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Big Tech and Strategic Management: How Management Scholars Can Inform Competition Policy

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Big Tech and Strategic Management: How Management Scholars Can Inform Competition Policy¹

INTRODUCTION

Having been trained as an economist, been active professionally in competition economics, engaged with scholarship in strategic management and, more recently, with venture capital, I can confidently assert that I and my colleagues in economics don't have all the answers when it comes to competition policy. Neo-Brandeisians, concerned with the perceived political power of Big Tech and the inadequacy of the prevailing price-focused antitrust methodologies, would sooner banish economic analysis rather than fix the frameworks used to analyze competition issues. But their search for new indicia of harm ignore conjoint indicia of benefit. The economics of digital markets has made advances but there is still much that it omits, particularly the role of management and organizational capabilities in driving performance outcomes.

One of the goals of this paper is to introduce more relevant economic frameworks, theories and models, with roots in strategic management theory, that might help interpret factual and statistical evidence. The broader objective is to make competition policy (or antitrust as it is commonly known in the US) sensitive to the role that innovation and its management have in driving the competitive process. Lacking a managerial focus, most competition economists don't properly understand dynamic competition. A second goal of this paper is to encourage

¹ Based on a presentation given at the Academy of Management Showcase Symposium on Resurgent Oligopolies and Monopolies, in London, Ontario, Canada, on August 2, 2021. Also drawn from Petit and Teece (2021) and the authors prior publications on dynamic competition and dynamic capabilities.

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3 management scholars to get involved in the policy process. The current business and policy
4 environment provides an opening for management scholars to provide evidence-based and
5 practice-informed perspectives.
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10 In this essay, I'll share my own understanding of how Big Tech firms compete, a topic about
11 which regulators in the U.S. and Europe (and China) have been expressing deep concerns. There
12 are of course many standard market forces at work, of the type that neoclassical economics was
13 built to analyze. But today's world is not the world that US Senator Elizabeth Warren talks
14 about, where it's back to the business "trusts" of the railroads or Standard Oil. Instead, a very
15 different form of competition is helping to generate today's outcomes.
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24 For management scholars wishing to contribute, it is important to first understand the
25 frameworks that economists use to analyze competition. For example, economists look at
26 "relevant markets." But in the world of ecosystem-to-ecosystem competition, traditional market
27 boundaries and associated market share statistics sometimes make little sense, at least as focal
28 domains for monopoly power assessments. Some competition occurs within ecosystems, too,
29 because complementors can, almost overnight, become competitors (Adner and Lieberman,
30 2021). Economists also look at entry barriers to an industry, whereas what strategic management
31 scholars call "isolating mechanisms" are more relevant to the understanding of the situation of
32 particular companies. Moreover, absent innovation driven by management teams with strong
33 dynamic capabilities, temporary advantages will be fleeting. In the rest of this paper, these and
34 other issues are explored.
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BIG TECH AND DYNAMIC COMPETITION

Considerable political and policy attention is now focused on the problems, real and perceived, of Big Tech. Some, such as US Senator Elizabeth Warren, have sought radical solutions. “Break up Big Tech” has been one of her mantras; and she has claimed that “Big Tech companies have bulldozed competition.”²

Network effects and economies of scale and scope do not alone explain the current dominance of these companies. Management matters, too; but you wouldn’t think so if you were familiar with the scholarly literature in competition economics. This is why I think the Academy could be saying a lot more about what is going on in Big Tech.

A managerial perspective that is built on an understanding of dynamic capabilities and dynamic competition would not so easily paint Big Tech firms as lazy monopolists sitting around living an easy life, which might be the case if they themselves didn’t face competition. This is not to say that Big Tech firms always resist the temptation to engage in classic collusive restraints of trade, although few if any have been alleged, let alone proven.³ Rather, Big Tech firms are incredibly research-intensive and highly innovative. They account for a sizable percentage of the business R&D spending in the United States. In 2018, Amazon, Alphabet (including Google), Microsoft, Apple, and Facebook spent a combined \$70.5 billion on R&D (see Figure 1).⁴ This spending represented 10.8% of their combined revenue—and amounted to

² <https://2020.elizabethwarren.com/toolkit/break-up-big-tech>. Accessed August 18, 2022.

³ Most notably to date there have been allegations of collusion in the advertising market by Google and Facebook.

⁴ The 2018 Global Innovation 1000 study.

<https://www.strategyand.pwc.com/gx/en/insights/innovation1000.html>. Accessed August 19, 2022.

