Rise of the New Conglomerates[1]

Summary

We propose a view of conglomerates that is at odds with what was seen in the implementation of highly unrelated diversification strategies pursued in the 1960s. Many of their differences emanated from development of the Internet's enhanced computing power which facilitated greater controls as well as significant scalability. *First,* instead of organizing as passive holding companies, diverse activities within Internet-enabled conglomerates were coordinated via a technology bundle that included customer data, logistical details, common algorithms, and other software resources that were facilitated by advanced computing capabilities, such as artificial intelligence, as well as by enhanced communications capabilities. *Second,* Internet-enabled conglomerates leveraged their accumulated customer data by embracing a "demand-side" strategy perspective—which meant that businesses considered to be unrelated from the "supply side," in fact, often shared customers. Leverage of customer data (and infrastructure investments) drove further demand-side diversification to provide differentiated, complementary products to a core of common customers across business units. *Third,* Internet-enabled conglomerates maintained a tight ecosystem of relationships that were frequently vertically related (*or reciprocal*) in nature to enjoy synergies that were consistent with their customer centrality focus. *Finally,* early losses from their novel and disruptive activity chains were subsidized by providers of capital seeking speculative gains of uncertain duration. In the post-COVID era, when demand declined, turnarounds and restructurings were their fate. (The new conglomerates were most like the speculative conglomerates venerated in the 1960s in this last trait, as firms' organizational structures were inherently malleable as industries evolved.)

[1] We acknowledge suggestions from colleagues noted on cover page and the research assistance of Devash Taori and La-Chia Yang.

Rise of the New Conglomerates

Introduction to Conglomerates

There was once substantial academic debate concerning the merits of highly unrelated diversification strategies that were popular in the 1960s (Chen, Kaul, and Wu, 2019; La Rocca, *et al*, 2018; Markides and Williamson, 1994; Picone and Dagnino, 2016; Schommer, et al, 2019). Much affirmative analysis came from financial economists (Cramer and Iwand, 1969; Lubatkin and Rogers, 1989; Ng, 2007; Stein, 1997), although later the strategies were also dissected to detect why unrelated diversification was once so popular, yet yielded so little (Berger and Ofek, 1995a and 1995b; Economist, 2005).

Conglomerates are highly diversified firms whose lines of business seem unrelated to each other. Traditional examples of conglomerate strategy included ITT in the 1960s or Berkshire Hathaway in the 2020s. Unrelated diversification strategies of this ilk were pursued in the past because they allegedly offered superior risk-pooling attributes (Berger and Ofek, 1995b), as well as provided firms' lines of business with helpful access to internal capital markets—which was advantageous when external capital markets were stressed (Scott, 1977). Conglomerates' cost of capital seemed lower when they were popular because they enjoyed financial synergies that allowed their prospering lines of business to coinsure against downturns that may have been suffered within their other, distressed lines of business (Cramer and Iwand, 1969; Stein, 1997).

Because their diversification choices were motivated primarily by financial considerations, such as counter-cyclicality or risk-reduction (Mason and Goudzwaard, 1976), managers of the older style of conglomerates did not intervene much in their businesses' operating decisions or wrestle with resolving coordination challenges among their lines of

business. The old style of conglomerates controlled their corporate families largely by using a passive holding-company structure (Markham, 1973); there was little need to do otherwise as their business units typically did not share common customers or salient corporate resources with other family members. The businesses were unrelated to each other.

Eventually, passively managed conglomerates that provided nothing more than administrative support to their businesses were largely abandoned as a growth strategy. Investors became disenchanted with highly unrelated diversification strategies that performed poorly relative to other types of diversification strategies that they could invest in (Davis, Diekmann, and Tinsley, 1994).

Conglomerates as a diversification strategy fell into disrepute within post-industrial economies when capital providers no longer awarded financial synergies to firms whose strategies relied upon such synergies for growth and *raison d'être* (Maksimovic and Philips, 2022). Scholarly findings of an inverted U-shaped relationship between performance and diversification strategy (Lubatkin and Chatterjee, 1994; Palich, Cardinal, and Miller, 2000) were interpreted to suggest a need for increased relatedness among firms' lines of business. Implementation of this strategy shift required spinning off those businesses perceived to be in the tail of performance distribution—business units that seemingly did not fit with the other parts of firms' corporate families (Markides and Williamson, 1994).

Although still popular as a diversification alternative in Asia—*e.g.*, in China, Japan, Korea, and India, among others—the prevalence of conglomerate versions of diversification was declining in the U.S.—until recently. The Internet let a new breed of conglomerates develop and grow in sometimes-unlikely directions (Economist, 2015; Sorkin, 2017). Resulting Internet-enabled conglomerates included platform companies, such as Amazon.com, or Facebook that

were characterized by multi-sided markets and matching algorithms (Cennamo and Santalo, 2013; Hagiu and Wright, 2015) as well as diversified media, communications and other existing firms whose revenue growth exploded by entering Internet-enabled activities that previously did not exist. Diverse types of conglomerates exploited the Internet's computing power and organizing potential to serve residential, business-to-business, retailing, and/ or industrial customers in new ways by offering novel Internet-enabled products and services. The new conglomerates' strategic commonality was the unrelatedness of their lines of business and their significant dependence upon Internet-based capabilities for revenue generation.

The organizational structures, management systems, and decision-making processes employed by Internet-enabled conglomerates in 2020 differed from the typical organizational designs of passive, holding-company conglomerates that operated in an earlier era—as did their diversification philosophies. Because the new conglomerates pursued a different logic concerning implementation, they required a new way of thinking about unrelated diversification—one that acknowledged how the capabilities of the Internet had changed online operations and could explain the rise of Internet-enabled conglomerates.

Using interviews and case studies performed within U.S. industries that were enhanced by the capabilities of the Internet, we deduced a new view of Internet-enabled conglomerates that was at odds with the view of unrelated diversification strategies pursued in the 1960s. We offer testable observations about salient differences in the new conglomerates' strategy implementation and discuss implications for received management theory concerning unrelated diversification strategy when considering these newly identified differences.

THE INTERNET-ENABLED CONGLOMERATE PHENOMENON

Internet-enabled conglomerates were a relatively new type of strategic phenomenon that heretofore had not been recognized or analyzed by strategy scholars. Although still unrelated in terms of the productive assets that traditionally classified diversification strategies (which is a traditional "supply-side" way of estimating diversification), firms enabled by the capabilities of the Internet developed into a different type of conglomerate. To explain the new view of how Internet-enabled conglomerates diversified, exemplars were identified to illustrate observed differences in strategy implementation.

