulation. The report agrees with Marsden and Podszun's suggestion for the European Commission to establish: (1) a Platform Compliance Unit (PCU) in DG CONNECT, (2) an Early Alert Unit (EAU) in DG COMP, and (3) a Platform Complaint Panel (PCP) in DG COMP.²

- *The Platform Compliance Unit (PCU) in DG-CONNECT would be in charge of new and platform-specific regulatory obligations. It would be formed to be competent for the ex-ante regulation of platforms, for monitoring platforms, and for issuing compliance orders as well as forward-looking guidance.*
- *The Early Alert Unit (EAU) in DG-COMP's mission would be to investigate cases where platform-led 'unnatural tipping' of a market is suspected of developing. The Early Alert Unit would engage with*

² Marsden and Podszun, 'Restoring Balance to Digital Competition – Sensible Rules, Effective Enforcement', 80-85.

the Platform Compliance Unit to ensure swift compliance in case of evidence of platforms contravening the rules.

- *The Platform Complaint Panel (PCP) in DG-COMP would act as an adjudicator to private complaints.*

The success of this institutional mechanism of enforcement would rely on the strong interplay of these units and the effective collaboration of DG CONNECT and DG COMP.

Regarding enforcement, there would appear to be an inconsistent approach between the DMA and the DSA in the role afforded to national regulatory bodies. Member States' involvement in the DMA regime looks set to be significantly less than that proposed under the DSA, which provides for direct enforcement at the national level.³ This could become a significant issue over time, as some Member States, including Germany, have more advanced national regulatory frameworks. These Member States must not be disadvantaged or undermined by these potential discrepancies. Greater scope for national authorities should be granted to intervene in a timely and effective manner where there are country-specific issues, while ensuring complementarity between the supranational and national levels.

At the heart of many discussions around the negative impacts of platform work on working conditions is the way in which the use of non-standard employment relationships (typically, self-employed status) blocks access to many or all of the social protections that come with full-time indefinite employment. To rectify this, the report recommends redefining the category of worker in such a way that it encompasses the new forms of platform work and non-standard work. At a stroke, those currently excluded from standard social protections would be brought back within their ambit. There are a variety of definitions that could be used to carry this out. Regardless of what definition is chosen though, an important aspect is that workers should, by default, be categorised as employees.

There are a number of areas where the nature of platform work means that some elements of traditional employment rights may need to be modified or extended. For example, the characteristics of this work – often infrequent, piecemeal, involving high overhead costs, and spread amongst multiple clients – can make setting a minimum wage more challenging. One significant step towards fixing this would be to prohibit piece wages in on-demand work and replace them with hourly wages. Allowances should be made to reflect the costs that typically go along with platform work. And insofar as platform workers have an app open and are available to work, they should be counted as working.

Given the pervasive nature of workplace surveillance in the platform economy, it is also necessary to establish a series of data rights for (all) workers. A first critical component of data rights is making data collection and algorithmic systems accountable – and to ban them where appropriate. In those cases where data on workers is collected, a second step is to make that data transparent and accessible to those workers. Lastly, there is the issue of ratings and their widespread use amongst platforms. At a minimum, ratings should be portable across platforms. Platform firms should be incentivised to design better rating systems that protect users' privacy and data rights.

This report also recommends giving workers a voice in their work by supporting platform cooperatives' creation and expansion. Whether local, regional, national, or supranational, governments have an important role in supporting these platform cooperatives that promise better working conditions, more secure employment, and local economic growth. In the first place, governments can take important steps in helping cooperatives overcome the challenges of starting up. As a second step, governments can help platform cooperatives to grow and compete. Governments should most importantly take regulatory actions to level the playing field between upstart platform cooperatives and cash-flush global competitors. Lastly, governments can assist platform cooperatives in consolidating their place in the economy. This can mean assistance in connecting various cooperatives together – both across regions

³ Allen & Overy, 'Global Antitrust: Digital Markets Act', 5.

and across industries. More boldly, governments could provide their own publicly owned and democratically accountable versions of platforms.

To respond to the problems of congestion, air pollution, and carbon emissions, in the first place, governments should support the uptake and transformation of existing vehicle stock into electric vehicles. Efforts can be made to incentivise this transformation, whether through subsidies for drivers or regulations on platforms. However, more importantly, there needs to be an ongoing shift away from wasteful vehicles that pollute the air and occupy so much urban space. At a most basic level, rectifying this involves support and investment in infrastructure for biking and walking. New bike and bus lanes, including dedicated spaces, along with redesigned streets, can all make these forms of transportation cheaper, faster, and safer. More ambitiously, significant investment in the expansion of buses, trains, and subways can do much to improve the frequency of these services. All these efforts can, in turn, be combined with limits on the number of ride-hailing vehicles on the road.

Conclusions

The report ends in suggesting that a new mode of regulation for the platform economy is needed, one that will combine ex-ante robust yet flexible regulation, stronger ex-post enforcement, and enrolling the active participation of online platform firms and their ecosystem members. It also calls for supporting fundamental research into platforms' and ecosystems' behaviour. Existing economic theories based on foundational notions of 'markets' and 'firms' (which lead to regulation) may not be sufficient to interpret the behaviour of online platforms correctly. As digitalisation enables the generation of data-driven complementarities across products, services, and sectors, a better unit of analysis than the market might be that of an ecosystem that can cut across markets or sectors.⁴ More research is needed on platforms' behaviour in ecosystems over time and on how ecosystems develop, coalesce, compete, and evolve. Further development and cross-fertilisation of economic theory, management theory, and social science theories will be needed.

⁴ Jacobides, Gawer, and Cennamo, 'Towards a Theory of Ecosystems' and 'Distinguishing between Platforms and Ecosystems: Complementarities, Value Creation, and Coordination Mechanisms'.

Table of Contents

1. Introduction	1
1.1. Objectives and Methodology of this Study	1
1.1.1. Objectives of the Study	1
1.1.2. Methodology	1
1.2. Definitions and Examples of Digital Platforms	2
1.2.1. What are Online Platforms?	2
1.2.2. Examples of Online Platforms in Various Sectors	3
1.2.3. All 'Big Tech' Companies are Digital Platform Firms	4
2. Characteristics of Digital Platforms	10
2.1. How Do Digital Platforms Create Value?	10
2.2. Common Characteristics of Online Platforms	11
2.2.1. Digitisation Drives the Emergence of Platforms and Ecosystems	11
2.2.2. Economies of Scale and Scope	12
2.2.3. Network Effects Fuel Platform Growth	12
2.2.4. Platform Business Models Involve Subsidisation Across Sides (and Often, Zero Price for Some Consumers)	13
2.2.5. Platforms Thrive on Pervasive, Continuous Data Generation, Capture, and Processing	13
2.2.6. Platforms Act as Private Regulators of their Ecosystems	16
2.3. Geographical Distribution of the Main Global Platforms	17
3. Platforms' Effects on Consumers, Businesses, Competition, and Innovation	18
3.1. Positive Effects of Platforms on Consumers and Businesses	18
3.1.1. Usage of Online Platforms in Europe	18
3.1.2. Measuring the Impact of Platforms on the Economy	19
3.1.3. Positive Effects of Platforms on Global Innovation	20
3.2. Platforms as 'Double-Edged Swords': Negative Effects on Competition and Innovation	23
3.2.1. Platforms' Increased Centrality and Dominance in the Pandemic-Stricken Global Economy	23

3.2.2. Platforms as Gatekeepers, Competition (Antitrust) Violations, and Public Legal Actions	25
3.2.3. High Levels of Mergers and Acquisitions, and Possible 'Killer' Acquisitions	32
3.2.4. Selected Ongoing Antitrust Cases and Investigations by the European Commission	34
4. Platforms' Effects on Employment and the Social Fabric	39
4.1. The Creation of New Types of Jobs	39
4.2. Effects on Labour Market Dynamics	41
4.2.1. The Employment Relationship	41
4.2.2. Hiring and Firing	42
4.2.3. Supplement or Primary Job?	43
4.2.4. Exception or the New Normal?	44
4.3. Effects on Working Conditions	44
4.3.1. Wages	45
4.3.2. Flexibility	46
4.3.3. Individualisation of Risks	47
4.3.4. Workers' Surveillance and Control	48
4.3.5. Collective Organisation	50
5. Platforms' Effects on Consumer and Societal Risks and Environmental Sustainability	53
5.1. Effects on Consumer and User Risks	53
5.1.1. Consumer Safety	53
5.1.2. Lack of Accountability, Insufficient Redress	53
5.1.3. Privacy Risks	54
5.1.4. Online Harms	54
5.2. Effects on Societal Risks	55
5.2.1. Environmental Risks	55
5.2.2. From Privacy Risks to a 'Surveillance Society'	56
5.2.3. Fake News, Polarization of Society, and Dangers to Democracy	58

5.3. Platforms and Covid-19	58
5.3.1. Covid-19 and Platform Work	58
5.3.2. Covid-19 and Civil Liberties	59
6. EU Regulation and Main Regulatory Challenges	62
6.1. EU Regulations on Platforms' Effects on Users, Businesses, Competition and Innovation, and Main Regulatory Challenges	62
6.1.1. EU Policies and Legislation	63
6.1.2. Regulatory Challenges on Competition and Innovation	69
6.2. EU Regulations on Platforms' Effects on Employment and the Social Fabric, and Main Regulatory Challenges	78
6.2.1. EU Policies and Legislation	78
6.2.2. Regulatory Challenges on Employment and the Social Fabric	80
7. Policy Options	82
7.1. Policy Options on Competition and Innovation	82
7.1.1. Key Option 1: Establish a New Ex-Ante Pro-Competitive Regulatory Framework with an Enforceable Code of Conduct for Gatekeeper Platforms	83
7.1.2. Key Option 2: Ensure Freedom of Competition	85
7.1.3. Key Option 3: Strengthen Competition Rules for Merger Control	86
7.1.4. Key Option 4: Ensure Fairness of Intermediation	87
7.1.5. Key Option 5: Ensure Sovereignty of Decision-Making	88
7.1.6. Key Option 6: Institutionalise a Robust and Adaptive Set of Enforcement Mechanisms	89
7.2. Policy Options on Working Conditions and Labour Market Dynamics	91
7.2.1. Key Option 7: Redefine the Category of 'Employee'	91
7.2.2. Key Option 8: Set Minimum Wages	94
7.2.3. Key Option 9: Extend Workers' Rights over Data	97
7.2.4. Key Option 10: Support Platform Cooperatives	98
7.3. Policy Options on Consumer and Societal Risks and Environmental Sustainability	101
7.3.1. Key Option 11: Support Transitions to Greener Mobility Platforms	101

7.3.2. Key Option 12: Keep Covid-19 Support Measures for Platform Workers	102
8. Conclusions	104

Table of Figures

Fig. 1.1: Alphabet Annual Revenue (in million USD) from 2011 to 2019	6
Fig. 1.2: Amazon Annual Net Revenue (in billion USD) from 2004 to 2019	7
Fig. 1.3: Facebook Annual Revenue (in million USD) from 2009 to 2019	8
Fig. 1.4: Apple Annual Revenue (in billion USD) from 2004 to 2020	9
Fig. 2.1: Basic Platform Types	11
Fig. 2.2: Geographical Distribution of the Main Global Platforms in the World, June 2020	17
Fig. 3.1. Usage of Online Platforms in Europe	19
Fig. 3.2: Median Payment Accepted to Forgo the Use of Internet Service for a Year, \$'000	20
Fig. 3.3: Top 15 Companies for Global Spending on Research and Development	21
Fig. 3.4: Worldwide Desktop Market Share of Leading Search Engines from January 2010 to October 2020	25
Fig. 3.5: Worldwide Social Media Market Share from October 2019 to October 2020	26
Fig. 3.6: Acquisitions by Amazon, Facebook, and Google (2008-2018)	32
Fig. 3.7: Acquisitions by Amazon, Facebook, and Google by Area of Economic Activity	33
Fig. 4.1: Proportion of Working Age Population Undertaking Different Types of Platform Work At Least Weekly	40
Fig. 4.2: Motivations of Platform Work (PW), by Categories of Workers	46
Fig. 5.1: Estimated CO ₂ Emissions from Uber	56
Fig.5.2: Ubiquitous Data Collection Expands the Boundaries of What Can Count as Health Data and From Where it Can be Gathered	57
Fig. 6.1: EU Policies and Legislation Associated with Digital Platforms	63
Fig. 6.2: Overlap between Data Protection, Competition and Consumer Protection	73

Table of Boxes

Box 1: EU Antitrust Lawsuits Against Google	30
Box 2: The European Commission's Proposal for a Digital Services Act (DSA)	65
Box 3: The European Commission's Proposal for a Digital Markets Act (DMA)	67

1. Introduction

1.1. Objectives and Methodology of this Study

1.1.1. Objectives of the Study

The objectives of the study are the following:

- *To offer a definition of digital platforms and to provide a classification of the most salient types of digital platforms*
- *To investigate how the new models of economy and in particular the platform economy has affected users, businesses, competition, innovation, employment, and the social fabric*
- *To examine the effects of platforms on working conditions and labour market dynamics; and briefly examine the effects on social values, consumer and societal risks, and environmental sustainability*
- *To examine briefly how digital platforms are currently regulated under EU law and to map the main regulatory challenges that their operation (and expansion) is raising in the areas covered by the study*
- *To draft policy options – including a possible EU platform regulation - that could respond to the challenges associated with online platforms' specific effects: competition, innovation, working conditions and labour market dynamics, and briefly also consumer and societal risks and environmental sustainability*
 - *The policy options on competition and innovation are intended to facilitate MEPs' consideration of the December 2020 Digital Markets Act and Digital Services Act.*

1.1.2. Methodology

The methodology used in the review process is that of a narrative (traditional) literature review. The topic of the study (the effects of platforms on the economy and society) is very broad, yet the objectives of the study are precise. This required a combination of expert knowledge from the study's co-authors who are leading experts on the topic of digital platforms, and of breadth and depth in seeking appropriate sources.

Sources included academic articles, government reports, expert reports written for and by competition authorities or regulatory authorities, academic books, and business press articles. Themes covered by the literature review included platform business models, platforms and innovation, platform ecosystems, the nature and multiple roles of data, abuses of competition law, privacy, platform acquisitions, platforms and employment, platforms and societal risks, and sustainability.

The literature review, analysis, writing, feedback and validation, and final writing stages took place between January 2020 and December 2020. The European Parliament Science and Technology Options Assessment (STOA) representative provided feedback on a first draft in September 2020. Prof. Martin Kenney also provided feedback. On 23 October 2020, a workshop was organised by Prof. Annabelle Gawer on 'Digital Platforms and Ecosystems: Economic and Social Impact, and the Changing Regulatory Landscape', which convened seven leading experts in economics and competition law (Prof. Tommaso Valletti, Dr Lina Khan, Prof. Philip Marsden, Dr Cristina Caffarra, Mr Richard Kramer, and Prof. Ariel Ezrahi) who provided insights and feedback on ideas presented in the report. This feedback and input were factored into the final version of the report.

Footnotes are systematically used throughout the review to indicate sources, and a full list of references is included at the end of the report. Attention was paid to cite the most recent relevant literature and write a clear narrative highlighting the main results in an accessible way for a wide audience.

1.2. Definitions and Examples of Digital Platforms

Online platforms play a prominent role in creating digital value that underpins both current and future economic growth in the EU.

1.2.1. What are Online Platforms?

The term 'online platform' has been used to describe a range of services available on the Internet including marketplaces, search engines, social media, creative content outlets, app stores, communications services, payment systems, services comprising the so-called 'collaborative' or 'sharing' or 'gig' economy.

Defining online platforms is an essential step in any analysis of their effects on the economy and society. This definitional step used to be controversial, but significant progress has been made in recent years. In 2016, Vice President of the European Commission Ansip observed, 'we do not even have a single definition of platforms accepted by everyone. We have hundreds of good definitions [so] when different people are talking about platforms, they have a totally different understanding'.⁵ This provocative statement was more valid a few years ago than it is now, as there has been considerable scholarly and regulatory activity on this topic. There is a growing consensus among regulators, scholars, and business practitioners as to what online platforms are.

The consensus from the economic, management, and regulatory literatures on platforms is that online platform firms use information and communication technologies to facilitate interactions between users, collecting and using data about such interactions, while generating and taking advantage of so-called network effects. These network effects exist when some users' use the platforms by some users make them more valuable to other users.

This report focuses on organisations that serve at least two different sets of users simultaneously, bringing them together and enabling interactions between them that can benefit the users as well as the platform itself. The various sets of users are called the 'sides' of the platform. In some cases, the two-sided or multi-sided nature of these entities is directly related to the benefits that platforms bring and the degree of difficulty of the policy challenges they present.⁶ In this report, a requisite condition for qualifying as a 'platform' is serving two or more distinct sets of users who interact in at least one direction through the service.

This report uses the terms 'platforms', 'online platforms' and 'digital platforms' interchangeably. But it distinguishes between the platform *technology* that is used to provide a service and the platform *organisation* (most often a *firm*) that operates this technology and that often, in parallel, conducts a platform *business model*.

Thus, in this report's definition, adapting the European Commission's definition, 'platforms', 'online platforms', or 'digital platforms', are *organisations* (that are most often, but not always, *firms*) that offer digital services that facilitate interactions via the Internet between two or more distinct but interdependent sets of users (whether organisations or individuals) and that generate and take advantage of network effects.⁷ Examples of such online platforms firms offer services that include online marketplaces, app stores, search engines, social media and platforms for the collaborative economy.

⁵ UK House of Lords, European Union Committee, 'Defining 'online platforms''.

⁶ OECD, 'An Introduction to Online Platforms and their Role in Digital Transformation'.

⁷ This definition is similar to the one used by the European Commission, DG-CNECT, 'Platforms with significant network effects acting as gatekeeper. Impact assessment support study'. We complemented this definition by being explicit about the distinction between a platform technology, a platform business model, and a platform firm. We also complemented this definition by adding that users can be firms or individuals, as in OECD, 'An introduction to online platforms and their role in the digital transformation'.

Most platforms discussed in this report are platform firms. But this report's definition, by using the term *organisation*, makes it more general as it can then accommodate government, non-profit and other non-commercial online platforms, as well as commercial ones, provided the word 'user' be given a reasonably flexible interpretation. For example, as trusted sources of personal identification and public information, some governments have already built online identity and access management platform technologies and services used by public administrators on one side and citizens seeking access to government applications and information.^{8,9}

Online platform firms do not only take advantage of modern digital infrastructures such as the Internet, the Cloud, and global mobile connectivity. They also take advantage of the behavioural habits of billions of users who, by connecting daily to these platforms through their digital devices to consume digital services, continuously (and often unwittingly) generate data. In turn, this data-as-output becomes a key resource that platform companies leverage to further enhance the digital services they offer, develop new services, and enter new markets.

Platforms can exist in the offline world as well. For example, traditional print newspapers are platforms that serve both advertisers and readers. Other examples of platforms that used to operate entirely offline include stock exchanges. Stock exchanges are platforms on which the users' interactions flow in two directions. These exchanges serve both stock buyers and stock sellers. They interact through the exchange by signalling the prices at which they are willing to buy and sell. Of course, both newspapers and stock exchanges have evolved into online platforms, too.¹⁰ Some firms operate online platforms together with offline platforms, but in our increasingly digital economy, the pervasiveness of digital technologies permeates most economic and social activities.

1.2.2. Examples of Online Platforms in Various Sectors

The term 'online platform' is often used to describe a large range of services available on the internet including marketplaces, social media, search engines, app stores, payment services, transportation services, accommodation services, and much more.

Digital platform businesses are not all the same. They operate in multiple sectors and provide different kinds of services. There are several ways to categorise digital platforms. One way is to focus on functional service platforms provide to users. The main functional categories of online platforms include:¹¹

- *Ad-supported Internet search (Google, Baidu)*
- *Social media (e.g., Facebook, WeChat, Twitter, Microsoft LinkedIn)*
 - *Ad-supported general social media: Facebook, WeChat*
 - *Ad-supported microblogging: Twitter*
 - *Ad-supported photo/video sharing: Instagram, Flickr, TikTok, YouTube*
- *App stores (Apple App Store, Google Play, Amazon Appstore for Android)*
- *Third-party business-to-businesses (B2Bs) (Alibaba)*
- *Third-party business-to-consumer (B2Cs) (Amazon Marketplace, MercadoLibre Classifieds, Rakuten, Tmall)*
- *Ad-supported music streaming (Deezer, Spotify)*
- *Ad-supported print media (National Geographic, ParisMatch)*
- *C2Cs (Consumer-to-consumer platforms) (MercadoLibre, Taobao)*
- *Maps (Baidu Maps, Bing Maps, Google Maps)*
- *Repositories for scholarly research (SSRN)*

⁸ European Commission, 'Identity and Access Management Platform of the Flemish Government'.

⁹ OECD, 'Digital Identity Management: Enabling Innovation and Trust in the Internet Economy'.

¹⁰ OECD, *ibid.*

¹¹ OECD, *ibid.*

- *Labour freelancing/crowdsourcing (Freelancer, Amazon Mechanical Turk, Ikea/TaskRabbit, Upwork)*
- *Crowdsourcing*
 - *Competitive (TopCoder)*
 - *Non-competitive (Google Waze)*
- *Food delivery (Deliveroo, UberEats)*
- *Language education (Duolingo)*
- *Gaming (Amazon Twitch, Huya)*
- *Fintech, including*
 - *Currency exchange platforms (CurrencyFair), crowdfunding (Indiegogo, Kickstarter)*
 - *Mobile payments (AliPay, PayPal, WeChat Pay)*
 - *Online brokers (Fidelity, RobinHood, SaxoBank)*
- *Transportation*
 - *On-demand ride services (Uber, Lyft, Kapten)*
 - *Long-distance car-pooling (BlablaCar)*
- *Travel booking*
 - *Rental cars, air flights and hotels (Booking.com, Expedia, Opodo)*
 - *Cruises (Vacationstogo.com)*
 - *Short-term rentals (Airbnb, Atraveo, Homeaway)*
- *Mobile payments (WeChat Pay, AliPay)*
- *Dating (Meetic, Tinder, Grindr)*

Several platforms such as Google and Amazon operate in multiple sectors. Section 2.1. proposes a broader classification of digital platforms into three major types that address the commonalities across how most of these platform businesses create value.

1.2.3. All 'Big Tech' Companies are Digital Platform Firms

All the so-called 'big tech' companies (Alphabet-Google, Amazon, Facebook, Apple, and Microsoft) are digital platform firms, and most of the major technology firms are operating platform business models. Digital platform firms are among the most valuable firms in the world. The combined market capitalisation of just four companies, Alphabet-Google, Amazon, Apple, and Facebook exceeded \$5.7tn in December 2020, an amount greater than the total market capitalisation of the entire Euronext stock exchange and a third of the value of the whole Standard & Poor's 100 index of US stocks. Besides, platform companies make up between seventy percent of all 'unicorns' – privately held companies with valuations exceeding \$1 billion, including Ant Financial, Didi Chuxing, Byte Dance, and Airbnb.¹²

Note that the companies referred to as 'big tech' have diversified their operations along various business lines, most but not all of them being characterisable as platform businesses. Facebook ran its entire company as a platform business. Alphabet-Google derived 83% of its revenue from its advertising-based platform business, including YouTube ads and Google advertising that relied on Google Search and Android. But other firms, such as Amazon and Apple, carried out a mixed-mode of business models, combining platform and non-platform businesses. For example, while Amazon Marketplace and Amazon Web Services were platform businesses, Amazon also operated as a traditional online reseller when selling products it had acquired and a conventional service provider of fulfilment and delivery. Similarly, while Apple operated a platform business model relying on iOS and the App Store, it also operated as a traditional original equipment manufacturer and seller of iPhones and iPads. These firms are platform companies, even though some of their business lines are not platform businesses, for two reasons. (1) The majority of their revenue and profit come from activities directly associated with their platform business models; (2) the strong interdependencies between their platform businesses and their non-platform businesses.

¹² Evans and Gawer, 'The rise of the platform enterprise'.

The remainder of this section briefly presents the businesses of Alphabet-Google, Amazon, Facebook, and Apple.

Google (Alphabet)

Google was launched in 1998 as a general online search engine.¹³ Founded by Larry Page and Sergey Brin, the corporation started by serving users web results in response to online queries. Google's critical innovation was its PageRank algorithm, which ranked the relevance of a webpage by assessing how many other webpages linked to it.¹⁴ Contrary to the technology used by rival search engines, PageRank enabled Google to improve the quality of its search results even as the web rapidly grew. While Google had entered a crowded field, by 2000, it had become the world's largest search engine.¹⁵ Later that year, Google launched AdWords, an online advertising service that let businesses purchase keywords advertising to appear on Google's search results page. This offering would later evolve to become the heart of Google's business model.¹⁶ In 2015 Google underwent a reorganisation, introducing Alphabet as a parent company under which Google would reside as a wholly owned subsidiary.¹⁷

As of 2020, Google was ubiquitous across the digital economy, serving as the infrastructure for core products and services online. As the 2020 US Judiciary report indicated, *'Google has grown and maintained its search engine dominance, such that 'Googling' something is now synonymous with online search itself. The company is now also the largest provider of digital advertising, a leading web browser, a dominant mobile operating system, and a major provider of digital mapping, email, cloud computing, and voice assistant services, alongside dozens of other offerings. Nine of Google's products—Android, Chrome, Gmail, Google Search, Google Drive, Google Maps, Google Photos, Google Play Store, and YouTube—have more than a billion users each.'*¹⁸ Each of these services provides Google with a trove of user data, reinforcing its dominance across markets and driving greater monetization through online ads. In several markets, Google established its position through acquisition, buying up successful technologies that other businesses had developed. In a span of 20 years, Google purchased well over 260 companies—a figure that likely understates the full breadth of Google's acquisitions, given that many of the firm's purchases have gone unreported.'¹⁹

As of December 2020, Google was one of the world's largest corporations. Google reported total revenues in 2019 of \$160.7 billion—up 45% from 2017—and over \$33 billion in net income.²⁰ Although Google had gradually diversified its offerings, it generated the vast majority of its money through digital ads, which accounted for over 83% of Google's revenues in 2019.²¹ In particular, search advertising was critical to Google, accounting for approximately 61% of its total sales.²² In 2020, Google reported a drop in ad revenue due to pandemic-related cuts in spending, though the company partly made up for the decline through revenue growth in Google Cloud, Google Play, and YouTube.²³ Google enjoyed strong and steady profits, with profit margins greater than 20% for nine out of the last ten

¹³ Google Inc., Registration Statement (Form S-1) 1, 2004.

¹⁴ Ibid., 65.

¹⁵ Google, 'Google Launches World's Largest Search Engine'.

¹⁶ Google, 'Google Launches Self-Service Advertising Program'.

¹⁷ Page and Pichai, Google Founders' Letter.

¹⁸ McCracken, 'How Google Photos joined the billion-user club'.

¹⁹ US Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, 175.

²⁰ Alphabet, Annual report (Form 10-K), 3 February 2020.

²¹ Ibid., 30.

²² Ibid.

²³ Alphabet, Quarterly report (Form 10-Q), 30 June 2020; Alphabet Q2 Earnings Call, July 30 July 2020.

years until 2020, close to three times larger than the average for a U.S. firm.²⁴ Figure 1.1 represents the evolution of Alphabet-Google revenue from 2011 to 2019.

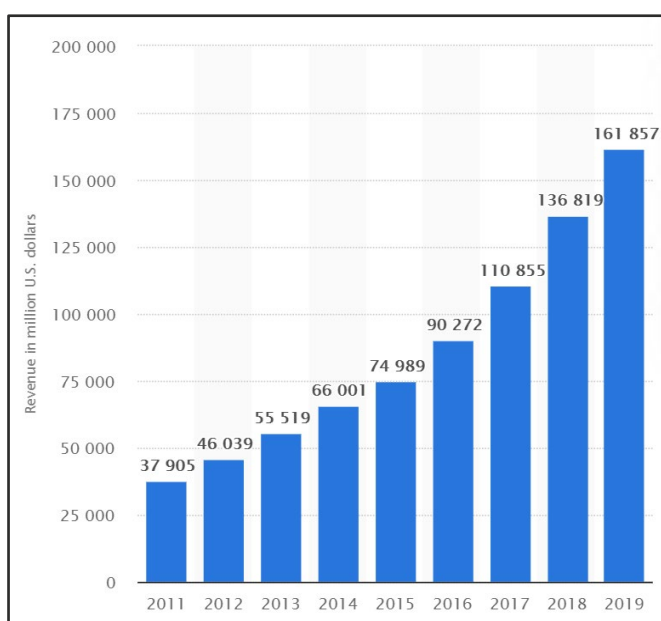


Fig. 1.1: Alphabet Annual Revenue (in million USD) from 2011 to 2019²⁵

Amazon

Amazon.com, Inc. was founded in 1994 as an online bookseller.²⁶ As of December 2020, it was one of the largest companies in the world. Based in Seattle, Amazon was estimated to be the second-largest private employer in the United States, after Walmart. In 2019, it had over 500,000 employees.²⁷ Pushed by the Covid-19 pandemic, Amazon massively expanded its global workforce, bringing to 1,125,300 employees by December 2020.²⁸ The company operated across a wide range of direct-to-consumer and business-to-business markets, including e-commerce, consumer electronics, television and film production, groceries, cloud services, book publishing, and logistics. Amazon went public in 1997 but did not post its first full-year profit until 2003.²⁹ Amazon's business strategy has generally focused on long-term growth over short-term profits.³⁰ As of December 2020, Amazon was one of the most valuable companies in the world, with a market capitalisation of \$1.57tn, and its CEO, Jeff Bezos, was reported to be the wealthiest person in the world.³¹

Amazon reports financial information for three business segments: North America, International, and Amazon Web Services (AWS), Amazon's cloud services business.³² In the past few years, Amazon continued to report strong and steady growth, as well as increasing profits. For 2019, Amazon reported total revenue of about \$280 billion, up 20% from the previous year, and a net income of over

²⁴ Alphabet, Quarterly reports (Form 10-K), 2009–2019.

²⁵ Statista, 'Annual revenue of Alphabet from 2011 to 2019'.

²⁶ Amazon Annual report (Form 10-K), 31 January 2020.

²⁷ Amazon, 'Amazon.com Announces Second Quarter Results 2. 30 July 2020'; Duhigg, 'Is Amazon Unstoppable?'

²⁸ Weise, 'Pushed by Pandemic, Amazon Goes on a Hiring Spree Without Equal'.

²⁹ Amazon.com, Inc., Annual report (Form 10-K), 9 March 2005; Hansell, 'Amazon reports First Full-Year Profit'.

³⁰ US Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, 249.

³¹ Ycharts, 'Amazon.com Market Cap'; Palmer, 'Jeff Bezos is Now Worth More than \$200 Billion'.

³² Amazon Annual report (Form 10-K) 31 January 2020.

\$11 billion.³³ AWS's revenue increased by 37% in 2019 to \$35 billion.³⁴ Retail operations continued to be the platform's largest source of revenue, but AWS was a crucial source of its overall profits.³⁵ In 2019, Amazon's cloud business contributed over 60% of Amazon's total operating income, despite accounting for only 12.5% of its total revenue.³⁶ Figure 1.2 represents the evolution of Amazon net revenue from 2004 to 2019.

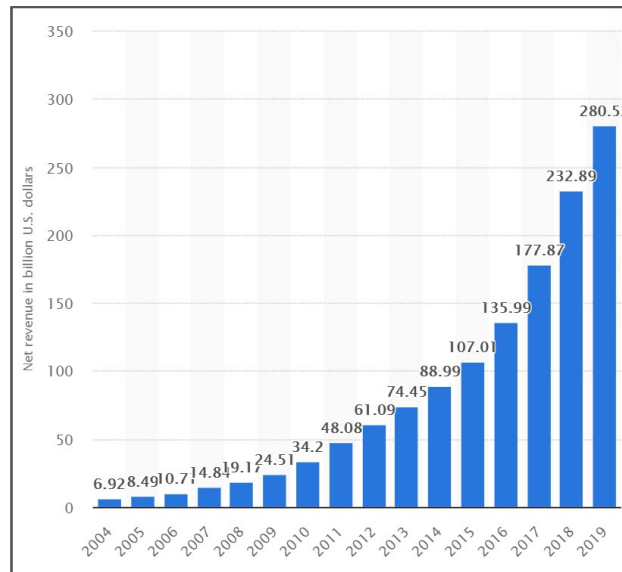


Fig. 1.2: Amazon Annual Net Revenue (in billion USD) from 2004 to 2019³⁷

Facebook

Facebook was founded in 2004 by Mark Zuckerberg, Eduardo Saverin, Chris Hughes, and Dustin Moskowitz.³⁸ In 2020, Facebook was the largest social networking platform in the world. Its business operates around five primary product offerings, including (1) Facebook, a social network platform; (2) Instagram, a social network app for photos and videos; (3) Messenger, a cross-platform messaging app for Facebook users; (4) WhatsApp, a cross-platform messaging app; and (5) Oculus, a virtual reality gaming system. Facebook market capitalisation in December 2020 reached \$761.6 billion.³⁹

Facebook reported in October 2020 that its platform included 1.82 billion daily active users (DAUs),⁴⁰ 2.74 billion monthly active users (MAUs),⁴¹ and an average revenue per user (ARPU) of \$7.89.⁴² Facebook generated most of its advertising via mobile devices. In 2019, Facebook's businesses collected about \$70 billion in revenue—a 27% increase from the prior year—earning about \$24 billion in income from its operations.⁴³ Facebook reported in October 2020 that its family of products—including Facebook, Instagram, Messenger, and WhatsApp—includes 2.54 billion 'daily active people'

³³ Ibid., 18.

³⁴ Ibid., 24.

³⁵ Ibid., 3; Reiff, 'How Amazon Makes Money'.

³⁶ Amazon Annual report (Form 10-K) 31 January 2020.

³⁷ Statista, 'Annual net revenue of Amazon from 2004 to 2019'.

³⁸ Levy, 'Facebook: The Inside Story', 65-69.

³⁹ Ycharts, 'Facebook Market Cap'.

⁴⁰ Facebook Inc., Quarterly report (Form 10-Q) 29, July 31, 2020, 31.

⁴¹ Ibid., 32.

⁴² Ibid., 33.

⁴³ US Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, 133.

(DAP), 3.21 billion 'monthly active people' (MAP), and a 'family average revenue per person' (ARPP) of \$6.76.⁴⁴ Figure 1.3 represents the evolution of Facebook revenue from 2009 to 2019.

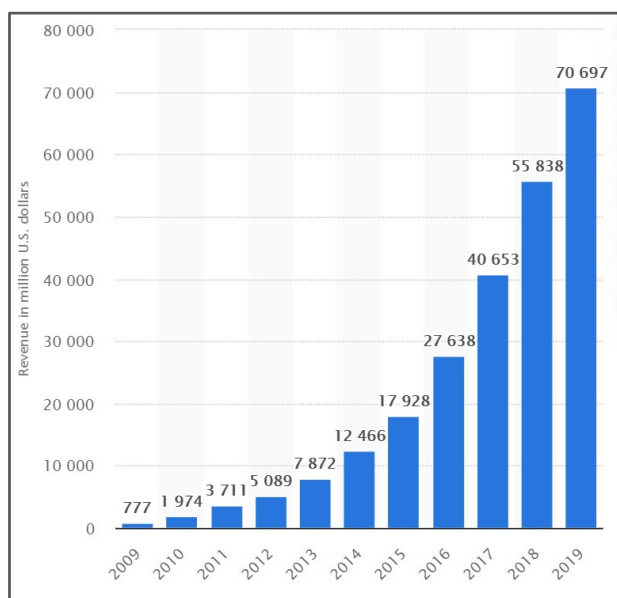


Fig. 1.3: Facebook Annual Revenue (in million USD) from 2009 to 2019⁴⁵

Apple

Apple, headquartered in Cupertino, California, was incorporated in 1977.⁴⁶ Apple was an early pioneer in designing and marketing mass-produced personal computers.⁴⁷ As of 2020, Apple 'designs, manufacturers, and markets smartphones, personal computers, tablets, wearables, and accessories, and sells a variety of related services.'⁴⁸ Apple's hardware products include the iPhone, iPad, Mac, Apple TV, and AirPods; its Services business segment includes the App Store, iCloud, AppleCare, Apple Arcade, Apple Music, Apple TV+, and other services and software applications.⁴⁹ Apple tightly integrates its services and software applications with its products to ensure consumers' seamless experience.⁵⁰

Apple reports financial information for two business categories: Products and Services. For fiscal year 2019, Apple reported total revenue of approximately \$260 billion, down 2% from 2018, but up nearly 13.5% from 2017.²⁰⁸⁹ Apple's total margins were 37.8%, with profits of \$98.3 billion. As of September 2020, Apple is the most valuable public company in the world, and in August 2020 became the first publicly traded U.S. firm to be valued at \$2 trillion.²⁰⁹¹ Apple's stock rose by 60% in the first 8 months of 2020.⁵¹

In 2020, Apple was the leading smartphone vendor in the U.S., accounting for approximately 45% of the domestic market, with more than 100 million iPhone users worldwide. Apple's iOS was also one of two dominant mobile operating systems—the other operating system being Alphabet-Google's Android. iOS runs on more than half of U.S. smartphones and tablets. Globally, Apple accounts for less

⁴⁴ Facebook Inc., Quarterly report (Form 10-Q) 29, July 31, 2020, 37.

⁴⁵ Statista, 'Facebook's annual revenue from 2009 to 2019'.

⁴⁶ Apple Annual report (Form 10-K) 28 September 2019.

⁴⁷ Richardson and Terrell, 'Apple Computer'.

⁴⁸ Apple Annual report, 28 September 2019.

⁴⁹ Ibid., 1–2.

⁵⁰ US Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, 332.

⁵¹ Ibid., 333.

than 20% of the smartphone market, and roughly 25% of smartphones and tablets run on iOS worldwide.⁵² In 2018, Apple sold its 2 billionth iOS device, and is projected to sell its 2 billionth iPhone by 2021.⁵³ Apple also owns and operates the App Store for iOS devices. Launched in 2008, Apple highlights that the App Store allows app developers to reach consumers in 155 countries, and that more than 27 million app developers have published millions of apps in the App Store. Apple credits the App Store with creating 1.5 million jobs in the United States, and more than \$120 billion in worldwide revenue for app developers.⁵⁴ According to Apple, the App Store ecosystem, including direct sales of apps, sales of goods and services inside of apps, and in-app advertising facilitated more than \$138 billion in economic activity in the U.S. in 2019.⁵⁵ Figure 1.4 represents the evolution of Apple revenue from 2004 to 2020.

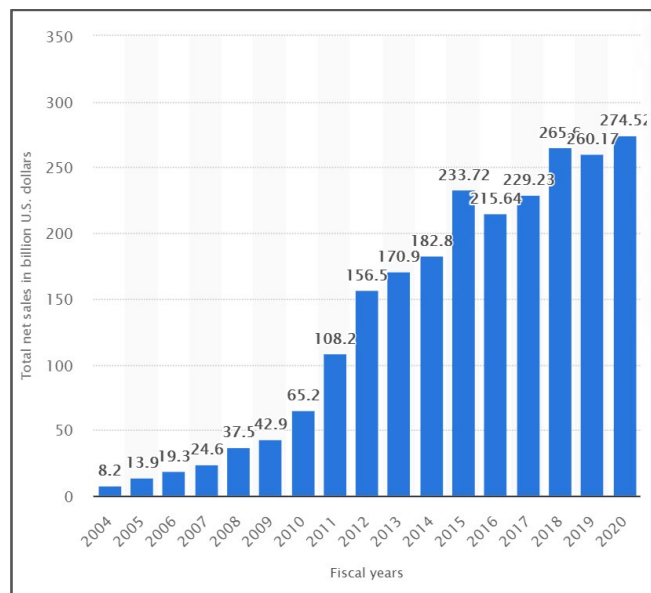


Fig. 1.4: Apple Annual Revenue (in billion USD) from 2004 to 2020⁵⁶

⁵² Ibid., 334.

⁵³ Owen, 'How Apple has hit 2 billion iOS devices sold, and when it will hit 2 billion iPhones'.

⁵⁴ US Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, 334.

⁵⁵ Ibid., 334.

⁵⁶ Statista, 'Global revenue of Apple from 2004 to 2020'.

2. Characteristics of Digital Platforms

2.1. How Do Digital Platforms Create Value?

The mechanisms through which digital platforms create value are the following: First, digital transaction platforms facilitate matching.⁵⁷ They provide a structure that can take advantage of low search costs afforded by digital technologies to globally connected Internet users to create efficient matches. Often platforms serve as intermediaries between buyers and sellers. Their success is closely tied to the success of a range of businesses that use platforms to reach customers. Platforms allow firms, especially smaller businesses, to extend their operations beyond their home state, catering for consumers across the entire Single Market.⁵⁸

Digital platforms also facilitate innovation. Innovation platforms enable third-party firms such as software developers to build very large quantities of complementary products or services. For example, they facilitate the development of millions of applications that enhance the functionality of foundational products like Microsoft Windows or Google's Android.⁵⁹

Platforms also increase the efficiency of trade.⁶⁰ They do this through lower search costs as well as low reproduction and verification costs. For example, software platforms enable application providers to quickly serve many customers, with the only requirement that the application serves some particular customer need, reproduce at zero cost, and rely on the platform and the other applications to serve other needs.⁶¹

Types of Online Platforms

Cusumano, Gawer and Yoffie (2019) propose a simple typology of platforms that focus on how they create value, distinguishing two broad types and a combined hybrid type (See Fig. 2.1):

- **Transaction platforms:** they facilitate transactions between many individuals and organisations that otherwise would have difficulty finding or transacting with each other and that capture and transmit data, including personal data, over the internet (e.g., Tmall, Google Search, Amazon Marketplace, MercadoLibre). These organisations reduce search and other transaction costs for billions of users, customers, and providers.
- **Innovation platforms:** they serve as a technological building block on top of which innovators can develop complementary products or services (e.g., iOS, Google Android, Linux).
- **Hybrid platforms:** they combine characteristics of innovation platforms and transaction platforms. Google, Amazon, Microsoft, Apple, Facebook are all hybrid platforms.

⁵⁷ Evans and Schmalensee, 'Matchmakers: The New Economics of Multi-Sided Platforms'.

⁵⁸ European Commission, 'How Do Online Platforms Shape our Lives and Businesses'.

⁵⁹ Cusumano, Gawer, and Yoffie, 'The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power'.

⁶⁰ Goldfarb, Tucker, 'Digital Economics'.

⁶¹ Hagiu, 'Software Platforms'.

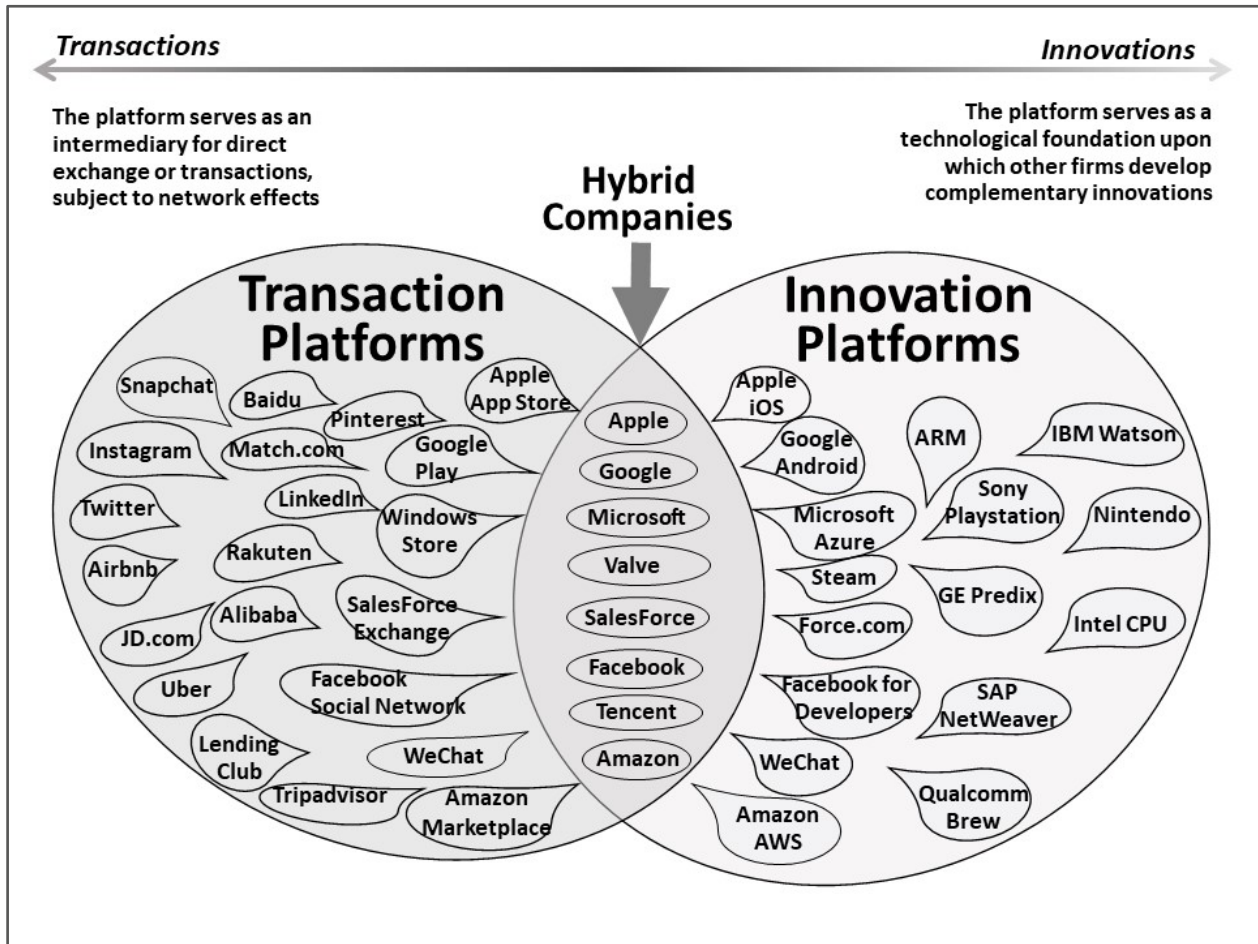


Fig. 2.1: Basic Platform Types⁶²

2.2. Common Characteristics of Online Platforms

Despite the variety of sectors that they operate in and the diversity of activities they facilitate, online platform firms share common economic, business, and governance characteristics: economies of scale and scope; network effects; business models involving cross-subsidisation; data generation, capture and usage; and the fact that platforms act as private regulators of their ecosystem.

2.2.1. Digitisation Drives the Emergence of Platforms and Ecosystems

Organisational forms emerge to take advantage of the specific technological and economic opportunities of the day. The ongoing digital revolution is significant in its scope and ramifications as the industrial revolution was around 150 years ago. It gives rise to new organisational forms that are uniquely positioned to create and capture value in the digital economy: platforms and their associated ecosystems.

Over 150 ago, the industrial revolution brought about the rise of the modern corporation. Alfred Chandler's (1990) explains in *Scale and Scope: The Dynamics of Industrial Capitalism* how the modern corporation was born and evolved to take advantage of production techniques made available by the Industrial Revolution. With its multi-divisional managerial hierarchies, the industrial firm created value. It generated a competitive advantage by harnessing the new technological infrastructures, such as electricity and railroads, to operate efficient production processes. Firms obtained, controlled, and

⁶² Cusumano, Gawer, and Yoffie, *ibid.*

coordinated resources to create products through increasingly integrated and automated manufacturing systems.

If the Industrial Revolution enabled massive economies of scale and scope, the digital revolution dramatically lowered the costs of rapid scaling on a global basis. The emergence of personal computers, the Internet, mobile devices, and Cloud servers allowed digital platforms to form and grow, sometimes exponentially. Digital technologies enable individuals to connect with other individuals and organisations with minimal friction. In addition, companies no longer need to do all their own innovation or own all the assets they provide to consumers. Resources that reside outside the scope of the firm can be exploited and monitored remotely.

2.2.2. Economies of Scale and Scope

Online platforms use digital technologies and pervasive connectivity to create value by dramatically reducing costs in search, exchange, and data-driven innovation.⁶³ As such, digital platform markets are characterised by strong economies of scale, where the high up-front investment and fixed costs of creating services are coupled with low or near-zero marginal costs of additional users. For example, digital technologies' zero-marginal cost economics allowed Facebook to expand exponentially from a few million users to 2.4 billion in slightly over a decade. Such a growth pace would be impossible before the Internet linked consumers, innovators, and markets globally and instantly.

As digital platform firms' user bases get larger, their average costs get significantly reduced. This creates strong user benefits in terms of efficiency and low costs. This, however, is not conducive to competition.⁶⁴ The global nature of digital platform markets is significant. As geographical barriers are much less relevant to digital markets, economies of scale support concentration on a global rather than national or regional scale.⁶⁵

By operating simultaneously across adjacent markets, digital platforms can reduce their costs and increase the quality of their services. These economies of scope can be achieved by sharing and merging consumer data and sharing branding, supplier relationship, or technical expertise. These economies of scope are one reason why the same small number of large digital platform companies have successfully built ecosystems across several adjacent markets.⁶⁶

2.2.3. Network Effects Fuel Platform Growth

One important difference between the economics of traditional manufacturing in the physical world and the economics of the digital world is that the latter creates opportunities for companies to achieve demand-side scale and scope economies from positive feedback loops called network effects.^{67, 68, 69} A network effect exists when the value a user obtains from using a product or service grows as more users adopt the product or service. Pervasive connectivity over the internet facilitates the emergence of network effects, as most humans, organisations, and an increasing number of machines are connected through this underlying network of networks.

Positive *direct* network effects exist when the utility that users on one side of the platform derive depends on the number of other users on that same side. Examples include social media and instant

⁶³ See Cusumano, Gawer, and Yoffie, *ibid*; Parker, Van Alstyne, Choudhary, 'Platform Revolution: How Networked Markets Are Transforming the Economy—And How to Make Them Work for You'; and Goldfarb and Tucker, *ibid*.

⁶⁴ Furman et al., 'Unlocking Digital Competition. report of the UK Digital Competition Expert Panel', 32 (henceforth referred to as 'the Furman report').

⁶⁵ Furman et al., *ibid*, 32.

⁶⁶ Furman et al., *ibid*, 32. See also Jacobides, Cennamo, Gawer, 'Towards a theory of ecosystems'.

⁶⁷ Armstrong, 'Competition in two-sided markets'.

⁶⁸ Katz and Shapiro, 'Network externalities, competition, and compatibility'.

⁶⁹ Parker and Van Alstyne, 'Two-sided network effects: A theory of information product design'.

messaging platforms. Positive *indirect* network effects exist when users on one side of the platform benefit when there are more users on another side of the platform. All platforms have positive indirect network effects. For example, an increase in the number of Uber drivers is valuable for Uber riders (shorter wait times), and as more riders sign up with Uber, drivers have access to a larger market. Developers creating apps for a mobile operating system represents a different type of network effect. The larger the number of iPhone users, the more attractive it is for developers to create apps for the AppStore (a larger market). iPhone users, in turn, benefit from an increased number of available apps (more things to do with their phones).

Network effects lead to rapid growth. Under certain conditions, they can also lead to customer lock-in and winner-take-all or winner-take-most market outcomes, a point developed further in the report because of its implication on the difficulty to maintain healthy competition in digital platform markets. Under certain conditions, strong network effects can prevent a superior platform from displacing an established incumbent. These conditions include: (1) when it is difficult or expensive for users to 'multi-home' (i.e., for users to use several competing platforms at the same time), and/or (2) when it is difficult for users to switch away from an existing platform, for example, because of lack of data portability or lack of interoperability.

2.2.4. Platform Business Models Involve Subsidisation Across Sides (and Often, Zero Price for Some Consumers)

Platform organisations are not simply the result of digital technologies. They also design and choose business models (so-called platform business models) that are specific and always involve a degree of cross-subsidisation across the platform sides. This feature of platform business models is not solely associated with digital platforms, but also with offline platforms, such as print newspapers or dating bars.

When indirect network effects are present, the volume of demand for a platform's services will depend not only on the level of prices that it sets to each of its sides but also on the structure of those prices across the sides.⁷⁰ As demand on one side is interdependent with the volume of users on the other side, the pricing strategy of subsidising one side in order to attract more users on the other side is beneficial to platform firms. This amounts to cross-subsidising one side's users with revenues coming from another side's users.

For example, social media platforms typically offer their services for a zero monetary price to the consumers using the platform. The platform develops a service which it hopes will attract a critical mass of users and then seeks to attract a second side to the platform, advertisers. The users attract those advertisers, and the information the platform has about them, and pay to display ads to those users. Other examples include instant messaging platforms and consumer-to-consumer platforms (where sellers tend to subsidise buyers).

2.2.5. Platforms Thrive on Pervasive, Continuous Data Generation, Capture, and Processing

The ongoing global process of digitalisation supports an economy-wide redesign of value creation, delivery, and capture processes. The pervasive connectivity enabled by digital infrastructures such as the internet and mobile networks allows data to be shared, linking objects, individuals, and organisations who consume as well as generate data. Complementarities between the processes of data generation, connectivity, and aggregation help reduce transaction costs over time, which impacts the architecture of the global value chain.

⁷⁰ Rochet and Tirole, 'Two-sided markets: a progress report'.

The evolution of technology has made it possible for companies to collect, store, and use vast amounts of data. The capture and analysis of this data are critical to the business models of most digital platforms.

The transition to always-on connectedness has fundamentally changed the way humans, organisations, and machines, as agents or resources, can be identified, monitored, and controlled. In internet-connected and digitalised contexts, resources can be controlled without formal ownership or employment. In fact, digitalisation allows assets and individuals to be monitored and controlled to the degree that was not previously possible. For example, individual drivers can be connected to the web via mobile devices such as smartphones or sensors embedded within a car or an engine. Drivers' movements can thus be tracked, and their behaviours monitored.

As Hal Varian, chief economist of Alphabet-Google, explains: 'Because transactions are now computer-mediated, we can observe behaviour that was previously unobservable and write contracts on it.'⁷¹ This reduction in uncertainty helps reduce the need for ownership of resources, suggesting firms can narrow their scope boundaries if they can digitally connect to remote agents and resources to capture data from them, which they can analyse and exploit.

For example, users of social media platforms do not pay for using the service in that they do not part with money, but they 'pay' by giving their attention to the platform and by allowing the platform to collect data about them that assists in selling advertising that is targeted to the users.

Platform firms such as Google and Facebook that rely on advertising-based business models depend on user data capture and treatment. The proportion of their revenue derived from advertising dwarfs revenue from other business lines. The targeted ads that the Google presents to the consumer are derived from the data captured by Google when the consumer inputs a search query combined with other information about the user that is revealed by its online behaviour on or off Google Search. For Facebook, the targeted ads are derived from the user's behaviour such as which content he/she clicks on, which ad he/she clicks on, how long he/she stays on a particular content, that is, the user's behaviour on the platform and other online behaviour on other websites.

