

**Tech
REG**
CHRONICLE

INAUGURAL EDITION

VOLUME I, DECEMBER 2021



CPI COMPETITION POLICY
INTERNATIONAL

Competition Policy International, a What's Next Media and Analytics Company

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LETTER FROM THE EDITOR

Dear Readers,

This publication represents the inaugural edition of CPI's TechREG Chronicle. The regulation of digital businesses is emerging as one of the signature issues of our times. Through this new publication, we seek to contribute to the debate and discussion over when, how, and when not to regulate digital businesses and the key technologies they use.

The TechREG Chronicle will be published monthly and be available to subscribers of the Antitrust Chronicle as well as standalone subscription. Technology regulation, while sometimes related to antitrust, is taking on a unique flavor, and a distinct legislative and rule-making path. The regulatory choices will have profound implications for the economy and will complement those made through changes in competition policy targeted to tech firms.

We are privileged to publish contributions from some of the some of the leading participants in this rapidly emerging field. The range of issues that we will delve into in future issues is seen in the diversity of topics in this inaugural issue.

As **David S. Evans** observes, the scope of tech regulation will expand over the coming decades as the digital transformation sweeps through economy, leading to disruptive innovation, much unforeseen, and causing fundamental changes in the physical economy. This will raise questions as to whether we need new laws and regulations, should modify existing ones, do nothing at all, or perhaps even ease regulation that does not make sense for digital firms. Tech Reg, as several other authors note, can build on an extensive body of economics and experience on the role and design of regulation but will face new problems.

For example, **Tom Brown** delves into the need for U.S. Federal lawmaking procedures to deal seriously with crypto-

currencies. To what extent can regulatory and monetary policies executed within a framework conceived in the 18th century continue to be applicable in the 21st? **Karen Webster's** discussions with **Jeremy Allaire** and **Kenneth Rogoff** also delve in detail into the unique regulatory issues that the blockchain raises for traditional regulators. There is much at stake in what is, to a large extent, uncharted territory for regulators and existing institutions.

Martin Cave asks what lessons can be learned from the regulation of pre-existing network industries as legislatures and regulators seek to rein in the current generation of power players. To what extent are the lessons learned from the regulation of Alexander Graham Bell's telephone relevant to the regulation of the likes of today's tech powerbrokers?

Cary Coglianese raises another fundamental issue. The ability to regulate technology-based industries depends, itself, on technological knowledge and capacity. How can regulators build up and retain the necessary in-house expertise and know-how to regulate this notoriously dynamic field? And how to do so when even participants in the game disagree with each other on the parameters of competition and innovation? This is an inescapable dilemma for regulators and legislators.

The diversity of the questions raised may sometimes be startling. Issues surrounding the regulation of technology can arise in situations that would seem unusual even in recent history. Facebook's acquisition of Giphy (a company that provides an online database and search engine that allows users to search for and share short looping videos with no sound) would traditionally have passed under the radar. But **David J. Teece** explains well how concerns involving dynamic competition and innovation can come from the most unusual quarters.

A key concern that will inform the regulation of technology, as it develops, is the protection of user data. In order to do so, such regulation must draw insight from existing rules to derive sensible solutions. As **Juan Delgado** points out, there are many lessons lawmakers or regulators seeking to establish standards for the use of user data can learn from so-called "Open Banking" initiatives in various jurisdictions. There is always a careful balance between the control of personal data, on the one hand, and the facilitation of competition, on the other hand. This is a dilemma that will rear its head time and again.

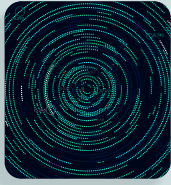
As **Randal C. Picker** points out, this dynamic has parallels with the early development of antitrust rules, and we must learn from the lessons of the past. This is a developing debate, but momentum is growing. One thing is clear: there is a need for rigorous legal and economic scholarship to evaluate any proposals that come to light. The pieces in this volume address current thinking towards these and other questions from the authors' diverse perspectives.

Subsequent issues of the TechREG Chronicle will focus on regulation for range of sectors, such as large platform businesses, crypto, FinTech, and telemedicine, and for broad issues such as artificial intelligence, algorithms, and user privacy. We hope you will gain insight from the diverse array of viewpoints to be assembled in these pages.

As always, many thanks to our great panel of authors.

Sincerely,
CPI Team

SUMMARIES



Tech Reg: Rules For The Digital Economy

By David S. Evans

Tech Reg refers to the regulation of internet-connected digital businesses and the discipline that studies the when, and how, to do that. It covers areas as diverse as big tech, crypto, fintech, gig, misinformation, privacy, and telemedicine. It will expand over the coming decades as the digital transformation sweeps through the economy, leading to disruptive innovation, much unforeseen, and causing fundamental changes in the physical economy. The transformation will, as it already has, raise questions as to whether we need new laws and regulations, should modify existing ones, or do nothing at all. Tech Reg can build on an extensive body of economics and experience on the role and design of regulation but will face new problems. This paper provides a brief overview covering the implications of the digital transformation, the basic economics of regulation, principles for applying Tech Reg, and application to new interesting topics.



What Lessons Can Be Drawn For Digital Platforms From The Regulation Of Traditional Networks

By Martin Cave

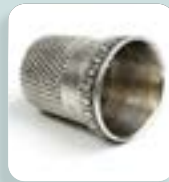
Traditional investor-owned network industries in communications, energy, transport and water have been regulated for more than a century. It is therefore timely to ask if this experience has any lessons for digital platforms. One key issue is whether standard competition law suffices in either case. The answer for traditional networks is a resounding no, and the conclusion is gaining ground that sector-specific regulation, with its more interventionist traditions and specialist delivery, is required for the largest digital platforms too. In traditional networks this often involves a combination of price controls of activities where market power allows excess profits, and the promotion of competition across the value chain where it is feasible, via divestment, inter-connection, or entry based on access to residual monopoly assets. In the case of major digital platforms requiring inter-operability between the largest platform and its rivals seems the most promising route, but it will require major regulatory effort to put it into effect.



TechREG Talks...

...with Jeremy Allaire & Kenneth Rogoff

In this edition of TechREG Talks we have the pleasure of presenting an interview between Karen Webster of PYMNTS.com and Circle CEO Jeremy Allaire and Kenneth Rogoff, professor of Economics and the Thomas D. Cabot professor of Public Policy at Harvard University.



What Should We Do About The Big Tech Monopolies?

By Randal C. Picker

In this essay, I pursue two paths. In the first, I revisit the beginnings of U.S. antitrust law to emphasize that that law has long had a policy of permitting firms to grow organically into dominant market positions. The Sherman Act created an anti-trust policy, not a broad anti-monopoly policy. And that remained true even as U.S. antitrust law moved in 1914 to supplement the Sherman Act with The Federal Trade Commission Act and The Clayton Act. I then turn to the second path. The history described in the first section suggests that, by design, there are fundamental limits on how U.S. antitrust law can respond to firms that have achieved great, legitimate success. But firms can stray and that brings them within antitrust. Case settlements move faster than litigation and put on the table many of the tools that we associate with regulation, such as nondiscrimination obligations, access rights, and line-of-business restrictions.



Washington Needs A Process For... Crypto Policy By Tom Brown

Technology, in all of its many forms, is a tool to implement policy, not a substitute for it. Before a technology can be chosen to implement a policy, the policy or, at the very least, the underlying objective must be identified. Using the example of the struggle of the United States to formulate a coherent national approach toward cryptocurrency, this article suggests that the technology in need of updating is the nation's core governing charter — i.e. the Constitution.



Data Regulation: Understanding The Present To Regulate The Future By Juan Delgado

What does existing data regulation tell us about data regulation in tech industries? Basically, that shortcuts do not exist. Data is not a commodity. The strategic value of a specific piece of data differs from one industry to another, varies over time, and depends on the level of aggregation and on the combination with other data. This implies that data regulation is necessarily a case-by-case exercise and requires specific solutions to well-defined specific problems. The current EU proposals for data regulation (the European Data Strategy and the Digital Markets Act) ignore this fact and attempt to regulate data through generic principles. A more flexible evidence-based approach to data regulation is likely to be more workable and effective in solving potential market failures in data intensive industries.



Towards A Dynamic Competition Approach To Big Tech Merger Enforcement: The Facebook-Giphy Example By David J. Teece

This paper explores how to elevate the importance of innovation and dynamic competition in antitrust enforcement. It explains that neglect of innovation stems from the employment of static frameworks and equilibrium models, when disequilibrium is characteristic of the competitive environment. The prescription advanced to remedy this lacuna is a focus on evolutionary, capability, and complexity economics. However, the adoption of new mental models, while obviously necessary, will not come easy because of the catch-up work that the enforcement agencies and scholars must do to operationalizing new enforcement methodologies. It requires de-emphasizing narrow efficiency and incentive issues while focusing on the impact of business conduct on innovation, capabilities, and ecosystems. Competition agencies will need to clear out the clutter of unhelpful and distracting constructs that are the residue of industrial age and neoclassical thinking. Fresh insights and better societal outcomes and a deeper understanding of digital platforms and digital transformation can result. Attention (albeit cursory) is given to the *Facebook-Giphy* acquisition as an example of how one might begin to look at dynamic competition issues.



Regulating New Tech: Problems, Pathways, And People By Cary Coglianese

New technologies bring with them many promises, but also a series of new problems. Even though these problems are new, they are not unlike the types of problems that regulators have long addressed in other contexts. The lessons from regulation in the past can thus guide regulatory efforts today. Regulators must focus on understanding the problems they seek to address and the causal pathways that lead to these problems. Then they must undertake efforts to shape the behavior of those in industry so that private sector managers focus on their technologies' problems and take actions to interrupt the causal pathways. This means that regulatory organizations need to strengthen their own technological capacities; however, they need most of all to build their human capital. Successful regulation of technological innovation rests with top quality people who possess the background and skills needed to understand new technologies and their problems.

WHAT'S NEXT

For January 2022, we will feature a TechREG Chronicle focused on issues related to **Platform Regulation**.

ANNOUNCEMENTS

CPI TechREG CHRONICLE February & March 2022

For February 2022, we will feature a TechREG Chronicle focused on issues related to **Cryptocurrency Regulation**. And in March we will cover **Artificial Intelligence**.

Contributions to the TechREG Chronicle are about 2,500 – 4,000 words long. They should be lightly cited and not be written as long law-review articles with many in-depth footnotes. As with all CPI publications, articles for the CPI TechREG Chronicle should be written clearly and with the reader always in mind.

Interested authors should send their contributions to Sam Sadden (ssadden@competitionpolicyinternational.com) with the subject line “TechREG Chronicle,” a short bio and picture(s) of the author(s).

The CPI Editorial Team will evaluate all submissions and will publish the best papers. Authors can submit papers in any topic related to competition and regulation, however, priority will be given to articles addressing the abovementioned topics. Co-authors are always welcome.

ABOUT US

Since 2006, **Competition Policy International** (“CPI”) has provided comprehensive resources and continuing education for the global antitrust and competition policy community. Created and managed by leaders in the competition policy community, CPI and CPI TV deliver timely commentary and analysis on antitrust and global competition policy matters through a variety of events, media, and applications.

As of October 2021, CPI forms part of **What’s Next Media & Analytics Company** and has teamed up with **PYMNTS**, a global leader for data, news, and insights on innovation in payments and the platforms powering the connected economy.

This partnership will reinforce both CPI’s and PYMNTS’ coverage of technology regulation, as jurisdictions worldwide tackle the regulation of digital businesses across the connected economy, including questions pertaining to BigTech, FinTech, crypto, healthcare, social media, AI, privacy, and more.

Our partnership is timely. The antitrust world is evolving, and new, specific rules are being developed to regulate the

so-called “digital economy.” A new wave of regulation will increasingly displace traditional antitrust laws insofar as they apply to certain classes of businesses, including payments, online commerce, and the management of social media and search.

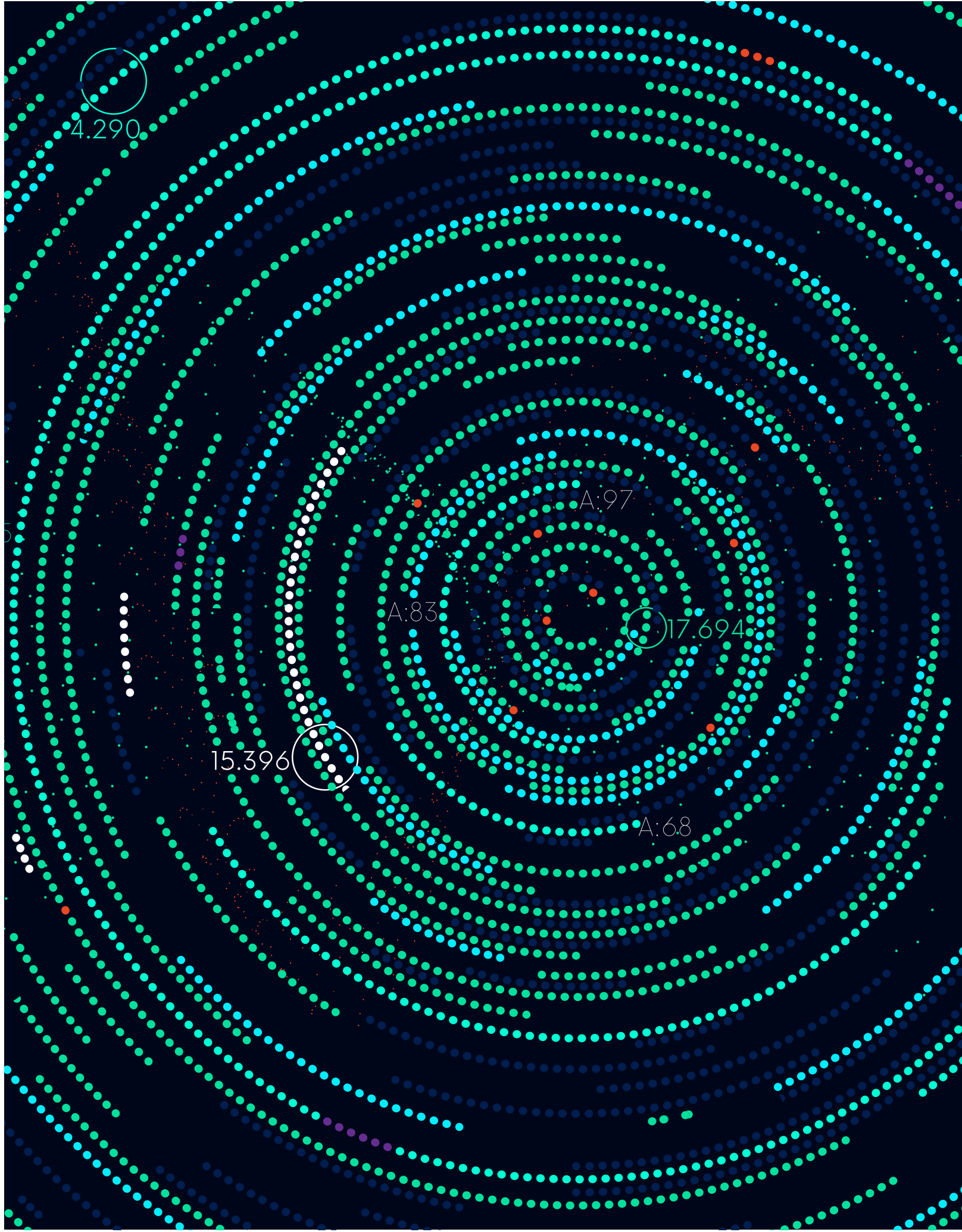
This insight is reflected in the launch of the **TechREG Chronicle**, which brings all these aspects together — combining the strengths and expertise of both CPI and PYMNTS.

Continue reading CPI as we expand the scope of analysis and discussions beyond antitrust-related issues to include Tech Reg news and information, and we are excited for you, our readers, to join us on this journey.

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TECH REG: RULES FOR THE DIGITAL ECONOMY



BY
DAVID S. EVANS

Chairman, Global Economics Group, Boston, Mass and Co-Executive Director, Jevons Institute for Competition Law and Economics, and Visiting Professor, University College London, London. I have worked on various competition and regulatory matters in which I have taken positions for or against interventions involving digital tech companies and continue to be actively involved in the general issues discussed in this paper for various clients.

01 INTRODUCTION

The digital transformation of the economy will lead to consideration of changes in regulation and already has. That could involve new regulations, modifications of existing ones, or nothing at all. This paper is about “Tech Reg” which covers several related concepts: the actual regulation of the digital economy, the analysis of regulatory alternatives, and the discipline for studying both. It introduces the subject, explains its importance, and highlights some key issues.

The following discussion is based on three premises. First, the digital transformation, which started almost 30 years ago will continue to play out, at varying paces across sectors, over many decades. New issues will keep arising. Second, general principles, informed by economic, legal, and other scholarship,

can help guide the laws and regulations for the emerging digital economy. An existing body of knowledge concerning regulation can provide part of the foundation for doing so. Third, there is much to be learned from considering how regulatory approaches have worked, or not, across different tech areas and times. Scholars and policymakers should avoid treating tech regulation in silos.

The paper is organized as follows. Section II describes the digital transformation and explains why it will take place over a long period of time, at different paces across different sectors, with new issues arising. Section III provides a reminder that there is already a substantial body of economic learning on regulation that can provide insights into how to address new concerns. Section IV turns to some general principles for considering regulation that apply across the set of issues faced with the digital transformation. Section V illustrates the application of these principles to diverse areas in which there has been active debate over the scope of regulation. Section VI concludes briefly.

THE DIGITAL TRANSFORMATION

The digital transformation refers to changes in the production and distribution of goods and services throughout the economy resulting from the integration of internet-based technologies. It began with the launch of the commercial internet in the mid 1990s. As with most general-purpose technologies the commercial internet, combined with other innovations, has gradually changed the economy overall through disruptive and incremental innovation, creating new products and services, and the reinvention of old ways of doing things.

Almost every point of physical space now has internet connectivity because of the spread of mobile broadband, with exponentially rising speeds, through most of the populated areas of the world. That, along with faster and more pervasive fixed broadband, has resulted in almost everyone almost always having access to powerful computers, software, and other technologies. Through the internet everyone, and all points of physical space, have the ability connect with everyone else. Smartphones and mobile apps, and increasingly voice-activated devices, provide access, along with personal computers.¹

These technologies make new ways of doing things possible. Fast grocery delivery is enabled through the interconnection, in real time, of the store, customer, shopper, and driver. Telemedicine is aided through linking the doctor, patient, medical records, and diagnostic apps.

Connected cars get software updates through mobile broadband and services provided in the cloud.

“Almost since its inception the digital transformation has posed novel questions concerning whether the laws and regulations for the traditional economy are right for the digital one

While much has happened since the launch of the commercial internet, and change seems rapid for those who have lived through the last three decades, it is apparent that these are still early days. Some areas seem far along such as search, social, and to a lesser extent e-commerce. Others are just catching on after more than a decade of gestation such as ride sharing, grocery delivery, and telemedicine. There are many new areas whose promise is unknown such as the metaverse, and decentralized finance. Then there are all the ones we don't know about or haven't even been thought of. The pandemic has sped the transformation up by forcing people to try digital solutions and overcoming inertia.

The digital transformation will likely take many decades to work its way through the economy. After a quarter century e-commerce accounts for only 13 percent of retail sales in the U.S. and less in many highly developed countries.² It will take time for startups to seize opportunities in new areas and time for new innovations to reach fruition. As with other general-purpose technologies, such as electricity or the combustion engine, the full effects of the digital transformation will occur over many more decades.

Almost since its inception the digital transformation has posed novel questions concerning whether the laws and regulations for the traditional economy are right for the digital one. The U.S., adopted new laws in 1996 that shielded internet providers from liability under existing laws for third-party content on their sites.³ More recently various parties have raised concerns about the application of employment laws to gig economy platforms, banking regulation to cryptocurrency, and antitrust laws to large digital platforms. One can point to specific features of current digital businesses that prompt these concerns such as the importance of data or the role of network effects.

Taking a longer view, however, the combination of new business models, facilitated by a global point-to-point communication system, and new technologies — some likely completely unforeseen today — will lead to continual efforts to adjust laws and regulations. The proposals under consideration will run the gamut from suspending laws and regulations that throw sands in the wheel of progress, to developing entirely new ones to deal with serious novel problems.

Regulation, of course, is hardly new.

1 For a survey of the penetration of smartphones and the app ecosystem see, Evans, David S., Chang, Howard H. & Joyce, Steven, What Caused the Smartphone Revolution? (September 17, 2019). Available at SSRN: <https://ssrn.com/abstract=3455247> or <http://dx.doi.org/10.2139/ssrn.3455247>.

2 Based on U.S. Census Bureau data the online share of retail sales was 13.0 percent for the third quarter of 2021. See <https://fred.stlouisfed.org/series/ECOMPCTSA>.

3 See Jeff Kosseff, *The Twenty-Six Words that Created the Internet* (Ithaca, NY: Cornell University Press, 2019).

03

ECONOMICS OF REGULATION

The regulation of economic life in traditional market economies is pervasive. To begin with, there are laws governing property, contracts, and others. There are the myriad regulations ranging from building codes and zoning rules, to consumer protection, to employment, to various industry-specific ones. Every developed economy and many developing ones have competition laws and regulations. Generally, these sorts of laws and regulations are socially beneficially and aren't controversial. There are exceptions, though, involving ill-suited or badly designed regulations, or other problems, which naturally get a disproportionate amount of attention. There aren't really serious questions above whether we should have laws and regulations for the economy, but mainly over when and what.

Fortunately, there is a great deal of economic learning and experience on when and how to regulate and the pitfalls in doing so and what to watch out for.⁴ There is a rich normative theory dating back at least a century to Pigou on when and why regulation is needed. The Chicago School, particularly the work by Stigler, provided the foundation for a positive theory of regulation and the role of the political process. By focusing attention on why regulation has failed, it helped prod economists to figure how to do it better. Economists in the last half century have developed diverse helpful tools for designing efficient market regulation. Work by Schleifer and others have shown the key role laws and regulations play in economic development.

The basic economics are well developed. Left to their own devices, markets can fail for a variety of reasons. These include externalities (such as pollution, buildings catching fire, or bank runs); appropriability and public goods (such as intellectual property and natural resources); imperfect information (such as product safety and truth-in-lending); and monopoly power (resulting from mergers or anticompetitive practices). There may be government interventions that could eliminate or temper these failures. That includes laws and courts; rules and regulators, self-regulation such as standards setting organizations; and government ownership and provision. Cost-benefit analysis can help assess the best intervention and whether it is feasible to improve matters. Lastly there are well-recognized risks. These include bad design, industry capture, subversion of regulation, and unintended consequences from intervening or not resulting from imperfect information and imperfect policymakers.

There is a great deal of practical experience with laws and regulation for the traditional economy. Laws that cover eco-

nomics are millennia old. Over time, regulations have been imposed and perfected for banking and related financial services and various industries including ones based on physical networks and natural resources. There are broad regulations for consumer protection and labor markets. And there are extensive regulations for local communities. There is also much experience with deregulating or privatizing industries based on the belief that market-based solutions would be superior to existing regulations.

Thus, there is a solid foundation for analyzing laws and regulations for the digital economy. Novel issues may arise for the digital economy, requiring new theories and tools. It will be necessary to customize learnings from the traditional for the digital one.

The digital transformation presents many new questions to which to apply this body of work and build upon it.

04

REGULATION AND THE DIGITAL TRANSFORMATION

As the digital transformation sweeps the traditional economy, things will change, and governments will face decisions of what to do — including nothing — and those decisions could well evolve as things develop. Here is a simple list of difficult choices:

- **No Regs, No Need.** There may be no reason to do anything whatsoever. That is the default position for market economies. We generally rely on markets and intervene only with good cause. Digital businesses may engage in practices that are novel but do not raise any apparent concerns and should just be left alone.
- **Old Regs for New Bodies.** There are existing laws and regulations that are sensible: regardless of whether applied to an old, boring, traditional business or a new, sexy, digital one. In many cases — for example workplace safety regulations or contract law — it is obvious that well-trod law and regulations should apply. This category is not so simple, though, when laws and regulations specifically apply to traditional businesses (such as employment regulations) that do not clearly apply to new ones (such as gig economy ones).

⁴ For a general survey of the economics of regulation, and its application across industries, see Viscusi, W. Kip, Joseph E. Harrington, Jr. & David E. M. Sappington, *Economics of Regulation and Antitrust*, 5th ed., (Cambridge, MA: MIT Press, 2018).

05

Tech Reg

- **Old Regs, But Let's Wait and See.** Experience has taught us that, whatever their merits, regulations are costly for firms to comply with and can impede innovation. Imposing regulations that make sense for mature traditional businesses and new entrepreneurial ones runs the risk of choking off innovation. One solution, particularly when new ones don't account for much economic activity, is to wait and see how things develop, which is largely how the United Kingdom is dealing with the regulation of all digital neo-banks. This approach is similar to regulatory tiering approaches that exempt smaller businesses from regulations that are disproportionately onerous on them.
- **Old Regs, But Don't Fit.** Regulations that made sense, at one time, for traditional businesses may not be sensible interventions for digital ones. Digital ones could have some special characteristics that render regulation unnecessary. That was the argument for treating digital platforms for third-party content differently than traditional media companies when it came to the enforcement of libel and intellectual property laws. Or the regulations themselves are no longer needed perhaps because of competition from digital businesses. They should therefore be suspended for both traditional and digital businesses. That possibility has been raised for certain taxi and ride-sharing regulations in some cities.
- **New Regs for New Problems.** The digital transformation can result in new market failures that either lack analogues in the traditional economy or magnify problems that, while present in traditional economy, don't merit intervention. This is likely to become a major focus on TechREGulation in the decades to come as new technologies, business models, and who knows what come into being. Recent concerns over the viral dissemination of misinformation illustrates the issue. Misinformation is hardly new: it is spread through traditional media, and by friends and family connected through traditional communication channels. The concern is that digital social networks are far more powerful in spreading harmful misinformation than traditional mechanisms.
- **Private Regs for New or Old Problems.** So far, a key difference between the digital and physical economy is the prominence of platforms that have their own "laws and regulations" for their communities. They have incentives to address problems — from breach of contract to hate speech — that reduce the value of the platform to those participants overall and thereby the platform's profits. Private regulation may limit the scope for public regulation. It could also raise issues concerning the proper locus (private vs. public) of some forms of regulation, such as of speech.⁵

Tech regulation is a vast, rapidly growing, area. Many jurisdictions are looking intensely at new laws and regulations. There is a burgeoning scholarly literature on specific topics. The following highlights issues that have come up to provide a flavor of what's to come. It isn't intended to advocate for any particular regulation, just to provoke thinking.