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3 18.6% of all U.S. self-funded business R&D spending that year.⁵ It's not just that they spend the
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5 money. They have an established track record of breakthrough innovation.
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19 Another characteristic of these companies is that they house cospecialized assets, particularly
20 data. For traditional firms, the constraints on growth tend to be driven by ease of replication.
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22 With Big Tech's artificial intelligence-driven operating models, replication is simplified.
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24 Accordingly, the Big Tech firms have been able to scale efficiently and rapidly.
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28 As digitalization spreads, the ready availability of cloud-based resources has simplified
29 scaling by traditional firms engaging in digital businesses. Competitors that aren't data-intensive
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31 have trouble keeping up.
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35 Data, especially large, heterogeneous "data lakes," are only valuable when they're effectively
36 coordinated and utilized to yield unique insights. Firms that gather lots of data but don't have the
37
38 right technologies and capabilities to organize and make sense of it will not unlock value. As
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40 Nobel laureate economist Kenneth Arrow (1996) once wrote, information is a "fugitive
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42 resource" from which it can be hard to capture returns. However, if you have suitable algorithms,
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44 strong machine learning and AI capabilities, and the capacity to commit the requisite financial
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46 resources, considerable value.
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55 ⁵ calculated from data in Wolfe (2020). Business R&D "Paid for by the company" amounted to \$377.8
56 billion in 2018.
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3 Capabilities in data analytics allow Big Tech firms to contemplate entering a wide array of
4 industries where leveraging data will unlock new value (Iansiti and Lakhani, 2020). Data-derived
5 diversification, which harnesses the considerable economies of scope and learning effects that
6 arise from the generation and possession of customer behavioral data, has eroded “industry”
7 boundaries. In earlier research (Teece 1980), I developed a model that shows the circumstances
8 under which economies of scope expand the scope of the enterprise. Transaction cost
9 considerations often require integrated rather than contractual ways of expanding the boundaries
10 of the enterprise into new product lines or even new industries where traditional business
11 analysis might not see any basis for an advantage.⁶ Amazon's foray into film and TV production
12 is a case in point. Another type of data-based diversification redirects an existing platform, as in
13 the case of Zoom Video, into a subspecialty such as telemedicine. In economic terms, there are
14 economies of scope from data re-use across industry lines.

15 Entrepreneurial management (Teece, 2016) is critical to the success of these efforts. Because
16 such management is not restricted to the current market leaders, companies that get ahead don't
17 always stay ahead.

18 Management scholars can help explain that the success and profits of Big Tech firms may not
19 be due to market power *per se*, as Senator Warren and other politicians (and many in the public)
20 seem to believe. They could be due to these firms' ability to invest in new services and creatively
21 extract from data new understandings with respect to consumer and business behavior. From a
22 policy perspective, the exact nature of the rents earned by a firm is critical, as I discuss later.

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⁶ See Teece (2020), including an appendix imagining Williamson's reaction to Google's acquisition of YouTube.

THE MISUSE OF THE MANAGEMENT SCHOLARSHIP

In the few instances where there is any appeal by competition economists to research in strategic management there would appear to be selective misuse of strategic management research. A case in point is a discussion paper by Crémer, Crawford, Dinielli, Fletcher, Heidhues, Schnitzer, Scott Morton, and Seim (2021) which opens as follows:

According to the managerial strategy literature, a, if not the, key to large profits is the creation of “moats” that protect firms from competition. Firms with market power create moats to maintain that power, and there exist strong incentives to develop new technologies that allow for broader and deeper moats... these moats often are harmful: they surround customers and deny them the opportunity to purchase from competitors. As a result, consumers suffer from the high prices and/or low quality imposed by incumbent firms, whose incentives to provide the amount and type of innovation desired by consumers are decreased.

This is a caricature of the strategic management literature, limiting technological innovation to uses that restrain trade. It most resembles the management approach developed by Michael Porter 40 years ago:

The goal of competitive strategy for a business unit in an industry is to find a position in the industry where the company can best defend itself against these competitive forces or can influence them in its favor. Since the collective strength of the forces may well be painfully apparent to all competitors, the key for developing strategy is to delve below the surface and analyze the sources of each. Knowledge of those underlying sources of competitive pressure highlights the critical strengths and weaknesses of the company, animates its positioning in its industry, clarifies the areas where strategic changes may yield the greatest

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3 payoff, and highlights the areas where industry trends promise to hold the
4 greatest significance as either opportunities or threats. (Porter, 1980: 4)
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8 Crémer et al., like most other competition economists, are implicitly appealing to an
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10 equilibrium model of perfect competition. Enforcement agencies worry that markets are veering
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12 away from some ideal of zero (economic) profit. Management scholars looking at the same
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14 markets see an unsettled but healthy system where strong incentives elicit entrepreneurship and
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16 investment in the development of new markets, which in turn drives further innovation by
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18 competitors trying to snatch the profits of the first movers.
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22 The strategic management literature in the last 30 years has gone far beyond the “moats”
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24 concept seized upon by Crémer et al. (2021). The resource-based view (e.g., Wernerfelt, 1984)
25
26 introduced the idea that profits flow to firms with valuable resources, but was still essentially
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28 static (Teece, 2018). The dynamic capabilities framework, which now has considerable currency
29
30 in the field, sees innovation as the generator of long-run performance as incumbents and entrants
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32 strategically invest in creating new resources. Such capabilities are not about blocking
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34 competition. They are about creating new markets and enhancing competition in both newer and
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36 traditional markets. As explained later, the corresponding rents (profits) are primarily
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38 Schumpeterian.
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42 Strategic management scholars recognize that perfect competition is neither a guide nor a
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44 goal for an innovation-producing industrial structure. The world of perfect competition never
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46 exists; if it did, it would be an unappealing, stagnant world with little investment in innovation.
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50 What’s desirable, as management scholars know, is a competitive landscape with
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52 heterogeneous firms making heavy investments in R&D, engaging in business model
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54 experimentation, and scaling new technologies to displace older ones. This causes markets to
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56 expand, providing more value and more options to customers. Profits are necessary for
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3 innovators to keep attracting the capital needed to fund innovation. If they fall short in
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5 innovation, rival innovators are positioning themselves to take over. Put differently, if firms have
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7 temporary “moats,” it’s because they first build castles.
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10 11 12 13 14 **THE NATURE OF COMPETITION IN DIGITAL MARKETS** 15 16 17