Internet Intensity Ratios

The conglomerates of interest to our inquiry used the Internet extensively to conduct salient business. To identify them, we compiled a list of one hundred candidates having the highest revenue from Internet-enabled activities for which data was available for fiscal year ending 2020, as compiled by popular lists found at Investopedia, Motley Fool, Wikipedia, and Crunchbase. In Table 1, Internet intensity was estimated from proportions of revenues generated from Internet activity using firms' industry classification codes and disclosures made in their financial reports. Although some of the Table 1 exemplars were domiciled overseas, all examined firms affected U.S. commerce.

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Table 1 about here

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Internet intensity was firms' respective proportions of Internet-derived revenues as described by corroborating line of business reporting contained in FactSet, Orbis, and COMPUSTAT with information from annual reports. Table 1 shows that the largest firms' Internet-intensity ratios ranged from 41 percent to 100 percent. (Data were not available for

eleven of the one hundred firms originally considered.[2] Only two of those excluded Internet-intensive candidates had high diversification indices—shown in Table 2—that merited further investigation of their respective activities.) Some Internet-enabled conglomerates had Internet-intensity ratios in Table 1 of less than 100 percent by the end of 2020 (Bureau van Dijk, 2020; Crunchbase, 2020; FactSet Research Systems, 2020), as Table 2 explains.

Diversification Estimates

Recognizing that all dogs were not necessarily poodles (and all Internet-intensive firms were not necessarily conglomerates at the end of 2020), we created Table 2's "supply-side" dissimilarity scores (Jacquemin and Berry, 1979) to identify which firms from Table 1 were diversified enough to merit additional study. Our dissimilarity scores captured distances between each firm's "core" and its other lines of business, using North America Industry Classification System (NAICS) codes of the U.S. Census Bureau (2017) provided by Factset Research Systems (2020) and Orbis (Bureau Van Dijk, 2020). Results appear in Table 2. Industry codes proxied for descriptions of which goods and services Internet-enabled firms supplied, using Bureau of Census categories. (Because their diversification scores could not be calculated, eleven firms were excluded from Table 2.[3])

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Table 2 about here

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To approximate diversification, our supply-side dissimilarity scores used a Euclidian dispersion measure in which Orbis reported each focal firm's "core" industry using NAICS codes and FactSet listed the businesses that each focal firm was in. The diversification scores of

[2] No Internet intensity proportions could be found for América Móvil, Bloomberg, Booking Holdings, Epic Games, Grubhub, Hearst, Lyft, Riot Games, Stitch Fix, Stripe, and Workday. Of these, only Lyft and Riot Games had diversification indices higher than 100.0, as is shown in Table 2.

[3] No or low diversification scores were calculated for Carvana, Chewy, Fox, GoDaddy, Grubhub, LogMeIn, Netflix, Nexstar Media Group, Pinterest, Rackspace, and Stitch Fix in 2020 due to a paucity of data.

Table 2 used the square root of the sum of average variance of distances between a conglomerate's "core" business and its secondary business activities for its estimate, also using NAICS codes obtained from Orbis. (The NAICS classification system was preferred for such calculations since it used a more incremental schema for arranging activity lists than did the older Standard Industrial Classification (SIC) system for categorizing firms' diverse lines of business. Using NAICS codes made firms' resulting supply-side dissimilarity scores seem less heterogeneous as Table 1 firms were scored between 19.80 and 163.57 on the relative diversity of their 2020 lines of business.)

Exemplar conglomerate firms were selected from the classification quadrant that juxtaposed high Internet-intensity ratios with high dissimilarity scores. Firms of interest for deriving our view about Internet-enabled conglomerates had diversification scores above 110.0 as well as relatively high Internet-intensity ratios (50 percent of revenues or more). We noted that firms' diversification scores and Internet-intensity ratios were negatively correlated, suggesting that, at the end of 2020, many Internet-intensive firms were narrowly diversified. (For example, Netflix derived 100 percent of its revenues from Internet operations in 2020, but it was not yet broadly diversified.) Although some Internet-enabled conglomerates used platform strategies to reach ultimate customers, the relatively *undiversified* firms shown in Table 2 were especially likely to embrace the types of platform strategies that were heavily dependent upon managing ecosystem networks effectively (Iyer, *et al*, 2006; Jacobides, *et al*, 2018; Kretschmer, *et al*, 2022).

Twenty-four of the firms from Table 1 that also appeared in Table 2 met the criteria of having relatively high Internet-intensity ratios and scores, suggesting highly diverse lines of business that would qualify as conglomerate diversification strategies in 2020. Those firms

included: Alibaba, Alphabet, Amazon. Apple, AT&T, Cisco, Comcast, Dell, Disney, Ericsson, Facebook, IBM, JD.com, Liberty Media, Lumen Technologies, Microsoft, News Corp., Nintendo, Rakuten, Samsung, Softbank Group Corp., Tencent, Verizon, and ViacomCBS. We used extant published case studies to supplement company interviews when examining a subset of these firms to derive our view concerning the logic of unrelated diversification strategy among Internet-enabled conglomerates.

Success online often fueled Internet-intensive firms' subsequent successes as they expanded. Firms enjoyed increasing returns to scale within industries where their increased computing and coordination capabilities—made possible by advanced communications technologies—could be gainfully applied (Arthur, 1996). They increased market share aggressively to utilize increasingly scalable infrastructure investments. Although some of the relatively undiversified firms shown in Table 1 focused upon one activity while relying upon dynamic ecosystems to provide complementary goods and services (Giustiziero, *et al*, 2022; Holgersson, *et al*, 2022; Jacobides, 2022), the Internet-enabled conglomerates of Table 2 augmented their respective ecosystem participation to suit competitive dynamics—sometimes bringing certain activities largely in-house and adjusting their vertical integration arrangements accordingly, and other times participating in explorative alliances with unrelated actors that might someday create new business opportunities. Diversifications to capture greater value-added followed as transaction costs fell after Internet-enabled conglomerates discovered how best to coordinate their activities, conduct commerce, collaborate on innovations, and communicate effectively among their lines of business when performing certain types of transactions (Afuah, 2003; Afuah and Tucci, 2000; Kose and Gaddis, 2022). Strategy implementation differed significantly from the conglomerates of yesteryear.