Stablecoins and DeFi. Stablecoins are cryptocurrencies that are typically pegged to a fiat currency such as the dollar or euro. They therefore avoid the wild swings of bitcoin and other crypto currencies. Stablecoins are issued by a private entity that essentially acts like a central bank: it injects the currency into the system. These entities operate as both the stablecoin issuer and its distribution platform. That model is different from the traditional two-party banking system everywhere in the world.

One of the use cases for stablecoin is to further decentralized finance ("DeFi"). DeFi typically involves a permissionless software-based platform in which participants, such as lenders and borrowers, interact directly rather than through an intermediary. The platform may be self-governed including through the distribution of voting rights. Practically, though, no one is in charge. According to stablecoin advocates, it is the code and the decentralized, immutable, and transparent nature of the blockchain network that creates trust in the system.

Traditional banking and finance are heavily regulated in most countries. Among the reasons for that is there are externalities between entities who have interconnected lending and borrowing. That can result in bank runs — where depositors and the banks themselves lose confidence in the system — that then threatens overall financial stability. Central Banks also use monetary policy for managing the economy to increase employment and production and to limit inflation; that depends on their control over the amount of fiat currency in circulation. Consumer finance is often regulated to ensure that consumers understand the costs and risks they bear when they, for example, borrow money.

DeFi, according to its proponents, eliminates the need for intermediaries, such as large commercial banks, who impose costs; and makes banking and finance available to poor people particularly in developing countries; and promotes innovation. That could be: there are some early promising efforts involving financial inclusion in lesser developed countries and cross border remittances. Or not: unregulated DeFi and stablecoins could enable just the sort of

⁵ See, Evans, David S., "Deterring Bad Behavior on Digital Platforms," in Evans, David S, Allen Fels, & Catherine Tucker, *The Evolution of Antitrust in the Digital Era: Essays on Competition Policy* (Boston: Competition Policy International, 2020). SSRN: <https://ssrn.com/abstract=3455384> or <http://dx.doi.org/10.2139/ssrn.3455384>.

financial weapons of mass destruction that risk sinking the global economy into a severe financial crisis.

Central Banks, and financial regulators, are worried. One school of thinking is that stablecoins are just the latest example of private money, which have led to problems in the past. Some regulators are at least requiring that stablecoin issuers back them one-for-one with the underlying fiat currency to protect consumers and limit the crypto version of bank runs. DeFi is concerning for another reason: we know that bank regulation is needed to ensure financial stability, but it is not clear that it is even possible to regulate decentralized software platforms: there's no one in charge, or an owner, to regulate. Since the Great Recession, experts in financial regulation have grown highly skeptical of claims that "this time is different."

The interaction of regulators and entrepreneurs in this area may lead to regulation that ensures the public interest while allowing some version of stablecoins and DeFi to operate. Stablecoins and DeFi may simply take off and be beyond the ability of regulators to address. Or Central Banks and others may effectively shut both down.⁶

Ride Sharing. Developed countries typically have employment laws and regulations to protect workers. They may have been adopted because of a belief that employers have too much bargaining power or for equity reasons. The rules don't typically protect small businesses that do jobs for big businesses or independent contractors, including freelancers, who work for a company outside of an employment contract. The distinctions between these categories can be hazy and employers may try to exploit that to evade worker protection laws and taxes. In the U.S., at least, there are a variety of laws and regulations that help determine which side of the employee-or-not line an individual is.

There has been a lot of discussion of how these employment laws should apply to ride-sharing platforms which use the internet and software technologies to connect drivers and riders. One can address this question by simply applying existing legal and regulatory frameworks to drivers and determine which side of the line they fall. That would make sense if there was nothing fundamentally different about the role of drivers for these platforms.

The disruptive innovation behind ride-sharing companies involves matching people who have small amounts of time available and unused capacity in their cars (drivers) with other people who could want rides (riders) at particular moments in particular places. The platforms can provide a valuable service to drivers and riders if they can create a sufficient density of drivers and riders in time and space. The innovation was founded on the pervasive penetration of physical space with internet-connected smartphones. The

same concepts apply to other platforms that match people who can supply services with people who want those services on demand.

DeFi, according to its proponents, eliminates the need for intermediaries, such as large commercial banks, who impose costs; and makes banking and finance available to poor people particularly in developing countries

Existing employment laws and regulations may not fit ride-sharing platforms because the relationship between the driver and business is different than those considered in the analog economy. Applying these laws and regulations could jeopardize the ability of these platforms to create the dense network of drivers and riders that provide the core value. Old rules don't fit. That does not, however, necessarily mean there is no basis for regulation. It is possible that new ways in which people provide services to companies could require modifications to existing laws and regulations but in ways that do not risk the value that platforms bring drivers and riders, and overall economic efficiency. Maybe new regs for new problems.

Telemedicine. Telemedicine is in its early years. It enables medical professionals to help patients through virtual visits. In principle, the doctor and patients could be anywhere. The provision of medical services could be helped by the distribution of internet-connected diagnostic equipment. It is also possible to conduct robotic surgery where the surgeon is in one location and the patient in another, particularly with the deployment of 5G technologies with low latency. The spread of telemedicine could result in substantial health improvements: bringing health care of older people who have trouble getting to the doctor, people who live in remote areas, or those who lack local health care providers.

Health care is heavily regulated, and state sponsored in some jurisdictions, with the details varying considerably across countries. In the United States it is regulated at the state as well as federal level. Most states require licenses to practice medicine in that state.

For telemedicine to be successful it may be necessary to eliminate or loosen some of these regulations. During the pandemic many U.S. states allowed out-of-state doctors to treat in-state patients this way. That provided a boon to telemedicine as patients benefited from saving the time and expense of going to a health care facility as well as the health risk. States have since suspended those emergency mea-

⁶ For a survey of some of the issues see Duffie, Darrell, Raghuram Rajan, Kenneth Rogoff, Hyun Song Shinn, and Working Group Digital G30 on Currencies. 2020. "Digital Currencies and Stablecoins: Risks, Opportunities and Challenges Ahead."

tures.⁷ Federal privacy regulations sharply restrict the transmittal of health data. That was important for digitizing health care records but creates obstacles for health care platforms.

Telemedicine, however, is such a fundamentally different way of providing health care that it could also lead to issues that require new laws or regulations. One issue that applies across the digital economy concerns the extent to which the platform has liability for the actions of the providers. Another issue concerns data portability. The tradeoffs between privacy, from restricting portability, and competition, for making it easier, could change if telemedicine results in large global platforms with troves of health care data on their participants.

Platform Liability and Section 230. The now infamous Section 230, of the Communications Decency Act, illustrates the perils of Tech Reg. In 1996, a couple of years after the launch of the commercial internet, U.S. Congress decided to shield internet platforms from liability for third-party content on their sites. Legislators, and the President who signed the bill, had concluded that making these platforms face the liability under the laws and court rulings that applied to traditional business would deter innovation based on the new technology. It appears they did this on their own and not from lobbying by the dotcoms or their investors. The legislation also shielded the internet platforms from liability from self-regulating content provisions.⁸ “Old regs, don’t fit” was the path followed.

Section 230, and similar protections adopted in other jurisdictions, stimulated the formation and growth of internet platforms whose business models were based on third-party content. Private regulation enabled these platforms to discipline content when it was in their self-interests, such as by jeopardizing ad revenues. But did not require them to do so when it was in the public interest, the object of the laws to which they were not held.

Many current policy concerns involve platforms, and behaviors, that were, in effect, subsidized by Section 230. That includes the spread of misinformation, hate speech, and terrorism. By promoting internet platforms that rely on third-party content Section 230 likely also encouraged the growth of online advertising or at least online advertising based on third-party content. Those platforms are at the center of the debate over regulation of privacy and personal data.

It is possible that Section 230 was a good tradeoff at the time. The internet boomed and consumers benefited from third-party content, such as social networks, and customer reviews. Now policymakers can reign in some of excesses.

Tech Reg is here to stay. The digital transformation will demand thoughtful analysis of laws and regulation as most parts of the economy are touched.

It is also possible that Section 230 was a huge mistake. Faced with liability for third-party content investment and innovation would have been steered to other areas. As Peter Thiel, a PayPal founder, put it, “[w]e were promised flying cars, instead we got 140 characters.” Content platforms could have adopted different business models or practices to limit their exposure. Through the evaluation of multiple cases the courts could also have struck a more sensible balance between promoting innovation and protecting victims.

What appears certain is that Section 230 was well-meaning but had unintended consequences that have been harmful. And not from imposing new regulations, but from suspending existing ones, for digital businesses.

06 CONCLUSION

Tech Reg is here to stay. The digital transformation will demand thoughtful analysis of laws and regulation as most parts of the economy are touched. That isn’t meant to be a call for regulation. It could mean eliminating laws or regulations that stand in the way. Or tweaking of existing ones. It may well mean new regulation though. Or standing pat that existing laws should apply.

Tech Reg will require rigorous thinking informed by scholarship from economics, law, and other disciplines. There’s an urgent demand to increase the supply of scholarship focused on this area. It will provide an antidote to excessive romanticizing or condemnation of digital businesses. And from adopting Tech Regs that are too light, too heavy, or just too soon. ■

7 See, for example, Stephanie Armour & Robbie Whelan, “Telehealth Rollbacks Leave Patients Stranded, Some Doctors Say,” *Wall Street Journal*, November 22, 2021. <https://www.wsj.com/articles/telehealth-rollbacks-leave-patients-stranded-some-doctors-say-11637577001>.

8 For discussion see, Jeff Kosseff, *The Twenty-Six Words that Created the Internet* and David S. Evans, “Deterring Bad Behavior,” cited above.

TechREG TALKS...

TechREG Chronicle - Inaugural Edition - 2021

...WITH



JEREMY ALLAIRE

Co-Founder, Chairman and CEO at Circle



KENNETH ROGOFF

Thomas D. Cabot Professor of Public Policy and
Professor of Economics at Harvard University

In this edition of TechREG Talks we have the pleasure of presenting an interview between Karen Webster of PYMNTS.com and Circle CEO Jeremy Allaire and Kenneth Rogoff, professor of Economics and the Thomas D. Cabot professor of Public Policy at Harvard University¹.

Q1

Recently, venture capital firms have invested tens of billions of dollars into crypto-related ventures, with more than 540 deals in 2021 so far. Beyond those VC firms, payment heavyweights such as J.P. Morgan, Citi, Visa, Mastercard, PayPal and others, have been investing in and building out the crypto ecosystem. What is your understanding of this set of developments, and its likely outcomes?

Jeremy Allaire: The investors want to spur, be part of and earn return on investment (“ROI”) from an infrastructure development that rivals the development of the web itself or the advent of smartphones.

At a high level, cryptocurrencies are a generalized technology — effectively a new operating system, with layers that are being built for the internet. The value of the public internet is

really profound and allows for an incredibly diverse range of applications.

Investors are trying to grab the tiger by its tail, so to speak, and get in on a frothy market. The promise they are chasing might be likened to the “10x effect,” in which things can be transformed and made leagues better — with disruption thrown into the mix.

Cryptocurrencies hold that promise for economies as whole. The banks, at least for now, are trying to give high-net-worth clients a range of ways to purchase synthetic derivatives of bitcoin, while the innovation lies with the smaller, non-traditional players within financial services.

Scale can come quickly amid the innovation, with the blockchain networks in place, USDC stablecoins can transact at roughly 50,000 transactions per second, with 400-millisecond finality, and transactions cost a fraction of a cent.

The market is on a linear growth path. Storing value, moving value and integrating that into different forms of financial

¹ “The Great Crypto Debate: It’s Different This Time, Or Maybe Not,” The full video of the interview can be found here <https://www.pymnts.com/cryptocurrency/2021/great-crypto-debate-is-different-this-time-or-maybe-not/>.

contracts can become a commodity, a free service on the internet, like data and content.

Drilling down a bit, crypto developers, the exchanges, the issuers and the blockchain firms are still grappling with growing pains that mark the initial stages of any new industry.

Circle stands out as a firm that has been focused on issuing stablecoins, specifically the USDC, but has expressed its intent to become a regulated bank. It is now targeting a new business model as a pre-emptive strike in anticipating where the regulatory framework is headed.

Financial stability board members around the world have said that global stablecoins, according to Allaire, “look, feel and smell more like large-scale banking and payment system activities, and ought to be dealt with that way.”

Circle’s USDC has grown from \$4 billion in circulation a few years ago to \$33 billion today — and it’s on its way to hundreds of billions of dollars in circulation.

As for the banking application, he said, “We do not intend to operate a fractional reserve lending business. We want to take these dollar deposits. We want to hold them in full reserve. We want to work with the federal government to determine the right reserve liquidity kind of covenants.

Kenneth Rogoff: It’s kind of the Wild West, and they’re all under the umbrella of cryptocurrencies, but they’re completely different animals.

Q2

Who do you project will be the winners and losers from any regulation of cryptocurrencies? What are the stakes at issue?

Kenneth Rogoff: The winners in the game will be firms that learn to be “regulation-friendly.”

“*Cryptocurrencies hold that promise for economies as whole. The banks, at least for now, are trying to give high-net-worth clients a range of ways to purchase synthetic derivatives of bitcoin*

No matter where you look, that regulation is coming, as policymakers eye the potential for crypto to scale to billions of users and for immense amounts of value to be transferred across lending and payments activities.

As detailed in my 2009 book, “This Time It’s Different,” centuries’ worth of financial crises shook nations to their economic cores. But in one important way, when it comes to cryptocurrencies, some things really are different.

One reason that cryptos are worth so much (even considering the volatility), is that interest rates are roughly zero, and investors and speculators are chasing returns.

It is difficult to see how crypto could cause a systemic crisis because it’s not regulated yet. It’s not like a banking system failing: if bitcoin fell to \$1,000 tomorrow, it would really be like a stock falling. From a systemic point of view, this would really just be a shrug.

Policymakers are justifiably concerned about how to regulate the industry, which firms will become big enough to be termed “systemic” and what the inherent risks would be, he said. Allaire said that current and future concerns would center around money laundering and tax evasion.

It is the specter of cheating governments out of their due that might spark regulation in earnest, Rogoff said. There’s just no way policymakers can indefinitely sit on their hands as a vehicle develops if it’s being used for sharply reducing government revenues.

Driving out currencies that have been around for centuries is utterly naive, said Rogoff, who co-authored the “G30 paper” that examined digital currencies consisting of bitcoin and its brethren: There is a giant financial infrastructure out there, which is very efficient in some ways, but very inefficient in other ways: There’s always change. And this is a very big one.

Nations such as El Salvador may experiment with bitcoin, but the idea that individuals and enterprises can sidestep that giant financial structure is folly. If you’re playing a game with the government where it can keep changing the rules until it wins, you’re going to lose.

Jeremy Allaire: That’s not to say there won’t be friction as cryptocurrencies evolve. After all, even where autocratic governments are in place, there’s been access to the internet (albeit with censorship). Governments could say that cryptos are illegal, said Allaire, “but people are clever” and will find their ways to VPNs.

You might actually have civil conflict that starts to emerge because people and entities want to participate in a different economic system ... internet digital currency will topple some forms of monetary sovereignty.

Eventually, governments will capitulate and hold non-sovereign and digital currencies on their balance sheets.

Kenneth Rogoff: If that were to happen — a very big if — it would happen with much smaller nations, where there is limited state capacity to control things. An example is Venezuela, where sanctions have been imposed by other nations and where there's at least some appetite to circumvent those sanctions (and in some cases, support the development of underground economies).

Q3

How will cryptocurrencies need to evolve to coexist and become an inherent part of the financial services ecosystem?

Jeremy Allaire: The evolution must include interoperability with Federal Reserve account infrastructure, the Fed's payment rails and the international financial infrastructure.

We're examined by governments all the time. We are audited by major accounting firms and their self-governance as well. Self-governance around technology standards, information, security, cybersecurity compliance and transparency is really critical.

The smart money, if you will, is really focused on seeing this as an internet infrastructure build that will generate very significant value and new types of companies and business models over the next five to 10 years.

“

No matter where you look, that regulation is coming, as policymakers eye the potential for crypto to scale to billions of users and for immense amounts of value to be transferred across lending and payments activities

Kenneth Rogoff: Central banks around the globe are looking at central bank digital currencies (“CBDCs”) — and the question remains: “How far do we want to take it? How does the public feel about having the central bank be in total control of what's private and not private — or would you like there to be an intermediary between you and the government?”

For now, the innovation is coming out of the private sector, policymakers must tackle what they think the world of digital currencies should look like. ■



WHAT LESSONS CAN BE DRAWN FOR DIGITAL PLATFORMS FROM THE REGULATION OF TRADITIONAL NETWORKS?



BY
MARTIN CAVE

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01 INTRODUCTION

Privately-owned traditional network industries – notably in communications, energy, and transport – have been around in the U.S. at least since the 1880s, and in Europe in their post-nationalization form since the 1980s. The industries exhibit the twin characteristics of natural monopoly, especially in their local distribution network, and provision of a service essential to human survival, and this has made them the subject of intense regulation, which invariably goes beyond the generic competition law in the relevant jurisdiction.

Large digital platforms are a 21st century phenomenon. By virtue of being untethered to a physical network in a specific place, and hence global, they can aspire to span, and have spanned, the world almost instantaneously and at a very low cost. By 2021, firms strongly reliant on such platforms occupy five of the top six slots in global financial market valuations.

The question addressed in this article is: what lessons can the regulation of large digital platforms draw from these earlier experiences? There is no denying the significant difference between the characteristics of each – notably, the universal, essential and stable nature of the demand for the services of traditional network industries, as distinct from what may prove the more transient demand for digi-

tal platforms; the crucial role and speed (often measured in weekends) of inventiveness in determining the fate of digital platforms, contrasted with the time taken (measured in decades) in network industries to embody technical change in highly capital intensive processes; and of course the wildly different back stories in the two cases of some of the firms and their founders. Not for many years will it be possible to compare the achievements of Alexander Graham Bell and Thomas Edison, with those of Jeff Bezos, Larry Page and Mark Zuckerberg.

In the meantime, what both varieties of network sectors exhibit is the notional or practiced ability to exert a high and conspicuous degree of power in their respective market-places, maintained over a substantial run of years. This fact alone, combined with the nature of the services supplied, gives them a social and economic importance which inevitably attracts political and public attention.

“The question addressed discussed in this article is: what lessons can the regulation of large digital platforms draw from these earlier experiences? There is no denying the significant difference between the characteristics of each – notably, the universal, essential and stable nature of the demand for the services of traditional network industries

Answering the question here involves first a look at what has happened in traditional networks, and then an attempt to draw lessons for platform regulation. The second part is more conjectural, especially for an author whose primary experience has been in regulating traditional networks, but it is timely when major changes in the public policy approach to the largest digital platforms are now in urgent contemplation.

02

WHAT ARE THE DEFINING FEATURES OF TRADITIONAL NETWORK REGULATION?

A. Who Needs Sector-Specific Regulation Anyway?

At the start of the post-privatization period in the 1980s, the need for regulation of traditional network industries was tested in a natural experiment in New Zealand, a country then in the throes of radical pro-market reforms. It chose to rely on its then new generic competition law, rather than the more intrusive regulation used elsewhere, to deal with its energy and telecommunications sectors. The result is almost universally agreed to be a failure. Years elapsed before an entrant's attempts to use competition law to gain access to the incumbent's "essential facilities" were finally decided. A commentator has written: "this laissez-faire approach failed to generate a socially optimal outcome, as the general competition rules proved inadequate to address exploitative behavior by incumbent firms, such as price-gouging, which in other jurisdictions is controlled by sector-specific regulators. From the late 1990s onwards, the New Zealand government began enacting sector-specific regulation for the telecommunications, electricity, and gas industries, which moreover has been progressively strengthened over time."¹

B. Controlling Persistent Natural Monopolies

The core of traditional network industry intervention has been output price controls set by a sector-specific regulator, either of the whole value chain, when the monopoly is vertically integrated, or at the least of the local distribution network, which strong economies of density have in most cases made a highly capital-intensive natural monopoly.

The traditional method of doing this is to use a so-called "building blocks" approach to calculate and allow recovery of the network's costs of operation, including its operating costs and its capital costs (for which purpose a valuation of capital and an allowed rate of return are required). Cost-plus pricing schemes of this kind exhibit almost no incentive for efficiency, and coincident with the European privatizations of the 1980s, an alternative known as incentive or price cap regulation came into use. Both processes suffer from asymmetry of cost information between regulator and firm, and by gaming behavior by the latter; accordingly, in many jurisdictions levels of return have persistently exceeded the cost of capital by a significant amount. Any incentives for innovation have generally not worked well.

1 N. Dunne, *Competition Law and Economic Regulation*, Cambridge University Press 2015, p. 77.

C. Developing Competition Across the Value Chain

Suppose investment is taking place in a new suburb in which new local distribution networks are needed, or a new electricity transmission line is required. It would be quite possible to create competition for the market, by putting the provision of the service out to tender. In principle, this could extend to all investment projects, both new and replacement, ultimately turning network regulation into a process in which a public agency juggles a set of locationally and temporally over-lapping contracts, with the resulting co-ordination costs. But it may work better if confined to projects which are new, large, separable, and not too time-critical.

A more widespread and fruitful approach is to seek to introduce competition in the network industries market, by starting, say, with a fully vertically integrated monopoly, and then examining the scope for allowing entrants to compete with the incumbent in the activities which are most hospitable to entrants. Assuming – as is usually the case – that the retailing activity is potentially competitive, an entrant there can invest in the skill of acquiring and billing customers, and buy upstream monopolized physical services from the incumbent, on terms set by the regulator – which will have “unbundled” them for this specific purpose, and set an “access price” for them, using one of the price control mechanisms noted above. The entrant is then emboldened progressively to duplicate further network products, in order of their amenability to entry. This may be accompanied by rules requiring some form of separation into vertical components of the historic monopolist, in order to prevent it from leveraging its market power from monopoly into competitive arenas.

“*Suppose investment is taking place in a new suburb in which new local distribution networks are needed, or a new electricity transmission line is required. It would be quite possible to create competition for the market, by putting the provision of the service out to tender*

In the EU's fixed telecommunications sector, this process achieved a transformation such that while in 2000 competition was almost entirely confined to the retail function alone, undertaken by firms which simply “resold” the incumbent's products, in 2021 in some member states competitors now rely on the historic monopolist solely for access to ducts and poles which carry their own fibers, and themselves supply everything else or buy it competitively. Correspondingly, the

competition problem in the sector is increasingly taking the form of collective rather than single firm dominance.

D. The Role of Network Externalities

A particular factor operates in a communications network. It arises from the fact that your willingness to pay for access to it depends on the number of people you can contact on it. In 1880, Alexander Graham Bell said of his invention: one day every American city will have a telephone. If that had been it, voice telephony's impact would have been limited, because it is clearly the ability to make and receive calls to and from numerous different people or organizations which gave telephony its value: the more people connected the better.

As competing networks arose in telecommunications, first in fixed and then much more quickly in mobile telephony, regulators quickly intervened to limit this risk of monopolization by requiring all network operators to interconnect – i.e. to pass on to, and (for a fee) accept for completion, any call from any other operator. We see below that a supercharged version of network externalities may operate in digital platforms.

E. The Telecoms Precedent

Finally, we consider specifically the implications for platform regulation of what has happened in the telecommunications sector. Beyond interoperability rules, EU regulation in that sector over the past twenty years has operated in a manner which straddles the two spaces of traditional network regulation and competition law. More particularly, a single underlying and consciously pro-competitive regime, adaptable in its operations to changing circumstances, has been successful in shifting the whole sector towards a much lighter touch. The same regime has operated in both mobile and fixed telecommunications – much less obtrusively in the former where network duplication is easier and the burden of regulation is largely shared between application of the standard merger regime and the insertion into spectrum licenses of rules and obligations designed by national regulators both to prevent the monopolization of that key natural resource, and to ensure that network coverage is equitable. A lynchpin of the regime is that all of the more intrusive regulatory remedies are subject to sunset clauses: they can only be renewed in any market if a firm is found to be exercising, and expected to continue to exercise, significant market power.²

Thus, as in other areas of economic regulation, competition law and regulation are complementary, not substitutes. The key design problem is to get them to work together in com-

² See M. Cave, C. Genakos & T. Valletti, “The European Framework for Regulating Telecommunications: A 25-year Appraisal,” *Review of Industrial Organisation*, 55, 2019, pp.47-62. On the analogy with platform regulation, see [Pablo Ibáñez Colomo](#), The Draft Digital Markets Act: A Legal and Institutional Analysis, *Journal of European Competition Law & Practice*, 12, 2021, pp. 561-575.

bination, with the contributions of each shifting over time: in telecoms towards competition, in digital platforms now towards regulation.

Casual observation suggests also that in many jurisdictions competition law and regulation are practiced by different communities. The competition law community comprises a few public officials and very many private sector lawyers, and focusses heavily on supporting and maintaining competitive processes. Regulatory activity is more economist-dominated with a focus on maximizing some form of social welfare function, employing the dark arts of social cost-benefit analysis, and applying more robust instruments. When additional economic regulation is required, it makes a difference which community is entrusted with it.

03

LESSONS FOR THE REGULATION OF DIGITAL PLATFORMS

A. Why Can't Existing Competition Law Cope with Digital Platforms?

Firms which provide intermediation between separate groups, now christened two-sided platforms, ante-date competition law itself by thousands of years, and in most of competition law's century or so of existence have attracted relatively little attention. This is no longer the case, now that they dominate the top of the "most valuable corporation" lists.

This is not itself a reason for throwing the existing rule book away and starting again. At present competition authorities have no choice but to apply existing competition law to them. They are helped in this by guidance provided by such organizations as the OECD. Most of this work goes on under the radar. My own experience includes conducting a competition inquiry in the UK into a merger between two food-ordering platforms with non-negligible market shares, which were pure intermediaries.³ The process involved defining markets and analyzing likely competitive effects. Data on single- and multi-homing were collected. The presence of multiple local markets permitted some inferences to be drawn on whether the indirect network effects continued to multiply as firm size grew, or were quite soon exhausted (as the data suggest was the case). These analytical tasks were more or less accomplished.

Firms which provide intermediation between separate groups, now christened two-sided platforms, ante-date competition law itself by thousands of years

But a case of this kind is a million miles away from the persistent dominance of gigantic companies like Amazon, Apple, Facebook, and Google, which conduct businesses of major social prominence and controversy. Within the framework of competition law and policy, a number of changes have been proposed for such companies, particularly within the merger framework. These include a tougher restriction on potential "killer acquisitions" or a reversal of the burden of proof in a merger inquiry, shifting it from the relevant authority onto an acquirer falling into a specified class. More radically, review and possible reversal of past merger decisions have been proposed. But in many jurisdictions, the focus has shifted to choosing the complementary form of regulation.

While traditional network industries are inherently local, in the sense of providing service in particular areas, and can be regulated nationally, major digital platforms are global, and hence will most effectively be regulated in a fashion which will be determined largely by legislators and regulators in Brussels and Washington and a few other countries.

