

Anticipating the Next Generation of Powerful Digital Players: Implications for Competition Policy

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I. INTRODUCTION

Competition remains the governing principle of a market-based economy. Well-functioning markets promote entrepreneurial and consumer freedom and are more likely to produce fairly priced, high quality, and innovative products and services. But anticompetitive mergers and harmful conduct of dominant firms and oligopolies limit the benefits of competition. Antitrust enforcement thus remains a vital oversight role for government in calling “balls and strikes” in the markets. But despite the importance of antitrust enforcement in a market economy, public attention to concerns over declining competition, consolidation, and the exercise of market power by large players remains low. For example, a survey of internet searches indicates declining, flat, or only slightly increasing trends for terms relating to antitrust and competition over the last 20 years.¹

One of the few exceptions to the general public malaise around antitrust enforcement is digital technology. The U.S. now confronts large “digital business ecosystems” (DBEs) that exercise their substantial market power, to the detriment of competition, consumers, and workers. These DBEs operate in a variety of markets including, among others, search, social media, services, app stores, and eCommerce. In the process of growing to become the world’s most valuable companies, the five largest “first-generation” DBEs made hundreds of acquisitions. Many were arguably illegal under Section 7 of the Clayton Act, but went unchallenged by antitrust enforcers, despite a statutory intent to stop harmful mergers and acquisitions in their incipency.²

“The Digital Business Ecosystem model is host to unique economic features and ‘growth by acquisition’ that make it a formidable source of market power.”

Using a variety of anticompetitive methods, some of the largest DBEs have squeezed out smaller rivals operating on their platforms. Some of these companies, including Google (Alphabet) and Facebook (Meta), are now the subject of public and private monopolization cases. But those cases will take time to advance through the courts.³ Moreover, competition policy appears still to give significant deference to the venture capital-backed startup model in the digital sector. The model provides a feed of potential acquirees, many of which enhance the market power of DBEs and specialized digital companies, or are extinguished through so-called “killer” acquisitions.⁴ Rather than spurring innovation through the growth of independent

¹ Google Trends, <https://trends.google.com/trends/?geo=US>. Queried for “antitrust” and “competition” from 2004 to the present.

² 15 U.S.C. 12-27, Clayton Antitrust Act (1914). See, e.g., Remarks by Assistant Attorney General Bill Baer at the American Bar Association Clayton Act 100th Anniversary Symposium, Dec. 4, 2014, <https://www.justice.gov/opa/speech/remarks-assistant-attorney-general-bill-baer-american-bar-association-clayton-act-100th>.

³ See, e.g., FTC v. Facebook, No. 1:20-cv-03590 (D.D.C. filed Dec. 9, 2020); New York v. Facebook, No. 1:2020-CV-03589 (D.D.C. filed Dec. 9, 2020); and U.S. v. Google LLC, No. 1:20-cv-03010 (D.D.C. filed Oct. 20, 2020).

⁴ Colleen Cunningham, Florian Ederer, and Song Ma, *Killer Acquisitions*, 129 J. POL. ECONOMY (2021), <https://ssrn.com/abstract=3241707>.

companies that could come to challenge the market position of large players, the model maximizes acquisition prices for startup founders and their funders.

The digital sector therefore poses enormous challenges for competition policy and antitrust enforcement in restraining harmful consolidation and deterring anticompetitive conduct. These hurdles are growing. In failing as the first line of defense against concentration and dominance, lax merger enforcement⁵ has put enormous pressure on already impaired monopoly law to address market power concerns in the digital sector.⁶ Yet the U.S. is making relatively slow progress in addressing significant competition concerns in the digital sector. While political attention and legislative initiatives remain focused on the largest players,⁷ empirical analysis in this report indicates that a “next generation” of powerful digital players is on their heels. Competition policy in the digital sector should not overlook them.

“Competition policy should not overlook the next generation of powerful digital players.”

Previous AAI research reveals that the DBE business model is host to unique economic features and “growth by acquisition” that make it a formidable source of market power.⁸ Up-and-coming digital players will therefore raise the same market power concerns as the current large, incumbents. This report seeks to identify this group of players and explore their characteristics. It identifies a sample of public and private digital companies that have the distinctive features of DBEs and other specialized digital players that could grow to dominance or provide rich acquisition targets. Once identified, we evaluate their key characteristics, such as age, value, and acquisitiveness. We then examine those features using a number of comparisons, including digitals v. non-digital firms, digitals v. “super-digitals,” and public v. private digitals, to identify key trends in business creation and expansion, and what they might mean for competition policy in the U.S.

⁵ See, Diana L. Moss, *The Record of Weak U.S. Merger Enforcement in Big Tech*, AMERICAN ANTITRUST INST. (Jul. 8, 2019), https://www.antitrustinstitute.org/wp-content/uploads/2019/07/Merger-Enforcement_Big-Tech_7.8.19.pdf, and Diana L. Moss, *Update on Digital Technology: The Failure of Merger Enforcement and Need for Reform*, AMERICAN ANTITRUST INST. (Mar. 3, 2021), https://www.antitrustinstitute.org/wp-content/uploads/2021/03/Merger-Enforcement_Big-Tech_3.3.21_F.pdf.