The enhanced computing power and increasing returns of Internet-based technologies facilitated coordination of diverse activities—allowing Internet-enabled conglomerates to grow large and complex, while using artificial intelligence to routinize their logistics. Thus, where a particular warehousing operation might grow so large as to experience declining returns, an Internet-enabled firm might simply build a second warehouse nearby and manage the logistical operations of the two sites concurrently within the firm's coordination network to keep up with increased demand fulfilled by their more-complex operations (Ding, *et al*., 2021). Within settings where control of information conveyed relative power, their rapid access to transaction information enabled Internet-intensive firms to search more broadly and evaluate a wider variety of alternatives when making operating decisions (as well as infrastructure investments)—thereby reversing many risks of market failure by improving conglomerates' internal capacities for coordinating complex activities (Afuah, 2003; Coase, 1937; Williamson, 1975). This is a marked change in conglomerates' modes of operation.

Improvements in communications technology and the application of artificial intelligence algorithms allowed Internet-intensive firms to gather, index, and employ large amounts of customer data that could be manipulated by conglomerates to invest in creating pleasing transaction experiences to increase customer loyalty (Deighton, 2017). Customer data became a critical strategic resource that could be shared among their lines of business (*but often hoarded from third parties*) as Internet-enabled conglomerates replicated their successes online by expanding into other activities where demand-side advantages could be leveraged. Given the accumulated power of their past software infrastructure investments, Internet-enabled firms easily added the logistic coordination of less-related activities into their ongoing management systems as they diversified broadly—using concurrent sourcing within some of their ecosystems

while integrating heavily in others (Parmigiani, 2007). Extensive use of value-added resellers (VARs) and other forms of quasi-integration enhanced the conglomerates' many value chains.

TRAITS OF INTERNET-ENABLED CONGLOMERATES

Were the firms on our shortlist truly conglomerates? Using the U.S. Census Bureau's NAICS codes as criteria, they were indeed so. Their growth paths were "unrelated" in the sense that their industry codes suggested that they had evolved in directions different from each focal firm's origins. In some cases, focal conglomerates originated products or services that were made possible by the Internet's platform traits (Cennamo and Santalo, 2013) that did not exist beforehand. In other cases, focal conglomerates delivered products to their customers differently. Internet-enabled conglomerates leveraged their growth paths around software-based investments made to enhance the value of their digital resources. They offered complementary products and services to their core customers by working selectively with ecosystem partners, but they were not extremely virtual in operations (Bailey, *et al*, 2012; McIntyre and Srinivasan, 2017).

To make customer engagement with their lines of business seem more distinctive and satisfying than those of competing vendors, Internet-enabled conglomerates invested in proprietary resources that included digital technologies, common algorithms, software backbones, and analyses of customer data (Andreesson, 2001). Typically, access to customer data enabled an Internet-enabled vendor to engage clients more effectively than could its competitors (and retain higher customer loyalty). We found that data resources were highly nurtured throughout Internet-enabled conglomerates via stringent protection of their use—whether said proprietary resources enabled firms to deliver desirable video-entertainment content through various distribution conduits, facilitate convenient retail transactions (including last-mile delivery), target advertising more effectively, provide high-fidelity two-way communications,

facilitate accurate financial transactions, retrieve information easily via search services, improve ease in editorial activities, or otherwise increase customer engagement through their respective superior delivery of services. Certain customer data (and insights) were not shared externally.

What did the Internet-enabled conglomerates have in common? *First,* instead of being managed as passive holding companies, activities within the Internet-enabled conglomerates were *coordinated* via shared customer data, common algorithms, and other software capabilities facilitated by investments in advanced computing capabilities, such as artificial intelligence, and advanced communications technologies. Resulting enhanced organizational capabilities enabled conglomerates' lines of business to interact with non-overlapping ecosystem members that frequently included sister business units. *Second,* Internet-enabled conglomerates leveraged their accumulated customer data to embrace a demand-side strategy perspective—which meant that businesses that seemed unrelated from the supply side, in fact, sometimes shared customers. Leverage of data resources (and infrastructure investments) sometimes drove additional diversification to bring complementary products in-house to pursue certain common customers more effectively. *Third,* the new conglomerates maintained tight ecosystems of relationships around proprietary activities that were frequently vertically related (or reciprocal) in nature to enjoy coordination synergies while protecting their customer data, as was consistent with their customer centrality focus. Their respective roles within ecosystems were dynamic as, with time, activities of lesser proprietary importance were sometimes completely outsourced to business partners or vice versa (McKinley, 2022; Ozcan and Hannah, 2020). *Finally,* expansion of their novel and disruptive structure of activity chains was subsidized by providers of capital seeking speculative gains of uncertain duration. Although their diversification patterns (and the investments made to facilitate subsequent expansion) often transformed the nature of "ticket of

admission" investments vis-à-vis extant competitors and potential entrants, Internet-enabled conglomerates were forced to retrench and reorganize activities when declining demand undermined investor confidence in their disruptive ways of growing since the cost of aggressive conglomerate diversification was subsidized by their rising stock prices.

Each of these observed traits carried several salient implications. The strategic trade-offs prioritized by the Internet-enabled conglomerates were frequently at odds with extant theories concerning the optimal management of intra- and interfirm relationships within unrelated diversification strategies. The ways in which exemplar conglomerates exploited the Internet's potential suggested that Internet-enabled conglomerate strategies differed substantially from those of conglomerate firms pursuing unrelated diversification strategies in the 1960s.

Resources Coordinated Among Line of Business Activities

Instead of having universally loose controls to encourage employee creativity (Bailey, Leonardi, and Barley, 2012; Butler, *et al*, 1998), some operations within Internet-enabled conglomerates required close coordination among business units. This occurred wherever proprietary customer-data or logistical information resources were utilized (Michael, 2007), although use of buffered modules of their products occurred often via exploratory ecosystem participation. But where diverse business units within other types of firms may have enjoyed substantial autonomy to the point of redundancy, Internet-enabled conglomerates tightly controlled business unit autonomy tightly where strategic resources were shared. Finding that Internet-enabled conglomerates imposed tight controls over some activities within their diverse lines of business was unexpected—especially within enterprises where lines of business seemed highly unrelated (from a "supply-side" perspective).

Instead of exerting financial controls like the old style of conglomerates, the new Internet-enabled ones exerted multi-dimensional controls—using software algorithms that tied together critical aspects of the firm's focal operations and used customer feedback to suggest subsequent directions for diversification. Like Alphabet's process for targeting desirable consumers, collected demographic data was parsed extensively to create algorithms that guided how a firm best interacted with its customers; some of those algorithms remained exclusive internally. Use of such customer-data resources and other shared infrastructure was tightly interconnected to present a seamless customer-facing front so as not to disappoint customers. Coordination among a conglomerate's seemingly unrelated operating units was guided by algorithms to provide consistent, error-free experiences (Bierly and Spender, 1995). Such sharing of corporate resources affected product compatibility, customer perceptions and other competitive posture traits that differentiated a focal conglomerate. Shared customer-transaction intelligence gave them enhanced scanning capabilities—which was useful to bring in-house complementary opportunities to serve desirable and hard-won, common customers more effectively as well as evaluate potential commercial partners.