B. The Role of Market Tipping

Digital platforms exhibit an additional form of network effects than telecommunications network. When a subscriber to a social platform is joined by a friend, they both benefit directly. But an advertiser will now pay more for their attention of both of them, and this allows the network to raise its production values. So, indirectly, a third person will join, and so on and so on. These combined network effects help the biggest network the most. In the end the market might tip into a monopoly. By then it would be too late. So should we adopt a "predict and forestall" strategy?

Market tipping is thus a specter at the feast in this discussion. But there is a risk of a contagious moral panic over tipping. A few years ago, concern was quite widely expressed that the ride-hailing market was on the point of tipping into a monopoly in many jurisdictions. Instead in many city markets in the US, for example, it seems to exhibit a fairly stable and sedate duopoly.

There would also be the issue of how to make an appropriately graduated regulatory response to the expectation of

³ See M. Cave, "Platform software versus the software of competition law," *Journal of European Competition Law & Practice*, 10 (7) 472-478, 2019.

market tipping. In the case of ride-hailing, this might vary across a spectrum beginning with obligations on the largest firms to share some of their data with rivals, which allow the regulator to monitor market developments, (possibly) license restrictions clipping the wings of the largest networks, (if better data are the source of the network externalities) an obligation on large firms to share such data. The final stage – pretty much equivalent to shutting the stable door after the horse has bolted – might be controlling the price of the service.⁴

C. What is to be Done? Some Comments on Possible Interventionist Remedies for Regulating Large Digital Platforms, Inspired by the Experience of Traditional Network Regulation

There are many more or less well-developed proposals for how to regulate large digital platforms, some in the form of draft legislation. The aim here is not to present a coherent set of proposals but to identify discrete parallels with, and possibly learnings from, more traditional network regulation.

- Selectivity in application. As noted above, from its birth in 2003, the EU telecoms regulatory regime, inspired by competition law, has focused its full force on a small subset of network (and other) firms, using as its criterion an extension of the competition law conception of dominance. Regulatory proposals for digital platforms typically do not piggyback on a similarly hallowed concept, but confine their application to the largest two-sided platforms, christened in the EU “gatekeepers” producing “core platform services.” These platforms share an affinity in terms of size, business model and the digital and data technology they use, rather than are based on something akin to a standard industrial classification. This seems not only justifiable but even necessary.
- User protection. The essential nature of the services provided by traditional network industries, together with in many cases the monopoly status of the supplier, has led in many jurisdictions to higher-than-normal levels of protection for customers, particularly domestic customers. For example, firms regularly have universal service obligations, and it may be unlawful for an energy or water supplier to cut off service for non-payment of bills, except under the strictest of conditions.

Digital platforms provide a variety of services, from communications to shopping to a great deal else. One aspect which they have in common with traditional network industries, however, is their collection of vast amounts of user data. Access to a family’s ongoing electricity consumption can disclose its absence

from the house as reliably as holiday pictures posted on Facebook. Hence an equivalent need to regulate for data security and the protection of privacy. It is worth noting that, since data are the currency in digital, data protection rules such as the GDPR provide an incidental brake on those platforms’ profits. But other communications platform issues – mendacious content, damaging communications with juveniles, unlawful political meddling, etc. – have no equivalent in traditional network regulation.

- Control of monopoly profits. Regulation of traditional utilities almost invariably revolves fundamentally around controlling the use of the firms’ market power which would otherwise lead to excess returns. The way this operates in practice through price control has been described above. It may be useful to ask how in principle a similar regime to limit profits might be applied in the case of a major digital platform.

Several of them – notably Facebook and Google – make services available to users at a price of zero, yet remain fabulously profitable from digital advertising revenues. To eliminate such profits by regulation rather than taxation (or price control in digital advertising markets), prices would have to go negative. The negative price could be accomplished by the platforms paying a fixed fee to their users, set by the regulator. Alternatives could easily be constructed which inserted more incentive for the platform to reduce costs or increase revenues. The existing and widely discussed regulatory remedy closest to that described here is to require payments to users for the data which platforms monetize when selling those users’ attention to advertisers. In the version above, these payments would be designed to transfer excess returns to users. This would give the activity some of the characteristics of a co-operative in which users would be the residual legatees of any surpluses. It is clearly not fanciful to suppose that this would have an adverse effect on innovation on the platform, with a consequent effect on its life expectancy.

There are many more or less well-developed proposals for how to regulate large digital platforms, some in the form of draft legislation. The aim here is not to present a coherent set of proposals but to identify discrete parallels with, and possibly learnings from, more traditional network regulation

⁴ G. Barker & M. Cave, “Predicting and forestalling market tipping: the case of ride-hailing apps in the UK,” *Utilities Law Review*, 23 (1) 2020.

- **Divestment.** It is a standard remedy in competition law to require a firm to divest itself of certain assets, in order to remedy the anti-competitive effects of a proposed merger, after a finding of abuse of market power, or following a market investigation. Thus under the UK competition regime, disposals have been required after a finding of adverse effects on competition from firm co-ordination in the cement industry. The same outcome flowed from market investigations in the regulated airport and gas sectors. Specific sectoral regulatory proposals have been brought forward in several countries which would allow airports to keep unified control of runways but divest, and introduce competition in the provision of terminal facilities. As noted above, in the USA there are calls to use competition law to revisit and undo acquisitions made some years in the past quite far in the past by Facebook (of WhatsApp and Instagram) and by Google.

In the case of traditional networks such cases it is relatively straightforward to value the total mostly tangible capital and divide it equitably among several firms. But intangible capital in the forms of intellectual property, organizational know-how, and data and data-handling capability would be harder to value and separate, especially if these attributes had already been scrambled over several activities by a firm anticipating such a remedy. Also, benefits from any such action would be counterbalanced by the loss of beneficial network effects.

- **Interoperability.** The problem of direct network effects was elegantly solved by telecommunications regulators - by simply requiring the interconnection of networks. Thus Art 4.1 of the EU's 2002 Electronic Communications Services Access Directive simply states: "Operators of public communications networks shall have a right and, when requested by other undertakings so authorized, an obligation to negotiate interconnection with each other for the purpose of providing publicly available electronic communications services..." The phraseology relied on the common understanding reached by then of what was meant by interoperability and interconnection.

“

In the case of traditional networks such cases it is relatively straightforward to value the total mostly tangible capital and divide it equitably among several firms

In the case of digital platforms, the work must start from scratch. A possible early example might be that, via agreed application programming interfaces ("APIs") and standards, a user of Facebook might receive a friend request from someone on a rival network; then content would flow back and forth between the two networks. Other examples are provided by data interoperability. Thus a search engine rival to Google might have right to obtain an organic search result from the latter and integrate it into its offerings.⁵ This would be separate and additional to obligations relating to the portability across of customer data. But whereas inter-operability in a telecommunications context involves a fairly uniform generic application, each species of regulated digital platform will pose different problems, each fought over by the relevant parties.⁶

These remedies share with the unbundling remedy in traditional network regulation the notion that another way of dealing with market power than price control is to require the monopolist to share its resources with competitors. The natural arena in which such an outcome might be accomplished is a regulatory one, since regulators inevitably have continuous, rather than episodic, relations with the firms they regulate, and years' experience of corralling firms to find solutions to technical issues in consumers' interests. Legislation would set out the principles to be adopted in deciding where and possibly how to mandate inter-operability. The actual regulatory decisions would require difficult trade-offs - already made in telecommunications over the regulation of fiber networks, for example - between immediate benefits for consumers from competition and longer-term benefits from greater innovation inspired by higher rewards for successful investors. They would also be subject to an appeal regime.

04

CONCLUSION

The focus proposed in many jurisdictions on confining regulation to a small number of the largest digital platforms seems both sensible and probably inevitable. I see no special awkwardness in defining this group in a way which is based on the likely scale of consumer detriment rather than a criterion used previously in a different context.

5 P. Larouche & A. de Streel. "The European Digital Markets Act: A Revolution Grounded in Tradition," *Journal of European Competition Law & Practice*, September 2021.

6 This variety is shown by the list of six illustrative but very different cases in *Equitable Interoperability: the "Super Tool" of Digital Platform Governance*, Policy Discussion Paper No. 4, July 2021, The Tobin Centre for Economic Policy at Yale, at pages 9-27.

It looks as if a major foundation of traditional network industry regulation – direct price control of significant parts of the value chain – is not very likely expressly to be reflected in the economic regulation of digital platforms. Nor does there seem to be much value in another stand-by remedy in that field, the horizontal (or vertical) separation of the dominant firm.

The most promising affinity with traditional network regulation lies with the mandating of interoperability in telecommunications, where such inter-operability was able to counteract what would otherwise have been insuperable disadvantages for fledgling entrants, arising from direct network effects. In the case of digital platforms the same remedy looks able to counteract a dominant firm's advantages arising from both direct and indirect network effects. This option looks to me to be by far the most practicable read-across from traditional regulation, although one which will require an immense and varied amount of expertise and labor.



It looks as if a major foundation of traditional network industry regulation – direct price control of significant parts of the value chain – is not very likely expressly to be reflected in the economic regulation of digital platforms

Finally, for this option to be successfully realized, the mind set and experience of those individuals performing the task, in whatever institutional framework it were done, would ideally be those of a regulator, preferably with an explicit goal of furthering consumer welfare, and accustomed to conduct a long-term and technical relationship with a fairly small number of regulatees, rather than those versed in the activities of a competition authority, generally having episodic and non-technical relations with many firms. ■



WHAT SHOULD WE DO ABOUT THE BIG TECH MONOPOLIES?



BY
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01

INTRODUCTION

Sue them? Regulate them? Both? The rise of the big tech firms has created a moment of possible change in how those firms are regulated. You really do need a scorecard to keep track of the pending antitrust suits and investigations of Amazon, Apple, Facebook and Google. (Microsoft, so far, seems to be mainly below the radar). The same is true of pending bills in the U.S. Congress. It is easier in Europe, where both the Digital Services Act and Digital Markets Act are under consideration, though as soon as we turn to the member states pos-

sible responses grow quickly, where Germany has been an early mover. If we switch to Asia, South Korea has moved to regulate app stores. This is platform regulation organized around the gatekeeping positions of the big tech firms.

Antitrust and regulation are different approaches to possible controls over these firms. U.S. antitrust laws are organized around ideas of fault, market definition, and market power. Litigation in the U.S. is a slow path to change and the same is true in Europe. New laws offer the promise of a quick regime change, though the lessons of regulatory statutes like the Telecommunications Act of 1996 make clear that vague statutes can also lead to litigation timelines measured in decades over the language of new statutes.

In this essay, I pursue two paths. In the first, I revisit the beginnings of U.S. antitrust law to emphasize that that law has long had a policy of permitting firms to grow organically into dominant market positions. The Sherman Act created an anti-trust policy, not a broad anti-monopoly policy. And even as U.S. antitrust law moved in 1914 to supplement the Sherman Act with The Federal Trade Commission Act and The Clayton Act, leading voices of that era — soon-to-be-Justice Louis Brandeis and soon-to-be-President Woodrow Wilson — made clear that even though they opposed the trusts, they were not opposed to firms that achieved their market positions through legitimate competition and organic growth.

I then turn to the second path. The history described in the first section suggests that, by design, there are fundamental limits on how U.S. antitrust law can respond to firms that have achieved great, legitimate success. But firms born through innovation do not necessarily always stay on the righteous path and that, appropriately and again by design, brings them within the grasp of antitrust. Case settlements can be powerful tools in part because they can move faster than full-tilt litigation with trials and appeals and in part because settlements put on the table many of the tools that we associate with regulation, such as nondiscrimination obligations, access rights, and line-of-business restrictions.

As that suggests, there is some overlap between how anti-trust can operate and how new platform legislation is likely to be framed. The AT&T cases in the U.S. provide a useful touchstone here, as antitrust and legislation moved in parallel even as they pursued similar ends with many of the same instruments. Right now, in Europe, the momentum behind legislation there almost certainly reflects frustration over the inability of the competition policy authorities to achieve more on-the-ground competitive changes even as they have, so far at least, issued a series of fines and rulings against Google and in an earlier era against Microsoft. In the U.S., the public cases against, so far, Amazon, Facebook and Google are still quite young and possible legislation seems to have more momentum as both Republicans and Democrats express often different frustrations with the big tech firms. That said, the big tech firms have achieved their positions by providing products valued by the public and regulation, via antitrust or through new statutes, should ensure that the value of those products is not lost through new clumsy rules.

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02

LEGITIMATE MONOPOLIES IN EARLY U.S. ANTITRUST LAW

The best place to start to understand what Senator Sherman hoped to accomplish is with the text of the legislation he introduced. On August 14, 1888, Sherman introduced S.3445 into the 1st Session of the Fiftieth Congress and the bill was referred to the Senate Committee on Finance. The title of the bill — “To declare unlawful trusts and combinations in restraint of trade and production” — gives a good sense of Sherman’s central goal. In the first session of the next Congress, Sherman once again introduced his bill, now as S.1. On March 18, 1890, Sherman introduced a revised version of the bill to navigate possible objections that had been raised regarding the constitutionality of the bill.¹

But the core of Sherman’s approach had not changed between 1888 and 1890. Sherman was focused on joint activity, not single firm activity. His bill targeted “arrangements, contracts, agreements, trusts, or combinations between two or more citizens or corporations.” Which of those were declared “to be against public policy, unlawful and void?” Those which were made with a view to, or which tended “to prevent full and free competition” relating to imports or in “articles of growth, production, or manufacture.” In addition to those limits, Sherman wanted to declare unlawful “arrangements, trusts or combinations between such citizens or corporations” “made with a view to or which tend to advance the cost to the consumer of any such articles.” Sherman was looking to ban joint activity that interfered with competition, or which raised prices to consumers.

Sherman clearly was targeting the rise of the trusts, hence the characterization of this proposed bill as “anti-trust.” The trusts represented an effort by capitalists to bring competing enterprises together in a single great organization. Unsurprisingly, trusts had their defenders and Samuel Dodd, the lawyer for and brains behind the Standard Oil Trust, offered a spirited defense of trusts in the *New York Daily Tribune* on February 2, 1890. But Dodd was running against the popular tide.²

Sherman lost control of his bill in the Senate and on March 27, 1890, it was referred to the Senate Committee on the Judiciary. A week later, on April 2, 1890, Senator Edmunds came to the full Senate with an amended version of Sherman’s bill. The amendment struck all of Sherman’s language — really *all* — and the new language would become what

1 A New Anti-Trust Bill, The New York Times, Mar. 19, 1890, p6.

2 Samuel Dodd, A Defence of Trusts, New York Daily Tribune, Feb. 2, 1890, p18.

we think of as the now-familiar language of the “Sherman” Act when it was enacted on July 2, 1890. And as is probably clear from the discussion so far, Sherman’s original bill did not use the word “monopoly” or “monopolize” and only pursued joint activities and not those by single firms.³

On April 8, 1890, the Senate turned to consider the Judiciary Committee draft. Sherman himself had exited the debate, saying that he would vote for the new draft deeming it “the best under all the circumstances that the Senate is prepared to give in this direction.” But even as the Senate was moving to vote, Senator Kenna raised a question about the meaning of the new language in Section 2. Kenna posed a hypothetical involving someone who “by his own skill and energy, by the propriety of his conduct generally, shall pursue his calling to in such a way as to monopolize a trade.” As Kenna continued to talk, he ran at the hypo again, focusing on someone “who happens by his skill and energy to command an innocent and legitimate monopoly of a business.” The proposed new statute would be a criminal statute and Kenna wanted to know if this behavior was a crime.⁴

Senator Edmunds who had brought the revised draft from the Judiciary Committee assured Senator Kenna that his hypos were outside the scope of Section 2: “Anybody who knows the meaning of the word ‘monopoly,’ as the courts apply it, would not apply it to such a person at all; and I am sure that my friend must understand that.” Edmunds would quickly take a second run at his answer: “It does not do anything of this kind, because in the case stated the gentlemen has not any monopoly at all. He has not bought off his adversaries. He has not got possession of all the horned cattle of the United States. He has not done anything but compete with his adversaries in trade if he had any, to furnish the commodity for the lowest price. So, I assure my friend that he need not be disturbed upon the subject.”⁵

The byplay on the floor of the Senate between the two senators gave a sense of what was excluded and included under

the new language of Section 2. Legitimately obtained monopoly was outside of Section 2 and of course Section 1 only addressed joint activity and so would not cover single-entity monopoly. Monopolization required more, such as buying off adversaries or some other illegitimate business act.

“***Anybody who knows the meaning of the word ‘monopoly,’ as the courts apply it, would not apply it to such a person at all; and I am sure that my friend must understand that. - Sen. Kenna***

Jump to the presidential election of 1912. The trusts had continued to be the subject of inquiry and possible legislation. And in its 1911 ruling in *Standard Oil*, the U.S. Supreme Court had resolved a key interpretative question regarding Section 1 of the Sherman Act in concluding that that section barred only unreasonable restraints of trade. Louis Brandeis, who would join the Supreme Court on June 1, 1916, was then a private lawyer in Boston but he was a central participant in the discussion about what to do about the trusts.⁶

Brandeis drew a clear line between the trusts — a tool that typically brought competing businesses together to limit competition — and what Brandeis sometimes termed “natural” monopoly. Those were firms that had achieved their position not through combination but rather through natural, organic, internal growth. Firms that had succeeded through legitimate competition in the marketplace. Brandeis was skeptical that the latter really existed, but he was clear about how more efficient firms should be treated: “There is nothing in our industrial history to indicate that there is any need whatever to limit the natural growth of a business to preserve competition. We may emphatically declare: ‘Give fair play to efficiency.’”⁷

3 For a deeper dive into this background, see William Kolasky, *Senator John Sherman And the Origin of Antitrust*, Antitrust, 24:1, Fall 2009, p85-89. Before Sherman introduced S.3445 in 1888, on July 10, 1888, he introduced a resolution that called for the Senate Committee on Finance to investigate the issues at stake in the legislation that he would subsequently propose. The resolution was framed around tariff policy, but that resolution, which paralleled in many ways S.3445, did use the word “monopoly” but that language was dropped in S.3445 and S.1. See 19 Cong. Rec. 6041 (1888).

4 21 Cong. Rec. 3145 (1890); 21 Cong. Rec. 3151 (1890).

5 21 Cong. Rec. 3151-3152 (1890). The back and forth between Senators Kenna and Edmunds has received a substantial amount of attention before. It was important in Bork’s 1966 examination of the legislative history of the Sherman Act. See Robert H. Bork, *Legislative Intent and the Policy of the Sherman Act*, 9 J.L. & Econ. 7, 29-31 (1966). For commentary and disagreement with Bork, see Herbert Hovenkamp, *Distributive Justice and the Antitrust Laws*, 51 Geo. Wash. L. Rev. 1 (1982); Christopher Grundy, *Original Intent and the Sherman Antitrust Act: A Re-examination of the Consumer-Welfare Hypothesis*, 53 J. Econ Hist. 359 (1993). See also Nicola Giocoli, *Free from what? Competition, regulation and antitrust in American economics, 1870-1914* (published in Luciano Fanti, *Oligopoly, Institutions and Firms’ Performance* (Pisa Univ. Press 2017)).

6 *The Standard Oil Co. of New Jersey v. The United States*, 221 U.S. 1 (1911).

7 See Louis D. Brandeis, *Shall We Abandon the Policy of Competition*, 18 Case & Comm. 494 (Feb 1912) and Louis D. Brandeis, *Competition*, 44 Amer. Leg. News 5 (Jan 1913), both of which are reprinted in Osmond K. Frankel, ed., *The Curse of Bigness: Miscellaneous Papers of Louis D. Brandeis* (The Viking Press 1934).

Brandeis's framing gives rise to an obvious question: if we were to focus on the large industrial enterprises of his era, what was the mix between the competition-limiting trusts and firms that had achieved their position through organic growth? I do not know the answer to that question, but even as Brandeis was speaking and writing, there was one prominent example of Brandeis's so-called natural monopoly: the Aluminum Company of America. On May 19, 1912, *The New York Times* offered an update on five recent cases: *The Powder Trust*; *The Standard Oil Trust*; *The Tobacco Trust*; *The Electric Lamp Trust*; and what it termed *The Aluminum Trust*. Even as it described — almost certainly mistakenly — Alcoa as a trust, it explained why the government had not moved to dissolve the company: “That company is not a combination of former competitors but has obtained a practical monopoly of the business through its own growth, with valuable patents and almost complete control of known deposits of bauxite, the base of aluminum.” A business built on government patents to be sure but built on its own internal growth and success.⁸

“Woodrow Wilson would win the 1912 presidential election. One of the issues that he campaigned on was the trust issue and he would subsequently publish a book of those speeches, framed in the overarching vision of what he called *The New Freedom*

Woodrow Wilson would win the 1912 presidential election. One of the issues that he campaigned on was the trust issue and he would subsequently publish a book of those speeches, framed in the overarching vision of what he called *The New Freedom*. In Chapter VIII of that book, Wilson addressed Monopoly, or Opportunity?. Even as Wilson highlighted the risks posed to society by the trusts, especially in his view the money trust or what he said really was the credit trust, Wilson repeatedly distinguished his views on the trusts from those of big businesses that grew organically through legitimate competition. Wilson announced that “I am for big business, and I am against the trusts.” Wilson did not fear big businesses: “I admit that any large corporation built up by the legitimate processes of business, by economy, by efficiency is natural; and I am not afraid of it, no matter how big it grows.” And Wilson closed the chapter by returning to those ideas: “I know, and every man in his heart knows, that the only way to enrich America is to make it possible for any man who has the brains to get into the game. I am not jealous of any business that has *grown* to that size. I am not jealous of any process of growth, no matter how huge the result,

provided the result was indeed obtained by the processes of wholesome development, which are the processes of efficiency, of economy, of intelligence, and of invention.”⁹

03

THE INTERSECTION OF ANTITRUST AND PLATFORM REGULATION

There are a few takeaways from that brief look at the origins of U.S. antitrust law. It was, first and foremost, anti-trust law. The trusts were artificial combinations that limited competition and restoring that competition was the goal. And government-created monopolies bestowed by kings and queens were condemned. But there was no general condemnation of monopoly as such as is clear in the through line from the 1890 Senate floor debates over the draft bill to Brandeis and Wilson during the 1912 election. A firm could compete legitimately and grow to dominate its market. Size as such was not the issue, but how the firm behaved mattered for whether liability would be found.

That suggests that there was a core limit on what anti-trust can do against firms that grew to dominate their markets. But, at the same time, successful firms could overstep and face antitrust suits, and while winning those suits would usually require a showing of fault, settlements can be powerful levers for changing market competition. Take one prominent example: the U.S. government's settlements with AT&T in 1956 and 1982. Both of those were consensual settlements cut between AT&T and the U.S. government, and, given that, neither required a full-blown finding of fault. It was enough that a finding of fault was possible and that both sides saw a deal as the way forward to resolve the situation.

In both situations, it is worth paying attention to the timelines of the settlements. On January 15, 1949, the U.S. government brought an antitrust suit against AT&T seeking to split up AT&T and to force AT&T to license certain of its patents on reasonable and nondiscriminatory terms. Seven years later, on January 24, 1956, the government and AT&T settled the case. Seven years for a settled case. The 1956 AT&T final judgment had two core provisions both of which are of the sort that we often associate with platform regula-

8 Five Trust Decrees, *The New York Times*, May 19, 1912, p13.

9 Wilson Pillories Steel Trust in Gary, *The New York Times*, Oct. 5, 1912, p6; Woodrow Wilson, *The New Freedom*, pp. 166, 180-81, 191 (Doubleday, Page & Co. 1918).

tion. The first was an access provision that opened AT&T's patents on extremely favorable terms, while the second was a line-of-business restriction that boxed in AT&T in communications markets and excluded it from other markets, particularly the young computing market. Both of those provisions almost certainly had important consequences. The patents licensing regime boosted innovation, while barring AT&T from computing almost certainly made it easier for IBM to build up its market position.¹⁰

On November 21, 1974, the U.S. government once again brought an antitrust lawsuit seeking to break up the firm. As that suit continued to run, Congress considered new laws to address telecommunications competition. On October 7, 1981, by a 90-4 vote, the Senate approved a draft bill that would have resolved many of the pending competition issues and if the House of Representatives had move forward, it was likely the government would have dropped the pending lawsuit.¹¹

But on January 8, 1982, the U.S. government and AT&T announced a settlement of the pending antitrust suit, this time one that would breakup AT&T. AT&T would eventually be split into eight large firms: AT&T proper as a long-distance company freed of most of the restrictions of the 1956 final judgment and seven regional Bell operating companies ("RBOCs") providing local telephone service. The settlement created nondiscrimination obligations to boost long-distance competition while also imposing line-of-business restrictions on the RBOCs and much more limited ones on AT&T.¹²

The AT&T case frames the current situation with the big tech firms nicely. The U.S. government and the various states have antitrust suits pending against Amazon, Facebook and Google. There are private antitrust suits against Apple and rumors of a possible government suit against Apple. The European Commission has investigations pending against Amazon and Apple and ongoing appeals of decisions regarding Google. Full litigation of these cases will likely take years, though as the AT&T timeline makes clear, even settlements of cases may come slowly.

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Just as was the case with AT&T, legislation is a natural alternative. In many ways, as was the case with AT&T, negotiated settlements and the likely legislative outcomes might run along similar lines. The pending bills in the U.S. Congress and their counterparts in Europe suggest the likely tools are the traditional tools that we use to regulate network industries, including a mix of nondiscrimination rules, access rules and business line restrictions. As I have argued elsewhere, getting this right is tricky and depending on how it is framed of course, legislation could be quite disruptive to the world that consumers currently live in.¹³

I have not gone through the pending antitrust cases with enough care to assess the merits of the claims against the big tech firms. But the positions of these firms — Amazon, Apple, Facebook, and Google — reflect in many ways the type of innovation and efficiency that the framers of the Sherman Act and then subsequently Brandeis and Wilson believed should be free of antitrust liability. That of course is not to say that those firms have not violated the antitrust laws — again, I have not expressed a view on that here — but rather that there is core there that we should be sensitive to, whether changes are pursued through antitrust remedies, imposed or agreed, or through legislation. ■

10 Charles Zerner, U.S. Sues to Force A.T.&T. To Drop Western Electric Co., The New York Times, Jan. 15, 1949, p.1; Anthony Lewis, A.T.&T. Settles Antitrust Case; Shares Patents, The New York Times, Jan. 25, 1956, p.1. On the innovation consequences of the patent access rules, see Martin Watzinger, Thomas A. Fackler, Markus Nagler & Monika Schnitzer, How Antitrust Enforcement Can Spur Innovation: Bell Labs and the 1956 Consent Decree, 12 Amer. Econ. J.: Econ. Policy 328 (2020).