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19 Competition economists using standard models fail to understand that innovation is the
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21 primary driver of competition. Dynamic (innovation-driven) firms, offering new products and
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23 new services, will deliver (Schumpeterian) competition that trumps typical price competition
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25 amongst producers of commodity products and services.
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28 There is plenty of evidence that, in the digital economy, challenges to industry leadership
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30 positions are commonplace. In the first quarter of 2022, Facebook and Netflix had deep drops in
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32 their market values because of competition (e.g., from Google and Apple in the case of
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34 Facebook, and from Disney and Amazon in the case of Netflix) in addition to general market
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36 developments. If management is not able to respond quickly and smartly to challenges, the loss
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38 of a leading market position is never far away. The quick defeat the slow, and the small can
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40 sometimes defeat the big.⁷ In the “disruption” literature in strategic management, size is shown
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42 to be a liability, unless management is able to preserve organizational agility and create new
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44 strategic pathways as the enterprise grows.
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48 Disruption of incumbents by new entrants or by other incumbents is relatively common,
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50 coming from business model innovation as well as from new technology or from new products
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55 ⁷ Small firms have a better chance to compete when they have a strong intellectual property position and
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57 courts are rigorous in enforcing patents, copyrights, and trade secrets.
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3 and services. It's time for policymakers to recognize, as management scholars do, that
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5 incumbency is as much a liability (i.e., a vulnerability) as it is an advantage. Murmann (2003,
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7 2013), Murmann and Zhu (2021), and many others have shown that most incumbent firms are
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9 not able to change quickly enough and fail. Economic theories of competition that ignore
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11 fundamental truths surely lack a proper grounding in the realities of everyday dynamic
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13 competition.
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17 In standard competition policy analysis, enquiry often proceeds by defining a (relevant)
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19 market as the domain in which one is supposed to look for competitive effects from certain forms
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21 of (exclusionary) business behavior. Market shares are then computed as a way to assess the
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23 market power of individual firms. Entry barriers of some kind supposedly shield firms from
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25 competition from outside of the "relevant" market.
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29 The above approach is often wrong. Any shield a firm might enjoy against disruption comes
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31 not from industry-level entry barriers but from firm-level "isolating mechanisms" such as
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33 superior capabilities, causal ambiguity, switching costs, and patents (Rumelt, 1984). Such
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35 shielding is generally temporary, which is why firms need strong dynamic capabilities to survive
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37 in environments where rapid technological change is taking place.
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41 The bottom line is that management and strategy really do matter as drivers of enterprise and
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43 business performance. A firm with myopic management can quickly lose market leadership. Yet,
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45 even after 250 years of theory development in economics and over 100 years of competition
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47 economics, there is very little room for the manager (or the entrepreneur) in the economic theory
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49 of the business enterprise so often used by competition economists. This is a fatal flaw. Nor is it
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51 adequate to model managers as single-period, hyper-rational automatons.
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3 Most strategic management scholars would agree about several assumptions/regularities that
4 competition economists are usually slow to recognize, if at all. Table 1 is a summary of these
5 differences.
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23 **DYNAMIC CAPABILITIES AND DYNAMIC COMPETITION**

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27 While an understanding of what really makes large firms successful in the first place is a
28 good starting point, it is equally important to understand what can help them retain and renew
29 their competitive advantages. For Big Tech companies, as with any enterprise, the real question
30 is whether they can innovate, adjust to new realities, and correct their mistakes as they go
31 forward.
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39 The hallmark of a traditional monopolist is that it reduces output and raises prices. But that's
40 not the behavior of US Big Tech firms. Complaints about them are often the opposite; Big
41 Tech's prices are seen as too low (even nominally free) and they are expanding output too fast!
42 Consumers are often delighted by the products and services of Big Tech firms. Competitors are
43 not. But the goal of competition policy is to protect the competitive process, not to protect
44 competitors.
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52 In short, what is observed in the digital economy is not usually industrial age monopoly
53 power at all. Instead, the AI-based capabilities of Big Tech firms often give them considerable
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3 scale- and scope-based advantages over rivals, which, in the main, reflects competition on the
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5 merits.
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8 Many economists, however, assert that Big Tech monopoly is a big problem, that it's
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10 reducing innovation and slowing wage growth. I put to one side concerns about the impact on
11
12 democracy and on society which are not the standard domain of management scholars or
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14 economists. Some of these concerns are legitimate; but competition policy/antitrust is not the
15
16 best way to deal with them. No matter one's views on political and social issues, one can still
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18 analyze the extent to which monopoly really is a problem and the extent to which it has been
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20 measured correctly.
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24 As noted earlier, Big Tech firms face considerable competition. Absent ongoing innovation,
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26 they would not be big for long. A recent article in *The Economist* (2021) said that digital markets
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28 are "shifting towards oligopolies in which second and third firms compete vigorously against the
29
30 incumbent." Perhaps this signals a growing public realization that it's not about monopolies after
31
32 all; it's about some new form of oligopoly because these companies don't stay in their own
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34 lanes. Google competes with Apple (in phone software); it also competes with Microsoft (in
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36 search and cloud computing). All three compete vigorously with each other, with Amazon, and
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38 with many others in a range of activities. Moreover, hundreds of smaller niche digital firms
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40 compete in markets where deep knowledge of particulars matters, e.g., auto parts or dental
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42 supplies. Competition from other platforms and niche players is not just a marginal phenomenon;
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44 it often goes to the very core of a Big Tech firm's business. Petit and Teece (2021) call this
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46 "broad spectrum competition." Petit also created a new term, "mologopoly," to underscore that
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48 standard paradigms of competition no longer work well (Petit, 2020).
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3 We need new frameworks to understand and properly regulate, where appropriate, this new
4 form of competition. The theory of the firm developed by neoclassical economists is far too
5 limited to yield deep understanding, even for firms in traditional industries (Teece, 2019); new
6 theories, models, and evidence-based analyses are needed. Management scholars, if they are
7 themselves proficient in understanding the process of AI-fueled competition, can contribute.