Digital platforms can obtain data in three main ways. Data can be volunteered by users, observed from user behaviour, or inferred as the result of data analytics.⁷² As described in OECD (2019: 66) and in Crémer et al. (2019: 24), these three categories consist of:

- *Data volunteered by users. This data is actively and intentionally shared by a data subject, such as when a social media user creates a profile, a customer shares an online review, or a buyer enters credit card information. More structured data directly generated by an individual, such as a movie rating, or liking a post or a song also falls into the volunteered data category.*
- *Data observed from user behaviour. Many online activities leave a digital trace. The category of 'observed data' refers to behavioural data obtained automatically from a user's or a machine's activity. Such 'observed data' data is captured by recording users' online activities. The user's role is more passive in this category than in the 'volunteered data' category, as the data is neither actively nor intentionally shared. For example, individuals' movement can be traced through their mobile phone. Every click on a page can be recorded and logged by a website, and third-party software monitors how its visitors are behaving. Telematic data records the roads taken by a vehicle and the behaviour of its driver. In manufacturing, the Internet of Things means that every machine produces vast amounts of data on how it operates and the environment within which it functions, based on what its sensors are recording*
- *Data inferred as a result of data analytics. This data is obtained by transforming in a non-trivial way, using algorithms, the data that was volunteered or observed, while relating it to a specific*

⁷¹ Varian, 'Beyond big data'.

⁷² OECD, 'Data-Driven Innovation: Big Data for Growth and Well-Being', 451.

individual or machine. This will result, for example, in the calculation of credit scores based on an individual's history of paying for online purchases, or in a user's inferred maximum willingness to pay for specific goods or services.

Data can then be categorised in four different ways, according to various degrees of anonymity, granularity, and context:⁷³

- *Non-anonymous use of individual-level data.*⁷⁴ This can be any individual-level data (whether volunteered, observed, or inferred) that is used to provide a service for the individual. For instance, this includes a music app that uses data about the songs that a user has listened to, to make suggestions as to other songs that he or she might like.
- *Anonymous use of individual-level data.* This includes all cases when individual-level data is used anonymously, and when the goal is not to provide a service to the individual whose data is being used, i.e. when data from individuals is used to train machine-learning algorithms. Another case is when the data is used for purposes that are unrelated to the original purposes for which the data has been collected.
- *Aggregated data.* This refers to the more standardised data that has been aggregated in a way that is irreversible. This includes national statistical information, companies' profit and loss statement, and sales data.
- *Contextual data.* This refers to data that is not derived from individual-level data. This includes satellite data, mapping data, or road network information.

Digital platforms can then exploit this data for a variety of purposes. These purposes include:⁷⁵

- *To profile their users (i.e., better understand the demographics and categorise them according to medium-to-finely-grained group or individual characteristics). This includes:*
 - *Making inferences about individual users' personal details (such as their gender, their age, their marital status, whether they have children, what their race is, whether they are pregnant, how wealthy they are, where they live, their degree of education)*
 - *Categorising individual users' political views*
 - *Categorising individual users' religion*
 - *Categorising how healthy they are and what their medical issues are*
 - *Assess how much physical exercise they engage in*
 - *Making inferences about individual users' creditworthiness*
 - *Making inferences about individual users' maximum willingness to pay for specific products or services*
- *To amass and combine data into large datasets, as input to fuel machine-learning algorithms aiming to make predictions. These predictions can be about individual user behaviour (such as, how likely he/she is to react favourably to a specific ad or to remain engaged on the platform because its content triggers an emotional response such as outrage or a pleasurable experience) as well as collective behaviour of categories of users*
- *To improve the product or service, and to provide a better user experience*
- *To offer personalised content to users, including targeted advertising such as for example to make personalised suggestions, e.g., suggesting local events to attend, or local businesses*
- *To communicate with their users*
- *To identify illegal products or services for sale*
- *To identify unlawful content (e.g., child pornography, terrorism recruitment)*
- *To make inferences about where assistance is needed most in a natural disaster*

⁷³ Crémer, de Montjoye, and Schweitzer, 'Competition Policy in the Digital Era', 25.

⁷⁴ From a privacy perspective, data is considered 'individual-level data' when it refers to a natural person, directly identifiable or under a pseudonym. Crémer et al., *ibid.*, 26.

⁷⁵ OECD 'An Introduction to Online Platforms and their Role in Digital Transformation', 67.

Notwithstanding the many benefits (which will be discussed in Section 3.1) associated with digital platform firms, critics such as Lanier and Zuboff offer fundamental critiques of the logic of 'datafication' of human activities and claim that it profoundly affects, for the worse, humans and society. These concerns, which can be regrouped under the umbrella term of 'surveillance capitalism',⁷⁶ will be briefly discussed in Section 5.2.

2.2.6. Platforms Act as Private Regulators of their Ecosystems

Most digital platforms act as *private regulators* of their ecosystems. They establish the rules through which their various users (be they individuals or organisations) interact, decide what behaviours to encourage or discourage on the platform, and choose how to enforce them.⁷⁷

As such, they design the business environment and exercise significant control over members of their platform ecosystem. This rule-setting function is part of what some call 'platform governance', which also includes enforcement of such rules.^{78,79} This governance is an essential part of the platform companies do, and it can generate significant value for users of the platform. Good platform governance is a balancing act between creating value for multiple sides of the platforms, when these may have divergent incentives.

For innovation platforms, an important objective of governance is to ensure the quality of complements and clarify who can connect to and innovate on top of the platform. Good ecosystem governance encourages lots of innovation and allows complementors as well as users to benefit in a sustainable manner. Examples of such rule-setting include regulating access to and exclusion from a marketplace; regulating the ways in which sellers can present their offers; which data and Application Programming Interfaces (APIs) users and developers can access; setting up grading systems; regulating access to information that is generated on the platform; imposing standards for delivery and return policies; imposing price controls and so-called 'Most Favoured Nation' clauses.^{80,81}

Parker, Van Alstyne and Choudary (2016) indicate: *'In the complexity of the governance issues they face, today's biggest platform businesses resemble nation-states. With more than 1.5 billion users, Facebook oversees a 'population' larger than China's. Google handles 64 percent of the online searches in the U.S. and 90 percent of those in Europe, while Alibaba handles more than 1 trillion yuan (162 billion US dollar) worth of transactions a year and accounts for 70 percent of all commercial shipments in China. Platform businesses at this scale control economic systems that are bigger than all but the biggest national economies.'*⁸² A fundamental difference of course between nation-states and platform businesses is that the rules of governance of digital platform ecosystems are set up by the platform firms which are private enterprises and are not subject to democratic governance processes.

The governance of platform ecosystems is not limited to hard rule setting. For platform companies, it also consists in sending credible commitments to ecosystem members so that they continue to be affiliated with the platform. This is especially important when platforms face competition from other platforms.

⁷⁶ Zuboff, 'Big Other: Surveillance Capitalism and the Prospects of an Information Civilization' and 'The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power'. See also Lanier, 'You are not a gadget: A manifesto' and 'Ten arguments for deleting your social media accounts right now'.

⁷⁷ See Cusumano, Gawer, and Yoffie, *ibid.*

⁷⁸ Parker, Van Alstyne, and Choudary, *ibid.*

⁷⁹ Cusumano, Gawer, and Yoffie, *ibid.*

⁸⁰ Crémer et al., *ibid.*, 60.

⁸¹ Most-favoured-Nation (MFN) clauses or best price clauses exist when, to protect their investment, platforms impose a requirement to sellers on their platforms that goods cannot be sold through other channels at lower prices. Crémer et al., *ibid.*, 5.

⁸² Parker, Van Alstyne, and Choudary, *ibid.*, 159.

When platforms are not dominant, users can choose to abandon the focal platform and migrate toward other platforms if the rules of the focal platform do not suit them. However, when a platform becomes dominant or monopolistic, the role of the platform as a private regulator can become problematic. For example, a dominant platform that allows buyers and sellers to transact and sells directly to buyers can have incentives to abusively apply self-preferencing, i.e., giving preferential treatment to its own products services.

The Competition Policy in a Digital Era report for the European Commission indicates that 'because of their function as regulators – dominant platforms have a responsibility to ensure that their rules do not impede free, undistorted, and vigorous competition without objective justification. A dominant platform that sets up a marketplace must ensure a level playing field on this marketplace and must not use its rule-setting power to determine the outcome of the competition.'⁸³

2.3. Geographical Distribution of the Main Global Platforms

The world's top digital platform firms are highly concentrated geographically (Fig. 2.2). Among the world's 70 highest valued digital platforms, most are based in the United States, followed by Asia (especially China). Latin American and African digital platforms are only marginal. In terms of market capitalisation value, digital platform companies from the United States increased their share in the global total from 65 percent to 70 percent.

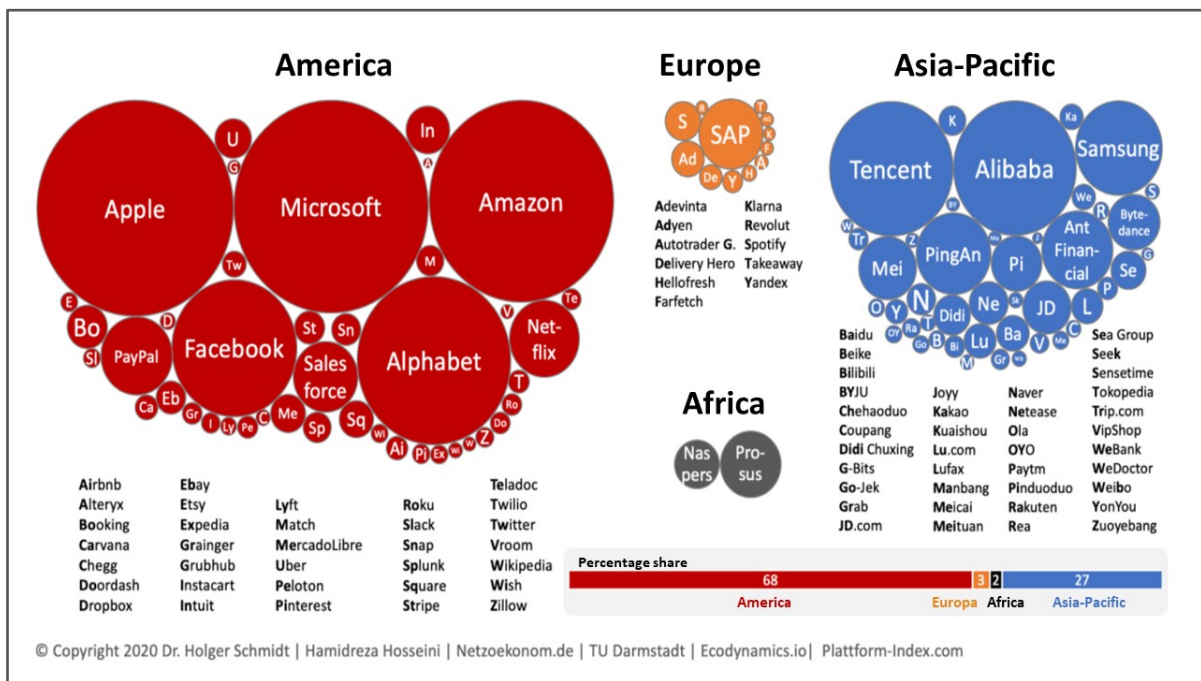


Fig. 2.2: Geographical Distribution of the Main Global Platforms in the World, June 2020⁸⁴

⁸³ Crémer et al., *ibid.*, 6.

⁸⁴ Adapted from Holger Schmidt, 'Platform-Oekonomie' (<https://www.netzoekonom.de/plattform-oekonomie/#top>), updated from source reported in UNCTAD, 'Digital Economy report 2019: Value Creation and Capture: Implications for Developing Countries.'

3. Platforms' Effects on Consumers, Businesses, Competition, and Innovation

3.1. Positive Effects of Platforms on Consumers and Businesses

Digital platforms are uniquely positioned to create and capture value in the digital economy. They create value in multiple ways. Platform services that are funded by digital advertising bring substantial benefits to consumers while being provided free of charge. Research published in 2019 demonstrated that consumers place a great financial value on a range of online services, assigning multiple thousands of dollars to search engines and digital maps. Video streaming services such as YouTube, and social media more broadly received lower, but still significant valuations.⁸⁵

The fact that these services are so important to consumers and valued so highly is precisely why it is critical that competition is effective in these markets. The current COVID-19 pandemic has emphasised the critical importance of digital services for consumers' well-being and prosperity.

3.1.1. Usage of Online Platforms in Europe

Online platforms are embedded in a global phenomenon of generation and usage of data, whose volume has increased dramatically worldwide. Global Internet Protocol (IP) traffic, a proxy for data flows, grew from about 100 gigabytes (GB) per day in 1992 to more than 45,000 GB per second in 2017. These numbers keep increasing; by 2022 global IP traffic is projected to reach 150,700 GB per second, fuelled by more and more people coming online for the first time and by the expansion of the Internet of Things (IoT).⁸⁶

As of 2019, one million EU businesses were selling goods and services via online platforms,⁸⁷ and more than 50% of small and medium enterprises selling through online marketplaces sold cross-border. In 2017, the European Business-to-Consumer (B2C) e-commerce turnover was estimated to reach around €602 billion at a nearly 14% growth rate.⁸⁸

In 2019, 82% of European SMEs relied on search engines to promote their products and services,⁸⁹ and 53 % of EU enterprises used social media.⁹⁰ Between 2013 and 2019, the use of social media increased most for marketing purposes (from 22 % to 45 % of enterprises) and for recruiting employees (from 9 % to 28 % of enterprises).⁹¹ As for consumers: 58% of Europeans used social media at least once a week.

The average European spends one hour and 23 minutes per day on social media as of 2020.⁹² American spent 22.5 h per week online as of 2018.⁹³ Facebook, launched in 2004, had 3 billion active users worldwide as of August 2020,⁹⁴ and the average user spent 50 min per day on Facebook and Instagram, up from zero in 2005.⁹⁵ WhatsApp, launched in 2009, had 1.5 billion active users worldwide as of

⁸⁵ Brynjolfsson, Collis, and Eggers, 'Using massive online choice experiments to measure changes in well-being'.

⁸⁶ UNCTAD, *ibid.*, 15.

⁸⁷ European Commission, 'How Do Online Platforms Shape our Lives and Businesses'.

⁸⁸ European Commission, 'Online Platforms'.

⁸⁹ European Commission, 'How Do Online Platforms Shape our Lives and Businesses'.

⁹⁰ Eurostat, 'Eurostat Statistics Explained. Social Media – Statistics on the Use by Enterprises'.

⁹¹ Eurostat, *ibid.*

⁹² Metev, 'How much time do people spend on social media'.

⁹³ Center for the Digital Future at USC Annenberg, 'The 2018 digital future report'.

⁹⁴ Facebook, 'Facebook company information'.

⁹⁵ Statista 'Number of monthly active Facebook users worldwide'.

January 2018.⁹⁶ Most Europeans use online platforms in their everyday lives and their professional activities. For example, in 2019, 53 % of EU enterprises used at least one type of social media, with more than eight out of ten of these businesses (86 %) using social media to build their image and market products.

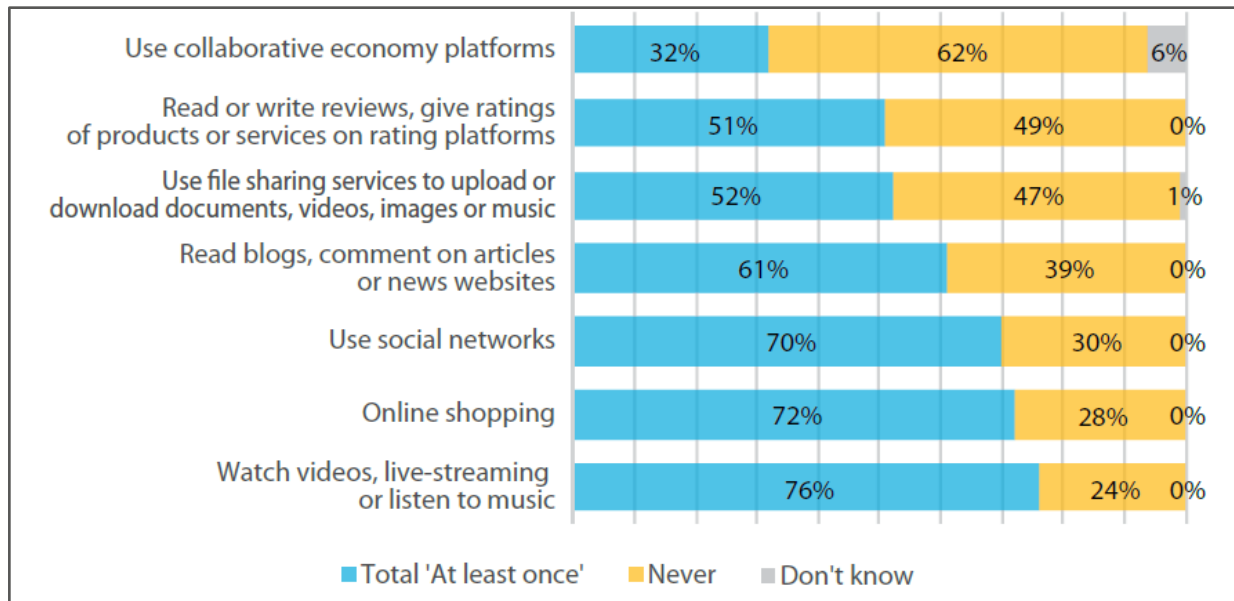


Fig. 3.1. Usage of Online Platforms in Europe⁹⁷

3.1.2. Measuring the Impact of Platforms on the Economy

Digital goods generate a large amount of consumer welfare that is currently not captured in GDP. Gross domestic product (GDP) measures production and is not meant to measure well-being (or consumer surplus). While GDP is often used as a proxy for well-being, consumer surplus is a better measure of consumer well-being. This is especially important in the digital economy where many digital goods are priced at zero. As a result, the welfare gains from these goods are not reflected in GDP or productivity statistics.

Brynjolfsson et al. (2019) attempted to measure welfare gains from digital goods. They argue that the rapid pace of innovation and adoption of these goods suggests that they may significantly affect the changes in living standards. They construct a new measure (GDP-B) for capturing consumer well-being and propose a way of directly measuring consumer well-being using massive online choice experiments. They find that, for example, the median Facebook user needed a compensation of around \$48 to give it up for a month.⁹⁸

⁹⁶ Constine, 'WhatsApp hits 1.5 billion monthly users. \$19 B? Not so bad'.

⁹⁷ European Commission, 'How Do Online Platforms Shape our Lives and Businesses'.

⁹⁸ Brynjolfsson, Collis, and Eggers, *ibid.*

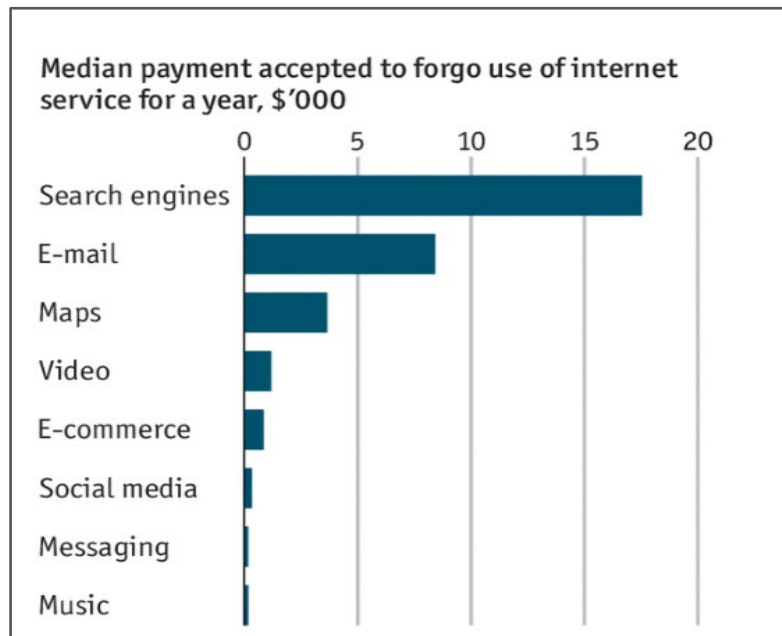


Fig. 3.2: Median Payment Accepted to Forgo the Use of Internet Service for a Year, \$'000⁹⁹

European consumers and SMEs benefit from digital platforms developing innovative products. For example, Google Maps provides free listings for businesses that benefit from consumers searching for local goods and services. YouTube enables artists to reach new audiences and helps small businesses to scale and expand into new markets.

A study commissioned by Google in 2018 estimates that development of the Android app ecosystem supports €11.7 billion in revenue for European developers and that Google Maps is saving Europeans over 1,180 million hours a year.¹⁰⁰ It finds that 72% of the 6000 businesses surveyed for the study agree that it is now far easier for global customers or clients to find their business compared to the time before search engines.

This same 2018 Google-commissioned study estimates that the total consumer surplus (the difference between what a consumer would theoretically be willing to and do pay for a product) of Google's core products in Europe is worth around €420 billion. For Google Search, the total consumer surplus is estimated to be equivalent to €230 billion. For YouTube, the total consumer surplus is estimated to €136 billion a year. And for Google Maps, the total consumer surplus is estimated to €53 billion a year.¹⁰¹

3.1.3. Positive Effects of Platforms on Global Innovation

Digital innovations, including social media and other digital platforms, have either created completely new goods that did not exist before or have replaced and significantly improved previously existing non-digital goods. A new 'data value chain' has evolved, comprising firms that support data collection, the production of insights from data, data storage, analysis and modelling.¹⁰²

R&D Investments by Platforms

Digital platform companies make large investments in research and development. Amazon, Alphabet (the parent company of Google), Microsoft and Apple all featured in the top 10 companies for global

⁹⁹ Brynjolfsson, Eggers, and Gannamaneni as cited in *The Economist*, 2018.

¹⁰⁰ PublicFirst, 'Google's Economic Impact in Europe'.

¹⁰¹ PublicFirst, *ibid.*

¹⁰² UNCTAD, *ibid.*

spending on research in 2018, with Facebook not much further behind in 14th place.¹⁰³ The total R&D investment of Google, Apple, Alphabet, Facebook, and Microsoft was \$71 billion for 2017.¹⁰⁴ Google has consistently spent over 15% of its revenues on R&D since 2016.¹⁰⁵ By contrast, the average percentage of R&D spending in the EU is 3.4%.¹⁰⁶ These high levels of investment in research and innovation are likely to deliver significant benefits for these businesses, their consumers, and society.

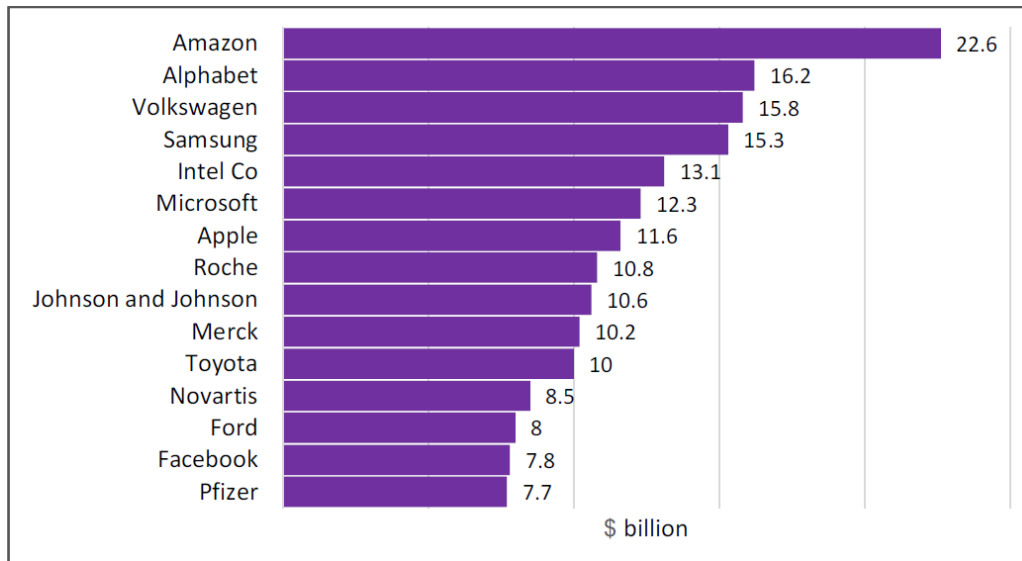


Fig. 3.3: Top 15 Companies for Global Spending on Research and Development¹⁰⁷

Platforms Stimulate Innovation in Complementary Products and Services

Innovation platforms such as Apple's iOS or Google's Android provide business opportunities for millions of application developers who innovate on new applications, facilitating the development of apps that they can then distribute globally through the app stores (respectively, Apple App Store and Google Play Store). The APIs and the Software Developer Kits shared by Apple and Google reduce the costs of development of compatible apps, and the app stores help reduce distribution costs for app developers and increase their access to markets to billions of customers.

For example, as of 2018, there were 20 million registered developers on iOS, and collectively they have made about \$100 billion in revenues, with the App Store bringing in 500 million visitors per week.¹⁰⁸ As of 2018, Google Android provided access to over 2 billion monthly active users across 190 countries worldwide.¹⁰⁹

As of the first quarter of 2020, there were 2.56 million apps on the Google Play store; 1.85 million apps on the Apple App Store; 669,000 apps on the Windows Store; and 489,000 apps on the Amazon store.¹¹⁰

¹⁰³ PwC, 'Global Innovation 1000 Study data for the companies with the highest spending on research and development in 2018'.

¹⁰⁴ Gautier and Lamesch, 'Mergers in the digital economy'.

¹⁰⁵ Alphabet Annual report 2018.

¹⁰⁶ European Union, 'The 2019 EU R&D Investment Scoreboard'.

¹⁰⁷ Furman et al., *ibid*, based on PwC, *ibid*.

¹⁰⁸ Lunden, 'App Store Hits 20 million registered developers on iOS, \$100 billion in revenues, 500 million visitors per week'. TechCrunch.

¹⁰⁹ PublicFirst, *Ibid*.

¹¹⁰ Statista, 'Number of apps available in leading app stores'.

Open Digital Interfaces and Data Sharing Impact Innovation

Digital platform interfaces specify the 2-way exchange of data between the platform firm and the members of each of its sides. Platform firms make strategic decisions about the balancing of the directionality of data exchange. In that way, digital interfaces play a role in platforms' strategic attempts to stimulate third-party innovation. The decisions that platform firms make about their digital interfaces pertain to the extent to which they make them more or less open (which data will be shared or withheld, to and from whom). These unilateral choices have implications for the degree of innovation on complements and the degree of control that the platform exerts on its sides. These boundary decisions require a balancing act between generating third-party complementary innovation and maintaining control over the platform's evolution.¹¹¹

APIs are uniquely important digital platform interfaces. Generally invisible to end-users, APIs are essential to external software developers aiming to develop applications that can interact with the platform and use its software resources, whether in the form of data or code modules. APIs are usually made accessible to developers thanks to software developers kits (SDKs). SDKs offer resources to developers, including sets of software tools, APIs, developer libraries, documentation, code samples, and guides that facilitate and streamline the app development process.

When digital platform firms open up or 'expose' their APIs, they effectively share with complementors codified technical instructions on how to connect complementary innovations with the platform, increasing complementors' capability to develop platform-compatible innovations, hence extending the functionalities of the platform. Opening up or exposing an API does not necessarily mean for the platform to relinquish control. The same Platforms also use APIs to maintain control over the platform, such as capturing and controlling user data. APIs facilitate a 2-way exchange of data between the platform and the external developers. APIs enable a 2-way exchange of data between the platform and the application's users. In a continuous feedback loop, users of digital services consume and generate data that is then fed back into producers of digital services who process it and use it to either improve existing services or for other purposes.

The design of the digital interface is crucial to solving the recurring tension between stimulating third-party developers' complementary applications while at the same time maintaining platform control.^{112, 113, 114} When platform owner exercises too much control over the platform interfaces, it runs the risk of driving out third-party developers, thus choking the platform's capacity to stimulate the generation of third-party complementary innovation. When organisations do not exercise any control over the platform interfaces, on the other hand, the platform becomes too varied and fragmented, hence becoming less useful for both developers and customers; this makes it difficult for the firm to capture value from its innovations.¹¹⁵ When platform firms fail to expunge bad actors, poor quality goods or services, or misleading or fraudulent activity from the platform, users' experience on the platform gets diminished, misled, or manipulated. This can have serious negative consequences, further explored below.

¹¹¹ Gawer, 'Digital platforms' boundaries: The interplay of firm scope, platform sides, and digital interfaces'.

¹¹² Ghazawneh and Henfridsson, 'Balancing platform control and external contribution in third - party development: the boundary resources model'.

¹¹³ Yoo et al, 'Organizing for innovation in the digitized world'.

¹¹⁴ Boudreau, 'Platform Boundary Choices & Governance: Opening-Up While Still Coordinating and Orchestrating'.

¹¹⁵ West and Gallagher, 'Challenges of open innovation: the paradox of firm investment in open-source software'.

3.2. Platforms as 'Double-Edged Swords': Negative Effects on Competition and Innovation

Propelled by their deep reach into our lives, digital platform companies such as Google (Alphabet), Amazon, Facebook, Apple, and Microsoft (often referred to as GAFAM) have reached a place of centrality in the economy and are now shaping how people work, communicate, shop and entertain themselves. Big tech digital platforms have also dominated the stock market. This position of centrality, which has been enhanced during the Covid-19 pandemic, has led to market dominance and positions of 'bottlenecks' to the economy. Digital platforms are double-edged swords.¹¹⁶

This section presents evidence of the centrality of the biggest digital platform firms in the economy and offers a discussion of the most discussed ways in which a small set of digital platforms have abused their power. This discussion is not exhaustive, but it aims to provide a synthesis of the main examples of problematic practices which have attracted regulatory attention and legal action. They include anti-competitive practices, mass-harvesting of user data, and failure to tackle illegal or harmful digital content.

Despite increased regulatory scrutiny and legal action against them in the EU and the US, the biggest digital platform firms were reporting record profit in 2020. The stock market expects these to continue. An August 2020 article from the New York Times reported that 'combined, [Apple, Amazon, Google, and Facebook] reported \$28.6 billion in quarterly net profit, underscoring how regulatory scrutiny remains more background noise and a distraction for them rather than an imminent threat to their businesses'.¹¹⁷

An increasing portion of businesses depend on digital platforms for their operation, advertising, and commercialisation. This raises the question of whether GAFAM has become 'too big to fail'. The most powerful platform companies have started to look like the big banks before the 2008-2009 financial crisis. Although the big tech platforms are not at immediate risk of operational failure, they are potentially vulnerable to cyber-attacks as well as operational failures. The EU's increased reliance on a small number of digital platform companies creates a situation of systemic risk.

Another source of systemic risk consists in 'big tech' platforms' asymmetric bargaining power with small businesses and individual users, which, if left unregulated, can lead to breakdowns in the competitive process, consumer protection, citizens' privacy, and the democratic process.

3.2.1. Platforms' Increased Centrality and Dominance in the Pandemic-Stricken Global Economy

The Covid-19 pandemic has driven the economy into a recession, kept people at home in confinement, and dramatically reduced travel. Meanwhile, society's reliance on digital services has increased. The large digital platform firms, who provide the underlying infrastructure for the exchange of information, goods, and services, have not only resisted the downturn but have thrived, in contrast to most other firms in the economy.

The pandemic has reinforced the advantages held by the biggest digital platform companies.

As consumers have stayed confined at home, and as people continue to conduct our work, commerce, and communications online, digital platform firms are likely to become even more interwoven into the fabric of our economy and our lives. For example, the demand for Amazon's shopping site surged. At the same time, most businesses, many of them SMEs, are increasingly turning to Amazon cloud computing products (AWS) to keep their services up and running. As of August 2020, Amazon's sales

¹¹⁶ See Cusumano, Gawer, and Yoffie, *ibid*.

¹¹⁷ Wakabayashi et al. 'The Economy Is in Record Decline, but Not for the Tech Giants.'

were up 40 percent from 12 months prior, and its profit doubled. Facebook reported that the number of daily users of its services globally in June was 12 percent higher than a year earlier. Facebook's profit jumped 98 percent. Apple said the shift to working and learning from home had led more people to splurge on Apple's devices and use its services. Despite the closure of many of its stores, Apple increased sales of all its products in every part of the world and posted \$11.25 billion in profit.¹¹⁸

The stocks of Apple, Amazon, Alphabet, Microsoft and Facebook, the five largest publicly traded companies in America, rose 37 percent in the first seven months of 2020, while all the other stocks in the Standard & Poor 500 fell a combined 6 percent, according to Credit Suisse. As of August 2020, those five companies constituted 20 percent of the U.S. stock market's total worth, a level not seen from a single industry in at least 70 years. Apple's stock market value reached \$2 trillion in August 2020 — double what it was just 20 weeks prior.¹¹⁹

An ever-higher concentration of digital markets has put digital infrastructure under the control of a small number of firms that play a disproportionate role in the digital economy. Once digital markets tip, a small number of platform firms can run the whole market and in a bottleneck position, that of deciding unilaterally whether and to whom to provide access (of suppliers of goods and services) to end-users. This lodges the 'winner-take-all' platform firms in a position of enormous power. Their power is strengthened by their ability to capture and combine data.

A recent 2020 study from the RAND Corporation modelled the connections among companies and highlighted the extent to which a large part of the economy depends on the provision of digital platform services to operate.¹²⁰ It reveals a new kind of systemic risk in the global economy. Its leading example was Amazon, with its e-commerce marketplace used by thousands of retailers and its cloud computing arm, Amazon Web Services, powering so many online businesses. For example, on a typical work-from-home day, an individual might attend videoconferences on Zoom, order takeout food via DoorDash, communicate with colleagues using Slack, and watch a movie on Netflix, said Jonathan Welburn, a lead author on the RAND study. All of them run their businesses on Amazon Web Services. 'Amazon is a very central digital hub, and it epitomises the direction our economy has taken,' Mr Welburn said.¹²¹

The RAND study suggests that it is not just that systemic risk seems to be present outside the financial network but also that the firms that are systemically important might have changed since the 2008 financial crisis. Specifically, growth in the technology sector has contributed to new forms of systemic risk over the past decade. It claims that 'no firm epitomises the shift in systemic risk more than Amazon and its increasingly widespread cloud computing service, Amazon Web Services (AWS)'. AWS is an innovation platform in that it is a foundational technology that allows the further development of complementary technologies and services. Amazon's centrality in traditional production networks was just emerging at the time of the 2008 crisis. Now, its centrality in digital networks underpinning diverse firms and even public institutions provides an example of the potential of systemic risk in the broad economy'¹²² [...] 'The potential for systemic effects of a sustained shock to Amazon's AWS service is notable'. The study suggests as policy recommendation that 'In a manner parallel to the policy debate following the 2008 financial crisis, policymakers might need to begin answering the question of whether other firms, particularly in tech and telecommunications, have become too big and too interconnected and, if so, they might need to identify potential mitigations through exercises analogous to stress tests used for systemically important banks.'¹²³

¹¹⁸ Eavis and Lohr, 'Big Tech's Domination of Business Reaches New Heights'.

¹¹⁹ Wakabayashi et al. *ibid.*

¹²⁰ Welburn et al., 'Systemic Risk in the Broad Economy: Interfirm Networks and Shocks in the U.S. Economy'.

¹²¹ Wakabayashi et al. *ibid.*

¹²² Welburn et al., *ibid.*, xi.

¹²³ Welburn et al., *ibid.*, 38.

3.2.2. Platforms as Gatekeepers, Competition (Antitrust) Violations, and Public Legal Actions

Digital platform markets are prone to tipping, that is, to reach a point where the market will tend towards a single, very dominant player (also known as 'winner-takes-all'). This tipping can be brought about in principle through natural competitive forces when network effects are strong enough, and multi-homing does not happen naturally. Tipping can also happen 'unnaturally'. This 'unnatural tipping' happens when platforms in tight oligopolies abusively hinder competitors, for example via deliberate obstruction of multi-homing or switching from one platform to another.

In effect, important digital markets have already tipped: internet search has been dominated by Google for over ten years (see Fig. 3.4). Digital advertising is dominated by Google and Facebook's duopoly, while social media is dominated by Facebook (see Fig 3.5). Over the last decade, the digital economy has become highly concentrated and prone to monopolization.¹²⁴

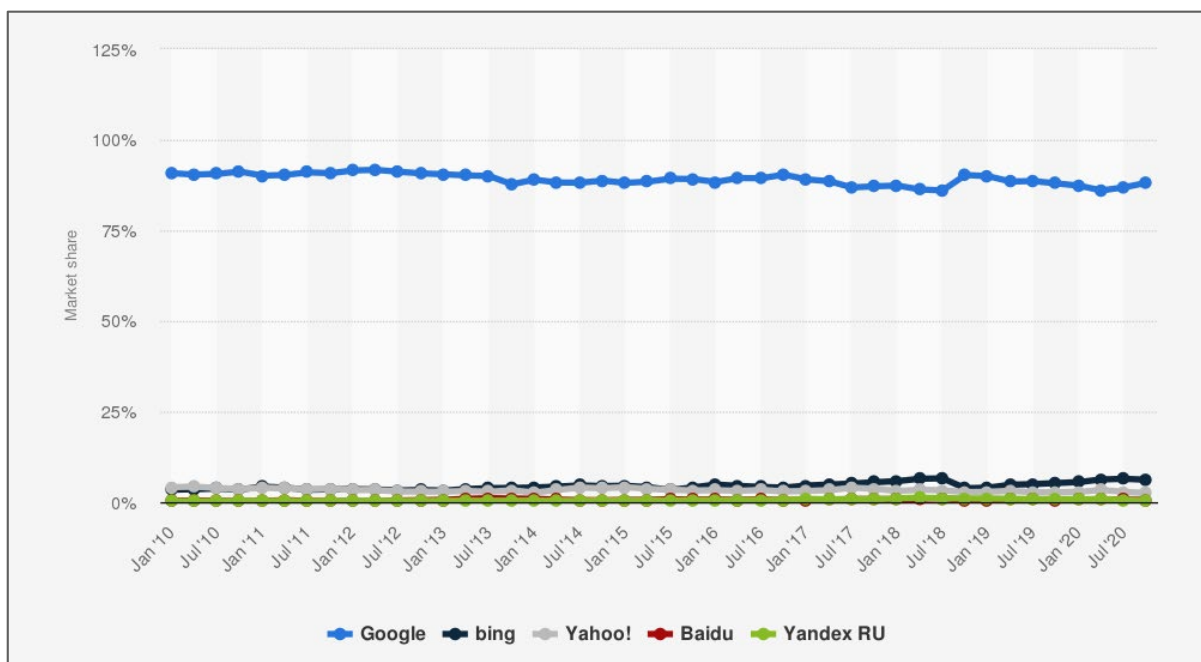


Fig. 3.4: Worldwide Desktop Market Share of Leading Search Engines from January 2010 to October 2020¹²⁵

¹²⁴ US Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, 'Investigation of Competition in Digital Markets. United States'.

¹²⁵ Statista, 'Worldwide desktop market share of leading search engines from January 2010 to October 2020'.

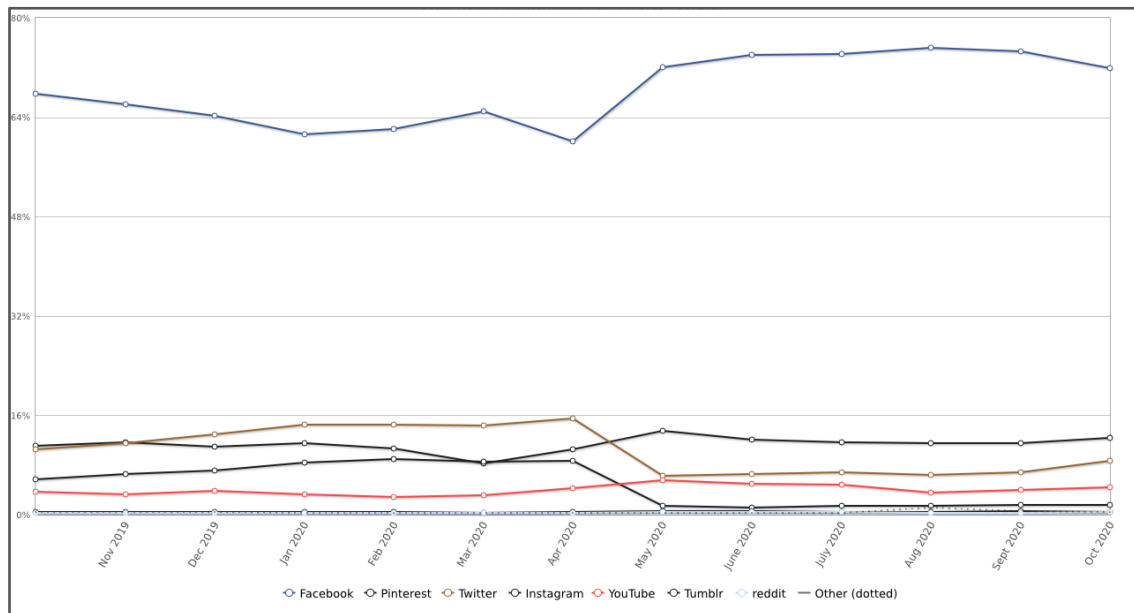


Fig. 3.5: Worldwide Social Media Market Share from October 2019 to October 2020¹²⁶

In a winner-take-all-or-most world, where network effects drive industry concentration around a small number of dominant players, platform companies have many opportunities to exercise market power, extract monopoly or quasi-monopoly rents. They can raise barriers to entry, as an entrant will most likely be unable to overcome the barriers to entry represented by scale economies and data control, as they are difficult to achieve in a quick, cost-effective manner.¹²⁷ They also have many opportunities to hurt local or global competitors and harm consumer welfare.

As Marsden and Podszun explain, 'the first casualty for competition is that only one platform survives and occupies and controls the customer interface. The gateway narrows and becomes a bottleneck. Economic dependency arises and customers and consumers can find their choices limited, or controlled, leading to exclusion and/or exploitation through changing terms of trade. End-consumers may well be blissfully unaware that their choices are even limited or controlled at all. An imbalance of relative power arises which – along with some admitted benefits – also raises risks of reduced choice and innovation. From this, platforms may start to use their quasi-monopolistic position to enter further markets or integrate services into their economic realm. This endangers the structure of adjacent and other markets. Companies like Google, Amazon, Facebook, or Apple started to build 'digital ecosystems' around their most successful platforms, trying to keep users ever longer in their economic orbit. Thereby, more data could be collected, and more offers be channelled through the ecosystem with more possibilities to profit from transactions. The 'datafication' of all sorts of persons and services in the economy made integration of markets easier. Companies and consumers that are dependent on these growing platforms may see and even value the apparent convenience of such a one-stop shop. With some undoubted benefits, however, again come risks from ceding the ability to bargain or in any way influence the overall offering – and indeed without realizing sufficiently that their data is actually helping to reduce any real influence they ever had even further.'¹²⁸

An important recent report from the US House Judiciary Committee published in September 2020 reported the results of a bipartisan investigation led by the Subcommittee on Antitrust, Commercial, and Administrative Law into the state of online competition, and focused on the dominance of

¹²⁶ StatCounter Global Stats, 'Social Media Stats Worldwide'.

¹²⁷ Morton et al., The 'Stigler report': 'Committee for the Study of Digital Platforms, Market Structure and Antitrust Subcommittee, Stigler Center for the Study of the Economy and the State'.

¹²⁸ Marsden and Podszun, *ibid*, 13-14.

Amazon, Apple, Facebook, and Google, and their business practices to determine how their power affects the economy and democracy'.¹²⁹ Based on extensive collection and analysis of evidence, it finds that despite the important differences across these four firms, their business practices revealed common problems. In particular, it found that *'First, **each platform now serves as a gatekeeper** over a key channel of distribution. By controlling access to markets, these giants can pick winners and losers throughout our economy. They not only wield tremendous power, but they also abuse it by charging exorbitant fees, imposing oppressive contract terms, and extracting valuable data from the people and businesses that rely on them. Second, each platform uses its gatekeeper position to maintain its market power. By controlling the infrastructure of the digital age, they have surveilled other businesses to identify potential rivals, and have ultimately bought out, copied, or cut off their competitive threats. And, finally, these firms have abused their role as intermediaries to further entrench and expand their dominance. Whether through self-preferencing, predatory pricing, or exclusionary conduct, the dominant platforms have exploited their power in order to become even more dominant.'*¹³⁰

The US Judiciary Committee report further notes *'numerous businesses described how dominant platforms exploit their gatekeeper power to dictate terms and extract concessions that no one would reasonably consent to in a competitive market. Market participants that spoke with Subcommittee staff indicated that their dependence on these gatekeepers to access users and markets requires concessions and demands that carry significant economic harm, but that are 'the cost of doing business' given the lack of options.'*¹³¹ The report also indicates that **'the online platforms' dominance carries significant costs. It has diminished consumer choice, eroded innovation and entrepreneurship in the U.S. economy, weakened the vibrancy of the free and diverse press, and undermined Americans' privacy.'**¹³²

The UK Competition and Market Authority's (CMA) market study on online platforms and digital advertising, published in July 2020, assessed how well the markets for search, social media, digital advertising are working, and Google and Facebook's role within them.¹³³ It focussed on three high-level issues: (1) to what extent Google and Facebook have market power in search and social media respectively and the sources of this market power; (2) whether consumers have adequate control over the use of their data by online platforms; and (3) whether a lack of transparency, conflicts of interest and the leveraging of market power undermine competition in digital advertising. The CMA report indicates that competition issues matter to consumers because weak competition in search and social media leads to reduced innovation and choice and to consumers giving up more data than they would like. Weak competition in digital advertising increases the prices of goods and services across the economy and undermines the ability of newspapers and others to produce valuable content, to the detriment of the broader society. It claims that *'although people do not typically have to pay directly for the content that is supported by digital advertising, all consumers stand to experience harm in a variety of forms of competition in these markets is not working well.'*¹³⁴ It further argues that *'competition problems may inhibit innovation and the development of new, valuable services for consumers. It is the threat of being overtaken by rivals that provide the spur to companies to innovate and produce new products that consumers want. If platforms are insulated from this threat – or indeed if they can stop new alternative platforms from growing – consumers will suffer from reduced innovation and choice in the future. Google and Facebook were able to emerge, with limited resources, on the back of a good idea, producing new and innovative services that are highly valued by consumers. However, they are now protected by such strong*

¹²⁹ US Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, *ibid.*

¹³⁰ *Ibid.*, 6.

¹³¹ *Ibid.*, 11.

¹³² *Ibid.*, 12.

¹³³ UK Competition and Market Authority (CMA), 'Market Study Final report on Online Platforms and Digital Advertising'.

¹³⁴ UK Competition and Market Authority (CMA), *ibid.*, 7.

*and self-reinforcing incumbency advantages that similar innovation by new entrants is much more difficult. This impact on innovation is likely to be the largest source of consumer harm.*¹³⁵

Many companies reported to the CMA that the power of the online platforms poses an existential threat to their businesses. The CMA report indicates its concerns that, without reform, existing market dynamics will mean that the next great innovation cannot emerge to revolutionise our lives in the way that Google and Facebook have done in the past. While both Google and Facebook grew by offering better products than their rivals, they are however now protected by *such strong incumbency advantages* – including network effects, economies of scale, consumer decision making and the power of default, lack of transparency, vertical integration and resultant conflicts of interest, and unmatched access to user data – *that potential rivals can no longer compete on equal terms*. These factors inhibit entry and expansion by rivals and undermine effective competition.

Of particular importance to the stickiness of platform market power is the so-called '**power of defaults**.' Default behaviour by consumers has had a profound impact on the shape of competition in both search and social media. Defaults play a very important role in influencing consumers' use of search engines, and default settings and the way in which choices are presented to consumers have a strong influence on the ability of platforms – particularly social media platforms – to collect data about their users, and the ability of users in turn to control the use of their data. The Stigler report indicates that behavioural economists have revealed users' prevalent behavioural shortcomings and biases in real-time.¹³⁶ Framing, nudges, and defaults can direct a consumer to the choice that is most profitable for the platform. Consumers tend to stick with default options. If forced to choose, they opt for the most salient alternative. Highlighting an option in red or putting it in the first position nudges consumers in that direction. Google recognises the power of defaults and pays Apple an estimated 12 billion dollars per year to be the iPhone's default search engine. It indicates that Google's extensive default positions across devices and browsers, particularly on almost all mobile devices in the UK, act as a barrier to expansion for other search engines.

Consumers do not tend to replace the default apps on their phones and do not scroll down to see more results. They also tend to agree to settings chosen by the service and take other actions that may look like poor decisions if they choose among options experience competition. Often, the actions needed to generate choice for the consumer seem trivial, such as a download and installation, opening another app, or a few clicks. Consumers make these 'mistakes' because of inherent behavioural biases such as discounting the future too much and being too optimistic. The situation is worse when the information needed to counteract bias is hard to obtain. For example, consumers tend not to run the same search on a different search engine to compare the results, so they may never find out the relative quality of the default search engine they use.¹³⁷ In addition, digital platforms are 'in a zero-sum race for our attention and using the most pervasive tactics to ensure they win', and deliberately follow strategies such as offering addictive content at moments when consumers lack self-control increase time spent on the platform and profitable ad sales even as the platform lowers the quality of content. These tactics increase the welfare costs of market power.¹³⁸

Some platforms *operate a take-it-or-leave-it model, where they **do not give their users the ability to control their data***. This deliberate disabling of user controls is particularly prevalent across most social media platforms, including Facebook and Instagram, whose users cannot turn off personalised advertising while continuing to use the service. Search engines tend to operate differently: Google and Bing allow consumers to opt-out of personalised advertising, and some search engines such as DuckDuckGo do not use personalised advertising.

¹³⁵ UK CMA, *ibid.*, 7.

¹³⁶ Scott Morton et al., 'The Stigler report'.

¹³⁷ Scott Morton et al., 'The Stigler report', *ibid.*, 8, 41.

¹³⁸ Scott Morton et al., 'The Stigler report', *ibid.*, 13.

Many digital platforms collect a large and varied amount of user data. As indicated in Section 2.2, the amount of data collected often extends far beyond the data users actively provide when using the digital platform's services. Digital platforms may passively collect data from users, including online browsing behaviour across the internet, IP addresses, device specifications, location, and movement data. Once collected, digital platforms often have broad discretion regarding how user data is used and also disclosed to third parties. The user data collected can enable digital platforms to create more detailed segmented user profiles that are then available for use by advertisers wishing to target advertisements. According to the Australian Consumer and Competition Commission, consumers express concern over their ability to make informed choices, which is affected by the information asymmetry between digital platforms and consumers, and the bargaining power held by digital platforms.¹³⁹ About information asymmetry, the ACCC found that consumers are generally not aware of the extent of data that is collected nor how it is collected, used and shared by digital platforms. The length, complexity and ambiguity of online terms of service and privacy policies all contribute to the lack of consumer awareness. Digital platforms also tend to understate to consumers the extent of their data collection practices while overstating the level of consumer control over their personal user data. Regarding bargaining power held by digital platforms over consumers, many digital platforms use standard-form click-wrap agreements with take-it-or-leave-it terms and bundled consents, limiting the ability of consumers to provide well-informed and freely given consent to digital platforms' collection, use and disclosure of their valuable data.¹⁴⁰

There are also concerns about **unequal access to consumer data**. The inability of smaller platforms and publishers to access user data creates a significant barrier to entry. Platforms have a crucial 'gatekeeper' function in the digital economy, mediating relationships between consumers and businesses in a wide variety of markets. For example, the CMA has found that, by virtue of this position, and their market power, large platforms such as Google and Facebook increasingly appear to be acting in a quasi-regulatory capacity in relation to data protection considerations, setting the rules around data sharing not just within their own ecosystems, but for other market participants. Google's recent announcement that it was phasing out support for third-party cookies on the Chrome browser, restricting publishers' ability to offer personalised advertising, is an important example of this. The concern is that such platforms have an incentive to interpret data protection regulation in a way that entrenches their own competitive advantage, including by denying third parties access to data that is necessary for targeting, attribution, verification and fee or price assessment while preserving their right to use this data within their walled gardens.

In the European Union, the European Commission and national competition agencies have attempted to use existing antitrust law to stop competition abuses by digital platforms. A central example is how Alphabet-Google became the primary focus of European competition anti-trust actions. Since 2010, the European Commission has launched three cases against the company, reached a verdict for each of them (see Box 1). In 2019, the German Competition Authority 'Bundeskartellamt' took action against Facebook on the combination of user data from different sources without leaving users a choice, finding that the extent to which Facebook collects, merges and uses data in user accounts constitutes an abuse of dominant position.¹⁴¹ More recently, in August 2020, the European Commission launched an inquiry into Google's proposed acquisition of the fitness-tracking company Fitbit, expressing concern that 'the proposed transaction would further entrench Google's market position in the online advertising markets by increasing the already vast amount of data that Google could use for personalisation of the ads it serves and displays'.¹⁴² In December 2020, the European Commission

¹³⁹ ACCC Australian Competition and Consumer Commission. 'Digital Platforms Inquiry - Final report'.

¹⁴⁰ Ibid., 23.

¹⁴¹ Bundeskartellamt, 'Bundeskartellamt prohibits Facebook from combining user data from different sources'

¹⁴² European Commission 'Mergers: Commission opens in-depth investigation into the proposed acquisition of Fitbit by Google'.

cleared Google's acquisition of Fitbit by Google, subject to conditions,¹⁴³ while the Australian Competition and Consumer Commission (ACCC) rejected Google behavioural undertakings for Fitbit acquisition.¹⁴⁴

In November 2020, the European Commission informed Amazon of its preliminary view that 'it has breached EU antitrust rules by distorting competition in online retail markets. [...] The Commission also opened a second formal antitrust investigation into the possible preferential treatment of Amazon's own retail offers and those of marketplace sellers that use Amazon's logistics and delivery services.'¹⁴⁵ Section 6.1. describes the regulatory challenges posed by the limits of antitrust regulation and enforcement difficulties met by competition authorities.

Box 1: EU Antitrust Lawsuits Against Google

The European Commission conducted three lawsuits against Alphabet-Google. The first lawsuit, commonly referred to as the Google Shopping case, launched in 2010 and considered Google's behaviour with its search engine. The accused Google of promoting its own 'vertical search' results over general content search results. The second lawsuit concentrated on Google's management of Android. The third lawsuit focused on how the company prevented websites that used its search bar and ads from showing competing ads.

- *The first EU antitrust lawsuit against Google was the Google Shopping case. The EU fined Google €2.4bn in June 2017 for favouring Google Shopping over rivals and claimed that it squashed smaller shopping comparison services, such as Ciao, Twenga, Kelkoo and Idealo, by displaying products for sale at the top of Google's results page. EU competition commissioner, Margrethe Vestager, deemed the company had given itself an 'illegal advantage by abusing its dominance in general Internet search' by promoting its own comparison-shopping service in organic search results and demote rival comparison-shopping services.' The company changed its Shopping service in September 2017 to address the EU's findings. It appealed the verdict in February 2020 to the European General Court, Europe second-highest court in Luxembourg, launching a process that may stretch years. Google's lawyers insist that it is not anti-competitive to develop a winning product. 'Competition law does not require Google to hold back innovation or compromise its quality to accommodate rivals,' said Thomas Graf, a partner at law firm Cleary Gottlieb acting on behalf of Google. 'Otherwise, competition would be restricted, and innovation would be stifled.'*¹⁴⁶

The Google Shopping case is about 'self-preferencing'.¹⁴⁷ Self-preferencing involves actions by an undertaking which are designed to favour its own products or services over

¹⁴³ European Commission, 'Mergers: Commission clears acquisition of Fitbit by Google, subject to conditions'.

¹⁴⁴ Australian Competition and Consumer Commission (ACCC), 'ACCC rejects Google behavioural undertakings for Fitbit acquisition'.

¹⁴⁵ European Commission, 'Antitrust: Commission sends Statement of Objections to Amazon for the use of non-public independent seller data and opens second investigation into its e-commerce business practices'.