11 Merrill Brown, Senate Oks Bill Allowing AT&T To Enter Unregulated Industries, The Washington Post, Oct. 8, 1981, pD11.

12 Eileen Shanahan, U.S. Sues to Divest A.T.&T. Of Western Electric Co., Charges Wide Conspiracy, The New York Times, Nov. 21, 1974, p1; Ernest Holsendolph, U.S. Settles Phone Suit, Drops I.B.M. Case; A.T.&T. to Split Up, Transforming Industry, The New York Times, Jan. 9, 1982, p1.

13 Randy Picker, Forcing Interoperability on Tech Platforms Would Be Difficult to Do, ProMarket.org, Mar. 11, 2021; Randy Picker, Europe Lacks a Vision for How Apple's App Store Fees Should Work, ProMarket.org, May 5, 2021; Randy Picker, The House's Recent Spate of Antitrust Bills Would Change Big Tech as We Know It, ProMarket.org, June 29, 2021; Randal C. Picker, Security Competition and App Stores, Concurrenialiste Antitrust Law, Aug. 23, 2021.



WASHINGTON NEEDS A PROCESS FOR... CRYPTO POLICY



BY
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01

INTRODUCTION

In truth, virtually any noun could follow the elipsis in this article's title. The core institutions of our Constitutional structure are not working according to the design of our founding document. Nothing in the text of the Constitution or the immediately contemporaneous com-

mentary suggests that the Framers imagined that the President would need to arbitrate a dispute between a small group of Senators and Representatives in order to move his legislative agenda forward. The Constitution does not mention the functional elements that have given rise to the current legislative quagmire — political parties and the Senate filibuster. Indeed, the fact that the founders did not contemplate the rise of political parties has led at least one prominent scholar to suggest that our Constitution has never really worked as planned.¹

¹ Cass Sunstein, *What if a tyrant can't be booted out of office?* Bloomberg, Nov. 3, 2017 <https://www.bloomberg.com/opinion/articles/2017-11-03/what-if-a-tyrant-can-t-be-booted-out-of-office>.

02

TECHNOLOGY IS COMPLEMENT TO POLICY, NOT A SUBSTITUTE FOR IT

It might seem odd to start a piece that sits within a volume devoted to the promise that technology has for solving regulatory problems with a nod to the latest example of the degree to which our government is falling short of the platonic ideal. But technology is simply a tool to further a defined end. Before regulators can harness technology to make their lives easier, they need to identify the core objectives within a specific regulatory domain, write rules to channel the behavior of market participants, and then deploy technology to ensure compliance and monitor the overall consequences.

Take speed limits as an example. Setting speed limits involves a myriad of factors. The short list includes the convenience of drivers, the safety of drivers, the safety of pedestrians (and bike riders), and the interests of downstream consumers both in the goods and services delivered via roads but the by-products of the use of those roads (e.g. emissions and noise). Regulators might resolve those concerns purely in favor of the convenience of drivers and not set speed limits, or they might do as the U.S. has done and create a context specific regime — e.g. 15 miles per hour when kids are present near a school but 70 miles per hour on highways in unpopulated areas.

“It might seem odd to start a piece that sits within a volume devoted to the promise that technology has for solving regulatory problems with a nod to the latest example of the degree to which our government is falling short of the platonic ideal. But technology is simply a tool to further a defined end

The technologies necessary to implement different speed limit regimes will vary. A no limit regime might not require any technology, though one could imagine regulators want-

ing to track accidents and monitor regimes to measure the effects of the no limit regime. The context specific regime will, on the other hand, require technologies for ensuring compliance. And the optimal technology to implement a particular regime might change over time. Today, the U.S. largely relies on humans armed with portable radars to track the speed of particular vehicles. When those humans spot a violator, they literally chase them down and issue a ticket. Soon, that might mean passive monitoring systems such as drones equipped with radar sensors and cameras. In the more distant future, it might mean technologies embedded in vehicles and roads that actively limit how fast vehicles can go. In short, the technology used to give effect to a particular regulatory regime follows the design of the regime itself.

The visible struggle of Congress to make laws and the President to execute them has made setting priorities difficult and translating those priorities into clear, stable rules virtually impossible. As a result, major segments of the U.S. economy are subject to complex regulatory regimes that seek to advance multiple objectives simultaneously. The introduction of new technologies compounds the problem as different regulators with different agendas then vie with one another to bring the new technology within the scope of their regulatory domain.

03

THE BURGEONING CRYPTO INDUSTRY COULD BE A PROVING GROUND FOR GOOD POLICY (OR NOT).

The U.S. regulatory approach to crypto currency provides a recent and particularly salient example of the challenge it faces in developing coherent policy priorities. The crypto industry found itself at the center of U.S. regulatory attention this summer. Within the span of a few mid-summer weeks, Congress attempted to invent tax policy for the industry on the fly;² the Chairman of the SEC, asserting that the industry was completely unregulated, claimed dominion over it;³ and the President's working group on Financial Markets took on

2 Taylor Locke, *The crypto tax provision in the infrastructure bill is 'potentially unworkable'—but Treasury may say it doesn't matter*, CNBC Aug. 16, 2021 <https://www.cnbc.com/2021/08/16/tax-foundation-infrastructure-bill-crypto-tax-provision-is-unworkable.html>.

3 Gary Gensler, *Remarks Before the Aspen Security Forum*, Aug. 3, 2021 <https://www.sec.gov/news/public-statement/gensler-aspen-security-forum-2021-08-03>.

the job of recommending how one type of crypto currency, fiat backed crypto currencies, should be regulated.⁴

Three months later, there has been motion but little progress. The tax proposal that Congress made up on the fly is part of the infrastructure bill that the House has passed and that the President will (presumably) sign.⁵ The SEC has not initiated (much less concluded) a rule making to define what kind of instruments, digital and otherwise, constitute securities, preferring instead to let the issue percolate in the courts.⁶ The Working Group on Financial Markets issued its report on stablecoins and managed to document the *status quo*. The report notes that stable coins may present certain risks and calls on Congress to arbitrate the dispute between the SEC and CFTC about which agency should regulate them.⁷ There is little point in thinking about how to apply technology to address policy issues where the underlying policy does not exist.

Washington needs to resist chasing headlines in pursuit of more authority at the level of individual agencies and, instead, build a process to develop a foundation for a more coherent policy that would cover the entire government. This process necessarily starts with some humility. Regulators need to accept that they may not know all the answers. Indeed, they might not even be able to ask all the right questions. At this point, it is more important to get the right stakeholders in the room and identify the key first principles than design the optimal regulatory framework.

Again, crypto provides an example. Although the U.S. does not have a single regulator responsible for the industry, a number of agencies within the Federal government have regulated or could regulate certain aspects of it. The process of building a coherent policy for the industry should begin by canvassing all of the following for their views:

- **FinCEN.** The Financial Crimes Enforcement Network, an agency within the Treasury Department, is respon-

sible for defining what types of businesses are considered financial institutions and what responsibilities different types of financial institutions have with regard to ensuring that their services are not used to facilitate crime or terrorist financing. It first exercised that authority over the crypto industry in 2013.⁸

- **CFTC.** The Commodities Fair Trading Commission has authority over spot markets for commodities as well as markets in which futures and other derivatives related to commodities and other assets are traded. It has exercised that authority over the crypto industry, bringing a series of enforcement actions against market participants and licensing several exchanges to support the trading of derivatives based on crypto currencies. It brought its first case in 2015.⁹
- **SEC.** The Securities and Exchange Commission regulates the issuance and sale of securities, the exchange of securities, and the business of providing investment advice. It has brought numerous cases against firms that have promoted or sold digital assets that the SEC believes to be a security.¹⁰ It has provided guidance to firms that certain kinds of digital assets are not securities. It also has broad rule making authority to define what a security is.¹¹ As noted above, it has not exercised that authority regarding digital assets, preferring instead to fight that battle in court.
- **OCC.** The Office of the Comptroller of the Currency regulates banks, including trust companies, that are chartered under the National Bank Act. In that capacity, it has the authority to determine the types of activities in which such entities can engage, including whether they can hold or issue digital assets. It has exercised that authority.¹²
- **Federal Reserve.** Federal Reserve Board regulates bank holding companies and certain other entities

4 Kollen Post, *Yellen convenes President's Working Group to discuss stablecoins next week*, *The Block*, Jul. 16, 2021 <https://www.theblockcrypto.com/linked/111743/yellen-convenes-presidents-working-group-to-discuss-stablecoins-next-week>.

5 See Information Reporting for Brokers and Digital Assets, H.R. 3684, Sec. 80603 at 2433-7 https://www.epw.senate.gov/public/_cache/files/e/a/ea1eb2e4-56bd-45f1-a260-9d6ee951bc96/F8A7C77D69BE09151F210EB4DFE872CD.edw21a09.pdf.

6 *SEC v. Ripple Labs, inc. et al.*, 20 Civ. 10832 (S.D.N.Y. Dec. 22, 2020).

7 Presidential Working Group on Financial Markets, *Report on Stablecoins*, Nov. 2021 https://home.treasury.gov/system/files/136/Stable-CoinReport_Nov1_508.pdf.

8 FinCEN, *Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies*, Mar. 18, 2013 <https://www.fincen.gov/sites/default/files/shared/FIN-2013-G001.pdf>.

9 *In re Coinflip, Inc.*, CFTC Docket No. 15-29 (Sep. 17, 2015).

10 *SEC v. Garza, et al.*, 3:15-cv-01760 (D. Conn. Dec. 1, 2015).

11 See, e.g. 15 U.S.C. §77b(a)(1).

12 OCC, Interpretive Letter #170 (Jul. 20, 2020).

which are members of the Federal Reserve system. Congress has given it other regulatory and supervisory authority, too, including over payment systems.¹³ It is also a market participant in that it runs the largest settlement system in the United States.

- **CFPB and FTC.** The Consumer Financial Protection Bureau and the Federal Trade Commission have the ability to protect consumers against unfair and deceptive acts and practices. The FTC has used its authority to protect consumers against get rich quick schemes involving crypto currency.¹⁴ The CFPB also has the authority to protect consumers against abusive practices, and the authority to interpret various existing laws that regulate retail financial services. Of most direct relevance to the crypto industry is the Electronic Funds Transfer Act.¹⁵
- **The States.** Ours is, of course, a Federal system, and the powers not explicitly granted to the Federal government are reserved to the states.¹⁶ This includes the plenary authority to regulate any individual or business doing business within the physical bounds of a particular state or with the resident of a state. The states have been very, very active in the crypto space led by the New York Department of Financial Services.

Having canvassed Federal and state governments for their views on the industry, the next task is to engage the industry and the public. The ultimate goal is to build a foundational policy framework that is tailored to the risks of the industry, that is flexible enough to allow for continued evolution, and that people will accept. Building that framework begins by asking some foundational questions:

- What distinguishes a crypto asset that is a commodity from a crypto asset that is a security from a crypto asset that is a payment instrument from a crypto asset that is a derivative?
- Assets and liabilities are the accounting versions of matter and anti-matter. You can't have one without the other. Who or what owns the liability associated with a given digital asset? Does the answer matter for purposes of informing how a given digital asset should be regulated?

- Could crypto currencies or a crypto currency emerge as an alternative to the dollar as a global reserve of wealth?
- What gaps exist in the current regulatory regime that could be exploited by people bent on defrauding users of crypto currency?
- Should a single Federal regulator have primary authority over the crypto industry? What role, if any, should the States play in regulating the industry?
- Is crypto more susceptible to use by criminals and terrorists than other technologies? If so, why?
- What should regulators try to avoid as they seek new authorities and establish new rules?
- What fundamental question about crypto does not receive enough attention?

Different answers to these questions will point in different directions about what the country's policy priorities regarding crypto should be. Take the third question on the list above — whether crypto currencies might emerge as an alternative to the dollar as a reserve of wealth. At first blush, the question might seem silly. The dollar has served as the world's reserve currency since the end of World War II, and the rate currently demanded by investors for bonds issued by the U.S. government and by U.S. banks largely capitalized by those bonds suggests that people are not seriously worried about the end of that era. But people as diverse as Sen. Rand Paul and Matt Harris of Bain Capital Ventures have begun to wonder whether the era of dollar hegemony is on the wane and whether crypto currencies, specifically Bitcoin, may emerge as a viable alternative.¹⁷ If that is even a remote possibility, the entire discussion of crypto currency takes on a different cast. The challenge at the moment is that policy makers do not appear to be engaging in a serious way with any of these issues.

¹³ See 12 U.S.C. §5454(a).

¹⁴ See *FTC v. Dluca, et al.*, 18-CV-60379 (S.D. Fla. Feb. 20, 2018).

¹⁵ Sec 15 USC § 1693 et seq.

¹⁶ U.S. Const. amend. X.

¹⁷ See Axioms on HBO (Oct. 22, 2021) (quoting Sen. Rand Paul on the possibility of crypto becoming the global reserve currency) <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewjj4q32voT0AhUrCTQIHUOZCYIQtwJ6BAgDE-AM&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3D6BA9NP-Dbjs&usg=AOvVaw06qxqjnZ2MHGxzCOqrv1wN> and Matthew Harris, *The Future of Money: A Complete Revolution*, Oct. 22, 2021 <https://www.forbes.com/sites/matthewharris/2021/10/22/a-complete-revolution/?sh=4c16fad2f3a1>.

CONCLUSION

consensus on virtually any policy dimension suggests that it might be time for a refresh. ■

The Constitution conceives of a duet between Congress and the President. Congress takes the lead in making decisions about whether and how to act, and the President follows closely behind ensuring that Congress's will is translated into action. Over the last two centuries, that duet has become a solo as Congress has receded into the role of cheerleader (when the White House and the relevant chamber majority are held by the same party) or scold (during periods of divided government).¹⁸ That is a problem for a host of reasons, but two issues loom particularly large. The President is not equipped to hear from, let alone balance the interests, of the many constituencies that make up the United States. And the volatility inherent in the U.S. political system ensures that the Presidency passes back and forth between the parties and when the shift happens, the new President invariably reviews and seeks to reverse the rules enacted by his predecessor.¹⁹

“*Over the last two centuries, that duet has become a solo as Congress has receded into the role of cheerleader (when the White House and the relevant chamber majority are held by the same party) or scold (during periods of divided government)*

The larger point, here, is that technology is a tool to serve defined regulatory ends. It is not a substitute for the ends themselves. And that brings the discussion full circle. The Constitution is, itself, a technology.²⁰ It was devised and enacted to solve a particular set of problems at a particular moment in time. The Founders convened in Philadelphia in 1787 because it had become apparent that the pre-existing mechanism for coordinating the interests of the various states that had waged the War of Independence was not up to the task of “establish[ing] Justice, insur[ing] Domestic Tranquility, provid[ing] for the common defense, [or] promot[ing] the general Welfare.”²¹ The recent struggles of our leaders to achieve any meaningful amount of sustained

18 See The Lugar Center, Congressional Oversight Hearing Index <https://oversight-index.thelugarcenter.org/compare-committees-over-congresses/>.

19 See, e.g. President Biden, Executive Order 13992: Revocation of Certain Executive Orders Concerning Federal Regulation (Jan. 20, 2021) and Executive Order 14016: Revocation of Executive Order 13801 (Feb. 23, 2021).

20 See Linda Colley, *The Gun, The Ship, and The Pen: Warfare, Constitutions, and the Making of the Modern World* (2021).

21 U.S. Const. preamble.





DATA REGULATION: UNDERSTANDING THE PRESENT TO REGULATE THE FUTURE



BY
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01

OPEN BANKING: DATA REGULATION AT WORK

Three years after its adoption, the UK competition agency – the CMA – has recently proposed to update the UK’s Open Banking regulation.¹ Open Banking – broadly speaking – enables consumers and small and medium-sized enterprises (“SMEs”) to share their bank and credit card transaction data securely with trusted third parties,² through common and open standards. Although the concept of

1 See <https://www.gov.uk/government/publications/update-governance-of-open-banking/update-on-open-banking>, and <https://www.openbanking.org.uk/what-is-open-banking/>. For more information on the UK Open Banking see <https://assets.publishing.service.gov.uk/media/5893063bed915d06e1000000/retail-banking-market-investigation-order-2017.pdf> and <https://assets.publishing.service.gov.uk/media/5893063bed915d06e1000000/retail-banking-market-investigation-order-2017.pdf> and check the Open Banking webpage at <https://www.openbanking.org.uk/>.

2 Open Banking also enables consumers and SMEs to initiate payments directly from their payment accounts to the bank account of their payee, without the use of cards.

Open Banking was born in the context of retail banking, it is currently evolving as an instrument to drive competition in payments and the broader financial sector. Open Banking regulations are in place in the UK (since 2018), Australia (since 2020), and the European Union (after the adoption of the second Payment Services Directive, known as “PS2”).³

“*Three years after its adoption, the UK competition agency – the CMA – has recently proposed to update the UK’s Open Banking regulation*”

Open Banking shares a number of features with data regulation in tech industries. Incumbents’ data ownership constitutes a barrier to competition in retail banking. Open Banking initially aimed to promote competition in retail banking by mandating data-sharing and has recently evolved as an instrument to foster competition and innovation in the payments and fintech sector. Likewise, in the case of retail banking, data constitutes an important source of market power in many other tech markets (advertising, retail trade, health, insurance, etc.). The regulatory principles governing data in tech industries should in principle respond to the same motivation and structure as data regulation in other data intensive industries.

If we look closely into Open Banking, we can identify different relevant elements of the regulatory process: the detection of a market failure, the design of a regulatory instrument to address the market failure and the potential conflict of the regulatory instrument with privacy and data protection regulation.

First of all, the regulator had detected a **market failure** following a market investigation into retail banking:⁴ bank customers faced high switching costs that prevented them from changing banks. As a consequence, competition between retail banks was limited.

Those switching costs were related to the fact that the receiving banks did not have sufficient information about the new clients (e.g. income history, credit records, payments record...) and therefore the new clients could not benefit from banking products, prices and benefits adapted to their characteristics. Switching banks implied resetting your financial history and, thus, it was not an option for “good” customers. Switching costs reduced competition in retail banking.

Second, on the **choice of regulatory instruments**, the regulator concluded that competition law was not a well-suited instrument to remove the existing obstacles to competition. Thus, the regulator opted for a specific *ex-ante* regulatory

instrument. The new instrument established the **command** of sharing clients’ bank and credit card transaction data so receiving banks could rely on the new clients’ banking history to design and price the products offered to them.

Data-sharing obligations reduces switching costs and promotes customer switching and competition. The **target** of the regulation were the nine largest current account providers in the UK. The regulator considered that limiting the obligation to the largest banks was a proportionate measure that would suffice to remove the barriers to competition identified. Open Banking regulation was implemented by the Open Banking Implementation Entity (“OBIE”), which was paid by the target banks. Compliance and evaluation were entrusted to the CMA.

Finally, the regulator faced the problem of how to promote competition without compromising **privacy and data protection**. The Open Banking regulation thus included a number of safeguards in order to achieve its aims while preserving privacy and data protection, such as:

1. Open Banking requires the individual consent of bank customers through an opt-in system. In 2021, more than 3 million UK bank customers have given their consent. Bank customers hold the property rights over their data and should grant their explicit consent to participate in the scheme.
2. Open Banking specifies the type and format of the data exchanged, providing direct access to financial data down to the level of transaction-account transactions.
3. Open Banking guarantees that the exchange of data occurs in a secure and trusted environment.
4. The ecosystem is only open to authorized financial service providers (around 330 service providers in 2021) and the use of the data is restricted to the provision of authorized financial services.

In summary, Open Banking provides an example of the complexity of effective data regulation. Data regulation requires identifying and delimiting the underlying market failures it aims to solve, incorporating the characteristics of the industry and the role of data in the competition dynamics into the remedy design and taking into account the privacy and data protection concerns derived from data use and regulation. In particular, in the case of Open Banking:

1. The underlying **market failure**, i.e. the lack of competition, is properly identified and delimited, and a proportionate remedy is specifically designed to solve such market failure.

³ See <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32015L2366&from=EN>.

⁴ See CMA’s Retail Banking Market Investigation Order (2017).

2. The **design of the remedy** is limited to the sharing of certain data which is essential to compete and foster innovation: receiving financial entities needed information on new clients' bank and credit card transaction data to be able to develop new and innovative products and to compete with incumbent banks on a level playing field. The remedy specifies in detail the type and format of the data exchanged, which is limited to the data necessary to address the market failure, and who the target of regulation is (i.e. the nine largest banks). A specific implementation entity is designated to enforce the regulation and the competition authority is entrusted with monitoring its effectiveness.
3. The remedy incorporates **privacy and data protection safeguards**, recognizing the sensitive nature of the data exchanged. The safeguards mainly concern the customers' consent for the use of their data and the requirement that data can only be used by "trusted" third parties, limiting the scope of the use of the data exchanged.

02

WHAT DOES EXISTING DATA REGULATION TELL US ABOUT DATA REGULATION IN TECH INDUSTRIES?

The Open Banking experience provides a number of insights about data regulation in tech industries.

First, data regulation should have a purpose and such purpose should be normally linked to one or several **market failures** that justify imposing such regulation. In the case of data, there are three main data-related market failures: innovation externalities, market power and lack of competition and data privacy concerns.⁵

Tech products, such as fintech, online advertising, online retail trade, online entertainment, health, and insurance ser-

vices, are data-intensive. The extensive use of big data is essential to compete and to innovate through new products better suited to meet customers' needs. For example, credit data allows financial institutions and fintechs to offer personalized financial products to their customers and health data can help the health industry to better diagnose health issues and adopt effective treatments. Proprietary data might limit the societal benefits of data. Mandating data sharing may allow the full exploitation of positive data externalities, fostering innovation.

Simultaneously, data plays a very relevant role in the dynamics of competition in data intensive industries. Data might confer firms a competitive advantage and create barriers to entry that can be insurmountable to new entrants, which either do not have a sufficiently large customer base or have not been long enough in the market to gather the necessary amount of data to compete on equal grounds. For example, data on consumer characteristics and behavior is essential for personalized ads and the lack of it can constitute a barrier to entry in the ad industry. Data can thus create market power. Data sharing may help to dismantle obstacles to market entry and unlock competition.

Data sharing also has drawbacks: the storage and sharing of unlawful personal data and the abuse or unauthorized disclosure of such data may cause harm to consumers. Thus, whenever personal data is gathered or exchanged, regulation should guarantee the protection of privacy and personal data.

Second, data **regulatory design** should serve the identified purpose. There is however no general recipe for this. The diversity of products, industries and business models framed within the so-called tech industry makes that a single remedy does not fit all circumstances. For example, an obligation to share bank and credit card transaction data will not foster competition and innovation in the video streaming industry.

Data is not a commodity. The strategic value of a specific piece of data differs from one industry to another, varies over time (instantaneous versus historical data), and depends on the level of aggregation and on the combination with other data. Data is not a "uniform, generic and static raw material."⁶ This variability on several dimensions makes it complex to design generic data regulation and calls for a case-by-case analysis. As concluded by Crémer et al in their report on digital markets for the European Commission, "the significance of data and data access for competition will al-

5 For a list of market failures and harms in online markets, see OFCOM (2019), "Online market failures and harms, An economic perspective on the challenges and opportunities in regulating online services" available at https://www.ofcom.org.uk/__data/assets/pdf_file/0025/174634/online-market-failures-and-harms.pdf.

6 For a discussion, see Sofia Olhede & Russell Rodrigues (2017): Why data is not a commodity. Significance. Volume14, Issue5, October 2017, Pages 10-11. Available at <https://rss.onlinelibrary.wiley.com/doi/full/10.1111/j.1740-9713.2017.01068>.

ways depend on an analysis of the specificities of a given market, the type of data, and data usage in a given case.”⁷

In the case of the tech industry, there are several dimensions that determine the role of data in competition and innovation. The nature of the data with strategic value varies from industry to industry. The same data will not be equally valuable to online retail traders than to online insurance providers. The same data will affect differently to the competition and innovation dynamics in different industries. This implies that, for example, a data-sharing obligation would have to identify for each industry which type of data substantially affects competition and innovation and how sharing such data can foster competition and innovation. For example, the recent acquisition of the digital wearable devices manufacturer Fitbit by Google, approved by the European Commission on December 20, 2020,⁸ generated a heated debate on the effects of the combination of the data gathered by both companies on competition and innovation.⁹ Google and Fitbit gathered different type of data that was relevant in their respective markets. One of the main questions during the analysis of the operation was whether the combination of the data gathered by both companies could have market foreclosing effects and a negative impact on innovation.

But even within the same industry, data might be a strategic input for some competitors and not so for others, depending on their business models. For example, ad-sponsored business models rely substantially on big data. In the pre-Android decision market for mobile operating systems, Google’s Android used to be an ad-sponsored business while Apple’s IOS was sold integrated within Apple’s hardware.¹⁰ That implied that users’ data was essential for Android’s business model while not so relevant for Apple’s. Data sharing obligations can affect in an asymmetric way to competitors in the same market.

Finally, several market failures may coexist in data intensive industries. In particular, it is frequent that **privacy and data protection** concerns coexist with innovation externalities and market power. This implies that, as in the case of Open Banking, regulation should provide safeguards to preserve privacy and data protection. Data-sharing obligations might

entail privacy risks that must be internalized within the regulatory instrument design. Addressing separately competition and innovation market failures and data protection and privacy concerns may result in suboptimal regulation.

03

THE EU PROPOSED STRATEGY FOR DATA REGULATION

The EU (proposed) data regulation broad strategy is structured around the three above mentioned market failures:

1. The so-called European Data Strategy, recently announced by the European Commission, deals with the **innovation externalities** of data-sharing.¹¹ The strategy proposes, amongst other measures, a “cross-sectoral governance framework for data access and use” and “common European data spaces in strategic sectors and domains of public interest” through pooling European data in key sectors, with EU-wide common and interoperable data spaces.
2. The proposed Digital Markets Act (“DMA”) deals with **market power** (derived, amongst others, from the accumulation of data) and its effects on competition and innovation. The DMA proposes a number of generic obligations for the so-called “gatekeepers” (vaguely defined as “providers of a core platform service”), which constitute the main target of the regulation.¹²
3. The EU General Data Protection Regulation (“GDPR”), that entered into force in 2018, deals with **privacy and data protection**. The GDPR is a far-reaching regulatory instrument that imposes obligations on privacy and data protection onto organizations anywhere, so long as they target or collect data related

7 Cr  mer, J., de Montjoye, Y. A. & Schweitzer, H. (2019) Competition Policy for the Digital Era. Report commissioned by the European Commission, Luxembourg, 2019. See <https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf>.