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10 Alfred Marshall, who was the pioneer of modern microeconomics and put forward the
11 beginnings of a theory of the firm, had a rich and dynamic view of competition. His *Principles of*
12 *Economics* (1890) had institutional and contextual underpinnings alongside its pioneering
13 applications of mathematics. He understood that knowledge, organization, and management
14 really mattered and emphasized the importance of leadership (Book IV, Ch.XII, sec.5).⁸

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17 But textbook economics remains mired in a stilted, static view of competition, which policy
18 makers have mostly accepted. There have been three Nobel prizes in Economics given out in
19 recent decades (Ronald Coase, Oliver Hart, and Oliver Williamson) for theories of the firm, but
20 none of these have featured innovation in their theories and models. Academy of Management
21 scholars have the opportunity to develop frameworks consonant with the real-world phenomena
22 to which most economists are institutionally blind.

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25 There have been calls in the past for new theories of competition and new approaches to
26 assessing business conduct. Over two decades ago, Kenneth Arrow pointed out that the role of

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50 ⁸ Marshall's more formal theory was static in nature. Unfortunately, that's what mainstream economics
51 seized upon for subsequent development. Marshall saw static analysis (reflected in cost curves,
52 production functions, etc.) as only a first approach to understanding a problem. The post-war, math-driven
53 Samuelson revolution in economics ignored almost all but the easily formalized part of Marshall, ignoring
54 the evolutionary and capabilities notions that can also be found in his work. The post-World War Two era
55 marks the point where economics and management split on to very different tracks.

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3 information required a new approach to understanding competition.⁹ Indeed, there has been a lot
4
5 of work on information economics, but it hasn't fundamentally changed the way many think
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7 about oligopolies and monopolies (see Calvano and Polo, 2021, for a recent survey). The impact
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9 of information economics has been surprisingly narrow. Economists talk about network effects
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11 and n-sided markets, but that's often the end of the discussion.¹⁰ The innovation story is left out.
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13 Marshall Van Alstyne, an information economist at Boston University, has said that "we need
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15 new and better economics and legislation to get this right—and to understand that the nature of
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17 creating value has shifted drastically."¹¹ The same is true for understanding the nature of value
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19 capture.
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27 **COMPETITION POLICY AND ITS DISCONTENTS**

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32 Unfortunately, policy changes are already being made based on faulty premises that are
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34 having far-reaching effects. Consider the Digital Markets Act (DMA) in Europe, which was
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36 adopted by the Council of Ministers in July 2022. The Act, which brings special regulation to
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38 large platform leaders it calls "Gatekeepers," is really quite radical (Teece and Kahwaty, 2021).
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40 My concern is that such radical interventions without a real understanding of the underlying
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42 phenomena reduces the chances that policy makers will get it right. And the costs to society for
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44 getting it wrong are monumental. The E.U. hasn't spawned any Big Tech firms, and the DMA is
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46 likely to seal that fate.
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52 ⁹ "The role of information would seem to require a new approach to the theory of oligopoly" (Arrow,
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54 1996, p.645).

55 ¹⁰ See, e.g., Evans and Schmalensee (2015).