¹⁴⁶ Espinoza, 'Google Stands Firm in Its Appeal Against €2.4bn Shopping Fine'.

¹⁴⁷ See Digital Freedom Fund, 'Self-Preferencing and EU Competition Law', 1: 'Self-preferencing is often described as a subset of a broader type of conduct, known as leveraging. Leveraging conduct involves the use of power in one market to strengthen a position in another market. From a competition law perspective, the overall concern with self-preferencing, and other types of leveraging conduct, is that an undertaking with a dominant position may engage in this conduct in order to enhance its own market position, and to prevent or inhibit the entry/expansion of other competitors. In other words, there is a concern that self-preferencing and/or leveraging conduct engaged in by dominant undertakings may produce exclusionary effects.' [...]. 'Self-preferencing is not, in general, prohibited by Article 102 TFEU (Treaty of the Functioning of the European Union). Instead, it is subject to an 'effects' test. This means that self-preferencing conduct may constitute an abuse of a dominant position depending on its effects on competition and consumers. The reason for

those of its competitors. Self-preferencing is not, in general, prohibited by Article 102 TFEU (Treaty of the Functioning of the European Union). Instead, it is subject to an 'effects' test. This means that self-preferencing conduct may constitute an abuse of a dominant position depending on its effects on competition and consumers. The question of whether self-preferencing should be prohibited by competition law is not straightforward, and the answer may well vary from case to case. In addition, self-preferencing conduct can overlap with, or contain elements of other types of conduct that might constitute an abuse of a dominant position prohibited by Article 102 TFEU, provided the relevant legal tests are satisfied. This conduct might include: Tying or bundling arrangements; Discriminatory conduct (such as giving preferential terms to some undertakings over others); and/or Refusal to supply goods or services.

- *The second lawsuit concerned the management of Android case. The European Commission alleged in 2016 that Google imposed conditions on mobile phone manufacturers and mobile phone operators aimed at protecting Google's search engine monopoly.¹⁴⁸ The Commission complaint stated that Google breached EU antitrust rules in three areas: (1) requiring manufacturers to pre-install Google Search and Google's Chrome browser and requiring them to set Google Search as the default search service on their devices as a condition to license certain Google proprietary apps; (2) preventing manufacturers from selling smart mobile devices running on competing operating systems based on the Android open-source code; and (3) giving financial incentives to manufacturers and mobile network operators on the condition that they exclusively pre-install Google Search on their devices. EU Competition Commissioner Margrethe Vestager explained: 'We believe that Google's behaviour denies consumers a wider choice of mobile apps and services and stands in the way of innovation by other players, in breach of EU antitrust rules.'¹⁴⁹ The fines imposed by the EU to Google regarding this suit amount to €4.34bn. Google-Alphabet appealed this verdict in October 2018.*
- *The third lawsuit concerned Google advertising. Launched in 2017, it led to a €1.5bn fine in 2019. The EU competition authorities found that between 2006 and 2016 Google had abused its search engine's dominance to drive traffic to its own shopping ads at the expense of rivals that operated their own shopping-comparison sites that linked to merchants.¹⁵⁰ Google-Alphabet appealed in this verdict in June 2019.*

The enforcement of antitrust in Europe has been criticised as having taken too long, and the remedies have been criticised as ineffective, as having not succeeded to 'move the dial' of competition, as the stable very large market share of incumbent platforms attest, in that they indicates a failure of allowing new entrants to contest these markets.¹⁵¹ In addition to the regular enforcement of competition rules, some have called for ex-ante regulation as more effective to curb online platforms' dominance-seeking behaviour.¹⁵² This point is further developed in Section 6.1.

this is that the question of whether self-preferencing should be prohibited by competition law is not straightforward, and the answer may well vary from case to case'.

¹⁴⁸ European Commission, 'Antitrust: Commission sends Statement of Objections to Google on Android operating system and applications'.

¹⁴⁹ European Commission, *ibid.*

¹⁵⁰ European Commission, 'Antitrust: Commission fines Google €1.49 billion for abusive practices in online advertising'.

¹⁵¹ Caffarra, 'Digital Platforms and Ecosystems: The Shifting Regulatory Landscape'.

¹⁵² Satariano, 'Google Fined \$1.7 Billion by E.U. for Unfair Advertising Rules'.

3.2.3. High Levels of Mergers and Acquisitions, and Possible 'Killer' Acquisitions

Digital platform firms have been very actively engaged in mergers and acquisitions. Throughout 2015-2017, GAFAM acquired 175 companies, from small start-ups to billion-dollar deals. For the period since 2010, there are close to 500 acquisitions by these firms.¹⁵³ Figure 3.6 indicates acquisitions by Amazon, Facebook and Google between 2008 and 2018. During that period, Google acquired 168 companies, Facebook 71 companies and Amazon 60 companies.

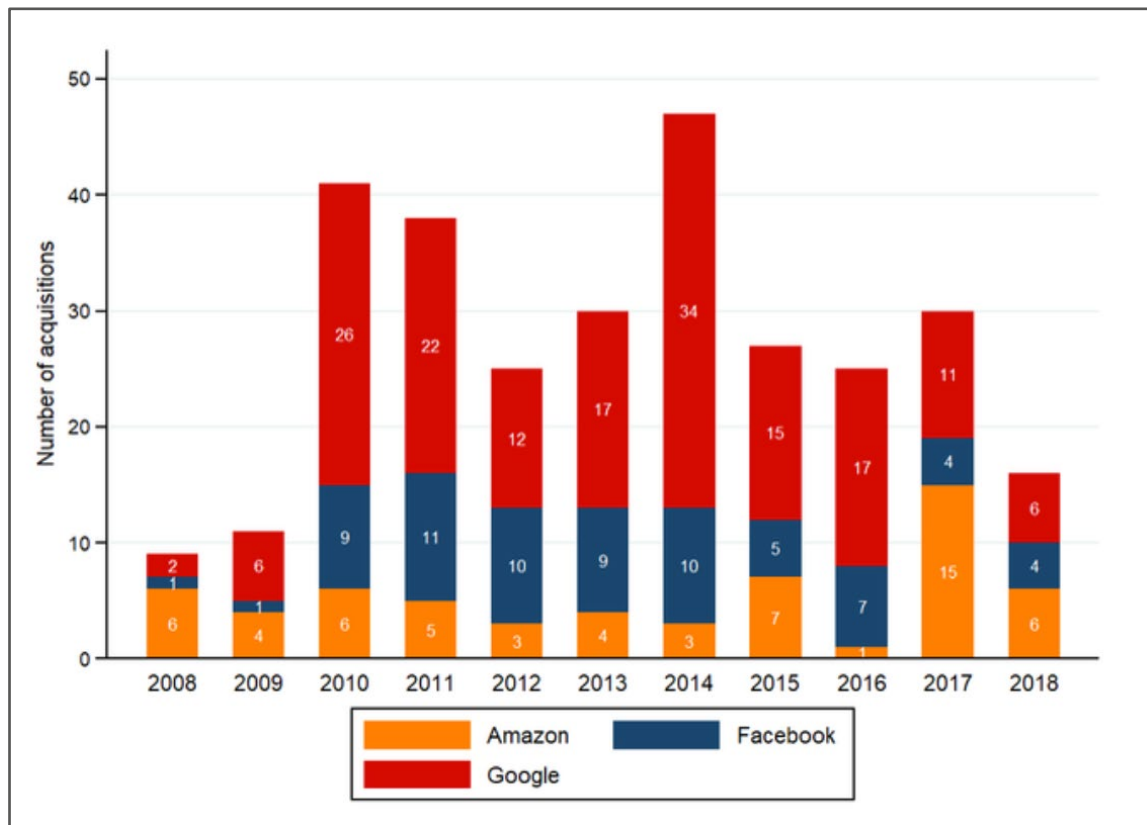


Fig. 3.6: Acquisitions by Amazon, Facebook, and Google (2008-2018)¹⁵⁴

Recent research suggests that GAFAM acquires firms mostly in their core segments which suggests that they are seeking to reinforce their market positions. They pursue an accumulation of frequent relatively small acquisitions that provide complementary functionalities or services to be integrated into the platform – sometimes cannibalised, sometimes bolted on, but essentially no longer separate efforts.

Argentesi et al (2020) cluster target companies for Amazon, Facebook and Google by their sector of economic activity. In terms of absolute volume of acquisitions, Google has been much more active than Amazon and Facebook overall as well as in each of the clusters (See Figure 3.7). Google's acquisitions have been more heterogeneous, whereas Amazon and Facebook have focused more on companies that were active in their same area of economic activity ('Physical goods and services' for Amazon, and 'Communication apps and tools' for Facebook).

¹⁵³ For the period after 2010, Wikipedia reports close to 180 deals in the public domain for Google/Alphabet, 75 for Facebook, over 60 for Amazon, 84 for Apple, 94 for Microsoft, nearly 500 in total. See Wikipedia, 'List of mergers and acquisitions by Alphabet', and equivalent entries for Facebook, Amazon, and Microsoft.

¹⁵⁴ Argentesi et al., 'Merger Policy in Digital Markets: An Ex-Post Assessment'.

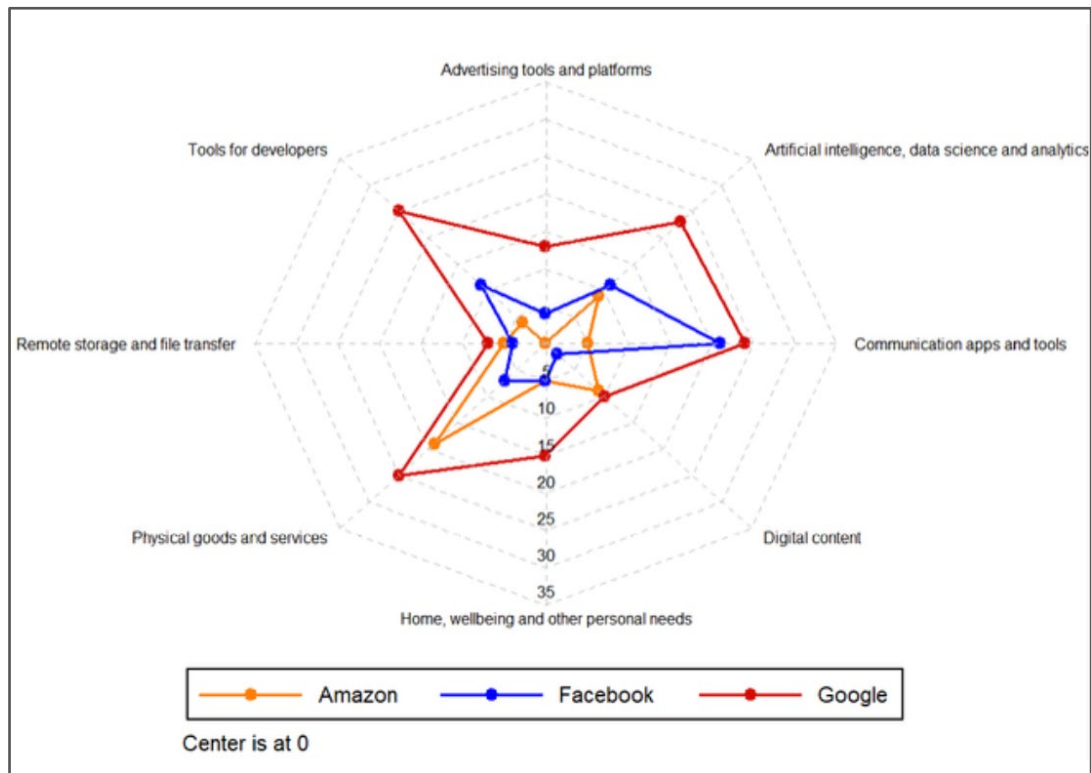


Fig. 3.7: Acquisitions by Amazon, Facebook, and Google by Area of Economic Activity¹⁵⁵

Google, Amazon and Facebook in companies with advanced data-analytics technologies (machine learning, artificial intelligence, analytics, and big data). These technologies are critically important for digital platforms as they rely heavily on making predictions of various sorts to provide their services. Thus, these mergers can be expected to be efficiency-enhancing as they may enable incumbents to improve predictions. Argentesi et al. (2020) suggest that '*such improvements through external growth – complemented by the increasing collection of big data containing personal information and by pervasive network effects – may help these firms to reinforce their dominant position in their markets and create insurmountable barriers to entry for competitors.*'¹⁵⁶

A growing concern for competition authorities is that the objective of such acquisitions may have been to systematically prevent the target company from ever becoming a competitive threat, cementing a dominant position in the market, thus making the entry of innovative challengers exceptionally difficult. The US Judiciary Committee 2020 report assesses that the dominant platforms' high volume of acquisitions helped them sustain their significant and durable market power. It says: '*Together, the firms investigated by the Subcommittee have acquired hundreds of companies just in the last ten years. In some cases, a dominant firm evidently acquired nascent or potential competitors to neutralize a competitive threat or maintain and expand its dominance. In other cases, a dominant firm acquired smaller companies to shut them down or discontinue underlying products entirely—transactions aptly described as 'killer acquisitions.'*'¹⁵⁷

The cases of Facebook/WhatsApp, Facebook/Instagram, and Google/DoubleClick have recently been discussed in post-merger analyses such as the Lear report for the UK Competition and Market Authority. The Lear report suggested that, in retrospect, the competition authorities had neglected some crucial factors in their analysis that had led to the approval of such acquisitions. It argued that in

¹⁵⁵ Argentesi et al., *ibid.*

¹⁵⁶ Argentesi et al., 'Tech-over: Mergers and merger policy in digital markets'.

¹⁵⁷ US Judiciary Committee, *ibid.*, 11.

Facebook/Instagram and Google/Waze case, the decisions to approve 'may have represented missed opportunities for the emergence of challengers to the market incumbents but have also likely resulted in efficiencies'.¹⁵⁸ Its authors write: 'While these ex-post assessments cannot reveal the 'killer' or 'zombie' nature of these acquisitions, the above patterns suggest another potential anti-competition issue. By acquiring complementary services, incumbents may make it harder for entrants to develop competitive products.'

Another noteworthy feature of the acquisitions is that their targets are often very young firms. Nearly 60% of the targets are four years old or younger. The targets' median age differs slightly across the three companies: 6.5 years for Amazon, 2.5 for Facebook, and four years for Google. A key issue for the enforcement of merger control is that it is very difficult to assess very young firms' potential to survive and become serious competitors for the incumbents in a way that stands up in court.

3.2.4. Selected Ongoing Antitrust Cases and Investigations by the European Commission

Google's Proposed Acquisition of Fitbit

The European Commission launched in August 2020 a formal investigation of the proposed acquisition of Fitbit by Google.¹⁵⁹ A preliminary investigation of the Fitbit deal had raised concerns about how Google would use data collected from Fitbit for its online advertising services, a market where Google is already dominant. The health and fitness data could be used to target ads more narrowly, Margrethe Vestager said in July 2020.

The European Consumer Organisation, a Brussels-based group, pushing for more oversight of the tech industry, welcomed the EU Fitbit investigation. Its director-general said in a statement: '*This takeover is likely to be a worrying game changer not only for how consumers interact with the online world but also for how their health data is used.*' [...] '*It is hugely important that the E.U. carries out this in-depth examination because wearable devices like Fitbit's could in future give companies details of essentially everything consumers do 24/7.*'¹⁶⁰

Google defended itself from the interpretation that it was buying Fitbit primarily to gain access to users' health data. Instead, it claimed that the acquisition is intended to gain a foothold in the market for wearable devices. A senior executive at Google wrote in a blog post in 2020 that '*This deal is about devices, not data.*' [...] '*There's vibrant competition when it comes to smartwatches and fitness trackers, with Apple, Samsung, Garmin, Fossil, Huawei, Xiaomi and many others offering numerous products at a range of prices. We don't currently make or sell wearable devices like these today. We believe the combination of Google and Fitbit's hardware efforts will increase competition in the sector, making the next generation of devices better and more affordable.*' [...] '*We've been clear from the beginning that we will not use Fitbit health and wellness data for Google ads.*'¹⁶¹ The company said it would not use Fitbit health and wellness data for advertising services and offered to make a legally binding commitment to the commission to limit its use of the data. The deal raises no flags based on the traditional antitrust analysis, as it looks like a merger of complements and Fitbit is a small player.

Google's arguments notwithstanding, a number of reports had highlighted issues that would arise from such an acquisition. For example, the Furman report indicated that '*historically, there has been little scrutiny and no blocking of an acquisition by the major digital platforms ... Our recommendations [are to]*

¹⁵⁸ Argentesi et al., the Lear report, xiii.

¹⁵⁹ European Commission, 'Mergers: Commission opens in-depth investigation into the proposed acquisition of Fitbit by Google'.

¹⁶⁰ Satariano, *ibid.*

¹⁶¹ See Osterloh (Google Senior Vice president for Devices and Services) blog post, 'An update on Fitbit' as cited in Satariano, *ibid.*

update merger policy [to be more] forward looking.¹⁶² The ACCC report also indicated that 'mergers frameworks should be updated ... [to account for the effects of] the acquisition of potential competitors and economies of scope via control of data sets.'¹⁶³ The European Commission Expert report also indicated that 'there is a need to revisit the substantive theories of harm to properly assess certain specific cases. This concerns specifically cases where a dominant platform and/or ecosystem which benefits from strong positive network effects and data access, which can act as a significant barrier to entry, acquires a target with a currently low turnover but a growing base and a high future market potential'.¹⁶⁴

Critics of the Google's proposed acquisition of Fitbit include Cristina Caffarra from Charles River Associates and former EU Chief Competition Economist (DG COMP) Tommaso Valletti, who wrote that 'we can nevermore rely on promises from dominant digital platforms 'not to use the data', as such promises are impossible to monitor or enforced.'¹⁶⁵ They claim that a digital platform's promise 'not to use personal information for advertising purposes' is a 'statement that is, at best, empty and, at worse, misleading and obfuscating – because none of the ways in which power can be increased by the [Google-Fitbit] deal relies on any particular piece of individual-specific information, and because it is the collection of data and profiling of individuals that interferes with privacy, not the targeting with this or that advertisement. The power comes from obtaining statistically relevant information collected from, and linking together, incredibly large datasets. Each piece may be irrelevant on its own, but their aggregation is unbeatable. In addition, targeting can be made sharper with this extra bit of critical data. For example, Google could use the Fitbit data to help it learn which ad was most effective, and then target ads more effectively while technically complying with not using 'personal information for advertising purposes.'

They add: 'Google could also do what it did with DoubleClick, which is to say that it will not combine profiles during the review, and then combine profiles some years later without consequences.'[...] 'Google has made promises that turned out differently or cannot be monitored, let alone enforced. For example, when it acquired DoubleClick, Google initially kept its database of web-browsing records separate from the names and other personally identifiable information collected from Gmail and its other login accounts; but this was changed in summer 2016 – when Google 'literally cross(ed) out the lines in its privacy policy that promised to keep the two pots of data separate. In its place, Google substituted new language that says browsing habits 'may be' combined with what the company learns from the use Gmail and other tools'. The change was enabled by default for new Google accounts. Existing users were prompted to opt-in to the change.¹⁶⁶

These authors also refer to the promises that Facebook gave when it acquired Instagram and WhatsApp to keep users' data of these various services separate, only to go back on its word and integrate them together a few years after the acquisitions happen. 'Just as Google today promises that 'Fitbit health and wellness 'personal' data will not be used for Google ads', Facebook at the time swore blind they would not exploit WhatsApp data and would monetise the \$21 billion by selling emojis – something they actually never did. They were fined €110 million for having misled the European Commission, but still got to keep, mangle and exploit the data. And critically, they achieved the goal of preventing another competing social network platform from emerging.'¹⁶⁷

These authors indicate that the concerns about the Google-Fitbit acquisition proposal centres on the fact that Google is, as any ad-funded business, has 'inexorable incentives to exploit data for advertising purposes. Google is proposing to acquire a unique, exclusive dataset and data collection capabilities and from a new mode of data capture that was not visible to them before (the wearable device that captures

¹⁶² Furman et al, 6.

¹⁶³ ACCC, 'Digital Platforms Inquiry', 6.

¹⁶⁴ Crémer et al., *ibid.*, 11.

¹⁶⁵ Caffarra and Valletti, 'Google/Fitbit review: Privacy IS a competition issue'.

¹⁶⁶ Angwin, 'Google Has Quietly Dropped Ban on Personally Identifiable Web Tracking'.

¹⁶⁷ Caffarra and Valletti, *ibid.*

individuals' behavioural and biometric data), and that it will have ¹⁶⁸every incentive to exploit this data in ways that can lower consumer quality and experience. Furthermore, the loss of Fitbit as an independent player implies foregoing the opportunity of a potential challenge to Google's model based around data which is unique and valuable.'

The August 2020 European Commission's press release announcing the investigation into the proposed acquisition of Fitbit by Google indicates that 'The commitments [submitted by Google in July 2020] consisted in the creation of a data silo, which is a virtual storage of data, where certain data collected through wearable devices would have been kept separate from any other dataset within Google. The data in the silo would have been restricted from usage for Google's advertising purposes. However, the Commission considers that the data silo commitment proposed by Google is insufficient to clearly dismiss the serious doubts identified at this stage as to the effects of the transaction. Among others, this is because the data silo remedy did not cover all the data that Google would access as a result of the transaction and would be valuable for advertising purposes.'¹⁶⁹

In December 2020, the European Commission cleared Google's acquisition of Fitbit by Google, subject to conditions.¹⁷⁰ Google promised:

- not to use health, fitness and location data from Fitbit devices for advertising, for users in the European Economic Area
- to store Fitbit data in a 'silo', kept separate from any other data used for advertising
- to maintain third-party access to the Fitbit platform
- not to degrade the user experience of third-party smartwatches when paired with an Android phone.

The commitments must be kept for ten years.

Critics of the European Commission's clearance of the deal expressed concerns that Google has a history of leveraging its dominance to foreclose competitors in adjacent markets, noting that Google has (1) dominant audiences to sell to advertisers (with Google Search and YouTube), (2) dominant data to target online ads, and (3) dominates the ad tech 'stack' (as it 'operates on all sides, learn Willingness-to-Pay, and extract it'. The concern is that while (1) constitutes 'normal' market power, (2) and (3) allow discriminatory market power. Google, therefore, has significant (and often discriminatory) market power in five markets (Search, YouTube, Android, Ad Tech, and Data). Concerns exist because data is a 'general-purpose input' whose dominance can be leveraged in many markets and because Google's dominance fosters discriminatory power (particularly concerning health and finance). The concerning theory of harm arises from Google combining of Fitbit's health and wellness data with their dominant non-health data to be used in life insurance and other markets where health data is likely to be valuable. While proponents of the deal claim it will lead to efficiency gains, critics point out that could be true only in the presence of competition, but that because Google alone has dominant non-health data, it will likely extract the benefits from good risks and leave the bad risk. The problem with the commitments that the European Commission has extracted from Google is, therefore, that there is no commitment related to the use of the combination of Google's non-health data and Fitbit's health data in insurance or any other market.¹⁷¹

A few days after the European Commission's clearance of the deal, the Australian Competition and Consumer Commission (ACCC), in a contrary decision, rejected Google behavioural undertakings for

¹⁶⁸ Caffarra and Valletti, *ibid.*

¹⁶⁹ European Commission, 'Mergers: Commission opens in-depth investigation into the proposed acquisition of Fitbit by Google'.

¹⁷⁰ European Commission, 'Mergers: Commission clears acquisition of Fitbit by Google, subject to conditions'.

¹⁷¹ Bourreau et al., 'Google/Fitbit will monetise health data and harm consumers'; Crawford, 'The ACCC rejected the insufficient conditions with which DG COMP cleared Google-Fitbit'.

Fitbit acquisition.¹⁷² It rejected an offer from Google to enter into a court-enforceable undertaking limiting the way it would use data gleaned from the wrist-worn fitness tracking devices. ACCC chair Rod Sims indicated that the ACCC would instead continue to investigate the transaction and aimed to make a decision by 25 March 2020. The ACCC was worried about 'vertical foreclosure, which means that Google may have the incentive, and the ability, to harm competitors if it gets hold of Fitbit by just making it harder for them to interface with Android devices. [...] It could have the ability and incentive to discriminate against other players, and so the result of that would be you'd have in wearables an Apple device and an Android device – you get the same duopoly that you've got in apps, for example, and you've got in mobile.'¹⁷³ ACCC chair Rod Sims claimed that if the US justice department approved the deal and Google would push ahead with its Fitbit takeover without getting the regulator's approval, the ACCC would consider whether it has legal powers to block the acquisition. If it could not block the deal, the ACCC would consider bringing legal action for breaching competition law. That would be punishable by fines of up to 10% of Google's estimated Australian turnover of about \$4bn a year. Google faced, therefore, a \$400m fine over its Fitbit takeover if it would not wait for the Australian ACCC's approval. A Google spokesman said the company was disappointed by the delay but 'we will continue to engage with the ACCC to answer their questions'.¹⁷⁴

Investigation into Amazon's Possible Anti-Competitive Practices

Following a preliminary fact-finding investigation, the European Commission launched in July 2019 a formal EU's investigation into Amazon's practices toward third-party sellers as well as how it uses data to select which retailer to link to using the 'Buy Box' on its site.

When providing a marketplace for independent sellers, Amazon continuously collects data about the activity on its platform. The Commission's found in its preliminary fact-finding investigation that Amazon 'appeared to use competitively sensitive information – about marketplace sellers, their products and transactions on the marketplace.'¹⁷⁵

Amazon has been accused of using its position as an operator of a marketplace to benefit itself as a seller within it. In April 2020, *The Wall Street Journal* reported that Amazon's employees would use sales data from independent Marketplace sellers to help with the development of Amazon's own-branded products. This was said to have happened despite the company having rules that forbid it.¹⁷⁶

As part of its in-depth investigation the Commission is looking into:

- (1) *the standard agreements between Amazon and marketplace sellers, which allow Amazon's retail business to analyse and use third party seller data. In particular, the Commission is focusing on whether and how the use of accumulated marketplace seller data by Amazon as a retailer affects competition.*
- (2) *the role of data in the selection of the winners of the 'Buy Box' and the impact of Amazon's potential use of competitively sensitive marketplace seller information on that selection. The 'Buy Box' is displayed prominently on Amazon and allows customers to add items from a specific retailer directly into their shopping carts. Winning the 'Buy Box' seems key for marketplace sellers as a vast majority of transactions are done through it.*

¹⁷² Australian Competition and Consumer Commission (ACCC), 'ACCC rejects Google behavioural undertakings for Fitbit acquisition'.

¹⁷³ Butler, 'Australian Competition and Consumer Commission (ACCC): Google faces \$400m fine over Fitbit takeover if it doesn't wait for competition watchdog's approval'.

¹⁷⁴ Butler, *ibid.*

¹⁷⁵ European Commission, 'Antitrust: Commission opens investigation into possible anti-competitive conduct of Amazon'.

¹⁷⁶ Mattioli, 'Amazon Scooped Up Data from Its Own Sellers to Launch Competing Products'.

Amazon argues that it has empowered small sellers on its platform and has delivered results to consumers.

In November 2020, the European Commission informed Amazon of its preliminary view that 'it has breached EU antitrust rules by distorting competition in online retail markets. [...] The Commission takes issue with Amazon systematically relying on non-public business data of independent sellers who sell on its marketplace, to the benefit of Amazon's own retail business, which directly competes with those third-party sellers. The Commission also opened a second formal antitrust investigation into the possible preferential treatment of Amazon's own retail offers and those of marketplace sellers that use Amazon's logistics and delivery services.'¹⁷⁷

Investigation into Apple's Possible Anti-Competitive Practices

iPhone and iPad users can only download native (non web-based) apps via the App Store. The European Commission opened in June 2020 formal antitrust investigations to assess whether Apple's rules for app developers on the distribution of apps via the AppStore violate EU competition rules. The investigations concern in particular the mandatory use of Apple's own proprietary in-app purchase system and restrictions on the ability of developers to inform iPhone and iPad users of alternative cheaper purchasing possibilities outside of apps.¹⁷⁸

The investigations concern the application of these rules to all apps which compete with Apple's own apps and services in the European Economic Area (EEA). The investigations follow-up on separate complaints by Spotify and by an e-book/audiobook distributor on the impact of the App Store rules on competition in music streaming and e-books/audiobooks.

As detailed on its website, The Commission will investigate in particular two restrictions imposed by Apple in its agreements with companies that wish to distribute apps to users of Apple devices:

(i) The mandatory use of Apple's own proprietary in-app purchase system 'IAP' for the distribution of paid digital content. Apple charges app developers a 30% commission on all subscription fees through IAP.

(ii) Restrictions on the ability of developers to inform users of alternative purchasing possibilities outside of apps. While Apple allows users to consume content such as music, e-books and audiobooks purchased elsewhere (e.g. on the website of the app developer) also in the app, its rules prevent developers from informing users about such purchasing possibilities, which are usually cheaper.

¹⁷⁷ European Commission, 'Antitrust: Commission sends Statement of Objections to Amazon for the use of non-public independent seller data and opens second investigation into its e-commerce business practices'.

¹⁷⁸ European Commission, 'Antitrust: Commission opens investigations into Apple's App Store rules'.

4. Platforms' Effects on Employment and the Social Fabric

4.1. The Creation of New Types of Jobs

In the platform economy, a wide variety of novel jobs have emerged.¹⁷⁹ Following much of the literature,¹⁸⁰ these different jobs can be sorted into two categories: on-demand work and crowdwork.¹⁸¹ All of them are organised via digital platforms, including apps and websites, and all of them focus on short-term work (hence they are often called the 'gig economy'). Yet there are significant differences between them, which are important for understanding the challenges they pose, the potential for worker organisation, and the possibilities for policy responses.

The first of these is on-demand work that, while organised digitally, involves geographically specific offline labour. These platforms organise and distribute tasks to workers that must physically carry out the work in specified locations: whether cleaning, ride-sharing, delivering, caring, maintenance, or other tasks. The platforms control much of the nature of the work – regulating standards, surveilling workers, and managing who works where and sometimes when. The most prominent of these companies is Uber, but others include TaskRabbit, Care, Lyft, Deliveroo, and many others. In fact, while ridesharing and food delivery often get the most attention, home services (cleaners, plumbers, electricians, and so on) are the biggest area of employment in this category.¹⁸² In Germany, for instance, 2.3% of the working-age population performs taxi or delivery platform work at least weekly, while 3.8% perform platform-based household services. In France, the equivalent figures are 4.0% and 4.4%; and in Italy, they are 5.8% and 8.9% (see Figure 5.1). Lastly, as geographically specific labour, this work is typically more readily subject to national legislation than the more virtual and global labour platforms are.

¹⁷⁹ We are excluding from the analysis work that existed before the digital economy, but which may be central to the functioning of the digital economy. Warehouse workers and logistics workers, for instance, have long existed even as e-commerce has made them increasingly essential to the economy. Likewise, cleaners and resource miners play key roles in the supply chains and maintenance of the digital world, but we are setting them outside of the present analysis. See: Dyer-Witthford, *Cyber-Proletariat*.

¹⁸⁰ Vallas and Schor offer a notable exception, picking out five categories of jobs within the platform economy: the professional and technical creators of platforms, the professional gig workers, the low-skill crowdworkers, the on-demand workers, and the content producers. Their first category is comprised of existing job types and so we exclude it from our analysis, while we combine the professional gig workers and crowdworkers into a single category, and leave aside the content creators. Vallas and Schor, 'What Do Platforms Do?'

¹⁸¹ These two categories go under a variety of names – e.g. sharing economy, gig economy, geographically tethered work, cloudwork, logged labour, and so on – but they all point to the same basic distinction. See: Dazzi, 'Gig Economy in Europe'; De Stefano, 'The Rise of the 'Just-in-Time Workforce': On-Demand Work, Crowdwork and Labour Protection in the 'Gig-Economy'; Woodcock and Graham, *The Gig Economy*; Huws, 'Logged Labour.'

¹⁸² Huws et al., 'The Platformisation of Work in Europe: Results from Research in 13 European Countries,' 22; Dazzi, 'Gig Economy in Europe,' 100.

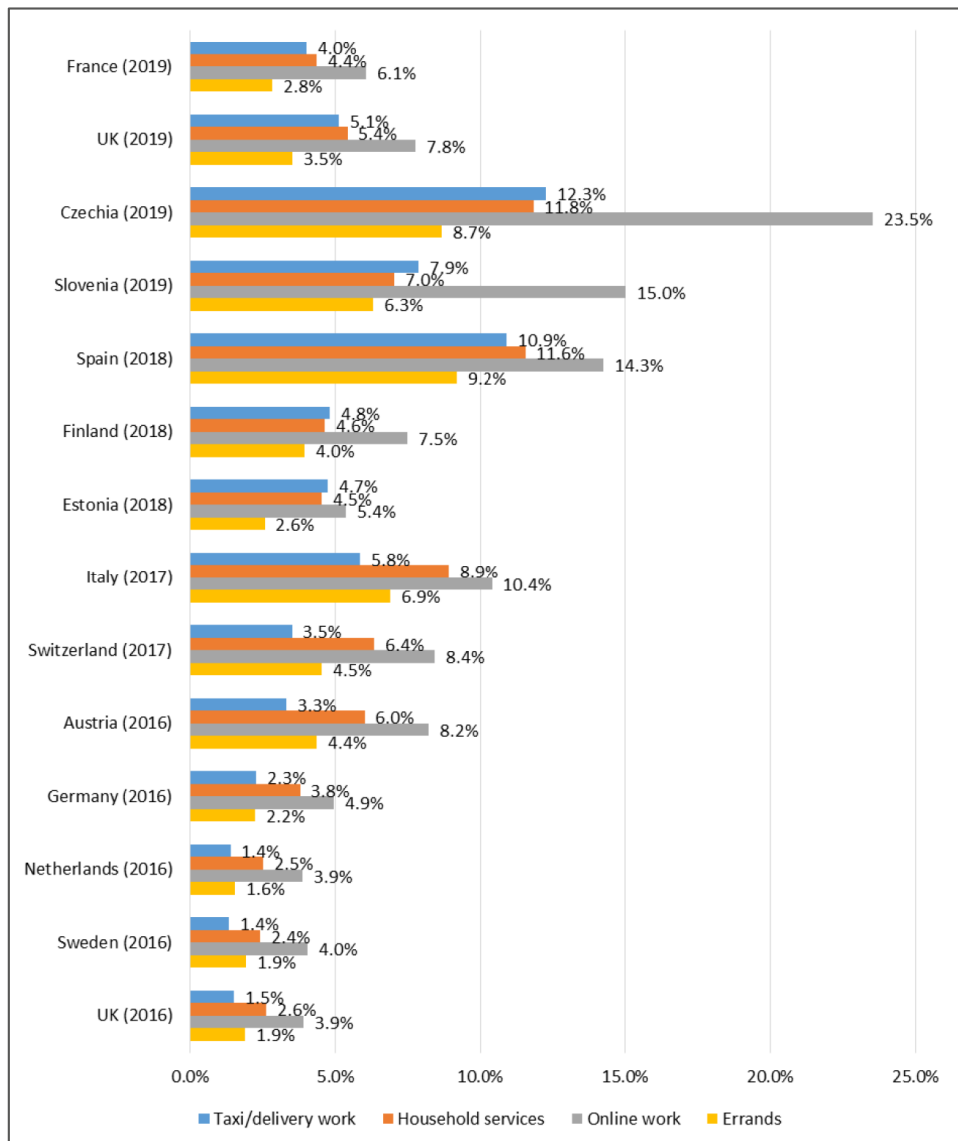


Fig. 4.1: Proportion of Working Age Population Undertaking Different Types of Platform Work At Least Weekly¹⁸³

The second category of platform work involves crowdworkers – those who use platforms to match with clients who are in need of their services, which are then provided virtually rather than in-person. Due to the generally low barriers to entry for new workers, this type of platform work is the most predominant (see Figure 4.1). Within this category though, there are two quite distinct types of jobs. On the one hand, there are those professionals who use platforms for freelance and gig work. This work often involves workers and employers negotiating contracts for the completion of more lengthy projects ('macrotasks' in one formulation).¹⁸⁴ This sort of work is often more highly skilled – involving things like programming, translation, or graphic design. This work is increasingly being taken up by companies (particularly technology companies) both as a way to outsource more work and as a way to replace agency work.¹⁸⁵ In this regard, it can be considered as a flexibilisation of work that had been (and still largely remains) well paid and stable. Yet platform companies involved in organising this work are already preparing for a wave of new platforms that offer the same services for lower pay and fewer

¹⁸³ Huws et al., 'The Platformisation of Work in Europe: Results from Research in 13 European Countries', 23.

¹⁸⁴ Berg et al., 'Working Conditions on Digital Labour Platforms'.

¹⁸⁵ McGee, 'Gig Economy's New Deal for Silicon Valley's White-Collar Workers'.

benefits.¹⁸⁶ While this work can be geographically agonistic and performed in many places, there is often some geographical concentration of the workers.¹⁸⁷

On the other hand, there is a low-wage variant of the crowdwork performed by professionals and technical workers. As opposed to the project-based work of the earlier category, this category involves 'microwork' where – in a sort of hyper-Taylorism – companies break up tasks into increasingly minute pieces that are then outsourced through platforms to a planetary labour market. Tasks such as data entry, image labelling, content moderation, and copywriting are listed on platforms like Upwork, Freelancer, Amazon Mechanical Turk, and TaskRabbit where workers from around the world can bid to do the tasks.¹⁸⁸ While the first professionalised crowdwork can often provide a decent income as well as employment benefits for workers, the same cannot be said for the low-wage variant. A polarization of work may occur, split between relatively high-wage, high-skill, information-centric set of occupations – ranging from programmers to data scientists, and so on. On the other hand, there is the low-wage, low-skill, service-centric set of occupations – those most commonly associated with the 'gig economy'.

4.2. Effects on Labour Market Dynamics

4.2.1. The Employment Relationship

The most prominent element of platform work is the way in which it often relies upon and expands a non-standard type of employment relation. The standard work contract is one that was a de facto norm for white men in the Global North after World War II: a full-time, permanent contract, supplemented with collectively agreed rights around wages, working conditions, legal protections, holidays, collective action, parental leave, protection from discrimination and harassment, unemployment insurance, sickness leave, overtime, breaks, pensions, redundancy fees, and other protections. The risks of work – for example, unemployment in a downturn, or the vagaries of sickness – were increasingly socialised.

Many countries legally recognise a binary idea of work: either employed or self-employed. Whereas the employed are given rights and protections in return for their submission to management's demands, the self-employed are deemed to be working for themselves and therefore not in need of basic rights and protections.¹⁸⁹ As a result most Member States provide access to social protections only to those defined as employees.¹⁹⁰ Yet much platform work typically relies on contracts where workers are not defined as employees, but instead as (depending on the language of particular legal systems) 'independent contractors', 'self-employed', 'contingent workers', or simply 'gig workers'. These employment contracts are flexible, temporary, or otherwise casual and the rights traditionally accorded to employees are largely or entirely absent. The benefits to employers of this model are clear: they can cut labour costs, maximise the flexibility of the workforce, and minimise any responsibilities they might have to their workers.¹⁹¹ For example, companies report saving 20-30% on costs by relying on this employment contract.¹⁹² For workers, as developed below, the benefits are not nearly as obvious.

¹⁸⁶ McGee.

¹⁸⁷ Ettliger, 'Paradoxes, Problems and Potentialities of Online Work Platforms'.

¹⁸⁸ Berg et al., 'Working Conditions on Digital Labour Platforms'.

¹⁸⁹ The Germany, Italy, and the UK are some of the notable exceptions to this binary system in that they have an intermediary category as well.

¹⁹⁰ Forde et al., 'The Social Protection of Workers in the Platform Economy,' 67.

¹⁹¹ Kamdar, 'Why Some Gig Economy Startups Are Reclassifying Workers as Employees'; Kosoff, 'Uber's Nightmare Scenario'.

¹⁹² Kamdar, 'Why Some Gig Economy Startups Are Reclassifying Workers as Employees'.

4.2.2. Hiring and Firing

Proponents of platform work argue that it allows many people who would otherwise struggle to find jobs to find one, while critics argue that it allows people to be fired without any recourse or explanation.¹⁹³ The evidence suggests that both are right.

For proponents, the ability to work from home, flexible working time, low barriers to entry, ability to skip unpaid training, and potential for avoiding social biases are all given as reasons why these platforms enable more people to find wage labour.¹⁹⁴ And the pathway into the labour force has indeed been eased for many, especially groups that traditionally struggle to find work. For on-demand platforms, groups such as migrants, those with caring responsibilities, and those without a degree, are often found to be disproportionately represented.¹⁹⁵ For example, one study finds that young people (< 35) with children represent 27% of those who heavily rely on platform work, while this group only represents 7% in offline work.¹⁹⁶ Another study found that while 5% of those in the offline US labour market were immigrants, this rose to 11% for on-demand platform work.¹⁹⁷ (Notably, the gendered division of labour continues to exist here, with men tending towards stereotypically male work and women more often performing stereotypically female work.¹⁹⁸) Research has also shown that working for platforms is also correlated with levels of unemployment.¹⁹⁹ There is, however, countervailing evidence which suggests platform work is largely dominated by young men.²⁰⁰ With crowdworking, the evidence is less clear. An International Labour Organization survey, for instance, found that men tend to be overrepresented, that prime working ages are most common, and that well-educated individuals tend to do this work.²⁰¹ At the same time, crowdwork has enabled some disabled people to find work when they otherwise would have been stuck at home, and women in particular cite the flexibility of the work hours as a core reason for working on these platforms.²⁰²

Yet entry to these jobs is not always as easy as presented. Ride-sharing work, in particular, involves having a vehicle that meets stringent criteria – a situation that leads many to take out significant leases in order to afford entry into the market. And the relative ease with which people can find work in the platform economy can just as easily be seen as a predatory reliance on workers desperate for any job. It is also unclear to what extent the hiring of workers in the platform economy is just a formalisation of work that previously occurred in the informal economy.²⁰³ Cleaners and other domestic workers, for instance, have long existed in the informal economy – but now appear to at least partly be moving into the platform economy. Taxi drivers that once worked for radio cabs may now just be moving to platform-based services. The increase in hiring may therefore be more illusory than usually thought, though more research is needed here.

The flipside of this ease of hiring is that the non-standard employment relationship enables platforms to fire workers just as rapidly. In one particularly egregious example, an Australian Uber Eats driver was

¹⁹³ Sundararajan, *The Sharing Economy: The End of Employment and the Rise of Crowd-Based Capitalism*.

¹⁹⁴ Hoang, Blank, and Quan-Haase, 'The Winners and the Losers of the Platform Economy', 3–4.

¹⁹⁵ Hoang, Blank, and Quan-Haase, 'The Winners and the Losers of the Platform Economy'; Parrott and Reich, 'An Earnings Standard for New York City's App-Based Drivers'; Markham, 'The Immigrants Fueling the Gig Economy'; Pesole et al., 'Platform Workers in Europe: Evidence from the COLLEEM Survey', 24–25; Fabo, Karanovic, and Dukova, 'In Search of an Adequate European Policy Response to the Platform Economy', 165.

¹⁹⁶ Pesole et al., 'Platform Workers in Europe: Evidence from the COLLEEM Survey', 24.

¹⁹⁷ Hoang, Blank, and Quan-Haase, 'The Winners and the Losers of the Platform Economy', 9.

¹⁹⁸ Pesole et al., 'Platform Workers in Europe: Evidence from the COLLEEM Survey', 40.

¹⁹⁹ Farrell, Greig, and Hamoudi, 'The Online Platform Economy in 2018: Drivers, Workers, Sellers, and Lessors', 21; Knight, 'How Uber Conquered London'.

²⁰⁰ Pesole et al., 'Platform Workers in Europe: Evidence from the COLLEEM Survey', 21–23.

²⁰¹ Berg et al., 'Digital Labour Platforms and the Future of Work: Towards Decent Work in the Online World', 33–37.

²⁰² Berg et al., 38.

²⁰³ Huws, 'Logged Labour', 20–21.

fired for delivering an order 10 minutes late.²⁰⁴ The subsequent legal case determined that the dismissal was fair because she was not protected as an employee.²⁰⁵ Similar stories are pervasive across the platform world, particularly in crowdwork with one survey finding 53% of crowdworkers having experienced an unjustified rejection of payment.²⁰⁶ Such is the prevalence of these stories that Uber's tendency to fire workers with ratings lower than 4.6 out of 5 was even cited by California's labour commissioner in a case against the company.²⁰⁷ The platform economy is truly on-demand for these workers, subject to consumer demand and management whims, and equally as likely to enable more work as it is to hastily remove workers. The lack of rights also means that union organisers on platforms have seen their access to the services unceremoniously blocked.²⁰⁸ Ultimately it is the terms and services, set by the platforms themselves, which determine the ease of hiring – and in most cases, against labour law, the terms require little notice of termination or possibility of appeal.²⁰⁹

4.2.3. Supplement or Primary Job?

One key question is whether the gig economy provides supplemental income to its workers or whether it forms their primary source of income. The distinction matters because it reflects how dependent workers may be on a platform – the less dependent, the more say they have.²¹⁰ If the work is primarily supplemental, proponents of the gig economy have also argued that it is therefore an important source of income for people who are dependent on other work – and should be largely left unregulated. Looking at survey and other evidence, most research finds that a large majority of platform workers do use it as a supplement to other income, rather than as a primary source of income.²¹¹ As Steven Vallas and Juliet Schor note, 'In such cases, platform earnings may actually decrease precarity and compensate for poor benefits or low wages in primary jobs or help reduce debt or build savings.'²¹²

Yet this raises an additional question of whether platform workers primarily take up these jobs to supplement a sufficient income elsewhere, or whether they are effectively forced into this work in order to rectify low pay and poor work in the rest of the labour market. A variety of evidence suggests the latter: that platform labour flourishes in significant part because of precarity in the rest of the labour market. Uber, for instance, often relies on recruiting from areas of high unemployment and/or dualised labour markets.²¹³ Platform workers are typically also performing low-paid work elsewhere, with multiple jobs being necessary to make ends meet.²¹⁴ Surveys of platform workers have found that many of them – up to 90 percent in one survey – desire more work.²¹⁵ And other research finds that platform work is often taken up after a negative income shock with workers relying on labour platform work not

²⁰⁴ Patty, 'Uber Eats Driver Sacked for Being 10 Minutes Late Seeks Tribunal Appeal'.

²⁰⁵ Fleming, Rhodes, and Yu, 'Uber Might Not Take Over the World, But It Is Still Normalising Job Insecurity'.

²⁰⁶ Berg, 'Income Security in the On-Demand Economy', 15.

²⁰⁷ Hill, 'Ratings Systems Have Returned to Haunt the Gig Economy'.

²⁰⁸ Geraghty, 'Deliveroo and Victimisation in the Gig Economy'.

²⁰⁹ Forde et al., 'The Social Protection of Workers in the Platform Economy', 77.

²¹⁰ Vallas and Schor, 'What Do Platforms Do?', 8.

²¹¹ Forde et al., 'The Social Protection of Workers in the Platform Economy'; Gray and Suri, *Ghost Work*; Pesole et al., 'Platform Workers in Europe: Evidence from the COLLEEM Survey'; Fabo, Karanovic, and Dukova, 'In Search of an Adequate European Policy Response to the Platform Economy'; Schmid-Drüner, 'The Situation of Workers in the Collaborative Economy'; Vallas and Schor, 'What Do Platforms Do?'; Huws et al., 'The Platformisation of Work in Europe: Results from Research in 13 European Countries'.

²¹² Vallas and Schor, 'What Do Platforms Do?', 8.

²¹³ Knight, 'How Uber Conquered London'; Thelen, 'Regulating Uber', 949.

²¹⁴ Fabo, Karanovic, and Dukova, 'In Search of an Adequate European Policy Response to the Platform Economy', 168; Burson-Marsteller, The Aspen Institute, and Time, 'The On-Demand Economy Survey'.

²¹⁵ Berg, 'Income Security in the On-Demand Economy'; Fabo, Karanovic, and Dukova, 'In Search of an Adequate European Policy Response to the Platform Economy', 168; Schmid-Drüner, 'The Situation of Workers in the Collaborative Economy', 34–35.

only when outside income dipped, but also when they were between jobs.²¹⁶ Platform work may perhaps be a useful supplement, but it also indicates a failing system and hardly suggests that platform work is anyone's ideal choice. It raises questions about why a single job is no longer sufficient for maintaining oneself and/or a household.

4.2.4. Exception or the New Normal?

One important point to make is that while the platform economy is often invoked as innovative and novel by both its critics and supporters, in fact the employment relationship it relies upon is both old and increasingly widespread beyond platforms. Far from this model of the work relationship being an exception, it is instead indicative of broader trends in the labour market.

In the first place, while gig work is often called the future of work by its proponents, it in fact represents a return to a harsh past for workers.²¹⁷ Karl Marx may as well have been talking about Deliveroo and crowdwork, for instance, when he wrote that the 'piece-wage is the form of wages most in harmony with the capitalist mode of production'.²¹⁸ The sort of precarious work that is becoming prominent today was the standard for most of the history of capitalism. In France, for example, it was not until the 1890s that the idea of permanent contracts began to exist.²¹⁹ Likewise, in the early twentieth century, day labourers were common – particularly in industries like agriculture, dock work, and other low-wage sectors. It was not until after World War II that the standard employment contract began to really take form. Yet, with few exceptions, this standard employment relation has been attacked and whittled down over the past few decades.²²⁰ Decreases in employment protection, collective representation, and income protection have all combined to reduce the difference between standard and non-standard employment.²²¹ By 1996 there were already concerns of a transition to a 'just-in-time' age of 'disposable' workers.²²² The gig economy forms but a small part of this much larger trend towards eliminating the standard employment relationship that was dominant in the postwar period. Even Uber's basic model of an independent contractor simply extends an employment relationship that had become common in the US taxi industry.²²³ As one report notes, 'the gig-economy should not be regarded as a separate silo of the labour market, since the problem of misclassification extends much beyond its realm.'²²⁴

4.3. Effects on Working Conditions

While the gig economy remains numerically small relative to the rest of the labour market, it exerts a significance beyond its size. First, is the question of whether it is pulling down labour standards across the board. There is reason to believe this is the case given the expansion of gig economy style labour contracts across industries.²²⁵ Second, there is the use of the gig economy as a quasi-laboratory space for businesses. In these unregulated areas, they can experiment with different and more exploitative means of employment and, if successful, these models can then be rolled out to other parts of the

²¹⁶ Farrell and Greig, 'Paychecks, Paydays, and the Online Platform Economy: Big Data on Income Volatility', 26; Garin et al., 'Is New Platform Work Different from Other Freelancing?'

²¹⁷ Prassl, *Humans as a Service*, chap. 4; O'Connor, 'Workers Have Right to Gig Economy That Delivers for 21st Century'.

²¹⁸ Marx, *Capital: A Critique of Political Economy, Volume I*, 697–98.

²¹⁹ Carbonell, 'Precarious Work Isn't New — It's Part of How Capitalism Functions'.

²²⁰ Crouch, *Will the Gig Economy Prevail?*; Huws, 'Logged Labour', 9–12.

²²¹ Crouch, *Will the Gig Economy Prevail?*, chap. 3.

²²² Polivka, 'Contingent and Alternative Work Arrangements, Defined'.

²²³ Dubal, 'A Brief History of the Gig'.

²²⁴ De Stefano, 'The Rise of the 'Just-in-Time Workforce': On-Demand Work, Crowdwork and Labour Protection in the 'Gig-Economy', 7.

²²⁵ McGee, 'Gig Economy's New Deal for Silicon Valley's White-Collar Workers'.

economy.²²⁶ Particularly significant here is the deployment of novel surveillance techniques on a more vulnerable and less powerful group of workers in the gig economy. These techniques are already spreading elsewhere and becoming increasingly ubiquitous – particularly with the growth of remote work in the wake of Covid-19 as a wave of new services has emerged to track and monitor workers at home.²²⁷ The question of the impact of platform work is therefore significant.

4.3.1. Wages

While there is a wide range of possible incomes in the gig economy, the vast majority of the work is low waged – with crowdwork typically being paid less than offline work.²²⁸ A handful of workers do manage to make a significant amount, but the overall distribution is vastly unequal as most struggle to make much.²²⁹ Moreover, this work is often subject to being irregular, based upon fluctuating consumer demand and employer requests.

There are a variety of reasons for this low pay. In many gig economy platforms, the up-front wages can appear to be quite high and are often designed to draw workers onto the platforms. Yet the offline labour here typically includes numerous expenses – such as vehicles, gas, cleaning products, insurance, tax, and so on – that are not addressed by the wage and which significantly reduces the take home pay of workers.²³⁰ For Uber drivers in America, for instance, it is currently estimated that their average earnings are nearly \$15/hour – but half of that (or more) is then taken up by necessary expenses.²³¹ In some cases, workers even have to pay for the branded company equipment (jackets, bags, and so on).²³² All of this contributes to gig economy workers earning low pay.

On crowdworking platforms, there is the additional factor that the planetary labour market these services tap into has the effect of driving down wages.²³³ Workers can typically set their own rates on these platforms but, given the vast number of people competing to get work, those who offer the cheapest services usually win out. It is unsurprising then that this work often pays less than the local minimum wage.²³⁴ These workers also spend long periods of time 'performing unpaid work (looking for work, taking unpaid qualification tests, vetting clients in online worker forums).'²³⁵ Moreover – and this is a problem that extends to the gig economy as well – piece wages on many platforms exacerbate these issues of unpaid labour. Delivery services like Deliveroo, for example, have switched away from hourly rates of pay and towards piece rates with no guaranteed hourly minimum.²³⁶ The end result is that workers are left with no extra pay for time spent waiting at restaurants, traffic congestion, or other additions to their time, and it is not uncommon for workers to make far less than the minimum wage.

²²⁶ Cant, *Riding for Deliveroo: Resistance in the New Economy*.

²²⁷ Huws et al., 'The Platformisation of Work in Europe: Results from Research in 13 European Countries', 26–32; Quinn and Jackson, 'Daily Telegraph to Withdraw Devices Monitoring Time at Desk After Criticism'; Cutter, Chen, and Krouse, 'You're Working From Home, but Your Company Is Still Watching You'; Mosendz and Melin, 'Bosses Panic-Buy Spy Software to Keep Tabs on Remote Workers'.

²²⁸ Fabo, Karanovic, and Dukova, 'In Search of an Adequate European Policy Response to the Platform Economy', 167; Schmid-Drüner, 'The Situation of Workers in the Collaborative Economy', 6, 9–10.

²²⁹ Fabo, Karanovic, and Dukova, 'In Search of an Adequate European Policy Response to the Platform Economy', 168.

²³⁰ Mishel, 'Uber and the Labor Market: Uber Drivers' Compensation, Wages, and the Scale of Uber and the Gig Economy'; Perera, Ohrvik-Stott, and Miller, 'Better Work in the Gig Economy'.

²³¹ Helling, 'Ridester's 2020 Independent Driver Earnings Survey'.

²³² Kaminska, 'Inside the Gig Economy'.

²³³ Hoang, Blank, and Quan-Haase, 'The Winners and the Losers of the Platform Economy', 4; Berg, 'Income Security in the On-Demand Economy'; Berg et al., 'Working Conditions on Digital Labour Platforms'.

²³⁴ Berg et al., 'Working Conditions on Digital Labour Platforms'.

²³⁵ Berg et al., *ibid*.

²³⁶ Geraghty, 'Deliveroo and Victimisation in the Gig Economy'.

