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## Amazon's Three Major Lines of Business

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**Stigler Center**

for the Study of the Economy and the State

## **Amazon's Three Major Lines of Business**

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## AMAZON'S THREE MAJOR LINES OF BUSINESS

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## AMAZON'S THREE MAJOR LINES OF BUSINESS

### **Abstract**

Since its founding in 1995 Amazon has become a leader in eCommerce, cloud computing services, and interactive devices for individuals and homes. In this study, we document the critical steps in Amazon's development in each line of business. Our review yields insights on (i) how Amazon responded to changes in demand, (ii) the importance of economies of scale, economies of scope, and network effects in Amazon's efforts to build out its lines of business, and (iii) interrelationships among these three apparently distinct commercial operations. This case study thereby provides insights how Amazon's Firm Specific Advantages (FSAs) contributed to its successes within and across lines of business. Our analysis further suggests that Amazon developed Dynamic Capabilities (DCs) capabilities that contributed to Amazon's superior performance. Our analysis is, however, necessarily interim in nature. Given changing market and regulatory conditions, whether Amazon will be able to sustain its performance in which lines of business and in which countries is uncertain.

**Key Words:** entrepreneurship and business strategy; transaction cost economics; market entry; market power; dynamic capabilities; firm specific advantages.

**JEL Codes:** L26, L7, L86, M21

## Introduction

Amazon began commercial operations in 1995 as an online book retailer. Over the subsequent 27 years, Amazon has become a leader in (i) eCommerce, (ii) cloud computing, and (iii) interactive technologies for individuals and homes. Amazon's US eCommerce revenues exceeded those of the next ten firms combined in 2020.<sup>1</sup> Regarding cloud computing, Amazon has the largest global infrastructure with more than 200 data centers.<sup>2</sup> Gauging Amazon's position in interactive technologies is more difficult, but Amazon probably has the largest installed base of smart speakers given its consistent performance over the last decade. Each of these entrepreneurial successes is extraordinary and in combination account for Amazon's status as the fourth most valuable US company with a market capitalization of \$1.15T as of July 2022. While Amazon's business operations are vast, including the development of a satellite network and distribution of National Football League games, these three lines of business account for the bulk of Amazon's revenues and profits.

While the roles of individual factors in Amazon's development have been studied, we are not aware of research that has attempted to discern how Amazon emerged as a leading multinational enterprise. We view this case study as a timely effort to partially fill this important gap. As we conducted our study, we of course considered what frameworks are most helpful in making sense of how an entrepreneurial enterprise executed strategies across lines of business, at scale, and across regions. In our view, Coasean frameworks are clearly important in understanding the mix of acquisitions and internal investments Amazon made as well as the organizational structures it created, e.g., subsidiaries for its cloud computing and country-specific eCommerce businesses. One can also find utility in identifying

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<sup>1</sup> In 2020, Amazon's had \$269B in U.S. eCommerce revenues while the next ten leading eCommerce companies had \$164B in combined sales.

<sup>2</sup> It is also reported that Amazon has the largest share of US cloud revenues.

resources, e.g., its One-Click patent and the soft-license it secured for entry into Canadian eCommerce, that accelerated Amazon's development.<sup>3</sup>

Yet as Amazon narrative unfolds, one naturally focuses on how Amazon developed and leveraged Firm Specific Advantages (FSAs) to emerge as a leader in each business. Our study indicates that Amazon elevated these advantages into Dynamic Capabilities (DCs) whereby senior leadership guided massive investments to quickly commercialize new services on a global scale. In broad strokes, the DC framework matches Amazon because it recognizes the centrality of management's role in dynamic settings. By contrast, the Coasean and Resource frameworks offer limited scaffoldings for the roles management beyond minimizing transactions costs and securing resources that are difficult to imitate. In this light, this case study is a step in applying the FSA and DC frameworks. Consistent with research by Verbeke and Ciravegna (2018) on FSAs, we see evidence of Amazon developing information and technological advantages over rivals. We also see evidence of Amazon's leadership sensing, seizing, and transforming – the three crucial steps identified by Teece (2014) that underlie DCs. We would further suggest that this case study meets to some extent the requirements identified by Verbeke (2022) for developing testable propositions using the DC framework. That is, however, as far as one might go with a case study, especially one that is focused on a limited set of Amazon's major actions and that lacks potentially important details. We are also mindful that any case study and suggested relationships cannot rise to the level of scientific testing and instead may fall into the category of ex post rationalization.