56 ¹¹ Quoted in Rainey (2019).
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3 As I mentioned above, the intellectual origins of dynamic competition date back to
4 Schumpeter (1942). He made it clear that any sort of back-and-forth competition not driven by
5 innovation doesn't really matter for long run growth: "[the] competition which counts [is] the
6 competition from the new commodity, the new technology, the new source of supply, the new
7 type of organization ... which strikes not at the margins of the profits and the outputs of the
8 existing firms but at their foundations and their very lives" (p.84). But the vast majority of the
9 analytics in economics and competition policy is around exactly the market activities that
10 Schumpeter says should be of "comparative indifference" (p.83).
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21 The problem is that too few have read all of Schumpeter. Most economists only took away
22 the idea that big firms are necessary for innovation, ignoring that he also said the opposite (i.e.,
23 that small firms were the drivers of innovation) in a different book (Schumpeter, 1934).
24 Economics textbooks settled on the large-firm version as the Schumpeterian Hypothesis, missing
25 the story of innovation and entrepreneurship that undermines the analytical apparatus they're
26 using. Together with coauthors, I've been making these arguments for 30 years to little avail
27 (Jorde & Teece, 1990; Teece and Coleman, 1998; Pleatsikas and Teece, 2001; Sidak & Teece,
28 2009).
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40 Economists do have an alternative approach in their archives. Arrow (1962) came up with a
41 simple model showing that, for cost-reducing process innovations, a monopolist with a patent
42 that prevents others entering the industry has less incentive to innovate than a rival firm, which
43 might be able to take business from the monopolist. The model is quite limited, focuses only on
44 incentives, and assumes iron-clad patents. Yet it points the way past the Schumpeterian
45 Hypothesis by providing a basis for arguing that new rivals have strong(er) incentives to
46 innovate than an entrenched incumbent.
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3 Unfortunately, the Arrow-vs-Schumpeter debate consumes an inordinate amount of energy
4 among industrial organization economists, accounting for hundreds of papers, even though it's
5 both a theoretical dead end and an arid depiction of competition. In today's dynamic
6 competition, both entrants and incumbents have strong incentives to innovate, and outcomes are
7 often driven as much by strategy as by technology.
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10 And when antitrust authorities take action under such conditions, it's not only costly but also
11 largely irrelevant to future outcomes. One analyst, looking back at how Microsoft (and IBM
12 before it) lost dominance in tech, argued that Microsoft's fall from dominance had less to do
13 with antitrust intervention and more with the appearance of unforeseen competition (Evans,
14 2020). With the rise of the Internet, Microsoft's Windows gradually became less relevant as an
15 environment for which to develop software. Then, even though Microsoft still controlled the
16 gateway device for most users to access the Internet (i.e., the Windows PC and Internet
17 Explorer), Microsoft lost much of its dominance to smartphones after Apple proposed a better
18 client model (i.e., the iPhone).
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34 During the Microsoft antitrust trial, the economists in the courtroom ridiculed Microsoft for
35 talking about the possibility of such competition. Langlois (2022) noted that Microsoft
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38 portrayed its position as that of a dynamic competitor in an ever-changing
39 market, perennially besieged by threats ranging from the dimly perceptible to
40 the radically unknown. "In the future," one Microsoft executive was paraphrased
41 as testifying, users may simply plug their computers into cable outlets and get
42 whatever programs cable providers offer. Small, handheld computing devices
43 could wipe out the PC, just as the PC wiped out the mainframe." A graphical
44 exhibit depicted these threats, many of them in the form of question marks,
45 impinging as arrows upon the company. This elicited titters from the courtroom,
46 and the argument was widely mocked in the press. Needless to say, within a few
47 years the twin general-purpose technologies of cloud computing and the
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3 smartphone had arisen to make Microsoft's competitive sorrows of 1999 seem a
4 lot less like alligator tears.
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7 Strategic management scholars would not have found Microsoft's position so laughable. This
8 example of mainstream antitrust's limited framework demonstrates that management scholars
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10 need to develop and promote frameworks that can illuminate questions of monopoly power and
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12 merger analysis with a better understanding of concepts such as potential competition. The
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14 ability of nascent competitors or, more likely, other incumbents to enter and compete should be
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16 taken seriously as a disciplining factor.
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21 Fortunately, some mainstream policy makers now know there's a problem with the apparatus
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23 of competition economics. In a 2010 speech, Federal Trade Commissioner Tom Rosch remarked
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25 that:
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29 ...antitrust enforcement has historically focused more on static than dynamic
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31 analysis... for a number of reasons. First, the antitrust community—both lawyers
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33 and economists—has far greater familiarity and comfort with static analysis ...
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35 Second, there is little incentive for parties to take the time to develop arguments
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37 premised on dynamic analysis, given the courts' and antitrust agencies' focus on
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39 static analysis. Third, there's the perception... that dynamic analysis is less well
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41 developed... (Rosch, 2010).

42 Unfortunately, this did not give rise to research efforts that could have resulted in a more
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44 dynamic form of competition policy. Nine years later, another FTC commissioner, Christine
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46 Wilson, noted at a conference that “innovation over the long run will deliver very large consumer
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48 welfare gains,” yet competition authorities “routinely struggle to account for dynamic effects.”¹²
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54 ¹² Quoted in McDermott (2019). Interestingly, the U.S. Supreme Court has demonstrated a more nuanced
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56 view of competition than the Antitrust Division of the Department of Justice. In its 1966 decision in
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58 *United States v Grinnell Corp*, for example, the Court held that the basic standard for
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Management scholars should take this as a challenge. If you’re working with frameworks that can account for dynamic effects, then your insights are needed in Washington and Brussels. But be sure to learn about the assumptions, theories, and models of competition economics if you hope to make an impact by exposing flaws and offering better alternatives.

BETTER POLICY FROM MORE RELEVANT RESEARCH

The field of management can help enlighten the policy debate in multiple areas. Table 2 lists some of the many competition-relevant research topics where management scholars are well positioned to shed light, including the impact of mergers on innovation, disruption by ecosystem complementors, and theories about platform life cycles.

Insert Table 2 about here

Here, I discuss six areas where the field of management can help improve the foundations of competition analysis.

monopolization under Section 2 of the Sherman Antitrust Act requires proof of “*the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident*”.

Understanding How Digital Firms Operate

A growing number of management scholars have a good understanding of how digital firms operate, particularly the role of big data. While big data may be the exhaust fumes from consumer activity, it can be very valuable if the company has the artificial intelligence (AI) systems to organize and analyze it. Of course, the regulators are aware of this, and one proposed solution is to try to make these data available to competitors. The obvious problem is that the proposed policy would kill the incentive to collect the data in the first place and would increase risks to data security and privacy.

Management scholars can contribute by pointing out that AI and automated software are changing the ways these companies operate. The way that Apple or Amazon operates is very different from General Motors or even IBM. If policy makers don't understand that, then there's little chance they'll understand the source of the growth of, and (most of) the "rents" (profits) earned by, these firms.

Each Big Tech company can, at one level, be thought of as a "data factory" in that the data produced by use of its services are also inputs to further service development and innovation. The competitive advantage of Big Tech platforms lies in part on their data processing capabilities, including machine learning and AI, which yield value to users and to content suppliers alike. Users are better able to find useful/interesting content; content providers are able to reach more users. Advertisers are able to increase returns by targeting advertisements to only those individuals who are predisposed to purchase. In exchange for these data-derived benefits, tech platforms are able to collect still more data from users and advertisers.

Management scholars understand that the emergence of digital-native firms, many demonstrating strong dynamic capabilities and entrepreneurial proclivities, has eroded inter-

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3 industry boundaries. Today, companies such as Google and Apple leverage customer behavioral
4 data to seize opportunities distant from their roots in search and computer hardware,
5
6 respectively. Apple, for example, has been augmenting the health monitoring capabilities of its
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8 Apple Watch devices and is working on entering the automobile industry in some as yet
9
10 unknown manner. As more companies digitize, the circle of potential cross-industry entrants
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15 widens.