4.3.2. Flexibility

Despite the low wages, many workers do find the work useful for its flexibility. The flexibility of the work can help some people accommodate other responsibilities, e.g., caring responsibilities, to the schedules of work.²³⁷ And surveys of workers routinely find that the flexibility of platform work is central to why they are doing it (see Figure 4.2).²³⁸ For proponents of platform labour, this is all evidence of the grand myth that everyone can – and should – become entrepreneurial. In this optimistic case, 'workers can supposedly choose what to do, how, when, where, and for whom.'²³⁹

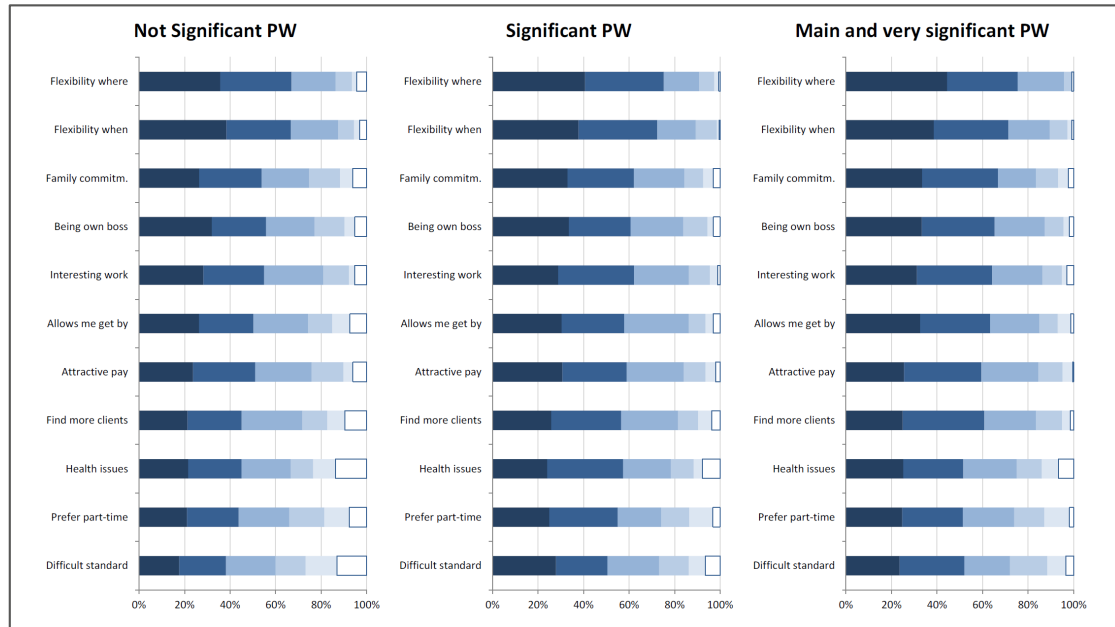


Fig. 4.2: Motivations of Platform Work (PW), by Categories of Workers²⁴⁰

Yet, this flexibility is not all that it is made out to be, with some calling it a 'fictitious freedom'.²⁴¹ Low wages, for example, may force people to work long hours to make ends meet.²⁴² Similarly, the peak times of demand for a service can mean that workers have little effective choice over when to work. Uber drivers end up working weekend nights, and cleaners end up working days. With crowdwork, this can mean working at unsociable hours in order to meet clients' demands in different time zones.²⁴³ Workers usually have little to no say over the fees that can be charged for a service, and they have to meet the performative criteria set out by the platform and clients – such as wearing uniforms or carrying out emotional labour.²⁴⁴ The level of flexibility is often overstated by the platforms as well. In one journalist's experience with Deliveroo, for instance, she had little say over which shifts she could choose to work – and once booked in, she did not have the flexibility to change or cancel them.²⁴⁵ In

²³⁷ Hoang, Blank, and Quan-Haase, 'The Winners and the Losers of the Platform Economy'. 4.

²³⁸ Woodcock and Graham, *The Gig Economy*, 31; Pesole et al., 'Platform Workers in Europe: Evidence from the COLLEEM Survey,' 44; HM Government, 'The Experiences of Individuals in the Gig Economy', 24.

²³⁹ Woodcock and Graham, *The Gig Economy*, 5.

²⁴⁰ Pesole et al., 'Platform Workers in Europe: Evidence from the COLLEEM Survey', 44.

²⁴¹ Shibata, 'Gig Work and the Discourse of Autonomy',

²⁴² De Stefano, 'The Rise of the 'Just-in-Time Workforce': On-Demand Work, Crowdwork and Labour Protection in the 'Gig-Economy', 6.

²⁴³ De Stefano, *ibid.*, 6.

²⁴⁴ Berg and De Stefano, 'It's Time to Regulate the Gig Economy'.

²⁴⁵ Kaminska, 'Inside the Gig Economy'.

the end, flexibility is more often than not insecurity, and the 'self-employed' status that is supposedly chosen by workers is in fact more the result of businesses evading their responsibilities to workers.²⁴⁶

4.3.3. Individualisation of Risks

This evasion of responsibilities is most clearly expressed in the shift of responsibility for risks. Whereas the standard employment contract aimed to balance risks between workers, businesses, and governments, platform work instead transfers risk almost entirely onto individual workers. Most notably, this is expressed in the lack of social protections for those deemed to be self-employed. As one study found, on average, 55 percent of self-employed workers in the EU lack unemployment benefits, 38 percent lack sickness pay, and 46 percent of self-employed women lack maternity benefits. In contrast, only 0.1 percent of full-time workers in the EU lack these benefits.²⁴⁷

It is well established that those who work on non-standard contracts already face higher risks of physical and mental health problems. Non-standard working hours, for instance, are associated with much more intense work, driving stress and risks.²⁴⁸ Those who work in non-standard contracts also face significant hurdles after workplace injuries – for years afterwards they face lower employment rates and lowered incomes compared to those on standard contracts who get a workplace injury.²⁴⁹ Yet the characteristics of platform work make it particularly susceptible to causing injury and harm.²⁵⁰ Delivery riders, for instance, face significantly increased risks of injury, particularly as payment via piece rates and competition with other workers increases the intensity of work and the threat of traffic accidents.²⁵¹ These pressures 'make safe driving virtually impossible.'²⁵² Cleaners face long-term health risks from the constant use of cleaning products and potential accidents in clients' homes.²⁵³ Many platform workers also face threats, harassment, and even attacks from clients.²⁵⁴ And crowdwork, with its highly repetitive tasks, can cause musculoskeletal problems, isolation, exhaustion, and any number of other physical and mental health problems.²⁵⁵

There is also an individualisation of financial risks for those working in the platform economy. For instance, most platform workers receive little training or chances for development and instead have to develop skills themselves.²⁵⁶ The lack of social protections also means that support like pensions or sick pay make them more financially precarious both in the short-term and in the long-term. With crowdwork, financial risks also come from the high prevalence of non- and under-payments.²⁵⁷ With little recourse to contesting such decisions, crowdworkers must instead factor it in as part of the nature of the work. And in some cases, such as ride-hailing services, drivers can take on significant amounts of

²⁴⁶ For instance, one survey found that only six percent of millennials wanted a gig economy position over a full-time job. McGee, 'Gig Economy's New Deal for Silicon Valley's White-Collar Workers'.

²⁴⁷ Forde et al., 'The Social Protection of Workers in the Platform Economy', 70.

²⁴⁸ Piasna, 'Scheduled to Work Hard'.

²⁴⁹ Broten, Dworsky, and Powell, 'How Do Alternative Work Arrangements Affect Income Risk After Workplace Injury?'

²⁵⁰ OECD, 'Policy Responses to New Forms of Work', 45.

²⁵¹ Simpson, 'Power and Violence in the Gig Economy'; Schmid-Drüner, 'The Situation of Workers in the Collaborative Economy', 15; Liu and Tan, 'Food Delivery Drivers Dance with Death for Alibaba and Tencent'; Cant, *Riding for Deliveroo: Resistance in the New Economy*, 54–58.

²⁵² Liu and Tan, 'Food Delivery Drivers Dance with Death for Alibaba and Tencent'.

²⁵³ Svanes et al., 'Cleaning at Home and at Work in Relation to Lung Function Decline and Airway Obstruction'; Schmid-Drüner, 'The Situation of Workers in the Collaborative Economy', 15.

²⁵⁴ Schmid-Drüner, 'The Situation of Workers in the Collaborative Economy', 15; Simpson, 'Power and Violence in the Gig Economy'.

²⁵⁵ Schmid-Drüner, 'The Situation of Workers in the Collaborative Economy', 15; Dazzi, 'Gig Economy in Europe', 79.

²⁵⁶ Perera, Ohrvik-Stott, and Miller, 'Better Work in the Gig Economy'.

²⁵⁷ Berg et al., 'Working Conditions on Digital Labour Platforms'; Mehrotra, 'Horror Stories From Inside Amazon's Mechanical Turk'.

debt in order to purchase new cars that meet platform criteria.²⁵⁸ All of the risks of economic calamity land on the workers, with platforms offering little support.

Some platforms have, in the wake of media attention and worker struggles, begun to offer some support in the form of various insurance schemes.²⁵⁹ Uber, Deliveroo, Lyft, TaskRabbit and some others have started to offer accident insurance, injury insurance, and secondary liability insurance in some instances. Yet access to this support is contingent on meeting strict criteria that block most workers from accessing it, and workers have routinely complained about the difficulties of navigating company systems to receive these supports.²⁶⁰ In any case, for the vast majority of platforms, this support remains non-existent.

4.3.4. Workers' Surveillance and Control

Surveillance and control is another area that has undergone significant changes in platform work. As with the employment relation, this marks not a break with the past, but instead a continuation of the long history of management using technologies to control labour and maximise value extraction, while workers in turn resist and assert their autonomy and dignity.²⁶¹ A core problem for the capitalist has always been how to control the labour process in order to maximise the extraction of value – an employer may purchase the time of a worker, but this does not in itself guarantee that the worker performs the tasks as intensively as possible. In the early 18th century, for instance, capitalists in the Global North often relied upon a putting-out system whereby work was subcontracted to workers who would perform the tasks in their home.²⁶² Yet this system meant that the capitalists had little control over the process, as workers could carry out the work in their own time and with their own autonomy. As capitalism developed, this work was shifted into factories and offices where the labour process could be monitored, scrutinised, and transformed in increasingly minute ways.²⁶³ With this change, the production process could be sped up, automated, intensified, and divided more efficiently all in an effort to extract more value. The problem for businesses is that the same mechanism which allowed greater control – the centralisation of workers into a single workplace – also allowed workers to create new organisational forms to struggle for their interests. Unions, strikes, and the gradual construction of the standard employment model all resulted from this change. Greater control over the production process came at the expense of greater control over workers as a collective.

However, platform work and the rise of algorithmic management change this trade-off. Now workers can be kept separate from each other while simultaneously being monitored by an app or networked technology.²⁶⁴ Instead of concentrating a workforce in a single physical workplace, digital platforms have enabled decentralised control and coordination of large and dispersed group of workers, enabling companies to both maintain an outsourced group of workers as well as a standardised service.²⁶⁵ Moreover, algorithmic management is a 'partial automation of supervision and labour process coordination through the use of information technology.'²⁶⁶ This algorithm management, underpinned by changes in technology, have given rise to a new set of affordances for control. As one recent article notes, first, they are more comprehensive than previous technologies.²⁶⁷ The ubiquity of

²⁵⁸ Englert, Woodcock, and Cant, 'Digital Workerism', 137.

²⁵⁹ Forde et al., 'The Social Protection of Workers in the Platform Economy', 76.

²⁶⁰ Perera, Ohrvik-Stott, and Miller, 'Better Work in the Gig Economy', 10, 15.

²⁶¹ Braverman, *Labor and Monopoly Capitalism: The Degradation of Work in the Twentieth Century*; Kellogg, Valentine, and Christin, 'Algorithms at Work'.

²⁶² Crouch, *Will the Gig Economy Prevail?*, 21–22; Forrester, 'What Counts as Work?'

²⁶³ Marglin, 'What Do Bosses Do? The Origins and Functions of Hierarchy in Capitalist Production'.

²⁶⁴ Tarnoff, 'Discipline at a Distance'.

²⁶⁵ Vallas and Schor, 'What Do Platforms Do?', 11; O'Connor, 'When Your Boss Is an Algorithm'.

²⁶⁶ Cant, *Riding for Deliveroo: Resistance in the New Economy*, 44–45.

²⁶⁷ Kellogg, Valentine, and Christin, 'Algorithms at Work', 371–72.

sensors and the emergence of big data mean that more and more of workers' lives are now capable of being monitored. Second, they provide near instantaneous feedback – informing workers and managers when deviations have occurred. Third, these new control technologies are more interactive, enabling workers to communicate issues and management to reorganise production processes more rapidly. Lastly, algorithmic technologies are typically opaque due to technical hurdles or even the very black box nature of the devices. As a result, decisions imposed by these technologies can often appear arbitrary and unjustified.

Three functions of algorithmic management are identified in the literature: direction, evaluation, and discipline.²⁶⁸ In Kellogg, Valentine, and Christin's words,

*'Direction entails the specification of what needs to be performed, in what order and time period, and with what degree of accuracy. Evaluation entails the review of workers to correct mistakes, assess performance, and identify those who are not performing adequately. Discipline entails the punishment and reward of workers so as to elicit cooperation and enforce compliance with the employer's direction of the labour process.'*²⁶⁹

With algorithmic management, these traditional functions are transformed by new digital technologies, with platform work the primary terrain for their initial rollout.

In the first place, direction concerning what needs to be done and how is now performed through algorithmic recommending and algorithmic restricting. The former is a system of prompts and incentives, often derived from machine learning and big data, that tries to shape what workers should be doing despite their status as self-employed.²⁷⁰ For instance, surge pricing on the Uber platform is a way of recommending drivers go to a certain location. Likewise, maps tell drivers how they must carry out the work.²⁷¹ Algorithmic restricting, by contrast, directs workers towards certain tasks by occluding particular options and information.²⁷² Uber again is a key example of this, as the nature of the platform means drivers have no information about a ride before accepting it.²⁷³ More generally, the use of algorithmic systems is often opaque to workers and obscures how decisions are made and how prompts are presented.

Secondly, algorithmic management carries out evaluation through the use of algorithmic recording and algorithmic rating. The former involves the constant surveillance of workers' actions. In contrast to previous systems of monitoring, this is often real-time, participatory, and far more detailed and ubiquitous.²⁷⁴ While legal barriers have been established to prevent some workplace surveillance, capitalists have sought and found a number of ways around these hurdles.²⁷⁵ Workers are also subject to algorithmic rating as a new means to evaluate their work. This occurs most obviously in the widespread use of customer ratings via apps, but also through the use of management surveillance and real-time ranking of workers.²⁷⁶ Uber presents perhaps the most well-known version of this, with drivers (and now riders) rated for every transaction they perform. Similar systems operate in crowdworking, with clients looking at past ratings as a key insight into the quality of a worker. Yet these

²⁶⁸ Kellogg, Valentine, and Christin, 'Algorithms at Work'.

²⁶⁹ Kellogg, Valentine, and Christin, 369.

²⁷⁰ Kellogg, Valentine, and Christin, 372.

²⁷¹ Möhlmann and Henfridsson, 'What People Hate About Being Managed by Algorithms, According to a Study of Uber Drivers'.

²⁷² Kellogg, Valentine, and Christin, 'Algorithms at Work', 375.

²⁷³ Rosenblat and Stark, 'Algorithmic Labor and Information Asymmetries', 3762; Möhlmann and Henfridsson, 'What People Hate About Being Managed by Algorithms, According to a Study of Uber Drivers'.

²⁷⁴ Kellogg, Valentine, and Christin, 'Algorithms at Work', 376; Ajunwa, Crawford, and Schultz, 'Limitless Worker Surveillance'; Winant, 'Life Under the Algorithm'.

²⁷⁵ Ajunwa, Crawford, and Schultz, 'Limitless Worker Surveillance', 739.

²⁷⁶ Kellogg, Valentine, and Christin, 'Algorithms at Work', 378; Roose, 'A Machine May Not Take Your Job, but One Could Become Your Boss'.

systems lead to inevitable problems. In crowdworking, ratings create a winner-takes-all market, as the most highly rated get more work, get more ratings, and then continue to get more work.²⁷⁷ In all settings, ratings systems also perpetuate discrimination.²⁷⁸ In one call centre, for instance, the automated evaluation system struggles with strong accents and gives those workers a lower rating as a result.²⁷⁹ And minority ethnic ride-sharing drivers face the risk of consistently receiving lower ratings as a result of failing to meet middle-class white norms.²⁸⁰

Lastly, discipline is carried out via algorithmic replacing and algorithmic rewarding. As has been long noted, a key mechanism for disciplining workers is the threat of the sack and a significant reserve army of labour that could potentially take a worker's place.²⁸¹ This mechanism is updated with digital technologies through the use of algorithmic replacing: a digital system which enables workers to be rapidly fired and replaced.²⁸² The ease of hiring and firing discussed earlier therefore not only has impacts on the labour market, but also in the ability of workers to voice concerns and exert power in the workplace. What were once long and contentious processes of firing workers now becomes the simple revoking of access to an app.²⁸³ A similar rapidity emerges with algorithmic rewarding. If the threat of the sack is the whip, then algorithmic rewarding is the carrot used to discipline workers. Here a variety of digital systems automatically assess and reward workers for performing tasks in the ways demanded by management.²⁸⁴ At points these systems even involve the gamification of work in an attempt to manufacture consent to the workplace protocols.²⁸⁵

4.3.5. Collective Organisation

Another key feature of this work is that it is often difficult to organise workers into collective organisations such as trade unions. Most obviously, these platforms lack workplaces in any traditional sense. Whereas the factory floor once offered ample space and time for workers to chat and come to recognise their common interests, with platforms – even the on-demand offline ones – eschew these sorts of workplaces.²⁸⁶ In crowdwork particularly, work can be hyper-individualised with workers only ever interacting with a client and never having any communication or knowledge of other workers. Likewise, the modern equivalent of a picket line is more difficult to imagine and build – meaning it becomes easier for other workers and users to ignore any potential strikes.

In addition to the lack of a typical workplace, workers are often incentivised and coerced into direct competition with each other – further hindering any sort of collective action. For instance, payment through piece-wages (e.g., payment per delivery) can spark competition between workers, undermining any incipient collective organisation.²⁸⁷ The planetary labour markets on crowdwork platforms likewise generate immense competition towards lower and lower wages as well as posing significant barriers to worker collaboration. And even if collective organisation is built, there are a number of actors who try to tear it down. The platforms themselves, most obviously, have used a variety of means to undermine emerging collective organisations. The ease of being deactivated on a

²⁷⁷ Beerepoot, 'Digital Labour Platforms as Winner-Takes-All Markets'.

²⁷⁸ Edelman, Luca, and Svirsky, 'Racial Discrimination in the Sharing Economy'; Rosenblat et al., 'Discriminating Tastes'; Ge et al., 'Racial and Gender Discrimination in Transportation Network Companies'; Kellogg, Valentine, and Christin, 'Algorithms at Work', 379.

²⁷⁹ O'Connor, 'Algorithms at Work Signal a Shift to Management by Numbers'.

²⁸⁰ Rosenblat et al., 'Discriminating Tastes'.

²⁸¹ Marx, *Capital: A Critique of Political Economy, Volume I*; Kalecki, 'Political Aspects of Full Employment'.

²⁸² Kellogg, Valentine, and Christin, 'Algorithms at Work', 380.

²⁸³ Kellogg, Valentine, and Christin, *ibid.*, 380–81.

²⁸⁴ Kellogg, Valentine, and Christin, *ibid.*, 381.

²⁸⁵ Woodcock and Johnson, 'Gamification'.

²⁸⁶ Kellogg, Valentine, and Christin, 'Algorithms at Work', 392.

²⁸⁷ Cant, *Riding for Deliveroo: Resistance in the New Economy*, 52–53.

platform leads many workers to keep their head down. The surveillance that is made possible through apps and digital platforms enables platforms to be warned of organisation.²⁸⁸ In India, for example, 'Uber workers who participated in strikes faced ID blocks, incentives being rolled back, and a decrease in the number of rides they were allocated.'²⁸⁹ Competitors in the industries can also often be opposed to platform workers. The taxi industry is a particularly prominent example here where many taxi drivers are outright opposed to platforms and their workers.²⁹⁰ Lastly, significant legal hurdles presently exist to any incipient collective organisation. Most notably, as a result of their self-employed status, EU competition law currently prohibits them from forming trade unions as such action is deemed to be an illegal price-setting cartel.²⁹¹ Efforts to get around such prohibitions have so far largely been unsuccessful with, for example, Deliveroo riders in the UK failing in their legal attempt to get a union recognised.²⁹²

Yet, despite the challenges and in the face of new forms of digital surveillance, workers have been experimenting and learning new ways to organise and effectively voice their interests. While there may be no central workplace, many platforms do have physical spaces where workers may congregate for various reasons: crowdworkers in co-working spaces, queuing for restaurant orders, taxi drivers waiting at airports, and so on.²⁹³ Workers in these spaces have subsequently gone on to exchange numbers and set up WhatsApp groups in efforts to organise.²⁹⁴ This is part of a broader effort by which workers are connecting – through organising in virtual networks of their own.²⁹⁵ In an effort to expand their networks, others have taken innovative approaches. In one instance, couriers for UberEats ordered pizzas to be delivered to them – and when the new UberEats courier arrived, the group would try and convince them to join the union.²⁹⁶ In another instance, more traditional tactics of printing flyers loaded with information about pay, working conditions, and effective strike action were distributed in an effort to expand and create a national network of Deliveroo riders.²⁹⁷ Online forums are also commonly used to monitor clients, share resources, pass along advice, and otherwise help their fellow workers.²⁹⁸ Turkopticon, for instance, was created as a tool for workers on Amazon Mechanical Turk to share experiences of working for various clients. It allows workers to rate and warn others about, for instance, non-payments from employers.²⁹⁹ And while platforms may not share a workplace, the opaque nature of app-driven management ironically makes it clear to all workers that the platform is opposed to their interests. Whereas an office culture might foster a sense of commitment and even familial bonds amongst workers and managers, the same is impossible with algorithmic management.³⁰⁰

Workers have also innovated in the form of tactics and efforts to withdraw their labour. For instance, while strike laws often impose strict conditions on employee action, the category of self-employment is not subject to the same rules. In the case of Deliveroo, this has meant that riders can and have simply not logged into the app en masse.³⁰¹ At other times, wildcat strikes have been used to protest pay

²⁸⁸ De Stefano, 'The Rise of the 'Just-in-Time' Workforce': On-Demand Work, Crowdsourcing and Labour Protection in the 'Gig-Economy', 10.

²⁸⁹ Katta et al., 'Uber and Deliveroo's 'Charter of Good Work' Is Nothing but Fairwashing'.

²⁹⁰ Cant, Englert, and Woodcock, 'Digital Workerism'.

²⁹¹ OECD, 'Policy Responses to New Forms of Work', 71.

²⁹² Butler, 'Deliveroo Riders Lose High Court Battle to Gain Union Recognition'.

²⁹³ Woodcock and Graham, *The Gig Economy*, 134.

²⁹⁴ Woodcock and Graham, *ibid.*, 95.

²⁹⁵ Tarnoff, 'Discipline at a Distance'.

²⁹⁶ O'Connor, 'When Your Boss Is an Algorithm'.

²⁹⁷ Murray, 'How Do We Strike When Our Boss Is a Machine, a Software or a Chain?'.

²⁹⁸ Kellogg, Valentine, and Christin, 'Algorithms at Work,' 392.

²⁹⁹ Irani and Silberman, 'Turkopticon'.

³⁰⁰ Cant, *Riding for Deliveroo: Resistance in the New Economy*, 62.

³⁰¹ Woodcock and Graham, *The Gig Economy*, 96.

cuts.³⁰² The end result is an effective strike without having to worry about traditionally restrictive strike laws. In crowdwork platforms, workers sometimes resist by taking the work off the platform and thereby avoiding the fees charged by the platform.³⁰³ Upstart unions like the United Voices of the World (UVW) and the Independent Workers' Union of Great Britain (IWGB) have also undertaken significant organising efforts in these sectors. As one report notes,

*'UVW and IWGB have adapted their tactics for this precarious workforce. They run breakfast stalls where cleaners can drink coffee and meet colleagues when they finish a shift at 7am. Meetings feature not just union business but language classes, childcare, music, food, games and legal clinics. Strike action is colourful and loud, usually with a soundtrack of Latin American music and flares of red smoke. Speeches, casework and community activities are done in both English and Spanish, and members are encouraged to get active and lead campaigns quickly.'*³⁰⁴

These unions have also relied upon generating social media buzz and media attention, alongside significant strike efforts and funding court cases (with a number of successes including a 2016 decision in the UK that Uber's drivers were not independent contractors).³⁰⁵ Other unions, like Unionen in Sweden and IG Metall in Germany have also made efforts to help unionise and organise platform workers.³⁰⁶ Strikes have spread across the world, everywhere that platform companies have set up shop.³⁰⁷ And workers have created new tactics as well. For instance, in one area drivers would coordinate the (temporary) shutting off of their apps in order to generate a surge in rider fare prices and increase their wages.³⁰⁸ Others have used the platform rating systems as ways to enforce collective action, by giving workers who ignored picket lines low ratings.³⁰⁹ So while in many ways platform workers have been blocked from traditional means of collectively organising and exerting pressure, they are nonetheless demonstrating significant innovation..

³⁰² Siddique, 'Uber Eats Couriers' Pay Protest Brings Traffic to a Halt in Central London'.

³⁰³ Woodcock and Graham, *The Gig Economy*, 102–3.

³⁰⁴ Staton, 'The Upstart Unions Taking on the Gig Economy and Outsourcing'.

³⁰⁵ Staton; O'Connor, 'Gig Economy Agreements Promise a Brighter Future for Trade Unions'.

³⁰⁶ O'Connor, 'How to Manage the Gig Economy's Growing Global Jobs Market'.

³⁰⁷ Nunes, 'Gaming the Sharing Economy'; China Labour Bulletin, 'Food Delivery Drivers Strike Over Increased Competition'.

³⁰⁸ Sweeney, 'Uber, Lyft Drivers Manipulate Fares at Reagan National Causing Artificial Price Surges'.

³⁰⁹ Algers, 'Reflections on Platform Cooperatiism'.

5. Platforms' Effects on Consumer and Societal Risks and Environmental Sustainability

5.1. Effects on Consumer and User Risks

5.1.1. Consumer Safety

Following their general approach to regulation, many platform companies have sought to evade regulations around public safety.³¹⁰ Perhaps the most prominent issue here is the safety of customers that use ride-sharing platforms. There have been numerous reports of sexual assault, physical violence, and even kidnapping by drivers. Dozens of women have sought to sue the US-based platform Lyft for not taking sufficient precautions to prevent their sexual assault and then ignoring the complaints afterwards.³¹¹ And in the UK, the regulator Transport for London (TfL) refused a license for Uber twice in large part because Uber had not been reporting some serious crimes by drivers to the police and because loopholes in their platform allowed for drivers to use false identities.³¹² To be sure, the evidence is unclear whether platform-based taxis are any less safe than traditional taxis.³¹³ Yet platform's fear of being seen to have an employment relationship with drivers means they are wilfully blocking off possible options for responding to these issues.

Another key safety issue is vehicular accidents. On the one hand, more vehicles on the road should lead to more accidents. On the other hand, the ease and (artificial) affordability of ride-hailing may reduce things like drunk driving. The evidence here is mixed, with studies finding that the introduction of a ride-sharing platform leads to the reduction of drunk driving and accidents in some places but not in others.³¹⁴ It appears that local contexts – spatial organisations of cities, availability of public transportation, and other factors – play a key role in whether ride-sharing causes more accidents or not.³¹⁵ The unclear impact, however, means that regulators should be attentive to how these platforms interact with local urban spaces.

5.1.2. Lack of Accountability, Insufficient Redress

Another issue for consumers is the lack of accountability that is common on many of these platforms. Customers often find it difficult to get assistance when something goes wrong. Customers, for instance, have had issues with TaskRabbit workers not properly completing jobs. When the platform was queried about these problems, it replied that they were 'just a tech platform' and therefore complaints about the work were effectively not their responsibility.³¹⁶ Rectifying this lack of accountability is particularly important as some platforms have been subject to significant scams. After uncovering a vast number of fake accounts on Airbnb (and losing a significant amount of money on one scam herself), one journalist contacted the company but struggled to receive any assistance.³¹⁷

³¹⁰ Bogost, 'How Technology Sabotaged Public Safety'.

³¹¹ Cramer, '19 Women Sue Lyft as Sexual Assault Allegations Mount'.

³¹² The Editorial Board, 'Uber Must Demonstrate Safety Is Paramount'.

³¹³ Pritchard, 'Which Is Safer - Uber or a Taxi? There's No Clear Answer'.

³¹⁴ Morrison et al., 'Ridesharing and Motor Vehicle Crashes in 4 US Cities'; Brazil and Kirk, 'Uber and Metropolitan Traffic Fatalities in the United States'; Dills and Mulholland, 'Ride-Sharing, Fatal Crashes, and Crime'.

³¹⁵ Morrison et al., 'Ridesharing and Motor Vehicle Crashes in 4 US Cities', 228.

³¹⁶ Kime, 'Dis-Assembling IKEA'.

³¹⁷ Conti, 'I Accidentally Uncovered a Nationwide Scam on Airbnb'.

5.1.3. Privacy Risks

The privacy of consumers on digital platforms is pervasively violated by digital platforms. For example, Facebook's eagerness to get third-party apps connected to its network has led to mass data leaks, exposing sensitive information from hundreds of millions of people, as in the so-called Cambridge Analytica scandal. Facebook also eventually merged the infrastructures of Facebook Messenger, WhatsApp, and Instagram, after having promised years prior that it would not, which raises privacy questions around how users' data may be shared between services. WhatsApp historically required only a phone number when new users signed up. By contrast, Facebook and Facebook Messenger ask users to provide their true identities. Matching Facebook and Instagram users to their WhatsApp handles could harm those who prefer to keep their use of each app separate. Germany's competition regulator responded to this announcement by prohibiting Facebook from combining data from different sources (such as WhatsApp or Instagram) with data from Facebook.com without a user's explicit and voluntary consent.³¹⁸

Digital platforms also use so-called 'dark patterns' which are user interfaces that make it difficult for users to express their actual preferences or that manipulate users into taking actions that do not comport with their preferences or expectations.³¹⁹ Examples of dark patterns abound in privacy and security. For example, Google Maps repeatedly asks users whether a site that they regularly return to should be labelled 'home' or 'work.' If the user agrees to label the geolocation, then the pop-up queries will cease. If the user clicks on 'Not Now' then there will be more queries a few days later. The result is that the application may be so persistent in asking for users to confirm personal information that they will eventually relent to prevent further nagging, and not because they want to share this information.³²⁰

The risks to privacy go beyond just the immediately collected data and extend to an even broader range of inferred pieces of data about individuals. As predictive analytics and machine learning have become more popular, too has their use in turning raw collected data into further data about people. In one of the more infamous examples of these techniques, an angry father confronted the retail store Target demanding to know why they had been sending his teenage daughter coupons for pregnancy-related items. It turns out that Target's systems had been able to (correctly) infer from the daughter's online activities that she was pregnant – a fact the father was in the dark about.³²¹ Such examples have only proliferated in the nearly ten years since that story emerged, demonstrating the importance of considering privacy when it comes to inferred data.

5.1.4. Online Harms

There is a growing public concern and awareness of illegal and harmful content relayed by online platforms, which can cause what is regrouped under the umbrella term of 'online harm.' This broad category crosses the divide between negative effects on individual users and negative effects on society, as it is used to refer to online content that can have harmful effect on individuals such as online abuse and bullying, sexual predation, or recruitment to terrorist activities, but also on society at large, as they can be used to undermine democratic values and debate (discussed in Section 5.2).

A 2019 UK report on online harm suggests that the impact of harmful content and activity can be particularly damaging for children, and there are growing concerns about the potential impact on their

³¹⁸ Scott Morton et al., 'The Stigler report,' 66.

³¹⁹ Forbrukerrådet, 'Deceived by Design'.

³²⁰ Scott Morton et al., 'The Stigler report', 210.

³²¹ Duhigg, 'How Companies Learn Your Secrets'.

mental health and wellbeing. Child sex offenders use the internet to view and share child sexual abuse material, groom children online, and even live stream the sexual abuse of children.³²²

Other online behaviours or content, even if they may not be illegal, can also cause serious harm. The internet can be used to harass, bully or intimidate, especially people in vulnerable groups or in public life. Young adults or children may be exposed to harmful content that relates, for example, to self-harm or suicide. These experiences can have serious psychological and emotional impact. There are also challenges about addiction to some digital services and excessive screen time.

5.2. Effects on Societal Risks

In terms of social risks, this section focuses on environmental risks including climate and health, and the more fundamental concern of so-called 'surveillance capitalism' fuelled by an increased 'datafication' of human activities.

5.2.1. Environmental Risks

The first of these is related to the impact brought about by the surge in ride-sharing services. As a result of their popularity, many cities have seen significant surges in the numbers of vehicles on their streets. In New York City, for example, there was a 300 percent increase in the number of taxis on the streets from 2010 to 2019.³²³ Other research finds that for every mile that would have been driven by a personal car or traditional taxi instead has been replaced with 2.6 miles driven by ride-sharing vehicles.³²⁴ The end result has been significant increases in vehicle miles travelled overall and in traffic congestion in many cities.³²⁵ Average vehicle speed in numerous cities – such as Paris, London, New York, and San Francisco – has been decreasing since the introduction of Uber to those cities, also suggesting growing congestion problems.³²⁶

Moreover, ride-sharing services are largely linked to a reduced use of more environmentally friendly public transport options. One major study found these platforms led to a 6 percent reduction in the use of public transport.³²⁷ And numerous studies have found that the majority of trips via ride-sharing platforms would have used a more environmentally-friendly option if ride-sharing was not available.³²⁸ Unsurprisingly then, these platforms are linked with significant increases in pollution and carbon emissions (see Figure 5.1).³²⁹ On average, ride-hailing cars are more fuel efficient than other cars with drivers more conscientious about the costs of fuel and, in some cities, regulations incentivising the uptake of electric vehicles. But these vehicles are also driven around much more, they are driven slower, and they are often (as much as 45 percent of the time) driven without any passengers.³³⁰ As a result, some research has found that ride-sharing companies produce 69 percent more pollution than the

³²² UK Online Harms White Paper.

³²³ New York City Taxi and Limousine Commission and Department of Transportation, 'Improving Efficient and Managing Growth in New York's For-Hire Vehicle Sector', 5.

³²⁴ Schaller, 'The New Automobility: Lyft, Uber and the Future of American Cities', 20.

³²⁵ Clewlow and Mishra, 'Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States', 27.

³²⁶ San Francisco County Transportation Authority, 'TNCs and Congestion'; Transport & Environment, 'Europe's Giant 'Taxi' Company: Is Uber Part of the Problem or the Solution?'

³²⁷ Clewlow and Mishra, 'Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States', 27.

³²⁸ Schaller, 'The New Automobility: Lyft, Uber and the Future of American Cities', 15; Clewlow and Mishra, 'Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States', 27.

³²⁹ Anair et al., 'Ride-Hailing's Climate Risks: Steering a Growing Industry toward a Clean Transportation Future.'

³³⁰ Fehr & Peers, 'Estimated TNC Share of VMT in Six US Metropolitan Regions', 9; California Air Resources Board, 'Clean Miles Standard: 2018 Base-Year Emissions Inventory report', 39.

trips they displace.³³¹ Similar findings have emerged from the US state of California, where legislation requires information on the emissions produced by ride-sharing companies. Here, the most recent annual report found that ride-sharing vehicles ended up emitting 50 percent more than normal passenger vehicles.³³² And New York City found emissions from the taxi industry had risen 62 percent between 2013 and 2018.³³³ Efforts to combat climate change and the public health risks of air pollution therefore need to take the impact of ride-sharing platforms seriously.

City	Estimated mileage [km/yr]	Number of drivers (year last available data)	Estimated emissions [kt CO ₂]
London	48 000	45 000 (2018)	335
Paris	58 000	20 000 (2019)	180
Brussels	31 250	1 800 (2019)	10
Total			525

Fig. 5.1: Estimated CO₂ Emissions from Uber³³⁴

5.2.2. From Privacy Risks to a 'Surveillance Society'

Digital platforms' ever-increasing collection and analysis of quantified data creates privacy risks that can affect individual users and have implications for society.

Consider, for example, digital platform's ever-increasing capture and analysis of health data, in other words, the 'datafication' of health, mentioned in the discussion of the Google-Fitbit acquisition case in Section 3.3. A 2020 report from the UK Ada Lovelace Institute recognises the considerable benefits to the 'datafication of health', such as: *'not only can individuals be better informed about their health, advances in data analytics lay the foundations for artificial intelligence solutions in diagnosis or drug discovery, as well as for better precision, personalisation and prevention in medicine.'*³³⁵ But it also claims that ubiquitous data collection expands the boundaries of what can count as health data and from where it can be gathered (See Fig 5.2), and warns of the significant concerns that the ever-increasing collection and analysis of quantified data about health, termed 'datafication', can have.

³³¹ Anair et al., 'Ride-Hailing's Climate Risks: Steering a Growing Industry toward a Clean Transportation Future', 7.

³³² California Air Resources Board, 'Clean Miles Standard: 2018 Base-Year Emissions Inventory report', 42.

³³³ New York City Taxi and Limousine Commission and Department of Transportation, 'Improving Efficient and Managing Growth in New York's For-Hire Vehicle Sector', 23.

³³⁴ Transport & Environment, 'Europe's Giant 'Taxi' Company: Is Uber Part of the Problem or the Solution?', 10.

³³⁵ Ada Lovelace Institute, 'The Data Will See You Now: Datafication and the Boundaries of Health', 4.

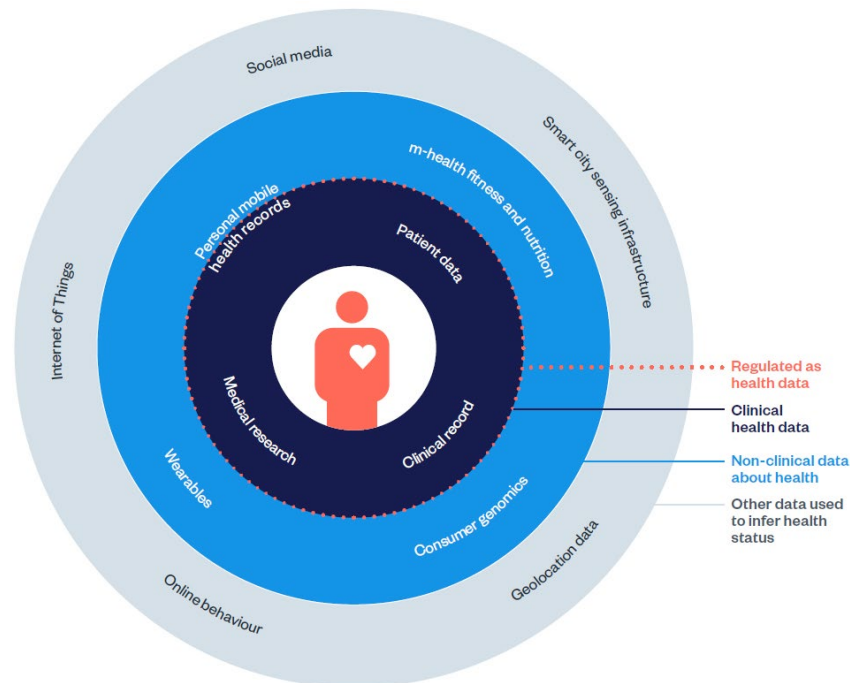


Fig.5.2: Ubiquitous Data Collection Expands the Boundaries of What Can Count as Health Data and From Where it Can be Gathered³³⁶

This report warns that: *'Datafication raises significant concerns: it makes individuals' health legible to a broad array of actors outside recognised medical and clinical settings, giving those with the appropriate digital tools an increased ability to know about, and engage with, people's health through their data. Datafication also creates increasingly comprehensive and quantified renderings of health, creating the conditions for disempowerment and providing unprecedented opportunities to monitor and influence people.'*³³⁷

These concerns resonate with those expressed by the influential critics Lanier and Zuboff. They offer fundamental critiques of the logic of 'datafication' of human activities and claim that it profoundly affects, for the worse, humans and society. These concerns, which can be regrouped under the umbrella term of 'surveillance capitalism',³³⁸ have focused on the consequences for humans of engaging continuously and often unwittingly with organisations (the digital platforms) which appear to appear to offer them 'free' services, whereas users are in fact enrolled into pursuing another goal, the platforms' goals, who aim to manipulate users' behaviours for the benefit of paying third-parties. Zuboff contends that these economic mechanisms can threaten core values such as freedom, democracy, and privacy.³³⁹

Digital platforms whose business models are advertising-based receive specific kinds of criticisms. The criticisms hone on the fact that such platforms capture and monetise user-generated data in ways that can generate huge profits, while end-users are not always aware of the role they play in a system that instrumentalises them and uses them and their behaviours as an input, in a business logic fuelled by strategies of data-extractive businesses. For example, Lanier called advertising-based social media platforms 'behaviour manipulation empires' and 'algorithmic behaviour-modification' systems,³⁴⁰

³³⁶ Ada Lovelace Institute, *ibid.*, 24.

³³⁷ Ada Lovelace Institute, *ibid.*, 4.

³³⁸ Zuboff, 'Big Other: Surveillance Capitalism and the Prospects of an Information Civilization' and *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*.

³³⁹ Zuboff, *ibid.*

³⁴⁰ Lanier, 'You are Not a Gadget: A Manifesto' and 'Ten arguments for deleting your social media accounts right now'.

where 'everyone who is on social media is getting individualised, continuously adjusted stimuli, without a break, so long as they use their smartphones. What might once have been called advertising must now be understood as continuous behaviour modification'. He argues that 'what has become suddenly normal -- pervasive surveillance and constant, subtle manipulation -- is unethical, cruel, dangerous, and inhumane.' Lanier comments on the 'dopamine hits' that create users' 'addiction' with social media platforms and he assesses that it threatens free will.

5.2.3. Fake News, Polarization of Society, and Dangers to Democracy

Hostile actors use online disinformation which can be relayed and amplified by digital platforms to undermine democratic values and principles. Social media platforms use algorithms which can lead to 'echo chambers' or 'filter bubbles', where a user is presented with only one type of content instead of seeing a range of voices and opinions. This can promote disinformation by ensuring that users do not see rebuttals or other sources that may disagree and can also mean that users perceive a story to be far more widely believed than it really is. This can lead to a polarization of society.

The influence of the digital platforms on the news media has been under increased scrutiny and focus since the 2016 US presidential elections. Much of the focus has been on fake news and the interference of foreign governments in elections through such platforms. But the influence of digital platforms on the news and journalism ecosystem goes deeper than the spread of fake news. The business model of news has been severely disrupted by the rise of digital platforms, and news production and consumption have been disintermediated. The business model disruption has reduced the incentive to produce original reporting, and the platform algorithms have rewarded the production of visceral and emotive content.

Concentration in the news media market is a problem for democracy. Digital platforms disintermediate newspapers and monopolise news markets. Digital platforms have weak incentives to prioritise quality content and limit false information. There is a growing gap in investigative journalism, and an increasing dearth of local news, with detrimental effect on local democracy.³⁴¹

5.3. Platforms and Covid-19

5.3.1. Covid-19 and Platform Work

At the time of writing of this report, another major public health concern has emerged in the form of Covid-19. This global pandemic has impacted nearly every aspect of work, but platform workers have been particularly hard hit due to their precarious position. For many, work has dried up as social distancing, business closures, and fear of infection have led to a decrease in the use of services that might bring people face-to-face. One global survey found that half of platform workers had seen their work stop entirely.³⁴² Income for those remaining has largely decreased as well.³⁴³ In the UK, for instance, food delivery riders have reported working 12 hour days and earning less than a pound per hour.³⁴⁴ And platforms for domestic cleaners – disproportionately populated by immigrant women – have been particularly hard hit as clients try to avoid being in proximity with cleaners and other home

³⁴¹ Scott Morton et al., 'The Stigler report'; Australia Competition & Consumer Commission (ACCC), 'Digital Platform Inquiry: Final report'.

³⁴² Fairwork, 'The Gig Economy and Covid-19: Fairwork report on Platform Policies', 6.

³⁴³ Fairwork, *ibid.*, 6.

³⁴⁴ Shead, 'Driven to Destitution'.

helpers.³⁴⁵ Some platforms have seen growth though – particularly grocery deliveries in general and food deliveries in places where restaurants remain open.³⁴⁶

However, platform workers – as a result of their employment status as self-employed – have been also excluded from things like sick pay, unemployment benefits, and most government schemes related to coronavirus. While employees have seen extensions to sick leave and unemployment leave, as well as the widespread adoption of various short-time work schemes, platform workers have largely lacked access to these provisions. This lack of social protections means that workers have often had to choose between working or starving. With many schools closed, gig workers have even had to bring their children into work with them.³⁴⁷ Yet the work remains incredibly risky to their health – with face-to-face interactions a routine part of much on-demand platform work. And in few places have workers been helped by platforms or by clients. Some restaurants have barred delivery workers from entering – leaving the latter with fewer opportunities to wash their hands. Few platforms have provided personal protective equipment like masks or hand sanitiser. And those workers who rely on cash tips have found it challenging to collect them safely.³⁴⁸ Collectively, these conditions lead to public health problems as sick workers continue working – and transmitting diseases – because they are unable to do otherwise. The government efforts at lockdown are negated insofar as people have to continue going outside to work. The lack of social support for these workers therefore has had a direct impact on public health.

5.3.2. Covid-19 and Civil Liberties

This report highlighted earlier how the Covid pandemic increased the reliance from individuals, businesses, and governments on online platforms. The pandemic also sharpens the focus on the trade-offs that policymakers face when attempting to balance privacy protections with public health.³⁴⁹ This risk is increased by the extreme reliance on a small number of digital platforms.

Contact-tracing apps, associated with systematic testing, have been touted as a promising solution to limit the spread of the virus. Contact tracing is a longstanding public health technique that works by identifying everyone whom a sick person may have exposed and helping them identify their risks and take appropriate action. But traditional contact tracing techniques —usually carried out through in-person interviews —are labour-intensive, and often slow compared to a fast-moving pathogen like SARS-CoV-2, the virus that causes Covid-19. The proposed systems would instead rely on location or proximity detection by mobile phones to selectively deliver alerts about potential exposures.

This type of surveillance raises serious concerns as it poses significant risks to privacy, civil rights, and civil liberties. How can one be sure that governments will not use the harvested data to pursue other objectives? Scholars such as Jean Tirole are concerned that this could allow authoritarian regimes will not use the data for political surveillance.³⁵⁰

The extent to which tracking can be performed in a way that would respect individual civil liberties is still unclear. Technical proposals include a re-anonymisation of the data, as when such an app would indicate to a user that she has been in contact with a contaminated individual, but would not without disclosing whom, where, or when. As explained above, such re-anonymisation is not fool-proof, and users can be identified despite such efforts.

³⁴⁵ van Doorn, Mos, and Bosma, 'Disrupting 'Business as Usual'.

³⁴⁶ Fairwork, 'The Gig Economy and Covid-19: Fairwork report on Platform Policies,' 6; van Doorn, Mos, and Bosma, 'Disrupting 'Business as Usual'; Glickman, 'Time to Deliver Justice to Delivery Workers'.

³⁴⁷ Lee, 'Gig Economy Tries to Hold on to Workers During Shutdown'.

³⁴⁸ Glickman, 'Time to Deliver Justice to Delivery Workers'.

³⁴⁹ Recchio, 'Contact Tracing Versus Civil Liberties'.

³⁵⁰ Lacombe, 'Tracer pour mieux guérir ? La mise en garde de Jean Tirole'.

A report by the ACLU (American Civil Liberties Union) indicates that if such systems are to work, they must be widely adopted, but this most likely will not happen if they do not enjoy strong trust within the population.³⁵¹ As a group of public health experts wrote in a Johns Hopkins report, 'To increase the chances that [contact tracing] efforts will be effective, trusted, and legal, use of technology in the contact tracing space should be conceived of and planned with extensive safeguards to protect private information from the beginning.'³⁵² Without such safeguards, the authors explain, 'individuals may be unwilling to participate.'

The basic principles that the ACLU report identifies for evaluating a contact tracing system include:

- *Not displacing non-technical measures*
- *Voluntary*
- *Non-punitive*
- *Built with public health professionals*
- *Privacy-preserving*
- *Non-discriminatory*
- *Minimal reliance on central authorities*
- *Data minimisation everywhere*
- *No data leakage*
- *Measurable impact*
- *Have an exit strategy*
- *Narrowly-tailored to target a specific epidemic*
- *Auditable and fixable*
- *Sustainably maintained*

The reliance by national governments all over the world on major private digital platforms to develop and deploy such contact tracing apps is underscored by failed attempts by some governments such as the UK to develop their own system without relying exclusively on technology provided by major US platforms. The UK government attempted to develop such a contact tracing app, but it failed to do so. The UK was one of the few countries that had originally chosen to create a contact-tracing app that would be incompatible with the contact-tracing API being developed by Google and Apple. Instead of decentralizing the data across devices, the UK was planning to pool the information it collects in a single database operated by the National Health Service (NHS).³⁵³

Part of the reason why the UK government failed to develop this app was not simply lack of technical competence, but also because it could not obtain from Google and Apple an important specific authorisation (which would have constituted an exception to their privacy rules):³⁵⁴ Apple and Google had an existing policy to protect users' privacy by specifically blocking apps from constantly running Bluetooth scans and sending the data somewhere else—and they were refusing to change the policy for coronavirus apps. Instead, Apple and Google have been creating their own toolkit to help decentralised apps do something similar, without handing over user data to a central authority.³⁵⁵

Contact-tracing apps can play a positive role, when combined with other public health measures, to limit the contagion. But they also generate significant risks to civil liberties. Combined with the extreme reliance on a small number of major digital platforms, this constitutes a major risk for civil liberties, civil

³⁵¹ Gillmor, 'Principles for Technology-Assisted Contact-Tracing'.

³⁵² Kahn, Jeffrey, Johns Hopkins Project on Ethics and Governance of Digital Contact Tracing Technologies. 'Digital Contact Tracing for Pandemic Response'.

³⁵³ Vincent, 'Without Apple and Google, the UK's Contact-Tracing App is In Trouble'.

³⁵⁴ Ball, 'The UK's Contact Tracing App Fiasco is a Master Class in Mismanagement'.

³⁵⁵ Howell O'Neill, 'Apple and Google's Covid-Tracing Tech Has Been Released to 23 Countries'.

rights, and privacy. This is another example of how various issues (limited competition, privacy, data sharing, civil liberties) interact.

6. EU Regulation and Main Regulatory Challenges

This section presents a summary of EU regulation on platforms and identifies the main regulatory challenges.

6.1. EU Regulations on Platforms' Effects on Users, Businesses, Competition and Innovation, and Main Regulatory Challenges

Successful online platforms benefit from considerable economies of scale once the number of users on each side grows – as does the amount of data these platforms accumulate over time. This frequently leads to a situation where a few platforms become powerful gatekeepers to information and content, as well as to gatekeepers to markets which they often create themselves, thus determining the rules of the game for access to these markets, and the conditions on these markets. This allows a highly efficient matching of supply and demand in markets of unprecedented size, but intermediaries' centralised power also opens a scope for different forms of abuse.

As a result, a significant degree of reflection and activities within policy institutions has arisen, not only in Europe but worldwide, in the UK, the USA and Australia. Policymakers and regulators have been working to consider whether existing regulations and policy are fit-for-purpose in the context of current new challenges associated with the digital economy and digital platforms.³⁵⁶

The European Commission has developed a 'regulatory agenda' on online platforms. It aims to create a 'trusting, lawful and innovation-driven online platforms' environment in the EU'. In 2016, it identified key areas of interests in its May 2016 Communication on Online Platforms.³⁵⁷ Its guiding policy principles are: (1) A level playing field for comparable digital services; (2) Ensure responsible behaviour of online platforms to protect core values; (3) Foster trust, transparency and ensure fairness on online platforms; and (4) Keep markets open and non-discriminatory to foster a data-driven economy.

³⁵⁶ We wish to highlight as the essential reports which we have found particularly helpful for our analysis: US Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, 'Investigation on Competition in Digital Markets' or 'the US Judiciary report'; Crémer et al., 'Competition Policy in the Digital Era' or 'the Vestager report'; Furman et al., 'Unlocking Digital Competition', or 'the Furman Review'; Scott Morton et al., 'Stigler Committee on Digital Platforms: Market Structure and Antitrust Subcommittee' or 'the Stigler report'; Perrot et al., 'Competition Policy and the EU's strategic interests'; German Federal Ministry for Economic Affairs and Energy, 'A new competition framework for the digital economy'; Marsden and Podszun (2020), 'Restoring Balance to Digital Competition – Sensible Rules, Effective Enforcement'; UK Competition and Market Authority (CMA), 'Market Study on Online Platforms and Digital Advertising: Final report'; UK Select Committee on Communications, House of Lords, 'Regulating in a Digital World'; UK Digital, Culture, Media & Sport Committee, House of Commons, 'Disinformation and 'Fake News': Final report'; Australia Consumer and Competition Committee (ACCC), 'Digital Platforms Enquiry: Final report'. There have also been other reports: Benelux, 'Joint memorandum of the Belgian, Dutch and Luxembourg Competition Authorities on Challenges Faced by Competition Authorities in a Digital World'; BRICS, 'BRICS in the digital economy: Competition Policy in Practice' (2019); France. Longuet et al., 'report at the French Senate on digital sovereignty'; Autorité de la Concurrence, 'Opinion No. 18-A-03 of 6 March 2018 on Data Processing in the Online Advertising Sector'; Autorité de la Concurrence & Bundeskartellamt, 'Competition Law and Data'; Italy (AGCM, AGCOM, AGPDP), 'Big Data Joint Survey'; Japan (FTC), 'report regarding trade practices on digital platforms'; Netherlands Ministry of Economic Affairs and Climate Policy, 'Future-proofing of competition policy in regard to online platforms'; Portugal Autoridade da Concorrência, 'Digital Ecosystems, Big Data and Algorithms'; UNCTAD 'Competition Issues in the Digital Economy'. There have also been useful comparative analyses, such as Ennis and Fletcher, 'Developing International Perspectives on Digital Competition Policy.'

³⁵⁷ European Commission, 'Shaping Europe's Digital Future. Policy: Online Platforms'.

6.1.1. EU Policies and Legislation

The 2019 brochure published by European Commission titled 'How Do Online Platforms Shape Our Lives and Businesses' presents a summary of the issues associated with digital platforms, and briefly indicates the existing EU regulations that address them (See Fig. 6.1).³⁵⁸

Specific Issues	Policies and legislation
Unfair practices of online platforms vis-à-vis their business users; no redress in case of problems	Regulation on promoting fairness and transparency for business users of online platforms.
Dissemination of illegal content online , such as incitement to terrorism, illegal hate speech, child sexual abuse material, infringements of IP rights	Recommendation on measures to effectively tackle illegal content online. New Copyright Directive. Revised Audio Visual Media Services Directive for video-sharing platforms. Proposal for a Regulation on Terrorist content online. Regulation on explosive precursors. Structured dialogues to tackle illegal hate speech online, terrorist content, child sexual abuse material, counterfeit products, etc.
Need to protect fundamental rights: personal data of EU citizens	General Data Protection Regulation
Abuse of dominant position	Use of EU competition law, ongoing reflection on competition policy in the digital age
Unfair consumer commercial practices, consumer protection rules ill-suited to digital world	A New Deal for Consumers
Tax avoidance	Application of EU competition law, in particular as regards state aids, proposals for a fair taxation of the digital economy
Misuse of online platforms by malicious actors to spread disinformation , impacting democratic participation	Self-regulatory Code of Practice, coordinating swift interventions with online platforms; Support for independent fact checking and media literacy activities

Fig. 6.1: EU Policies and Legislation Associated with Digital Platforms³⁵⁹

It indicates that 'in the past few years, the European Union has successfully addressed many of these challenges. For instance, it has addressed privacy concerns, updated consumer protection rules, adopted several regulatory, co-regulatory and policy measures to address the problems related to illegal content or disinformation, and strengthened fairness and redress in the relations between large platforms their small business users, etc. It has also used its powers under competition law to address instances of abuses of dominant market power.'