We proceed in Sections II – IV to document the critical steps Amazon took to become a leader in each line of business. In Section V we offer comments on Amazon's management approach, features of the market contexts in which Amazon operated, and on the question of whether the Amazon will be able to perform well going forward.

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<sup>3</sup> See Wernerfelt (1984) for the resource-based view of firms.

## I. Amazon's eCommerce Business

The technological developments leading to the dramatic growth in internet users in the 1990s created the opportunity for consumers to shift from traditional retail to online purchases.<sup>4</sup> Founder and CEO Jeff Bezos, who recognized the significance of rapidly growing base of internet users, was first to develop a business to meet this emerging US consumer demand. Having selected books as its initial product line, Amazon's business model was to offer far more titles than traditional bookstores and fulfil orders by buying books from publishers and shipping them to customers<sup>5</sup>. While seemingly obvious in hindsight, Amazon developed online capabilities such as robust search, customer reviews, individualized customer recommendations, hypertext to guide further exploration, and the *Look Inside* feature.

Soon after launching, Amazon began retaining address and payment information about customers. Bezos focused on what is now understood to be of great importance in eCommerce, i.e., making purchases as simple as possible for consumers. He instructed Amazon software engineers to develop a process whereby returning customers could make purchases with a single click. After a customer interface was developed, Amazon sought and was granted its *One-Click* patent in the US, based on a filing that was little more than a flow chart. The patent survived multiple challenges in the US and, as a result, competitors had to either license the technology from Amazon or develop systems that involved more steps for consumers to complete purchases. Rivals such as Apple chose to license while others such as Shopify operated with lesser technologies. The *One-Click* software generated enormous benefits to Amazon by increasing its own sales, generating royalties, and putting rivals at a disadvantage until the patent expired in 2017.

Amazon's online strategies and tactics proved their value such that at the end of its first year of operations in 1996, Amazon had 180,000 customers and \$15.7 million in sales, and at the end of two

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<sup>4</sup> For a discussion of how changes in infrastructure and technology encouraged new business models, see Economics of Strategy, 7<sup>th</sup> Ed., Chapter 1.

<sup>5</sup> Leaf, C. (2021) 'The Drivers of Success', Fortune, 183(3), pp. 14–15.

years, Amazon had over 1.5 million customers and \$147.8 million in sales. Its market capitalization reached \$1B in September 1997 and approached \$25B two years later. Amazon's success in books along with the observation that other online retailers were able to develop strong positions in particular categories, e.g., shoes, eyewear, and fabric, indicates the general importance of economies of scale within product categories. Amazon's early lead in developing a user base and its tracking capabilities also enabled Amazon to collect increasingly vast amounts of information on customers and their purchase decisions.

To distance itself from its rivals, Amazon made five important changes to its eCommerce business model. First, facilitated by its initial public offering in May 1997, Amazon created stores for CDs, DVDs, jewellery, clothing, home products, drug store items, health and beauty products, lawn and patio products, digital audio devices, pet products, and others.<sup>6</sup> This horizontal expansion is analogous to adding departments to a department store but without the physical constraints of traditional retailers. Along with these internal investments in new product lines, Amazon expanded scope by acquiring specialty retailers, including HomeGrocer (1999), Small Parts Inc. (2005), ShopBop (2006), Fabric.com (2008), Zappos (2009), and Woot (2010).<sup>7</sup> Amazon's striking success in adding product lines reflects economies of scope across product categories. A customer who returned to make a book purchase might migrate to other parts of its website to purchase music and video products. Amazon's success with acquisitions as well as internal investments is consistent with Manne (1965), who recognized that transfers of corporate control could lead to the realization of efficiencies from improved management and synergistic integration of acquired assets. In the case of the \$1.2B acquisition of Zappos, a successful online retailer of shoes, Amazon's strategy of improved fulfilment and retention of Zappos' brand name

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<sup>6</sup> Rf., "How Amazon Became Amazon" by Edward A. Snyder, Jason Canaday, and Marley Hughes, Working Paper, June 2022.

<sup>7</sup> Other acquisitions that contributed to the expansion of Amazon's eCommerce business include e-Niche, MusicFind, BiblioFind, Audible.com, and Greenlight.com.



capital led to a dramatic increase in sales post-acquisition.<sup>8</sup> Yet what is most striking about Amazon's horizontal expansion is its rapid pace of its e-commerce buildout. Amazon's leadership sensed and seized the opportunity to become the preferred site for all of US eCommerce. Given the confidence that capital markets had in the enterprise, Amazon's leadership could focus on the buildout rather than on current profitability. In fact, Amazon's cumulative losses reached \$2.8 billion in 2002 before it reported a quarterly profit.