16 17 18 **Understanding How Digital Firms Compete**

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20 Management scholars understand that it is not just fear of losing market share that drives Big
21
22 Tech, as many competition economists commonly assume. Rather the motivation is also the
23
24 potential rewards from creating new and better digital goods and services to win new markets.
25
26 Amazon's highly successful "cloud computing" business, for example, grew out of its internal
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28 need to allow technology teams to share resources (Weise & Wakabayashi, 2021). For the most
29
30 part, it's the long-run vision, heavy R&D investments, and innovative culture that underlies the
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32 repeated successes of Big Tech.
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37 The big digital platforms are also exposed to strong competition, both from each other and
38
39 from an ever-shifting array of entrants, including complementors, niche players, and startups. In
40
41 2022, Meta's market value declined because of Apple's privacy changes on tracking users. In
42
43 2019, the Disney + streaming service launched and quickly became one of the leading rivals to
44
45 Netflix. No Big Tech CEO rests easy behind a "moat."
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49 Despite common misconceptions about "lock in," network effects are likely not the major
50
51 factor sustaining any existing Big Tech firm (Knee, 2021). They certainly help at Meta and
52
53 Microsoft, but alone they are not enough; and contrary to common assumptions, the original
54
55 success of Amazon, Apple, Google, and Netflix was not primarily due to network effects.
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3 Apple's advantage came critically from superior products: the iPod, the iPhone, and the iPad.
4
5 Google started with a better search engine. Netflix has no network effects. Amazon's initial foray
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7 into books did not have significant network effects either. Some commentators will nevertheless
8
9 point to network effects and claim they are everywhere in the digital realm and inexorable, but
10
11 that is not so. As any management scholar or executive will explain, network effects alone will
12
13 not protect a profitable business. In the absence of high fixed costs, any company temporarily
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15 trying to shelter from competition with anything but a better product or service will attract new
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17 entry.
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22 **Static Versus Dynamic Competition**

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25 More generally, management scholars can shed light on the difference between static and
26
27 dynamic competition. The static model is all about efficiency. This is the world of operations
28
29 research and microeconomics but not the world of strategic management and organizations.
30
31 Dynamic competition is about innovation. It's well accepted in the management field that
32
33 innovation undergirds firm-level competitive advantage and drives competition; but, in the field
34
35 of antitrust economics, the usual model is that competition drives innovation. The management
36
37 scholar will find that a limiting framework. Management scholars understand that disruption is
38
39 driven by innovation. Not all firms innovate even if they face the same competitive threats.
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44 Static competition remains the mental model of competition economists and mainstream
45
46 antitrust alike. In this view, firms compete for existing profits (or "rents") using existing
47
48 technologies. New technologies diffuse more or less instantly. To gain market share, firms
49
50 compete by reducing costs and lowering prices. The criteria for "good outcomes" are defined
51
52 from a short-term perspective.
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3 The world of dynamic competition is the world we all live in, where competition is driven in
4 the long-term primarily by the ability to innovate. It's about "effectiveness" not efficiency.
5
6 That's what Schumpeter (1942) taught us nearly a hundred year ago. It's also implicit in
7
8 Abernathy and Utterback's (1978) life cycle theories of industry evolution. But it's completely
9
10 missing from today's economics textbooks, where it would complicate the equilibrium models
11
12 that economists prefer to use. Greg Mankiw's (2021) popular introductory economics textbook
13
14 has very little to say about innovation, which is mostly treated in passing as something that the
15
16 market generates when conditions are favorable. Nor does innovation get much more treatment
17
18 in graduate economics departments, with a few exceptions.
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25 **Potential Competition and Capabilities**

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27 One reason that the US Federal Trade Commission (FTC), the US Department of Justice
28
29 (DOJ), and their European counterparts have, in my view, done a poor job is that they have
30
31 sometimes used equilibrium models that banished innovation while trying to understand a world
32
33 that's impacted by innovation and clearly characterized by disequilibrium. There's far less
34
35 attachment to formal models in the field of management than there is in economics, which
36
37 permits management scholars to explore a richer framework for competition policy analysis.
38
39 This presents an opportunity for management scholars to have more impact, particularly around
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41 the important concept of potential competition, where economists haven't come through with
42
43 any great insights or evidence for almost a century. Without a theory of organizational
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45 capabilities and their likely evolution, a theory of potential competition cannot possibly get
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3 traction.¹³ This is where evolutionary theories of capabilities and change, familiar to
4
5 management scholars, could be quite helpful.
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7
8 The field of management has also made great strides in understanding competition in terms
9
10 of capabilities or competences. The late Nobel laureate Oliver Williamson saw the need for
11
12 injecting some theory of capabilities into economics and noted that theories of capabilities were
13
14 more complementary to his own transaction cost economics than they were a rival to it
15
16 (Williamson, 1999: 1106). He also suggested that “transaction cost economics informs the
17
18 *generic* decision to make-or-buy while competence brings in *particulars*” (ibid.: 1097, italics in
19
20 the original). The particulars are of course what matter in an enforcement proceeding.
21
22

23
24 Capabilities-based thinking is just one way into the topic of potential competition.
25
26 Management scholars can harness work on organizational ecology and evolutionary economics
27
28 to help with merger assessment and enforcement. Management research can contribute to a better
29
30 understanding of the likely evolutionary path of new entrants and other potential competitors
31
32 (Petit and Teece, 2021; Teece, 2021). A large literature in management analyzes performance
33
34 impacts of M&A activity (e.g., Hagedoorn and Duysters, 2002; Siegel and Simons, 2010). This
35
36 literature can be mined to address both policy as well as managerial issues.
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41 **The Nature of Economic Profit or “Rent”**