⁶ See, *Comments of the American Antitrust Institute to the U.S. House of Representatives, Committee on the Judiciary Subcommittee on Antitrust, Commercial and Administrative Law Judiciary Committee, Investigation into Competition in Digital Markets*, AMERICAN ANTITRUST INST., Apr. 17, 2020, https://www.antitrustinstitute.org/wp-content/uploads/2020/04/HJC_AAI-Comments_4.17.20.pdf.

⁷ Amazon, Apple, Google, Meta, and Microsoft. See, e.g., *House Lawmakers Release Anti-Monopoly Agenda for “A Stronger Online Economy: Opportunity, Innovation, Choice*, Jun. 11, 2021, <https://cicilline.house.gov/press-release/house-lawmakers-release-anti-monopoly-agenda-stronger-online-economy-opportunity>; and Klobuchar, Grassley, *Colleagues to Introduce Bipartisan Legislation to Rein in Big Tech*, Oct. 14, 2021, <https://www.klobuchar.senate.gov/public/index.cfm/2021/10/klobuchar-grassley-colleagues-to-introduce-bipartisan-legislation-to-rein-in-big-tech>.

⁸ Diana L. Moss, Gregory T. Gundlach, and Riley T. Krotz, *MARKET POWER AND DIGITAL BUSINESS ECOSYSTEMS: ASSESSING THE IMPACT OF ECONOMIC AND BUSINESS COMPLEXITY ON COMPETITION ANALYSIS AND REMEDIES* (Jun. 1, 2021), <https://www.antitrustinstitute.org/work-product/aai-issues-report-market-power-and-digital-business-ecosystems-assessing-the-impact-of-economic-and-business-complexity-on-competition-analysis-and-remedies/>.

II. SUMMARY AND RECOMMENDATIONS

Major takeaways from the analysis in this AAI report reveal that digital companies are far higher in value and grow more through acquisition than non-digital companies. Moreover, a subset of super-digital firms with specialized focus on critical DBE technologies and capabilities are more valuable and acquisitive than all digital firms. Trends in business creation and acquisitions by large, first-generation DBEs indicate that while they may be mature and acquiring at a lower rate, smaller digital firms continue to grow rapidly through acquisition. Some of these firms will present rich take-over targets that could accelerate the growth of other up-and-coming digital players. Others represent the next generation of potentially powerful firms that pose the same market power risks as today's large players. They are less likely to challenge the entrenched market position of today's largest DBEs and more likely to grow to dominance in niche markets such as fintech, online real estate, internet-based healthcare, B2B services, and others.

The analysis in this report has important, and immediate, implications for competition policy, including:

- **Broad Scope for Competition Policy.** Competition policy in the digital sector should focus on pre-emptively addressing the accretion of market power by acquisitive digital firms. It should be based on forward-looking analysis of the next likely wave of expansion and focus on the entire sector, not just the largest of the first generation of DBEs.
- **Dedicated Digital Sector Regulator.** Antitrust alone cannot address the market power issues raised in the digital sector. The complexity of the DBE business model, pervasive market failures, and technology-intensity of the sector supports the need for a dedicated digital sector regulator with technical expertise and rulemaking authority to set, monitor, and enforce competition rules for digital markets.
- **Strengthening Antitrust Enforcement.** To adequately, and proactively, address market power problems in the digital sector, antitrust enforcers need more resources and authority. These include: support for the government's ability to block more harmful mergers and acquisitions and to bring successful monopolization cases; stricter standards for acquisitions of potential competitors, and lower HSR reporting thresholds for the digital sector to flag smaller, accretive acquisitions.

III. THE DIGITAL BUSINESS ECOSYSTEM MODEL IS MARKED BY “GROWTH BY ACQUISITION” AND ACCRETION OF MARKET POWER

The DBE model generally features a multi-sided platform, or set of technologies on which other technologies interoperate. Platforms can focus on social media, communications, media and content, search, services, financial transactions, and other markets that connect providers and users. The engine of the DBE is cloud infrastructure, a suite of technologies that gathers, stores, and monetizes user data. Together, the platform and cloud architecture of a DBE support a highly interconnected ecosystem that can host a diverse constellation of applications on and around the platform. Algorithmic recommendation systems are often deployed to keep users engaged in an ecosystem, which is central to the DBE value proposition. These systems are constantly improved by artificial intelligence (AI) and machine learning.

“The largest DBEs have grown through acquisition to reinforce platforms, expand cloud capability, and add applications to their ecosystems. But they are now on the downside of this massive cycle.”

The potential for the accumulation and exercise of significant potential market power by DBEs is explained in AAI’s 2021 report MARKET POWER AND DIGITAL BUSINESS ECOSYSTEMS: ASSESSING THE IMPACT OF ECONOMIC AND BUSINESS COMPLEXITY ON COMPETITION ANALYSIS AND REMEDIES:

DBEs feature unique economic, technological, and business characteristics that increase their opacity to consumers, competition enforcers, and lawmakers. These include information as the currency of exchange and a range of market failures such as positive network effects, information asymmetries around user data and privacy, and data externalities. As the “engine” of commerce and growth in DBEs, cloud computing technology adds further complexity to the analysis of market power. This is particularly true of data analytics, supported by artificial intelligence (AI) and machine learning, which powers the DBE “value proposition” of maximizing user engagement and monetizing user data.⁹