Second, Amazon shifted from an online retailer without inventory to a more complex model that involved increasing both the vertical and horizontal scope of its enterprise. It began holding inventories of high-volume books and other products, which required investments in warehouses and distribution capabilities. In 1996, Amazon invited independent websites to drive traffic to Amazon for referral fees. In 1999, Amazon also extended its digital platform to support independent suppliers of used and new products by introducing what is now known as Amazon Marketplace.<sup>9</sup> One might look at management's decision to provide rivals with the advantages of the Amazon platform as odd, but it reflects their understanding that the nature of competition had changed, and, as a result, a central objective was to realize the network advantages that are associated with two-sided platforms. One indicator of those efficiencies is that a decade later, a third of its eCommerce revenues came from Amazon Marketplace. Another is that Amazon experienced dramatic growth in its customer base and revenue. In Q4 of 1999, Amazon reported an increase of 3.8 million customers from its 13.1 million customers in Q3, and its holiday sales tripled compared to the previous year. In 2000, Amazon's eCommerce revenues reached \$2.7B.<sup>10</sup> Along the way, Amazon continued to make acquisitions that increased its customer base by relatively small, but potentially consequential amounts. For example, after establishing its own site for

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<sup>8</sup> Operating as an independent subsidiary, Zappos revenues grew 50 percent in the following year.

<sup>9</sup> Amazon's \$50 million acquisition of LiveBid added auction capabilities.

<sup>10</sup> Amazon's losses peaked at \$1.4B in 2000.

building products and contracting with a major manufacturer to feature power tools<sup>11</sup> in 1999, Amazon acquired Tool Crib of the North, one of the largest eCommerce marketers of woodworking and power tools with 70,000 active weekly customers.<sup>12</sup> Again, throughout this period, Amazon continued to focus on a mix of internal investments and acquisitions rather than realizing current profits.

Given the impacts of these two changes, a relevant question to ask is whether Amazon's inflection point at the beginning of the 21<sup>st</sup> century constituted a *tipping point* such that potential rivals could not gain traction as broad-based online retailers. Put differently, was Amazon at that time destined to become the dominant eCommerce retailer in the US? Certainly, it was far ahead of potential competitors in terms of products offered and the size of its active customer base.<sup>13</sup> The notions, however, that a single firm would garner such a majority share of US eCommerce revenues, and that Amazon was destined, five years after its launch, to become that retailer, are too facile. We observe less concentrated market structures in other large markets such as China and the EU.<sup>14</sup> The tipping-point narrative also ignores the eventual success of Wal-Mart and more specialized retailers.<sup>15</sup>

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<sup>11</sup> "Amazon further expands its retail reach," Saul Hansell, New York Times, 1999.

<sup>12</sup> This was part of Amazon's dramatic success in attracting customers during the 1999 holiday season. Amazon reported an increase of 3.8m in Q4 1999 to its total 16.9 m customers at the end of 1999. Its holiday sales tripled compared to the previous year when its total customer base in 1998 was 6.2m. CEO Jeff Bezos stated that this period represented the "fastest sequential growth as a public company."

CNN, 2000. After the acquisition, customers were able to have tools delivered directly to their job sites.

<sup>13</sup> While reliable data on current customer bases are not available, no online rival at the turn of the century had close to Amazon's user base. In addition, Amazon increased its customer base through acquisitions such as Tool of the Crib (1999) and Zappos (2009).

<sup>14</sup> In both China and the European Union, no single firm has a more than 40 percent share of eCommerce sales.

<sup>15</sup> Walmart did not begin selling online until 2009.

These observations suggest that for Amazon to secure and sustain its leadership position in eCommerce, it needed to complement the advantages from its early launch and buildout with ongoing innovations. Objectively, that is exactly what Amazon did. Returning to our list, Amazon's *third* innovation was to develop advanced methods of organizing and presenting information to customers in response to their searches. Amazon's information came from collecting data on its own sales and sales by third parties operating on its site. In addition, in 1999 Amazon acquired a technology company that tracked customer traffic within and across websites.<sup>16</sup> With increasingly comprehensive information about searches and purchases, Amazon realized significant informational advantages over individual suppliers and rival platforms. While scepticism is warranted about the frequent claims made about how firms will collect and monetize information, Amazon's success in selling targeted display advertising is striking. By 2008, Amazon grew to be among the top three advertisers in the US, using a two-part pricing model whereby spaces were auctioned, and advertisers also paid fees based on the number of user clicks.<sup>17</sup> In 2012, the company established Amazon Marketing Services to organize its investments and offer marketing and advertising services to other businesses.<sup>18</sup> These steps are, at a minimum, consistent with the DC framework whereby senior executives develop FSAs and then identify opportunities to leverage them in new commercial activities.