The Platform-to-Business (P2B) Regulation

While most applicable policies and regulations were not specifically designed for online platforms, the EU has introduced in 2019 a new EU regulation, the platform-to-business (P2B) regulation, which is specifically aimed to promote a better trading environment for online platforms' business users, resolve problems associated with unfair practices between online platforms and their business users, and promote transparency in these business relationships.³⁶⁰ This is the first attempt to provide an encompassing legal framework for the relations between digital platforms and the businesses that operate with them.

³⁵⁸ European Commission, 'How Do Online Platforms Shape our Lives and Businesses'.

³⁵⁹ European Commission, 'How do Online Platforms Shape our Lives and Businesses', *ibid*.

³⁶⁰ European Commission, 'Platform-to-business trading practices' and 'Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on promoting fairness and transparency for business users of online intermediation services' or 'Platform-to-Business Regulation' or 'P2B Regulation'.

Since 12 July 2019, when the EU Platform-to-Business Regulation became applicable, online platforms' terms and conditions have to be drafted in plain and intelligible language. They cannot be changed without advance notice of at least 15 days and need to exhaustively spell out any reasons that could lead to a business user's delisting. Further, they have to list the main parameters that determine the ranking of search results (this also applies to search engines like Google). They also have to include information about any ways in which a platform that sells on its own marketplace might give preferential treatment to its own goods or services. (This also applies to search engines like Google). And they have to be clear about the platform's data policy – what data it collects, whether and how it shares the data, and with whom.

In addition, the Platform-to-Business Regulation makes it easier for business users to seek redress in case of problems. Platforms have to immediately provide business users with a statement of reasons when they delist (some of) their goods or services. They need to provide an effective and easily accessible complaints handling mechanism (e.g. to challenge delistings). They need to engage in good faith in any mediation attempts. And organisations representing business users have the right to take actions before national EU courts to stop or prohibit non-compliance with this Regulation.

In summary, the rules require online intermediation services and online search engines to follow certain restrictions regarding their behaviour toward the firms in their ecosystems. In particular, the P2B regulation requires a higher degree of transparency from platforms on terms and conditions, ranking parameters, the differentiated treatment of their own services vis-à-vis services offered by third-parties (self-preferencing). The rules focus principally on requiring *transparency* but do not prohibit certain behaviours. The P2B regulation is to be reviewed in 2022, after a short period of implementation.

Observatory of the Online Platform Economy

The European Commission also created in 2018 an Observatory of the Online Platform Economy, which monitors the evolution of the platform economy to support the Commission's work on online platforms.³⁶¹ It has an independent expert group who seeks to open the debate to identify priority areas for further research, analysis and policy scrutiny. The expert group published in July 2020 three draft reports covering the major aspects of data access, differentiated treatment and methodological ideas relating to the question on how best to measure key aspects of the online platform economy. It also offers a mechanism for users of digital platforms to give feedback and alert the Commission on potential issues encountered in the context of use.

The New Proposals for a Digital Markets Act and a Digital Services Act

On 15 December 2020, the European Commission published its Digital Services Act package, which proposed two new pieces of legislation: the Digital Services Act and the Digital Markets Act.³⁶² They aim to achieve two main goals: (1) to create a safer digital space in which the fundamental rights of all users of digital services are protected; (2) to establish a level playing field to foster innovation, growth, and competitiveness, both in the European Single Market and globally.

The proposal for the Digital Markets Act (DMA) proposes to regulate the behaviour of core platform services acting as gatekeepers. Gatekeepers are those platforms that serve as an important gateway between business users and their customers and enjoy a significant and durable market position. The DMA regime is intended to complement existing competition rules, aiming to address conduct on an ex-ante rather than ex-post basis, more quickly, and to deal with practices which fall outside the competition rules (or that cannot be effectively addressed by them). The Digital Markets Act imposes several prohibitions and obligations on gatekeepers, such as the prohibition to discriminate in favour

³⁶¹ European Commission. Observatory of the Online Platform Economy.

³⁶² European Commission. Digital Markets Act, and Digital Services Act.

of own services and obligations to share data that is generated by business users and their customers in their use of the platform.

The proposal for the Digital Services Act (DSA) has a wider scope (applying to all digital services that connect consumers to goods, services, or content) and will, if adopted, introduce new obligations relating to issues such as illegal content, transparency and traceability of business users. The DSA, if adopted, will change the rules for the handling of illegal or potentially harmful content online, the liability of online providers for third-party content, vetting obligations of third party suppliers and the protection of users' fundamental rights online. This makes the Digital Services Act relevant not only for all digital service providers (social media, online marketplaces, online platforms, etc.) in the EU but also for their business users and customers.

The Digital Services Act (DSA) aims to modernise and create an EU-wide uniform framework on the handling of illegal or potentially harmful content online, the liability of online intermediaries for third-party content, the protection of users' fundamental rights online and bridging the information asymmetries between the online intermediaries and their users (See Box 2). The DSA is not intended to replace the e-Commerce Directive but will apply in addition to its national implementations (with the exception of provisions excluding the liability of online intermediaries). The new rules will also be complementary to the Platform-to-Business Regulation (EU) 2019/1150 (the P2B Regulation) that became applicable in July 2020 and to the Directives that were adopted as part of the New Deal for Consumers that will enter into force by May 2022 (see Box 2).

Box 2: The European Commission's Proposal for a Digital Services Act (DSA)³⁶³

The main provisions of the DSA proposal include:

- *A modernised liability regime for online intermediaries. The key principles from the e-Commerce Directive remain generally unchanged, but the DSA adds obligations to address notifications of content considered as illegal. The DSA requires every hosting provider or online platform to put user-friendly notice and takedown mechanisms that allow the notification of illegal content. Online platforms will need to establish internal complaint-handling systems, engage with out-of-court dispute settlement bodies to resolve disputes with their users, give priority to notifications of entities that have been qualified as so-called trusted flaggers by the authorities and suspend repeat infringers.*
- *New and far-reaching transparency obligations for online platforms relating to the measures taken to combat illegal information. If content is removed, an explanation needs to be provided to the person who uploaded that content. Online platforms must also publish detailed reports on their activities relating to the removal and the disabling of illegal content or content contrary to their terms and conditions.*
- *An obligation on online intermediaries to include in their terms and conditions information on any restrictions on the use of data provided by the users, with reference to the content moderation mechanisms applied, algorithmic decision-making and human review. This information must be in clear and unambiguous language and publicly available in an easily accessible format.*
- *Strict requirements for online platforms that allow consumers to conduct distance contracts with traders, to ensure that traders can only offer goods and services via their platforms after strict Know Your Customer procedures. Platforms must keep information about the traders to help track down sellers of illegal goods or services. A platform's interface should facilitate compliance with a traders' obligations to inform consumers and provide appropriate product safety information.*

³⁶³ As summarised in Allen & Overy, 'The Digital Services Act is here'.

- *Transparency obligations concerning online advertisements. For each advertisement and to each user, the online platforms must provide, in real time, clear and unambiguous information to users that (i) they are seeing an advertisement, (ii) on whose behalf the ad is displayed, and (iii) provide meaningful information about the main parameters used to determine why a specific user is targeted by this ad.*
- *Steep fines for non-compliance of up to 6% of the annual income or turnover of the provider of intermediary services and periodic penalty payments for continuous infringements of up to 5% of the average daily turnover of the intermediary in the preceding financial year per day.*
- *Online intermediaries without establishment in the EU that provide services in the EU must designate a legal representative in the EU who will be required to cooperate with supervisory authorities, the European Commission and the European Board for Digital Services (a new pan-European group of coordinators that will assist with the harmonisation of the DSA) and can be held liable for noncompliance with the DSA.*

In addition to the rules set out above, very large platforms must also comply with the rules set out below. Very large online platforms are those platforms which have more than 45 million active monthly users in the EU, and they will have:

- *To analyse any systemic risk stemming from the use of their platforms and put in place effective content moderation mechanisms to address the identified risk, such as illegal content, privacy violations, etc.*
- *To provide transparency on the main parameters of the decision-making algorithms used to offer content on their platforms (the rankings mechanism) and the options for the user to modify those parameters.*
- *To provide an option that is not based on profiling. These obligations are clearly inspired by similar obligations in the P2B Regulation and the Omnibus Directive 2019/2161.*
- *To establish and maintain a public repository, available via application programming interfaces, with detailed information on the online advertisements they served on their platforms in the past year.*
- *An obligation to designate a dedicated compliance officer responsible for the compliance with obligations under the DSA and undergo an annual independent audit.*
- *Upon request of the competent authority, very large online platforms must also give access to the data necessary to monitor their compliance with the DSA to the competent authority but also to vetted academic researchers that perform research into the systemic risks.*
- *In addition, the European Commission will have supervisory and enforcement powers in relation to very large platforms.*

The Digital Market Act (DMA) will only be applicable for 'gatekeeper' or 'core platform services'. The European Commission indicates that a provider of core platform services will be designated a gatekeeper where it meets a three-limbed test:

- *Limb 1: the core platform services provider has a significant impact on the EU internal market.*
- *Limb 2: the provider operates a core platform service which serves as an important gateway for business users to reach end-users.*
- *Limb 3: the provider enjoys an entrenched and durable position in its operations, or it is foreseeable that it will enjoy such a position in the near future.*

The European Commission proposes that all businesses which meet the above criteria in relation to any core platform service would have three months, once the DMA comes into force (and/or from the point

that they start to meet the criteria, if later), to notify the Commission that they meet the thresholds. They are required to provide further notifications if the thresholds are met subsequently in relation to other core platform services. Businesses could (and it is to be expected that many of them would) submit arguments with their notifications that one, some, or all of the limbs are not met in their case. The Commission would then have 60 days to consider the notification and the arguments put forward by the business and to decide whether to designate the business as a 'gatekeeper'. If so designated, a business would have six months to start complying with the European Commission's 'dos and don'ts'. Compliance must continue until the EC removes the gatekeeper designation. The Commission would be required to review designations at least every two years.

Box 3: The European Commission's Proposal for a Digital Markets Act (DMA)³⁶⁴

A list of 'Do's and Don'ts' for Gatekeeper Platforms

In its DMA proposal, the European Commission issued a list of 'Dos and don'ts' for all gatekeepers. It identified two broad categories of obligation. The first consist of what the European Commission calls 'self-executing' obligations. These are framed so that gatekeepers should be able to comply without the need for the European Commission to specify any further details. These include obligations:

- *to restrict the platform from combining personal data from different sources*
- *to increase the ways that business users can sell or promote their products and services outside of the platform and to refrain from stopping business users from raising issues with relevant public authorities in relation to gatekeeper practices*
- *to allow end users more (and freer) access to products and services via the platform; and*
- *to provide advertisers and publishers to which a gatekeeper supplies advertising services, upon their request, with information concerning the price paid by the advertiser and publisher, as well as the amount of remuneration paid to the publisher, for the publishing of a given ad and for each of the relevant advertising services provided by the gatekeeper.*

The second category of obligations would be 'susceptible to be further specified' so that the EC can give further clarity on whether a business's proposed method of implementing the obligations is sufficient (which the EC can investigate either on its own initiative or at the request of the gatekeeper). These include obligations:

- *not to use data acquired by the platform in relation to business users to then compete with those business users, unless the data is publicly available*
- *to allow end-users to uninstall any pre-installed software applications on its core platform service, to allow installation and effective use of third-party software applications or software application stores (subject to certain carve-outs) and not to technically restrict end users from switching between and subscribing to software applications and services accessed under a gatekeeper's operating system*
- *to allow business users and providers of ancillary services access to and interoperability with the same operating system, hardware or software features that are available or used in the provision by the gatekeeper of any ancillary services*
- *not to treat more favourably in ranking services and products offered by the gatekeeper itself or by any third party belonging to its wider 'undertaking' (broadly speaking, its group) compared to similar services or products of third parties and to apply fair and non-discriminatory conditions to such ranking*
- *to provide advertisers and publishers, upon their request and free of charge, with access to the performance measuring tools of the gatekeeper and the information necessary for*

³⁶⁴ As summarised in Allen & Overy, 'Global Antitrust: Digital Markets Act'.

advertisers and publishers to carry out their own independent verification of the ad inventory

- *to provide effective portability of data generated through the activity of a business user or end-user; – subject to personal data restrictions, to provide business users, or third parties authorised by a business user, free of charge, with effective, high-quality, continuous and real-time access and use of aggregated or non-aggregated data, that is provided for or generated in the context of the use of the relevant core platform services by those business users and the end users engaging with the products or services provided by those business users*
- *to provide to any third party providers of online search engines, upon their request, with access on fair, reasonable and non-discriminatory terms to ranking, query, click and view data in relation to free and paid search generated by end-users on online search engines of the gatekeeper, subject to the anonymisation of the query, click and view data that constitutes personal data; and*
- *to apply fair and non-discriminatory general conditions of access for business users to the gatekeeper's software application store*

Gatekeepers must comply with all obligations (while they can apply for suspension of particular obligations, the EC will only grant this exceptionally, and in light of circumstances that lie beyond the control of the firm). The DMA provides for an exception, however, for firms which have been designated as gatekeepers in relation to a particular service only because it is foreseeable that they may enjoy an entrenched and durable position in the near future but do not yet meet the quantitative 'rebuttable presumption' thresholds. In this situation, the European Commission may, following a market investigation, decide to impose only some of these requirements.

Merger Notification – but not a Fully-Fledged Review Process

Regarding *merger notification*, the DMA proposal requires gatekeepers to *inform* the European Commission of any proposed merger or acquisition involving another provider

of core platform services or any other services provided in the digital sector. This is irrespective of whether it triggers a notification requirement under the EU (or national) merger control rules. However, the aim of these provisions is not to enable the European Commission to review that transaction on competition (or other) grounds. Rather, the intention is to inform the Commission as to whether any tweaks to individual gatekeeper designations are required as well as to aid monitoring broader trends in the digital sector.

Market Investigation Tool

The DMA proposal also includes a 'market investigation' tool that will allow the European Commission the flexibility to:

- *proactively investigate providers of core platform services that do not meet the thresholds that require them to notify a rebuttable presumption of gatekeeper status, in case they nonetheless meet the three 'limbs' of the test*
- *revise and update the scope of what constitute 'core platform services', and*
- *investigate systematic non-compliance with the gatekeeper 'dos and don'ts', including to consider whether the business investigated should be broken up and/or subject to behavioural remedies.*

The European Commission indicates that market investigations should be carried out in a 'reasonable' timeframe. The DMA sets out various time limits, which are dependent on the aim of the market investigation. For example, the European Commission should endeavour to

conclude market investigations for designating gatekeepers and systematic non-compliance within 12 months (with a possible six-month extension for non-compliance investigations), but investigations into whether the DMA should address a new 'core platform service' or type of practice should be completed within two years.

This tool is much reduced in scope from the European Commission's initial proposal of June 2020, which suggested that the European Commission might use the market investigation tool to identify structural competition issues across any sector, akin to the UK's markets regime. The proposed tool was later pared back to only apply to the digital sector, and now has been narrowed further, effectively for use in managing and enforcing the rules described above, rather than as a standalone measure.

In this regard, the DMA is very different from proposals put forward in other jurisdictions, some of which, such as the U.K.'s, envisage a distinct merger control review process applying to certain digital firms. The EC is instead planning to deal with its desire to review potentially anti-competitive deals where the target has no or little turnover (so-called 'killer acquisitions'), many of which fall in the digital sector, by using its merger referrals system.

Relationship with Existing Competition Rules and Member States' Existing Regulation

The DMA regime is intended to complement existing competition rules, aiming to address conduct on an ex-ante rather than ex-post basis, more quickly, and to deal with practices which fall outside the competition rules (or they cannot effectively address that). Competition enforcement will still have its place, and the DMA explicitly provides that the new regime is without prejudice to the application of EU and national Member State competition rules. Indeed, Executive Vice President and Commissioner Vestager was clear when announcing the proposals that the European Commission would continue its on-going competition cases and that its enforcement action could inform future versions of the DMA. The two mechanisms are, therefore, intended to go hand in hand. The Commission intends that EU Member States will be prevented from adopting gatekeeper regulations at the national level. It does not believe that regulatory initiatives at the local level can 'fully address' the competition issues seeking to regulate and wishes to put in place a harmonised EU system that avoids regulatory fragmentation.

However, Member States will still have a role to play. They could legislate for unfair practices more generally and would have a voice in the enforcement of the DMA regime through appointing representatives to a Digital Markets Advisory Committee that would be consulted by the European Commission before taking particular decisions, including on non-compliance and fines. Member States could also request that the Commission open a market investigation into whether a particular provider of core platform services should be designated as a gatekeeper. When three or more of them would make such a request, the Commission would be required to consider within four months whether there are reasonable grounds to do so. This said, the involvement of Member States in the DMA regime looks set to be still significantly less than proposed under the DSA, which provides for direct enforcement at the national level.

6.1.2. Regulatory Challenges on Competition and Innovation

There are four main regulatory challenges regarding platforms' effects on competition and innovation. They reflect the state of regulation as of December 2020. They also aim to inform MEP's consideration of the Digital Services Act and the Digital Markets Act proposals.

Regulatory Challenge 1: Limits of Traditional Antitrust and Deficits of Enforcement

While abuses of competitive positions can in principle be liable to antitrust action, in reality, there have been only a small number of antitrust actions in Europe and the United States. Notwithstanding the most recent decision in October 2020 of the US Department of Justice to sue Alphabet-Google, there has been a long pattern of underenforcement in the US. A joint response to the U.S. Congress Judiciary Committee on the State of Antitrust Law and Implications for Protecting Competition in Digital Markets signed in April 2020 by prominent economists documented and lamented the '*judicial retrenchment in antitrust law, particularly as it applied to the conduct of high-tech platforms, by declining to challenge (or in some cases even investigate) nearly all of the large number of platform acquisitions of arguably nascent competitors, and declining to challenge platform conduct that has been the subject of enforcement actions by sophisticated competition agencies abroad. Without regard to the merits of any individual decision, this systematic pattern of enforcement avoidance suggests that until now, the agencies have been too cautious in their enforcement posture toward Internet platforms.*'³⁶⁵

In the European Union, there has been more antitrust activity, as described in Section 3.3. The total fines imposed by the European Union on Google amounted as of August 2020 to €8.2bn. But while the fines imposed on Alphabet-Google were unprecedentedly large in absolute terms, critics have argued that the antitrust process has taken too long, that it is unclear whether and when the fines will actually be paid as Google has appealed all of the three verdicts, and that when compared to the actual revenue of Alphabet, they were not large enough to change Google-Alphabet's behaviour significantly, as they consisted in only a small amount of its revenue, profits, or net cash balance.³⁶⁶

A number of analysts consider that the existing enforcement of antitrust laws has been insufficient.³⁶⁷ For example, it has been noted that it took the European Commission nearly seven years before a decision was born on the self-preferencing of Google's own price comparison service in search results. Because this decision took too long, it did not help some other suppliers of price comparison websites much.³⁶⁸

In addition to the considerations set out above, authorities point to mergers as a source of concern. One of the questions they are asking is whether the current framework to assess mergers is appropriate and concerns about the lack of enforcement in merger control. Section 3.3 indicated that the volume of acquisitions and mergers by major digital firms has been substantial. However, the *overall acquisition strategy* is not considered in merger control, as it typically focuses on single transactions. Recent research has advanced an argument that an accumulation of small mergers whose size is small enough to escape regulatory scrutiny can research in so-called 'stealth consolidation'.³⁶⁹

The subset of acquisitions referred to as 'killer acquisitions' or 'zombie' acquisitions has recently become a belated cause for concern.³⁷⁰ There seems to be a growing consensus that there has been underenforcement of merger control in the case of large digital platforms acquisitions. For example, the US Judiciary Committee report indicates that: '*In the overwhelming number of cases, the antitrust agencies did not request additional information and documentary material under their pre-merger review authority in the Clayton Act, to examine whether the proposed acquisition may substantially lessen*

³⁶⁵ Baker et al., 'Joint Response to the House Judiciary Committee, on the State of Antitrust Law and Implications for Protecting Competition in Digital Markets'.

³⁶⁶ The Economist, 'High Fines, Meagre Results: Google's Android fine is not enough to change its behaviour'.

³⁶⁷ Marsden and Podszun, 'Restoring Balance to Digital Competition – Sensible Rules, Effective Enforcement'.

³⁶⁸ Marsden, 'Google Shopping for the Empress's New Clothes—When a Remedy Isn't a Remedy (and How to Fix it)'.

³⁶⁹ Wollmann, 'Stealth Consolidation: Evidence from an amendment to the Hart-Scott-Rodino Act'.

³⁷⁰ 'Killer' acquisitions take place when the acquiring company discontinues the target's product to avoid cannibalising its own product. In a 'zombie' acquisition, the acquiring company keeps alive the target's early-stage product but does not further develop it. These patterns are documented in the pharma industry (Cunningham et al., 'Killer Acquisitions'), however, evidence for digital markets is still scarce (see Gautier and Lamesch, 'Mergers in the Digital Economy').

competition or tend to create a monopoly if allowed to proceed as proposed. For example, of Facebook's nearly 100 acquisitions, the Federal Trade Commission engaged in an extensive investigation of just one acquisition: Facebook's purchase of Instagram in 2012.³⁷¹

One reason why most all GAFAM acquisitions 'fly under the radar' of competition law appears to be because the low revenues of many targets prevent these cases from falling under the jurisdiction of antitrust authorities.³⁷² Because the targets are frequently start-ups still trying to figure out viable paths to monetisation, the vast majority of these transactions do not meet the turnover thresholds that trigger merger control. Low revenue figures per se, however, do not imply that these cases are benign. In the context of digital markets, due to strong network effects, competition is often for the market rather than in the market. Therefore, small market players or potential entrants exert a competitive threat is essential to discipline incumbents' market behaviour and foster innovation. In addition, acquisitions of such targets could be essential for smaller competitors that want to achieve the scale, diversity, and reach necessary to compete vis-à-vis the incumbents.

Regulatory Challenge 2: Accumulation of Data: Violation of both Privacy and Competition

The collection of rich behavioural, medical, and socio-demographic data is central to the business model of most digital platforms, but the patterns of pervasive and sometimes stealthy collection and use raise privacy and competition concerns.

Beyond Privacy Risks, Inference Risks

While much media and scholarly attention have been given to the collection of data, inferences – in the form of assumptions or predictions about future behaviour – are equally important. They are often privacy-invasive, sometimes counterintuitive and, in any case, cannot be verified at the time of decision-making. While individuals are often unable to predict, understand, or refute inferences made about them, they impact our private lives, reputation, identity, and self-determination. As one recent report notes, 'It follows that protections designed to provide oversight and control over how data is collected and processed are not enough; rather, individuals require meaningful protection against not only the inputs but the outputs of data processing.'³⁷³

This is particularly important as existing data protection and privacy law – most notably, the GDPR – has focused on data collection but not in inferences' impacts. At the moment, EU rights around personal data – including knowing, rectifying, deleting, porting, or objecting to – are all interpreted in a limited manner that has typically excluded inferred data.³⁷⁴

The regulatory challenges here include the fact that there are often justifiable antagonistic relations between the data subjects and assessors. Someone applying for a loan may consider themselves to be a trustworthy borrower, yet financial institutions still have a right to infer whether that is true from the data they have access to. Judging the balance between privacy and the need for assessment can be difficult and highly contextual. There are also points where the accountability of inferences is better handled by existing procedures – such as appeals procedures for many decisions. In such cases, it may be that data protection and privacy laws are the wrong tools.

However, a broader and growing range of corporate uses of inferred data more clearly need regulation yet that is currently situated outside of interpretations of personal data. With the use of big data, algorithms, predictive analytics, models, and machine learning, more and more inferences are being created about individuals. These inferences are in turn used to manipulate, assess, predict, and nudge

³⁷¹ US Judiciary Committee. *Ibid.* p. 11.

³⁷² Austria and Germany have recently modified their notification threshold.

³⁷³ Wachter and Mittelstadt, 'A Right to Reasonable Inferences,' October 9, 2018.

³⁷⁴ Wachter and Mittelstadt, 'A Right to Reasonable Inferences,' 537–42.

individuals – often without their awareness and nearly always without any oversight or accountability. Moreover, research has repeatedly shown these sorts of systems to be plagued by biases and inaccuracies.³⁷⁵

Despite the growing significance of these measures, current data protection laws are unfit for this purpose. And as others have noted, a number of policies and directives are also complicating meaningful privacy regulation of inferred data.³⁷⁶ The Trade Secrets Directive, in particular, may enable companies to avoid scrutiny and accountability over their creation and use of inferred data. In aggregate, inferred data poses particularly difficult challenges to meaningfully regulate.

Privacy is a Competition Issue

Privacy and competition issues are intertwined, and to some extent, inseparable, which creates regulatory challenges as distinct laws regulate them.

The business model of advertising-funded platforms relies on attracting people's attention, learning about their preferences, influencing their behaviour, and ultimately showing them hyper-targeted ads. Specialist data that adds to the existing set in a previously unmeasured dimension of consumer activity is especially valuable. This has implication on acquisitions as well as on the development of new products.

The accumulation of relevant data has been recognised as potentially problematic for competition concerns. Crémer et al. (2019) explain that *'having accumulated large amounts of relevant data over a long period of time often provides a strong competitive advantage to incumbents.'*³⁷⁷ In addition, *'exclusive access to a large amount of individual-level data even when accessed anonymously (e.g., to be used by machine-learning algorithms) might provide a competitive advantage. A superior algorithm might then attract users who would contribute more and/or fresher data on an ongoing basis, therefore reinforcing the advantage.'*³⁷⁸ This can create barriers to entry.

Crémer et al. (2019) add: *'Access to non-anonymous individual data—including e.g., both historical and ongoing observed data—may often be necessary to offer a service to an individual or would greatly increase its quality. In the context of platforms, data might furthermore have a positive feedback loop where control over some of an individual's data increases the platform's ability to collect more of it. This can, for instance, happen when data interoperability reciprocity agreements are in place, e.g. all companies interconnecting with the platform need to provide a copy of all the collected data back to the platform allowing the platform to collect data on the user's activity outside the platform and centralise the data. In the context of ecosystems, private data API between services belonging to the same ecosystem might create a strong advantage for services that belong to the ecosystem, especially when the ecosystem is very large and involves numerous and diverse services.'*³⁷⁹

Former EU Chief Competition Economist Tommaso Valletti's 2019 testimony before the US Congress on the role of data for competition in the digital space says that *'privacy is at the core of the economics of many digital platforms, and competition is shaped around it. The possible degradation of consumer data protection can result from market power, and it will undermine the competitive process as well as lead to the detriment to consumer welfare.'*³⁸⁰

³⁷⁵ Campolo et al., 'AI Now report 2017'; Boutin, 'The Secretive World of Selling Data About You.'

³⁷⁶ Wachter and Mittelstadt, 'A Right to Reasonable Inferences,' October 9, 2018.

³⁷⁷ Crémer et al., *ibid.*, 29.

³⁷⁸ Crémer et al., *ibid.*, 31.

³⁷⁹ Crémer et al., *ibid.*, 31.

³⁸⁰ Tommaso Valletti, Testimony before the House Judiciary Committee Subcommittee on Antitrust, 'Online Platforms and Market Power: The Role of Data and Privacy in Competition'.

The interaction between competition, data protection and privacy, and consumer protection was recognised by the Australian Competition and Consumer Commission's final report on Digital Platforms (See Fig. 6.2).³⁸¹

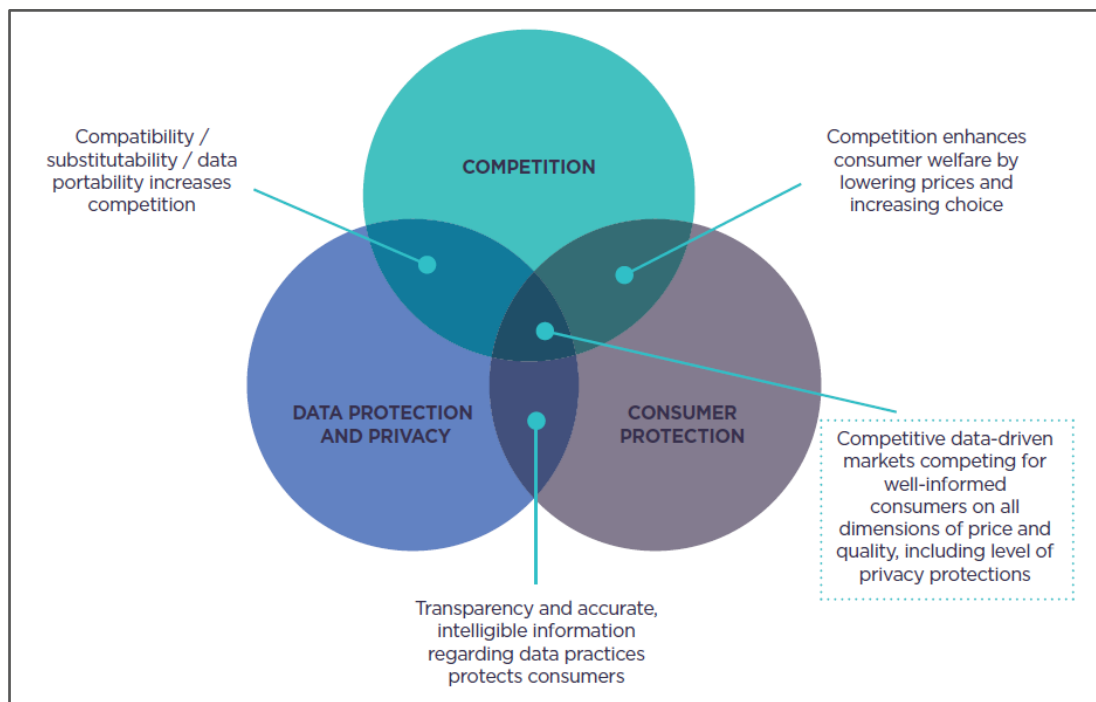


Fig. 6.2: Overlap between Data Protection, Competition and Consumer Protection³⁸²

For example, in a comment on Google's proposed acquisition of Fitbit, critics of the acquisition Caffarra and Valletti (2020) suggest that Google's acquisition and new product and service development strategies have been driven by the aim to collect ever more data about different aspects of our lives. They claim: 'It is not (necessarily) about the amount of data, but about the multi-modality: search, browsing, location, mobile, credit cards, and now health. What is critical to maximising the value of data is the ability to observe statistically significant information across apps and over time. Linking multiple pieces of information about individuals in a way that extracts relevant signals, and fast enough to show the relevant ad as soon as possible, is what enables the information to be mined most effectively to power the business model. Google is the largest such platform, with the ability to 'see' what users do along multiple dimensions, link it together and over time, with unrivalled analytics and computing power, and exploit it. This ability to aggregate individual-specific data into statistically meaningful signals (on location, age, gender, etc.) matters for competition. The point here is that data – which can be uniquely exploited and aggregated and mined – needs to be seen as the key driver for deals of this kind (in this case, the Google-Fitbit acquisition).'³⁸³

These authors make the point that privacy issues and competition issues are intertwined, claiming that privacy issues associated with platforms are inherently competition issues. They also claim that pursuing these objectives (privacy, and competition) need not be at odds with each other, as that there are technical solutions that enhance both competition and privacy. They denounce the argument that some online platforms put forth, that allowing data to be shared with other businesses necessarily compromises privacy, as self-serving and inaccurate. They refer to the promising work of Y.-A. de

³⁸¹ Australian Competition & Consumer Commission (ACCC), 'Digital Platform Inquiry: Final report', 5.

³⁸² ACCC Digital Platform Inquiry on Digital Platforms (p. 5). Adapted from the European Data Protection Supervisor, 'Preliminary Opinion on Privacy and Competitiveness in the Age of Big Data'.

³⁸³ Caffarra and Valletti, *ibid.*

Montjoye and colleagues on 'privacy-by-design', that integrate privacy and data protection safeguards in the heart of big data, by design and by default.³⁸⁴

Regulatory Challenge 3: Platforms' Systematic Avoidance of Sectoral Regulation

Apart from competition law, there is no overarching legal framework for regulating platforms, particularly with respect to structural power imbalances. Typically, in European economic law, there are specific rules for many sectors that ensure that the market economy thrives and social goals are achieved.

Digital platforms have often skirted sectoral regulations and traditional tax collection. Some of the strongest critics argue that platforms such as Uber have deliberately flouted regulations and that this systematic law-evading is at the core of their business models.³⁸⁵

For example, Uber and Airbnb offer equivalent services to taxi and hotel companies but, by characterizing themselves as technology companies that are mainly 'app providers,' they escape regulations for safety, insurance, hygiene, and other regulatory requirements that apply to taxis and hotels.

The question appears simple: Is Uber a transportation company? Is Facebook a media company? Is Airbnb a hotel company? Is Amazon a local retailer (subject to sales tax) or a catalogue company? If the answer is yes, then shouldn't these platform businesses be regulated like other firms in their sectors? At the heart of the issue is whether platform businesses can, or should, be categorized as the same type of company as those they compete against in the traditional economy. The answer has serious implications for operating costs and liability.

The specific dynamics of platforms have not been made the subject of a broad-based and comprehensive regulatory regime as had been done for energy markets, insurance companies or telecommunication. Of course, digital platform firms are subject to numerous rules in the EU – from the e-commerce directive to consumer protection laws, from the General Data Protection Regulation to rules on copyright or hate speech. But one of the regulatory difficulties is that some of the big platforms extend their operation beyond one sector to be of importance in many different branches of the economy. This makes it particularly difficult to set up a framework that is even adequate to sufficiently address their scope of activities.

The European Court of Justice has struggled with the categorisation of platforms in terms of regulation. Thus, even the most basic questions are not entirely clear. For example, in considering a platform like Uber, the Court decided that the undertaking is active in transportation so that the rules on transport regulation are directly applicable to Uber. However, for Airbnb, the Court stated that it is an information society service so that it is not directly subject to the rules for accommodation providers but enjoys the freedoms of the information society. The difference is due to the leeway the two companies leave to the supplier of the services – Uber drivers are more closely monitored by Uber than the hosts of accommodation are by Airbnb. Even if one may agree with the distinction drawn on this case-by-case basis, the different treatment of Uber on the one hand and Airbnb on the other shows that there is not yet a framework for what they have in common – acting as intermediaries on the basis of data.³⁸⁶

Regulatory Challenge 4: Social Media Platforms' Tackling of Illegal and Harmful Content Online

Another important unresolved issue that social media platforms face is that they have been directly involved with relaying user-generated incitements to terrorism, illegal hate speech, or child sexual

³⁸⁴ Imperial College London. Computational Privacy Group.

³⁸⁵ Edelman, 'Uber Can't Be Fixed—It's Time for Regulators to Shut It Down'.

³⁸⁶ Marsden and Podszun, *ibid.*, 17.

abuse material, as well as have relayed content that infringes on Intellectual Property rights and consumer protection online. The European Commission is concerned that the removal of illegal content online is not effective enough,³⁸⁷ and it has recommended a strong coordinated EU-wide approach. This is a complex issue which poses specific regulatory challenges.

A recent June 2020 study by De Streel et al. at the behest of the European Parliament's Internal Market and Consumer Protection³⁸⁸ found that the EU regulatory framework on content moderation is increasingly complex and has been differentiated over the years according to the category of the online platform and the type of content reflecting a risk-based approach. This baseline regulatory regime was complemented in 2018 by the revised Audio-Visual Media Services Directive, which imposes more obligations to one category of online platforms, the Video-Sharing Platforms. They should take appropriate and proportionate measures, preferably through co-regulation, in order to protect the general public from illegal content (terrorist content, child sexual abuse material, racism and xenophobia or other hate speech), and to protect minors from harmful content. Those rules are then strengthened by stricter rules for four types of content for which illegality has been harmonised at the EU level, including the Counter-Terrorism Directive, the Child Sexual Abuse and Exploitation Directive, the Counter-Racism Framework Decision, and the Copyright in Digital Single Market Directive.

Those stricter rules imposed by EU 'hard-law' are all complemented by self-regulatory initiatives agreed by the main online platforms, often at the initiative of the European Commission. This means that up until recently (i.e., up until the Digital Service Act proposals), the Commission's approach was to rely on the voluntary commitment of online platform firms on codes of conduct or codes or practices directly related to content moderation practices. However, the evaluation of those initiatives shows difficulties in measuring the commitments taken and in reporting on their effectiveness.

For example, in order to prevent and counter the spread of illegal hate speech online, in May 2016, the Commission had agreed with Facebook, Microsoft, Twitter and YouTube on a 'Code of Conduct on countering illegal hate speech online'. In the course of 2018, Instagram, Snapchat and Dailymotion joined the Code of Conduct. Jeuxvideo.com joined in January 2019, and TikTok announced their participation to the Code in September 2020, bringing to 8 the number of platform firms who agreed to abide by the Code. It is associated with a regular monitoring exercise set up in collaboration with a network of organisations located in the different EU countries. Using a commonly agreed methodology, these organisations test how the IT companies are implementing the commitments in the Code. Renamed in March 2018 as Recommendation of measures to 'effectively tackle illegal content online',³⁸⁹ this non-binding Code of Conduct recommended clearer 'notice-and-action' procedures, more efficient tools and proactive technologies, stronger safeguards to ensure fundamental rights, special attention to small companies, and closer cooperation with authorities. Member States were encouraged to establish the appropriate legal obligations.

The main tools used by online platforms to identify illegal content online are 'notice-and-take-down'/flagging by users, keywords/filters and A.I. tools that are based on machine-learning models. Most platforms interviewed in for the 2020 European Parliament study noted that depending on the type of illegal content online, automated tools have their limits in terms of accuracy, and thus, frequently must be accompanied by pre-/post-human moderation to ensure accuracy. The majority of online platforms have argued that the policies put in place by them to moderate illegal content online contribute to reducing the aggressive nature and the quantity of illegal content online. All online platforms interviewed in the study have implemented transparency policies on how they operate and respect fundamental rights. Most NGOs and hotlines reporting illegal content online have argued that

³⁸⁷ European Commission, 'Shaping Europe's digital future. Policy: Illegal content on online platforms'.

³⁸⁸ De Streel et al., « Online Platforms' Moderation of Illegal Content Online: Law, Practices, and Options for Reform. This summary of this study follows closely the executive summary of this study, including some verbatim excerpts.

³⁸⁹ European Commission, 'Shaping Europe's digital future: Commission Recommendation on measures to effectively tackle illegal content online'.

the effectiveness of the measures deployed by platforms to enable users to report illegal content fluctuates according to the online platform. Additionally, they noted that access to 'notice-and-takedown' procedures is not always user-friendly, whereas they should be easily accessible and not hidden in obscurity.

The main challenges in moderating illegal content online are linked to the large quantity of online content on platforms, which makes it difficult for users, regulators or moderators to assess all content as well as the fragmentation of laws regarding online content. The Member States are free to set their own rules regarding illegal content online, which limits the efficiency of platforms that have to create country-specific processes accordingly. The lack of a common definition of 'illegal content' also makes the moderation by platforms more complex as Member States may refer to different definitions. Therefore, some online platforms mentioned that this places the burden on them to identify the intent of the content uploader, which might incentivise online platforms to block lawful content in case of doubt on the illegality of the content. Moreover, all of them have complaint mechanisms in place for their users to report on illegal content online. However, some platforms have emphasised that many user complaints are off-topic or unsubstantiated and consequently unactionable. Almost all online platforms interviewed allow users to appeal against their decisions on the moderation of illegal content online through a 'counter-notice' procedure. However, most of the interviewed NGOs, trade/industry associations and hotlines reporting illegal content online stated that the measures used by online platforms are not sufficiently effective in moderating illegal content online and in striking an appropriate balance with fundamental human rights.

With regard to online disinformation, which is not always illegal but can be harmful to EU values, the main platforms have agreed to another European Commission-led voluntary code of conduct, the Code of Practice on Disinformation.³⁹⁰ It was signed on a voluntary basis in October 2018 by Facebook, Google, Twitter, Mozilla, and advertisers, with Microsoft joining in May 2019 and TikTok in June 2020. Signatories are asked to report on a monthly basis on their actions undertaken to improve the scrutiny of ad placements, ensure transparency of political and issue-based advertising and to tackle fake accounts and malicious use of bots. This Code is closely monitored by the European Commission. In addition to this multi-layered EU regulatory framework, several Member States have adopted national rules on online content moderation, in particular for hate speech and online disinformation. There are also proposals to hold platforms responsible not only for illegal content but also for harmful content, such as the UK White paper on 'online harms' that suggests to impose a statutory 'duty of care' for managing content in the public's interest.³⁹¹

Several regulatory challenges remain. The legal compatibility of those national initiatives with the EU legal framework is not always clear and the multiplication of national laws seriously risks undermining the Digital Single Market. Further, the social media moderation practices of online content are still problematic. One issue is that online platforms rely on Terms of Service/Terms of Use or Community Standards/Guidelines to regulate and user behaviour and base their illegal content online moderation practices. These Terms and Standards/Guidelines do not necessarily reflect a specific legal system. However, as they are designed to prevent harm, online platforms' policies do overlap in several instances with local law. In addition, the implementation of these Codes by online platforms may vary from one country to another; they are often stricter in identifying illegal content online to be removed than national laws or jurisdictions within which they provide their services.

Self-regulation initially appeared to encourage the European Commission to back away from the plan to propose binding EU legislation that would force online platforms to remove posts containing hate

³⁹⁰ European Commission. Code of Practice on Disinformation.

³⁹¹ See for example UK 'Online Harms' White paper.

speech.³⁹² According to Commission data from January 2018, Twitter, YouTube, Facebook and Microsoft reviewed about 82% of complaints about hate speech within 24 hours. This was a significant change from May 2017, when the firms reviewed only 39%. By January 2018, Facebook removed 79% of posts containing hate speech across the EU. YouTube took down 75%, and Twitter removed 45.7%.³⁹³ In June 2020 the European Commission's latest assessment of the non-legally binding agreement lauded 'overall positive' results — with 90% of flagged content assessed within 24 hours and 71% of the content deemed to be illegal hate speech removed. The latter was up from just 28% in 2016. However, the European Commission also found in its 5th biannual monitoring exercise published in June 2020 its assessment of this Code of Conduct that platforms were still lacking in transparency. Nor were they providing users with adequate feedback on the issue of hate speech removals, in the Commission's view.³⁹⁴ While platforms gave feedback to 67.1% of the notifications received, only Facebook was found to inform users systematically, with the Commission noting that 'all the other platforms have to make improvements.' Another criticism by the European Commission relates the inconsistencies in the platforms' evaluation processes, with assessments of flagged content that were showing 'divergences' in how they were handled.

In most recent months, EU lawmakers have signalled a possible turn toward moving away from relying on self-regulation on hate speech. The Digital Service Act consultation indicates as one of its options that the EU will update its rules around online liability and seek to define platform responsibilities with regard to online content. The Digital Services Act (DSA) represents the EU's ambitious plan to regulate online services and will cover areas of the platform economy ranging from liability for content, market dominance, and advertising, to safety, smart contracts, online self-employment, and future governance frameworks.

The nearing advent of the new European Digital Service Act seems to have propelled industry actors to make concrete propositions to regulators. For example, EDiMA, the Brussels-based European Digital Media Association (renamed Dot Europe in November 2020), a digital industry lobby group counting Google, Facebook, Airbnb, Amazon, Apple, eBay, Microsoft, TikTok, Spotify, and Twitter among others as members, published in 2020 an 'Online Responsibility Framework' where they take a position that online service providers should have a 'responsibility to take reasonable, proportionate and feasible actions to mitigate the presence of illegal content or activity on their services'. They have advocated for the focus to be first on illegal content, rather than on 'harmful' activity/content, because of that kind of content 'often falls into a grey zone when considered at EU level, where it may be illegal in some Member States, and 'not-illegal-but-harmful' in others. In their view, 'harmful' content poses serious problems online, but due to the fact that it is not always illegal, it cannot be acted upon in the same fashion as illegal content.' They add: 'With content/activity that is 'harmful' but not illegal, often a service provider will have to make determinations as to where to draw the line between free speech and the right to information versus the possible harm caused to users.' They provide the example of public insult of religion or blasphemy, which is not illegal in Denmark or France, but is illegal in Germany, Poland, Spain, or Italy. EDiMA's position is that 'in a broader sense, mandating that content deemed 'not-illegal-but-harmful' be removed - particularly in a pan-European law covering many different legal systems and cultural contexts - may adversely impact on users' freedom of speech and expression.'³⁹⁵ In an interview, EDiMA's director-general indicated that: 'It shouldn't be up to our

³⁹² The next few paragraphs are adapted from Cusumano, Gawer, and Yoffie (2020), 'Digital Platforms and Self-Regulation: Lessons from Historical Examples' (forthcoming in *Industrial and Corporate Change*).

³⁹³ European Commission, 'Results of Commission's Last Round of Monitoring of the Code of Conduct Against Online Hate Speech'.

³⁹⁴ Lomas, 'On illegal hate speech, EU lawmakers eye binding transparency for platforms'.

³⁹⁵ EDiMA, 'Fundamentals of the Online Responsibility Framework Series: A Legal Basis to Act'.

industry to define the legal context for every EU member state, because every context is wildly different.³⁹⁶

While some digital platform firms have agreed to sign on these self-regulatory but Commission-driven Code of Conduct or Code of Practice, the outcome of platform firms' actions had not been perceived as satisfactory enough to fend off the increasing dissatisfaction with big tech and the political will for regulation. The digital platforms' latest proposals indicate that now that regulation is obviously becoming a real possibility, they are more seriously beginning to attempt to credibly self-regulate and propose innovative solutions that straddle the line between free speech and slowing down the propagation of disinformation.

For example, in recent months, social media platforms' most decisive moves occurred in their attempt not to take down content per se, but to slow down the viral relaying of false information. In particular, Twitter's decision to label some posts as misleading – despite the persistent criticism from US President Trump and other conservatives – appears to have significantly reduced the spread of misinformation across the platform. Twitter said that those who viewed labelled tweets to which Twitter applied a label or warning message shared them less (Twitter noted a 29% decrease).³⁹⁷

Such actions may begin to indicate a promising path of convergence with regulators. For example, in September 2020, the European Commission Vice-President for Values and Transparency Věra Jourová indicated in a video call with Twitter CEO Jack Dorsey that the Commission's intention is not to introduce future rules that would force platforms to remove harmful content or disinformation, focusing instead on how such content spreads online, and noting the Commission's dedication to preserving free speech online. She indicated that 'in order to address disinformation and harmful content we should focus on how this content is distributed and shown to people rather than push for removal.'³⁹⁸

6.2. EU Regulations on Platforms' Effects on Employment and the Social Fabric, and Main Regulatory Challenges

6.2.1. EU Policies and Legislation

For the most part, the regulation of employment is carried out by national and subnational governments. However, there are a series of efforts and directives at the EU level, which aim to set minimum standards.³⁹⁹ While there are a variety of such directives on issues around non-standard employment, until recently there was little in the way of regulation directly oriented towards platform work.⁴⁰⁰ This section will briefly cover the relevant directives and communications.

A European Agenda for the Collaborative Economy (2016)

This communication, which aims to directly set out principles for the digital economy and platform work, is significant for a number of reasons. First, it sets out an EU definition of a 'worker'. While Member States determine their own categories, when applying EU law, an EU definition is used. Here, the definition of worker is based upon Court of Justice of the European Union (CJEU) statements: *'the essential feature of an employment relationship is that for a certain period of time a person performs services for and under the direction of another person in return for which he receives remuneration'*.⁴⁰¹ The agenda

³⁹⁶ Stolton, 'Digital Services Act should avoid rules on 'harmful' content, Big Tech tells EU'.

³⁹⁷ Wells, 'Twitter Says Labels and Warnings Slowed Spread of False Election Claims'.

³⁹⁸ Stolton. "Content removal' unlikely to be part of EU regulation on digital services, Jourova says'.

³⁹⁹ Forde et al., 'The Social Protection of Workers in the Platform Economy,' 92.

⁴⁰⁰ Codagnone et al., 'The Future of Work in the 'Sharing Economy': Market Efficiency and Equitable Opportunities or Unfair Precarisation?', 51.

⁴⁰¹ European Commission, 'A European Agenda for the Collaborative Economy,' 12.

states that whether an employment relationship exists or not must be settled on a case-by-case basis and be judged by three core criteria. First, the existence of subordination whereby 'the service provider must act under the direction of the collaborative platform, the latter determining the choice of the activity, remuneration and working conditions.'⁴⁰² Second, there is the nature of the work whereby 'the provider of the underlying service must pursue an activity of economic value that is effective and genuine, excluding services on such a small scale as to be regarded as purely marginal and accessory.'⁴⁰³ Lastly, there must be the presence of remuneration, which distinguishes volunteer work from employment. Significantly, this agenda sets out a broad definition of 'employee' which incorporates most platform work and which implicitly disagrees with many of the arguments put forth by platforms for their use of the self-employed category. For instance, the lack of constant supervision by a manager is not sufficient to avoid the existence of subordination criterion.⁴⁰⁴ By putting forth this broad definition of employment, the agenda actively seeks to include platform work into the scope of EU labour law.

The second key contribution of this communication is its argument that sectoral regulations should apply to platforms that are service providers and not mere intermediaries.⁴⁰⁵ While many platforms have tried to evade regulations – such as those regulating hotels or taxi services – by arguing that they are simply intermediaries, this communication implies that they may not be simple intermediaries and should therefore be subject to sectoral regulation. Significantly, one of the ways to determine whether a platform is a service provider is the level of control they have over their workers. If they have employees, by the CJEU definition, then it is highly likely that they will be determined to not simply be intermediaries.⁴⁰⁶ These formulations became particularly important in December 2017 when the CJEU determined that Uber was a service provider and therefore subject to sectoral regulations.⁴⁰⁷ This ruling opened the door for countries to impose sectoral regulations, while also shutting the door on a number of complaints that Uber had filed against various EU Member States.⁴⁰⁸

Directive on Transparent and Predictable Working Conditions (June 2019)

The Directive on Transparent and Predictable Working Conditions is an updating of the 1991 Written Statement Directive, with the aim of increasing the transparency around working conditions for those in non-standard contracts.⁴⁰⁹ As one analysis notes, the directive is 'the first piece of EU legislation explicitly to address the risks of variable work schedules, such as on-demand work, platform work or zero-hours contracts.'⁴¹⁰ It does so by mandating a number of new provisions for non-standard work. First, workers must be given quick and accessible information about the nature of their work contract. Second, it sets minimum constraints around the unpredictability of work in things like zero hours and on-call contracts. It also supports workers transitioning to more permanent contracts after a specified period of time.

There remains ambiguity about who the directive applies to though. While the provisions have been widely publicised as being applicable to platform workers, in fact, this is less clear than presented. The directive continues to exclude self-employed workers from its remit, and at best suggests that national courts refer to the CJEU definition of a worker when applying the directive.⁴¹¹ In fact, while the initial

⁴⁰² European Commission, 12.

⁴⁰³ European Commission, 12–13.

⁴⁰⁴ Drahekoupil and Fabo, 'The Platform Economy and the Disruption of the Employment Relationship,' 5.

⁴⁰⁵ European Commission, 'A European Agenda for the Collaborative Economy,' 6.

⁴⁰⁶ De Stefano and Aloisi, 'European Legal Framework for "Digital Labour Platforms,"' 30.

⁴⁰⁷ Ram et al., 'EU Ruling on Uber Opens up Company to New Claims.'

⁴⁰⁸ Hirst and Plucinska, 'The Uber Opinion.'

⁴⁰⁹ Bednarowicz, 'Delivering on the European Pillar of Social Rights,' 610–11.

⁴¹⁰ Piasna, 'Better Working Conditions, More Predictable Work - The New EU Directive.'

⁴¹¹ Bednarowicz, 'Delivering on the European Pillar of Social Rights,' 621.

proposal around the directive included an expanded concept of 'worker', this, in the end, was watered down by Member States to a recommendation that Member States *consider* the CJEU definition and case law.⁴¹² As a result, even the relatively minimal protections offered by the directive are uncertain in their application to platform work.

The directive also says nothing about employment classification and access to social protection.

Council Recommendation on Access to Social Protection for Workers and the Self-Employed (November 2019)

More recently, there is the Council Recommendation on Access to Social Protection for Workers and the Self-Employed. This proposal stems from the principles of the European Pillar of Social Rights and explicitly aims to tackle the issue of non-standard workers having difficulties accessing social protection. There is a significant disparity in access between full-time employees and non-standard workers. While not offering much in the way of specific solutions, the recommendation does argue against applying the same rules to all groups and instead argues for tailored approaches with the goal of ensuring access for everyone.⁴¹³ It also recommends that Member States ensure access to social protection for all workers regardless of employment status.⁴¹⁴ The impact of this recommendation is too early to determine.

6.2.2. Regulatory Challenges on Employment and the Social Fabric

This section describes the three main regulatory challenges regarding platforms' effects on employment and the social fabric.

Regulatory Challenge 5: The Miscategorisation of Platform Employment

As discussed earlier, the categorisation of platform workers as 'self-employed' has been the hallmark of much of the new platform economy and has also been the source of numerous problems stemming from these companies. This particular employment model has been most closely associated with Uber, but its reach extends far beyond that company. The 'innovation' here has been to use platforms as both a technological and legal reason to avoid traditional employment contracts.

On the one hand, technology enables the coordination of numerous workers without a centralised workplace. It also allows for the erasure of a traditional manager overseeing the production process, instead of being replaced by a series of algorithms that determine workflows and targets. These changes have enabled companies to argue that they are not subject to traditional legal understandings of the category of 'employee', often based on conceptions of a direct supervisor overseeing the work.

Platforms have also routinely argued in court cases that they are merely intermediaries and technology companies, not employers of the services they may intermediate. To date, legal systems have found it difficult to catch up to the reality of the facts on the ground that these platforms are employers of their 'self-employed' workers, that they do exert significant control over the work and its performance, and that they do entail workers become dependent on them for their work. The key regulatory challenge here is that existing labour law is often unclear or enables loopholes for these companies to argue otherwise. Some revision of the current ways of categorising workers will have to take place.

Regulatory Challenge 6: Disproportionate Power of Platforms over Workers

Another prominent feature of much platform work is the significant disparity of power between workers and platforms. While there has been a generally growing imbalance of power towards

⁴¹² Bednarowicz, 609–12.

⁴¹³ The Council of the European Union, 'Council Recommendation of 8 November 2019 on Access to Social Protection for Workers and the Self-Employed (2019/C387/01),' C 387/3.

⁴¹⁴ The Council of the European Union, C 387/5.

companies over workers in recent decades, platform workers also pose novel regulatory challenges for any attempt to address these problems.