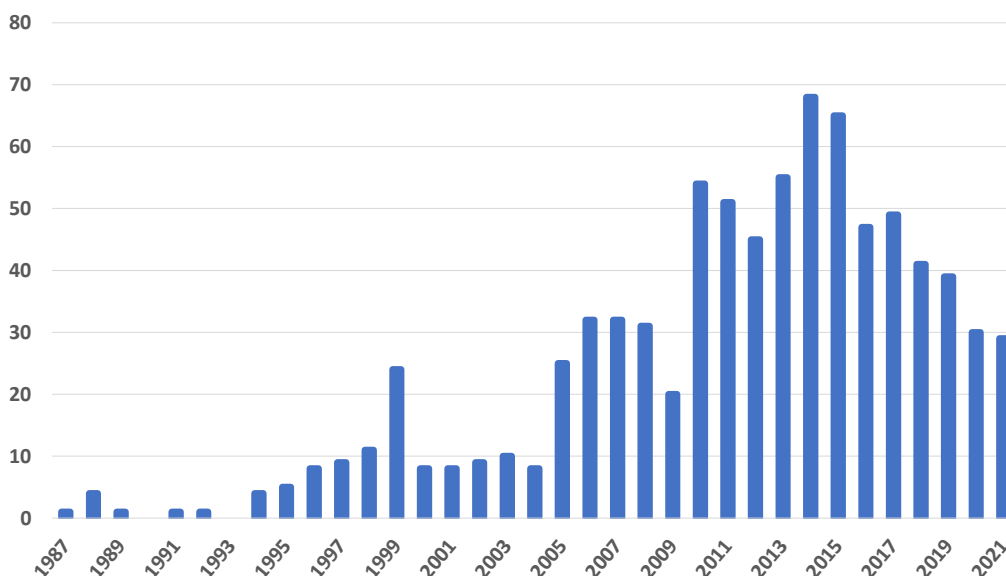
The structure of the DBE business model, and its substantial capacity for expansion, supports the notion of “growth-by-acquisition.” Indeed, we have seen the largest DBEs reinforce their platforms, expand their cloud capabilities, and add applications to their vast ecosystems. Figure 1 shows the hundreds of acquisitions made by Amazon, Apple, Alphabet (Google), Facebook (now Meta), and Microsoft over the last three decades.¹⁰ Acquisition began in earnest in the mid-2000s, peaked around 2014-2015, and have fallen off since then. Some of this expansion

⁹ *Id.*

¹⁰ Data sourced from Crunchbase.com.

was undoubtedly driven by the intense acquisition of cloud infrastructure beginning in about 2008 and peaking in 2014.¹¹ At the peak of the expansion cycle shown in Figure 1, acquisitions involving cloud infrastructure accounted for about one-third of total transactions made by the five largest DBEs. Amazon’s AWS is the leader in cloud (32% of the market), followed by Microsoft’s Azure (21% of the market), and Google Cloud (8% of the market).¹²

Figure 1
Number of Acquisitions by Amazon, Apple, Google, Facebook, and Microsoft (1987-2021)



The fall-off in acquisitions by the largest DBEs may be the result of reaching the limits of this phase of their expansion (i.e., “maturation”), driven by the rapid build out of cloud capability. It could also be related to more general merger cycles; to market and regulatory factors, such as more intense antitrust scrutiny; or the availability of good takeover targets in the form of smaller private or public companies.¹³ Regardless, M&A activity in the North American digital sector remains at record levels. It accounts for about 13% of all deals since 1985, second only to industrials, which is a far older and more entrenched sector.¹⁴ And the global market for “digital transformation,” which was valued at about \$336 billion in 2020, is only getting larger, with an expected annual compound growth rate of almost 25% through 2028.¹⁵

¹¹ American Antitrust Institute, Letter to U.S. Dep’t. of Justice re: Antitrust Review of Google’s Acquisition of Data Analytics and Business Intelligence Startup Looker, Jul. 8, 2019, https://www.antitrustinstitute.org/wp-content/uploads/2019/07/AAI-Ltr-to-DOJ_Google-Looker_7.8.19.pdf.

¹² Cloud infrastructure services vendor market share worldwide from 4th quarter 2017 to 3rd quarter 2021, *STATISTA.COM*, <https://www.statista.com/statistics/967365/worldwide-cloud-infrastructure-services-market-share-vendor/>, queried Jan. 7, 2022.

¹³ Acquisition activity follows the more general trends in North American merger cycles. See, Number and Value of M&A North America, Inst. for Mergers, Acquisitions, and Alliances, <https://imaa-institute.org/mergers-and-acquisitions-statistics/>.

¹⁴ Overview: Number of Mergers & Acquisitions by Industry Since 1985, Institute of Mergers, Acquisitions, and Alliances, <https://imaa-institute.org/mergers-and-acquisitions-statistics/ma-statistics-by-industries/>.

¹⁵ *Digital Transformation Market Size, Share & Trends Analysis Report By Type*, Grandview Research, May 2021, <https://www.grandviewresearch.com/industry-analysis/digital-transformation-market>.