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<sup>16</sup> The acquired company, Alexa, should not be confused with Amazon's subsequent development of Alexa-branded technologies and products for individuals and homes. See Section IV below.

<sup>17</sup> While sellers learn about their product sales, Amazon was positioned to learn about the consumer's overall purchasing behaviours. Thus, as it developed, Amazon gained differentially more information than its own suppliers and third-party suppliers.

<sup>18</sup> Amazon's presentation of high volumes of ads is consistent with the view that its users value the targeted information or do not object to the ads given the prices and product selection available to them. On the other hand, the ability to categorize and order information has raised concerns in several contexts.

Having developed these capabilities, Amazon became a more active intermediary. A critical step was to respond to customer searches with a set of recommended product offerings, which in turn, created leverage with third-party merchants who sought to be in the recommended set. Over time Amazon refined its Buybox technology to respond to consumer queries with a set of recommended products, often a mix of its own products and others. Amazon gained from offering competing products under its own brand and from online advertising.<sup>19</sup> Of course, Amazon's ability to organize and prioritize information has generated concern about steering and self-preferencing, especially in light of observations that more than a quarter of Amazon customers only consider recommended products and that 35 percent of Amazon's eCommerce revenues are generated by its recommendation algorithm.<sup>20</sup> However, according to research by Lee and Musolff (2021), consumers on net benefit from receiving the targeted information even though the recommendation protocols tend to reduce entry.

*Fourth*, Amazon engaged in classic marketing enhancements, including the creating the Amazon Prime customer category, offering Amazon-branded credit cards to its customer base, and introducing private label products under the AmazonBasics umbrella. Each initiative has been successful: Of its 300 million total active customers, half pay annual fees to be Amazon Prime members and receive an increasing array of services. An estimated one in six US customer has an Amazon credit card. AmazonBasics has become a leader in a broad range of private label product categories such as power cords, cables, and batteries. With these asset-light investments changes and contracting with domestic and foreign suppliers, Amazon now has over 50 private labels making up a portfolio of over 240,000 products, some of which are marketed under more specific brand categories.<sup>21</sup>

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<sup>19</sup> See Tucker (2020) for a discussion of the digital advertising market.

<sup>20</sup> The European Union's proposed *Digital Marketing Act* is the most comprehensive effort to limit the informational advantages of platforms.

<sup>21</sup> Mattioli (2020) documents these developments and provides examples of specific brand categories.

*Fifth*, in the last decade, Amazon integrated forward into the distribution of products by investing fleets of delivery vehicles.<sup>22</sup> No other eCommerce entity has made such investments and Amazon is now the fourth largest delivery service in the US after USPS, FEDEX, and UPS. In Europe, Amazon has invested in Deliveroo to enter the distribution of goods and services. Amazon's \$13.7 billion acquisition of Whole Foods in 2017 can be viewed as a component of its forward vertical integration. Even though the acquisition added consumers who purchase in brick-and-mortar stores, the acquisition allowed Amazon to expand choices for a broader set of options for its eCommerce customers, e.g., ordering online for pick-up. The Whole Foods acquisition also expanded online sales of products under the chain's 365 Everyday Value brand.<sup>23</sup>

As Amazon honed its eCommerce business model, it expanded the geographic scope of its operations. Its expansion into Canada in June 2002 proceeded seamlessly. Prices on Amazon.ca were listed in Canadian dollars, and shipping was provided through the Canada Post Corporation. Within months, a selection of over 1.5 million books, CDs, videos, and DVDs, in both English and French, were available to Canadian customers. To secure network advantages, Amazon offered discounts and free shipping to new customers, and offered commissions of up to 30 percent to third-party websites to participate in the Amazon.ca Associates Program and thereby direct consumers to Amazon.ca.

An additional factor in Amazon's success in Canada was government's support, which allowed Amazon to build a distribution center under the condition that it promote Canadian literature and culture, increase French-language content, and offer more Canadian e-books on Amazon's Kindle devices. With

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<sup>22</sup> Business.Amazon.com reported that it had 110 warehouses as of 2020 and over 100,00 delivery vehicles.