8 See https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2484.

9 See, for example, Bria, F., C. Caffarra, G. Crawford, W. Christl, T. Duso, J. Ryan & T. Valletti (2020), “Europe must not rush Google-Fitbit deal,” Politico, July 2, 2020 (<https://www.politico.eu/article/europe-must-not-rush-google-fitbit-deal-data-privacy/>); and the reply by P. R  gibeau, “Why I agree with the Google-Fitbit decision,” VoxEU.org, March 13, 2021 (<https://voxeu.org/article/why-i-agree-google-fitbit-decision>).

10 Walt Mossberg, “How to Understand the Google-Apple Smartphone War,” VOX.com, Dec. 11. 2014. <https://www.vox.com/2014/12/11/11633720/how-to-understand-the-google-apple-smartphone-war>.

11 See <https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy>.

12 See https://ec.europa.eu/info/sites/default/files/proposal-regulation-single-market-digital-services-digital-services-act_en.pdf.

to people in the EU. The GDPR is a complex piece of regulation which enforcement has been progressively more effective but slow.¹³

The European Strategy for Data has not yet been adopted. It proposes a regulation on data governance that aims to increase trust in data sharing, strengthen mechanisms to increase data availability and overcome technical obstacles to the reuse of data. It also anticipates the creation of a “single market for data” where data can flow within the EU and across sectors, subject to privacy and data protection, and to competition law. The regulation establishes a general framework for data sharing but, since such framework is constrained by privacy and data protection, and by competition law, its implementation will require a case-by-case analysis to guarantee compliance with EU law.

The DMA is currently under discussion. The DMA is presented as an *ex-ante* regulatory tool to deal with market power of large technology companies, complementing the enforcement of EU competition law. The DMA designates the target of the regulation according to arbitrary quantitative criteria (annual EEA turnover above €6.5 billion in the last three years, average market capitalization above €65 billion in the last year, active in at least three Member States, over 45 million monthly active end users in the European Union, and over 10,000 yearly active business users in the last year) that seem to refer to the big tech players and a few other firms.

Without having delimited the nature and scope of the market failures it aims to address, the DMA proposes a list of generic obligations for all gatekeepers (that include requiring gatekeepers to “refrain from combining personal data sourced from these core platform services with personal data from any other services offered by the gatekeeper or with personal data from third-party services, and from signing in end users to other services of the gatekeeper in order to combine personal data”) and a second list of obligations susceptible of being imposed on digital gatekeepers under certain (undefined) circumstances (which refer to general obligations to provide data portability and data access and interoperability). The design of such obligations is vague and not linked to specific industry characteristics or business models, which makes them not fully operational and difficult to implement.

Both the European Data Strategy and the DMA constitute generic declarations of principles that would probably need to be further developed in order to be operational and effective. Given the diverse nature of data and the diverse role of data in the dynamics of competition and innovation across different industries and business models, general principles might be useful to guarantee a coherent approach to data regulation but risk not being fully implementable in practice. Landing the principles on specific cases would probably require hundreds of data- and sector-specific regulations and/or detailed investigations under a vague regulatory framework.

The DMA is currently under discussion. The DMA is presented as an ex-ante regulatory tool to deal with market power of large technology companies, complementing the enforcement of EU competition law

Adding that the enforcement of the European Data Strategy and the DMA must be compliant with the GDPR makes the need for more concrete and clearer implementation guidelines even more pressing.

04

CONCLUDING REMARKS

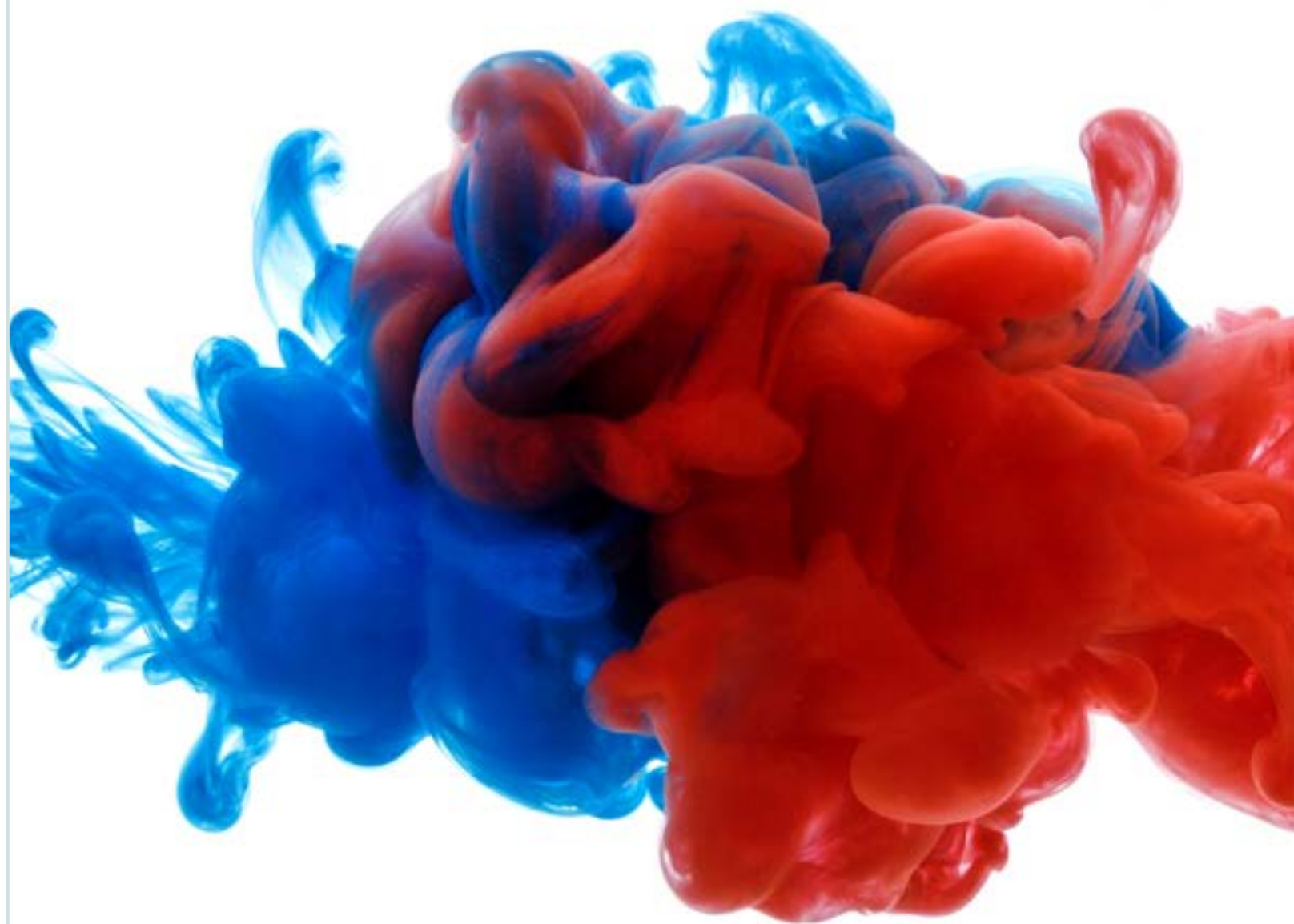
Open Banking shows that data sharing regulation needs to be carefully designed in order to be workable and effective. Open Banking shows how the solution to a “small” competition problem in a financial submarket requires a carefully designed regulatory instrument that mandates the sharing of specific competition-relevant data, specifies the conditions under which such data should be shared and establishes the appropriate provisions to comply with privacy and data protection regulation.

Addressing data-related market failures requires a deep evidence-based analysis of the market failures and the implementation of remedies specifically designed to solve such failures. Generic remedies might be useful to guarantee a coherent economy-wide approach to data regulation but risk not being fully workable in practice.

Both the European Data Strategy and the DMA might be useful to provide a general framework for regulating data in the EU but, in the absence of detailed operational instruments, they might end up being ineffective.

Concrete instruments such as market investigations and regulatory sandboxes, that enable a direct testing environment for innovative products and are widely used in financial markets, could constitute useful instruments in tech markets to make sure that data regulation promotes competition, fosters innovation, and ultimately works in favor of consumers. ■

13 See https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu_en.



TOWARDS A DYNAMIC COMPETITION APPROACH TO BIG TECH MERGER ENFORCEMENT: **THE *FACEBOOK-GIPHY* EXAMPLE**



BY
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University of California, Berkeley and Berkeley Research Group Institute. The author would like to thank Nicolas Petit & Henry Kahwaty, two coauthors of related papers, for their helpful comments and suggestions.

01 INTRODUCTION

Dynamic (Schumpeterian) competition is engendered by product and process and service innovation. Such competition is extremely

powerful. It does more than bring about price reductions. It also brings innovation and service improvement that customers enjoy. A better understanding of dynamic competition in general, and of organizational capabilities, business models, and ecosystems in particular, would result in better competition policy frameworks and tools to analyze Big Tech behavior, including merger and acquisitions (“M&A”) activity.

I have endeavored (with co-authors) to advance a dynamic competition paradigm for the last 35 years.^{1,2,3,4,5,6} It is heartening that enforcement agencies, most notably the UK's Competition and Markets Authority ("CMA"), and some scholars are now recognizing the need to abandon static concepts of competition in favor of dynamic ones. However, because law and economics scholarship has studiously avoided this concept for at least a generation, there is much work to be done in order to operationalize it in a policy useful manner. In this paper, I begin to outline how this might be done by endeavoring to embed recent developments in evolutionary economics and in capability theory into antitrust analysis.

Core to the dynamic competition perspective is a belief that competition policy must prioritize innovation as a policy goal and adopt analytical frameworks that calibrate dynamism and innovation. Moreover, in order to support and advance innovation, it is critical for competition policy to embrace an intermediate to long-term orientation. Short termism is not only the enemy of good management; it is the enemy of good competition policy. A new (operational) framework will require less reliance on the traditional tools of antitrust economics such as market definition and more reliance on the assessment of the business conduct and the impact of M&A transactions on the robustness of innovation in and across business and platform ecosystems. New ecosystem specific metrics can become a good proxy to inform for what is traditionally thought of as "competitive effects."

The goal here is to advance a conceptual competition policy framework that (I) is undergirded by a systematic (and not *ad hoc*) theory of innovating digital firms; (II) recognizes that capabilities, not market positions *per se*, undergird business performance; (III) understands the origins of rents in the digital economy; (IV) offers operational welfare criteria; and (V) provides predictors of long-term competitive effects under uncertainty. However, to bring about improvements in mental models, we must first understand how we got to where we are.

02

DYNAMIC COMPETITION PARADIGM: IGNORED IN ECONOMICS BUT ACCEPTED IN TECHNOLOGY MANAGEMENT

A. Intellectual History

The theory of dynamic competition has prestigious intellectual origins, but it is also one of enduring scholarly and policy marginalization. Schumpeter stands as the father of theories of dynamic competition. Schumpeter observed almost a century ago that dynamic competition is much more effective at improving consumer welfare than is static competition. He analogized static versus dynamic competition to the difference between bombardment and forcing a door. Dynamic competition is so much more important that "it becomes a matter of comparative indifference whether competition in the ordinary sense functions more or less promptly; the powerful lever that in the long run expands output and brings down prices is in any case made of other stuff."⁷

The "other stuff" Schumpeter referred to is innovation, which, through the introduction of new products and processes, embraces a more powerful form of competition that both erodes and destroys existing profit streams.⁸ Unfortunately, Schumpeter did not make his perspective operational in any meaningful sense. Nor did he draw distinctions between types of technologies. And it remains open to interpretation whether the "creative destruction" that Schumpeter talked about is a "continuous" process, or one that occurs in "perennial gales," leaving open the question of what should be done in the interim.

1 Thomas M. Jorde & David J. Teece, *Innovation, Dynamic Competition, and Antitrust Policy*, 13 Regulation 35 (1990).

2 Thomas M. Jorde & David J. Teece, *Antitrust Policy and Innovation: Taking Account of Performance Competition and Competitor Competition*, 147 J. Inst'l & Theor. Econ. 118 (1991).

3 David J. Teece & Mary Coleman, *The Meaning of Monopoly: Antitrust Analysis in High-Technology Industries*, 43 Antitrust Bull. 801 (1998).

4 Christopher Pleatsikas & David J. Teece, *The Analysis of Market Definition and Market Power in the Context of Rapid Innovation*, 19 Int'l j. Indus. Org. 665 (2001).

5 J. Gregory Sidak & David J. Teece, *Dynamic Competition in Antitrust Law*, 5 J. Competition L. & Econ 581 (2009).

6 Nicolas Petit & David J. Teece, *Innovating Big Firms and Competition Policy: Favoring Dynamic over Static Competition*, 30 Indus. & Corp. Change (2021).

7 Joseph A. Schumpeter, *Capitalism, Socialism and Democracy* 83 (1942). Interestingly, competition economists ignore these aspects of Schumpeter's framework, zeroing in on the highly stylized Arrow-Schumpeter debate which has become a distraction and an intellectual dead-end. (See Petit & Teece, "Innovating Big Tech firms and competition policy: favoring dynamic over static competition" *Industrial and Corporate Change*, September 2021).

8 *Id.* at 84.

Hayek and other Austrian economists did not fare better than Schumpeter in terms of policy influence. The essence of competition within the Austrian school is the dynamic pattern by which competition arises and proceeds, not the equilibrium never attained. Because this perspective was inconsistent with optimization and equilibrium models that economists favor, it was largely ignored by the mainstream and has therefore had almost no impact on public policy formulation and implementation.

An opportunity for dynamic competition to receive attention by competition economists occurred at the time when the Chicago School bequeathed to the world the field of law and economics in the 1960s; but the opportunity was missed. Chicago made a magnificent intellectual contribution to policy by injecting economics into the law. Nobel Laureate Ronald Coase's "The Problem of Social Cost" was perhaps the beginning of that new field.⁹ Insights and methodologies spilled over to the emerg-

ing subfield of antitrust economics. Microeconomic theory was employed to provide new and valuable insights.

Unfortunately, microeconomic theory, both back then and now, affords little room for incorporating technological innovation. In my own research I complained bitterly about this beginning in the late 1980's. When considered, R&D and investments in innovation were just costs with uncertain benefits. Efficiency, not innovation and growth, was seen as the pathway for the business enterprise to maintain competitiveness and deliver benefits to consumers. The standard tools of micro-economics under perfect or oligopolistic competition were often employed. Firms were viewed rather primitively as "production functions." Along the way, Robert Bork urged the antitrust community to use the model of perfect competition "as a guide to reasoning about actual markets," and to illustrate allocative efficiency.¹⁰ Table 1 outlines the underlying features and theoretical structures.

TABLE 1. Characteristics of Static and Dynamic Competition

FEATURE	STATIC COMPETITION	DYNAMIC COMPETITION
Intellectual Traditions	Neoclassical Economics	Capability, Complexity, and Evolutionary Economics
Engine of improvement	Efficiency	Innovation
Guiding principle	Equilibrium	Disequilibrium
Metaphor	Market Exchange	Managerial Asset orchestration
Managerial challenge	Well defined problem; profit maximization goal	Wicked problem solving required in VUCA environments; profit seeking goal
Rationality	Hyperrationality	Bounded rationality
Time horizon	Short run	Long term
System	Closed	Open
Method	Newtonian mathematics with Walrasian competitive equilibrium models; mathematical "hardness" favored over relevance	Computational economics, evolutionary modelling, statistical analysis, case studies; relevance favored over hardness;
Evolution of firms and markets	Stasis	Constantly transforming/evolving
Source of rents (profits)	Hicksian, Porterian	Ricardian (scarcity) and Schumpeterian (innovation)

⁹ Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

¹⁰ Robert H. Bork, *The Antitrust Paradox: A Policy At War With Itself* 60 (1978).

The post-Chicago antitrust revolution of the 1980s did little to change the direction of travel. Competition policy continued to rest heavily on neoclassical economics, and was heavily theory driven.¹¹ Stylized models of competition were embraced that left little room for innovation. When innovation was considered, the focus was always on how competition drives innovation. How innovation drives competition was ignored.

As competition policy became more theory-driven, the analytical tools used have tended to oversimplify still further hard-to-model empirical phenomena, such as the impact of innovation on competition. Game theory, for example, supplied general explanations for empirical regularities found in oligopoly markets, but has failed to give predictions reflective of the complexity of marketplace competition because it is dependent on unattainable exactitude in the specification of firms' strategies and timing of actions.¹²

The well-known, and elegant, modern theory of multisided markets has similar shortcomings. Multisided market theory has produced multiple efficiency and inefficiency possibility theorems, without however supplying clear policy guidance to real-world decisionmakers. And when economists have tried to be more empirical and moved to consider technological change, then, innovation has been measured by proxies like patent counts and R&D expenditure, which give at best crude insights and occasional clues about the complexity of the processes involved in innovation-led dynamic competition. While there has been some limited progress, static competition perspectives still dominate the analytical models employed in competition policy. Despite the explicit recognition of dynamic competition by the UK CMA, we are still far from the coherent paradigm change called for by some agency officials, as discussed below.

B. The Temptation of the Dynamic Competition Paradigm

The need for competition policy to consider dynamic competition has been apparent long before the advent of Big Tech firms and the emergence of the current debacle in competitive policy globally. In 1985, the former head of the

U.S. Department of Justice Antitrust Division, William F. Baxter, wrote “the contribution of technological advances to our economic well-being is very substantial when compared to the damage that could be caused by restrictive behavior the antitrust laws seek to halt.”¹³ In 1988, antitrust legal scholar Phil Areeda predicted that whether antitrust can meet the challenges of the next century depends on “It’s receptivity to the principles of efficiency, growth, and innovation.”¹⁴

25 years later, Federal Trade Commission (“FTC”) Commissioner Thomas Rosch found that circumstances had not changed very much. Attempting to explain why the enforcement agencies had failed to embrace dynamic competition, his candor was both revealing and concerning:

Antitrust enforcement has historically focused on static [rather] than dynamic analysis...for a number of reasons. First the antitrust community... both lawyers and economists...have far greater familiarity and comfort with static analysis rather than dynamic analysis. Second, there is less incentive for parties to take the time to develop arguments based on dynamic analysis. Third, there is the perception – right or wrong – that dynamic analysis is less well developed and less measurable than static analysis.¹⁵

Almost a decade later, Commissioner Christine Wilson of the FTC lamented again that frameworks that incorporated dynamic competition had been neglected noting that “the economic literature also acknowledges that innovation over the long run will deliver very large consumer welfare gains.” She went on to note that competition policy authorities “routinely struggle to account for dynamic effects.”¹⁶

Finally, about 5 years ago, the Organization for Economic Co-operation and Development (“OECD”) stressed that “the methodology of competition authorities should move from a focus on static competition towards dynamic competition” without, however, lessening their “commitment to the rigor

11 E.g. Jean Tirole, *The Theory Of Industrial Organization* (1988).

12 See Franklin M. Fisher, *Games Economists Play: A Noncooperative View*, 20 *Rand J. Econ.* 113 (1989).

13 William F. Baxter, *Antitrust Law and Technological Innovation*, 1 *Issues in Sci. & Tech.* 80, 82 (1985).

14 Phillip Areeda “Antitrust Law as Industrial Policy” in Jorde & Teece (eds) *Antitrust, Innovation and Competitiveness* Oxford University Press 1992.

15 J. Thomas Rosch, Commissioner, Fed.Trade Comm’n, Promoting Innovation: Just How “Dynamic” Should Antitrust Law Be? Remarks at the USC Gould School of Law 2010 Intellectual Property Institute (March 23, 2010), https://www.ftc.gov/sites/default/files/documents/public_statements/promoting-innovation-just-how-dynamic-should-antitrust-law-be/100323uscremarks.pdf.

16 Quoted in Eileen McDermott, *FTC Commissioner Christine Wilson Tells Patent Masters Attendees FTC v. Qualcomm Decision “scares me”*, IPWATCHDOG (September 11, 2019), <https://www.ipwatchdog.com/2019/09/11/ftc-commissioner-christine-wilson-tells-patent-masters-attendees-ftc-v-qualcomm-decision-scares/id=113222/>.

of evidence-based enforcement.”¹⁷ And in Beijing in 2018 Assistant Attorney General Makan Delrahim noted that:

“With an eye to promoting dynamic competition, I humbly submit that competition law enforcers around the world must give careful consideration to the interests that drive innovation, including by allowing innovation to reap the full rewards of their investments in research and development.”¹⁸

Areeda's, Baxter's, Rosch's, Wilson's, and the OECD's, and Delrahim's calls to integrate innovation and dynamic competition into policymaking have, with minor exceptions (such as the initial steps of the UK CMA), remained unanswered.

Models of innovation-driven competition have nevertheless been developed and understood outside of the field of economics... in the innovation management literature. Clay Christensen's “Disruption” model is outlined in *The Innovator's Dilemma*. He sought to answer two main questions: (a) why is durable competition advantage so difficult to maintain? and (b) is innovation really as unpredictable as many believe? His model was built from close observation of the disk drive, mechanical excavators, and integrated steel industries.

Management plays a key role in Christensen's model of dynamic competition. The dilemma he saw was that “the logical, competent decisions of management that are critical to the success of their companies are also the reasons why they lose their positions of leadership.”¹⁹ He remarked that:

“Disruptive technologies bring to a market a very different value proposition... generally disruptive technologies underperform established products in mainstream markets. But they have other features that a few (and generally new) customers value. Products based on disruptive technology are typically cheaper, simpler, smaller, and frequently more convenient to use.”²⁰

He noted that some companies tend to offer customers more than they would prefer to pay for. This overkill opens opportunities for new entrants to enter with lower price and

quality products, and then improve their performance in a manner that undermines the incumbent.

His model is akin to Schumpeter's, and it provides insights into some of the mechanisms of Schumpeter's creative destruction. Christensen showed that incumbent firms often fail to respond to competition from new entrants with low priced or quality products because doing so would cannibalize existing revenue and profit streams. Christensen, however, underplayed high end disruption i.e., some new entrants come in with high price points and migrate to lower prices, the opposite of Christensen's bottom up entry narrative. And whereas Kenneth Arrow assumed impenetrable entry barriers shielding a patent monopolist²¹, Christensen pointed to the soft “underbelly” of incumbents because of the cognitive blind spots of the incumbent's top management team. New entrants are not saddled with conventional managerial wisdom, established value networks, or existing technological performance trajectories to follow. That is why they often overturn the incumbents.

Interestingly, some version of the above is commonplace understanding in the field of (technology) management. These regularities appear to turn the standard model of static competition and industrial organization on its head. While established competition policy analysis tends to treat incumbency as a benefit, the (technology) management literature more often considers incumbency as a liability.

It should be noted that the (industrial) economics that informs competition policy puts far too much weight on incentives as an explanation for everything. While incentives are critical, they are not the only consideration that drives outcomes with respect to investment, pricing, output levels, etc. One can have heavy incentives to engage in certain actions and behaviors; but incentives alone do not dictate outcomes. Capabilities matter too, and these are shaped by the resources and assets at the disposal of the enterprise, as well as by an organization's history, its business model, and its strategy. These are among the considerations agencies must begin to examine.

At their core, many popular and accepted strategic management models embody a number of assumptions and propositions that are characteristic of dynamic competition.

17 OECD Secretariat, *The Impact of Disruptive Innovation on Competition Law Enforcement, Executive Summary of the Global Forum on Competition* (October 29-30, 2015), DAF/COMP/GF(2015)15/FINAL 08-Sep-2017 [https://one.oecd.org/document/DAF/COMP/GF\(2015\)15/FINAL/en/pdf](https://one.oecd.org/document/DAF/COMP/GF(2015)15/FINAL/en/pdf).

18 Makan Delrahim, Assistant Atty Gen., Antitrust Div., U.S. Dep't of Justice, Competition, Intellectual Property, and Economic Prosperity. Remarks before the U.S. Embassy in Beijing (Fe. 1, 2018) [hereinafter Delrahim, Competition], <https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-remarks-us-embassy-beijing>.

19 Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* xvii (1997).

20 *Id.* at xix.

21 For a discussion of the Arrow-Schumpeter distraction, see Petit & Teece, *op cit*, footnote 6.

Some are rooted in evolutionary theory. And most accept some version of an organizational capability theory of economic change, along with a behavioral theory of the firm. These models and others like them can no longer continue to be ignored by so many competition policy scholars and agency employees.

03

ENTER EVOLUTIONARY, COMPLEXITY, AND CAPABILITY ECONOMICS

Dynamic competition implicitly rests upon a theory of the innovating firm which is markedly different from the simple microeconomic models of firms which populate introductory, intermediate, and advanced economic textbooks. Textbook theories caricature the business enterprise as we know it. In this section we explore whether research in evolutionary economics and strategic management can help fill the void that exists (in the field of industrial organization/antitrust economics) with respect to the theory of the firm and its likely future evolution. Such a framework is necessary if one is to have any hope of doing meaningful “but for” or counterfactual analysis to assess potential and nascent competition, identify potential competitors, and otherwise give substance to a dynamic competition framework where innovation is the driver of competition, and where efficiency must take a back seat to efficacy.

A. Evolutionary (and Complexity) Economics²²

Concepts of competition are fundamental to both ecology and economics.²³ Notwithstanding, members of species sometimes cooperate in competing with other species e.g. killer whales herding seals in preparation for a kill. Mean-

while, the traditional economic view (e.g. Stigler) stresses rivalry, not cooperation. Nicholas Kaldor²⁴ & Teece^{25,26} among others have stressed the importance of cooperation and complementarities to the competitive process, and to innovation in particular.

Ecological theory is, however, not a perfect guide. It is perhaps better to think of the business organization not as a biological system evolving naturally, but as an economic entity guided and shaped by management, what one might call “evolution with design.” Evolutionary processes are the “blind” result of past events, not necessarily making species/organizations well suited for the future.

What makes an organization well suited for the future is not just its evolving ordinary capabilities, but also its dynamic capabilities, i.e. the ability to sense, seize, and transform and to shape the business environment, and not just be shaped by it.

With the above in mind, and as already noted, the basic notion of the advantage of incumbency in industrial economics must be turned on its head in many circumstances. The business firms that have been successful in the past are not necessarily best suited for the future where the business environment will be different. Indeed, with digital transformation, quite the opposite is likely to be true. So those that have survived today are not necessarily the fittest for the future, even if they are the fittest for the moment. Whether they stay fit depends very little on market structure and market power. It may not even depend that much on organization structure. However, it can depend critically on their (entrepreneurial) management, or lack thereof.

In biology, evolution is closely linked to reproduction and continuation. However, this is not necessarily so in business and economics, especially since business environments change much more rapidly than biological ones. The fittest in an evolutionary sense need not be the most efficient (optimizing a particular subgoal) but those balancing being fit for the present and being fit for the future. This balancing act requires strong dynamic capabilities. As the biologist Marian S. Dawkins notes “an animal that gathers

22 Certain branches of economics have influenced evolutionary theory. This is widely believed that the economist Malthus influenced Darwin’s “origins of the species” and the role of natural selection. Before reading Malthus, Darwin apparently believed that living things reproduced just enough individuals to keep population stable. With Malthus he came to understand that populations could breed beyond their means, leaving survivors and losers in the effort to exist. Darwin then understood that the variety he saw in the wild would leave some individuals better able to survive and reproduce.