In light of the meteoric growth of the digital sector, we note that there is a substantial economics literature on how businesses grow—organically, through acquisition, or some combination of the two. A key takeaway is that organic growth can limit further organic growth.¹⁶ Drivers of growth include novel use of existing resources and how managers combine resources to achieve the potential for growth. Organic growth can thus limit further organic growth because there are limited uses of resources, and one of these pathways is necessarily used in generating the initial organic growth.

A second theme in the literature is that acquisitions themselves are a pathway by which firms can grow organically.¹⁷ Research shows that acquisitions increase the "search space" of combinations for growth, facilitated by higher capitalizations that allow firms to take on what are seen as risky investments, while other firms follow when those risks are better defined. Acquisitions can either allow firms to develop new resources that enable more uses, and/or introduce new managers with different perspectives that enable them to develop novel uses of existing resources. Finally, other research finds that growth is systematically related to characteristics of the firm, such as age and size, and environment (i.e., associated industries).¹⁸

“M&A activity in digital transformation is at record levels, with the digital sector second only to industrials in volume. And the \$336 billion global market is expected to grow 25% annually through 2028.”

The research on firm growth has important applications in the digital sector, raising questions about acquisitive growth and its relationship to characteristics of the firm, including industry specialization. To better explore these questions, we developed samples of U.S.-based public and private digital companies. The selection criteria for populating these samples are based on the scope and degree of a company’s focus on the major technologies and services that support the DBE model.¹⁹ These include technologies and services relating to a platform, software applications and services, and the major elements of cloud infrastructure.²⁰

Queries of industry data sources produced about 500 public and private companies covering a wide range of sectors, including healthcare, finance, energy, retail, transportation, advertising, content and publishing, and real estate. We excluded the top five DBEs from the public sample.

¹⁶ Edith Penrose, *THE THEORY OF THE GROWTH OF THE FIRM*, Oxford University Press, 2009.

¹⁷ Andy Lockett, Johan Wiklund, Per Davidsson, and Sourafel Girma, *Organic and Acquisitive Growth: Re-examining, Testing and Extending Penrose’s Growth Theory*, 48 J. OF MGMT. STUDIES (2011), at 48-74.

¹⁸ Frédéric Delmar, Per Davidsson, William B Gartner, *Arriving at the high-growth firm*, 18 JOURNAL OF BUSINESS VENTURING (2003), at 189-216. The literature also highlights that firms that grow largely by acquisition grow in absolute size and employment, but retract in terms of organic employment, pre-emptively dispelling arguments of job creation.

¹⁹ Industry databases queried include Fidelity.com Stock Research Center and Crunchbase.com.

²⁰ The majority of companies in the public sample have the primary sector designation “Information Technology,” based on the four-level Global Industry Classification Standard (GICS) system. Most of those, in turn, fall under the industry sub-group of “IT Services” or “Software.” Also represented are the primary GICS sector categories “Communications Services” and “Consumer Discretionary.” In the former, most public digitals fall under the industry sub-group “Interactive Media and Services” and for the latter, under the industry sub-group of “Internet & Direct Marketing Retail.” See, Global Industry Classification System, S&P Global and MSCI, https://www.spglobal.com/marketintelligence/en/documents/112727-gics-mapbook_2018_v3_letter_digitalspreads.pdf.

Their development and acquisition histories have been well documented. But they are far more mature and entrenched relative to other companies that trail in size and capabilities but that may be employing similar acquisition strategies to grow. Removing these DBEs from the sample eliminates their outsized impact on sample statistics and allows for better identification of patterns that provide insight into the development of up-and-coming digital firms. The analysis and recommendations in this report are based on analysis of data on the firms in our public and private samples, including market capitalization or total funding, age, number of acquisitions, and other variables.