Investments that gave Internet-enabled conglomerates the wherewithal to analyze customers' evolving preferences (and inform supporting lines of business thereof) also enhanced their relationship-based assets (*e.g.*, logistical flexibility, after-sale support, brand equity or corporate reputation) and improved customer interactions by facilitating superior service. Since firms' logistical investments allowed them to shorten cycle times in delivering better customer experiences, use of such resources would not be readily shared outside the conglomerate's value-adding network. Nor would their lines of business enjoy laissez-faire freedoms concerning the

use of such integrating resources. The need for highly controlled use of shared critical resources in these contexts suggested the following observation.

Observation 1*: Lines of business within Internet-enabled conglomerates shared critical customer and logistical data that was highly integrated by use of common algorithms, software backbones or other coordinating mechanisms. Access to such critical and proprietary resources was constrained tightly to insiders. Using it constrained operating autonomy within some lines of business.*

Since customer and logistical data were the critical corporate resources being manipulated within Internet-enabled conglomerates, high coordination of their use fostered the realization of customer-centric strategies. The expectation of customer centricity suggested that corporate-level overseers intervened to a greater degree concerning business unit decisions that affected shared customers and value-chain logistics. Their extent of internally coordinating resources and degree of intervention in operating decisions made the organizational and controls of Internet-enabled conglomerates markedly different from the holding-company structures and systems used within the financially centric conglomerates of the past.

Demand-Side View

Although the exemplar conglomerates from Tables 1 and 2 were diverse in the markets served, their respective strategies were *customer-centric* in emphasis. Customer-centric Internet-enabled conglomerates focused heavily upon customer retention within each type of market that they served, *e.g.*, residential versus business, industrial, governmental consumers, or others (Gupta and Lehman, 2003; Gupta, Lehman, and Stuart, 2004). It made good economic sense for them to focus on building upon clients that they already served successfully to capture the lifetime value of such customers (Bolton, 1998; Rust, Lemon, and Zeithaml, 2004; Venkatesan

and Kumar, 2004). Retaining satisfied customers was relatively less costly than competing for new ones—especially when transitioning their customers from mature products to next-generation replacements (Gupta and Zeithaml, 2006; Reinartz and Kumar, 2003).

The logic of this type of growth path can be explained by the "demand-based" view of diversification strategy that seeks customer-based synergies instead of ones related to production activities (Manral, 2016; Ye, Preim, and Alshwer, 2012). It entertains the paradox that asset investments for expansion often increased the customer-centric Internet-enabled conglomerates' unrelated-diversification scores (which were calculated from a supply-side perspective) while changing their respective demand-side customer-similarity ratios relatively little (Manral and Harrigan, 2018). See Table 3.

Diversification was guided, in part, by finding commonalities among business units when creating value for customers; additions to extant product lines or other expansionary investments that were made to enhance customer patronage (Adner and Zemsky, 2006; Schmidt, Madadok, and Keil, 2016), rather than pursue production-centric investments, *e.g.*, attaining economies of scale, scope, experience, or other topics that a supply-side strategy focus might have considered. Customer-centric Internet-enabled conglomerates looked internally when satisfying wants and needs within each major subset of consumers (Gupta and Lehman, 2006); customer similarities among their business units affected coordination relationships among them by using extant digital investments that could be piggybacked to serve customers better.

Customer-centric Internet-enabled conglomerates enjoyed increasing returns, *i.e.*, synergies, by serving more customers effectively. Typically, their growth paths were horizontally related (from a demand-side perspective) to serve repeat customers that they had satisfied over time, while adding more customers via referrals (Mawdsley and Somaya, 2018). Customer-

centric conglomerates were especially well-suited to extract value from their network of relationships (Stephen and Toubia, 2010) since they occupied such a central position within them (Zhou and Delios, 2012). Table 3 uses selected firms' customer-similarity ratios as a demand-side measure that characterizes firms' relative advantage of cross selling (Yang and Harrigan, 2019).[4] Although their unrelated diversification scores increased as these customer-centric Internet-enabled conglomerates expanded, consistency in their customer similarity ratios suggested great advantages from organizing around core customers.

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In Table 3, customer-similarity ratios (RS) were the weighted sums of timewise (TS) and horizontally related demographic (CS) terms. They were calculated from customer data that was collected for business units of Internet-enabled firms. Customer traits were identified using Crunchbase Pro (Crunchbase, 2020) and FactSet (FactSet Research Systems, 2020). For the timewise term, longitudinal information was compared to create a correlation coefficient using each firm's respective market-based information, *e.g.*, advertising outlays by channel, market shares based upon segment and geographic revenues, among others. These coefficients were compared pairwise for every unique line of business within a firm's corporate family to create the aggregated TS term that was based on such correlations. For the CS term, descriptors of customers shared by a firm's business units were clustered using Euclidian distances to produce scores of within-firm differences for each market segment served, *e.g.*, proportions of customers by age or gender, B2B vs. B2C, proportions of total advertising expenditures per channel, and

[4] Table 3 includes pre-2020 analyses of customer similarity which included firms that were not in the exemplar group of conglomerates. It includes Sony and Charter Communications (owned by Liberty Media). Separate customer-similarity scores were calculated for Viacom, CBS, and 21st Century Fox, respectively, using data from the years before they were acquired or combined with other entities.

others. Sums of squares ratios within and between business units were used to calculate relative similarities. Small ratios for the "between business unit" terms indicated greater customer similarity—reflecting small within group sums of squares (WSS) and small between group sums of square (BSS), respectively. The ratios of WSS/ BSS were used to build the ultimate customer similarity ratio. Table 3 shows firms' combined relatedness RS scores, which were the weighted sum of TS and CS. The CS term was arbitrarily weighted at 25 percent of the total RS term to give greater weighting to the longitudinal factors in the TS term, reflecting firms' consistency of strategic posture.

Viewing the combined data tables illustrates the importance of customer similarity. In Table 1, The Walt Disney Company's Internet-intensity score was 53.2 percent—reflecting its mix of revenues from Disney's non-Internet amusement park, merchandising of consumer goods and online activities. In Table 2, Disney had the highest supply-side dissimilarity ratio, 163.57—reflecting its great diversity among the NAICS codes of its family of businesses. In Table 3, Disney had the highest customer-similarity ratio (RS) among media firms, 0.6719, due to its consistency in communicating with customers within a broad demographic range. (Higher customer-similarity ratios suggested greater potential for cross selling.)