<sup>23</sup> Business commentary emphasizes that the Whole Foods acquisition has contributed to the transformation of the grocery business. See, for example, *How Amazon's Whole Foods Acquisition Changed the Grocery Industry*, Digital Commerce 360, 2019.

this soft license to enter, Amazon constructed additional distribution centers and gained an infrastructure advantage over potential rivals. As of 2021, Amazon's Canadian subsidiary earned over \$9B in revenue, employed nearly 40,000, and contracted with 40,000 third-party Canadian sellers. Amazon's leadership position in Canada was, therefore, secured through early entry, government support, and investments in distribution network.

Beginning in 1998 Amazon entered the United Kingdom, Germany, France, Italy, Spain, the Netherlands, and Poland. The United Kingdom and Germany are now the most important national markets after US; 2021 revenues in the United Kingdom and Germany reached \$31.9B and \$37.3B, respectively. Amazon's entry into France in 2000 yielded much less impressive results, with 2021 revenues of \$6.5B. The difference can be attributed to the French government and societal concerns about Amazon's negative impact on the economy, environment, and culture. Although Amazon has eight warehouses in the country and intends to develop two automated warehouses, the French government continues to oppose the company's expansion.<sup>24</sup> Amazon's decisions not to enter Denmark, Austria, Switzerland, and others may be due to similar non-market factors.

None of the market entries described above could be categorized as a clear failure. Amazon's 2004 entry into China via its acquisition of bookseller Joyo.com, however, provides such an example. As of 2008, Amazon China had gained an approximately 15 percent market share. But local rivals JD.com

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<sup>24</sup> In 2014 the French Senate approved a bill that banned free shipping on books and capped price discounts to 5 percent to protect the nearly 2500 bookstores in the country. During the Covid -19 pandemic, complaints from Amazon workers about safety protocols led a court order that "Amazon to stop delivering 'nonessential' items as part of measures to protect worker health. In response, Amazon shut down its French warehouses and put 10,000 employees on furlough. More recently the French government has blocked four separate requests by Amazon to construct distribution facilities and logistic centers.

and Alibaba grew at much higher rates. In 2019, when its market share of less than one percent, Amazon exited.<sup>25</sup> Potential explanations for Amazon's failure in China include government opposition and an inability to adapt to local business practices. It is widely agreed upon that Amazon's failed to develop local managers and hence Amazon had limited understanding of Chinese business practices and consumer preferences. For example, rather than mimic the success of JD.com and Alibaba with colourful, ad-filled interfaces, Amazon used a minimalistic website design like the interfaces it used in the North America and Europe. It is also possible that Amazon erred in investing in its own distribution centers rather than rely, as did its rivals, on same-day delivery systems that used local companies.

### **III. Amazon's Cloud Computing Services**

At the turn of the century demand for cloud-based services strengthened as the costs of migrating data collected by enterprises to remote servers over the internet decreased relative to local storage. From the customer point of view, cloud services could be obtained without significant capital expenditures on database capacity and computing power. Then, as the volumes of data grew dramatically, major categories of services developed, including (i) Infrastructure as a Service, e.g., data storage, (ii) Platform as a Service, e.g., operating systems, and (iii) Software as a Service, e.g., web-based communications. In two decades, a completely novel industry has matured to serve commercial, governmental, and non-profit enterprises throughout the world, and revenues for publicly provided services are expected to approach \$500B in 2022 year.<sup>26</sup>

Officially launched in July 2002, Amazon Web Services (AWS) has developed into a leading provider in what would become a major industry. This background might suggest that Amazon sensed that demand for cloud-based services would grow dramatically and then developed the capabilities to

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<sup>25</sup> Following its exit, Amazon's operations in China were limited to their Kindle services, cross-border eCommerce, and Amazon Web Services.

<sup>26</sup> Analogous data for cloud-based services supported by private infrastructure and through private networks and are not available but are no doubt substantial.

serve external customers. The actual development of AWS, however, grew out of Amazon's success in eCommerce. The first customer of what became AWS was Amazon itself. As its eCommerce business grew, teams of Amazon engineers confronted the problem of how to organize, store, and analyze the volumes of data generated by its sales. These teams then recognized that the services provide to support Amazon's eCommerce business could be of great value to retailers in the Associates Program and to third-party sellers on Amazon Marketplace.