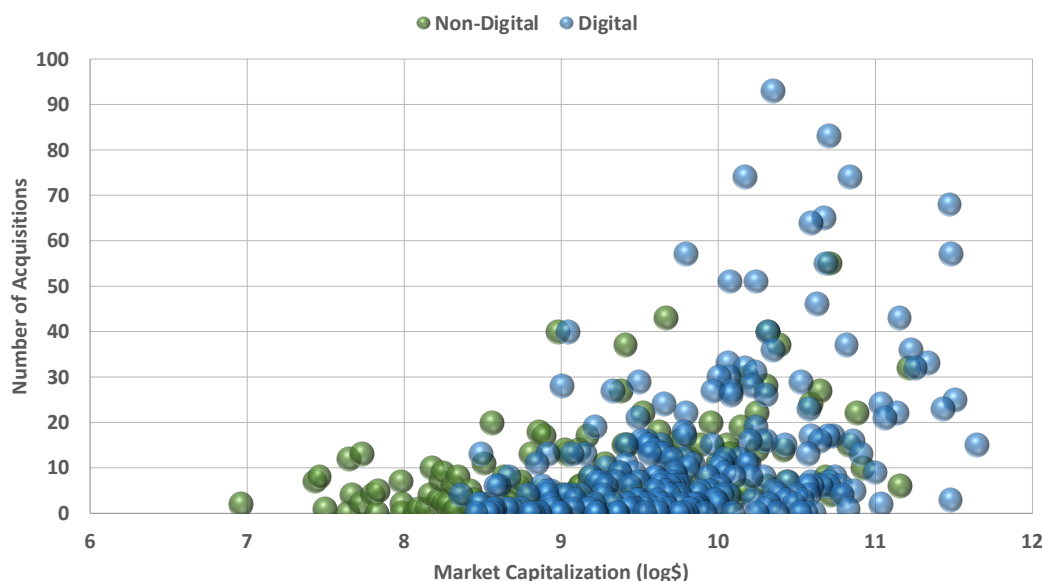
IV. DIGITAL BUSINESSES ARE MORE VALUABLE AND ACQUISITIVE THAN NON-DIGITALS

The unique expansion pathway of digital companies is better understood when it is compared to a benchmark, such as a more traditional non-digital business model. Digital companies specialize in technologies and capabilities that are very different from those in the non-digital sector. Creating a comparison group of non-digital companies therefore rests on identifying close matches based on the industry classifications of companies in our digital samples.²¹ In other words, while business models may differ significantly between digital and non-digital companies, both types of firms operate in some of the same industries, based on commonly used classification systems. Once we identified the counterfactual group of non-digital firms, we compared them to the digital samples on the basis of their size and acquisitiveness. Figure 2 shows a scatterplot of acquisitions versus market capitalization for the digital and non-digital samples.

“To better understand how digital firms grow, we developed samples of public and private companies based on the intensity of a company’s focus on digital technologies and services.”

²¹ To create the counterfactual group of non-digital companies, we used dummy variables for each company based on the industry classifications for the companies in the public and private digital samples. For each IPO categorization (public/private) and estimated revenue range, we used propensity score matching to find a sample of non-digitals with the closest match of industries. Market capitalization for those companies not acquired was retrieved by querying their ticker symbol from the Yahoo Finance API.

Figure 2
Acquisitions v. Market Capitalization for Digital and Non-Digital Companies



In both the digital and non-digital samples, acquisitiveness is moderately and positively correlated with company value, and statistically significant at the 5% level.²² Comparing the scatterplots reveals that digital companies are generally larger and more acquisitive than their non-digital counterparts. For example, on the low end of the size spectrum, non-digital firms are smaller than their digital counterparts. And on the high end of the acquisitiveness spectrum, digital firms are more active than their non-digital counterparts.

A closer look at averages for key statistics across the digital and non-digital company samples is shown in Table 1. Non-digital companies are, on average, about one to two-thirds less acquisitive than their digital counterparts. Public non-digitals are a mere fraction of the value of public digital firms, and private non-digitals are about one-third the value of private digitals. Public non-digital companies are 1.5 times older than their digital counterparts, while private non-digitals are almost 1.8 times older, a not surprising result given the relative youth of the digital sector. Comparisons of digital versus non-digital companies, therefore, support the notion that the former have grown more rapidly and through acquisition.

Table 1
Features of Digital and Non-Digital Companies

Feature	Public		Private	
	Digital	Non-Digital	Digital	Non-Digital
Average Number of Acquisitions	14	9	3	1
Average Capitalization or Total Funding	\$28B	\$490M	\$295M	\$170M
Average Age of Company (years)	26	40	13	23

²² Correlation coefficients for both the digital and non-digital samples are just over 40%.

As discussed earlier, the public and private companies in our digital samples all have characteristics central to the DBE business model. However, some of those companies are even more focused on technologies that are particularly integral to DBE infrastructure and growth, including elements of cloud infrastructure, such as cloud computing, data analytics, and AI. We therefore sought to identify those companies using a scoring system whereby firms with both broader digital features *and* a significant focus in cloud technologies received higher scores. We then looked more closely at those companies that were in the top 20% percentile of the public and private samples based on their score. This analysis produced subset of “super-digital” companies.

“Data show that digital companies more valuable and acquisitive than non-digitals. Moreover, super-digitals are even more valuable and acquisitive than all digitals.”

Table 2 summarizes major features of all public and private digitals in the larger samples and the subset of super-digitals in each group. The results show that super-digitals are larger and more acquisitive than all digitals. The average age of all public digitals is about 26 years, with a market capitalization of almost \$30 billion and about 14 acquisitions per firm. On average, these companies rank within the Fortune 1000.²³ But market capitalization for public super-digitals is, on average, about \$95 billion, more than three times that of the larger sample, and they each acquired an average of just over 50 companies, almost four times that of the larger sample. This group of public super-digitals ranks, on average, *within* the Fortune 500.²⁴

In contrast, the average age of all private digitals is about 13 years, or half the age of public digitals. They have total funding of almost \$300 million and have made a small fraction of public acquisitions, or about three per firm.²⁵ Private super-digitals are those with total funding, on average, of about \$350 million, or about 1.2 times more than the larger private sample.

Table 2
Features of All Digital and Super-Digital Companies

Feature	Public		Private	
	All Digitals	Super-Digitals	All Digitals	Super-Digitals
Average Number of Acquisitions	14	53	3	4
Average Capitalization or Total Funding	\$28B	\$94B	\$295M	\$348M
Average Age of Company (years)	26	29	13	14

²³ *Fortune 500*, 2021, https://fortune.com/fortune500/?utm_content=invest&tpcc=gfortune500&gclid=EAlaIqobChMI_T-trKO9QIVCCZMCh0giAXKEAAYASAAEgK6evD_BwE.

²⁴ *Supra* note 23.