Historically, The Walt Disney Company enjoyed two distinctive corporate competencies—media origination and distribution (Vogel, 2020). Disney became an Internet-enabled conglomerate of competitive necessity as their revenues from video-on-demand distribution eventually outpaced those from theatrical distribution (particularly during the COVID-19 quarantine). Disney faced new types of Internet-enabled competitors, exemplified by Netflix, that entered downstream within the media industry's value chain of activities (Mol, Wijnberg, and Carroll, 2005). It further increased its dependence upon the Internet for

distribution during the COVID-19 pandemic when Disney shuttered sixty of its retail stores to focus instead upon selling iconic Disney character wares digitally to its traditional core customers. The Internet-enabled conglomerates' observed emphasis upon expansion along customer-centric traits was markedly different from the "old" conglomerates' emphasis.

Observation 2: *Although their diverse lines of business were assigned highly unrelated industrial classification codes, the lines of business of the Internet-enabled conglomerates were, in fact, customer-centric. They were especially oriented towards enhancing repeat transactions with customers that they served in common with sister business units.*

The customer-centric Internet-enabled conglomerates had substantially higher customer commonality among their lines of business that shared use of critical customer and logistical data. The business units of older conglomerates served truly unrelated customer segments. Control over customer access became so important that customer-centric Internet-enabled conglomerates sometimes internalized vertically related activities to manage how goods and services were distributed. This use of vertical integration helped them to achieve greater perceived distinctiveness among customers, slow competitive imitation, and protect themselves against shortfalls of proprietary inputs (as in the example of Apple's majority investment in Intel's smartphone modems line of business).

Customer-centric Internet-enabled conglomerates used degrees of *forward integration* to control their common customer interface as well as protect critical data resources from appropriation. Proportions of complementary goods and services provided in-house by focal conglomerates were frequently greater than was typical within other digital firms' ecosystems.

Potentially Disruptive Use of Vertical Integration

Vertical integration was consistent with protecting critical and proprietary software, logistical and customer data, and other core resources of customer-centric Internet-enabled conglomerates. Its effective implementation frequently required investment in assets that were difficult for competitors to emulate, such as Amazon.com's robotic factories or its fleet of Prime vans. eBay initially owned and operated PayPal. Facebook, developed its own cryptocurrency, *Diem*, and offered *Novi* as a cheap (or free) electronic wallet for its social media customers. As Meta Platforms, it diversified further into credit transaction facilitation, e-commerce, and gaming services to enhance its transactional resources.

Forward integration was an especially appropriate competitive posture for Internet-enabled firms to assume since quick-response capabilities were needed to provide short life-cycle products to shared customers (Richardson, 1996). Many customer-centric Internet-enabled conglomerates embraced degrees of it (Harrigan, 1985). Their intelligence networks allowed customer-centric Internet-enabled conglomerates to assess whether new distribution systems should be created to grow by serving customers more effectively. Their use of vertical structures was disruptive to extant competitors (Christensen, *et al*., 2018) since they could pursue radical logistical changes based upon intelligence gleaned from their forward-integrated postures.

Investments in forward integration were consistent with differentiation-based competitive postures, such as those offering high product variety (Fronmueller and Reed, 1996). Integrating forward to distribute goods and services to shared customers was consistent with maintaining a critical and seamless common interface point for controlling their customer-centric orientation. It enhanced potential realization of potential synergies from cross-selling complementary goods and services (Cacciatori and Jacobides, 2005; Chemla, 2003). Owning their delivery systems

helped customer-centric Internet-enabled conglomerates to collect customer feedback faster (to make more responsive transitions to industrywide activity).

Forward integration investments were typically found early in an industry's evolutionary cycle as well as during periods of industry convergence (Stigler, 1951; Zhou and Wan, 2017). The great uncertainty concerning a recipe for online success made the post-dot.com competitive arena resemble pre-emergent or embryonic industry structures like those described by Porter (1980: Chapter 10) or Harrigan (2003). These were settings where the first-mover advantages procured by Internet-enabled conglomerates in forward integration arrangements became difficult to emulate by would-be competitors. Early reliance upon internal transactions instead of extensive outsourcing was consistent embryonic industry settings where economic uncertainty concerning demand and product standards was relatively greater (Harrigan, 2003)—especially where an industry's structural features were evolving (Ozcan and Hannah, 2020; Porter, 1980), which was the case when Internet-enablement was relatively novel.

Like a map of concentric rings, conglomerates cooperated in multi-actor alliances of varying formality, structure, and duration varying strategic importance over time. The tightest controls occurred around activities that were sometimes brought in-house. Since internal vertical transactions reinforced firms' coordination synergies (Davis and Duhaime, 1992), using them as part of their unrelated diversification strategy created a strategic rationale for customer-centric Internet-enabled conglomerates to ignore traditional theories of make-or-buy analysis that would have favored opportunistic outsourcing during their industry's earliest phases of competition (D'Aveni and Ravenscraft, 1994).

The extent of Internet-enabled conglomerates' forward integration activities varied as competitive conditions evolved (Harrigan, 1985; Stigler, 1951). The Internet era was scarcely

twenty years old in 2020, yet competition therein was quickly losing much of its free-wheeling and experimental nature as successful first-mover competitors replicated their business models in the many arenas where they diversified. Partially emulating the conglomerates, other Internet-enabled firms, such as Groupon, GrubHub and Uber, diversified into their own air freight, courier, and logistics services to improve delivery capabilities. To counter the transactional or logistical distinctiveness of conglomerates' payment facilitation services, wholesale distribution services, and/ or specialty expediting services some non-integrated rivals flocked to countervailing alliances while others signed on to use the conglomerates' forward integration assets.

Business units within customer-centric Internet-enabled conglomerates participated in ecosystems with third parties for enhancing their product features, promoting complementary products, accelerating development of technologically complex offerings, or sponsoring unexpected applications of their extant platforms. For example, Microsoft and L.M. Ericsson collaborated on an integrated connected vehicle solution that linked Microsoft's Azure cloud service with Ericsson's connected vehicle cloud platform. Their solution created an input to be sold to automotive OEM (suppliers) that was initially separate from the automotive companies which would benefit from their solution. For other exploratory projects, Microsoft's relationships with ecosystem partners were relatively looser.