23 Jack Hirshleifer, *Economics From a Biological Viewpoint*, 20 J.L. & Econ. 1 (1977).

24 Nicholas Kaldor, *Equilibrium Theory and Growth Theory*, in *Economics and Human Welfare* 273 (Michael J. Boskin, ed., 1977).

25 David J. Teece, *Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy*, 15 Res. Pol’y 285 (1986).

26 Antitrust, Innovation, and Competitiveness, Thomas M. Jorde & David J. Teece (eds.), Oxford: Oxford University Press (1992) and David J. Teece “Competition, Cooperation, and Innovation: Organizational Arrangements for Regimes of Rapid Technological Progress” *Journal of Economic Behavior and Organization* 18:1 (June 1992), 1–25.

food optimally... is so intent on feeding that it gets eaten by a predator.”²⁷

Optimality and efficiency are the concern of (static) competition; innovation and change are the focus of dynamic competition. Thus, evolutionary economics along with complexity economics²⁸ eschews a single-minded focus on market equilibrium in economies and refocuses instead on dynamic processes (that include irreversibilities) that effectuate economic change. Dynamic processes emerge from actions by diverse agents that are boundedly rational, and who learn from experience. Firms are guided by their past and by entrepreneurial leaders, not by internal shadow prices.²⁹ Market structure has little to do with outcomes.³⁰

B. The Capabilities Perspective

Evolutionary and complexity economics has significant overlap with the capabilities perspective. The capabilities perspective improves the explanatory and predictive power of evolutionary and complexity theories by making these approaches more operational. Capability theory respects basic principles from evolutionary and complexity theories while at the same time recognizing the role of management (and boards of directors), business models, and strategy. Evolutionary thinking has been influential in strategic management and has helped undergird the dynamic capabilities framework, particularly in its first iteration.^{31,32} In that early version, the capabilities perspective focused on the role of history in shaping the degree to which a firm can reconfigure its assets. Recognition depends on asset redeployment

and managements ability to orchestrate assets. It's not just about incentives. Capabilities matter, and they can be either strong or weak; and a firm's "evolutionary path ... is often rather narrow"³³ particularly if it has strong ordinary capabilities... but weak dynamic capabilities.

Note that accepted definition of dynamic capabilities ("an organization's ability to achieve new and innovative forms of competitive advantage given path dependencies and market positions") stresses the need to "integrate, build, and reconfigure *internal and external* competences to address rapidly changing environments" (italics added).³⁴ This has important ramification for M&A policy as it indicates the importance of strategic alliances and M&A activity to the maintenance of firm level competitive advantage, and hence to dynamic competition.

The dynamic capabilities framework recognizes that some firms can effectuate discontinuous organizational transformations.^{35,36} Entrepreneurial managers can search not just locally but widely for new opportunities and introduce routines more distant from existing ones than are typically contemplated in the evolutionary literature. Call it evolution with design — or even better, evolution with design, purpose, and strategy. Such (entrepreneurial) managerial behavior is the engine of dynamic competition. Figure 1 summarizes some key parameters that impact the speed and difficulty of change.³⁷

27 Marian Stamp Dawkins, *Unraveling Animal Behavior* 21 (1986).

28 Arthur, W.B. Foundations of complexity economics. *Nat Rev Phys* 3, 136–145 (2021).

29 A shadow price is an estimated price for an asset or resource inside the firm that doesn't have a benchmark market price. Shadow prices on one asset depends on the other assets that exist inside the firm and which are used with the asset in question.

30 The business enterprise is built by entrepreneurs and is an integral part of the market, and is the domain of non-priced assets. However, evolutionary economics and organizational ecology do not recognize strategy. Choices are only made when the company is founded.

31 David J. Teece & Gary Pisano, *The Dynamic Capabilities of Firms: An Introduction*, 3 *Indus. & Corp. Change* 537 (1994).

32 David J. Teece, Gary Pisano & Amy Shuen, *Dynamic Capabilities and Strategic Management*, 18 *Strategic Mgmt. J.* 509 (1997).

33 *Id.* at 524. The initial definition of dynamic capabilities is "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments." *Id.* at 516.

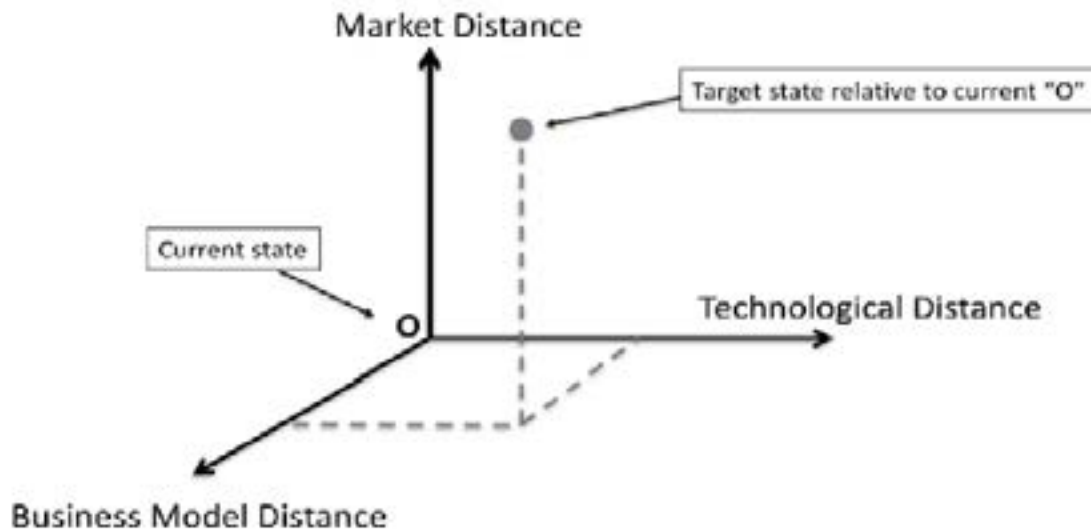
34 *Id.* at 516.

35 David J. Teece, *Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance*, 28 *Strategic Mgmt. J.* 1319 (2007).

36 David J. Teece, *A Dynamic Capabilities-Based Entrepreneurial Theory of the Multinational Enterprise*, 45 *J. INT'L BUS. STUD.* 8 (2014).

37 Figure 1 from David J. Teece, *A Capability Theory of the Firm: An Economics and (Strategic) Management Perspective*, 53 *N.Z. Econ. Papers* 1, 12 (2019).

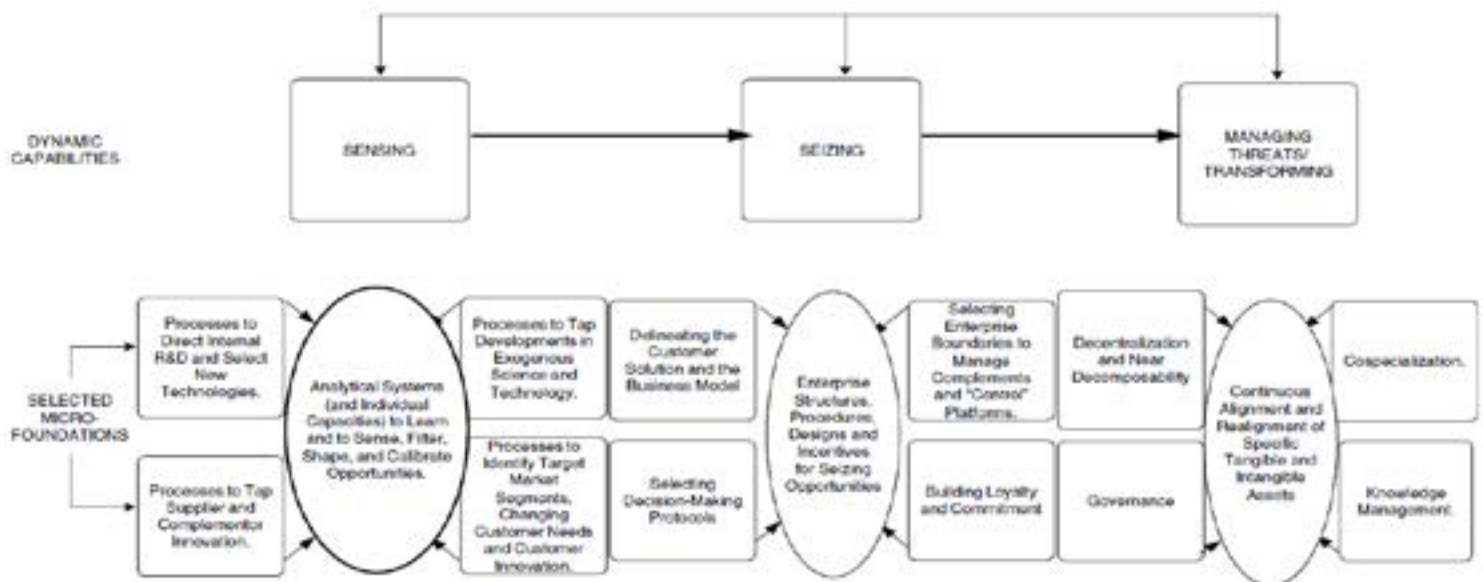
FIGURE 1. Three dimensions of "distance" impacting enterprise transformation



The trade-off between the cost and speed of change can be mitigated to some extent by advanced preparation in the form of creating a culture of innovation and resilience. An open, agile culture cannot be created overnight. Like absorptive capacity, it builds over time and lowers the cost – and expands the range – of future strategic choices.³⁸ Imposition of radical change in an organization that is not suitably prepared is likely to create problems that can potentially undermine strategic renewal.³⁹

Dynamic capabilities animate dynamic competition. The key clusters of activities that constitute dynamic capabilities can be categorized as sensing, seizing, and transforming.^{40,41} See Figure 2.⁴² These activities are the domain of the organization, under the guidance of top management and boards of directors. This highlights the fact that the actions and behaviors of management and boards can no longer be ignored. If competition policy is to embrace dynamic competition, it will now have to review the action and proclivities of management teams and boards of directors.

FIGURE 2. Foundations of dynamic capabilities and business performance



³⁸ Shaker A. Zahra & Gerard George, *Absorptive Capacity: A Review, Reconceptualization, and Extension*, 27 Acad. Mgmt. Rev. 185 (2002).

³⁹ David J. Teece, *Strategic Renewal and Dynamic Capabilities: Managing Uncertainty, Irreversibilities, and Congruence*, in *Strategic Renewal: Core Concepts, Antecedents, and Micro Foundations* 17-48 (Aybars Tuncdogan et al. eds., 2019).

⁴⁰ Teece, *supra* note 32.

⁴¹ David J. Teece, *Dynamic Capabilities: Routines versus Entrepreneurial Action*, 49 J. Mgmt. Stud. 1395-1401 (2012).

⁴² Figure 2 from Teece, *supra* note 32, at 1342.

Sensing, in the dynamic capabilities context, is the ability, under Knightian uncertainty, to either recognize opportunities before they are fully apparent or, in some cases, create new ones.⁴³ While there are underlying routines, the signals that feed into them should come from near and far, leaving it to the relevant decision maker(s) to make sense from them, as a prelude to making strategy.

In the dynamic capabilities framework, *seizing* involves execution. That in turn involves the implementation of business models, the orchestration of assets including data, the achievement of strategic alignment, and the setting of firm boundaries, and the making of investment commitments.⁴⁴

Dynamic capabilities allows and requires proactive managers to effectuate organizational *transformation* in anticipation of environmental change, not waiting to adapt to changes after they occur. The development of firms is not by any means completely path dependent or limited to best-practice or equifinal routines. Instead, distinctive, higher-order routines, rules of thumb, and/or managerial approaches lead to distinctive evolutionary paths. Excellence not only in search (“sensing” in dynamic capabilities terms) but also in sensemaking (Teece, 1998) affords the firm the opportunity to stay ahead of competitors and to animate dynamic competition in multisided marketplaces. When other factors are not decisive, the dynamic capabilities of the top management team may need to come into focus in the merger review process. Antitrust/competition economics needs to embrace capability considerations, difficult as this may be. The headlong rush to learn and apply platform economics will fall very short if its not coupled to an understanding of capabilities, how they develop, how they evolve, and how they matter.

04

THE POTENTIAL COMPETITION DOCTRINE AND ITS (LIMITED) EVOLUTION

A. Introduction

The UK CMA notes that “unilateral effects may also rise from the elimination of potential or dynamic competition.”⁴⁵ It goes on to note that “existing firms and potential complementors can interact in an ongoing competitive process, and a merger could lead to the loss of dynamic competition.”

Antitrust analysis in the tech sector has struggled for almost a century to develop a robust theory of potential competition and it is encouraging to see the CMA grapple with the problem. It has become an important topic because of allegations that some competition agencies have allowed mergers of companies that were nascent or potential competitors that could have become actual competitors to established platforms. Of course, if one accepts the notion -- and I do not -- that path dependency and first move advantages lead inexorably to dominance -- at least once the market has tipped -- then there is little value to preserving the independence of a potential competitor, at least not post any supposed tipping point. The reason is that it would be irrelevant as nothing could stop the incumbent platform juggernaut. However, the notion of inexorable dominance is not empirically valid in the platform economy as Evans & Schmalensee⁴⁶ and others have demonstrated; so potential competition can still be effective. In the context of platforms, this means that new entrants/small firms can siphon off users; it also means that their very presence can help condition the behavior of incumbents.

In the United States, Clayton Act Section 7 applies not only to mergers between actual competitors, but also mergers with potential competitors. This is true especially when there are few or no other potential competitors “waiting in the wings.” With the 2010 U.S. merger guidelines, it was recognized that mergers between potential competitors raise horizontal, not conglomerate concerns. The guidelines recognize that if there are plenty of potential competitors waiting in the wings, the elimination through mergers of one such competitor is of no moment.

As noted, there has been almost no development or advances for a century to the theory of potential competition despite the obvious importance of the topic, not just to entry analysis but to the understanding of new enterprise development. The topic is poorly developed because the field of economics ignores the capabilities of firms (or assumes they are all the same... though perhaps they may have different costs and likely future trajectories of development). Neoclassical

43 Constance E. Helfat & Margaret A. Peteraf, *Understanding Dynamic Capabilities: Progress Along a Developmental Path*, 7 Strategic Org. 91 (2015).

44 Aspects of these activities can be found by reading between the lines of the evolutionary literature, but they are certainly not given the full attention they merit in terms of their strategic importance. More importantly, evolutionary economics gives too little attention to the dimension of time, particularly the urgency needed for effective seizing.

45 OECD Secretariat, *supra* note 18.

46 David Evans & Richard Schmalensee, *Matchmakers: The New Economics Of Multi-Sided Platforms* (2016).

Economists prefer to frame the impact of potential competition merely in terms of limit pricing. This is very much an industrial age perspective and a highly stylized and very limited view of potential competition that once again ignores innovation and disruption. Furthermore, it ignores the capabilities of individual firms... both incumbents and new entrants.

The capabilities of firms are clearly relevant to the assessment of potential competition but as noted are generally ignored. A firm specific inquiry is required. The OECD's assessment of the *status quo* is that: "Competition agencies do not know the probabilities, nor the possible actions." The agencies nevertheless somehow supposedly make an assessment. Hopefully they look at internal documents, but without some type of framework for assessing capabilities, it is hard to image that any kind of sound analysis takes place.

What is required is a framework for counterfactual analysis: but for the merger, would a potential competitor emerge and enhance competition in the industry? The fundamental question to answer is "What is the strength of the competitive threat that the nascent rival would pose?" To answer this question, a new set of concepts and tools are needed, and this is the focus of much of the rest of the paper. The analysis is done from a dynamic competition perspective.

B. Current State of Play on Potential Competition

The long and short of it is that the potential competition doctrine is hollow, and the courts have not put weight on it. Competition economists have not yet been able to put substance into it. Looking just at the incentives that a rational new enterprise faces is insufficient. Capabilities and their likely future evolution matter. The absence of such considerations in the theory of potential competition is not the result of Chicago School economics, as some might claim, but of the dominance of static (neoclassical) economics in which the firm is still largely a black box.

Being bereft of any helpful theories, courts have quite sensibly generally tried to conduct factually oriented inquiries concerning whether firms were poised to enter a market. They have tended to look at (1) competition in a relevant market and trends (2) business attributes of the alleged potential entrants and (3) decisions and actions that the identified potential entrant has taken in the recent past. The focus is very rarely (perhaps never?) an investigation of the attributes of the potential competitor nor an assessment of the likely evolutionary path of the business or of the development of their capabilities. This is not because such an assessment is irrelevant. Rather, it is because it is difficult. There is no help from mainstream economic theory and few academic

or agency economists have studied the business and managerial literature where important clues can be found.

A new and better approach would require assessing the organizational capabilities of the potential competitor along with its financial wherewithal and the basic economics at work (e.g. scale, scope, and network effects). These issues are important enough that the enforcement agencies and competition policy scholars must now begin to rise to this challenge.

05

OPERATIONALIZING A DYNAMIC COMPETITION/ DYNAMIC CAPABILITIES PERSPECTIVE FOR ASSESSING POTENTIAL COMPETITION AND PLATFORM MERGERS AND ACQUISITIONS

In general, technology driven businesses and marketplaces are fundamentally different from low tech companies. The rate of technological and organization change is high, and entry is common. Capabilities can be augmented through R&D and through acquisition. Data lakes and data pools often matter a great deal.⁴⁷

A. Relevance of Big Data Orchestration Capabilities

Platform mergers and acquisitions are often driven by the ability of a platform leader to bring deep data orchestration capabilities to other circumstances. Economics of scale and network effects are also important considerations. All three together along with strong dynamic capabilities are needed to create winner-take-most situations. With access to data and advancements in artificial intelligence and machine learning, user/customer data stored, analyzed, and combined and recombined can be used to enhance services and provide more tailored or personalized services, and better matched services to other users on the platform. In economic terms, these technologies help enhance economies of scope. As I noted elsewhere,⁴⁸ in order to be able to access economies of scope, integration (i.e. common ownership) is sometimes required. If contractual arrangements are possible, and the tar-

47 See C. Baden-Fuller, J. Blair, & D. Teece "Evolution or Disruption in Consumer Goods Industries: The role of Distributed Service Providers and their Dynamic Capabilities" *California Management Review*, forthcoming

48 David J. Teece, *Economics of Scope and the Scope of the Enterprise*, 1 J. Econ. Behavior & Org. 223 (September 1980).

get entity is otherwise viable, a strategic alliance may suffice. However data driven economies of scope are obtained, they enrich platform ecosystems because they enable further platform expansion. Insights gleaned can be utilized horizontally (in adjacent markets) and vertically. With respect to horizontal, it can enable “broad spectrum competition” i.e. projection into complementary marketplaces. With respect to vertical, data can be used to compete with upstream producers. As Parker & Van Alstyne note, “mobile operating platforms have entered lucrative upstream applications such as music streaming, mapping, news provision, and fitness. Amazon frequently enters the markets of its suppliers.”⁴⁹

Network economies and economies of scope mentioned above are also augmented in the platform context by economies of scale because of the fixed cost nature of information services. The marginal cost of supplying another customer is often close to zero, once the digital goods are created. These three potential economies can advantage established platforms, but only so long as they are adept at managing the platforms and the associated business.

B. The Blurring of Traditional Distinctions⁵⁰

Structural analysis still matters in the digital economy; but it is no longer just market structure. A structural analysis of digital markets is incomplete without both an analysis of all the structures (e.g. ecosystems, markets, institutions) and capabilities that matter.

In digital industries, products that are imperfect substitutes or complements often compete against each other dynamically for user demand.⁵¹ Much anecdotal and empirical evidence shows that competitive pressure arises from non-substitute products, services, and business models that modify the relative preferences of users, raise the opportunity cost of present product consumption, and shift the demand curve for existing products inward. For example, users experienced lower relative utility from consumption of (i) desktop computers with the introduction of mobile phones; (ii) web browsers with the development of search engines; and (iii) comparison shopping websites with the growth of merchant platforms. Unfortunately, conventional

market definition methods that focus on actual (static) patterns of user substitution between rival products tend to discount that potential (dynamic) constraint.

In short, not only are traditional distinctions between horizontal and vertical blurred in ecosystems; the distinction between complement and substitutes is also blurred, rendering typical competition analysis of very limited value. A misplaced focus on static patterns of substitution has been clearly in display in the EC Google Android decision. Here, the EC held that Google did not compete with Apple in smartphone operating systems (“OS”) on the ground – among other things – that Apple’s iOS was not licensed to third party OEMs. The EC market definition is inconsistent with historical evidence showing that Android entry stole smartphone users from Apple despite their distinct business models, and with contemporary evidence suggesting that both ecosystems compete for users by product differentiation on choice variables like privacy.⁵² The EC market definition in *Google Android* also leads to curious implications such as the idea that a merger between Apple and Google in smartphone OS would be *prima facie* unproblematic, absent actual horizontal overlaps.

The problems of static market definition might be mitigated by a revamped doctrine of potential competition. The term “revamped” is used because the conventional assessment of potential competition determines whether firms located in other markets or industries have incentives to repurpose assets to compete deploying close-to-perfect substitute products with established firms. In digital industries, firms compete by indirect entry.^{53,54} The dominant mode of competitive attack consists in supplying differentiated products,⁵⁵ complements, or “new combinations.”⁵⁶ In particular, competitive pressure might be exercised by products relying on different technological infrastructures or supported by distinct business models, or supplied through specialized vendors. Head-to-head entry with very similar products is often difficult, or even completely unwise. Non-rival competition is the rule, not the exception.

The reason for the greater ease of leveraging complements to produce competition than substitutes is easy enough to

49 See Parker, G., G. Petropoulos, M. Van Alstyne “Platform Mergers and Antitrust.” *Industrial and Corporate Change* (2021), (p3).

50 This section draws upon Petit & Teece, *supra* note 7.

51 Ron Adner & Marvin Lieberman, *Disruption Through Complements*, 6 *Strat.Sci.* 91 (2021).

52 Nicolas Petit, *Big Tech and The Digital Economy: The Moligopoly Scenario* (2020).

53 *Id.*

54 Timothy F. Bresnahan & Shane Greenstein, *Technological Competition and the Structure of the Computer Industry*, 47 *J. Indus. Econ.* 1 (1999).

55 Pleatsikas & Teece, *supra* note 5.

56 Joseph A. Schumpeter, *The Theory of Economic Development: An Inquiry Into Profits, Capital, Credit, Interest, and the Business Cycle* (Redvers Opie, trans. 1934).

see. There are limited switching costs to complements on the user side. Users benefit from adding additional functionality to an existing product. By contrast, there are often switching costs to substitution on the user side due to the loss of sunk experience, learning, convenience, etc. (all the more when multi homing is not possible). A rational supplier thus quickly understands that there may be more short-term user surplus to extract from complements than substitutes.

Moreover, in the mid to long term, value can shift from the core product to the complement, as incremental improvements are introduced. A complement supplier can thus adopt a two-stage strategy that consists in breaking first the entry barrier of an ecosystem with a complement, and then attacking the insulating barrier that protects the core product. The end game may be one in which all the value is siphoned away from the core product. Accordingly, one should view ecosystem competition from a 360° perspective. There is a certain amount of rents. Competition is vertical, lateral, and horizontal. Competition is for rents, not users, *per se*. Though this lens complementors compete along with direct competitions.

With this in mind, the correct approach to potential competition and entry analysis more generally consists in putting more weight on Schumpeterian factors that keep nominal “monopolies” under competitive pressure. This has two consequences, one on market definition, the other on potential competition predictors. To start, because technological competition requires a longer time period to unfold than price competition, the boundaries of any market assessment must comprise all entrants with a potential entry path over a 4-year period (when applying the SSNIP test⁵⁷). In assessing products and services that are likely to gain traction in the next few years, one must look beyond the traditional domain of substitutes and examine new services which might leverage complements or entirely new technologies. Market definition is no more than a tool, a method, and is not always a necessary step. As one court noted, “A market definition should ‘recognize competition where, in fact, competition exists,’ and should include all significant competition even though that competition differs in form or nature.”⁵⁸

Second, potential competition should not focus just on supply side substitution possibilities, but on technology “peers.” The inquiry should in particular focus on the magnitude of the technological capabilities of competitive peers, the disciplinary effects of the R&D programs of competitive peers even if new products are not yet in the mar-

ket, and the magnitude of other competitive peer’s patient capital.

C. Ecosystems (versus Relevant Markets) as Linchpin of an Operational Dynamic Competition Framework

I now turn to the difficult task of assessing capabilities and the viability of entry by a firm not currently a competitor, but which might nevertheless be (provisionally) thought of as a potential competitor.

It is sometimes alleged that incumbent (pharmaceutical) firms acquire innovative targets with the goal of shutting down their innovation projects and preempt future competition leading to “killer acquisitions.”⁵⁹ One study showed that acquired drug projects are less likely to be developed after being acquired.

The comparison with pharma is quite inapposite. The nature of competition is quite different with technology platforms and there is far less clarity as to the evolutionary path of a technology firm. With the FDA process, it is very transparent to incumbent pharma companies what the potential new entrant will be putting into the market.

In the context of platforms, competition can no longer be meaningfully assessed with the help of relevant (antitrust) markets. This is not only because multiple markets may be implicated (in the context of n-sided markets) but also because platform business models often result in certain sides being provided “free” (e.g. Google search) while other sides pay. In the case of search, it is the advertisers. Furthermore, the innovation that takes place and the dynamic competition that results is not just the result of the efforts of the platform owner/leader/conductor, but is also of the results of the efforts of many third parties such as app developers. Hence, adopting dynamic competition as the standard requires that one focus on the health of the ecosystem.

An ecosystem enables complementary products and services through collaboration with other companies or business units. Uber began with ride sharing but then added Uber Eats, Uber Health, Uber, and Jump Bike. Ecosystem expansion benefits both providers and consumers as it is more convenient to order services on a sample platform. With ecosystems, data is often shared between the platform leader/conductor and ecosystem partners. In strong ecosystems, partners do not just transact; they interact. Data is sometimes shared even beyond the ecosystem to external partners that can help improve the customer experience.⁶⁰

57 See Pleatsikas & Teece, *op cit* 2001

58 *Transamerica Computer Corp. v. International Business Machines Corp.*, 481 F.Supp. 965, 978 (N.D. Cal. 1979), citing *Brown Shoe Co. Inc. v. United States*, 370 U.S. 294, 326 (1962).

59 Colleen Cunningham, Florian Ederer, & Song Ma, *Killer Acquisitions*, 129 J. Pol. Econ. 649 (2021).

60 Erich Joachimsthaler, *The Interaction Field: The Revolutionary New Way to Create Shared Value for Businesses, Customers, and Society* 21-38 (2020).