²⁵ Total funding for private companies is not equivalent to market capitalization (or market value) of a public company.

Given the marked differences between public and private super-digitals and their counterparts in the larger digital sample, we looked more closely at their identity and expansion activity. For example, private super-digital companies made just over 100 acquisitions from 2002-2021 and include firms such as ThoughtSpot, DataRobot, Fiscal Note, and Sisense. In contrast, the leading public super-digitals made just over 700 acquisitions from 1987-2021 and include firms like Salesforce, Cisco, Intuit, Adobe, and Oracle.

“The acquisition activity of many large public digital companies has generated virtually no antitrust scrutiny and they are not the subject of current legislative proposals.”

Many of the public super-digitals were extremely acquisitive. For example, Salesforce acquired 68 companies between 2006-2021, or about 4.5 acquisitions per year. Norton LifeLock acquired 75 companies between 2003-2021, or about four per year. And Oracle made 144 acquisitions from 1996-2021, or almost six per year. Many public top digital companies are very large, with market capitalizations between \$200-300 billion. But they have generated virtually no antitrust scrutiny, with a large number of deals that were cleared to either the DOJ or FTC receiving “early termination” because they raised no significant competition concerns.²⁶ Moreover, these companies are not the subject of current legislative antitrust proposals involving digital technology.

V. LARGE EXISTING DIGITAL PLAYERS APPEAR MATURE, BUT NEXT GENERATION DIGITALS CONTINUE TO ACQUIRE AND GROW

The Federal Trade Commission (FTC) recently performed a study under its Section 6(b) authority of acquisitions by Amazon, Apple, Facebook, Google, and Microsoft.²⁷ The study examines patterns of acquisitions in the areas of mobility, application software, internet content/commerce, infrastructure management, information management, systems, security, and media technologies. The FTC study confirms the peak in acquisitions in 2014 observed in AAI studies that pre-date it²⁸ and finds that while having declined somewhat, acquisitions remain higher than previous levels. The majority of acquisitions (about 65%) were less than \$25 million in value, with nearly all falling under the “size of transaction” threshold under the Hart

²⁶ Early Termination Notices, Fed. Trade Commn., <https://www.ftc.gov/enforcement/premerger-notification-program/early-termination-notice>. Database was queried for all top public and private digital companies.

²⁷ NON-HSR REPORTED ACQUISITIONS BY SELECT TECHNOLOGY PLATFORMS, 2010–2019: AN FTC STUDY, Fed. Trade Commn., Sept. 2021, <https://www.ftc.gov/system/files/documents/reports/non-hsr-reported-acquisitions-select-technology-platforms-2010-2019-ftc-study/p201201technologyplatformstudy2021.pdf>.

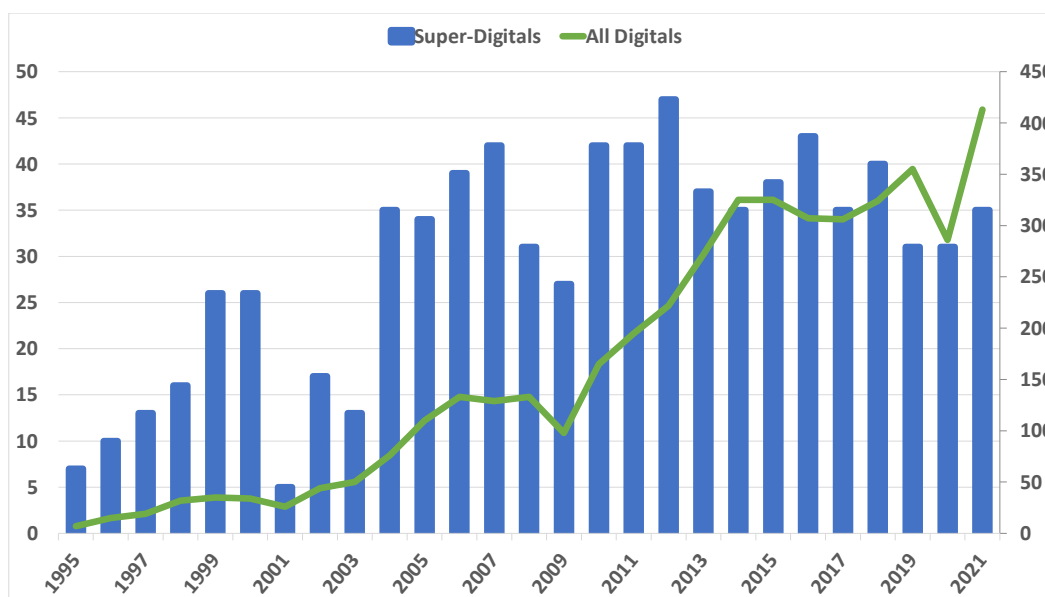
²⁸ *Supra*, note 5.

Scott Rodino Act requirements. Most acquisitions were younger companies, with about 55% less than five years old and over 80% less than 10 years old.²⁹

While the FTC study is historical, analysis in this AAI report addresses a more pressing question, namely, the significant growth trajectory in the digital sector. This trajectory becomes clear when we compare the acquisition patterns of the public and private digital companies in our larger sample with our subset of super-digitals. For example, public and private companies in the larger sample acquired a total of almost 4,500 companies from 1995-2021, while those in the super-digital sample acquired over 750. Figure 3 shows these trends. Acquisitions by digital firms in the larger sample rose steadily through about 2014, continued to rise but at a lower average level through 2019, dipped briefly in 2020, and were on the rise again. But acquisitions by super-digital firms generally increased through 2012, then dropped and stabilized at a lower level. Acquisition activity by super-digitals and all digitals therefore diverged as of about 2014.