By keeping transaction controls tight within their most proprietary networks, the Internet-enabled conglomerates reduced bureaucracy and transaction costs, as well as deflected opportunism threats, until they were ready to extend the range of their sponsored ecosystems more broadly (Brahm and Tarzijian, 2016). By the time that Internet-enabled conglomerates were willing to share their platform capacity and excess infrastructure with third-party vendors

or other types of affiliates, their internal management systems had already buffered their most critical resources sufficiently against appropriation by partners or competitors (Hagiu and Wright, 2015). The high degrees of internal transactions used within customer-centric Internet-enabled conglomerates were *not* typical within traditional conglomerate strategies, suggesting the following observation.

Observation 3: *Customer-centric Internet-enabled conglomerates used degrees of vertical integration—particularly forward integration—as a means of protecting advantages derived from their proprietary customer and logistical data. Insights from their vertical scanning activities encouraged horizontal expansion in ways that were different from the growth paths of traditional conglomerates. Their vertical structures were often disruptive to extant competitors.*

Internet-enabled conglomerates spent heavily to develop their vertical infrastructures at a time when traditional competitors may have de-integrated their value-chains since such incumbents frequently viewed their respective industries as being mature (Helfat and Campo-Rembado, 2016). The customer-centric Internet-enabled conglomerates saw the industries they entered differently. Forward integration was a structural arrangement consistent with their view of pursuing competitive strategy within embryonic industries like those enabled by the Internet—since supporting infrastructures were often lacking in the early development of such industries (Harrigan, 1985). Consequently, their vertically integrated systems became disruptive when conglomerates used them against competitors or third parties who did not adapt effectively to the Internet's new capabilities. Conglomerate entrants further leveraged their advantage by launching new cycles of competitive spending on value-chain infrastructure, superior logistics, and complementary supporting services—thereby exacerbating the competitive gap between them and firms that did not adapt to their imminent entry.

Internet-Enabled Disruption

The increasing returns of scalability made possible by the Internet (McIntyre and Srinivasan, 2017) gave a fresh competitive start to the evolutionary processes of some industries' evolutions. The Internet's traits were inherently disruptive as it offered a cheaper and easier access to customers (Bower and Christensen, 1995). Customer-centric Internet-enabled conglomerates extended this advantage by harnessing internal data-processing and coordination capabilities to devise less costly (but more effective) business models that changed the relative value of activities that they (and their affiliates) performed within their respective ecosystems (Wessel, 2016). Pre-existing competitors that did not adapt their business models accordingly found the effectiveness of their activities undermined by the cross-subsidization practiced by their Internet-enabled competitors—as occurred when e-commerce firms dominated bricks-and-mortar retailing, as well as print advertising where digital advertising claimed an increasing share of promotional messages. A disruptive pattern of timing advantages, cross-subsidization of new competitive initiatives, and resulting higher barriers to imitation was repeated within several industries where Internet-enabled advantages were applied in new ways, such as healthcare, financial services, and market research, among others, as conglomerates expanded aggressively. Frequently customer-centric Internet-enabled conglomerates led the disruption of industries that they entered as they applied their strategic approaches in ways that leveraged their computing power and accumulated stores of data more advantageously.

Like the older-style conglomerates that were once favored by investors for their novel diversification approaches and organizational designs, the new Internet-enabled entrepreneurs used novel organizational structures that facilitated their disruptive competitive approaches—so long as they were in favor with investors. In the aftermath of the dot.com crisis, survivors were

favored as the promise of their competitive approach seemed limitless. Some highly diversified firms enjoyed strong financial performance (La Rocca, La Rocca, and Sanchez Vidal, 2018; Ng, 2007; Schommer, Richter, and Karna, 2019) due, in part, to belief that the Internet made possible strategic approaches and organizational arrangements that traditional economic frameworks once considered incompatible. Conglomerates exploited the availability of patient capital by postponing recognition of profitability while they bought their way into diverse lines of business.

The advantages of Internet-enabled scalability—offering high repeat customer patronage (McIntyre and Srinivasan, 2017)—seemed compelling to investors, until revenue growth slowed in the post-COVID era. Although conglomerates had accumulated market power through their high-volume traffic (Lucking-Reily and Spulber, 2001), persistence of their market dominance was unclear when growth rates for user subscriptions or other measures of demand growth inevitably plateaued. Since they had postponed building up slack in the interest of opportunistic growth, prudently managed Internet-enabled conglomerates reorganized to manage positive cash flows and realize accounting profits when investors' exuberance cooled.

Observation 4: *The customer-centric Internet-enabled conglomerates became serial disrupters of traditional industry structures and competitive behaviors while they were enabled by providers of capital who were tolerant of conglomerates' short-term accounting losses—which occurred so long as their respective stock prices rose. When declining demand undermined investor confidence during the post-COVID era, customer-centric Internet-enabled conglomerates had to cut back on expansions and undertake restructurings.*

Abruptly, industries where customer-centric Internet-enabled conglomerates had thrived faced inflection points in demand after a relatively short embryonic phase of competition. As customer expectations concerning vendors standardized and best practices of Internet-enabled

conglomerates were imitated by surviving competitors, familiar debates about attaining operating synergies without abusing market share arose, particularly among regulators of competition. Management scholars observed new conglomerate patterns and theory adapted to rationalize how Internet-enabled firms implemented their unrelated diversification strategies. Public policy makers pondered what the new patterns forecast for the future of competition. Had the new conglomerates lost their *raison d'etre* as the older firms had done, or would their Internet-enabled adaptations prove to be a more enduring growth path?

SUMMARY AND IMPLICATIONS

We have characterized aspects concerning how Internet-enabled firms pursued conglomerate diversification. The attributes highlighted were at variance with how an earlier generation of firms had pursued unrelated diversification strategies. Our exemplar firms operated within lines of business that were unrelated to each other (from a supply-side perspective) yet were coordinated with each other (from a demand-side perspective) to deliver products and services to their shared core of customers. Moreover, the customer-centric Internet-enabled conglomerates used vertical integration in ways that were significantly different than was observed within unrelated diversification in the 1960s (Harrigan, 2022).

Some of the variance reported herein concerning unrelated diversification patterns arose from obsolete economic measures, as scores characterizing business activity for the Internet-enabled conglomerates exploited the paradox that SIC scores were an artifact of the "old economy" emphasis upon manufacturing (Tapscott, 2000). There is a need for more relevant measures for characterizing how Internet-enabled firms diversify. Customer similarity traits were an important avenue for describing Internet conglomerates' diversification strategies (Gupta and Zeithaml, 2006), but access to salient logistical and customer data was a constraint in research

relying upon publicly traded firms' government-mandated filings. Even the names of Census Bureau reports utilizing such data reflected a preoccupation with manufacturing activity.