The digitally mediated nature of platform work means that workplace surveillance has taken on a variety of new and increasingly ubiquitous forms: expansive, intensive, and all the more invisible compared to traditional means of management. This has meant that workers struggle to maintain autonomy in the face of these platforms. And in some cases, union activities have been closely monitored and even repressed by these firms. All of this has added to the imbalance between workers and firms.

There is also a growing information asymmetry between workers and platforms. While the latter are immense centralisers of data across their expansive infrastructures, the former often have little insight into the operations of the platform. Algorithms which determine who gets work, when, and how are opaque – and pay determinations are often equally as obscure. Likewise, vast amounts of information are often collected about individual platform workers, but the workers themselves lack similar insight into the platform. This information asymmetry also exacerbates the power differentials in these companies.

The 'self-employed' nature of much platform work has also put significant limits on the ability of workers to address these problems themselves. Since unionisation is deemed to be akin to creating a price cartel, one of the traditional means of giving workers' power has been unavailable to those who work on platforms. Moreover, as discussed earlier, the self-employed nature of the work also tends to exacerbate the competitiveness between workers, each being understood as their own individual entrepreneur.

The regulatory challenge is all of this is immense: not only having to go against the grain of decades of rollbacks against unions and the impacts of globalisation and technology on worker power but also have to address the unique challenges of platform work. Any answer to these issues must be equally as wide-ranging as the problem.

Regulatory Challenge 7: Low Wages for Platform Workers

One consequence of the above power imbalance is the low hourly wages (or their equivalent in piece rates) that are common to much of platform work. There are a variety of reasons for this – many of which can pose challenges for regulatory fixes. The use of piece-rate wages is one such example. Workers being paid by the task completed may seem reasonable on the face of it, but it neglects the numerous ways in which the time to complete a task may take much longer through no fault of the worker (e.g. having to wait at a restaurant for a delivery order). Piece rates also ignore the unpaid work time where workers may be active on the platform but not immediately performing a task. Drivers and delivery rides may have to wait long periods of time before picking up a new fare or order, and crowdworkers often have to spend hours of time searching for new jobs and completing tests to be hired. These sorts of aspects mean that payment per task completed can often end up paying much less than the local minimum hourly wage.

Similar challenges emerge with the fact that the 'self-employed' status of many platform workers means they must pay for much of the tools and support they need: ranging from accident insurance to bikes to vehicle leases. The result is that the headline figure of pay for these positions often ends up with much smaller take home pay – again, in some cases, ending up below the local minimum hourly wage.

The regulatory challenge is how to ensure that, at the very least, no one ends up below the minimum wage – and that ideally, everyone ends up earning at least the local living wage. This may be difficult for some types of platform work, but it is not insurmountable. Many countries have, for example, procedures for ensuring that piece rates meet minimum wage requirements. And allowances can be one way to ensure that the expenses of some platform work do not cut into the pay of workers.

7. Policy Options

As this study's scope encompasses both economic and social impacts of online platforms, it has allowed us to draw insights from a broader knowledge base than other more focused reports, leading us to uncover patterns and some degree of similarities across these areas. The observable impacts of the online platforms presented in the report provide evidence of a set of important problems that are not fully covered by existing regulation. The question then becomes, what policy options can be drawn? This chapter lays out our policy options on competition and innovation (Options 1 to 6); on working conditions and labour market dynamics (Options 7 to 10); and on societal risks and environmental sustainability (Options 11 and 12).

As this report was being finalised, the European Commission published in December 2020 its proposal for a Digital Markets Act (DMA) and a Digital Services Act (DSA). While a detailed point-by-point analysis of the DMA and DSA was out of scope, Policy Options 1-6 were drafted to inform Members of the European Parliament's consideration of the DMA and DSA.

The report welcomes the proposals in the European Commission's DMA and the DSA, which take policy and regulation in the right direction in Europe. The report differs from the DMA and the DSA proposals in calling for (1) a stronger merger control regime for gatekeeper platforms; (2) that each gatekeeper platform should have its own tailored enforceable Code of Conduct; (3) greater scope for national authorities to intervene where there are country-specific issues; (4) a new users' right to reasonable inferences to curtail the generation of 'high-risk inferences', i.e., those that are privacy-invasive, reputation-damaging, and have low verifiability. In addition, one of the central issues raised in the DSA is the treatment of illegal content discussed in Section 6.1. The report does not offer alternative policy options on this topic, as the Commission's DSA proposals in this area appear broadly appropriate.

Establish a Coherent Principle-Based Platform Regulatory Framework

The consensus of the reports and studies conducted in recent years is that there is a need to strengthen the current law enforcement and regulation of the platform economy. Digital platforms need a consistent legal framework and provide reasonable rules that enable them to work effectively. This legal framework needs to guarantee that consumers benefit from reducing costs and innovation and that workers have access to dignified work and fair social protection. This report concurs with the Marsden and Podszun report's approach on the importance to recall the substantive principles that should govern the new rules.⁴¹⁵ This report adopts their formulation for the first three principles for competition rules and added three more that are related to work and labour market dynamics. These principles should have a constitutional character, as befits a new EU platform framework.

- *Freedom of competition*
- *Fairness of intermediation*
- *Sovereignty of decision-making*
- *Access to fair social protection for all workers*
- *Access to dignified work and minimum living standards*
- *Support of workers' voices in the organisation of their work*

7.1. Policy Options on Competition and Innovation

The digital competition regulatory landscape of online platforms and their ecosystem members are reaching an inflexion point, which is the culmination of the past four years of intense scholarly and regulatory activity. During that time, regulators and conduct authorities in many regions of the world have initiated a number of antitrust actions and launched various consultations. These activities have

⁴¹⁵ Marsden and Podszun, *ibid.*, 36.

led to many expert reports evaluating competition in digital markets and the impact of online platforms on competition and innovation.⁴¹⁶ Two recent events are noteworthy and possibly 'game-changers'. In October 2020, the United States Department of Justice sued monopolist Google for violating antitrust laws. And in Europe, in December 2020, the European Commission's unveiling of the proposed digital services act presented an ambitious regulatory package that aims to update the legal framework for digital services in the EU, a framework that had been largely unchanged since the adoption of the e-Commerce Directive in 2000.⁴¹⁷

Short-Term and Long-Term Regulatory Change

Pierre Régibeau, Chief Competition Economist at the European Commission, suggested in a recent conference that regulation needs to consider two time-horizons: the short run, and the long run.⁴¹⁸ In the long run, new economic theory will have to be developed, as the consensus grows on the fact that fundamental assumptions of economic-based regulation are not met in the digital economy. Régibeau indicated for example, that 'the assumption that markets work and are efficient does not hold'. Traditional competition policy and regulation recognise that markets do not operate fully as the models predict, but it has aimed at maintaining every industry functioning as close as possible to the competitive ideal of how markets theoretically operate (as described by theories ranging from Adam Smith to Walras to Arrow-Debreu's theory of general equilibrium). But in the digital economy, as explained earlier, increasing returns to scale, the role of data, network effects, and the two-sidedness of platform business models create fundamental challenges.

As developing new theory is likely to take a long time, and will require interpreting evidence from behaviours and consequences that are only beginning to unfold, it follows that competition policy challenges have to be dealt with both an eye on both the short run and the long run. In the short run, the challenge is, 'how can we adapt the tools we have while waiting for a resolution of the long-run issues'? Régibeau explains that 'the huge social implications of the behaviour of some of the new online platforms make these issues even more important and politically fraught.' Doing nothing in the meanwhile is not an option, and there is a need 'to adapt the tools we have while waiting for a resolution of the long-run issues.' He also suggests that there is a need to 'invent a new form of regulation, where flexibility and experimentation are paramount.'

While this report agrees with Régibeau's distinction between actions that need taking in the short run and those required in the long run, the principles upon which regulation will be drawn ought to be of a constitutional nature. The stability provided by the principles can underpin continuity of objectives even as regulation may need to adapt to changing circumstances.

7.1.1. Key Option 1: Establish a New Ex-Ante Pro-Competitive Regulatory Framework with an Enforceable Code of Conduct for Gatekeeper Platforms

Platform firms with a high degree of market power should not abuse the power they derive from their monopolistic or dominant position to compete and should be prevented from using exclusionary practices, foreclosing markets or exploiting customers to a degree that they would not achieve under competitive positions. The report agrees with the concerns expressed in the majority of reports that competitive issues associated with digital platform firms' behaviours are so wide-ranging and self-reinforcing that existing legislative powers are not sufficient to address them.

⁴¹⁶ See footnote 291.

⁴¹⁷ European Commission, 'Digital Services Act Package: Deepening the Internal Market and clarifying responsibilities for digital services' and 'Digital Services Act Package: An ex-ante regulatory instrument of very large online platforms acting as gatekeepers'.

⁴¹⁸ Régibeau, 'Platforms and digital markets regulation: In search of new principles'.

The report broadly supports the proposal of the European Commission's Digital Services Act,⁴¹⁹ a new ex-ante regulatory framework that aims to ensure that online platform ecosystems controlled by large online platforms that benefit from significant network effects remain fair and contestable, in particular in situations where such platforms may act as gatekeepers. It is recommended that the European Parliament legislates to introduce a new regulatory ex-ante regime for platforms comprising both pro-competitive interventions and an enforceable code of conduct for gatekeeper platforms.

In agreement with the UK Furman Review and the UK Competition and Market Authority, the report recommends the development of an enforceable code of competitive conduct, to be applied to platforms with gatekeeper power (otherwise referred to as with 'strategic market status' in the UK reports) and to be developed with their cooperation. This would lead to the agreement of ex-ante rules of behaviour towards smaller companies, aimed at avoiding lengthy and uncertain antitrust procedures. In agreement with the Digital Services Act, this new framework would complement the horizontally applicable provisions of the Platform-to-Business Regulation (EU) 2019/1150, which would continue to apply to all online intermediation services. The more limited subset of large online platforms subject to the additional ex-ante framework would be identified on the basis of a set of clear criteria, such as significant network effects, the size of the user base and/or an ability to leverage data across markets.⁴²⁰

This regime will address a range of concerns simultaneously, with powers to act swiftly to address both the sources of market power and its effects. As institutional redesign of enforcement mechanisms, detailed in Option 6, is recommended, with dedicated units within DG-COMP and DG-CONNECT with increased power to monitor and adjust interventions in the light of evidence and changing market conditions. Rather than rely exclusively on the current enforcement approach that focuses only on punishing harms after they have happened, this legislation will include a list of normative obligations ('Dos and Don'ts') that will be useful for preventing harm. It would aim to establish clear obligations and prohibited practices for large online platforms with economic power, leading to provide European consumers and business users more choice and access to innovative solutions.

Dominant platforms should be responsible for setting their rules and design their technological interfaces in a way that they do not impede competition without objective justification.⁴²¹ The Furman Review suggests stronger use of interim measures to prevent damage to competition while a case is being investigated. The report agrees that in general, the aim should also be to speed up procedures and focus on remedies to anticompetitive behaviour, rather than relying on fines and 'cease and desist' decisions.⁴²²

In addition, in agreement with the Digital Services Act Option 3b of the Digital Services Act consultation, this option includes an ability to impose, where considered necessary and justified following a prior assessment, tailor-made remedies envisaged by such framework covering the specific issue(s) and individual large online platform companies at stake, and applied on a flexible, case-by-case basis. This would address the diversity and fast evolution of specific phenomena in the online platform economy.

The DMA proposal published in December 2020 differs from the proposed UK regime, which would allow for a code of conduct to be tailored to the potential competition harms arising from a particular

⁴¹⁹ European Commission, 'Digital Services Act Package: An ex-ante regulatory instrument of very large online platforms acting as gatekeepers'.

⁴²⁰ European Commission, Digital Services Act.

⁴²¹ Crémer et al., *ibid.*, 61; German Federal Ministry for Economic Affairs and Energy, 54.

⁴²² In a recent report, Feasey and Kramer (2019) suggest taking more proactive measures in implementing remedies after cases of intermediation bias by vertically integrated platforms. They highlight the value of experimentation when devising remedies. CERRE (2019), 'report: Implementing Effective Remedies for Anti-competitive Intermediation Bias on Vertically Integrated Platforms'.

business. In contrast, the European Commission's list of 'dos and don'ts' is intended to apply across the board to all gatekeepers, with only limited flexibility for dialogue with the European Commission in order for it to 'specify' whether a business's proposed compliance arrangements are consistent with its DMA obligations. The report suggests that in the Parliament's evaluation of the DMA proposal, the proposed act be amended so that each 'gatekeeper' platform should have its own tailored enforceable code of conduct.⁴²³

7.1.2. Key Option 2: Ensure Freedom of Competition

The rules presented in this option support the principle of freedom of competition. The report has explained how companies that have privileged access to data gain and sustain a significant competitive advantage over others. This grants them better insights through big data analytics and allows them to provide better services, but it also raises risks. When platform markets tip, only one platform survives and occupies and controls the interface with users. As Marsden and Podzun describe, this gateway becomes a bottleneck, which leads to economic dependency and limited choice for users. Consumers find their choice limited or controlled, which leads to exclusion and exploitation through changing or unfair terms of trade. This imbalance of power raises risks of reduced choice and innovation.

In broad agreement with the DMA and the DSA, and in line with Marsden and Podzun (2020), this report, therefore, recommends rules for ensuring openness and on-platform competition, neutrality, interoperability, and adopts these authors' formulation.

Openness and On-Platform Competition: In terms of openness, platforms should not impose undue restrictions on the ability of users of the platform (be they individual consumers or businesses) to use other platforms or service providers that compete with the platform. Platforms should also not use undue restrictions to prevent these users from competing with the platform itself. As for on-platform competition, platforms that have created online marketplaces must ensure that there is free on-platform competition. The platform that makes the rules of the marketplace needs to respect antitrust rules.

Neutrality and Self-Preferencing: For neutrality, platforms should not mislead users or unduly influence competitive processes or outcomes by employing means to self-prefere their own services or products over services or products of competitors. The rules suggested by the Vestager report and the German Federal Ministry for Economic Affairs and Energy report include prohibitions on self-preferecing, the application of mechanisms to port data and the promotion of interoperability.⁴²⁴ This report agrees with the Vestager report and the German Federal Ministry report's recommendation that, in the case of self-preferecing by a dominant vertically integrated platform or other conducts in markets characterised by strong network effects and high barriers to entry, the incumbent should bear the burden of proof to demonstrate that its actions are pro-competitive.⁴²⁵ It may be necessary, for example, to prevent a platform like Amazon from actively engaging in competition on their own platform.⁴²⁶ For the Vestager report and the German Federal Ministry report, no new rules are deemed necessary for non-dominant platforms.

Interoperability: Platforms must make it possible for others to build products or services that are interoperable. Since the Microsoft antitrust case, interoperability is an established feature of competition law. This report recommends, in agreement with Marsden and Podzun, the Vestager

⁴²³ UK Competition and Market Authority, 'Market Study Final report on Online Platforms and Digital Advertising', 23. See also Caffarra and Scott Morton, 'The European Commission Digital Markets Act: A translation'.

⁴²⁴ The Vestager report is the report by Cr mer, de Montjoye, and Schweitzer, 'Competition Policy in the Digital Era: report for the European Commission'. The German Federal Ministry for Economic Affairs and Energy, 'New Competition Framework for the Digital Economy: report by the Commission 'Competition Law 4.0'.

⁴²⁵ Cr mer et al., *ibid.*, 51.

⁴²⁶ Khan, 'Amazon's Antitrust Paradox,' 793–94.

report, the Furman report, and the Stigler report, to regulate to impose interoperability of systems and greater personal data mobility in order to increase competition and consumer choice, for example by a common API. This report also agrees with the Vestager report suggestion that stringent data portability rules should apply to dominant platforms to facilitate consumer switching. GDPR has already taken a step in that direction, giving consumers greater control over their personal data. The Vestager report states that complementing this control with sector-specific regulation or the application of Article 102 TFEU could have a positive effect.⁴²⁷ Under Article 102, competition courts or authorities would need to specify the cases in which firms can access dominant firms' data (and specify the data they can access).

For example, this report agrees with the UK CMA report's analysis that there is a strong case for interventions to tackle the source of Google's market power in search.⁴²⁸ The new regulatory units (described in Option 6) should have powers to introduce search choice screens and restrict Google's ability to secure default positions on devices and browsers where these are key entry points to the market. It should also have powers to require that Google provide rival search engines with access to its click-and-query data to overcome its scale advantages in data.

This report agrees with the UK CMA report in that interventions in social media to tackle the source of Facebook's market power should focus on increasing its interoperability with rival platforms to overcome the network effects that currently act as a significant barrier to entry and expansion.⁴²⁹ There is a strong case for mandating greater interoperability in relation to finding contacts and cross-posting functionalities, while the code would help to ensure that future decisions by Facebook to shut off or deprecate APIs do not have harmful effects on competition and consumers.

Our option strikes a middle ground among various reports' proposals. It does not go as far as the German Federal Ministry report that proposes that dominant platforms should be obliged to allow users to port their user and usage data in real-time and in an interoperable data format and to ensure interoperability with complementary services.⁴³⁰ In terms of competition enforcement, the Stigler report goes even further. It suggests allowing the US Federal Trade Commission to access dominant platforms' internal databases and studies; perform its own research on the impact of platforms using this data; and moderate independent researchers' access to the data.⁴³¹ This report does not advocate for these exact instantiations of how to achieve interoperability be followed, as they seem over-specified to us.

This report recommends, in contrast to the Vestager report, and in agreement with the Marsden-Podszun report, that even non-dominant platforms should be subject to some pro-competitive rules such as interoperability. But the degree of enforcement should be commensurate with the degree of market power that the platform has.

7.1.3. Key Option 3: Strengthen Competition Rules for Merger Control

Regarding merger control, this report finds that the DMA proposal does not go far enough to address merger control for gatekeeper platforms, given that it only asks for **merger notification**. This report recommends strengthening the current competition framework that assesses mergers. It proposes that the competition authorities should assess whether, on balance, a merger is expected to be beneficial or harmful, accounting for the scale of the impacts and their likelihood. The criteria to assess impact

⁴²⁷ Crémer et al., *ibid.*, 8-10.

⁴²⁸ UK Competition and Market Authority (CMA), 'Market Study Final report on Online Platforms and Digital Advertising'.

⁴²⁹ UK CMA, *ibid.*

⁴³⁰ German Federal Ministry for Economic Affairs and Energy, *ibid.*, 55.

⁴³¹ Scott Morton et al., 'The Stigler report', 17.

should go far beyond just impacts on prices and instead include aspects such as data monopolies, privacy risks, and impacts on innovation.

In agreement with the French Economy and Finance Ministry report,⁴³² this report suggests that specific guidelines be developed and that a second-opinion procedure be introduced to assess efficiencies. This report also agrees with the German Federal Ministry report proposition to introduce a voluntary notification procedure at the EU level for new forms of business cooperation in the digital age. This would give firms the right to receive a decision in a shorter period of time than is currently the case. It also recommends developing specific guidelines for data-based, innovation-based and conglomerate theories of harm.

This report agrees with the Vestager report proposal of a new set of questions to assess acquisitions that involve a dominant platform or ecosystem. These questions are: (1) Does the acquirer benefit from barriers to entry linked to network effects or data use? (2) Is the target a potential or actual competitive constraint within the technological/user's space or ecosystem? (3) Does its elimination increase market power within this space, notably through increased barriers to entry? And (4) If so, is the merger justified by efficiencies? Given these criteria, especially the barriers to entry linked to data use, this report shares many experts' concerns over the European Commission's clearance of Google's acquisition of Fitbit.

The Stigler report made a useful recommendation to shift the burden of proof or relax the proof requirement when a dominant platform is involved in a merger or acquisition. This report recommends it for gatekeeper platforms.

7.1.4. Key Option 4: Ensure Fairness of Intermediation

Platforms that act as a central and unavoidable intermediary between multiple sides can have the incentive and the ability to abuse this position. Platform firms often claim they have the incentives to maintain trust on their platform, but evidence shows that they can easily make decisions that can have negative effects on platform users. The effects of these unilateral decisions are made worse in the case of bargaining power imbalance and the lack of viable substitutes to some platforms. In order to foster or restore trust on platforms, and in broad agreement with the DMA and the DSA, this report agrees with Marsden and Podszun's option to strengthen the rules of fairness vis-à-vis consumers, which are currently only imperfectly covered by the Directive on Unfair Commercial Practices (Directive 2005/29/EC) despite the 2019 amendments. The report suggests the following rules, as described in Marsden and Podszun:⁴³³

Non-Discrimination: Platforms must not discriminate against individual suppliers or users seeking access to the platform. Every user must have similar access and not be unduly prevented from using the platform.⁴³⁴ The platform companies may only exclude on the basis of substantive, transparent, and objective grounds. Discrimination amounts to foreclosure to the market.

Fair Terms: Platforms must trade on fair and reasonable contractual terms, without exploitative pricing or behaviour. When the bargaining position is completely out of balance, such as for gatekeeper platforms, the law must intervene and find remedies.

Controllability of Algorithmic Decisions, AI, and Reviews: Platforms must be transparent and fair about the working of their algorithms, and this needs to be controllable. Ranking parameters should be disclosed to users, as per the Platform-to-Business regulation. Reviews must be fair. Further, platforms need to allow audit and scrutiny of their operations by the regulators so that they can be

⁴³² Perrot et al, 2019.

⁴³³ The rules proposed in Key Option 4 are inspired by the Marsden and Podszun report (2020), the text follows closely the section where they are clarified further at pp. 44-45.

⁴³⁴ Sitaraman, 'Regulating Tech Platforms: A Blueprint for Reform'.

controllable and if necessary, be held accountable. This does not imply that companies have to disclose the algorithm to the regulator, but that liability in case of infringement must still be ascribed directly to the company.

Access to Justice: Platforms must submit to an independent arbitration mechanism. The right to seek redress is essential. Platforms should bind themselves to an arbitration system for disputes between the platform and users, be they individual consumers or business users. This should also be put in place for disputes amongst users of the platform. The arbitration system should work quickly. Companies or users seeking redress should not be punished by the platform. The arbitration system should operate independently from the platform. And the report suggests that the platforms cover the costs of running the arbitration system through a special levy, which would be proportional to the platform's revenues.

7.1.5. Key Option 5: Ensure Sovereignty of Decision-Making

The report has shown how some platforms' overarching objective and logic of 'datafication' of human beings' activities and characteristics can lead to abusive behaviours. As Marsden and Podszun put it, 'users merit a particular respect as human beings.' As such, users should not be reduced to being sources of data and deliberately manipulated by platform firms to prevent them from making legitimate decisions or from making decisions that are contrary to their interests. The constitutional principle to uphold is that of the sovereignty of human decision-making. This report agrees with Marsden and Podszun that in the digital world, users' sovereignty to make their own decisions needs some special attention and should therefore be included in a platform regulation. Platforms, for instance, sometimes design technologies and user interfaces that leave users with no choice, restrict their choice, or provide them with insufficient or deliberately biased information to make informed choices. The user interface technologies services that platforms design should not aim to manipulate users into restricting their choices, to mislead them, or to elicit addictive behaviour.⁴³⁵

Users' privacy should also be respected. In agreement with the DSA, this report recommends that platforms must offer users a real choice on the use of data, including which data, for which application; from which sources, and related to the combination of data. Privacy is a competition issue. The principle of data minimisation (that is, only asking for the data that is essential for the service) should be respected.

Beyond privacy, platforms can use big data, algorithms, predictive analytics, models, and machine learning to create more and more inferences about individuals. These inferences are in turn used to manipulate, assess, predict, and nudge individuals – often without their awareness and nearly always without any oversight or accountability. Moreover, research has repeatedly shown these sorts of systems to be plagued by biases and inaccuracies. Platforms should offer users the right to reasonable inferences, and to curtail eliminate the generation of 'high-risk inferences', meaning inferences that are privacy-invasive and damaging to reputation, and have low verifiability in the sense of being predictive or opinion-based.⁴³⁶

Platforms must allow customers to make important decisions. In that regard, this report also highlighted the power of defaults default options – such as whether particular services are opt-in or opt-out. Platforms should not drive users out their decision-making capacity inasmuch as they relate to most important economic decisions, such as which service to choose, or what to buy. Platforms should also not impose mandatory extensions of service, which are akin to illegal tying. These are problematic because they allow platforms to leverage their market power in one market to enter another market.

⁴³⁵ The following points are inspired by the Marsden and Podszun report (2020), the text is loosely based on the section pp. 46-47.

⁴³⁶ Wachter and Mittelstadt, 'A right to reasonable inference: Re-thinking data protection law in the age of Big Data and AI.'

The Platform Compliance Unit described in Option 6 should have powers to give consumers greater control over the data they provide to platforms, including by requiring platforms to give consumers a choice over whether to receive personalised advertising.

A 'fairness-by-design' duty under the code of conduct would ensure that digital platforms design choice architecture in a way that encourages free and informed decision making by consumers, with a requirement to trial and test alternative approaches. The fairness-by-design approach, as described in the UK CMA report, requires platforms to be (1) accessible, by ensuring that information and options are clear and easy to find and processes are smooth); (2) balanced, in that platforms should ensure that information and options are presented in a fair way, enabling users to form their own opinions, and (3) consistent and enabling, in that platforms should enable users to make choices that want to make now and respect their choices including their ability to change their decisions.⁴³⁷

7.1.6. Key Option 6: Institutionalise a Robust and Adaptive Set of Enforcement Mechanisms

The earlier section on regulatory challenges pertained not only to the questions of **what** platform behaviours to regulate but also on **how** to regulate online platforms. The examples of purely voluntary codes of conduct or practice in the case of online content have shown the limits of relying purely on a self-regulation approach. There have been calls for the creation of enforceable codes of conduct that follow the concept of 'participative antitrust'. The term, attributed to Professor Jean Tirole, refers to the active engagement of firms in the design of their own regulation.⁴³⁸ In digital markets, such a code of conduct would incentivise firms to participate, as they would benefit from clear rules that allowed them to innovate without the uncertainty that broader antitrust prohibitions might entail. However, critics of participative antitrust pointed out that participants could use this process to serve their own interests. The Furman Review recognises that restricting one's own behaviour might not be in line with firms' natural incentives; therefore, there also needs to be scope for regulatory enforcement when 'a participative approach is not effective'.

To be flexible and robust, appropriate enforcement will therefore require an institutional redesign. It should aim to combine the advantages of regulation with its power to hold accountable and to enforce, and of some degree of self-regulation. It should also combine the regulatory initiatives and the competition initiatives.

Whereas in the UK proposals revolve around one Digital Market Unit that would be given powers to formulate ex-ante rules and enforce the rules, as well as the power to conduct market investigations, the institutional organisation at the European Commission has to be taken into account. In particular, both the Directorate-General for Competition (DG-COMP) and the Directorate-General for Communications Networks, Content and Technology (DG-CONNECT) have an important role to play.

This report approves Marsden and Podszun's suggestion for the European Commission to set up a new Platform Compliance Unit in DG-CONNECT for new and platform-specific regulatory obligations, and to establish an Early Alert Unit within DG-COMP, whose mission would be to investigate cases where the tipping of markets is suspected of developing.⁴³⁹ This report also agrees with Marsden and Podszun's suggestion to establish a Platform Complaint Panel as an arbitration mechanism. Upon direction from the Platform Compliance Unit, certain platforms of a particular status would be subject to submitting to such a panel. The success of this enforcement approach would depend on the strong interplay and effective collaboration between DG-COMP and DG-CONNECT.

⁴³⁷ UK Competition and Market Authority (CMA), 'Market Study Final report on Online Platforms and Digital Advertising'.

⁴³⁸ Meager, 'Who gets to participate in 'participative Antitrust?'.

⁴³⁹ Marsden and Podszun, *ibid.*, 80-81.

The role of the Early Alert Unit (EAU) at DG-COMP is that of investigating arm for both DG-CONNECT and DG-COMP. It should regularly monitor market developments where it is likely that a platform may change the market structure in the near future through what the German Ministry for Economic Affairs and Energy's legislative proposal calls 'unnatural tipping'.⁴⁴⁰ It would have the ability to identify the cause of tipping markets and would engage with platforms and other market participants to assess whether a market investigation would be necessary. It would also at the same time engage with the Platform Compliance Unit, to ensure that the market tipping is not happening because of violations of the rules, for example, because of self-preferencing, exclusivity arrangements, or denial of interoperability. If those rules have been complied with during the platform's growth, then the tipping could not constitute an 'unnatural tipping.' Based on an early investigation, this unit could recommend a full investigation of the market. But the advantage of this enforcement approach is that Early Alert Unit could communicate swiftly with the Platform Compliance Unit as soon as it would detect non-compliance with the rules, leading therefore to the enforcement of compliance without having to incur lengthy delays associated with full market investigations and the formulation of remedies.⁴⁴¹

The Platform Compliance Unit (PCU) would be formed at DG-CONNECT to be competent for the ex-ante regulation of platforms, monitoring platforms and issuing compliance orders as well as forward-looking guidance. It would undertake the designation of platforms with gatekeeper platforms and introduce and maintain the code based on objectives set out in the legislation, and produce detailed supporting guidance. Borrowing the CMA recommendations for the UK Digital Market Unit, the European Platform Compliance Unit the necessary powers to enforce the principles of the code on a timely basis, and amend its principles in line with evolving market conditions. Compliance should be automatic and swift.

Among the range of pro-competitive interventions, the Platform Compliance Unit would be given powers to introduce, and following the CMA recommendation for the UK Digital Market Unit, this report includes (1) data-related interventions (including consumer control over data, interoperability, data access and data separation powers); (2) consumer choice and default interventions; and (3) separation interventions, should there be necessary. Structural separation interventions, including ownership separations or operational separations, should be extremely rare and would have to be justified further to in-depth market investigations.

Let us provide an example of enforcement in the digital advertising market. The UK CMA report explains how the enforceable code of conduct would be an effective tool to address a wide range of the identified concerns. The report suggests that similar to the CMA recommendations on the UK Digital Market Unit, the European Platform Compliance Unit would include restrictions on publishers' ability to monetise content, self-preferencing behaviour in the open display market and low transparency over fees and ad verification. The CMA report suggests that tackle conflicts of interest in the open display market, some form of separation of Google's intermediation activities, notably its publisher ad server function, may be necessary. Inspired again by the UK approach described in the CMA report, the report suggests that in this case, the European Platform Compliance Unit should also have the power to introduce data-related interventions to increase transparency and address competition concerns, including data separation, data access and data mobility remedies.

⁴⁴⁰ As per the Legislative proposal of the German Ministry for Economic Affairs and Energy, digital platforms activities leading to 'unnatural tipping' refer to 'an unfair impediment [...] where an undertaking with superior market power on a market [...] impedes competitors' independent attainment of network effects and thereby creates a serious risk of a considerable restriction of competition on the merits.' The rule lowers the threshold to 'superior market power' and shall provide a legal basis for tackling an undefined number of practices that could lead to an unnatural tipping of markets. German Government Draft Bill, 9 Sept. 2020.

⁴⁴¹ Marsden, 'Digital platforms and the evolving regulatory landscape'.

The PCU would also be in a position to exempt certain platforms from some or all the obligations, for example in the case of market entrants or less-resourced platforms that could add needed competition in markets where there is already a dominant platform.

In addition, a good institutional design should facilitate the interplay between public and private enforcement. Marsden and Podszun suggest a model of public enforcement where each Member State assigns a national authority for the enforcement of the rules from the platform regulation. Enforcement measures for national authorities would include requests for information, inspections, and fines. This would be combined with private enforcement, in the form of a Platform Complaint Unit, as also suggested by the Stigler report. This would constitute a fast arbitration mechanism, akin to an ombudsperson, where complainants would have a safe space to make complaints, including allowing their anonymity to be possibly protected, with experienced independent adjudicators. The example of the UK Groceries Code Adjudicator demonstrates the usefulness of this approach.

There would appear to be an inconsistent approach between the DMA and the DSA in the role afforded to national regulatory bodies. Member States' involvement in the DMA regime looks set to be significantly less than the one proposed under the DSA, which provides for direct enforcement at the national level.⁴⁴² This could become a significant issue over time, as some Member States, including Germany, have more advanced national regulatory frameworks. These Member States must not be disadvantaged or undermined by these potential discrepancies. Greater scope for national authorities should be granted to intervene in a timely and effective manner where there are country-specific issues, while ensuring complementarity between the supranational and national levels.

7.2. Policy Options on Working Conditions and Labour Market Dynamics

This section examined some of the policy options for addressing the issues of digital work discussed earlier. It does not intend to offer an exhaustive account of either the possible or even necessary policies needed to fix the platform economy for workers, but will instead focus on a few of the major issues.

7.2.1. Key Option 7: Redefine the Category of 'Employee'

At the heart of many discussions around the negative impacts of platform work on working conditions is the way in which the use of non-standard employment relationships (typically, self-employed status) blocks access to many or all of the social protections that come with full-time indefinite employment. A number of proposals have suggested ways to enable access of workers to social protections.

The Problems with Creating a Third Category

One approach advocated by proponents of the gig economy, including Uber's CEO Dara Khosrowshahi, is to create an intermediate category between employment and self-employment – one that would incorporate *some* social protections while ostensibly protecting the flexibility of platform work.⁴⁴³ Examples of this already exist in a number of countries including Germany, Italy, Spain, and the United Kingdom.⁴⁴⁴ Proponents argue that the nature of platform work is too temporary for platforms to be asked to take on the full responsibilities of employees.⁴⁴⁵ Having to support workers is deemed a

⁴⁴² Allen & Overy, 'Global Antitrust: Digital Markets Act', 5.

⁴⁴³ Khosrowshahi to Trump, 'Covid-19 Letter,' March 23, 2020; Harris and Krueger, 'A Proposal for Modernizing Labor Laws for Twenty-First Century Work: The 'Independent Worker''; Sundararajan, *The Sharing Economy: The End of Employment and the Rise of Crowd-Based Capitalism*.

⁴⁴⁴ Forde et al., 'The Social Protection of Workers in the Platform Economy', 85.

⁴⁴⁵ Harris and Krueger, 'A Proposal for Modernizing Labor Laws for Twenty-First Century Work: The 'Independent Worker'', 8.

potentially 'existential threat' to platform companies as they survive on the basis of low labour costs.⁴⁴⁶ (This report leaves aside the political question of whether businesses that are only sustainable by virtue of ignoring labour law should be supported.)

As with the extension of the employment category, the creation of a new intermediate category can take a variety of forms. In Germany, 'employee-like persons' are those who are economically dependent on but not subordinated to an employer.⁴⁴⁷ A variety of protections (e.g., paid holidays) are subsequently provided. In Spain, the new category of 'economically dependent self-employed workers' takes a similar tack – with these workers primarily working for one client, but not limited to one employer.⁴⁴⁸ And in the UK, the category of 'worker' provides some rights (e.g., the national living wage and collective bargaining rights).⁴⁴⁹ Notably, however, these categories are not usually applied to platform workers.

In recent months, the most notable event in the regulation of digital labour has been the adoption of Proposition 22 in the US state of California. As a response to Assembly Bill 5 (which will be discussed later), Proposition 22 effectively establishes a new category of worker for app-based drivers and delivery riders. This category recognises that platform workers do not have the same level of freedom and flexibility as the truly self-employed, but also rejects the idea that these workers deserve the full rights and protections associated with employment. While ostensibly offering pay above minimum wage, the lack of pay for most expenses as well as the lack of pay for waiting time means that average hourly pay is estimated to be well below minimum wage.⁴⁵⁰ Platform workers covered by the new law are also given some support for healthcare costs, occupational accident insurance, and reimbursement for some expenses. As a response to Assembly Bill 5, the new legislation has effectively stripped platform workers of many rights and protections – including unemployment insurance, paid leave, overtime pay, and the right to unionise and collectively bargain. Supported by over US\$200 million of funding from gig companies – the most ever spent on a California ballot initiative – and a ubiquitous advertising campaign, Proposition 22 received voter approval in November 2020.⁴⁵¹

However, there are a number of issues with this broad approach. First, the creation of an intermediate category would very likely result in companies slightly altering their terms of services and the gap in protections being simply shifted around.⁴⁵² The case of Italy is also enlightening, as the creation of an intermediate category had the effect of moving employees into the new category with fewer protections.⁴⁵³ Instead of upgrading the rights of the falsely self-employed, 'the quasi-subordinate category created a loophole that actually resulted in *less* protection for workers as an unintended consequence.'⁴⁵⁴ The existence of this hybrid category has also made it difficult for lawmakers to try and increase the rights of platform workers subsequently.⁴⁵⁵ A new category would also create much more bureaucracy, both for companies and for workers. For instance, if a crowdworker has ten clients in a month, the challenges of proving they meet the criteria for an intermediate category may easily be insurmountable. The lack of clarity extends to legal cases over where workers should be situated, with

⁴⁴⁶ Harris and Krueger, *ibid.*, 8.

⁴⁴⁷ Forde et al., 'The Social Protection of Workers in the Platform Economy', 85–86.

⁴⁴⁸ Forde et al., *ibid.*, 85–86.

⁴⁴⁹ Forde et al., *ibid.*, 85–86.

⁴⁵⁰ Jacobs and Reich, 'The Uber/Lyft Ballot Initiative Guarantees Only \$5.64 an Hour'.

⁴⁵¹ California, 'Proposition 22, App-Based Drivers as Contractors and Labor Policies Initiative'.

⁴⁵² De Stefano, 'The Rise of the 'Just-in-Time Workforce': On-Demand Work, Crowdwork and Labour Protection in the 'Gig-Economy', 19; Codagnone, Abadie, and Biagi, 'The Future of Work in the 'Sharing Economy': Market Efficiency and Equitable Opportunities or Unfair Precarisation?', 50.

⁴⁵³ De Stefano, 'The Rise of the 'Just-in-Time Workforce': On-Demand Work, Crowdwork and Labour Protection in the 'Gig-Economy', 20.

⁴⁵⁴ Cherry and Aloisi, 'Dependent Contractors' in the Gig Economy', 675.

⁴⁵⁵ De Stefano, 'I Now Pronounce You Contractor'.

the existence of three employment categories providing that much more room for legal arbitrage. It is also unclear that an intermediate category is necessary even on the proponents' own terms. The category is promoted as important for maintaining the flexibility of existing platform work. Still, this flexibility is often overstated, and it is unclear that regulations hinder things like innovation and flexibility.⁴⁵⁶ Rather than complicating things by inventing an intermediate category, many of the problems faced by workers in the platform economy can better be mitigated by the correct application of existing regulations.

Extend the Existing Category of 'Employee'

This approach is perhaps the simplest one: to redefine the category of worker in such a way that it encompasses the new forms of platform work and non-standard work. At a stroke, those currently excluded from standard social protections would be brought back within their ambit. Within the Member States, this approach has already been taken up in different forms by Bulgaria, Denmark, and France,⁴⁵⁷ and as noted earlier, an expanded concept of 'worker' has been deployed within a number of CJEU rulings. The approach has garnered support from a wide variety of institutions including the International Labour Organization, the European Trade Union Confederation, and Fairwork.⁴⁵⁸ And a variety of court cases in countries around the world – including Australia, France, Italy, Spain, Switzerland, the United Kingdom, and Uruguay – have all determined that platform workers should not be classified as self-employed.⁴⁵⁹

The specifics of the definition vary from approach to approach, though. This report will refrain from selecting an optimal definition, but instead, look here at a few prominent positions. One approach, for example, has suggested resolving the definition through 'a process of consultation with trade unions, professional associations and other bodies that represent self-employed workers.'⁴⁶⁰ The goal here would be to separate out true freelancers from the falsely self-employed through a process that allowed the different stakeholders are an opportunity to shape the eventual definition.

Others have made more determinate suggestions, such as using the concept of a 'personal work relation' that would let workers' rights and protections apply to 'every worker who provides work or services in a predominantly personal capacity and is not genuinely operating a business undertaking on his or her own account'.⁴⁶¹ Here the aim is to clearly separate out those who are in fact working on their own account and those who are working for another. It does so by replacing the definition of worker as dependent or subordinate to another with a definition based on personal work.⁴⁶²

By contrast, in the United States, the state of California recently adopted Assembly Bill 5 which puts forth an 'ABC' test to determine whether a worker is an employee or self-employed. Companies that wish to hire an independent contractor must prove that the worker is: (a) free from the control and direction of the hiring entity, (b) performing work that is outside the usual aspects of the business, and (c) typically performs the work being contracted for.⁴⁶³

⁴⁵⁶ Aloisi and De Stefano, 'Regulation and the Future of Work'; Sachs, 'Enough with the Flexibility Trope'.

⁴⁵⁷ Forde et al., 'The Social Protection of Workers in the Platform Economy', 84.

⁴⁵⁸ International Labour Organization, 'Work for a Brighter Future', 39; Labour, 'It's Time for Real Change: The Labour Party Manifesto 2019', 61; Woodcock and Graham, *The Gig Economy*.

⁴⁵⁹ Rosemain and Vidalon, 'Top French Court Deals Blow to Uber by Giving Driver 'Employee' Status'; Gómez, 'Spanish Supreme Court Rules Food-Delivery Riders Are Employees, Not Self-Employed'; 'Delivery Riders Entitled to Safeguards - Top Court'; Le Temps, 'Uber Eats Est Considéré Comme L'employeur De Ses Livreurs À Genève.'

⁴⁶⁰ Huws, *Reinventing the Welfare State*, 129.

⁴⁶¹ Countouris et al., 'Covid-19 Crisis Makes Clear a New Concept of 'Worker' Is Overdue'; Ewing, Hendy, and Jones, *Rolling out the Manifesto for Labour Law*.

⁴⁶² Countouris and De Stefano, 'New Trade Union Strategies for New Forms of Employment', 58.

⁴⁶³ California, Assembly Bill 5.

The Californian experience also demonstrates some important considerations. As the bill did not require that existing contracts be rewritten, most platform companies have continued as before. In May 2020, the state has had to sue the companies in an attempt to get them to retroactively comply with the law.⁴⁶⁴ The definition used resulted in some over-reach with, for instance, musicians playing a gig at a venue being deemed employees – an issue which eventually led to the bill being amended.⁴⁶⁵ And as noted earlier, platform companies eventually spent hundreds of millions of dollars to overturn the legislation by adopting Proposition 22. Any European efforts to redefine the category of worker should take note of the Californian experience – not least because the platform companies have explicitly stated they want to spread this weakened model of employment around the world.⁴⁶⁶

Lastly, a new proposal emerged in November 2020 from the European United Left/Nordic Green Left (GUE/NGL) group in the European Parliament. Here the intent is to create a new category for platform-based workers, but with the provision that workers in this category would be given all the standard rights and protections afforded to employees. After consultation with workers, trade unions, and labour lawyers, the proposal suggests this definition: 'worker' means any person who enters into a contract with a digital platform concerning the hiring of his or her labour, whether of an intellectual or manual nature, with a view to rendering a service offered and organised by the platform, in return for remuneration⁴⁶⁷

Regardless of what definition is chosen, an important aspect is that workers should, by default, be categorised as employees. And the onus for changing a categorisation should be placed on employers rather than workers. In some Member States, such as Denmark, Italy, and Spain, there are already default legal assumptions about employment relations existing.⁴⁶⁸ Once platform workers are brought within the remit of the standard employment relation, a number of the issues surrounding their working conditions either disappear or are at least partly rectified. Issues around health and safety rights, protections against unfair dismissals and discrimination, paid periods of leave, and so on can all be relatively easily adapted to platform work. And redefining 'employment' in a way that includes platform workers, would make current legal barriers to collectively organising and bargaining irrelevant (though it must be emphasised that many legal barriers to organising exist even for employees).

7.2.2. Key Option 8: Set Minimum Wages

Bringing platform workers within the ambit of the full range of social protections and rights would be an important and significant step to improving the lives of these workers. However, there are a number of areas where this work means that some elements of traditional employment rights may need to be modified or extended. In this section, we shall briefly look at how this could be achieved.

As seen earlier, low pay is endemic to platform work. A minimum wage that comes with the redefinition of 'employee' would do much to help rectify this problem, but the nature of platform work – often infrequent, piecemeal, involving high overhead costs, and spread amongst multiple clients – can make setting a minimum wage more challenging.

On-demand Work

One significant step to fixing this is to prohibit the use of piece wages in on-demand work and replacing them with hourly wages. At the moment, piece wages mean that when work is at a lull, workers are paying the cost. A Deliveroo rider, for instance, may be available and waiting for work, but if no orders

⁴⁶⁴ Lee, 'California Sues Uber and Lyft Over Gig Economy Law'.

⁴⁶⁵ Cirisano, 'California Legislators Amend AB5 Gig Economy Law to Protect Music Professionals'.

⁴⁶⁶ Paul, 'Prop 22.'

⁴⁶⁷ Chaibi, 'Proposal for Directive of the European Parliament and of the Council on Digital Platform Workers', 11.

⁴⁶⁸ Forde et al., 'The Social Protection of Workers in the Platform Economy', 82.

come in, they make no money. Piece wages also incentivise work intensification that leads to risky behaviour by workers – for instance, delivery riders darting in and out of traffic to meet tight schedules.⁴⁶⁹

In lieu of piece wages, many have supported the creation of a minimum wage for platform work.⁴⁷⁰ Setting the minimum wage could be done in a number of ways. The simplest way would be to set it, if applicable, at the national minimum wage level. Yet this would miss some of the unique characteristics of platform work. As a result, others have suggested setting a minimum wage in collective consultation with workers in such a way that it reflects the expenses of the job and the local living costs.⁴⁷¹ Others have likewise noted that the national living wage does not take into account the costs of platform work that are one of the key reasons why the work ends up low paid. As a result, an extra allowance should be given above the living wage in order to recognise these costs.⁴⁷² And in any case, as with standard employment, overtime pay should be recognised along with a maximum number of hours that can be worked in a day.⁴⁷³ These efforts at establishing a minimum wage would have the immediate benefit of increasing the contributions that workers and employers make to social insurance schemes, as well as lowering the need for them.⁴⁷⁴

Yet, as the platforms point out, an hourly wage would entail paying workers for passive work time when they may be doing nothing but waiting for a new gig to arrive. The Charter of Good Work, signed by many of the largest platforms, explicitly recognises this saying that 'workers classified as employees should earn at least the minimum wage of their jurisdiction, *proportional to the time spent actively working*' (emphasis added).⁴⁷⁵ Leaving aside the Charter's restriction of minimum wages to employees (which makes the statement redundant as employees already have a right to a minimum wage), the issue of passive and active time in platform work is one that is often raised against the prospect of hourly wages. Yet, first of all, all jobs have periods of passivity where workers may be doing nothing productive. There is a long and admirable history of shirking at work and of pretending that platform work is the only time workers have been idle is short-sighted.⁴⁷⁶ Second, insofar as platform workers have an app open and are available to work, they should be counted as working. The alternative is leaving platform workers as a vast and unpaid source of immediate labour that can be tapped into for the benefit of the platform and to the detriment of the worker.

To respond to this issue, some have suggested implementing a principle that goes beyond just platform work: the introduction of a tiered system of minimum wages whereby those without guaranteed working hours are given a higher minimum wage to reflect the risks they face as well as incentivising firms to avoid the use and reliance on such contracts.⁴⁷⁷ A simpler and more effective solution though is to simply pay workers for the time during which they are available to take up work for the platform immediately. This is the approach taken by California, but also by New York City (NYC) with respect to ride-sharing platforms. As the latter has been in operation since February 2019, it is a useful model to examine.

⁴⁶⁹ Christie and Ward, 'The Health and Safety Risks for People Who Drive for Work in the Gig Economy', 126.

⁴⁷⁰ Woodcock and Graham, *The Gig Economy*, 146–47; Perera, Ohrvik-Stott, and Miller, 'Better Work in the Gig Economy', 11; Silberman, 'Fifteen Criteria for a Fairer Gig Economy', 18; Labour, 'It's Time For Real Change: The Labour Party Manifesto 2019', 61; Forde et al., 'The Social Protection of Workers in the Platform Economy', 106.

⁴⁷¹ Woodcock and Graham, *The Gig Economy*, 146–47.

⁴⁷² Perera, Ohrvik-Stott, and Miller, 'Better Work in the Gig Economy', 11.

⁴⁷³ Woodcock and Graham, *The Gig Economy*, 148; Codagnone, Abadie, and Biagi, 'The Future of Work in the 'Sharing Economy': Market Efficiency and Equitable Opportunities or Unfair Precarisation?', 58.

⁴⁷⁴ Forde et al., 'The Social Protection of Workers in the Platform Economy', 105.

⁴⁷⁵ de Antonio et al., 'Charter of Principles for Good Platform Work', 3.

⁴⁷⁶ Paulsen, *Empty Labor*; Paulsen, 'Non-Work at Work: Resistance or What?'; Roediger and Foner, *Our Own Time*.

⁴⁷⁷ Prassl, *Humans as a Service*, 108–11; Forde et al., 'The Social Protection of Workers in the Platform Economy', 106.

It is worth noting that this rule was put in place even without turning drivers into employees – they remain classified as independent contractors to the present moment. The aim of the rule is not to set a minimum wage directly, but instead to set a minimum payment per trip. However, the calculations that go into establishing the minimum amount per trip take into account active working time, passive working time, and the expenses incurred by drivers.⁴⁷⁸ This formula means that if drivers spend more time inactive (e.g. because of a glut of supply), then their pay per trip would rise correspondingly to ensure they received a decent hourly wage. The formula also implicitly incentivised companies to make more efficient use of drivers.⁴⁷⁹ In order to meet the minimum pay requirements, ride-sharing companies are responsible for the pay regardless of how many trips are made. So if there are too many drivers on the road at any given time, many will spend significant time waiting for a fare and not making money, yet companies will still be required to pay them. As a result, platform companies are incentivised to control the number of drivers and ensure there is not an oversupply.

The impacts of these changes have been significant and contradictory. On the one hand, NYC drivers are now paid the most in the country – a nearly 20 percent bump in pay since before the minimum pay rate was set.⁴⁸⁰ There is also a more efficient use of drivers with fewer taxis clogging up streets and less downtime for drivers. To meet pay requirements, fares for customers have also increased, and there has been a subsequent reduction in the number of rides.⁴⁸¹ Given the congestion, pollution, and other negative impacts caused by the glut of vehicles on city streets, this is not necessarily a worrying development. Moreover, the unit economics of ride-sharing means that customer fares have been artificially lower than they should be.

More worryingly, companies have responded to the pay requirements by imposing a tiered system whereby those with the most rides are given preferential access to the app in busy times.⁴⁸² Those on lower tiers are locked out during busy times – leaving them with few opportunities to make money, near impossible hurdles to moving up the tiered system, and with dwindling control over when they can work. To move up the tiered system, some drivers have even taken to sleeping in their cars so that they can immediately be available when a spot opens up.⁴⁸³ However, there would appear to be a relatively simple solution to this problem: make access to logging-in based on a first-come, first-served basis – with a queue system for those who want to log-in but cannot, and a notification system on the app to alert workers when their turn has opened up.

Crowdwork

Crowdwork offers its own unique challenges insofar as the work is task-based and increasingly broken up into micro-components. Payment by piece-rates are standard here, and the challenges of ensuring decent pay have less to do with covering expenses and more to do with the labour arbitrage of a planetary labour market. Yet none of these differences means that minimum pay cannot be set for this platform work as well. Perhaps the most comprehensive solution to endemic low pay in crowdwork has been offered by Janine Berg.

She advocates, first, for turning crowdworkers into a stable workforce employed either by the clients who routinely use them or by the platforms who intermediate them.⁴⁸⁴ This stabilisation of the employment relation would do much to combat the low pay, unreliability, and low productivity of the work. Workers would receive the local minimum wage and would have a set number of hours they could expect to work. At the same time, crowdwork as currently organised involves very low

⁴⁷⁸ New York City Taxi and Limousine Commission, 'Driver Income Rules', 2–3.

⁴⁷⁹ Helling, 'Ridester's 2020 Independent Driver Earnings Survey'.

⁴⁸⁰ Helling, *ibid.*

⁴⁸¹ Hagan and Patino, 'Uber, Lyft Ridership Pace Declines in NYC After Fares Rise'.

⁴⁸² Ongweso Jr, 'The Lockout'.

⁴⁸³ Ongweso Jr., *ibid.*

⁴⁸⁴ Berg, 'Income Security in the On-Demand Economy', 22–23.

productivity. Workers spend immense amounts of time simply looking for work, and clients have to spend long periods looking for appropriate crowdworkers and checking over work to ensure it meets quality standards. Bringing workers in-house would enable the work to be better organised and for workers to be given training to meet company standards.⁴⁸⁵ Piece-rate pay could be continued but set up in such a way that it ensured workers received at least the minimum wage for their work. (And some platforms already pay their crowdworkers minimum wage.)⁴⁸⁶ In consultation with workers, expectations around the time to complete projects could be established and pay rates set accordingly. In some countries, legislation already exists to set minimum pay for piece rates and could be applied easily.⁴⁸⁷

Lastly, crowdwork carries significant risks of non-payment and is one of the most routine problems raised by workers. Non-payment should only be allowed in highly exceptional circumstances, and its application should be strictly governed and transparent to workers. In advance, workers should be given knowledge of the rates of non-payment by a client, the terms of payment, and the time it will take the client to review the work.⁴⁸⁸ Any non-payments should not count against workers since clients are imperfect judges of quality and can use non-payment as a way to save money.⁴⁸⁹ Non-payments should also have a legally binding explanation of why payment was refused as well as guarantees against the use of the work. And finally, workers should always have the right and capacity to contest non-payments.⁴⁹⁰

7.2.3. Key Option 9: Extend Workers' Rights over Data

Given the pervasive nature of workplace surveillance in the platform economy, it is necessary to establish a series of data rights for (all) workers. Groups like UNI Global Union, for example, have explicitly sought to place data issues on the forefront of the labour movement.⁴⁹¹

A first important component of data rights is efforts to make data collection and algorithmic systems accountable – and to ban them where appropriate.⁴⁹² As widely recognised, many algorithmic systems perpetuate biases, and their potential impacts need to be recognised and understood prior to being put into production. There are already provisions for this sort of policy. Under Article 35 of the General Data Protection Regulation (GDPR), companies are supposed to carry out assessments of the impacts of processing data that involves a high-risk to data subjects (e.g. employees). Moreover, these assessments are supposed to involve the views of the subjects and/or their representatives (e.g. unions).⁴⁹³ Properly implemented, these could ensure that biased systems are prevented from going into operation. Yet at the moment, neither of these requirements are widely realised when it comes to workplace surveillance.⁴⁹⁴

In those cases where data on workers is collected, a second step is to make that data transparent and accessible to those workers.⁴⁹⁵ At present, while the platforms collect enormous amounts of data about workers, they typically have little access to it. European law already provides for 'data subjects' to access

⁴⁸⁵ Berg, *ibid.*, 23.

⁴⁸⁶ IG Metall, 'Frankfurt Paper on Platform-Based Work', 7.

⁴⁸⁷ Forde et al., 'The Social Protection of Workers in the Platform Economy', 106.

⁴⁸⁸ Silberman, 'Fifteen Criteria for a Fairer Gig Economy', 17–18.

⁴⁸⁹ Silberman, *ibid.*, 17.

⁴⁹⁰ Silberman, *ibid.*, 17.

⁴⁹¹ UNI Global Union, 'Top 10 Principles for Workers' Data Privacy and Protection'.

⁴⁹² Codagnone, Abadie, and Biagi, 'The Future of Work in the 'Sharing Economy': Market Efficiency and Equitable Opportunities or Unfair Precarisation?', 58.

⁴⁹³ Colclough, 'Are You Involved?'

⁴⁹⁴ Kellogg, Valentine, and Christin, 'Algorithms at Work', 394.