“Acquisition activity by larger DBEs has slowed, but the rest of the sector is ramping it up, highlighting ongoing expansion that will produce the next-generation of large digital players.”

Figure 3
Acquisitions by All Digital and Super-Digital Companies (1995-2021)



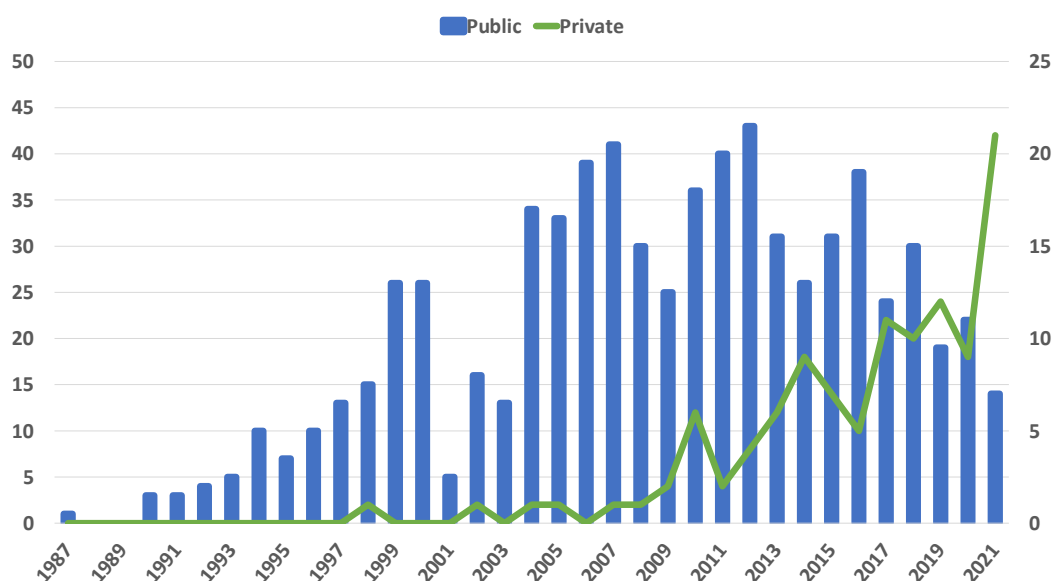
An important takeaway from the analysis thus far is the difference in acquisition trends across the different samples of digitals. For example, as of about the mid-2010s, acquisitions fall off sharply for the five largest DBEs (Figure 1), fall off then stabilize for super-digitals (Figure 3), and

²⁹ *Id.* The majority of acquisitions also involved deferred or contingent compensation of founders and non-compete clauses.

continue to rise for all digitals (Figure 3). These comparisons highlight that the more highly capitalized and acquisitive super-digitals, much like the five largest DBEs, have matured to the point where they are expanding less rapidly and/or that more antitrust scrutiny of larger players may be slowing the pace of acquisitions.

Given the notion that the genesis of the now large public digital players was the small “startup,” the foregoing dynamics bring into focus the role of the private startup model in the digital sector. We therefore took a closer look at acquisition patterns based on public or private status. Figure 4 shows these trends for the super-digitals. It indicates that public firms are on the downside of an acquisition cycle that began around 2000 and peaked around 2012. In contrast, however, private super-digitals are still very much on the upside of a smaller acquisition cycle that began a decade later, around 2010.³⁰ The acquisition patterns of public and private super-digitals therefore also diverge significantly. This may be, in part, because public firms with higher capitalizations are on the front end of acquisition cycles, while smaller private players wait until risk is better defined before attempting similar types of expansion.

Figure 4
Acquisitions by Public and Private Super-Digital Companies (1987-2021)



That public super-digital companies are cycling out of an acquisition period confirms that they are part of a cohort of large, acquisitive firms that have likely reached maturity, or at least the limits of this phase of their expansion. In contrast, the idea that private super-digitals are entering a cycle of acquisition raises larger questions about the dynamics of the private startup model. We therefore took a closer look at patterns involving *only* private digital firms. Figure 5 reveals that the cycle of private digital business creation that began around 2000 has recently