Despite how firms reported their activities when using government-created measures and classification systems, patterns were observed of greater coordination among conglomerates' lines of business, greater sharing of salient customer and logistical data, and an unexpected use of forward integration in their strategy implementation. Is this the likely pattern that unrelated diversification will follow within Internet-enabled industries?

Variance between the traits of older style of conglomerates, as described by Rumelt (1974), and those found within the Internet-enabled firms arose, in part, from the popular media's characterization of the latter type of firm as being conglomerate. In the past, "conglomerate," was a succinct term for characterizing unrelated diversification without considering how diversity among firms' respective lines of business was managed internally. The customer-centric Internet-enabled firms of Table 2 were indeed conglomerates. Their lines of business managed highly complex activities that were quintessential of their competitive environment, requiring close coordination with partners that were sometimes sister business units. Is this a pattern of future unrelated diversification?

Consistent with Stigler's (1951) framework concerning how firms transacted with third parties in their value chains over time, first movers kept critical partners close. Entrepreneurial experimentation within embryonic industry settings reflected uncertainty regarding which factors would prove to be critical for success. As they diversified, conglomerates re-used successful internal formulas in activities that they understood to guarantee high quality experiences to customers, as well as keep their critical data resources confidential. Proprietary infrastructures kept third parties at arm's length. Cooperation with third parties was more expansive in those

arenas that were not as close to firms' strategic cores. With time, industrywide need for standards and codified knowledge fostered greater use of less-formal partnerships among firms pursuing projects far from the conglomerates' core activities.

Greater comfort with alliances and virtual presences within certain markets was reflected in relationships where the partners of Internet-enabled conglomerates performed reported activities that conglomerates merely supervised. Pervasive monitoring of competitive—as well as value chain—activity facilitated the evaluation of potential business partners and upgrading of firms' management systems when their respective degrees of autarky eased. While remaining close to activities that fostered customer-based synergies, increased heterogeneity among business units' activities increased the conglomerates' compatibility and coordination challenges within those layers of activity more remote from their core. Management systems, organizational structures, and interventions from headquarters became a mash-up of design elements within their looser ecosystems, combining whatever elements seemed appropriate for project-based tasks.

The Internet-enabled conglomerates remained entrepreneurial as they explored new growth paths, while management of established supply chains remained consistent across lines of business to avoid charges of favoritism among third parties and provide dependable customer experiences. Downstream activities were closely managed—suggesting an inverse logic concerning how the conglomerates coordinated their value chains that deviated from older integration policies where control was governed by those stages with highest throughput volumes. Unlike the multiple customer contacts described in Christensen, Verlinden, and Westerman (2002), the customer-centric Internet-enabled conglomerates limited the diversity of business unit links with core customers. Customer contacts were channeled through a single

touch point used for coordination among the conglomerate's several lines of business. Customer centrality drove the Internet-enabled conglomerates to organize their line-of-business interactions differently, and it influenced many other organizational decisions that varied from the passive holding company structures associated with older style conglomerates.

The conglomerates' horizontal expansion pattern was consistent with the argument that firms would have higher growth rates and attain a larger size relative to competitors if they had comparative advantage arising from some special skill relevant to customers that could be shared among their lines of business (Maksimovic and Phillips, 2002). Adding products and services for common customers in this manner frequently increased firms' apparent diversity as it increased the Internet-enabled conglomerates' share of customer engagement time. Many research avenues are suggested by this and other findings.

Arenas for Further Research

The evolutionary growth pattern pursued by the exemplar conglomerates raised questions regarding how other types of Internet-enabled firms might diversify. Will the less diversified Internet-enabled firms also become more conglomerate in their growth pattern as they leverage their computing power and data analysis to serve core customers more effectively? Will their unrelated diversifications be undertaken as competitive imitations, or will the instigators create novel projects resulting in new arenas of competitive convergence?

This question poses a significant research opportunity as recent acquisition patterns among Internet-enabled firms have been mixed. To compete with Amazon.com, Shopify acquired Deliverr—thereby tapping into a nationwide fulfilment network through Deliverr's U.S. warehouses that reduced the disruptive effect of Amazon.com's shorter cycle fulfillment times. eBay acquired the Sneaker Con authentication business to provide a distinctive guarantee to

customers patronizing its platform. Salesforce acquired Slack to enhance its mobile platform for enterprise software and customer relationship management by diversifying horizontally. Lyft acquired Halo Cars (and entered an alliance with Waymo) to pursue their goal of providing on-demand driverless transportation services.

There have also been noteworthy retrenchments. Conglomerates such as AT&T, Ericsson and Verizon Communications unwound their costly media bets after discovering that some unrelated diversification strategies thrive on customer commonality among business units. Additional research concerning how Internet-enabled firms grew, where they diversified and what lines of business they divested is warranted.

Finally, it would be interesting to revisit Rumelt's (1974) finding that conglomerate firms were middling financial performers to ascertain which diversification postures were associated with the highest performance among Internet-enabled firms (Harrigan, 2022). Our exemplar conglomerates had very high Internet-derived revenues among firms considered in Table 1, but five of them reported net accounting losses for the fiscal year ending 2020. Others are staunching losses via workforce reductions in 2022. Were Internet-enabled conglomerates justified in making investments to improve product variety and enhance customer service (or was 2020 reported performance an anomaly)? Will slowing demand growth halt their aggressive expansion activities or will non-conglomerate firms emulate their growth paths?

Internet-enabled conglomerates reinvented how to manage unrelated diversification. Regulators of competition have been alarmed by the sudden dominance of Internet-enabled conglomerates, but traditional antitrust complaints about harming customer choice were seemingly without merit (since the conglomerates were customer-centric in their postures). In 2022, attacks on the use of vertical integration were added to complaints concerning size (which

seemed to be infinitely scalable) and use of customer data. While Internet-enabled conglomerates have reinvigorated mature competitive arenas by their de novo entry, value-chain related complaints threaten to hamstring firms' expansion alternatives if they succeed.

The customer-centric Internet-enabled conglomerates faced exciting new diversification frontiers so long as they applied their capabilities successfully to disrupt status quo competition. The success of their diversification approach meant that, for every new Internet-related technology that offered commercial promise as a growth path, conglomerates could choose which products, services, and resources seemed most lucrative for them to develop—without regard for whether the salient resources and infrastructures to be mastered were currently familiar to the conglomerates' core capabilities. Would the conglomerates soon find other entrants pre-empting their attempts at disruption?