With ecosystems, standard upstream/downstream distinctions blur. As Parker & Van Alstyne note, “users create value for other users, as in the case of user generated content, and suppliers create value for other suppliers as in the case of shared developer files.”⁶¹

A fundamental question which can help guide competition policy is to ask whether the merger/acquisition improves the health/robustness of the ecosystem by augmenting the business/technology/skillset of another ecosystem member/participant. Even if it is the dominant ecosystem which is doing the acquiring, having it improved with respect to innovation and expansion will help all constituencies in the ecosystem, unless the ecosystem leader extracts “too much” of the rents. In assessing this question, it is necessary to ask whether the rents at issue are Schumpeterian, Ricardian, or pure monopoly (Hickian). This is a conceptual distinction made by Teece and Coleman and now needs to be operationalized.⁶² If value capture goes beyond Schumpeterian and Ricardian, it may weaken the ecosystem. Accordingly, it is somewhat important to have assurances with respect to the stewardship of the ecosystem; and with respect to an established platform, that is best assessed by examining the past stewardship (or lack thereof) behavior of the platform owner/leader/conductor.

Thus, a prelude to assessing the impact of M&A transactions on innovation and competition, one must ask whether the ecosystem will be harmed... harmed in the sense of reduced innovation, and/or whether the experience of users (convenience, choice, etc.) is compromised, or whether the opportunity for complementors to add complementary services is impaired in some way.

D. Distorting or improving the allocation of venture capital?

Various theories have also been raised about how M&A activities impact the venture capital funding of new entrants. The availability of lucrative exits conditions the flow of venture capital and stimulates the availability of funds and advice for new enterprise development in the ecosystem. On the other hand, platform leaders can also “hollow out” startups through predatory behavior of one kind or another, including certain types of acquisitions... particularly ones that simply shut down the new technology... or just put it on the shelf.

Yet another argument lurks in the background. It is the argument that even if the incumbent platform does not undertake any traditional anti-competitive actions, the reduc-

tion in prospective payoffs to entrants creates a “kill zone” where entry is hard to finance because the upside is somehow taken away by technology acquisitions.⁶³ The claim is that market entry rates and the supply of venture funds... decline in what is the “target” or kill zone for the platforms. A popular narrative is that once the big tech firm has made one such acquisition, it is unlikely to make another. Some claim evidence a “drop off” in venture capital investments in startups in sectors where Facebook and Google make major acquisitions. The implicit accusation in this narrative is that the founders’ discount rate is too high, due to a variety of factors. Systemic underpricing of IPOs is one of them. Taxation also plays a role. Big tech incumbents’ market power might be yet another factor.

Tim Wu has amplified this killer app narrative with his use of the “Kronos effect,” which supposedly hurts innovation, efficiency, openness, and decentralization.⁶⁴ However, without a theory of dynamic competition, it’s not clear that Wu’s prescription of “overregulation” to prevent practically all M&A makes any sense whatsoever. Wu believes that AT&T pre the 1984 divestiture was suppressing innovation when it was, in fact, actively driving it with tremendous innovation stemming from Bell Labs. His account is wrong there, and is likely wrong elsewhere.

None of these theories carry much weight unless combined with an assessment of the “but for” likely growth trajectory of the target potential competitor. Needless to say, this is a difficult challenge that even venture capitalists and management teams often have difficulty fathoming. However, it’s not an impossible task; but error must be accepted as likely. Enforcement agencies can no longer shy away from it; it will undoubtedly take time to develop expertise, and some form of burden shifting in the analysis may well be required, at least initially.

06

SOME SPECIFIC CRITERIA AS APPLIED TO ASSESSING M&A

Competition is a means to an end; it is not the end in and of itself. This is particularly true in the platform context. Evo-

61 Van Alstyne, Marshall W. & Geoffrey G. Parker. “Platform Business: From Resources to Relationships.” *NIM Marketing Intelligence Review* 9 (2017): 24 - 29.

62 The former is desirable as they reward socially desirable activity. The latter likely to be objectionable. See Teece & Coleman, op cit, footnote 3

63 Sai Krishna Kamepalli, Raghuram Rajan, & Luigi Zingales, *Kill Zone* (Nat’l Bureau of Econ. Res., Working Paper No. 27146, May 2020).

64 Tim Wu, *The Master Switch: The Rise and Fall Of Information Empires* (2010).

lutionary, capability, and complexity economics teaches us that equilibrium analysis is likely highly misleading, suggesting that a good deal of standard antitrust economics needs to be thought about much more carefully. Mergers and acquisitions are an inevitable part of asset orchestration, which is enabled by M&A. M&A is not primarily about efficiencies but about innovation and capability enhancement. The language of efficiency needs to be expunged in the context of innovation. Innovation and (static) efficiency are usually at odds with each other.⁶⁵

The fundamental question to ask when assessing an acquisition is whether it will harm dynamic competition (and innovation) within and across ecosystems. The answer to this can be illuminated by recognizing that:

- a) The ecosystem (not the “relevant market”) should be the domain of inquiry;
- b) Efficiency is decidedly secondary; innovation ought be the primary welfare criterion.⁶⁶
- c) If there are multiple sides to the platform, benefits to all sides should be evaluated; and because pricing is not the only parameter that constituents care about, then access to services, integration of services, value of services and efficiency of ads, etc. should also receive limelight. This is necessary because horizontal and vertical distinctions are blurred anyway. In assessing the market power of Big Tech, recognize that they all compete across traditional (relevant) market boundaries; so traditional HHI market thresholds are meaningless.
- d) Distinctions between vertical and horizontal markets no longer meaningful as lateral firms (complementors) can become competitors too, and they must be assessed when calibrating the strength of potential competition.
- e) Enquiry is necessary into whether the acquired entity be (i) shut down (ii) left alone (iii) integrated All but (i) are good. After an M&A transaction, capabilities are not lost to the ecosystem (assuming no shut down). If the acquired entity remains in the ecosystem, and is better integrated into the platform, it likely makes the ecosystem more robust and competitive. If multihoming exists prior to acquisition, will it continue post acquisition?

- f) The higher the degree of alignment between the acquiring firm and the target, the greater the scope for benefits. Capabilities are more easily integrated when they are similar. The younger the target, the more malleable and more easily it is likely to be integrated, thereby improving the performance of the ecosystem.
- g) If the platform leader/conductor is the acquirer, what is their track record with respect to nurturing innovation in the ecosystem. If it has a good track record, that helps. If it buys companies and snuffs them out, the agencies are entitled to be skeptical. If it predated against competitors, that is not good. Does it respect other companies’ (startups) intellectual property rights or not? Since intellectual property is an important way for new entrants to compete with incumbents, this is an important consideration. While static analysis (in principal) pays little or no attention to history, evolutionary approaches recognizes that “history matters.”
- h) In the case of mergers and acquisitions of new entrants, consideration ought to be given to the unique positioning of the target and the positioning of other potential entrants too. However, uniqueness should not be overplayed, unless it is a firm that has been around a while, because new enterprises can pivot.⁶⁷ Most startups pivot several times before they find their footing. And often, even after they find their footing. As recognized by the dynamic capabilities framework, the key lies in recognizing when it is time to pivot. History matters, but it is not determinative.
- i) Since conventional structural analysis is not meaningful, the analysis of competitive effects is still the way to go... but we must get more flexible about it and introduce ecosystem robustness as the key metric by which to assess competitive effects. Reversions to yesterday’s structural thresholds is not the way out. Nor is the trotting out the analysis of traditional competitive effects (price and output) all that meaningful anymore.
- j) Diversification via M&A that builds upon or extends existing capabilities is a form of diversi-

⁶⁵ Tim Wu, *The Master Switch: The Rise and Fall Of Information Empires* (2010).

⁶⁶ Inasmuch as US anti-law accepts consumer welfare as the goal of antitrust, long run consumer welfare is a good transition criteria because innovation is the primary driver of economic growth and long run consumer welfare.

⁶⁷ Sometimes this can be facilitated by using a hackathon in which employees are brought together and challenged to produce new ideas. Often, they are used to solve a narrow problem; but they can also be used to figure out what to do next. Using this tool, Odeo became Twitter.

fication that a capabilities-based competition policy view as meritorious.^{68,69,70} By contrast, competition policy should adopt less permissive standards towards diversification in areas in which a firm has a low capabilities position. Missing capabilities can often be remedied by M&A activity; blanket prohibitions in mergers are therefore likely damaging to innovation.

07

THE GIPHY ACQUISITION – HARMING DYNAMIC COMPETITION?

An issue that the CMA is actively considering is whether Giphy was or would (or could) become a realistic potential and/or actual competitor to Facebook with respect to display advertising.⁷¹ The concern is that the removal through merger of such a competitor (removal from the markets as an independent entity but not from the Facebook or other ecosystems) would harm dynamic competition.

To assess “competitive effects” it is useful to focus on “innovation effects” as a surrogate. To do so, we must also consider the role of Giphy in the Facebook ecosystem. If it remains in the ecosystem... even if under the control of Facebook... then if it is still innovating, it is still impacting competition and generating consumer benefits, and it is even possible that Giphy could continue to bring competition to other parts of Facebook, although its ability to do so would be at the discretion of Facebook management.

Giphy is an online database and search engine that allows users to search for and share short looping and sometimes loopy videos with no sound. It was founded in February 2013 as a website with a search engine. By August 2013 it had expanded beyond a search engine to allow users to post, embed, and share Graphics Interchange Format (“GIF”) digital images on Facebook and other services. Users can search

the Giphy website using keywords to choose a GIF from among displayed search results. More commonly, however, services like Facebook, Snapchat, and text messaging allow users to add GIFs, including GIFs provided by Giphy via the Giphy APIs.

Giphy was recognized as a top 100 website in 2013 by PC magazine. Three months later, it also integrated with Twitter. Access to Giphy GIFs is often embedded in apps, allowing users to instantly find and share the right GIF. Giphy is now broadly integrated into other products and services, including on the iOS keyboard. The purchase by Facebook in 2020 was reported at about \$400m, whereas the last venture money was raised at \$600M. Ownership of Giphy by Facebook enables it to enhance its user engagement.

Before the Facebook acquisition, Giphy was a leading search engine for 6-second videos, but Giphy had and has direct competitors such as Tenor. Tenor was purchased by Google in 2018. At the time, users were searching for GIFs on Tenor’s keyboard 12 billion times per month.⁷² Other competitors include Gfycat, Imgur, Holler, and Vispay. There is also a recent entrant – Heypster.

Whereas Giphy was started with 15000 GIFs but now has more than 1 billion; it also has several hundred million daily users via its website and API access from other services. However, its business model was not proven at the time of the Facebook acquisition. One can define a business model as follows:

“A business model articulates the logic and provides data and other evidence that demonstrates how a business creates and delivers value to customers. It also outlines the architecture of revenues, costs, and profits associated with the business enterprise delivering that value.”⁷³

It appears from a distance that none of these elements had been well thought out and properly developed/implemented by Giphy.

At the time of the Facebook acquisition, the 7-year-old company had raised over \$150.9 million in venture capital, but it still had a rather clumsy and unproven advertising model. It would host GIFs for brands and let them pay to promote

68 Teece, *supra* note 43.

69 David J. Teece, *Towards an Economic Theory of the Multiproduct Firm*, 3 J. Econ. Behavior & Org. 39 (1982)

70 Teece, Pisano, & Shuen, *supra* note 29.

71 Decision of 30 Nov <https://www.gov.uk/cma-cases/facebook-inc-giphy-inc-merger-inquiry>.

72 Lynley, Matthew, *Tenor hits 12B GIF searches every month*, TechCrunch, February 20, 2018.

73 David J. Teece, *Business Models, Business Strategy, and Innovation*, 43 Long Range Planning 172 (2010).

them in search returns. This generated a very modest (experimental level) income from advertising.⁷⁴

Giphy apparently tried to line up licensing deals with media producers and music companies to become a content distribution company. This approach to monetize its services was not sufficient to develop a robust business for Giphy. The fundamental business model problem the company struggled with, but never solved, lay in using someone else's original content. Such usage undermines a copyright owner's ability to control derivatives of their work, and where and how their work is shared, and their right to receive proceeds. This does not impact individuals, but it is an issue where commercial use is concerned. Furthermore, Giphy was not positioned to monetize its services through consumer use or providing advertising to its users. Though its search engine may have hundreds of millions of daily uses, these are mostly through users of other services accessing GIFs through Giphy's APIs. When accessed via Giphy's APIs, the users are not Giphy customers, but rather are customers of Facebook, Twitter, Snapchat, or the other services being utilized by the consumer. Giphy may know little about its individual users,⁷⁵ and it is difficult for a provider like Giphy to monetize its service when users are not its customers and it knows little or nothing about them. In addition, users add GIFs to pictures to personalize them and do not expect to see advertisements within their personal messages.⁷⁶

Social media platforms like Giphy and Facebook develop services they hope will attract a critical mass of users. They then seek to attract a second 'side' to the platform... usually advertisers. Advertisers pay to display ads to those users. A large user base and resulting attention from advertisers also spurs activity on a third side i.e., content publisher, who use the platform as a distribution system. Content publishers then share advertising revenue with the platform that steered the traffic. The user does not pay cash but provides attention to the platform and allows the platform to collect personal (behavior) data about the user that assists in selling advertising targeted to that user. Targeted advertising is a good thing... users find it informative. Because it serves results to users via other services

that access its APIs, Giphy is not positioned to develop a second side to its platform.

In short, Giphy had a defective business model, and there was no easy way to repair the lacunae. It was a company that had not found its footing. It had very limited capabilities. Its only asset was a user base; but that was hardly a user base that could be used to take on Facebook. Its product was useful across multiple platforms, making it an asset that Facebook had used – Facebook represented a large fraction of Giphy's overall traffic – and that traffic could grow.

In terms of effects analysis, Giphy's performance pre-merger did not establish that providing ads in GIFs was a viable substitute that would divert advertising business from Facebook. It is not enough to simply assert or hypothesize that Giphy might be a potential competitor to Facebook.

A dynamic competition analysis would consider whether Giphy had a credible capability to develop a competing advertising business but-for its acquisition. In the absence of a viable advertising business model and a capability to develop an advertising business, an acquisition of Giphy by Facebook would not have the potential to harm advertising competition. Furthermore, Giphy's acquisition will not likely harm dynamic competition if innovation in the ecosystem is not harmed by the acquisition. This would follow if: (a) there is plenty of existing competition and (b) there are other likely or possible competitors and (c) Giphy left alone would not be a viable competitor to Facebook (d) Giphy stays viable in the ecosystem, albeit as part of Facebook. Innovation overall benefits if Giphy remains active and innovating, and in competing entities like Google's Tenor continues to innovate in response. In addition, it is not appropriate to consider a "but for" world where Giphy will be purchased by someone else unless there is clear evidence that there is an active and viable alternative purchaser.

Absent an acquisition, Giphy would most likely have failed, resulting in its potential future innovations being lost. It is not evident that there were other qualified bidders... or that any alternative buyer would have been able to maintain Gi-

74 According to Facebook: "Absent the Transaction GIPHY would only have received reduced funding from investors sufficient to continue in survival mode. [...] the circumstances dictated a requirement for scaled-back GIPHY operations thereby making it highly unlikely that GIPHY would have had the means to grow its revenue business, including by expanding into the UK. The record shows that GIPHY was considering substantially reducing, or even eliminating, its revenue-generating activities absent the Transaction." (para 5.3a) https://assets.publishing.service.gov.uk/media/616022d6d3bf7f55fd843b10/Facebook_GIPHY_Parties_Response_to_PFs_2_September_202.pdf.

75 The CMA's summary of its interviews states, "Most Platforms understood GIPHY to receive minimal data through their API integration, in most cases limited to the search query (ie keyword(s) or search term(s)) and IP address of the users." "Completed Acquisition by Facebook, Inc. of Giphy, Inc. Summary of third party calls, p. 6, available at https://assets.publishing.service.gov.uk/media/60dc68ba8fa8f50abf416ef5/Summary_of_third_party_calls.pdf.

76 The CMA's summary of its interviews with advertisers and investors notes that "Finding a way for advertisers to get their messages into GIFs, given that users do not anticipate seeing adverts within their private messages, and ensuring that the content is sufficiently creative" is one of the "challenges" facing Giphy's advertising services. It lists other challenges to these services and notes advantages as well, including the ability to reach consumers in a messaging context, which is more difficult for advertisers to access. "Completed Acquisition by Facebook, Inc. of Giphy, Inc. Summary of third party calls, pp. 6-7, available at https://assets.publishing.service.gov.uk/media/60dc68ba8fa8f50abf416ef5/Summary_of_third_party_calls.pdf.

08

CONCLUSION

phy's independent status, let alone grow its capabilities to be able to take on Facebook. In short, it is not enough for there to be an alternative buyer for Giphy. For Facebook's acquisition of Giphy to harm dynamic competition, any alternative buyer must likely be able to enhance innovation employing Giphy's assets more than Facebook could.

If the threshold to compete with Facebook is as low as Giphy, there are no doubt scores of companies that are equally qualified as potential competitors. Giphy's products/services are still in the market; so there is likely an improvement in the user experience across all ecosystems/platforms.⁷⁷ That improvement is maintained/sustained by the acquisition.

Put differently, for the competitive effects of the acquisition to be negative, Giphy would, in the "but for" world, have to have:

1. Found additional venture capital resources and designed and implemented a viable business model.
2. Pivoted to something quite different from what it was... at least with respect to its business model.
3. Developed a management team with the audacity and skills to not just survive, and grow nicely, but take Facebook head on.

There is not much information available publicly, so my assessment is highly provisional; but at a first glance the chances of (1), (2), and (3) were close to zero in my judgement. There was very little chance Giphy would become an advertising giant that could take on Facebook. Instead, Facebook's acquisition of Giphy maintained Giphy's assets and furthered its innovation in Facebook's ecosystem, strengthening that ecosystem in competition with others; and via Giphy's APIs, strengthening the ecosystems of other service providers as well.⁷⁸

What is new and challenging with the dynamic competition paradigm is that we are going where competition economists haven't gone before, and opening up the black box of the firm. By not taking up this challenge 50+ years ago, learning has not occurred. As a result, antitrust analysis is not only static. It is silent when it comes to understanding the essence of what makes a potential competitor a viable entrant. It is not appropriate to say that the Chicago School got it wrong, and that the Neo-Brandeisians have it right. What is needed is a new dynamic competition-based set of rules that would refashion the assessment of competitive effects in the manner indicated here.

A new science of innovation, entrepreneurship, and competition has been emerging for some time. Our knowledge of venture capital, entrepreneurship, enterprise capabilities, business models, innovation, and complex systems is such that we are now able to look inside the firm and gain insight. It is not just about understanding platforms and network effects. We must also renovate the potential competition doctrine by creating frameworks that require and enable us to understand and assess organizational capabilities. There is now a field of organization economics, and there are also vibrant literatures on innovation and strategic management. The work of economic historians is also relevant,⁷⁹ as is the work on complexity economics cited earlier. Tapping into these literatures, integrating them, operationalizing them, and focusing them on competition policy issues will at minimum give economists and lawyers a better perspective on the *Facebook-Giphy* transaction and other M&A activity in the tech sector. ■

77 Third party services continue to have access to Giphy's GIFs via Giphy's APIs.

78 Facebook has indicated publicly that it will maintain third-party access to Giphy content via its APIs. See Shah, Vishal (Facebook VP of Product) "Facebook Welcomes GIPHY as Part of Instagram Team," May 15, 2020.

79 See, for example, Nathan Rosenberg "Inside the Black Box: Technology and Economics" Cambridge University Press 1982.



REGULATING NEW TECH: PROBLEMS, PATHWAYS, AND PEOPLE



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01

INTRODUCTION

Technology brings with it great promise for improving the quality of life. But it can create problems too. And when it does, society usually turns to regulators for help.

Although many of the problems with today's newest technologies are themselves new, they still have much in common with the types of problems that regulators have long addressed. Moreover, even in this era of new tech, the

main strategies available to regulators in the past will generally remain the same strategies available to them today. Regulators will continue to need to focus on understanding problems and the pathways that lead to them so that they can take action to shape the behavior of those in industry to avoid or reduce the problems that technology creates.

Most of all, regulatory agencies need to strengthen their organizations' capacities to oversee new tech firms vigilantly and efficiently. Toward this end, regulatory organizations will need to strengthen their own technological capacities. But most important of all, they will need, perhaps somewhat counterintuitively, to focus on building capacity in

terms of their *people*. The key to the successful regulation of technology is to find, train, and retain top quality people to fill the ranks of regulatory agencies, people who have the background and skills needed to understand the technologies they oversee and to regulate them effectively.

02

NEW TECH'S "PROBLEM" PROBLEM

Traditionally, the problems that regulators address have been defined in terms of market failures, such as imperfect competition, insufficient consumer information, and harmful spillovers. In addition, regulatory problems emanate from other normative concerns, such as fairness and equity. The problems created by technology still tend to fit within these longstanding categories of regulatory concern about market failures and other social values¹. As a result, the lessons learned in the past from both regulatory practice and scholarship can offer insight about overcoming the regulatory challenges created by technology today.

Yet one of the major challenges today stems from the diversity and dynamism inherent in an era of rapid innovation in technology and its application. The problems with today's technologies are themselves highly varied, changing, and often ill-defined.

"New tech," after all, is not a single, homogeneous product or process

"New tech," after all, is not a single, homogeneous product or process. It comprises a broad range of distinct technologies and applications that each in its own way may be transforming economic transactions and other activity — and each that comes along with its own social and economic concerns.² This variability might be considered the "problem" problem with new tech.

You can choose your own label, but innovations today constitute what has been variously called a new "digital economy,"³ "networked economy,"⁴ "sharing economy,"⁵ "platform economy,"⁶ "optimizing economy,"⁷ or even "zero marginal cost economy."⁸ The range of innovations today is stunningly broad, including cryptocurrency, artificial intelligence, social media, fintech, gig labor, autonomous vehicles, online retail, bioengineering, the internet of things, precision medicine, biometric identification, and more.

As varied as they are, today's technologies admittedly bear certain common threads. To different degrees and in different ways, they have all been made possible by advances in digital computing. These advances, for example, allow for the processing of large quantities of data using powerful algorithms that can be highly effective at finding patterns in data — often at remarkable speeds. The analysis of big data can allow for existing tasks to be automated, distributed, or organized in new ways, and these new techniques allow for altogether new forms of economic and social activity.

But from the standpoint of what is needed to regulate new tech, these broad commonalities will rarely be enough to bring them under a common, unified regulatory strategy. The heterogeneity and dynamic nature of new tech makes for a diverse, and at times vaguely defined, set of problems to be solved.

Consider that computer scientists and statisticians, for example, do not even always agree on precisely what they mean by terms such as "artificial intelligence" and "machine learning." Even when they agree on the scope of these terms, what travels under their banners can be ex-

1 For an illustration outlining the market failures associated with online services, see Ofcom, *Online Market Failures and Harms: An Economic Perspective on the Challenges and Opportunities in Regulating Online Services* (2019), https://www.ofcom.org.uk/__data/assets/pdf_file/0025/174634/online-market-failures-and-harms.pdf.

2 Cary Coglianese, *Optimizing Regulation for an Optimizing Economy*, 4 U. PA. J. L. & PUB. AFFAIRS, 1, 1-13 (2018).

3 See, e.g. *OECD Digital Economy Outlook 2020*, OECD (Nov. 27, 2020), <https://www.oecd.org/sti/ieconomy/oecd-digital-economy-outlook-2020-bb167041-en.htm>.

4 See, e.g. AUGUSTO LOPEZ-CARLOS ET AL., *THE GLOBAL INFORMATION TECHNOLOGY REPORT 2006-2007: CONNECTING TO THE NETWORKED ECONOMY* (6TH ED. 2007).

5 See, e.g. MICHAEL C. MUNGER, *TOMORROW 3.0: TRANSACTION COSTS AND THE SHARING ECONOMY* (2018).

6 See, e.g. Martin Kenny & John Zysman, *The Rise of the Platform Economy*, 32 *ISSUES IN SCIENCE AND TECHNOLOGY* (2016), <https://issues.org/rise-platform-economy-big-data-work/>.

7 Coglianese, *supra* note 3.

8 JEREMY RIFKIN, *THE ZERO MARGINAL COST SOCIETY: THE INTERNET OF THINGS, THE COLLABORATIVE COMMONS, AND THE ECLIPSE OF CAPITALISM* (2015).

traordinarily varied: distinct categories of supervised, unsupervised, semi-supervised, and reinforcement learning algorithms, with many different types of algorithms and data architectures falling within each of these categories.

Moreover, although it is true that a certain broad set of concerns with machine-learning algorithms have been commonly characterized in terms of fairness, accountability, transparency, and ethics, how these general concerns manifest themselves and exactly how they should be operationalized in specific contexts have yet to yield any widely accepted precise definition.

The resolution of the problem definition question for new technologies will undoubtedly vary widely from application to application. The regulatory problems raised by an algorithm used in a voice activation function in a smart phone will differ from those presented by an algorithm contained in life-support equipment used by hospitals. And these problems will vary altogether from the problems created by algorithms used in social media platforms. Even when it comes just to social media, the range of problems is highly diverse, including concerns over privacy intrusions, the propagation of misinformation, the facilitation of hate speech and cyberbullying, and various ill effects on children and teens.⁹

In Europe, there appears to be some effort to recognize such differences, as the EU's proposed regulation on artificial intelligence distinguishes between high-risk and low-risk uses of the technology.¹⁰ But risk itself can be a slippery notion.¹¹ Even when understood squarely as the probability of harm, the probabilities and the harms are often not yet clearly understood—an inherent problem with anything new. Even when the harms are known, they can vary widely across different applications. The harms that can arise from fintech, for example, are hardly the same kind of potential harms presented by precision medicine, even when they both are driven by machine-learning algorithms.

Moreover, with most types of regulation, risks are only part of the equation when it comes to defining the regulatory problem. The risks of new tech need to be considered in light of the benefits of these technologies. Autonomous vehicles, for example, will present risks of accidents, some of which might not have occurred with human drivers; however, autonomous transportation also promises to reduce the overall level of accidents and to decrease energy usage. Regulators need to take account of all these effects—the bad and the good.

Other technologies promise improvements too, even while they also create other potential side effects or spillovers. Part of the process of problem definition demands some appreciation for how tradeoffs should be made, such that a sufficient reduction in the harms from new technologies can be achieved without unduly undermining the beneficial effects of these innovations.

These are tough issues that, to be sure, have long vexed regulators in other settings. What is distinctively difficult about the regulatory challenges related to new tech, though, is that the definitions of the ultimate problems remains unsettled, if not even changing as technology changes. And those problems are highly varied. Regulating new tech means not merely recognizing that a one-size-fits-all regulatory solution will prove elusive; rather, it demands acknowledging that the nature of the regulatory problems are themselves varied and changing, both across and within different technologies and applications.