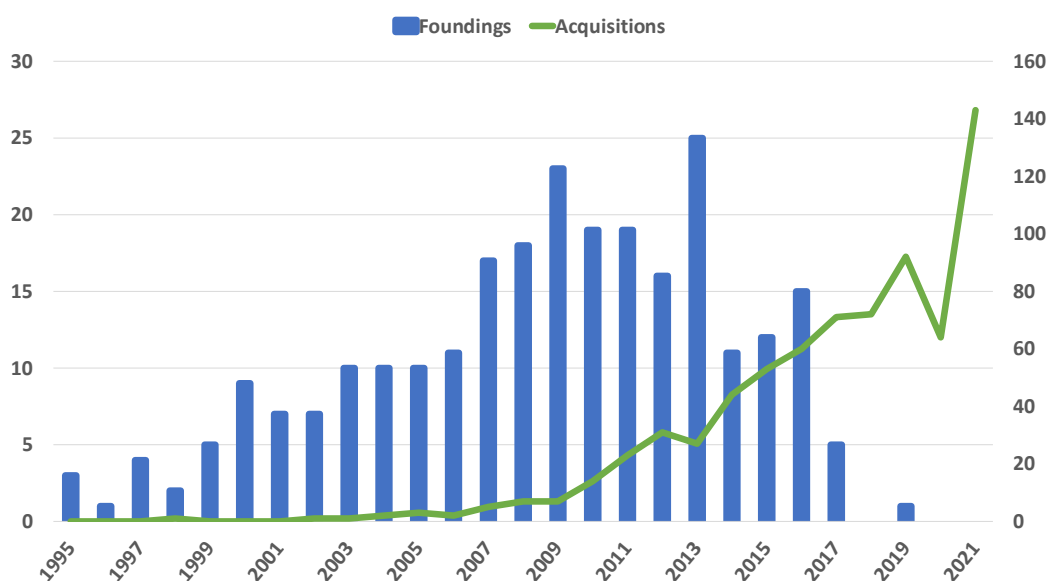
³⁰ Acquisitions of the top scoring private digitals move almost in lockstep with that of the private digitals in the larger sample.

ended. This could be related to market risk, or the effect of the dominance of large DBEs in markets such as social media and e-commerce on discouraging market entry, thus affecting decisions to form new ventures.³¹

“The most recent cycle of private digital business creation has waned but private players continue to acquire and expand, making them potential IPO candidates or rich takeover targets.”

The fall-off in private digital business creation could also be related to the existing “stock” of smaller private digital companies. For example, data indicate that a significant number of smaller digital companies built up over the 2000s and 2010s.³² But the now larger public digitals are more entrenched and in a less acquisitive phase, possibly leaving an “overhang” of private digital firms. If this exists, it might explain why foundings of private digital firms fell off around 2012, as the largest DBEs and super-digital firms ramped down their acquisitions.³³

Figure 5
Foundings and Acquisitions by All Private Digital Companies (1995-2021)



However, private digital firms are *continuing* to acquire, and at a fast pace, as shown by the three-fold increase in acquisitions between 2013 and 2019. In continuing to expand in the wake of the fall-off in acquisition cycle of the larger public DBEs, private digitals are growing larger

³¹ See, e.g., *Fast Forward: How Technology M&A is Reshaping Industry*, MergerMarket, 2021, at 4, <https://media2.mofo.com/documents/210928-mofo-tech-ma-survey.pdf>.

³² Based on the observation that the founding dates for the companies that were acquired by public digitals in our larger sample and those that remain private move together.

³³ See, e.g., Amy Scott, *With So Many Startups Growing Into Unicorns, Can They Still Be Magical?* Aug. 12, 2019, NPR.ORG, <https://www.npr.org/2019/08/12/736643714/with-so-many-startups-growing-into-unicorns-can-they-still-be-magical>.

and more valuable. This growth may well presage a new series of initial public offerings as private firms go public and take their place in the next generation of powerful digital firms. If they remain private, those companies could also present rich take-over targets that could accelerate the growth and accretion of market power by the next generation of powerful digital players.

VI. CONCLUSIONS

Policymakers in the U.S. have the formidable task of reining in the anticompetitive conduct of DBEs *and* crafting policy that anticipates the next generation of powerful digital players. This report reveals that the digital sector features enormous consolidation, designed to realize the DBE value proposition by fortifying platforms, expanding cloud infrastructure, and adding applications to vast ecosystems. Given that the DBE business model is home to significant market power, this activity is a clear warning to competition policymakers. Indeed, our analysis indicates that digital companies are higher in value and more acquisitive than non-digital companies. Moreover, some digitals with a particularly intense focus on DBE technologies and capabilities are more acquisitive and valuable than all digitals.

Now that the larger DBEs are either mature or at the natural limits of this phase of their expansion, policymakers should not forget that smaller, up-and-coming digital players continue to acquire, pointing to the next cycle of expansion activity and the availability of rich takeover targets. This next generation of potentially powerful digital companies therefore highlights a number of policy implications:

- **Broad Scope for Competition Policy.** Competition policy in the digital sector should focus on pre-emptively addressing the accretion of market power by acquisitive digital firms. It should be based on forward-looking analysis of the next likely wave of expansion and focus on the entire sector, not just the largest of the first generation of DBEs.
- **Dedicated Digital Sector Regulator.** Antitrust alone cannot address the market power issues raised in the digital sector. The complexity of the DBE business model, pervasive market failures, and technology-intensity of the sector supports the need for a dedicated digital sector regulator with technical expertise and rulemaking authority to set, monitor, and enforce competition rules for digital markets.
- **Strengthening Antitrust Enforcement.** To adequately, and proactively, address market power problems in the digital sector, antitrust enforcers need more resources and authority. These include: support for the government's ability to block more harmful mergers and acquisitions and to bring successful monopolization cases; stricter standards for acquisitions of potential competitors, and lower HSR reporting thresholds for the digital sector to flag smaller, accretive acquisitions.