Our portrayal of Internet-enabled conglomerates offered a different way of thinking about the content of unrelated diversification strategy that was, for reasons explained herein, a plausible prediction of how highly diversified firms may grow in the future. The older conglomerates were once lauded for their respective innovations during an era when their stock market performance exceeded that of other types of firms. Internet-enabled conglomerates became the stock market's high-fliers by exploiting the organizational potential of computing and communications technologies. They enjoyed great freedoms to experiment—so long as they avoided limits to their expansion by continually entering growing markets that investors favored.

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Table 1
Firm Rankings by Internet Intensity on December 31, 2020

FIRM	RATIO	FIRM	RATIO	FIRM	RATIO
Airbnb	100.0%	Spotify	100.0%	Ericsson	87.7%
Akamai Technologies	100.0%	T-Mobile	100.0%	Dell	87.5%
ANGI Homeservices	100.0%	Trip.com	100.0%	Sea Limited	87.0%
Baidu	100.0%	TripAdvisor	100.0%	Softbank Group Corp	86.1%
ByteDance (TikTok)	100.0%	Twitter	100.0%	Hewlett-Packard Enterprise	86.1%
Carvana	100.0%	Wayfair	100.0%	ViacomCBS	85.8%
Chewy	100.0%	Zynga	99.8%	eBay	85.3%
Copart	100.0%	Alphabet	99.7%	AT&T	82.6%
Discovery Inc	100.0%	Square	99.1%	Charter	81.1%
DocuSign	100.0%	Fox	98.5%	Apple	80.0%
Dropbox	100.0%	Adobe	98.4%	Meituan	76.4%
EPAM Systems	100.0%	Nexstar Media Group	97.9%	Verizon	73.7%
Expedia	100.0%	Yelp	97.6%	News Corp	73.5%
Facebook	100.0%	Zalando	97.6%	Tencent	73.4%
GoDaddy	100.0%	Activision Blizzard	96.7%	Rakuten	72.8%
Groupon	100.0%	Alibaba	94.4%	Cisco	71.9%
LogMeIn	100.0%	Salesforce	93.8%	IBM	68.8%
Lumen Technologies (CenturyLink)	100.0%	JD.com	93.6%	Microsoft	68.1%
Match Group	100.0%	PayPal	93.0%	Comcast	66.8%
Motorola Mobility	100.0%	Yandex	91.4%	Samsung	64.7%
NetEase	100.0%	Oracle	91.4%	Zillow	63.3%
Netflix	100.0%	Uber	90.8%	Suning.com	58.7%
Overstock	100.0%	VMware	90.7%	Disney	53.2%
Pinterest	100.0%	Amazon	90.4%	Nintendo	53.2%
Rackspace	100.0%	Naver	90.0%	Xerox	52.6%
Sabre Corporation	100.0%	BCE Inc	89.5%	Sony	46.8%
ServiceNow	100.0%	Flutter Entertainment	88.7%	Shutterfly	46.3%
Shopify	100.0%	Tribune Publishing Company	88.1%	Intel	46.0%
Snap	100.0%	Liberty Media	87.9%	Nvidia	41.0%

Table 2
Firms Scored by Supply-Side Diversification Metrics on December 31, 2020

FIRM	SCORE	FIRM	SCORE	FIRM	SCORE
Disney	163.57	eBay	105.30	Groupon	57.83
Comcast	159.43	Shopify	104.94	Adobe	51.01
Sony	154.43	Salesforce	99.93	Overstock	48.26
Tencent	141.93	Flutter Entertainment	99.58	Copart	42.77
Nintendo	138.62	VMware	97.36	Discovery Inc	40.60
Samsung	138.31	Square	96.29	Yelp	36.01
Microsoft	136.81	Uber	96.28	Expedia	35.53
Cisco	133.18	Xerox	94.96	Trip.com	34.43
Softbank Group Corp	132.90	Yandex	93.66	Airbnb	34.01
Lumen Technologies (CenturyLink)	132.16	Activision Blizzard	92.79	Sabre Corporation	31.74
Apple	132.09	Zynga	92.60	BCE Inc	30.90
ViacomCBS	130.78	Meituan	91.06	Naver	30.41
Ericsson	130.42	Oracle	89.94	Dropbox	30.30
Verizon	125.14	Match Group	89.76	DocuSign	30.30
Amazon	124.59	NetEase	88.52	Zillow	30.05
Riot Games	122.15	Snap	87.95	Wayfair	30.03
Alibaba	117.53	Workday	86.25	Charter	27.88
Alphabet	117.33	Epic Games	81.77	Twitter	27.58
Liberty Media	116.68	Baidu	78.41	Hearst	27.23
Facebook	115.84	Suning.com	77.62	América Móvil	26.77
JD.com	115.29	Motorola	77.02	Booking Holdings	26.41
Rakuten	114.92	T-Mobile	76.48	PayPal	26.11
AT&T	113.12	Shutterfly	75.12	Tribune Publishing Company	25.99
Nvidia	112.62	Sea Limited	74.98	Stripe	25.97
News Corp	112.14	Bloomberg	72.59	Spotify	24.14
IBM	112.01	ServiceNow	71.23	Akamai Technologies	22.33
Dell	111.34	EPAM Systems	70.51	ANGI Homeservices	22.14
Intel	108.52	Hewlett-Packard Enterprise	70.45	TripAdvisor	20.09
Lyft	105.97	Zalando	62.82	ByteDance (TikTok)	19.80

TABLE 3

Demand-Side Diversification Statistics for Internet-Enabled Firms as of December 31, 2019

	Time Series Similarity (TS)	Customer Similarity Score (CS)	Combined Relatedness Score (RS)
Apple	0.8814	0.3791	0.7874
Alphabet	0.8482	0.3347	0.7477
Microsoft	0.8419	0.3317	0.7144
Facebook	0.8717	0.1103	0.6906
Walt Disney Company	0.8324	0.1906	0.6719
Viacom	0.8063	0.2081	0.6693
Amazon.com	0.8010	0.1630	0.6551
Sony Corporation	0.6820	0.4640	0.6275
IBM	0.6984	0.2237	0.5983
CBS Corporation	0.6929	0.1898	0.5671
21st Century Fox	0.6505	0.2987	0.5625
AT&T	0.5985	0.2548	0.5338
Verizon Communications	0.5815	0.3726	0.5293
Charter Communications	0.6375	0.1892	0.5254
Comcast	0.5999	0.2932	0.5232

Note: Data for these calculations were collected before CBS joined with Viacom, before 21st Century Fox joined Walt Disney Company, and before AT&T spun off its Time Warner assets.