What we might consider new tech's "problem" problem, then, is simply the fact that regulators face a plethora of diverse problems and that societal expectations about regulatory goals are often still emerging at the same time as new tech continues to evolve, with too little guidance over priorities and tradeoffs. Some of the problems with new tech also cut across existing regulatory jurisdictions and even at times may fail to fall within the ambit of any current regulatory body's authority. And for many new tech problems, there exists too little understanding of the of causes regulatory problems nor of the potential for unanticipated consequences from regulation itself.

03

SOLVING NEW TECH PROBLEMS

The heterogeneity and dynamism of new technologies does not mean that nothing can or should be done today to regulate new and emerging technologies. Problems need not be defined permanently, fully, or with complete precision for govern-

9 See, e.g. *Social Media at Crossroads: 25 Solutions from the Social Media Summit @MIT*, SOCIAL MEDIA SUMMIT @ MIT (2021) <https://www.yumpu.com/en/document/read/65717082/the-smsmit-report>.

10 European Commission, *Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts* (April 4, 2021), <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1623335154975&uri=CELEX%3A52021PC0206>.

11 Cary Coglianese & André Sapir, *Risk and Regulatory Calibration: WTO Compliance Review of the U.S. Dolphin-Safe Tuna Labeling Regime*, 16 *WORLD TRADE REV.*, 327-348 (2017); Cary Coglianese, *Listening Learning Leading: A Framework for Regulatory Excellence*, Penn Program on Regulation, 44-46 (2015), https://kleinmanenergy.upenn.edu/wp-content/uploads/2020/08/Listening-Learning-Leading_Coglianese-1.pdf; Cary Coglianese & Gary Marchant, *Shifting Sands: The Limits of Science in Setting Risk Standards*, 152 U. PA. L. R., 1255 (2004).

ment to intervene in markets. But the diverse, changing nature of new tech's problems does certainly pose challenges for regulators and ultimately it may drive their selection of regulatory strategies. The strategies that have proven workable and effective for older technologies and more static, better-studied sectors are not likely to work nearly as well for new tech.

A. Markets as Regulators?

One response to varied, and even vague, conceptions of new tech's problems would be to seek to leverage market forces. Rather than have a government regulator need to define the problems with new tech, and then put in place regulations to solve them all, the basic regulatory function could be left to consumers who could pressure firms to reduce potential harms. Consumers could freely choose from among competing firms and products those that they think best address their harms.

The desire to leverage market forces is certainly part of the impetus behind calls for greater antitrust scrutiny of big tech firms today.¹² The thinking is that, if companies such as Amazon, Apple, Facebook, and Google faced more vigorous competition, then they might do more to protect consumers' data or guard against other social and economic harms arising from their tech products and services.

“Consumers could freely choose from among competing firms and products those that they think best address their harms

This way of thinking certainly has some merit. Monopolists have less reason to deliver everything that consumers want. Market pressures from consumers and investors, on the other hand, can indeed lead companies to reduce certain types of problems that concern both consumers and regulators.¹³ And in some instances, self-regulation or “soft law” professional norms may well help moderate firm behavior.¹⁴

Yet in the face of genuine market failures or other regulatory problems, there seems little reason to be optimistic that market pressures by themselves can entirely eliminate the need for regulatory interventions¹⁵.

For one thing, for competitive pressures to work, the market actors — such as consumers and investors — need relevant and credible information on which to base their decisions. And yet information asymmetries — a classic market failure problem — surely exist with new technologies and will necessitate regulatory intervention to ensure, if nothing else, adequate and accurate disclosure of information to consumers and investors. Determining exactly what information needs to be disclosed, and then auditing to make sure disclosed information is accurate, will demand that regulators define problems clearly and assess how well disclosed information captures those problems.

But in addition, there is little reason to think that just the disclosure of information will always drive new tech firms to design and deploy their products and services in a sufficiently socially responsible manner. After all, with respect to other problems of information asymmetries, information disclosure is often not enough. Many consumers do not read the fine print or otherwise pay attention to the compelled disclosure of information — even when the disclosure is simple and readily available.¹⁶ With respect to modern technology, the relevant disclosures might well need to be complex or technical, making it difficult for consumers to base their decisions on the information. The regulation of pharmaceuticals, for example, is justified as a solution to an information asymmetry problem but it does not rest solely on the disclosure of information. Instead, an entire system has been developed to test drugs for safety and efficacy that essentially relies on sophisticated regulators and their advisors to stand in for consumers.

Moreover, even if consumers did act on complete information, a competitive marketplace is not likely to prove sufficient to achieve the socially optimal resolution of all the problems with big tech. For example, when these problems are ones of true externalities — such as, say, with systemic risks to the economy that might conceivably be created by certain types of algorithmic transactions, cryptocurrencies or fintech products — then by definition consumers are not going to put sufficient pressure on companies. In short, since a regulatory problem is inherently one that markets by themselves will not solve adequately, then some kind of regulatory intervention will likely be needed even in a more competitive tech environment.

12 See, e.g. AMY KLOBUCHAR, ANTITRUST: TAKING ON MONOPOLY POWER FROM THE GILDED AGE TO THE DIGITAL AGE 175-214 (1ST ED. 2021).

13 See, e.g. FOREST L. REINHARDT, DOWN TO EARTH: APPLYING BUSINESS PRINCIPLES TO ENVIRONMENTAL MANAGEMENT (2000).

14 See, e.g. Gary E. Marchant et al., *Governing Emerging Technologies Through Soft Law: Lessons for Artificial Intelligence*, 61 JURIMETRICS, 1-18 (2020).

15 One of the market failures justifying regulation, of course, might well be a lack of sufficient market competition in the relevant technology sector. For an argument that regulation is needed to ensure adequate competition among digital platforms, see William P. Rogerson & Howard Shelanski, *Antitrust Enforcement, Regulation, and Digital Platforms*, 168 U. Pa. L. Rev. 1911 (2020).

16 See, e.g. OMRI BEN-SHAHAR & CARL E. SCHNEIDER, MORE THAN YOU WANTED TO KNOW: THE FAILURE OF MANDATED DISCLOSURE (2014).

B. The Problem-Pathway Framework

A regulatory intervention seeks to change the behavior of firms and their managers so that it reduces targeted problems. In seeking to shape the behavior of those who design and deploy new technologies, regulators can certainly take advantage of new technologies themselves to improve their work.¹⁷ But even with the use of automated forms of regulatory oversight, regulators will still need to rely on the strategies upon which regulators have drawn in the past for shaping human behavior — although with some different emphases.

These strategies can be distilled to their essence. By either commanding action or results, regulators can seek to orient the behavior of regulated individuals and entities toward either (1) solving an ultimate problem themselves, or (2) adopting behavior that will interrupt specific causal pathways that lead to an ultimate problem.¹⁸

“A regulatory intervention seeks to change the behavior of firms and their managers so that it reduces targeted problems

The first of these approaches demands, at a minimum, that the regulator be able to define a problem with sufficient clarity or know that it has arisen and caused someone harm. The second demands both clarity about the problem and a sound understanding of its causes. By understanding the causes of problems, the regulator can identify the major pathways that lead to their generation and then impose, and monitor compliance with, rules demanding actions or results aimed at blocking off those pathways.

Take, as a simple example, the problem of injuries and fatalities from automobile accidents. The first approach focuses on the accidents themselves—such as by imposing an overall obligation on drivers to drive safely and holding them liable when they cause injuries to others. The second approach comprises various vehicle safety equipment standards and traffic laws, such as speed limits and stop signs, that can block the pathways leading to accidents and injuries in the first place.

The dichotomy between regulations directing attention at ultimate problems versus those directed at pathways to the ultimate problems helps reveal the basic strategies available to regulators in an era of new tech. These are the same strategies that have long been deployed by regulators; they are not necessarily mutually exclusive and can be combined when regulating the same or different problems that they create.¹⁹ And as in any regulatory domain, and with respect to any regulatory problem, each of these strategies will have both advantages and disadvantages, especially relative to the others.

In the case of new tech, regulatory strategies that mandate action or results along specific pathways may be the least appealing option, simply because these pathways are still being understood and are likely changing as technology changes. Moreover, too much interference on the pathways may also risk stifling technological innovation, which could have its own ill effects.

C. Problem-Based Liability

A natural starting point, then, would be simply to impose liability on tech firms when problems develop from their technology —just as negligent drivers are held liable when they injure others. This is one of the oldest strategies for shaping behavior and solving regulatory problems as it can help focus firms’ attention on avoiding an ultimate problem that causes harm. Such liability can be imposed either through general products liability rules or through what regulators sometimes call the general duty clauses within legal codes.²⁰

No matter the source of liability, under this strategy tech firms would have an obligation to avoid an ultimate problem, whether fatalities, the loss of funds, or other harms. When the ultimate problem manifests itself due to a firm’s actions (or inactions), the firm needs either to compensate for the harm, pay a penalty, or both. These financial costs can be imposed on the firm automatically whenever the firm causes harm, or only when the harm arises from the firm acted negligently by failing to exercise reasonable care. Either way, because firms know that they can be held liable after the fact when their products or services cause harm, they have some incentive to focus on avoiding that harm — a greater incentive than if they were not subject to the background risk of problem-based liability.

17 See, e.g. Cary Coglianese & Alicia Lai, *Antitrust by Algorithm*, STAN. J. COMPUTATIONAL ANTITRUST (forthcoming); Cary Coglianese & David Lehr, *Regulating by Robot: Administrative Decision-Making in the Machine Learning Era*, 105 Geo. L. J. 1147 (2017).

18 Cary Coglianese, *Management-Based Regulation: Implications for Public Policy*, in RISK AND REGULATORY POLICY: IMPROVING THE GOVERNANCE OF RISK (GREGORY BOUNDS & NIKOLAI MALYSHEV, EDs., 2010); NATIONAL ACADEMIES OF SCIENCES, ENGINEERING & MEDICINE, *DESIGNING SAFETY REGULATIONS FOR HIGH-HAZARD INDUSTRIES* (2018), <https://www.nap.edu/catalog/24907/designing-safety-regulations-for-high-hazard-industries>.

19 National Academies of Sciences, *supra* note 19, at 23, 32, 90.

20 For an example of a general duty clause, see 29 U.S.C. § 654(a)(1) (“Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”)

Of course, many new tech firms are in fact already exposed to problem-based liability. This shows how liability is a relatively tractable strategy from the standpoint of the regulator, for the problem need be stated in only the most general of terms. Once harm occurs, the problem has not only manifested but also practically defined itself — rather than the regulator needing to do so *ex ante*. As a result, in terms of feasibility for the government, the notion of *ex post* liability would seem a viable strategy to deploy in the context of new tech, where problems are varied and changing.

Businesses often balk at being held to such liability and they would certainly prefer to avoid it. Indeed, social media and other platform companies have successfully won immunity from much of this liability under Section 230 of the federal Communications Act.²¹ Others have suggested that autonomous vehicle manufacturers should similarly escape from normal liability rules.²² But as much as businesses may bristle at being held accountable after harms do occur, there is also the argument that such liability may actually treat them too softly.

Liability does have its limits as a regulatory strategy. It ultimately takes on faith that firms' managers will sufficiently internalize the possibility of being held liable at some future time and then will be motivated to change their firms' current behavior in ways that sufficiently address the underlying regulatory problem. But for several reasons — including cognitive biases, insurance coverage, and bankruptcy — these future risks of liability are often not enough to induce sufficient behavioral change in the present.

D. Regulating Pathways

Because the backdrop of liability is often perceived as delivering less than the socially optimal level of protection, regulators have traditionally spent much effort seeking to identify the causes of regulatory problems and then imposing rules that seek to impede these causal pathways.

The longer a technology has been around, and the more stable it is, the more feasible it is for regulators to target pathways. Building codes, for example, are grounded in extensive general knowledge that has been developed over centuries, as well as on specific engineering research which justify mandates that builders use fire-resistant materials and install fire suppression technologies. These mandates target the multiple pathways that lead to property damage and injuries and fatalities from building fires. Much the same

can be said for other regimes regulating older forms of technology and economic activity. As noted, traditional automobile safety regulation puts in place rules that address the multiple pathways that can lead to vehicle accidents: driver errors, vehicle malfunctions, and roadway hazards.

As much as it is feasible to target pathways when regulating buildings or automobiles, the same will not always be true when it comes to regulating new tech. New tech's "problem" problem means that regulators will often be behind the curve in understanding the causes of regulatory problems and in being able sufficiently to target their pathways. This does not mean, of course, that regulators will never be able to impose pathway-related obligations on new tech firms. For example, it almost surely makes sense for regulators to consider imposing a requirement that all technology firms use differential privacy techniques to protect sensitive information contained in datasets that they use. Similarly, when it comes to cybersecurity risks, regulators can likely identify specific security measures that firms ought to implement, such as multi-factor authentication.

The more that regulators learn about a technology, the more able they will be to identify pathways to target with regulation. As such, regulators can and should invest in substantial research to learn more about the technology they oversee, and the causal pathways leading to their problems. Still, even with additional research, new tech will likely always present distinctive challenges for regulators when it comes to understanding pathways and regulating them. Regulators will know less than firms do about their technologies — and thus regulators will always be relatively disadvantaged when it comes to knowing what measures to require or what outputs to measure to interrupt the pathways to their problems.²³

The longer a technology has been around, and the more stable it is, the more feasible it is for regulators to target pathways

E. Mandating a Focus on Problems

Regulators can seek to leverage firms' informational advantages for the public good through a type of regulatory strate-

²¹ 47 U.S.C. § 230(c).

²² James M. Anderson, et al., *Autonomous Vehicle Technology: A Guide for Policymakers* xxiii (2016), https://www.rand.org/pubs/research_reports/RR443-2.html.

²³ Regulators do, of course, have some strategies and tactics available to them to try to elicit information from industry. See Cary Coglianese, Richard Zeckhauser, and Edward Parson, *Seeking Truth for Power: Informational Strategy and Regulatory Policy Making*, 89 Minn. L. Rev. 277 (2004).

gy known as management-based regulation.²⁴ Management-based regulation requires firms to engage in the study of their own operations, products, and services, all to get firms thinking harder about the risks they create and then identifying measures they can take to manage these risks better.

The management-based approach to regulation is used around the world to address problems where it is difficult to define or measure outcomes or where pathway prevention does not come neatly organized in a one-size-fits-all package. For example, management-based regulation has been applied to address issues of food safety, chemical accidents, toxic pollution, financial fraud, and the safety of offshore energy development — all regulatory domains with considerable heterogeneity in regulated entities and where outcomes, such as risk, are difficult to assess on a routine basis.²⁵ For these same reasons, management-based regulation seems likely to be an oft-desired approach to regulating new tech given the diversity and dynamism within most technology markets today.

The aim of management-based regulation is to induce firms' managers to address their own technologies' problems. Rather than telling a firm exactly what measures to adopt to solve a regulatory problem, management-based regulation compels firms to assess how their own products and operations contribute to the problem and then to develop their own internal plans, procedures, and other steps aimed at solving the problem. This regulatory strategy does not by itself require firms to take any specific actions beyond the managerial actions of planning, analysis, and the establishment of internal procedures. In fact, some management-based regulations only require firms to identify internal actions to take to control risks, not even to implement these actions or the required internal plans and procedures that they develop. The threat of ex post liability, of course, gives firms a reason to implement the plans they develop.

Management-based regulation, which sometimes called mandated or enforced self-regulation,²⁶ has been shown to

work in practice. One study compared toxic pollution from facilities in U.S. states with management-based pollution prevention laws and found that facilities located in states with these laws reduced their toxic pollution more than facilities in other states, at least for the first six years after management-based regulations had been adopted.²⁷ Another study demonstrated a reduction in food-borne illnesses associated with the adoption of management-based food safety regulations.²⁸

A management-based approach to regulation seems well-suited for new tech because, when different technologies can lead to different problems, this approach takes some of the pressure off regulators to identify and define problems with precision. It places more of an onus on firms, while keeping the regulator working at arms length to oversee the industry's management efforts. It also gives firms flexibility to find the most cost-effective ways to solve the problems that they identify. Admittedly, it is not entirely flexible, as it is mandatory regulation; it does require compliance with specified management steps — often characterized under the quality management rubric of “plan-do-check-act.” But other than the required management steps, management-based regulation imposes on the firms themselves the responsibility of identifying their own specific risk control measures, procedures, and responses.²⁹

When it comes to regulating new tech, this flexibility that management-based regulation affords is important because it allows firms to innovate. It is thus hardly surprising to see proposals for requiring certain kinds of new tech firms to conduct algorithmic audits — an idea that fits well within the framework of management-based regulation.³⁰ Similarly, it is not surprising that the National Highway Traffic Safety Administration (NHTSA) has recommended that manufacturers of automated driving systems (ADSs) adopt management-based “safety assessments” that are designed to ensure that their engineering teams are more fully focused on the ultimate problem of accident avoidance.³¹

24 Cary Coglianese & David Lazer, *Management-Based Regulation: Prescribing Private Management to Achieve Public Goals*, 37 L. & Soc'y Rev. 691 (2003).

25 Cary Coglianese & Shana Starobin, *Management-Based Regulation*, in POLICY INSTRUMENTS IN ENVIRONMENTAL LAW 292-307 (KENNETH R. RICHARDS AND JOSEPHINE VAN ZEBEN, EDS., 2020).

26 See, e.g. John Braithwaite, *Enforced Self-Regulation: A New Strategy for Corporate Crime Control*, 80 MICH. L. REV. 1466 (1982); BRIDGET HUTTER, REGULATION AND RISK: OCCUPATIONAL HEALTH AND SAFETY ON THE RAILWAYS (2001).

27 Lori S. Benneer, *Are Management-based Regulations Effective? Evidence from State Pollution Prevention Programs* 26 J. POL'Y ANALYSIS & MGMT. 327 (2007).

28 Travis Minor & Matt Parrett, *The Economic Impact of the Food and Drug Administration's Final Juice HACCP Rule*, 68 FOOD POL'Y 206 (2017).

29 Coglianese & Lazer, *supra* note 25.

30 See, e.g. Miles Brundage et al., *Toward Trustworthy AI Development: Mechanisms for Supporting Verifiable Claims* (April 2020); James Guszcza et al., *Why We Need to Audit Algorithms*, HARV. BUS. REV. (Nov. 28, 2018), <https://hbr.org/2018/11/why-we-need-to-audit-algorithms>; JOSHUA KROLL ET AL., *ACCOUNTABLE ALGORITHMS*, 165 U. PA. L. REV. 633 (2017).

31 NHTSA, *Automated Driving Systems 2.0: A Vision for Safety* 16 (2017), https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf.

The suitability of a management-based regulatory strategy for new tech does not mean it will not face some challenges. The regulator needs to ensure that firms take their required management responsibilities seriously. Especially with the passage of time, management-based requirements risk turning into empty paperwork exercises rather than serious attempts to identify, analyze, and manage problems.³² Access to information and ongoing vigilance by the regulator is thus necessary.³³ Regulatory agencies must have auditors who know how to distinguish between firms that engage in meaningful management efforts and those that treat managerial requirements as simply a box-checking ritual.³⁴ In short, regulating new tech via management-based regulation requires having the right kind of regulatory resources in place — especially the necessary human capital.

04

PEOPLE ARE KEY, EVEN WITH TECH

Finding the right kind of people should be a running theme in any discussion of the regulation of new tech.³⁵ To regulate well, agencies need analytically sophisticated staff members. These staff members must work constantly to keep abreast of developments in their fields, especially if they hope to regulate any of the pathways to problems.

Even though management-based regulation leverages the information advantages of the firms, regulators still must know enough to be able to gauge how seriously firms take their management obligations. This requires personnel who know more than just how to check boxes on a checklist or inspec-

tion form. Regulatory staff members need to have strong skills in risk analysis as it applies to the technology they oversee.³⁶

Given the pace of change with technology, regulatory personnel need to find ways to monitor and analyze innovations no matter what kind of regulatory strategy they adopt. To regulate well, they must understand technology markets and the pathways to the problems that different technologies create. And if regulators are themselves to rely on certain technologies — so-called regtech tools — their organizations need the right kind of people who can design and deploy those tools successfully within their specific regulatory settings.³⁷

Unfortunately, government confronts serious shortfalls in its technology-oriented talent pool at present — and the competition with the private sector for technically sophisticated staff will remain fierce. The federal government currently faces a dramatic turnover in due to an aging workforce — a trend that is problematic for the regulation of older technologies, where experience can be a premium. But perhaps this turnover affords an opportunity for building regulatory staffs capable of overseeing new tech markets. Regulatory agencies need to develop channels for bringing in new talent with the analytic capabilities needed to oversee today's innovative market environment.³⁸

“Unfortunately, government confronts serious shortfalls in its technology-oriented talent pool at present — and the competition with the private sector for technically sophisticated staff will remain fierce

Of course, government's own technological infrastructure needs upgrading as well. Too many federal computer systems in the United States remain woefully out of date. The U.S. Government Accountability Office reported as recently

32 See, e.g. Garry C. Gray & Susan S. Silbey, *Governing Inside the Organization: Interpreting Regulation and Compliance*, 120 AMER. J. Soc. 96 (2014).

33 Cary Coglianese, *Regulatory Abdication in Practice*, 79 PUB. ADMIN. REV. 794 (2019).

34 National Academies of Sciences, Engineering & Medicine, *supra* note 19, at 133-137.

35 Cary Coglianese, *Regulatory Excellence as “People Excellence,”* REG. REV. (OCT. 23, 2015), <https://www.thereview.org/2015/10/23/coglianese-people-excellence/>.

36 Coglianese, *supra* note 19, at 179-180.

37 Coglianese, *supra* note 3, at 10-11; Coglianese & Lai, *supra* note 18

38 Recently, the U.S. Department of Homeland Security has announced an initiative to improve its ability to recruit cybersecurity talent. U.S. Department of Homeland Security, *DHS Launches Innovative Hiring Program to Recruit and Retain World-Class Cyber Talent* (Nov. 15, 2021), <https://www.dhs.gov/news/2021/11/15/dhs-launches-innovative-hiring-program-recruit-and-retain-world-class-cyber-talent>. In addition, the National Security Commission on Artificial Intelligence (NSCAI) has urged in a congressionally mandated report that the federal government create a U.S. Digital Service Academy that “should be modeled off of the five U.S. military service academies but produce trained and educated government civilians for all federal government departments and agencies.” NSCAI, *Final Report* 127 (2021), <https://www.nsc.ai.gov/wp-content/uploads/2021/03/Full-Report-Digital-1.pdf>. See also U.S. Governmental Accountability Office, *Digital Services: Considerations for a Federal Academy to Develop a Pipeline of Digital Staff* (Nov. 19, 2021), <https://www.gao.gov/assets/gao-22-105388.pdf>.

as five years ago that three-quarters of federal spending on information technology supports old “legacy systems” which “are becoming increasingly obsolete” due to “outdated software languages and hardware parts that are unsupported.”³⁹ In addition to updating antiquated hardware, steps are needed to build a robust, usable data infrastructures, such as by creating common identifiers that can link disparate datasets, building adequate data storage capabilities, and ensuring effective cybersecurity protections.⁴⁰

With new and better technological capacities, regulatory agencies can then allocate their human capital more optimally. Machine-learning algorithms, for example, can help regulators improve the targeting of regulated firms to inspect or audit.⁴¹ Regulators may find that they can improve their performance by leveraging firms’ own data for analytical purposes too.⁴²

In addition to possessing technical sophistication, the people who staff regulatory agencies also must have skills needed to interact productively with other people in their orbit, particularly the managers and employees within regulated technology firms but also with various interested members of the public and with legislative overseers.

Successful regulation is ultimately more relational than technological. It is about changing human behavior, building credibility, and displaying the fairness and empathy that promotes trust. It demands a workforce that is steadfast in its commitment to public service and eager to remain vigilant in seeking to solve problems and thereby making a meaningful, positive impact on society.⁴³

“*Because new tech is new, the pathways will not always be well-understood, which will limit the ability to regulate in traditional ways*”

05 CONCLUSION

The present era of rapid innovation in technology promises to deliver improvements in both economic productivity and the quality of daily life. But just as with any type of change, innovations in new tech bring with them the potential for problems. Regulators will inevitably be given responsibility for solving these problems, and when they seek to intervene in the technological marketplace, they will need to draw on a toolkit that regulators have long used to change behavior and reduce harms.

That toolkit contains strategies that seek to induce firms to focus on the underlying problems their technologies create, as well as strategies that target specific pathways to these problems. Because new tech is new, the pathways will not always be well-understood, which will limit the ability to regulate in traditional ways. This means that regulators are increasingly likely to look to strategies such as ex post liability and management-based regulation. These strategies will seek to shape firms’ incentives and steer their managers’ attention toward the ultimate problems associated with different technologies, rather than forcing them to comply with discrete prescriptions aimed at the pathways to these problems. In this way, regulating new tech is likely to look a bit different, and provide regulated firms with more flexibility, than older domains of regulation.

No matter whether they regulate in ways oriented more toward ultimate problems or their pathways, though, regulatory agencies need to strengthen the skills and knowledge of their workforces. Even when agencies themselves rely on modern technologies to help with their work, they will need staffs with the technological sophistication to design and use these tools well.⁴⁴ Perhaps ironically, the most important ingredient for success in regulating new tech will not be technology. It will be people. ■

39 Federal Agencies Need to Address Aging Legacy Systems: Hearing Before the H. Comm. on Oversight and Gov’t Reform, 114th Cong. (2016) (testimony of David A. Powner, Director, Information Technology Management Issues), <https://www.gao.gov/assets/680/677454.pdf>.

40 Cary Coglianese & Alicia Lai, *Assessing Automated Administration*, in OXFORD HANDBOOK OF AI GOVERNANCE (JUSTIN BULLOCK ET AL., EDS., FORTHCOMING).

41 See, e.g. Miyuki Hino, Elinor Benami, & Nina Brooks, *Enhancing Environmental Monitoring Through Machine Learning*, 1 NATURE SUSTAINABILITY 583, 583–584 (2018).

42 Coglianese & Lai, *supra* note 18.

43 See, e.g. MALCOLM SPARROW, *THE REGULATORY CRAFT: CONTROLLING RISKS, SOLVING PROBLEMS, AND MANAGING COMPLIANCE* (2000); MARK H. MOORE, *CREATING PUBLIC VALUE: STRATEGIC MANAGEMENT IN GOVERNMENT* (1995). See also Cary Coglianese, *Regulatory Vigilance in a Changing World*, REG. REV. (Feb. 25, 2019), <https://www.theregreview.org/2019/02/25/coglianese-innovation-regulatory-vigilance/>.

44 Coglianese, *supra* note 3.

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