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43
44 Another way that management scholars can make a contribution to public policy is to help
45
46 develop a better understanding of the nature of the profits earned in particular markets or
47
48 ecosystems. In the minds of many—be it Elizabeth Warren or the economists at the FTC, the
49
50 DOJ, and the EU’s Directorate-General for Competition—Big Tech profits are too often
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55 ¹³ The theory of contestable market is perhaps an exception, but it was very much old wine in a new
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57 bottle.
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2
3 considered to be monopoly profits. Crémer et al. (2021), quoted earlier, along with many others,
4
5 seem to have a very blunt and undifferentiated view of profits.
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7
8 Management scholars have dug deeper and sometimes distinguish between *Ricardian rents*,
9
10 which are based on exploiting scarce resources—the VRIN idea (Barney, 1991), in strategic
11
12 management terms; *Porterian rents* from monopoly power due to the naked restricting of
13
14 competition; and *Schumpeterian rents*, based on innovation in products, processes, or business
15
16 models that have not yet been imitated by rivals (Teece, Pisano, & Shuen, 1997; Teece &
17
18 Coleman, 1998). Each has different implications for economic welfare; but competition
19
20 economists tend to throw all of them into a single category. This is an embarrassing lacuna in
21
22 competition economics and policy, one where management scholars can step in to help explain
23
24 the different sources of firm-level competitive advantage. Further progress needs to be made by
25
26 figuring out how to operationalize the distinctions. Success on this front would change the focus
27
28 and the tone of the Big Tech debate overnight.
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34 Big Tech rents may, in a few instances, be classic welfare-damaging monopoly rents due to
35
36 naked restrictive practices. While such instances should be addressed, that’s not the nature of
37
38 most of their profits. Some of their rents are partly Ricardian, e.g., when they flow from better
39
40 AI-based operating models, while the bulk, in my estimation, are Schumpeterian rents from
41
42 innovation. More fundamentally, many technology firms have strong dynamic capabilities that
43
44 they employ to generate Schumpeterian rents. In classical economics terms, entrepreneurially led
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46 firms have what Keynes (1936) called “animal spirits” as they invest continually even when
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48 there is deep uncertainty. As management scholars know, strong dynamic capabilities are the
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50 road to sustainable competitive advantage. Some companies, like Intel and Boeing, may have
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3 erred in the recent past; but hopefully they will undertake strategic renewal, eschew stock
4 buybacks, double down on R&D, and innovate faster and better.
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7 8 9 **Proxies for Long-Term (Consumer) Welfare**

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11 Enhancing consumer welfare is a key goal of competition policy; but this should be measured
12 not in the short run but in the long run. Since consumer welfare concepts are hard to measure,
13 enforcement agencies and courts could focus on a proxy: maintaining and advancing a robust
14 innovation ecosystem. This might be particularly relevant in the context of digital platforms.
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20 Ecosystem innovation is a further topic in need of attention. Management scholars know that
21 there are at least two types of innovation, what I call systemic (or “architectural,” see Henderson
22 and Clark, 1990) and autonomous. The former is likely to come from large integrated firms or
23 the platform owner/leader; the latter from smaller firms, including complementors. But the best
24 balance for the system as a whole probably shifts over time.
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32 Management scholars can develop ways to measure ecosystem robustness. Such measures
33 can be relevant to how enforcement agencies generate cost-benefit analyses for proposed
34 mergers. For example, some scholars believe that Facebook (now renamed Meta) purchased
35 WhatsApp in 2014 not to enhance its own product or to generate revenue, but to remove a
36 potential rival. By contrast, Google’s acquisition of Waze was based on adding capabilities it did
37 not yet possess, or at least had not mastered, namely crowdsourcing traffic data and maintaining
38 a successful social network. But we need a more fully developed framework to identify which is
39 which.¹⁴
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56 ¹⁴ See also the appendix to Petit & Teece (2021).
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CONCLUSION

Management scholars have an important story to tell about digital competition. It is a story that competition policy makers need to hear. Table 3 lists indicia of competition as seen through the lens of each framework, comparing the limited, industry-centered formalism of competition economics to the much richer, firm-centered framework of strategic management.

Insert Table 3 about here

Many in the management field are frustrated that they don't have an impact on law and policy. Analyses of economic organization and the role of Big Tech provide a timely opening. There are no shortcuts to earning the attention of policy makers; but there is a ready audience for analyses that bridge the siloes of strategic management and competition economics. Many tasks are ready to be undertaken, such as finding useful metrics for relevant concepts from strategic management.

In practical terms, the path for management scholars to engage with economists and policy makers in competition policy analysis and debates begins with investing some effort in understanding competition economics as it now stands, along with current policy issues. That is quite a formidable task. Those starting from scratch can start by looking at the work of a few competition policy scholars who at least occasionally recognize the relevance of strategic management concepts. Jorge Padilla and David S. Evans have made significant contributions for

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2
3 many years. One recent example is Cristina Caffarra (e.g., Etro and Caffarra, 2017).¹⁵ My own
4 work tries to make the links, too (Sidak and Teece, 2009; Petit and Teece, 2021; Teece, 2021).
5
6

7
8 If competition policy is to be fit for the 21st century, the paradigm of dynamic competition
9 must replace, or at least complement, static competition. Management scholarship can
10 substantiate and expand the dynamic competition paradigm. New theories and evidence will
11 need to be developed and tested. While, historically, competition has been conceived as
12 occurring between providers of substitute products, dynamic competition can emerge from
13 among complementors or from new entrants exploiting innovative new combinations of features
14 and technologies. It is a story that management scholars are perhaps uniquely positioned to tell
15 and to apply. Case studies of past judicial and agency decisions that highlight how a static
16 approach led to poor enforcement action is a good place to start. These can, in turn, inform the
17 development of frameworks, theories, and models and lead to improvements in public policy,
18 while helping policy makers to avoid mistakes.
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¹⁵ See also her columns at VoxEU, <https://cepr.org/about/people/cristina-caffarra>. Accessed August 19, 2022.