AWS's initial development, therefore, leveraged substantial capabilities that had been developed for internal use to an existing base of business customers. With its early entry, Amazon established a leadership position over subsequent entrants such as Microsoft Azure and Google Cloud. By 2004, 65,000 developers were using AWS tools and platforms. In 2006, Amazon began marketing its services yet more broadly. Harkening back to IBM's leasing of mainframe computer capacity in the 1970s and 1980s, Amazon offered metered computing services primarily to commercial customers.<sup>27</sup> Its early customers included (i) Target and Circuit City for whom Amazon developed and managed their online retailing function, including receiving orders and shipping, and (ii) Netflix, which used Amazon to distribute video content. The basic model of AWS was to provide solutions and services across websites, including building and running websites, display technologies, and data collection. By 2010, AWS revenues reached \$500M with margins of over twenty percent.

Over its brief history, AWS has made massive investments in infrastructure. Its first major physical investment in 2006 was a 700,000 square foot facility in northern Virginia. With its global customer base and data sovereignty requirements that vary country-by-country,<sup>28</sup> Amazon recognized the

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<sup>27</sup> Amazon initially offered 20 gigabytes of storage for a \$20 annual fee.

<sup>28</sup> For a discussion, see *Data localization and data transfer restrictions*, Harding, E. et al., The National Law Review, 2021.



advantage of building data centers with state-of-the-art security throughout the world.<sup>29</sup> To date, Amazon has developed over 200 globally dispersed data centres that serve 245 countries. While aggregate cost information is not available about these facilities, anecdotal evidence indicates that AWS's investments in data centers has been massive.<sup>30</sup>

As the core demand for AWS's storage and basic data processing services generated increasing profits, Amazon funded a combination of internal investments and acquisitions aimed at enhancing AWS' services and technologies. Arguably its most significant acquisition came in 2016 when Amazon bought EC2, an Israeli company, whose more efficient storage technology allowed Amazon to become the most efficient provider of data storage services. Services consistent with fundamental industrial organization principles,<sup>31</sup> as the industry developed Amazon and its rivals developed more specialized services, ranging from post-merger integration of data and systems to AI-based analytics. Having invested heavily in specialized services ranging from in data base migration, security, analytics, machine learning, and blockchain systems, AWS now offers more 300 distinct services.<sup>32</sup>

Amazon remains an industry leader, with an estimated 33 percent market share of global infrastructure in recent years and is host to over 9 million websites. However, in contrast to its eCommerce business in which Amazon had no peer in the US, Amazon has faced ongoing competition in the provision of cloud services from Microsoft, Alphabet, Alibaba, IBM, and others. The emergence of strong competitors is not surprising in the context of growing demand and the large numbers of customers

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<sup>29</sup> As concerns about data security and data privacy grew, many countries have adopted regulations specifying that information about their citizens and enterprises must be stored within their boundaries.

<sup>30</sup> For example, it was reported that Amazon's second data centre in India involved an investment of nearly \$2.7B.

<sup>31</sup> See Stigler (1951) for seminal work on how the extent of the market affects the functions of firms and how industries are organized.

<sup>32</sup> See *Overview of Amazon Web Services: AWS Whitepaper*, January 12, 2022.

who multi-source.<sup>33</sup> While cloud computing exhibits network effects involving the development of specialized services, e.g., portfolio analysis for financial services firms, some of which are open sourced, neither AWS or any other provider has created an ecosystem that prevents ongoing battles for customers and market share. In addition, each provider now offers hundreds of services, many of which are differentiated to varying degrees and thereby involve specific investments by customers.<sup>34</sup>

#### **IV. Technologies for Homes and Individuals**

Amazon's third major line of business started as a natural extension of its online book business and was likely inspired by Apple's 2003 introduction of iTunes, which offered consumers digital music in a form that was more efficient than individual CDs. In 2004, Amazon began planning an eReader that could store hundreds of books. Launched in 2007, the Kindle was viewed internally as its most important new business and an example of a new kind of sophisticated consumer interface. While the device itself was initially priced at a high level, readers could download books for \$1.99.

In subsequent years, Amazon developed products and technologies that provided digital interfaces for homes and individuals. It gained substantial traction with virtual assistants (Alexa) and its smart speakers (Echo). Having developed customer bases for these products, Amazon offered complementary products such as (i) home security systems (Ring); (ii) devices that stream media services on smart TVs (Firestick), (iii) Wi-Fi systems (Eero); and (iv) cameras. All these devices have so-called *skills* that allow individuals to use other services, e.g., listen to Amazon Prime Music, run iPhone applications, conduct internet searches, and task management.