⁴⁹⁵ UNI Global Union, 'Top 10 Principles for Workers' Data Privacy and Protection', 8.

data about themselves, but workers have to take platform companies to court to access this data.⁴⁹⁶ Yet this data could be useful for ensuring the platforms are meeting labour laws, calculating pay rates, and using trade unions to help formulate approaches to bargaining with platforms.⁴⁹⁷ Mandating worker access to data about themselves should be a priority. Transparency should also be applied to the algorithms and systems that are making use of that data. As one recent proposal puts it,

*Platforms shall indicate the main parameters which, either individually or collectively, are the most important for determining the allocation of teams, the distribution of job offers and places of work, the assessment of work carried out, the arrangements for waiting time and for determining remuneration, as well as the relative importance of these main parameters, by providing a description which is easily and publicly accessible and set out in clear and comprehensible language.*⁴⁹⁸

Lastly, there is the issue of ratings of workers and their widespread use amongst platforms. At a minimum, such ratings should be portable across platforms.⁴⁹⁹ As it presently stands, these ratings function to keep workers tied to a single platform as they have often spent long periods of time and immense resources in building up their current rating.⁵⁰⁰ Moving to another platform currently means that reputation is lost.⁵⁰¹ Creating standardised ratings that could be exported and moved to other platforms would be one way to give some power to workers. It would also align with the portability right in the GDPR. Yet research shows that ratings systems often perpetuate biases whether from customers or clients.⁵⁰² They can also function as surveillance mechanisms that may under some circumstances encroach on worker privacy – in which case, making ratings portable without attempting to diminish the surveillance risks simply consolidating surveillance rather than combatting it. This report recommends that platform firms design better rating systems that protect users' privacy and data rights. There is no easy solution to this issue, and any adoption or change to these systems should also be subject to agreement between the company and the workers' representatives.

7.2.4. Key Option 10: Support Platform Cooperatives

While the extension of employment rights and protections to platform workers would mean they can at last freely take part in unions, there is more to collective organisation than just the formal right to collective representation, negotiation, and action. Platforms should enshrine workers' say in every aspect of their business.⁵⁰³ At the moment, workers are too often simply the passive recipients of changes to apps and platforms – they are given little to no voice over how the technology and structure of work develops. Ratings change, pay changes, schedule changes, interface changes, and so on are all just imposed on workers. There are a variety of governance structures that could be implemented to give workers a meaningful and substantial say in the organisation of their work. Works councils, or board representation, or the capacity to vote on important decisions are all ways to make sure the platform economy works for workers, and that helps to fix the currently gross power imbalances between platforms and their workers.⁵⁰⁴

⁴⁹⁶ The Economist, 'Uber Drivers Demand Their Data'.

⁴⁹⁷ Fabo, Karanovic, and Dukova, 'In Search of an Adequate European Policy Response to the Platform Economy', 171.

⁴⁹⁸ Chaibi, 'Proposal for Directive of the European Parliament and of the Council on Digital Platform Workers', 12.

⁴⁹⁹ Prassl, *Humans as a Service*, 111–13; Silberman, 'Fifteen Criteria for a Fairer Gig Economy', 19.

⁵⁰⁰ O'Connor, 'Let Gig Workers Control Their Data Too'.

⁵⁰¹ Fabo, Karanovic, and Dukova, 'In Search of an Adequate European Policy Response to the Platform Economy', 170.

⁵⁰² Rosenblat et al., 'Discriminating Tastes'.

⁵⁰³ Perera, Ohrvik-Stott, and Miller, 'Better Work in the Gig Economy', 17; Silberman, 'Fifteen Criteria for a Fairer Gig Economy', 18.

⁵⁰⁴ Perera, Ohrvik-Stott, and Miller, 'Better Work in the Gig Economy', 17.

A more full-fledged version of giving workers a voice in their work is to support the creation and expansion of platform cooperatives.⁵⁰⁵ These are owned and democratically operated platforms by the workers (and often users and communities) themselves. Their existence shows that platforms can be recontextualised and reoriented by different governance systems. The major problems created by the Silicon Valley model are not a necessary outcome.⁵⁰⁶ Instead, platform cooperatives seek to build upon the well-established principles of cooperatives and adapt them to the digital technologies of today.⁵⁰⁷ Whereas the existing platforms too often lead – as has been shown – to low pay, little autonomy, extensive surveillance, individualised risks, and generally precarious low-quality work, platform cooperatives help build a far more fulfilling and equitable digital world. Emerging research, for instance, repeatedly shows that they provide their workers with more security, autonomy, satisfaction, and typically better wages.⁵⁰⁸

There are already a number of existing successful models to learn from. For example, Stocksy United is a Canadian platform cooperative of artists that sell stock photos. The platform aims to provide its artists with high commissions, and research shows it has led to better working conditions and satisfaction for its workers.⁵⁰⁹ In Germany, Fairmondo was created in 2012 as a platform cooperative marketplace that aims to sell ethically-sourced goods. Since then, the platform has operated a federated model that allows versions of itself to be opened in new countries, with the aim of building a global network.⁵¹⁰ And in Belgium, SMart is a cooperative for freelancers that began in 1998. It has since adapted to changing circumstances and incorporated elements of platform cooperativism as well.

However, platform cooperatives face a number of unique challenges relative to more traditional corporate structures. In the first place, platform cooperatives often struggle – relative to other start-ups – to access funding to build and run the business. The fact that platform cooperatives aim for goals other than high profitability means that investors are more reluctant to provide funding, as is the fact that investors cannot gain rights of control if the cooperative goes under.⁵¹¹ Platform cooperatives also face significant hurdles when it comes to competing with existing platform giants. These latter firms typically have significant network effects that tie users to their platforms, seemingly endless cash piles that can be used to undercut competitors, teams of accountants that find and deploy every possible tax loophole, and masses of proprietary data that give them the edge in building more efficient products. So skewed is the playing field that nearly all traditional start-ups find it incredibly difficult to compete – and the challenges are even more difficult for cooperatives. Lastly, cooperatives also face unique hurdles when it comes to scaling up their businesses. As the model is premised upon each member having a significant say in the operations of the business, as the business gets larger, this principle gets more difficult to maintain. This is all the more important for *platform* cooperatives as the platform business model is often dependent on generating network effects that both require and drive scaling up.

Governments – whether local, regional, national, or supranational – have an important role to play in supporting these platform cooperatives that promise better working conditions, more secure employment, and local economic growth. Governments can do this by helping in three areas: the starting phases of cooperatives, the growing phases, and the consolidation phases.

⁵⁰⁵ Forde et al., 'The Social Protection of Workers in the Platform Economy', 107–8; Scholz, 'Platform Cooperativism: Challenging the Corporate Sharing Economy'; Scholz and Schneider, *Ours to Hack and to Own*.

⁵⁰⁶ Vallas and Schor, 'What Do Platforms Do?', 9.

⁵⁰⁷ Scholz, 'Platform Cooperativism: Challenging the Corporate Sharing Economy'.

⁵⁰⁸ Charles, Ferreras, and Lamine, 'A Freelancers' Cooperative as a Case of Democratic Institutional Experimentation for Better Work'; Vallas and Schor, 'What Do Platforms Do?', 15.

⁵⁰⁹ Vallas and Schor, 'What Do Platforms Do?', 15.

⁵¹⁰ Scholz, 'Platform Cooperativism: Challenging the Corporate Sharing Economy', 15.

⁵¹¹ McCann and Yazici, 'Disrupting Together: The Challenges (and Opportunities) for Platform Co-Operatives', 24–25; Muldoon, 'Why We Need Cooperatives for the Digital Economy'.

In the first place, governments can take important steps in helping cooperatives overcome the challenges of starting up. Some of the options here include offering low-cost access to physical spaces (e.g. offices or warehouses) for cooperative businesses, tax breaks and subsidies (often already given to entrepreneurs, but these could be applied in a more targeted manner), and using regional and national investment banks to offer low-cost financing, for example, to finance platform cooperatives.⁵¹²,⁵¹³ Governments can also set up incubators and offer advice to help share best practices, knowledge, and skills in the platform cooperative ecosystem.⁵¹⁴ Cooperatives UK has already successfully done some of this, though without the resources of a government behind it.⁵¹⁵

As a second step, governments can help platform cooperatives to grow and compete. Most importantly, governments should take regulatory actions to level the playing field between upstart platform cooperatives and cash-flush global competitors. At the moment, it is far too easy for the latter to simply artificially undercut their cooperative alternatives. For instance, in Austin, Texas, in the United States, a brief ban on the major ride-sharing platforms led to a flourishing of local non-profit alternatives. However, the ban was eventually overturned, and the large platforms returned using their financial and political power to drive the non-profits out of business.⁵¹⁶ Governments that want to support platform cooperatives need to find ways to prevent this sort of undermining from occurring. The adoption of an extended definition of employment is a good start, as this negates much of the labour and regulatory arbitrage that major platforms currently use to undercut competitors (particularly ethically-minded competitors). Likewise, efforts at enforcing fair taxation on the major platforms will bolster national finances and level the playing field to some degree. Governments can also learn from the Preston Model in the UK, whereby government procurement has been an essential tool in channelling funding to local businesses (often cooperatives) and reviving the local economy – Preston was recently named 'the most improved city' in the UK as a result.⁵¹⁷ Government procurement could, therefore, be a significant way to boost the growth of new platform cooperatives.⁵¹⁸ A final option is to perhaps simply ban particular platforms from operating in an area. Uber has already been effectively banned from some European countries, and the case of Austin shows how quickly community-oriented alternatives can rise up and thrive once the large platforms have disappeared. London's use of the licensing system as a tool of negotiation with Uber⁵¹⁹ – threatening to withdraw Uber's license to operate unless the company adopted London's demands – also shows another pathway to levelling the playing field between the platform giants and the upstart cooperatives.

Lastly, governments can assist platform cooperatives in consolidating their place in the economy. This can mean assistance in connecting various cooperatives together – both across regions and across industries. Governments could provide their own publicly owned and democratically accountable versions of platforms.⁵²⁰ Many of the gig economy platforms – ride-sharing or care work platforms, for example – are best understood as essential public infrastructure that should be owned and democratically controlled by the public. It is not difficult to imagine, for instance, municipal replacements for Uber that mandate decent working conditions and wages, ensure regulations around congestion and discrimination are upheld, and do so in a way that is seamlessly connected with and

⁵¹² Scholz et al., 'White Paper'.

⁵¹³ This was for example proposed by the UK Labour Party, 'The Digital Democracy Manifesto'.

⁵¹⁴ Scholz et al., 'White Paper'.

⁵¹⁵ McCann and Yazici, 'Disrupting Together: The Challenges (and Opportunities) for Platform Co-Operatives', 9.

⁵¹⁶ Tryba and Goldenberg, 'What We Learned from the First Week of Uber & Lyft Returning to Austin'; Flagler, 'RideAustin Shuts down Operations'.

⁵¹⁷ Hanna, Guinan, and Bilsborough, 'The 'Preston Model' and the Modern Politics of Municipal Socialism'; Partington, 'Preston Named as Most Improved City in UK'.

⁵¹⁸ Scholz et al., 'White Paper'.

⁵¹⁹ Huws, *Reinventing the Welfare State*, 139–40.

⁵²⁰ This was for example proposed in the UK Labour Party, 'The Digital Democracy Manifesto'.

supplemented existing public transportation options. Governments should not be hesitant to recognise such opportunities for significant beneficial transformation of the platform economy.⁵²¹

7.3. Policy Options on Consumer and Societal Risks and Environmental Sustainability

With respect to consumer risks, efforts to mitigate safety problems are relatively simple to make. Improvements could be made in background checks on service providers – such as fingerprint checks.⁵²² Indeed, one of the reasons cited by Transport for London in its rejection of Uber's license renewal was that it was carrying out insufficient checks on its drivers. However, platforms are in general resistant to training and further background checks because of the potential implications around employment status. Yet pushing for better checks could be one way to provide more safety for users of these platforms.

The platforms themselves have also begun to make changes. Uber, for example, has made the important step of becoming more transparent about sexual assaults and violence that occurs within its service. They are now releasing periodic Safety reports that disclose the levels of assault, which is a useful first step to reducing these harms.⁵²³ Uber has also made changes to its app to try and give customers quicker access to emergency services and to prevent customers from getting into the wrong vehicle.⁵²⁴ Likewise, in response to a number of lawsuits, Lyft has started to add similar new features to provide more safety, such as alerts for when a trip takes unexpected turns or delays, and emergency call buttons.⁵²⁵ While most of these features were launched in the USA initially, they are starting to see roll-outs to other countries such as France as well.⁵²⁶

7.3.1. Key Option 11: Support Transitions to Greener Mobility Platforms

In responding to the problems of congestion, air pollution, and carbon emissions, a few key policies present themselves. In the first place, governments should support the uptake and transformation of existing vehicle stock into electric vehicles. Efforts can be made to incentivise this transformation, whether through subsidies for drivers or regulations on platforms. California, for example, is introducing a zero-emissions standard for these companies.⁵²⁷ Investment in the necessary infrastructure for electrical charging is also a key component in the expansion of electric vehicles.

However, more importantly, there needs to be an ongoing shift away from wasteful vehicles that not only pollute the air but also occupy so much urban space. In fact, surveys have found that the key reasons why people use ride-hailing have to do with the poor quality of public transit.⁵²⁸ At a most basic level, rectifying this involves support and investment in infrastructure for biking and walking. New bike and bus lanes, including dedicated spaces, along with redesigned streets, can all make these forms of transportation cheaper, faster, and safer.⁵²⁹ More ambitiously, significant investment in the expansion of buses, trains, and subways can do much to improve the frequency of these services. Efforts can also be made to ensure these mass transit forms are accessible to all – from parents with a stroller, to the

⁵²¹ Huws, *Reinventing the Welfare State*, chap. 8.

⁵²² Pritchard, 'Which Is Safer - Uber or a Taxi? There's No Clear Answer'.

⁵²³ Bradshaw, 'Uber and Airbnb Earn Praise for Headway on Customer Safety'.

⁵²⁴ Bradshaw, *ibid.*

⁵²⁵ Westervelt, 'Lawsuits Say Lyft Doesn't Do Enough to Protect Women From Predatory Drivers'.

⁵²⁶ Heikkilä, 'Uber's #MeToo Moment in France'.

⁵²⁷ Anair et al., 'Ride-Hailing's Climate Risks: Steering a Growing Industry toward a Clean Transportation Future', 10.

⁵²⁸ Schaller, 'The New Automobility: Lyft, Uber and the Future of American Cities', 17.

⁵²⁹ Schaller, *ibid.*, 27; Anair et al., 'Ride-Hailing's Climate Risks: Steering a Growing Industry toward a Clean Transportation Future', 10.

disabled with wheelchairs, to the elderly. All of these efforts can, in turn, be combined with limits on the number of ride-hailing vehicles on the road. A cap on vehicle numbers would effectively be a return to the traditional regulation of the taxi industry, which often used licensing as a way to manage supply. Efforts can also be made to place limits on how often ride-hailing vehicles spend driving without any passengers. New York City, for example, attempted to set a 'cruising cap' to precisely limit these dead times.⁵³⁰ Yet one important lesson to learn from their experience is that ride-hailing companies will fight any regulation. Uber and Lyft managed to convince a judge at the Supreme Court of the State of New York to strike down the law.⁵³¹

7.3.2. Key Option 12: Keep Covid-19 Support Measures for Platform Workers

In response to the coronavirus global pandemic, platforms have introduced a number of minimal responses. Many platforms have introduced 'contact-free' options in an attempt to keep workers and consumers safer.⁵³² Companies like Uber have also begun to mandate the use of masks for both workers and riders.⁵³³ More significantly, a number of these companies have also begun to offer sick pay to their workers – though typically at very low replacement levels and often with a number of bureaucratic hurdles in place.⁵³⁴ This is important because it is an implicit recognition that these are in fact employees and not just independent contractors – sick pay being the responsibility of a company to its employees and not of an intermediary towards the self-employed. However, in an attempt to avoid this conclusion, platforms are also making their workers sign contracts that state that the provision of sick pay is not a recognition of their employee status.⁵³⁵ Platforms are also calling the sick pay by euphemisms such as 'support payment' or 'onetime pay adjustment'.⁵³⁶ These linguistic hurdles should not, however, obscure the facts on the ground.

At the government level, two emergency measures have been put in place in various countries. First, some countries have introduced a one-off ad hoc payment to self-employed workers. Germany, for example, has offered €15 000 over three months, while Greece has provided €800.⁵³⁷ Likewise, the United States has offered gig workers a one-off payment of US\$1 200.⁵³⁸ Critics, however, have noted that the system is set up in such a way as to incentivise the continued misclassification of platform workers as self-employed.⁵³⁹ Since the federal government will pay unemployment insurance if states determine a worker is not an employee and therefore unqualified for state unemployment insurance, states can avoid paying for unemployment insurance by leaving gig workers as 'self-employed'. Second, other countries are providing ongoing payments as a proportion of the self-employed workers' average income over a period of time. Denmark, for example, is providing 75 percent of the average income, while Norway is providing 80 percent.⁵⁴⁰ And while not enacted, there have been prominent calls for countries to introduce at least a temporary universal basic income to support all workers regardless of employment status.⁵⁴¹

⁵³⁰ Bond, 'New York's Year-Long Licence Cap to Hit Uber and Lyft'.

⁵³¹ Bellon, 'In Win for Uber, Judge Strikes down New York City's Cruising Cap'.

⁵³² Fairwork, 'The Gig Economy and Covid-19: Fairwork report on Platform Policies', 9–10.

⁵³³ O'Brien, 'Uber Will Soon Require Drivers and Riders to Wear Face Coverings in the US'.

⁵³⁴ Fairwork, 'The Gig Economy and Covid-19: Fairwork report on Platform Policies', 11–12; Fairwork, 'If Platforms Do Not Protect Gig Workers, Who Will?'; van Doorn, Mos, and Bosma, 'Disrupting 'Business as Usual''; Fortin, 'A Quarantined Uber Driver's Quest for Paid Sick Leave'; Lee, 'Gig Economy Tries to Hold on to Workers During Shutdown'.

⁵³⁵ Fairwork, *ibid.*, 12.

⁵³⁶ Fairwork, *ibid.*, 19.

⁵³⁷ The Editorial Board, *ibid.*; Jacobs and Hill, 'Freelancers Fight for Support Through Coronavirus Crisis'.

⁵³⁸ The Editorial Board, *ibid.*

⁵³⁹ <https://twitter.com/veenadubal/status/1243036825712603136>

⁵⁴⁰ The Editorial Board, *ibid.*

⁵⁴¹ The Editorial Board, *ibid.*

One of the big questions at the moment is what happens as the crisis recedes. At the moment, two broad paths present themselves. On the one hand, the emergency efforts put in place to support workers – particularly platform workers – could continue, or at the very least be a challenge for governments to roll back. Workers who have got used to the security provided by the new measures will be unlikely to want a reversion to the previous system, and platforms by their actions have already demonstrated they know they have responsibility for the workers. If this path of continuity is chosen, more efforts could also be put into to support the health and safety of these workers. Personal protective equipment, for example, should be provided by the platforms – ranging from equipment used every day, such as high-visibility jackets to the masks presently used under exceptional circumstances.⁵⁴² Training and compensation for occupational accidents must also be provided by the platforms.⁵⁴³

On the other hand, platform companies are likely to – and indeed, some already are – fight for a return to the pre-coronavirus normal. Efforts are particularly being made to deregulate the labour market, with the ostensible aim of making hiring and firing easier in order to reduce coronavirus-incited unemployment.⁵⁴⁴ Yet, as others have pointed out, countries with relatively strong social protections, such as Germany, have done better than others in their response to the pandemic and its economic impacts.⁵⁴⁵ Deregulating would continue to leave countries more at risk. And as seen with the risks to public health caused by platform work, deregulation also entails shifting risk elsewhere in society. Platform workers need support, not more deregulation.

⁵⁴² Christie and Ward, 'The Health and Safety Risks for People Who Drive for Work in the Gig Economy', 127.

⁵⁴³ Woodcock and Graham, *The Gig Economy*, 148.

⁵⁴⁴ De Stefano, 'Labour and Social Protection in Times of Covid-19'.

⁵⁴⁵ De Stefano, *ibid.*

8. Conclusions

This study has examined the impact of digital platforms on the economy and society. The emergence of online platforms, acting as intermediaries on the basis of data, is the result of a global process of transformation driven by digitalisation, pervasive connectivity, and big data analytics. Online platforms have brought appreciable benefits to many and generated immense wealth for a few. They have also disrupted the economy and society.

A small number of platform firms such as Alphabet-Google, Amazon, Facebook, Apple have become the 'poster children' of the digital economy. They have provided valuable services to billions of users across the globe and, in lockstep, also reached unprecedented levels of economic power as whole ecosystems of firms have come to rely on them. A small number of online platforms have reached positions of absolute centrality in the digital economy. The question of their dominance has become salient enough not only for regulation authorities to attempt enforcement of existing laws, but also to trigger a serious consideration of a regulatory change in Europe and elsewhere.

Digital platforms have accrued economic power by riding economic forces and seizing technological opportunities. Some of them have also abused positions of power and acted in anti-competitive ways. Beyond their economic power, a few online platforms have also gained significant influence over society and achieved a kind of political power. The most important platform firms are not only large firms with large market shares in selected industries. They are the 'new governors' of increasingly vast ecosystems that span sectors, markets, and countries.⁵⁴⁶ Digital platforms grow on data-driven business models and tend to adopt a profit-driven business logic. If insufficiently regulated and accountable, they can lead to pervasive surveillance, human disempowerment and manipulation, lack of human agency, and societal polarisation.

The issues observed and presented in this report cut across a variety of areas such as on competition and innovation, work and the labour market, and the social fabric. Digital platforms' behaviours have raised concerns and risks in several areas that were previously considered and regulated separately but are now increasingly interconnected (such as privacy, consumer protection, and competition). This report has presented an evaluation of the current regulatory challenges. The report has presented a number of policy options, including new regulation and options on new institutional arrangements for regulation enforcement.

A new mode of regulation is needed, one that will combine ex-ante robust yet flexible regulation and stronger ex-post enforcement, and enrolls the active participation of online platform firms and their ecosystem members. Government regulation is no panacea and can, of course, be subject to some amount of regulatory capture. But self-regulation alone by platform firms is unlikely to solve all the issues. This is because, absent credible threat of regulation, platform firms that have asymmetric power over customers or business partners and have reached uncontested positions of gatekeeper power may simply lack the will to self-regulate.

The report welcomes the proposals in the European Commission's DMA and the DSA, which take policy and regulation in the right direction in Europe. Where this report differs from the DMA and the DSA proposals is in calling for (1) a stronger merger control regime for gatekeeper platforms; (2) that each gatekeeper platform should have its own tailored enforceable Code of Conduct; (3) greater scope for national authorities to intervene where there are country-specific issues; (4) a new users' right to reasonable inferences and to curtail eliminate the generation of 'high-risk inferences', i.e., those that are privacy-invasive, reputation-damaging, and have low verifiability. In addition, one of the central issues raised in the DSA is the treatment of illegal content discussed in Section 6.1. This report does not

⁵⁴⁶ Klonick, 'The New Governors: The People, Rules and Processes Governing Online Speech'.

offer alternative policy options on this topic, as the Commission's DSA proposals in this area appear broadly appropriate.

The report suggests that future regulation should ensure that it is based on fundamental principles to ensure freedom of competition, fairness in intermediation, and the sovereignty of decision-making. Such future regulation should also ensure access to fair social protection for all workers, access to dignified work and minimum living standards, and support of workers' voices in the organisation of their work. This report calls to consider and reaffirm these fundamental principles that reflect common ground in the values of the European Union. The reaffirmation of fundamental principles is the remit of democratically elected representatives such as the Members of the European Parliament.

The report demonstrates that there is a need for short term regulatory change as well as monitoring of digital markets and long-term re-evaluation of regulatory options. The short-term options are laid out in the policy options section of the report. But this should not distract from also doing more work that will imply the long-term. Further adaptation and possible redesign of modalities of regulation will take a long time. It will also need to develop analytical frameworks that reflect the reality of the digital economy as it continues to evolve. For this long-run work, academic experts will be required to develop better theories to explain and predict the behaviour and impact of platforms and ecosystems in the digital economy. Researchers will create new and better analysis frameworks as more time will allow them to observe the evidence needed to formulate updates on theories and concepts. While this scholarly activity might appear abstract to some readers, such research effort will be important and needs to be supported to help provide the right analytical lenses to interpret a rapidly changing economic and social reality. Further development and cross-fertilisation of economic theory, management theory, and social science theories will be needed, including refining the theory of the firm and developing a theory of ecosystems and a theory of data. Better frameworks and theories will be helpful for regulators too.

Better analytical frameworks are needed because the current technological and economic forces are profoundly challenging the very categories that regulators and market participants have historically relied on to interpret firms' activities to act upon through regulation. For example, and this may be a provocative hypothesis, but the foundational notion of 'market', which has been the usual fundamental unit of analysis for the development and application of the economic theory of industrial organisation (itself leading to economic regulation), might not be the best or even the appropriate unit of analysis to interpret the behaviour of online platforms correctly. Whereas the distinction between market sectors, or between industries, used to be stable and meaningful, online platform firms appear to be able to 'glide' from market to market, as if the boundaries between markets were somehow porous or permeable to them. As digitalisation enables the generation of data-driven complementarities across markets and across products and services, a better unit of analysis might be that of an ecosystem that can cut across markets or sectors.⁵⁴⁷ More research is needed on platforms' behaviour in ecosystems over time and how ecosystems develop, coalesce, compete, and evolve.

Digitalisation and pervasive connectivity, combined with big data analytics, also profoundly transform the very nature of what firms are and do. Pervasive surveillance allows remote monitoring of workers and enables control of individuals' work without resorting to usual contractual mechanisms such as labour contracts or usual managerial techniques based on proximal oversight. It allows the identification, monitoring, and exploitation of resources that reside outside the firm's usual scope, giving platforms the opportunity to make new kinds of strategic decisions to design their boundaries in line with their business models. Digital platform boundary design consists of the structural decisions that platform firms make to strategically demarcate their resources and assets, which they govern in

⁵⁴⁷ Jacobides, Gawer, and Cennamo, 'Towards a Theory of Ecosystems' and 'Distinguishing between Platforms and Ecosystems: Complementarities, Value Creation, and Coordination Mechanisms'.

different modes.⁵⁴⁸ As the nature of the firm changes, how to determine its role and responsibilities becomes a salient question that requires more in-depth research.

Beyond advancing expert knowledge, it will be necessary to support the diffusion of the knowledge, ideas, and further questions presented in this report to the public and their elected representatives. This goes beyond what is traditionally referred to as 'digital literacy'. It is about supporting citizens' education to help them understand the forces that made digital platforms emerge and how they operate, as they have such a great influence on their lives. Digital technologies are complex, and, for many, their workings are obscure. The economics and business models of digital platforms are also still not well understood beyond a relatively small circle of experts, whose theories are still evolving. The way digital platforms operate has only recently begun to be well-understood by regulators and the public. This report has aimed to clarify not only how digital platforms operate but also what their impact is on the economy and society. Special effort has been made to make the text easy to understand for a wide audience. This is because as digitalisation, connectivity, and big data analytics transform the world, regulators and the public must understand the fundamentals of digital platforms' economic and social effects. Democratic participation requires citizens' understanding. The democratic process supported by the European Parliament is fundamental to allow the people and businesses of Europe to preserve, sustain, and sometimes create the right legal, social, and economic environment to enable them to benefit from these new technologies while preserving fundamental rights and interests. Europe can lead the way in a balanced and principled approach to regulating digital platforms, and it is hoped that this report will prove helpful toward this important objective.

⁵⁴⁸ See Gawer, 'Digital Platforms' Boundaries: The Interplay of Firm Scope, Platform Sides, and Digital Interfaces: 'Digital platform firms make choices on three interrelated but distinct types of boundaries, including not only on the traditional question of (1) the scope of the firm (what assets are owned, what labour is employed, and what activities are performed by the firm), but also: (2) on the configuration and composition of the platform's sides (which distinct groups of customers have access to the platform), and (3) on its the digital interfaces (that specify the 2-way exchange of data between the platform firm and each of its sides)'.

REFERENCES

- Ada Lovelace Institute. 'The Data Will See You Now: Datafication and the Boundaries of Health'. October 2020. https://www.adalovelaceinstitute.org/wp-content/uploads/2020/10/The_data_will_see_you_now_Ada_Lovelace_Inst_Oct_2020_Final-min.pdf.
- Agenzia Nazionale Stampa Associata. 'Delivery Riders Entitled to Safeguards - Top Court,' January 24, 2020. http://www.ansa.it/english/news/2020/01/24/delivery-riders-entitled-to-safeguards-top-court_52840b4f-9abe-4c04-9d39-06dacb293a58.html.
- Ajunwa, Ifeoma, Kate Crawford, and Jason Schultz. 'Limitless Worker Surveillance.' *California Law Review* 105, no. 3 (2017): 735–76.
- Algers, Jonas. 'Reflections on Platform Cooperativism.' *Political Economy Research Centre* (blog), November 29, 2016. https://www.perc.org.uk/project_posts/reflections-on-platform-cooperativism/.
- Allen & Overy. 'Global Antitrust: Digital Markets Act'. 2020. 17 December. <https://www.allenoverly.com/en-gb/global/news-and-insights/publications/digital-markets-act-ec-publishes-details-of-proposed-competition-rules-for-gatekeeper-digital-platforms>. (Accessed 20 December 2020).
- . 'The Digital Services Act is here'. 2020. 16 December. <https://www.allenoverly.com/en-gb/global/news-and-insights/publications/the-digital-services-act-package-is-here#:~:text=The%20Digital%20Services%20Act%20will,of%20users'%20fundamental%20rights%20online>. (Accessed 20 December 2020).
- Aloisi, Antonio, and Valerio De Stefano. 'Regulation and the Future of Work: The Employment Relationship as an Innovation Facilitator.' *International Labour Review* 159, no. 1 (2020): 47–69. <https://doi.org/10.1111/ilr.12160>.
- Alphabet. Annual report (Form 10K) for fiscal year ending 31 December 2018. United States Securities and Exchange Commission. <https://www.sec.gov/Archives/edgar/data/1652044/000165204419000004/goog10-kq42018.htm>.
- . Annual report (Form 10-K), 3 February 2020.
- . Quarterly report (Form 10-Q), 30 June 2020. https://abc.xyz/investor/static/pdf/20200731_alphabet_10Q.pdf?cache=f16f989.
- . Q2 Earnings Call July 30 July 2020, https://abc.xyz/investor/static/pdf/2020_Q2_Earnings_Transcript.pdf?cache=6bfce23.
- . Quarterly reports (Form 10-K), 2009–2019. <https://abc.xyz/investor/>.
- Amazon. Amazon.com, Inc. Annual report (Form 10-K). 2020. 31 January. <http://d18rn0p25nwr6d.cloudfront.net/CIK-0001018724/4d39f579-19d8-4119-b087-ee618abf82d6.pdf>.
- . 'Amazon.com Announces Second Quarter Results 2'. 2020. 30 July. https://s2.g4cdn.com/299287126/files/doc_financials/2020/q2/Q2-2020-Amazon-Earnings-Release.pdf.
- Anair, Don, Jeremy Martin, Maria Cecilia Pinto de Moura, and Joshua Goldman. 'Ride-Hailing's Climate Risks: Steering a Growing Industry toward a Clean Transportation Future.' Cambridge: Union of Concerned Scientists, 2020. <https://www.ucsusa.org/resources/ride-hailing-climate-risks>.
- Angwin, Julia. 'Google Has Quietly Dropped Ban on Personally Identifiable Web Tracking.' ProPublica. <https://www.propublica.org/article/google-has-quietly-dropped-ban-on-personally-identifiable-web-tracking?token=jg6nGk6aRoymOqJmDTsthj1PIBKaGEW9>. (Accessed 10 December, 2020).
- Apple. Apple Inc., Annual report (Form 10-K). 2019. 28 September. [https://s2.g4cdn.com/470004039/files/doc_financials/2019/ar/10-K-2019-\(As-Filed\).pdf](https://s2.g4cdn.com/470004039/files/doc_financials/2019/ar/10-K-2019-(As-Filed).pdf).
- Argentesi, Elena, Paolo Buccirossi, Emilio Calvano, Tomaso Duso, Alessia Marrazzo, and Salvatore Nava. 'The Lear report: Ex-post Assessment of Merger Control Decisions in Digital Markets'. Prepared by Lear for the UK Competition and Market Authority. 2019. https://www.learlab.com/wp-content/uploads/2019/06/CMA_past_digital_mergers_GOV.UK_version-1.pdf.
- . 'Merger Policy in Digital Markets: An Ex-Post Assessment.' CESifo Working Paper Series. CESifo Working Paper Series. CESifo, 2019. <https://ideas.repec.org/p/ces/ceswps/7985.html>.

- . 'Tech-over: Mergers and merger policy in digital markets'. 2020. March. Vox EU, CEPR.
<https://voxeu.org/article/mergers-and-merger-policy-digital-markets>.
- Armstrong, Mark. 'Competition in two-sided markets'. *The RAND Journal of Economics* 37, no. 3 (2006): 668-691.
- Australian Competition & Consumer Commission (ACCC). 'Digital Platform Inquiry: Final report'. 2019.
<https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report>.
- Australian Competition & Consumer Commission (ACCC). 'ACCC rejects Google behavioural undertakings for Fitbit acquisition'. 2020. <https://www.accc.gov.au/media-release/accc-rejects-google-behavioural-undertakings-for-fitbit-acquisition>.
- Autorité de la Concurrence & Bundeskartellamt, 'Competition Law and Data'. 2016.
<https://www.autoritedelaconcurrence.fr/en/communiqués-de-presse/10-may-2016-big-data>.
- Autorité de la Concurrence, Opinion No. 18-A-03 of 6 March 2018 on Data Processing in the Online Advertising Sector 2–10. 2018. http://www.autoritedelaconcurrence.fr/doc/avis18a03_en.pdf
- Antonio, Juan de, Anthony Tan, Bastian Lehmann, Will Shu, Miles Everson, and Dara Khosrowshahi. 'Charter of Principles for Good Platform Work.' Davos: World Economic Forum, 2020.
http://www3.weforum.org/docs/WEF_Charter_of_Principles_for_Good_Platform_Work.pdf.
- Baker, Jonathan B., Joseph Farrell, Andrew I. Gavil, Martin S. Gaynor, Michael Kades, Michael L. Katz, Gene Kimmelman, A. Douglas Melamed, Nancy L. Rose, Steven C. Salop, Fiona M. Scott Morton, and Carl Shapiro. 'Joint Response to the House Judiciary Committee on the State of Antitrust Law and Implications for Protecting Competition in Digital Markets'. 2020.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3632532.
- Ball, James, 'The UK's Contact Tracing App Fiasco is a Master Class in Mismanagement'. 19 June.
<https://www.technologyreview.com/2020/06/19/1004190/uk-covid-contact-tracing-app-fiasco/>.
(Accessed 25 August 2020).
- Bednarowicz, Bartłomiej. 'Delivering on the European Pillar of Social Rights: The New Directive on Transparent and Predictable Working Conditions in the European Union.' *Industrial Law Journal* 48, no. 4 (2019): 604–23.
- Beerepoot, Niels. 'Digital Labour Platforms as Winner-Takes-All Markets: Implications for Fair Work Standards.' *Development Implications of Digital Economies (DIODE) Strategic Research Network* (blog), July 10, 2019. <https://diode.network/2019/07/10/digital-labour-platforms-as-winner-takes-all-markets-implications-for-fair-work-standards/>.
- Bellon, Tina. 'In Win for Uber, Judge Strikes down New York City's Cruising Cap.' *Reuters*, December 23, 2019. <https://www.reuters.com/article/uber-new-york-idUSL1N28X0R9>.
- Benelux. 'Joint Memorandum of the Belgian, Dutch and Luxembourg Competition Authorities on Challenges Faced by Competition Authorities in a Digital World'. 2019.
<https://www.belgiancompetition.be/en/about-us/publications/joint-memorandum-belgian-dutch-and-luxembourg-competition-authorities>.
- Berg, Janine. 'Income Security in the On-Demand Economy: Findings and Policy Lessons from a Survey of Crowdworkers.' ILO Working Paper. Geneva: International Labour Organization, 2016.
- Berg, Janine, and Valerio De Stefano. 'It's Time to Regulate the Gig Economy.' Sheffield Political Economy Research Institute, April 17, 2017. <http://speri.dept.shef.ac.uk/2017/04/17/its-time-to-regulate-the-gig-economy/>.
- Berg, Janine, Marianne Furrer, Ellie Harmon, Uma Rani, and Michael 'Six' Silberman. 'Digital Labour Platforms and the Future of Work: Towards Decent Work in the Online World.' Geneva: International Labour Organization, 2018.
- . 'Working Conditions on Digital Labour Platforms: Opportunities, Challenges, and the Quest for Decent Work.' VoxEU, September 20, 2019. <https://voxeu.org/article/working-conditions-digital-labour-platforms>.
- Bogost, Ian. 'How Technology Sabotaged Public Safety.' *The Atlantic*, October 10, 2019.
<https://www.theatlantic.com/technology/archive/2019/10/how-technology-sabotaged-public-safety/599611/>.
- Bond, Shannon. 'New York's Year-Long Licence Cap to Hit Uber and Lyft.' *Financial Times*, August 8, 2018.
<https://www.ft.com/content/18cd0ada-9b5a-11e8-9702-5946bae86e6d>.

- Boudreau, Kevin J. 'Platform Boundary Choices & Governance: Opening-Up While Still Coordinating and Orchestrating'. *Entrepreneurship, Innovation and Platforms*. AGJ Furman, BS Silverman, S. Stern.' Emerald Publishing Limited 37 (2017): 227-297.
- Bourreau, Marc, Cristina Caffarra, Zhijun Chen, Chongwoo Choe, G. Crawford, Tomaso Duso, Christos Genakos, Paul Heidhues, Martin Peitz, Thomas Rønde, Monika Schnitzer, Nicolas Schutz, Michelle Sovinsky, Giancarlo Spagnolo, Otto Toivanen, Tommaso Valletti, Thibaud Vergé. 'Google/Fitbit will monetise health data and harm consumers.' 2020. VoxEU. Org. 30 September. <https://voxeu.org/article/googlefitbit-will-monetise-health-data-and-harm-consumers>. (Accessed 25 December 2020).
- Bradshaw, Tim. 'Uber and Airbnb Earn Praise for Headway on Customer Safety.' *Financial Times*, December 6, 2019. <https://www.ft.com/content/681caf32-184f-11ea-9ee4-11f260415385>.
- Braverman, Harry. *Labor and Monopoly Capitalism: The Degradation of Work in the Twentieth Century*. 25th Anniversary Edition. New York: Monthly Review Press, 1999.
- Brazil, Noli, and David S. Kirk. 'Uber and Metropolitan Traffic Fatalities in the United States.' *American Journal of Epidemiology* 184, no. 3 (2016): 192–98.
- Brotten, Nicholas, Michael Dworsky, and David Powell. 'How Do Alternative Work Arrangements Affect Income Risk After Workplace Injury?' Working Paper. Working Paper Series. National Bureau of Economic Research, 2019. <https://doi.org/10.3386/w25989>.
- Brynjolfsson, Erik, Felix Eggers, and Avinash Gannamaneni. 'Measuring welfare with massive online choice experiments: A brief introduction.' In *AEA Papers and Proceedings*, vol. 108, pp. 473-76. 2018. <https://dspace.mit.edu/bitstream/handle/1721.1/120171/pandp.20181035.pdf?sequence=1&isAllowed=y>.
- Brynjolfsson, Erik, Avinash Collis, and Felix Eggers. 'Using massive online choice experiments to measure changes in well-being.' *Proceedings of the National Academy of Sciences* 116, no. 15 (2019): 7250-7255. <https://www.pnas.org/content/pnas/116/15/7250.full.pdf>.
- Bundeskartellamt. 'Bundeskartellamt prohibits Facebook from combining user data from different sources.', 2019 https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/07_02_2019_Facebook.html.
- Burson-Marsteller, The Aspen Institute, and Time. 'The On-Demand Economy Survey.' The Aspen Institute, 2016. <http://www.burson-marsteller.com/ondemand-survey/>.
- Butler, Ben. 'Australian Competition and Consumer Commission (ACCC): Google faces \$400m fine over Fitbit takeover if it doesn't wait for competition watchdog's approval'. *The Guardian*. 2020. 22 December. <https://www.theguardian.com/australia-news/2020/dec/22/google-faces-400m-fine-over-fitbit-takeover-if-it-doesnt-wait-for-competition-watchdogs-approval>.
- Butler, Sarah. 'Deliveroo Riders Lose High Court Battle to Gain Union Recognition.' *The Guardian*, December 5, 2018, sec. Business. <https://www.theguardian.com/business/2018/dec/05/deliveroo-riders-lose-high-court-battle-gain-union-recognition>.
- Caffarra, Cristina. 'Digital Platforms and Ecosystems: The Shifting Regulatory Landscape'. Video Communication. Symposium on 'Digital Platforms and Ecosystems', a Conference Extension organized by the University of Surrey and the University of Oxford to the Strategic Management Society 40th Annual Conference. 2020. 23 October. <https://www.youtube.com/watch?v=Aw3visSltRU>.
- — — and Fiona Scott Morton. 'The European Commission Digital Markets Act: A translation'. 2021. Vox EU / CEPR. 5 January. <https://voxeu.org/article/european-commission-digital-markets-act-translation>.
- — — and Tommaso Valletti. 'Google/Fitbit review: Privacy IS a competition issue'. 2020. Vox EU / CEPR. 4 March. <https://voxeu.org/content/googleFitbit-review-privacy-competition-issue>.
- California. Assembly Bill 5 (2019). https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201920200AB5.
- California. 'Proposition 22, App-Based Drivers as Contractors and Labor Policies Initiative 2020'. 2020, [https://ballotpedia.org/California_Proposition_22,_App-Based_Drivers_as_Contractors_and_Labor_Policies_Initiative_\(2020\)](https://ballotpedia.org/California_Proposition_22,_App-Based_Drivers_as_Contractors_and_Labor_Policies_Initiative_(2020)).

- California Air Resources Board. 'Clean Miles Standard: 2018 Base-Year Emissions Inventory report.' Sacramento, 2019. https://ww2.arb.ca.gov/sites/default/files/2019-12/SB%201014%20-%20Base%20year%20Emissions%20Inventory_December_2019.pdf.
- Cant, Callum. *Riding for Deliveroo: Resistance in the New Economy*. Cambridge: Polity, 2020.
- Cant, Callum, Sai Englert, and Jamie Woodcock. 'Digital Workerism: Technology, Platforms, and the Circulation of Workers' Struggles.' *Developing Economics* (blog), February 21, 2020. <https://developingeconomics.org/2020/02/21/digital-workerism-technology-platforms-and-the-circulation-of-workers-struggles/>.
- Carbonell, Juan Sebastian. 'Precarious Work Isn't New — It's Part of How Capitalism Functions.' *Jacobin*, April 21, 2020. <https://jacobinmag.com/2020/04/precarity-french-labor-market-gig-economy-precariat>.
- Center for the Digital Future at USC Annenberg. 'The 2018 digital future report.' 2019. <https://www.digitalcenter.org/wp-content/uploads/2018/12/2018-DigitalFuture-report.pdf>
- CERRE (Centre on Regulation in Europe). Feasey and Kramer 'report: Implementing Effective Remedies for Anti-competitive Intermediation Bias on Vertically Integrated Platforms'. October 2019. https://www.cerre.eu/sites/cerre/files/cerre_intermediationbiasremedies_report.pdf. (Accessed 17 August 2020).
- Chaibi, Leïla. 'Proposal for Directive of the European Parliament and of the Council on Digital Platform Workers.' Strasbourg, 2020. <https://www.guengl.eu/content/uploads/2020/11/Directive-travailleurs-des-plateformes-ENG-WEB.pdf>.
- Charles, Julien, Isabelle Ferreras, and Auriane Lamine. 'A Freelancers' Cooperative as a Case of Democratic Institutional Experimentation for Better Work: A Case Study of SMart-Belgium.' *Transfer: European Review of Labour and Research*, 2020.
- Cherry, Miriam A., and Antonio Aloisi. 'Dependent Contractors' in the Gig Economy: A Comparative Approach.' *American University Law Review* 66, no. 3 (2016): 635–89.
- China Labour Bulletin. 'Food Delivery Drivers Strike Over Increased Competition.' China Labour Bulletin, June 2, 2020. <https://clb.org.hk/content/food-delivery-drivers-strike-over-increased-competition>.
- Christie, Nicola, and Heather Ward. 'The Health and Safety Risks for People Who Drive for Work in the Gig Economy.' *Journal of Transport & Health* 13 (2019): 115–27.
- Cirisano, Tatiana. 'California Legislators Amend AB5 Gig Economy Law to Protect Music Professionals.' Billboard, April 17, 2020. <https://www.billboard.com/articles/business/9360514/california-ab5-gig-economy-law-amended-protect-music-professionals>.
- Clewlow, Regina, and Gouri Shankar Mishra. 'Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States.' Institute of Transportation Studies, University of California, Davis, 2017.
- Codagnone, Cristiano, Fabienne Abadie, and Federico Biagi. 'The Future of Work in the 'Sharing Economy': Market Efficiency and Equitable Opportunities or Unfair Precarisation?' JRC Science for Policy report EUR 27913. Institute for Prospective Technological Studies, 2016.
- Colclough, Christina J. 'Are You Involved? Data Protection Impact Assessments at Work.' *The Why Not Lab* (blog), June 18, 2020. <https://www.thewhynotlab.com/post/are-you-involved-data-protection-impact-assessments-at-work>.
- Constine, Josh. 'WhatsApp hits 1.5 billion monthly users. \$19 B? Not so bad.' 2018. Techcrunch. 31st January.
- Conti, Allie. 'I Accidentally Uncovered a Nationwide Scam on Airbnb.' 2019. *Vice*. October 31, https://www.vice.com/en_us/article/43k7z3/nationwide-fake-host-scam-on-airbnb.
- Countouris, Nicola, and Valerio De Stefano. 'New Trade Union Strategies for New Forms of Employment.' Brussels: European Trade Union Confederation, 2019. https://www.etuc.org/sites/default/files/publication/file/2019-04/2019_new%20trade%20union%20strategies%20for%20new%20forms%20of%20employment_0.pdf.
- Countouris, Nicola, Valerio De Stefano, Keith Ewing, and Mark Freedland. 'Covid-19 Crisis Makes Clear a New Concept of 'Worker' Is Overdue.' *Social Europe* (blog), April 9, 2020. <https://www.socialeurope.eu/covid-19-crisis-makes-clear-a-new-concept-of-worker-is-overdue>.

- Cramer, Maria. '19 Women Sue Lyft as Sexual Assault Allegations Mount.' *The New York Times*, December 5, 2019, sec. Business. <https://www.nytimes.com/2019/12/05/business/lyft-sexual-assault-lawsuit.html>.
- Crawford, Gregory. 'The ACCC rejected the insufficient conditions with which DG COMP cleared Google-Fitbit'. 2020. <https://twitter.com/GregorySCrawfor/status/1341333750551031809>.
- Crémer, Jacques, Yves-Alexandre de Montjoye, and Heike Schweitzer. 'Competition Policy in the Digital Era: report for the European Commission'. 2019. <https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf>.
- Crouch, Colin. *Will the Gig Economy Prevail?* Cambridge: Polity, 2019.
- Cunningham, Colleen, Florian Ederer, and Song Ma. 'Killer Acquisitions'. *Journal of Political Economy*. Available at SSRN : <https://ssrn.com/abstract=3241707> or <http://dx.doi.org/10.2139/ssrn.3241707>.
- Cusumano, Michael A., Annabelle Gawer, and David B. Yoffie. *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power*. Harper Business.
- Cusumano, Michael A., Annabelle Gawer, and David B. Yoffie. 'Digital Platforms and Self-Regulation: Lessons from Historical Examples', *Industrial and Corporate Change*, 2021 (forthcoming).
- Cutter, Chip, Te-Ping Chen, and Sarah Krouse. 'You're Working From Home, but Your Company Is Still Watching You.' *Wall Street Journal*, April 18, 2020. <https://www.wsj.com/articles/youre-working-from-home-but-your-company-is-still-watching-you-11587202201>.
- Dazzi, Davide. 'Gig Economy in Europe.' *Italian Labour Law E-Journal* 12, no. 2 (2019): 67–122.
- De Stefano, Valerio. 'I Now Pronounce You Contractor': Prop 22, Labour Platforms and Legislative Doublespeak.' *UK Labour Law* (blog), November 13, 2020. <https://uklabourlawblog.com/2020/11/13/i-now-pronounce-you-contractor-prop22-labour-platforms-and-legislative-doublespeak-by-valerio-de-stefano/>.
- . 'The Rise of the 'Just-in-Time Workforce': On-Demand Work, Crowdwork and Labour Protection in the 'Gig-Economy.'" *Conditions of Work and Employment Series*, No. 71. Geneva: International Labour Organization, 2016.
- De Stefano, Valerio, and Antonio Aloisi. 'European Legal Framework for 'Digital Labour Platforms.'" Luxembourg: European Commission, 2018. <https://ec.europa.eu/jrc/en/publication/european-legal-framework-digital-labour-platforms>.
- De Streef, Alexandre, Elise Defreyne, Hervé Jacquemin, Michèle Ledger, and Alejandra Michel. 'Online Platforms' Moderation of Illegal Content Online: Law, Practices, and Options for Reform. report for the European Parliament'. [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652718/IPOL_STU\(2020\)652718_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652718/IPOL_STU(2020)652718_EN.pdf).
- Dills, Angela, and Sean Mulholland. 'Ride-Sharing, Fatal Crashes, and Crime.' *Southern Economic Journal* 84, no. 4 (2018): 965–91.
- Digital Freedom Fund. 'Self-Preferencing and EU Competition Law.' 2020. https://digitalfreedomfund.org/wp-content/uploads/2020/05/5_DFF-Factsheet-Self-preferencing-and-EU-competition-law.pdf
- Doorn, Niels van, Eva Mos, and Jelke Bosma. 'Disrupting 'Business as Usual': How Covid-19 Is Impacting Platform-Mediated Labor and Social Reproduction.' *Platform Labor*, March 27, 2020. <https://platformlabor.net/blog/disrupting-business-as-usual>.
- Drahokoupil, Jan, and Brian Fabo. 'The Platform Economy and the Disruption of the Employment Relationship.' Brussels: European Trade Union Institute, 2016.
- Dubal, Veena. 'A Brief History of the Gig.' *Logic Magazine*, 2020. <https://logicmag.io/security/a-brief-history-of-the-gig/>.
- Duhigg, Charles. 'How Companies Learn Your Secrets.' *The New York Times*, February 16, 2012, sec. Magazine. <http://www.nytimes.com/2012/02/19/magazine/shopping-habits.html>.
- Duhigg, Charles. 'Is Amazon Unstoppable?'. 2019. 21 October. *The New Yorker*. <https://www.newyorker.com/magazine/2019/10/21/is-amazon-unstoppable>.
- . Amazon.com, Inc., Annual report (Form 10-K) 83–84 (Mar. 9, 2005), https://www.annualreports.com/HostedData/AnnualReportArchive/a/NASDAQ_AMZN_2004.pdf

- Dyer-Witheyford, Nick. *Cyber-Proletariat: Global Labour in the Digital Vortex*. London: Pluto Press, 2015.
- Eavis, Peter, and Steve Lohr. 'Big Tech's Domination of Business Reaches New Heights.' *The New York Times*, August 19, 2020, sec. Technology. <https://www.nytimes.com/2020/08/19/technology/big-tech-business-domination.html>.
- Edelman, Benjamin G. 'Uber Can't Be Fixed—It's Time for Regulators to Shut It Down'. *Harvard Business Review* 2017 (website, June 21). <https://hbr.org/2017/06/uber-cant-be-fixed-its-time-for-regulators-to-shut-it-down>.
- Edelman, Benjamin, Michael Luca, and Dan Svirsky. 'Racial Discrimination in the Sharing Economy: Evidence from a Field Experiment.' *American Economic Journal: Applied Economics* 9, no. 2 (2017): 1–22.
- EDiMA. 'Fundamentals of the Online Responsibility Framework Series: A legal Basis to Act'. <https://www.euractiv.com/wp-content/uploads/sites/2/2020/10/ORF-Series-Basis-to-Act-EDiMA.pdf>.
- Englehardt, Steven, Gunes Acar, and Arvind Narayanan. 'No boundaries: Exfiltration of personal data by session-replay scripts.' *Freedom to Tinker* 15 (2017). https://senglehardt.com/presentations/2018-02_fpf_session_replay.pdf.
- Englert, Sai, Jamie Woodcock, and Callum Cant. 'Digital Workerism: Technology, Platforms, and the Circulation of Workers' Struggles.' *TripleC: Communication, Capitalism & Critique* 18, no. 1 (2020): 132–45.
- Ennis, Sean F. and Amelia Fletcher. 'Developing International Perspectives on Digital Competition Policy.' 2020. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3565491.
- Espinoza, Javier, 'Google Stands Firm in Its Appeal Against €2.4bn Shopping Fine', *Financial Times*. February 12 2020. <https://www.ft.com/content/a5c0a64c-4d9a-11ea-95a0-43d18ec715f5>.
- Ettlinger, Nancy. 'Paradoxes, Problems and Potentialities of Online Work Platforms.' *Work Organisation, Labour & Globalisation* 11, no. 2 (2017): 21–38.
- European Commission. 'A European Agenda for the Collaborative Economy'. 2016. <https://ec.europa.eu/growth/tools-databases/vto/policy/european-agenda-collaborative-economy>.
- . 'A European Agenda for the Collaborative Economy.' Brussels, 2016. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2016%3A356%3AFIN>.
- . 'Antitrust: Commission fines Google €1.49 billion for abusive practices in online advertising', Brussels, 20 March 2019. https://ec.europa.eu/commission/presscorner/detail/en/IP_19_1770 (accessed 6 August 2020)
- . 'Antitrust: Commission opens investigation into possible anti-competitive conduct of Amazon', 2019. https://ec.europa.eu/commission/presscorner/detail/mt/ip_19_4291. (Accessed 24 August 2020).
- . 'Antitrust: Commission opens investigations into Apple's App Store rules.' https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1073. (Accessed 24 August 2020).
- . 'Antitrust: Commission sends Statement of Objections to Amazon for the use of non-public independent seller data and opens second investigation into its e-commerce business practices.', 2020 https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2077 (Accessed 25 Nov 2020).
- . 'Antitrust: Commission sends Statement of Objections to Google on Android operating system and applications', https://ec.europa.eu/commission/presscorner/detail/en/IP_16_1492.
- . 'Code of Practice on Disinformation'. <https://ec.europa.eu/digital-single-market/en/news/code-practice-disinformation>.
- . 'Digital Markets Act'. 2020. Proposal for a Regulation of the European Parliament and of the Council, on contestable and fair markets in the digital sector (Digital Markets Act). https://ec.europa.eu/info/sites/info/files/proposal-regulation-single-market-digital-services-digital-services-act_en.pdf.
- . 'Digital Services Act'. 2020. Proposal for a Regulation of the European Parliament and of the Council, on a Single Market For Digital Services (Digital Services Act) and amending Directive 2000/31/EC.