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Table 1. Some contrasting assumptions/understandings

COMPETITION ECONOMICS	STRATEGIC MANAGEMENT
Efficiency is the primary driver of competition	Innovation is the primary driver of competition
Entry barriers thwart competitors	Isolating mechanisms, including superior capabilities, are barriers to imitation and thwart competitors
Competition comes from substitute products/services	Competition comes from both substitute and complementary products and services
Incumbency is always an advantage	Incumbency is often a liability
Management doesn't matter	Management matters
Business models of marginal relevance	Business models have high relevance
"Relevant markets" describe the domain of competition	Ecosystems-to-ecosystem competition is often a better way to describe competition
Competition is an outcome	Competition is a process
Societal goal is consumer welfare	No social welfare standard in management theory, but dynamic competition favors long-term consumer welfare
Potential competition	Latent competition
Business environment is characterized by quantifiable risk	Business environment is characterized by unquantifiable uncertainty

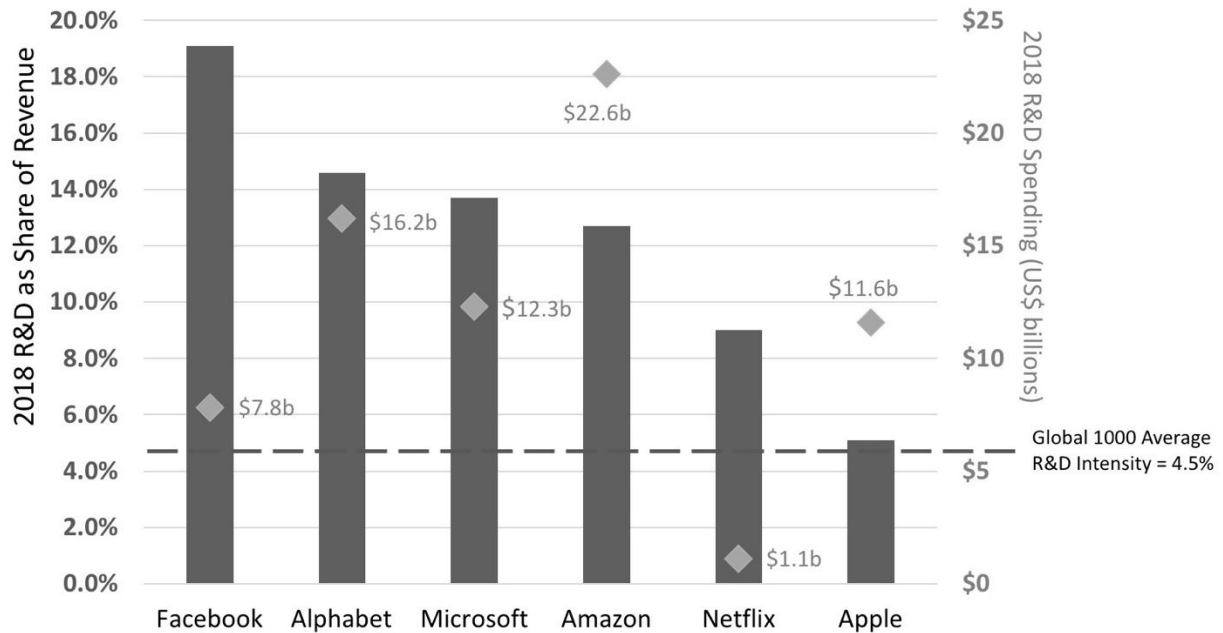
Table 2. Management research topics relevant to competition policy

Potential competition and the evolution of nascent competitors
Mergers and acquisitions and impact on innovation
Disruption from complements
Intellectual property, competitive advantage, and disruption
Ecosystem leadership/curation
Cospecialization and asset orchestration
Life cycle theories of platform evolution
Disruption and “business stealing”
Dynamic capabilities and dynamic competition

Table 3: Indicia of competitive environments in competition economics and strategic management

COMPETITION ECONOMICS PERSPECTIVE	STRATEGIC MANAGEMENT PERSPECTIVE
Unconcentrated markets	Robust innovation ecosystems
New entry	New entry/ and associated disruption
Price competition	Amplified price competition
Introduction of improved products	Introduction of new products and new product categories
Changes in market share	Changes in positioning
--	High R&D/sales
--	Active asset orchestration
--	Constant repurposing of assets, repositioning
--	Incumbent renewal/restructuring
--	Variety and experimentation in business methods and models
--	High rates of enterprise formation
--	Innovative organizational culture
Homogenous competitors	Heterogenous competitors and complementors
Zero economic profit	Positive Ricardian and Schumpeterian profits

Figure 1. R&D intensity for firms in the Global Innovation 1000 study (2018)



Source: calculated from Global Innovation 1000 data for 2018.

<https://www.strategyand.pwc.com/gx/en/insights/innovation1000.html> (Accessed August 19, 2022).