Amazon chose to organize much of the development of products and services in a dedicated facility, Lab126, located in California. Lab126 has continued to be Amazon's R&D shop for many Amazon products, not all of which were successful. A notable but short-lived failure was Amazon's Fire Phone,

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<sup>33</sup> For discussion of multi-sourcing in this context, see *Global Sourcing of Digital Services*, Eds. Julia Kotlarsky and Leslie P. Willcocks, Springer 2017.

<sup>34</sup> See *Overview of Amazon Web Services: AWS Whitepaper*, January 12, 2022.

which was introduced in 2014. The phone, with its own operating system, offered consumers one distinctive feature, its 3D perspective. But the Fire Phone did not generate close to the level of interest required to overcome demand from established user bases for iPhones and Android smart phones.

Amazon's overall success in this line of business is an example of what is now recognized as a standard business strategy for high-tech companies: secure a customer base and then offer adjacent services. Amazon was also able to leverage common technologies across products to allow consumers to build systems for their homes. For example, its Echo speakers can connect to Amazon Music and Amazon's Ring products. They can also be used for ordering products online. The complementarities among these devices have encouraged consumers to make specific investments in sets of Amazon products and services. By executing a strategy to further engage those customers, Amazon continues to strengthen its advantages over other digital platforms and specialized retailers. While case analysis is not focused on predictions, it is noteworthy that in June 2020 Amazon and Grubhub announced a partnership to provide enhanced services to Amazon Prime customers. This is exactly the kind of step that we would expect Amazon to take and therefore matches, at least in concept, the second requirement identified by Verbeke (2020) to operationalize the DC framework, i.e., to identify hypotheses in the specific contexts.

Measuring Amazon's relative position in this line of business is difficult given the disparate nature of the interactive products and services that are now available for homes and individuals. Amazon claims that 40 million use Alexa technologies that have a multitude of skills. As suggested above, the most reliable indicator of Amazon's overall position in this line of business might be shares of smart speakers. In recent years, Amazon has had the largest share of smart speakers in the US according to some sources.<sup>35</sup> Its early entry and sustained success suggest that Amazon probably has the share of installed speakers.

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<sup>35</sup> Amazon has had the largest share of global shipments of smart speakers for many years, ranging from 93.5 percent in Q3, 2016 to 28.3 percent in Q4 2020. Chinese firms (Alibaba, Baidu, JD.com, Xiaomi)

With its substantial installed base of devices, Amazon is positioned to make further investments to enhance its franchise in interactive technologies for homes and individuals and advance its role in the Internet of Things. An intriguing example is Amazon's development of its Sidewalk Network, a so-called *mesh network* that allows devices to send and receive small bits of data across highly localized Wi-Fi networks and over somewhat longer distances using Long Range (LoRa) wireless technologies. Thus, without the investment required to build-out a 5G network, Amazon is developing a platform using its distributed devices for new applications for individuals and homes.<sup>36</sup> At this point, how Amazon intends to use its satellite network is uncertain. One potential use is to connect directly to the large numbers of individuals and households around the globe that are not connected to the internet via traditional telecommunications networks. Doing so would be yet another illustration of Amazon's strategy of securing a substantial user base and then offering adjacent services.

Given these elements of Amazon's successes with these interactive technologies, a strong case can be made for the DC framework. Amazon's management augmented its product offerings to take advantage of emerging complementarities between its speakers and an expanding range of services. For individuals who consequently invest in Amazon products, the result is an increasingly synchronized flow of services.

## **V. Amazon's Strategies and Relevant Economies**

Our analyses of Amazon's three lines of business underscore the importance of two well-known components of Amazon's overall approach: speed in business development and a consistent focus on customers. According to Bezos' famous *Day One* approach, Amazon teams are expected to identify new market opportunities and to pursue them quickly. Our review suggests a third component. Amazon has been adept at both internal development and acquisitions. Examples include (i) expansion of its

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have gained share outside the US. Amazon's cumulative sales in the US exceed the cumulative sales of Apple and Alphabet.

<sup>36</sup> Apple is developing a similar network. Exemplar applications include using air tags to locate objects and track deliveries.

eCommerce product lines by both internal development and acquisitions, (ii) internal development of its data centers and consequential acquisitions of technology companies, and (iii) internal development of its Echo devices and acquisitions that expanded the range of complementary services for homes.