- https://ec.europa.eu/info/sites/info/files/proposal_for_a_regulation_on_a_single_market_for_digital_services.pdf.
- . 'Digital Service Act Package: An ex-ante regulatory instrument of very large online platforms acting as gatekeepers'. <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12418-Digital-Services-Act-package-ex-ante-regulatory-instrument-of-very-large-online-platforms-acting-as-gatekeepers>.
- . 'Digital Service Act Package: Deepening the Internal Market and clarifying responsibilities for digital services'. <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12417-Digital-Services-Act-deepening-the-Internal-Market-and-clarifying-responsibilities-for-digital-services>.
- . 'How Do Online Platforms Shape our Lives and Businesses.' Brussels, 2019. <https://ec.europa.eu/digital-single-market/en/news/how-do-online-platforms-shape-our-lives-and-businesses-brochure>.
- . 'Identity and Access Management Platform of the Flemish Government'. <https://joinup.ec.europa.eu/solution/identity-and-access-management-platform-flemish-government>.
- . 'Mergers: Commission clears acquisition of Fitbit by Google, subject to conditions', 2020. Press Release. 17 December. https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2484. (Accessed 18 December 2020).
- . 'Mergers: Commission opens in-depth investigation into the proposed acquisition of Fitbit by Google,' 2020. Press Release. 4 August. https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1446 (Accessed 25 November 2020).
- . Observatory of the Online Platform Economy. <https://platformobservatory.eu/>. (Accessed 21 August 2020).
- . 'Online Platforms'. 2019. <https://ec.europa.eu/digital-single-market/en/online-platforms>. (Accessed 24 December 2020).
- . 'Platform-to-business trading practices'. 2019. <https://ec.europa.eu/digital-single-market/en/business-business-trading-practices#:~:text=The%20regulation,and%20traders%20on%20online%20platforms>.
- . DG-CONNECT. 'Platforms with significant network effects acting as gatekeeper. Impact assessment support study'. 2020. Vigie 2020/0630.
- . 'Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on promoting fairness and transparency for business users of online intermediation services'. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1150>.
- . 'Results of Commission's Last Round of Monitoring of the Code of Conduct Against Online Hate Speech,' January 2018. http://ec.europa.eu/newsroom/just/item-detail.cfm?item_id=612086.
- . 'Shaping Europe's Digital Future. Policy. Commission Recommendation on Illegal Content on Online Platforms'. March 2018. <https://ec.europa.eu/digital-single-market/en/illegal-content-online-platforms>. (Accessed 21 August 2020).
- . 'Shaping Europe's Digital Future. Policy: Online Platforms'. 2016. <https://ec.europa.eu/digital-single-market/en/online-platforms-digital-single-market>. (Accessed 21 August 2020).
- European Data Protection Supervisor. 'Preliminary Opinion on Privacy and Competitiveness in the Age of Big Data'. March 2014. https://edps.europa.eu/sites/edp/files/publication/14-03-26_competition_law_big_data_en.pdf.
- European Union. 'The 2019 EU R&D Investment Scoreboard.' <https://op.europa.eu/en/publication-detail/-/publication/bcb233-216c-11ea-95ab-01aa75ed71a1/language-en>.
- Eurostat. 'Social Media: Statistics on the Use by Enterprises.' Eurostat Statistics Explained. 2020. https://ec.europa.eu/eurostat/statistics-explained/index.php/Social_media_-

- [statistics on the use by enterprises](#) and <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/49114.pdf>.
- Evans, Davis S., and Richard Schmalensee. *Matchmakers: The New Economics of Multi-Sided Platforms*. 2016. Harvard Business Review Press.
- Evans, Peter and Annabelle Gawer. 'The Rise of the Platform Enterprise: A Global Survey'. 2016. The Emerging Platform Economy Series No. 1, The Center for Global Enterprise. <https://www.thecge.net/archived-papers/the-rise-of-the-platform-enterprise-a-global-survey/> and https://www.thecge.net/app/uploads/2016/01/PDF-WEB-Platform-Survey_01_12.pdf.
- Ewing, Keith, John Hendy, and Carolyn Jones, eds. *Rolling out the Manifesto for Labour Law*. London: The Institute for Employment Rights, 2018. <https://www.ier.org.uk/product/rolling-out-manifesto-labour-law/>.
- Fabo, Brian, Jovana Karanovic, and Katerina Dukova. 'In Search of an Adequate European Policy Response to the Platform Economy.' *Transfer: European Review of Labour and Research* 23, no. 2 (2017): 163–75.
- Facebook, Inc. Quarterly report (Form 10-Q) 2020. July 31. <http://d18rn0p25nwr6d.cloudfront.net/CIK-0001326801/3d73f8a6-7608-4ac0-9348-dbd9b38f33fa.pdf>. (Accessed 25 December 2020).
- . Quarterly report (Form 10-Q) 2020. 30 October. <https://investor.fb.com/financials/sec-filings-details/default.aspx?FilingId=14469026>. (Accessed 25 December 2020).
- . Facebook company information. 2020. <https://newsroom.fb.com/company-info/>. (Accessed 21 August 2020).
- Fairwork. 'The Gig Economy and Covid-19: Fairwork report on Platform Policies.' 2020.
- Farrell, Diana, and Fiona Greig. 'Paychecks, Paydays, and the Online Platform Economy: Big Data on Income Volatility.' New York: J.P. Morgan Chase & Co. Institute, 2016.
- Farrell, Diana, Fiona Greig, and Amar Hamoudi. 'The Online Platform Economy in 2018: Drivers, Workers, Sellers, and Lessors.' New York: J.P. Morgan Chase & Co. Institute, 2018. <https://institute.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/institute/pdf/institute-ope-2018.pdf>.
- Fehr & Peers. 'Estimated TNC Share of VMT in Six US Metropolitan Regions,' 2019. https://drive.google.com/file/d/1FIUskVkj9lsAnWJQ6kLhAhNoVLjFdx3/view?usp=embed_facebook.
- Flagler, Jack. 'RideAustin Shuts down Operations.' Impact, June 12, 2020. <https://communityimpact.com/austin/central-austin/impacts/2020/06/12/rideaustin-shuts-down-operations/>.
- Fleming, Peter, Carl Rhodes, and Kyoung-Hee Yu. 'Uber Might Not Take Over the World, But It Is Still Normalising Job Insecurity.' *The Conversation*, November 27, 2019. <http://theconversation.com/uber-might-not-take-over-the-world-but-it-is-still-normalising-job-insecurity-127234>.
- Forbrukerrådet. 'Deceived by Design.' Oslo, 2018.
- Forde, Chris, Mark Stuart, Simon Joyce, Liz Oliver, Danat Valizade, Gabrielle Alberti, Kate Hardy, Vera Trappmann, Charles Umney, and Calum Carson. 'The Social Protection of Workers in the Platform Economy.' Brussels: European Parliament Policy Department A: Economic and Scientific Policy, 2017. [https://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU\(2017\)614184](https://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU(2017)614184)
- Forrester, Katrina. 'What Counts as Work?' *London Review of Books*, 2019. <https://www.lrb.co.uk/the-paper/v41/n23/katrina-forrester/what-counts-as-work>.
- France. Longuet, Gérard. 'report at the French Senate on digital sovereignty'. 2019. (in French). <http://www.senat.fr/rap/r19-007-1/r19-007-1-1.pdf>.
- Furman, Jason, Diane Coyle, Amelia Fletcher, Derek McAuley, Philip Marsden, P. 'Unlocking Digital Competition: report of the UK Digital Competition Expert Panel.' 2019. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf.

- Garin, Andrew, Emilie Jackson, Dmitri K. Koustas, and Carl McPherson. 'Is New Platform Work Different from Other Freelancing?' *AEA Papers and Proceedings* 110 (2020): 157–61.
<https://doi.org/10.1257/pandp.20201039>.
- Gautier, Axel and Lamesch, Joe, Mergers in the Digital Economy (2020). CESifo Working Paper No. 8056, Available at SSRN: <https://ssrn.com/abstract=3529012>.
- Gawer, Annabelle. 'Digital Platforms' Boundaries: The Interplay of Firm Scope, Platform Sides, and Digital Interfaces.' *Long Range Planning*. 2020. <https://doi.org/10.1016/j.lrp.2020.102045>.
- Ge, Yanbo, Christopher R. Knittel, Don MacKenzie, and Stephen Zoepf. 'Racial and Gender Discrimination in Transportation Network Companies.' Working Paper. National Bureau of Economic Research, 2016. <https://doi.org/10.3386/w22776>.
- Geraghty, Ben. 'Deliveroo and Victimisation in the Gig Economy.' *Financial Times*, December 13, 2016. <http://ftalphaville.ft.com/2016/12/13/2181231/guest-post-deliveroo-and-victimisation-in-the-gig-economy/>.
- Ghazawneh, Ahmad, and Ola Henfridsson. 'Balancing platform control and external contribution in third party development: the boundary resources model.' *Information systems journal* 23, no. 2 (2013): 173-192.
- German Federal Ministry for Economic Affairs and Energy. Schallbruch, H. Schweitzer and A. Wambach, 'A New Competition Framework for the Digital Economy'. September 2019. report by the Commission 'Competition Law 4.0'.
https://www.bmwi.de/Redaktion/EN/Publikationen/Wirtschaft/a-new-competition-framework-for-the-digital-economy.pdf?__blob=publicationFile&v=3.
- German Government Draft Bill. 9 September 2020. Original bill in German: <https://www.bmwi.de/Redaktion/DE/Downloads/Gesetz/gesetzentwurf-gwbdigitalisierungsgesetz.pdf>. English translation by D'Kart: <https://www.d-kart.de/blog/2020/02/21/draft-bill-the-translation/>.
- Gillmor, Daniel Kahn. 'Principles for Technology-Assisted Contact-Tracing,' n.d., 11.
- Glickman, Willa. 'Time to Deliver Justice to Delivery Workers.' *The New York Review of Books* (blog), April 2, 2020. <https://www.nybooks.com/daily/2020/04/02/time-to-deliver-justice-to-delivery-workers/>.
- Goldfarb, Avi, and Catherine Tucker. 'Digital Economics.' *Journal of Economic Literature*, 2019, 57(1): 3–43. <https://pubs.aeaweb.org/doi/pdfplus/10.1257/jel.20171452>.
- Gómez, Manuel V. 'Spanish Supreme Court Rules Food-Delivery Riders Are Employees, Not Self-Employed.' *El Pais*, September 24, 2020. https://english.elpais.com/economy_and_business/2020-09-24/spanish-supreme-court-rules-food-delivery-riders-are-employees.html.
- Google. 'Registration Statement.' Securities and Exchange Commission, Form S-1. 2004. 29 April. <https://www.sec.gov/Archives/edgar/data/1288776/000119312504073639/ds1.htm>.
- . 'Google Launches World's Largest Search Engine', Press Release, 2000. 26 June. <http://googlepress.blogspot.com/2000/06/google-launches-worlds-largest-search.html>.
- . 'Google Launches Self-Service Advertising Program', Press Release. 2000. 23 October. <http://googlepress.blogspot.com/2000/10/google-launches-self-service.html>.
- Gray, Mary L., and Siddharth Suri. *Ghost Work: How to Stop Silicon Valley from Building a New Global Underclass*. Boston: Houghton Mifflin Harcourt USA, 2019.
- Hagan, Shelley, and Marie Patino. 'Uber, Lyft Ridership Pace Declines in NYC After Fares Rise.' *Bloomberg*, July 15, 2019. <https://www.bloomberg.com/news/articles/2019-07-15/uber-lyft-ride-totals-in-new-york-city-slow-as-fares-increase>.
- Hagi, Andrei. 'Software Platforms.' In *The Oxford Handbook of the Digital Economy*, (Eds. M. Peitz, J. Waldfogel), 59–82. Oxford and New York: Oxford University Press.
- Hanna, Thomas, Joe Guinan, and Joe Bilsborough. 'The 'Preston Model' and the Modern Politics of Municipal Socialism.' *openDemocracy*, 2018. <https://www.opendemocracy.net/neweconomics/preston-model-modern-politics-municipal-socialism/>.
- Hansell, Saul. 'Amazon reports First Full-Year Profit.' 2004. *The New York Times*. 28 January. <https://www.nytimes.com/2004/01/28/business/technology-amazon-reports-first-full-year-profit.html>.

- Harris, Seth, and Alan Krueger. 'A Proposal for Modernizing Labor Laws for Twenty-First Century Work: The 'Independent Worker.'" Washington, D.C.: The Hamilton Project, 2015.
http://www.hamiltonproject.org/assets/files/modernizing_labor_laws_for_twenty_first_century_work_krueger_harris.pdf.
- Heikkilä, Melissa. 'Uber's #MeToo Moment in France.' Politico, December 13, 2019.
<https://www.politico.eu/article/uber-france-metoo-moment/>.
- Helling, Brett. 'Ridester's 2020 Independent Driver Earnings Survey.' Ridester, March 6, 2020.
<https://www.ridester.com/2020-survey/>.
- Hill, Andrew. 'Ratings Systems Have Returned to Haunt the Gig Economy.' *Financial Times*, September 9, 2019. <https://www.ft.com/content/eb8b7c0e-ce71-11e9-99a4-b5ded7a7fe3f>.
- Hirst, Nicholas, and Joanna Plucinska. 'The Uber Opinion: What Does It Mean?' Politico, November 5, 2017.
<https://www.politico.eu/article/the-uber-opinion-what-does-it-mean-european-justice-court/>
- HM Government. 'The Experiences of Individuals in the Gig Economy.' London: Department for Business, Energy and Industrial Strategy, 2018.
- Hoang, Lyn, Grant Blank, and Anabel Quan-Haase. 'The Winners and the Losers of the Platform Economy: Who Participates?' *Information, Communication & Society*, 2020, 1–20.
- House of Lords, European Union Committee. 'Defining 'online platforms'', in *Online Platforms and the Digital Single Market*. 2016.
<https://publications.parliament.uk/pa/ld201516/ldselect/ldecom/129/12906.htm#footnote-524-backlink>
- Howell O'Neill, Patrick, 'Apple and Google's Covid-Tracing Tech Has Been Released to 23 Countries', 2020
<https://www.technologyreview.com/2020/05/20/1002001/apple-and-googles-covid-tracing-tech-has-been-released-to-22-countries/> (Accessed 25 August 2020).
- Huws, Ursula. 'Logged Labour: A New Paradigm of Work Organisation?' *Work Organisation, Labour & Globalisation* 10, no. 1 (2016): 7–26.
- . *Reinventing the Welfare State: Digital Platforms and Public Policies*. London: Pluto Press, 2020.
- Huws, Ursula, Neil Spencer, Matthew Coates, and Kaire Holts. 'The Platformisation of Work in Europe: Results from Research in 13 European Countries.' Brussels: Foundation for European Progressive Studies, UNI Europa, and University of Hertfordshire, 2019.
- IG Metall. 'Frankfurt Paper on Platform-Based Work.' Frankfurt, 2016.
<https://www.eurofound.europa.eu/data/platform-economy/records/frankfurt-paper-on-platform-based-work>.
- Imperial College London. Computational Privacy Group. <https://cpq.doc.ic.ac.uk/>.
- International Labour Organization. 'Work for a Brighter Future.' report. Geneva, 2019.
http://www.ilo.org/global/publications/books/WCMS_662410/lang-en/index.htm.
- Irani, Lilly C., and Michael 'Six' Silberman. 'Turkopticon: Interrupting Worker Invisibility in Amazon Mechanical Turk.' In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 611–620. CHI '13. Paris: Association for Computing Machinery, 2013.
<https://doi.org/10.1145/2470654.2470742>.
- Italy (AGCM, AGCOM, AGPDP). 'Big Data Joint Survey'. 2019.
https://en.agcm.it/dotcmsdoc/pressrelease/Big%20Data_Guidelines%20and%20policy%20recommendations.pdf.
- Jacobides, Michael G., Carmelo Cennamo, and Annabelle Gawer. 'Towards a Theory of Ecosystems.' *Strategic Management Journal* 39, no. 8 (2018): 2255–2276.
<https://onlinelibrary.wiley.com/doi/full/10.1002/smj.2904>. (Accessed 16 December 2020).
- Jacobides, Michael G., Carmelo Cennamo, and Annabelle Gawer. 'Distinguishing between Platforms and Ecosystems: Complementarities, Value Creation, and Coordination Mechanisms.' 2020. Working Paper, London Business School.
- Jacobs, Ken, and Michael Reich. 'The Uber/Lyft Ballot Initiative Guarantees Only \$5.64 an Hour.' Berkeley: Institute for Research on Labor and Employment at UC Berkeley, 2020.
<https://laborcenter.berkeley.edu/wp-content/uploads/2020/08/Response-to-Thornberg.pdf>.
- Japan (Fair Trade Commission). 'report regarding trade practices on digital platforms'. 2019.
<https://www.jftc.go.jp/en/pressreleases/yearly-2019/October/191031.html>.

- Kahn, Jeffrey. Johns Hopkins Project on Ethics and Governance of Digital Contact Tracing Technologies. 'Digital Contact Tracing for Pandemic Response'. Johns Hopkins University Press, 2020. <https://doi.org/10.1353/book.75831>.
- Kalecki, Michał. 'Political Aspects of Full Employment.' *The Political Quarterly* 14, no. 4 (1943): 322–30.
- Kamdar, Adi. 'Why Some Gig Economy Startups Are Reclassifying Workers as Employees.' *On Labor* (blog), February 19, 2016. <https://www.onlabor.org/why-some-gig-economy-startups-are-reclassifying-workers-as-employees/>.
- Kaminska, Izabella. 'Inside the Gig Economy: The Testimonial.' *Financial Times*, December 13, 2016. <http://ftalphaville.ft.com/2016/12/13/2181264/inside-the-gig-economy-the-testimonial/>.
- Katta, Srujana, Kelle Howson, Funda Ustek-Spilda, and Mark Graham. 'Uber and Deliveroo's 'Charter of Good Work' Is Nothing but Fairwashing.' *openDemocracy*, February 3, 2020. <https://www.opendemocracy.net/en/oureconomy/uber-and-deliveroos-charter-of-good-work-is-nothing-but-fairwashing/>
- Katz, Michael L., and Carl Shapiro. 'Network externalities, competition, and compatibility', *The American Economic Review* 75, no. 3: (1985): 424-440
- Kellogg, Katherine C., Melissa A. Valentine, and Angèle Christin. 'Algorithms at Work: The New Contested Terrain of Control.' *Academy of Management Annals* 14, no. 1 (2020): 366–410.
- Khan, Lina M. 'Amazon's antitrust paradox.' *Yale Law Journal* 126 (2016): 710.
- Khosrowshahi, Dara. Letter to Donald Trump. 'Covid-19 Letter,' March 23, 2020. <https://blogadmin.uberinternal.com/wp-content/uploads/2020/03/UberLetter.pdf>.
- Klonick, Kate. 'The New Governors: The People, Rules and Processes Governing Online Speech.' *Harvard Law Review*. 2017 (131): 1598.
- Kime, Elliott. 'Dis-Assembling IKEA.' *Financial Times*, February 20, 2019. <http://ftalphaville.ft.com/2019/02/20/1550638802000/Dis-assembling-IKEA-/>.
- Knight, Sam. 'How Uber Conquered London.' *The Guardian*, April 27, 2016. <http://www.theguardian.com/technology/2016/apr/27/how-uber-conquered-london>.
- Kosoff, Maya. 'Uber's Nightmare Scenario.' *Business Insider*, July 19, 2015. <http://uk.businessinsider.com/what-it-would-take-for-uber-to-reclassify-all-its-drivers-2015-7>.
- Labour. 'It's Time For Real Change: The Labour Party Manifesto 2019.' London, 2019. <https://labour.org.uk/wp-content/uploads/2019/11/Real-Change-Labour-Manifesto-2019.pdf>.
- Labour Party. 'The Digital Democracy Manifesto.' London, 2016. https://d3n8a8pro7vnmx.cloudfront.net/corbynstays/pages/329/attachments/original/1472552058/Digital_Democracy.pdf?1472552058.
- Lacombe, Clément « Tracer » pour mieux guérir ? La mise en garde de Jean Tirole.' Accessed December 10, 2020. <https://www.nouvelobs.com/idees/20200419.OBS27734/tracer-pour-mieux-guerir-la-mise-en-garde-de-jean-tirole.html>.
- Lanier, Jaron. *You are Not a Gadget: A Manifesto*. Vintage, 2010.
- Lanier, Jaron. 'Ten arguments for deleting your social media accounts right now'. Random House, 2018.
- Lee, Dave. 'California Sues Uber and Lyft Over Gig Economy Law.' *Financial Times*, May 5, 2020. <https://www.ft.com/content/f0d13081-619d-4938-a048-a07f85ba98c1>.
- . 'Gig Economy Tries to Hold on to Workers During Shutdown.' *Financial Times*, March 17, 2020. <https://www.ft.com/content/494d241c-e8ee-45d2-ba02-7a39edf5d013>.
- Levy, Stephen. *Facebook: The Inside Story*. 2020. Penguin Random House.
- Le Temps. 'Uber Eats Est Considéré Comme L'employeur De Ses Livreurs À Genève.' *Le Temps*, June 12, 2020. <https://www.letemps.ch/economie/uber-eats-considere-lemployeur-livreurs-geneve>.
- Liu, Coco, and CK Tan. 'Food Delivery Drivers Dance with Death for Alibaba and Tencent.' *Nikkei Asian Review*, December 6, 2019. <https://asia.nikkei.com/Business/Industry-in-focus/Food-delivery-drivers-dance-with-death-for-Alibaba-and-Tencent>.
- Lomas, Natasha. 'On illegal hate speech, EU lawmakers eye binding transparency for platforms'. TechCrunch. 23 June 2020. Accessible at <https://techcrunch.com/2020/06/23/on-illegal-hate-speech-eu-lawmakers-eye-binding-transparency-for-platforms/>
- Lunden, Ingrid. 'App Store Hits 20 million registered developers on iOS, \$100 billion in revenues, 500 million visitors per week'. TechCrunch. 4 June 2018. <https://techcrunch.com/2018/06/04/app-store-hits-20m-registered-developers-at-100b-in-revenues-500m-visitors-per-week/>

- Marglin, Stephen. 'What Do Bosses Do? The Origins and Functions of Hierarchy in Capitalist Production.' *Review of Radical Political Economics* 6, no. 2 (1974): 60–112.
- Markham, Lauren. 'The Immigrants Fueling the Gig Economy.' *The Atlantic*, June 20, 2018. <https://www.theatlantic.com/technology/archive/2018/06/the-immigrants-fueling-the-gig-economy/561107/>.
- Marsden, Philip. 'Google Shopping for the Empress's New Clothes—When a Remedy Isn't a Remedy (and How to Fix it)'. *Journal of European Competition Law & Practice*. 2020. <https://academic.oup.com/jeclap/advance-article/doi/10.1093/jeclap/lpaa050/5906456>.
- . 'Digital Platforms and Ecosystems: The Evolving Regulatory Landscape'. Video Communication. Symposium on 'Digital Platforms and Ecosystems', a Conference Extension organized by the University of Surrey and the University of Oxford to the Strategic Management Society 40th Annual Conference. 2020. 23 October. <https://www.youtube.com/watch?v=Aw3visSItRU>.
- and Rupprecht Podszun. 'Restoring Balance to Digital Competition – Sensible Rules, Effective Enforcement.' Konrad Adenauer Stiftung. 2020. <https://www.kas.de/en/single-title/-/content/restoring-balance-to-digital-competition-sensible-rules-effective-enforcement>.
- Marx, Karl. *Capital: A Critique of Political Economy, Volume I*. Translated by Ben Fowkes. London: Penguin Classics, 1990.
- Mattioli, Dana. 'Amazon Scooped Up Data From Its Own Sellers to Launch Competing Products.' *Wall Street Journal*, April 24, 2020, sec. Tech. <https://www.wsj.com/articles/amazon-scooped-up-data-from-its-own-sellers-to-launch-competing-products-11587650015>.
- McCracken, Harry. 'How Google Photos joined the billion-user club'. *Fast Company*. 2019. 24 July. <https://www.fastcompany.com/90380618/how-google-photos-joined-the-billion-user-club>.
- Meager, Michelle. 'Who gets to participate in 'participative Antitrust?' Medium. 2019. <https://medium.com/massive-markets/who-gets-to-participate-in-participative-anti-trust-708d3f31aa27>.
- McCann, Duncan, and Edanur Yazici. 'Disrupting Together: The Challenges (and Opportunities) for Platform Co-Operatives.' London: New Economics Foundation, 2018.
- McGee, Patrick. 'Gig Economy's New Deal for Silicon Valley's White-Collar Workers.' *Financial Times*, February 13, 2020. <https://www.ft.com/content/92c6d068-384e-11ea-ac3c-f68c10993b04>.
- Metev, Denis. 'How much time do people spend on social media.' *Review42*. 4 July 2020. <https://review42.com/how-much-time-do-people-spend-on-social-media/#:~:text=People%20in%20Europe%20spend%20an,and%2010%20minutes%20a%20day>
- Mehrotra, Dhruv. 'Horror Stories From Inside Amazon's Mechanical Turk.' *Gizmodo*, January 28, 2020. <https://gizmodo.com/horror-stories-from-inside-amazons-mechanical-turk-1840878041>.
- Mishel, Lawrence. 'Uber and the Labor Market: Uber Drivers' Compensation, Wages, and the Scale of Uber and the Gig Economy.' Economic Policy Institute, 2018.
- Möhlmann, Mareike, and Ola Henfridsson. 'What People Hate About Being Managed by Algorithms, According to a Study of Uber Drivers.' *Harvard Business Review*, August 30, 2019. <https://hbr.org/2019/08/what-people-hate-about-being-managed-by-algorithms-according-to-a-study-of-uber-drivers>
- Morrison, Christopher N., Sara F. Jacoby, Beidi Dong, M. Kit Delgado, and Douglas J. Wiebe. 'Ridesharing and Motor Vehicle Crashes in 4 US Cities: An Interrupted Time-Series Analysis.' *American Journal of Epidemiology* 187, no. 2 (2018): 224–32.
- Mosendz, Polly, and Anders Melin. 'Bosses Panic-Buy Spy Software to Keep Tabs on Remote Workers.' *Bloomberg*, March 27, 2020. <https://www.bloomberg.com/news/features/2020-03-27/bosses-panic-buy-spy-software-to-keep-tabs-on-remote-workers>.
- Muldoon, James. 'Why We Need Cooperatives for the Digital Economy.' *Jacobin*, May 7, 2020. <https://jacobinmag.com/2020/05/cooperatives-digital-economy-airbnb-cities>.
- Murray, John. 'How Do We Strike When Our Boss Is a Machine, a Software or a Chain? Struggles in the Gig Economy.' *Transnational Social Strike Platform* (blog), February 1, 2017. <https://www.transnational-strike.info/2017/02/01/how-do-we-strike-when-our-boss-is-a-machine-a-software-or-a-chain-struggles-in-the-gig-economy/>.
- Netherlands Ministry of Economic Affairs and Climate Policy, 'Future-proofing of competition policy in regard to online platforms'. 2019.

- New York City Taxi and Limousine Commission. 'Driver Income Rules,' December 4, 2018. https://www1.nyc.gov/assets/tlc/downloads/pdf/driver_income_rules_12_04_2018.pdf.
- New York City Taxi and Limousine Commission, and Department of Transportation. 'Improving Efficient and Managing Growth in New York's For-Hire Vehicle Sector.' New York, 2019. https://www1.nyc.gov/assets/tlc/downloads/pdf/fhv_congestion_study_report.pdf.
- Nunes, Ashley. 'Gaming the Sharing Economy.' *Financial Times*, May 23, 2019. <http://ftalphaville.ft.com/2019/05/23/1558584023000/Gaming-the-sharing-economy/>.
- O'Connor, Sarah. 'Algorithms at Work Signal a Shift to Management by Numbers.' *Financial Times*, February 6, 2018. <https://www.ft.com/content/ec9924d4-0a73-11e8-8eb7-42f857ea9f09>.
- . 'Gig Economy Agreements Promise a Brighter Future for Trade Unions.' *Financial Times*, February 26, 2019. <https://www.ft.com/content/25271b48-38eb-11e9-b856-5404d3811663>.
- . 'How to Manage the Gig Economy's Growing Global Jobs Market.' *Financial Times*, October 30, 2018. <https://www.ft.com/content/5fe8991e-dc2a-11e8-8f50-cbae5495d92b>.
- . 'Let Gig Workers Control Their Data Too.' *Financial Times*, April 3, 2018. <https://www.ft.com/content/a72f7e56-3724-11e8-8b98-2f31af407cc8>.
- . 'When Your Boss Is an Algorithm.' *Financial Times*, September 8, 2016. <https://www.ft.com/content/88fdc58e-754f-11e6-b60a-de4532d5ea35>.
- . 'Workers Have Right to Gig Economy That Delivers for 21st Century.' *Financial Times*, September 14, 2018. <https://www.ft.com/content/14f5ee7c-b68a-11e8-b3ef-799c8613f4a1>.
- OECD. 'Data-Driven Innovation: Big Data for Growth and Well-Being'. 2015.
- . 'Policy Responses to New Forms of Work.' Paris: Organisation for Economic Co-operation and Development, 2019a.
- . 'An Introduction to Online Platforms and their Role in Digital Transformation', OECD Publishing, Paris. 2019b. <https://doi.org/10.1787/53e5f593-en>.
- . 'Digital Identity Management: Enabling Innovation and Trust in the Internet Economy', OECD, Paris. 2011. <https://www.oecd.org/sti/ieconomy/49338380.pdf>.
- Ongweso Jr, Edward. 'The Lockout: Why Uber Drivers in NYC Are Sleeping in Their Cars.' *Vice*, March 19, 2020. https://www.vice.com/en_us/article/pkewqb/the-lockout-why-uber-drivers-in-nyc-are-sleeping-in-their-cars.
- Osterloh, Rick. 'An update on Fitbit'. 2020. 4 August. <https://blog.google/around-the-globe/google-europe/update-Fitbit/>. (Accessed 4 December 2020).
- Owen, Malcolm. 'How Apple has hit 2 billion iOS devices sold, and when it will hit 2 billion iPhones'. 2018. *Apple Insider*. 13 September. <https://appleinsider.com/articles/18/09/13/how-apple-has-hit-2-billion-ios-devices-sold-and-when-it-will-hit-2-billion-iphones>.
- Page, Larry and Sunday Pichai. 'Founders' Letter.' Alphabet Investor Relations. 2015. <https://abc.xyz/investor/founders-letters/2015/index.html#2015-larry-alphabet-letter>.
- Palmer, Annie. 'Jeff Bezos is Now Worth More than \$200 Billion.' *CNBC*. 2020. 26 August. <https://www.cnn.com/2020/08/26/amazon-ceo-jeff-bezos-worth-more-than-200-billion.html>.
- Parrott, James, and Michael Reich. 'An Earnings Standard for New York City's App-Based Drivers.' New York City: Center for New York City Affairs, 2018. <http://www.centrernyc.org/an-earnings-standard>.
- Partington, Richard. 'Preston Named as Most Improved City in UK.' *The Guardian*. 2018. 1st November. <https://www.theguardian.com/politics/2018/nov/01/preston-named-as-most-most-improved-city-in-uk>.
- Parker, Geoffrey G., and Marshall W. Van Alstyne. 'Two-sided network effects: A theory of information product design.' *Management Science* 51, No. 10 (2005): 1494-1504.
- , Marshall Van Alstyne, and Sanjeet Choudhary. *Platform Revolution: How Networked Markets Are Transforming the Economy--And How to Make Them Work for You*. 2016. Norton.
- Patty, Anna. 'Uber Eats Driver Sacked for Being 10 Minutes Late Seeks Tribunal Appeal.' *The Sydney Morning Herald*, November 17, 2019. <https://www.smh.com.au/business/workplace/uber-eats-driver-sacked-for-being-10-minutes-late-seeks-tribunal-appeal-20191115-p53b2f.html>.
- Paul, Kari. 'Prop 22: Why Uber's Victory in California Could Harm Gig Workers Nationwide.' *The Guardian*, November 11, 2020, sec. US news. <http://www.theguardian.com/us-news/2020/nov/11/california-proposition-22-uber-lyft-doordash-labor-laws>.

- Paulsen, Roland. *Empty Labor: Idleness And Workplace Resistance*. Cambridge: Cambridge University Press, 2015.
- . 'Non-Work at Work: Resistance or What?' *Organization*, 2013.
- Perera, Kapila, Jacob Ohrvik-Stott, and Catherine Miller. 'Better Work in the Gig Economy.' London: doteveryone, 2020. <https://www.doteveryone.org.uk/report/betterwork/>.
- Perrot, Anne, Blonde, Victor, Ropars, Axel, Catoire, Serge, and Herve Mariton. 'Competition Policy and Strategic Interests of the European Union'. April 2019. Inspection Générale des Finances et Conseil Général de L'Economie. République Française. Ministère de l'Economie et des Finances. <https://www.concurrences.com/en/review/issues/no-3-2019/foreword/competition-policy-and-strategic-interests-of-the-european-union> and (in French): La politique de la concurrence et les intérêts stratégiques de l'UE. <https://www.vie-publique.fr/sites/default/files/rapport/pdf/194000488.pdf>.
- Pesole, Annarosa, Maria Cesira Urzi-Brancati, Enrique Fernandez-Macias, Federico Biagi, and Ignacio Gonzalez-Vazquez. 'Platform Workers in Europe: Evidence from the COLLEEM Survey.' EUR - Scientific and Technical Research reports. Publications Office of the European Union, 2018. JRC112157. <https://publications.jrc.ec.europa.eu/repository/handle/111111111/52393>.
- Piasna, Agnieszka. 'Better Working Conditions, More Predictable Work - The New EU Directive.' *Social Europe* (blog), September 19, 2019. <https://www.socialeurope.eu/better-working-conditions-more-predictable-work-the-new-eu-directive>.
- . 'Scheduled to Work Hard: The Relationship Between Non-Standard Working Hours and Work Intensity Among European Workers (2005–2015).' *Human Resource Management Journal* 28, no. 1 (2018): 167–81.
- Polivka, Anne. 'Contingent and Alternative Work Arrangements, Defined.' *Monthly Labor Review*, 1996, 3–9.
- Portugal Autoridade da Concorrencia. 'Digital Ecosystems, Big Data and Algorithms'. 2019. July. http://www.concorrencia.pt/vPT/Estudos_e_Publicacoes/Estudos Economicos/Outros/Documents/Digital%20Ecosystems,%20Big%20Data%20and%20Algorithms%20-%20Issues%20Paper.pdf.
- Prassl, Jeremias. *Humans as a Service: The Promise and Perils of Work in the Gig Economy*. Oxford: Oxford University Press, 2019.
- Pritchard, Justin. 'Which Is Safer - Uber or a Taxi? There's No Clear Answer.' AP News, February 26, 2016. <https://apnews.com/69e4d33accd742e3ba0a5c0439248940>.
- PublicFirst. Google's Economic Impact in Europe. 2018. https://googleimpactreport.publicfirst.co.uk/wp-content/uploads/europe_assets/Google_Impact_Europe.pdf
- PwC. 'Global Innovation 1000 Study data for the companies with the highest spending on research and development in 2018'. 2018. <https://www.strategy-business.com/feature/What-the-Top-Innovators-Get-Right?gko=e7cf9>.
- Quinn, Ben, and Jasper Jackson. 'Daily Telegraph to Withdraw Devices Monitoring Time at Desk After Criticism.' *The Guardian*, January 11, 2016. <https://www.theguardian.com/media/2016/jan/11/daily-telegraph-to-withdraw-devices-monitoring-time-at-desk-after-criticism>.
- Ram, Aliya, Madison Marriage, Mehreen Khan, and Leslie Hook. 'EU Ruling on Uber Opens up Company to New Claims.' *Financial Times*, December 20, 2017. <https://www.ft.com/content/6232b1b6-e593-11e7-97e2-916d4fbac0da>.
- Recchio, Thomas. 'Contact Tracing Versus Civil Liberties.' *The American Prospect*, May 25, 2020. <https://prospect.org/api/content/40035e54-9c72-11ea-83d5-1244d5f7c7c6/>.
- Régibeau, Pierre. 'Platforms and digital markets regulation: In search of new principles'. DMC Forum, Copenhagen Business School. 4 December. <https://www.dmcforum.net/platforms-digital-markets-regulation-in-search-of-new-principles/>.
- Richardson, Angelique and Ellen Terrell. 'Apple Computer, Inc.'. 2008. Library of Congress. April. <https://www.loc.gov/rr/business/businesshistory/April/apple.html>.
- Rochet, Jean-Charles, and Jean Tirole. 'Two-sided markets: a progress report.' *The RAND Journal of Economics* 37, no. 3 (2006): 645–667.
- Roediger, David, and Philip Foner. *Our Own Time: A History of American Labor and the Working Day*. London: Verso, 1989.

- Roose, Kevin. 'A Machine May Not Take Your Job, but One Could Become Your Boss.' *The Statista* (2020). <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>. *New York Times*, June 23, 2019, sec. Technology. <https://www.nytimes.com/2019/06/23/technology/artificial-intelligence-ai-workplace.html>.
- Rosemain, Mathieu, and Dominique Vidalon. 'Top French Court Deals Blow to Uber by Giving Driver 'Employee' Status.' *Reuters*, March 4, 2020. <https://www.reuters.com/article/us-uber-court-idUSKBN20R23F>.
- Rosenblat, Alex, Karen E.C. Levy, Solon Barocas, and Tim Hwang. 'Discriminating Tastes: Uber's Customer Ratings as Vehicles for Workplace Discrimination.' *Policy & Internet* 9, no. 3 (2017): 256–79.
- Rosenblat, Alex, and Luke Stark. 'Algorithmic Labor and Information Asymmetries: A Case Study of Uber's Drivers.' *International Journal of Communication* 10 (2016): 3758–84.
- Sachs, Benjamin. 'Enough with the Flexibility Trope.' *OnLabor* (blog), May 15, 2018. <https://www.onlabor.org/enough-with-the-flexibility-trope/>.
- San Francisco County Transportation Authority. 'TNCs and Congestion.' San Francisco, 2018. https://www.sfcta.org/sites/default/files/2019-05/TNCs_Congestion_report_181015_Finals.pdf.
- Satariano, Adam. 'Google Fined \$1.7 Billion by E.U. for Unfair Advertising Rules (Published 2019).' *The New York Times*, March 20, 2019, sec. Business. <https://www.nytimes.com/2019/03/20/business/google-fine-advertising.html>.
- Schaller, Bruce. 'The New Automobility: Lyft, Uber and the Future of American Cities.' New York City: Schaller Consulting, 2018. <http://www.schallerconsult.com/rideservices/automobility.htm>.
- Schmid-Drüner, Marion. 'The Situation of Workers in the Collaborative Economy.' Brussels: European Parliament, 2016. <http://op.europa.eu/en/publication-detail/-/publication/f8583eee-137a-11e7-808e-01aa75ed71a1/language-en>.
- Schmidt, Holger. 'Platform-Oekonomie' 2020. (<https://www.netzoeconom.de/plattform-oekonomie/#top>).
- Scholz, Trebor. 'Platform Cooperativism: Challenging the Corporate Sharing Economy.' New York: Rosa Luxemburg Stiftung, 2015.
- Scholz, Trebor, Jonas Pentzien, Morshed Mannan, and Hal Plotkin. 'White Paper.' Los Angeles: Berggruen Institute at University of Southern California, forthcoming.
- Scholz, Trebor, and Nathan Schneider, eds. *Ours to Hack and to Own: The Rise of Platform Cooperativism, a New Vision for the Future of Work and a Fairer Internet*. New York: OR Books, 2017.
- Scott Morton, Fiona, Pascal Bouvier, Ariel Ezrachi, Bruno Jullien, Roberta Katz, Gene Kimmelman, Douglas Melamed, and Jamie Morgenstern. 'The Stigler report: 'Committee for the Study of Digital Platforms, Market Structure and Antitrust Subcommittee, Stigler Center for the Study of the Economy and the State.' 2019. <https://www.publicknowledge.org/wp-content/uploads/2019/09/Stigler-Committee-on-Digital-Platforms-Final-report.pdf>.
- Shead, Sam. 'Driven to Destitution': Delivery Riders in Britain Are Struggling as Takeout Orders Plummet.' *CNBC*, April 23, 2020. <https://www.cnn.com/2020/04/23/uber-eats-and-deliveroo-riders-in-uk-struggling-as-takeout-orders-fall.html>.
- Shibata, Saori. 'Gig Work and the Discourse of Autonomy: Fictitious Freedom in Japan's Digital Economy.' *New Political Economy* 25, no. 4 (2020): 535–51.
- Siddique, Haroon. 'Uber Eats Couriers' Pay Protest Brings Traffic to a Halt in Central London.' *The Guardian*, September 20, 2018, sec. Technology. <https://www.theguardian.com/technology/2018/sep/20/uber-eats-couriers-pay-protest-brings-traffic-to-a-halt-in-central-london>.
- Silberman, Michael. 'Six.' 'Fifteen Criteria for a Fairer Gig Economy.' In *Towards a Fairer Gig Economy*, edited by Mark Graham and Joe Shaw, 16–19. London: Meatspace Press, 2017.
- Sitaraman, Ganesh. 'Regulating Tech Platforms: A Blueprint for Reform.' *The Great Democracy Initiative* (2018): 18–64.
- Simpson, Tyler. 'Power and Violence in the Gig Economy.' *Tyler Simpson* (blog), January 18, 2020. <https://tylsimp.com/power-and-violence-in-the-gig-economy/>.
- Staton, Bethan. 'The Upstart Unions Taking on the Gig Economy and Outsourcing.' *Financial Times*, January 19, 2020. <https://www.ft.com/content/576c68ea-3784-11ea-a6d3-9a26f8c3cba4>.
- Statista. 'Annual net revenue of Amazon from 2004 to 2019 (in billion U.S. dollars).' 2020. <https://www.statista.com/statistics/266282/annual-net-revenue-of-amazoncom/>. (Accessed 26 December 2020).

- . 'Annual revenue of Alphabet from 2011 to 2019 (in million U.S. dollars)'. <https://www.statista.com/statistics/507742/alphabet-annual-global-revenue/>. (Accessed 25 December 2020).
- . 'Facebook's annual revenue from 2009 to 2019 (in million U.S. dollars)'. <https://www.statista.com/statistics/268604/annual-revenue-of-facebook/>. (Accessed 25 December 2020).
- . 'Global revenue of Apple from 2004 to 2020 (in billion U.S. dollars)'. 2020. <https://www.statista.com/statistics/265125/total-net-sales-of-apple-since-2004/#:~:text=Apple's%20revenue%20worldwide%202004%2D2020&text=Apple's%20total%20net%20sales%20amounted,in%20the%20last%20ten%20years>.
- . 'Number of monthly active Facebook users worldwide.' 2020. <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>.
- . 'Number of apps available in leading app stores.' 2020. <https://www.statista.com/statistics/276623/number-of-apps-available-in-leading-app-stores/>. (Accessed 6 August 2020).
- . 'Worldwide desktop market share of leading search engines from January 2010 to October 2020.' 2020c. <https://www.statista.com/statistics/216573/worldwide-market-share-of-search-engines/>.
- StatCounter Global Stats. 'Social Media Stats Worldwide.' Accessed December 10, 2020. <https://gs.statcounter.com/social-media-stats>.
- Stolton, Samuel. 'Content removal' unlikely to be part of EU regulation on digital services, Jourova says'. Euractiv.com. 2020. 23 September. <https://www.euractiv.com/section/digital/news/content-removal-unlikely-to-be-part-of-eu-regulation-on-digital-services-jourova-says/>.
- Stolton, Samuel. 'Digital Services Act should avoid rules on 'harmful' content, Big Tech tells EU'. Euractiv. 2020. 12 October. <https://www.euractiv.com/section/digital/news/digital-services-act-should-avoid-rules-on-harmful-content-big-tech-tells-eu/>. (Accessed 16 December 2020).
- Sundararajan, Arun. *The Sharing Economy: The End of Employment and the Rise of Crowd-Based Capitalism*. Cambridge: MIT Press, 2017.
- Svanes, Øistein, Randi J. Bertelsen, Stein H. L. Lygre, Anne E. Carsin, Josep M. Antó, Bertil Forsberg, José M. García-García, et al. 'Cleaning at Home and at Work in Relation to Lung Function Decline and Airway Obstruction.' *American Journal of Respiratory and Critical Care Medicine* 197, no. 9 (2018): 1157–63.
- Sweeney, Sam. 'Uber, Lyft Drivers Manipulate Fares at Reagan National Causing Artificial Price Surges.' WJLA, May 16, 2019. <https://wjla.com/news/local/uber-and-lyft-drivers-fares-at-reagan-national>. (Accessed 16 December 2020).
- Tarnoff, Ben. 'Discipline at a Distance.' Metal Machine Music. 2019. 4 December 4. <https://bentarnoff.substack.com/p/discipline-at-a-distance>. (Accessed 16 December 2020).
- The Council of the European Union. 'Council Recommendation of 8 November 2019 on Access to Social Protection for Workers and the Self-Employed (2019/C 387/01)', 2019.
- The Economist. 'How much would you pay to keep using Google?' Daily Chart. 25 April 2018. <https://www.economist.com/graphic-detail/2018/04/25/how-much-would-you-pay-to-keep-using-google>. (Accessed 16 December 2020).
- . 'High Fines, Meagre Results: Google's Android fine is not enough to change its behaviour'. 2018. 9 June. <https://www.economist.com/leaders/2018/07/19/googles-android-fine-is-not-enough-to-change-its-behaviour>. (Accessed 16 December 2020).
- . 'Uber Drivers Demand Their Data.' *The Economist*, 2019. 20 March. <https://www.economist.com/britain/2019/03/20/uber-drivers-demand-their-data>. (Accessed 16 December 2020).
- The Editorial Board. 'Uber Must Demonstrate Safety Is Paramount.' *Financial Times*, November 26, 2019. <https://www.ft.com/content/d4761ec0-0f9e-11ea-a225-db2f231cfeae>.
- Thelen, Kathleen. 'Regulating Uber: The Politics of the Platform Economy in Europe and the United States.' *Perspectives on Politics* 16, no. 4 (2018): 938–53.

- Transport & Environment. 'Europe's Giant 'Taxi' Company: Is Uber Part of the Problem or the Solution?' Brussels, 2019. <https://www.transportenvironment.org/press/uber-adds-pollution-and-traffic-european-cities-too>.
- Tryba, Andy, and Marisa Goldenberg. 'What We Learned from the First Week of Uber & Lyft Returning to Austin.' Austin Startups, June 8, 2017. <https://austinstartups.com/what-we-learned-from-the-first-week-of-uber-lyft-returning-to-austin-5451a34889e7>.
- UNCTAD (United Nations Conference on Trade and Development). 'Competition Issues in the Digital Economy'. 2019. https://unctad.org/system/files/official-document/ciclpd54_en.pdf. (Accessed 16 December 2020).
- UNCTAD (United Nations Conference on Trade and Development). 'Digital Economy report 2019: Value Creation and Capture: Implications for Developing Countries.' 2019. <https://unctad.org/webflyer/digital-economy-report-2019>. (Accessed 16 December 2020).
- UNI Global Union. 'Top 10 Principles for Workers' Data Privacy and Protection.' Nyon, 2017. http://www.thefutureworldofwork.org/media/35421/uni_workers_data_protection.pdf. (Accessed 16 December 2020).
- UK Competition and Market Authority, 'Market Study Final report on Online Platforms and Digital Advertising'. 2020. https://assets.publishing.service.gov.uk/media/5fa557668fa8f5788db46efc/Final_report_Digital_ALT_TEXT.pdf and <https://www.gov.uk/cma-cases/online-platforms-and-digital-advertising-market-study>. (Accessed 16 December 2020).
- UK Digital, Culture, Media & Sport Committee, House of Commons. 'Disinformation and 'Fake News': Final report.' 2019. <https://publications.parliament.uk/pa/cm201719/cmselect/cmcmums/1791/1791.pdf>. (Accessed 16 December 2020).
- UK House of Lords, European Union Committee, Online Platforms and the Digital Single Market. 10th report of Session 2015-16 - published 20 April 2016 - HL Paper 129 'Defining 'online platforms''. Chapter 3. (Accessed 16 December 2020).
- UK Online Harms White Paper. Presented to Parliament by the Secretary of State for Digital, Culture, Media & Sport and the Secretary of State for the Home Department by Command of Her Majesty. 2019. <https://www.gov.uk/government/consultations/online-harms-white-paper>. (Accessed 16 December 2020).
- UK Select Committee on Communications, House of Lords, Regulating in a Digital World. 2019. <https://publications.parliament.uk/pa/ld201719/ldselect/ldcomuni/299/299.pdf>.
- US Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary. 'Investigation on Competition in Digital Markets'. 20 October. https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf.
- Varian, Hal. 'Beyond big data.' *Business Economics* 49, no. 1 (2014): 27–31.
- Vallas, Steven, and Juliet B. Schor. 'What Do Platforms Do? Understanding the Gig Economy.' *Annual Review of Sociology* 46, no. 1 (2020).
- Valletti, Tommaso. Testimony of before the House Judiciary Committee Subcommittee on Antitrust 'Online Platforms and Market Power: The Role of Data and Privacy in Competition', 18 October 2019. <https://docs.house.gov/meetings/JU/JU05/20191018/110098/HHRG-116-JU05-Wstate-VallettiT-20191018.pdf>. (Accessed 16 August 2020).
- Vincent, James, 'Without Apple and Google, the UK's Contact-Tracing App is In Trouble'. The Verge. 5 May, 2020. <https://www.theverge.com/2020/5/5/21248288/uk-covid-19-contact-tracing-app-bluetooth-restrictions-apple-google> (Accessed 25 August 2020).
- Wachter, Sandra, and Brent Mittelstadt. 'A right to reasonable inference: Re-thinking data protection law in the age of Big Data and AI.' *Columbia Business Law Review* 2019 (2). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3248829. (Accessed 16 December 2020).
- Wachter, Sandra, Mittelstadt, Brent, and Russell, Chris. 'Why Fairness Cannot Be Automated: Bridging the Gap Between EU Non-Discrimination Law and AI'. 2020. <https://ssrn.com/abstract=3547922> or <http://dx.doi.org/10.2139/ssrn.3547922>. (Accessed 16 December 2020).
- Wakabayashi, Daisuke, Karen Weise, Jack Nicas, and Mike Isaac. 'The Economy Is in Record Decline, but Not for the Tech Giants.' 2020. *The New York Times*, 30 July. Section: Technology.

- <https://www.nytimes.com/2020/07/30/technology/tech-company-earnings-amazon-apple-facebook-google.html>. (Accessed 16 December 2020).
- Weise, Karen. 'Pushed by Pandemic, Amazon Goes on a Hiring Spree Without Equal'. 2020. *The New York Times*. 27 November. <https://www.nytimes.com/2020/11/27/technology/pushed-by-pandemic-amazon-goes-on-a-hiring-spree-without-equal.html>. (Accessed 16 December 2020).
- Welburn, Jonathan William, Aaron Strong, Florentine Eloundou Nekoul, Justin Grana, Krystyna Marcinek, Osonde A. Osoba, Nirabh Koirala, and Claude Messan Setodji, 'Systemic Risk in the Broad Economy: Interfirm Networks and Shocks in the U.S. Economy.' *RAND Corporation*, 2020. https://www.rand.org/pubs/research_reports/RR4185.html. (Accessed 16 December 2020).
- Wells, Georgia. 'Twitter Says Labels and Warnings Slowed Spread of False Election Claims'. 2020. *Wall Street Journal*. 12 November. <https://www.wsj.com/articles/twitter-says-labels-and-warnings-slowed-spread-of-false-election-claims-11605214925>.
- West, Joel, and Scott Gallagher. 'Challenges of open innovation: the paradox of firm investment in open source software.' *R&D Management* 36, no. 3 (2006): 319-331.
- Westervelt, Eric. 'Lawsuits Say Lyft Doesn't Do Enough To Protect Women From Predatory Drivers.' 2019. *NPR*. 12 September. <https://www.npr.org/2019/09/12/759876637/lawsuits-say-lyft-doesnt-do-enough-to-protect-women-from-predator-drivers>. (Accessed 26 December 2020).
- Wikipedia. List of mergers and acquisitions by Alphabet. 2020. https://en.wikipedia.org/wiki/List_of_mergers_and_acquisitions_by_Alphabet. (Accessed 26 December 2020).
- Wikipedia. List of mergers and acquisitions by Amazon. 2020. https://en.wikipedia.org/wiki/List_of_mergers_and_acquisitions_by_Amazon. (Accessed 26 December 2020).
- Wikipedia. List of mergers and acquisitions by Facebook. 2020. https://en.wikipedia.org/wiki/List_of_mergers_and_acquisitions_by_Facebook. (Accessed 26 December 2020).
- Wikipedia. List of mergers and acquisitions by Microsoft. 2020. https://en.wikipedia.org/wiki/List_of_mergers_and_acquisitions_by_Microsoft. (Accessed 26 December 2020).
- Winant, Gabriel. 'Life Under the Algorithm.' 2019. *The New Republic*. 4 December 4. <https://newrepublic.com/article/155666/life-algorithm>. (Accessed 26 December 2020).
- Wollmann, Thomas G. 'Stealth Consolidation: Evidence from an amendment to the Hart-Scott-Rodino Act'. *American Economic Review: Insights* 1, no. 1 (2019): 77-94.
- Woodcock, Jamie, and Mark Graham. *The Gig Economy: A Critical Introduction*. Cambridge: Polity, 2019.
- Woodcock, Jamie, and Mark R. Johnson. 'Gamification: What It Is, and How to Fight It.' *The Sociological Review* 66, no. 3 (2018): 542-58.
- Ycharts. 'Amazon.com Market Cap.' 2020. 24 December. https://ycharts.com/companies/AMZN/market_cap.
- . 'Apple Market Cap'. 2020. 24 December. https://ycharts.com/companies/AAPL/market_cap.
- . 'Facebook Market Cap'. 2020. 24 December. https://ycharts.com/companies/FB/market_cap.
- . 'Google Market Cap'. 2020. 24 December. https://ycharts.com/companies/GOOGL/market_cap.
- Yoo, Youngjin, Richard J. Boland, Kalle Lyytinen, and Ann Majchrzak. 'Organizing for innovation in the digitized world.' *Organization Science* 20, no. 1 (2009): 278-279.
- Zuboff, Shoshana. 'Big Other: Surveillance Capitalism and the Prospects of an Information Civilization.' *Journal of Information Technology* 30, no. 1 (2015): 75-89.
- Zuboff, Shoshana. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. London: Profile Books, 2019.

Online platforms such as Google, Amazon, and Facebook play an increasingly central role in the economy and society. They operate as digital intermediaries across interconnected sectors and markets subject to network effects. These firms have grown to an unprecedented scale, propelled by data-driven business models. Online platforms have a massive impact on individual users and businesses, and are recasting the relationships between customers, advertisers, workers and employers. This has triggered a public debate on online platforms' economic dominance and patterns of pervasive data collection. This study presents an analytical synthesis of the literature, to assess the effects of online platforms on the economy and society. It provides evidence of positive impact, and documents a set of important issues not fully addressed by existing European regulation and enforcement. The consensus is that there is a need to strengthen the current law enforcement and regulation of the platform economy. This report welcomes the proposed digital markets and digital services acts, and offers a series of policy options for competition and innovation, working conditions and labour markets, consumer and societal risks, and environmental sustainability.

This is a publication of the Scientific Foresight Unit (STOA)
EPRS | European Parliamentary Research Service

This document is prepared for, and addressed to, the Members and staff of the European Parliament as background material to assist them in their parliamentary work. The content of the document is the sole responsibility of its author(s) and any opinions expressed herein should not be taken to represent an official position of the Parliament.



ISBN 978-92-846-7745-0 | doi:10.2861/844602 | QA-03-21-077-EN-N