Amazon's many innovations in eCommerce improved the customer experience, simplified purchases, and increased the range of products available and options for delivery. We believe that these innovations led to Amazon's out-sized position in eCommerce, and we do not favor the alternative view that the market tipped to Amazon's because of its early entry. The development of AWS is itself a prime example of recognizing that other enterprises were experiencing what Amazon experienced, i.e., the need for dramatically greater capabilities in managing data. Regarding technologies for individuals and homes, Amazon's leadership position is attributable to a succession of actions to develop complementary services that encourage investments in Amazon devices.

Given that Amazon's development reflects well on its management's ability to develop FSAs and DCs, it is useful to consider what efficiencies and advantages were most important given the market contexts in which it operated. Across all three lines of business, Amazon's speed in business development conferred first-mover advantages in building a customer bases and identifying emergent demand. As it built-out its stores, the realization of economies of scale and economies of scope were central to the company's efforts to make the Amazon.com the default eCommerce destination. Opening Amazon's eCommerce platform to third parties was a surprise to many but reflected an understanding of the power of network effects. These efficiencies put Amazon in a position to track a wider swath of consumer purchases and thereby gain information advantages over rivals.

In the case of cloud computing services, Amazon's initial advantages were that it had already invested in relevant capabilities to meet its internal needs and it had developed a base of external customers through the development of the Associates Program and Amazon Marketplace. AWS also moved faster than its rivals in developing a distributed infrastructure of secure data centers to meet the demand of customers located in different regions as well as customers who needed to meet country-specific data requirements. Hence, geographic economies of scope have been important to the firm's

success in cloud computing. In the case of interactive technologies for homes and individuals, it is more difficult to point to any efficiency or advantage other than Amazon's focus on potential complementarities among products and services. Amazon's development of this line of business featured timely steps, many of which had the effect of bringing Amazon closer to individuals and homes, and, thereby, in a position where it could increase the range of products and services offered.

Will Amazon be able to sustain its historically superior performance? We offer three main comments. First, while Amazon moved first in each of these lines of business to capture substantial market shares, Amazon's market shares in each line of business have changed and they differ across countries and regions. In US eCommerce, Amazon commands a large share, but, as discussed above, its success outside the US is decidedly mixed. In the other two lines of business, Amazon may have the largest share but the market features intense rivalry. Amazon's share of cloud computing has fallen as others have developed various specialized services and met the demand from many customers who require dual sourcing. Even in the US, Amazon's share of interactive speakers is probably not much greater than several rivals and it faces strong competition globally.

Second, consistent with fundamental principles, substantial market shares may or may not indicate market power, which depends on the ability to restrict output and thereby raise prices profitably. As Demsetz (1974) established, observing that a firm is efficient and profitable does not indicate that Amazon could exercise market power. Indeed, various factors suggest otherwise and instead point to ongoing rivalry among actual and potential competitors that constrain Amazon in each line of business. In eCommerce, niche retailers with strong brands have proven that they can sell independently of Amazon. In cloud-computing, the extent to which services are differentiated has created opportunities for rivals to gain and retain customers. The same fundamentals apply to interactive technologies for homes and individuals. Hence, Amazon's prospects will depend on ongoing innovations and investments.

Third, a general insight about high-tech industries is that even the most successful and well-established competitors are vulnerable to sudden migrations of their customers to other platforms. Given that switching costs in eCommerce are low, Amazon has a narrow range in which it can set prices. One

can view Amazon's series of innovations and efforts to be yet more proximate to consumers as evidence of the imperative of offering advantages over rivals that lack features like Amazon Prime and multiple delivery options. Regarding cloud computing, Microsoft has clear advantages going forward that its services can leverage its Windows and Office products. Even Amazon's advantage in globally distributed infrastructure does not protect it from partial migrations of customers to other suppliers. In the case of interactive technologies, Amazon likely has an advantage in having the largest installed base of users but is constrained by two factors. One, the development of new equipment and services means that the equipment in place depreciates quickly. Two, the sizable flows of new customers who are adopting these products and services require that suppliers provide competitively priced bundles of leading-edge services.

Hence, our view is that despite Amazon's extraordinary successes, derived from an ability to identify market opportunities and realize efficiencies, sustaining Amazon's leadership positions in the three lines of business is not guaranteed. To the extent that one can draw inferences from relative movements in stock prices, it is worth noting that over the period January 1, 2021, through June 30, 2022, Amazon's stock price has lagged its largest US high-tech peers: Alphabet, Apple and Microsoft. If one were asked to choose between the view that Amazon is a monopoly versus the view that it is an effective competitor in markets that are contestable, we would choose the latter. Hence, Amazon's future prospects will be determined in large part by Amazon's management.

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