

Amazon Overview

Industries served	Internet (Amazon Marketplace, Amazon Web Services, Amazon Video) Retail (Amazon Marketplace, Amazon Prime) Consumer Electronics (Amazon Kindle, Fire HD, Fire TV, Amazon Echo)
Geographic areas served	Worldwide (Amazon Marketplace is in 15 countries)
Main Competitors	Alibaba Group, Apple Inc., eBay Inc., Facebook Inc., Alphabet (Google Inc.) Inc., International Business Machines Corporation, Microsoft Corporation, Netflix Inc., Wal-Mart Stores Inc. and many other Internet and retail companies.
Subsidiaries	A9.com. Alexa Internet. Amazon Books. Amazon Game Studios. Amazon Lab126. Amazon Studios. Amazon Web Services. Audible Inc. Book Depository Digital Photography Review. Goodreads Internet. Movie Database. Junglee.com. Souq.com. Twitch.tv. Whole Foods Market. Woot. Zappos

Amazon is a premier **technology company** providing a cloud computing platform on which other firms, ranging from retailers (Target and other), nonprofits like Major League Baseball, pharmaceutical firms (Novartis and other), and government agencies like the CIA can operate their online businesses (Amazon Web Services). It is also a services and distribution company that stores and delivers products from other firms (Fulfillment by Amazon), a video streaming company (Amazon Instant Video), an electronics hardware firm (Kindle and the Fire smartphone), a video production company (Amazon Studios) competing with Apple and Netflix, and, recently, a publisher of books (Amazon Publishing). **Distribution and fulfillment capabilities are at the core of the company.** Amazon doesn't make money when it sells things; it makes money when it helps customers make purchasing decisions.

The company has funded a number of separate exploratory units: **A9**, a product search engine developer; **ClickRiver**, an advertising service; **mTurk**, a lab exploring the use of human intelligence and crowdsourcing for solving difficult problems; and **Lab126**, which developed the Kindle and Amazon Instant Video. Amazon invested millions in startups that would build **voice-control apps** for the intelligent assistant **Alexa** and give her thousands of new skills. Amazon Web Services, the company's fast-growing and profitable cloud-computing segment, has helped subsidize Amazon's retail and entertainment ambitions. These efforts appear to have a common goal, which is to develop the capabilities needed for Amazon to become a technology platform as opposed to only an online retailer.

It is important to recognize that Amazon is a complex company involved in a multitude of initiatives that will pave their future growth. Presently, Amazon is comprised of nearly 90 business entities held across the world, many of which are affiliates of its e-commerce and media businesses. Among these, Amazon has separate retail websites for the United States, the United Kingdom and Ireland, France, Canada,

Clearly, AWS is the biggest area Amazon is scaling up with more than 5600 jobs, which translates to about 33% of all the open listings. Fulfillment & Operations is the next largest hiring area, representing about 19% of open positions. One surprising cohort is the Alexa Team, with more than 890 jobs, making Alexa nearly 5% of all Amazon's open positions. Another is the Amazon Devices team, which includes the recommendation algorithm team MAKO, also accounts for about 5% of job listings

According to a report by CB Insights (<https://www.cbinsights.com/research/report/amazon-strategy-teardown>) Amazon can be seen in three pillars: Amazon Prime, Amazon Web Services, and Amazon Marketplace. Amazon Prime offers discounted e-commerce and digital media products for its consumers. Amazon Web Services serves as a cloud computing platform for developers while Marketplace acts as a third party selling platform for sellers. Nearly all of Amazon's most recent innovations share a connection to Prime, which by some estimates accounts for 60% of the total dollar value of all merchandise sold on the site; and Prime has become the company's "flywheel."

The common focus of every initiative that Amazon has invested in is the consumer and their satisfaction with the service. All indications point to the fact that **Amazon's ongoing goal is to simplify consumer experience, reduce prices for shoppers and deliver goods faster.**

In order to reach the goal's model of a low-price and fast delivery business with higher levels of customer satisfaction, Amazon has invested and will continue to invest in technologies that will drive growth and shape the future of e-commerce and retail. A few of these technologies that are focal points for Amazon consist of their artificial intelligence (AI) and machine learning ecosystem, and their futuristic logistics.

According to the report by CB Insights, AI will be the next pillar of Amazon's business. Amazon founder Jeff Bezos has signaled this direction in his most recent annual shareholder letter as he highlighted the importance of AI and machine learning across the company. He argued that much of what the company does with machine learning happens beneath the surface. Machine learning drives Amazon algorithms for demand forecasting, product search ranking, product and deals recommendations, merchandising placements, fraud detection, translations, and much more. Though less visible, much of the impact of machine learning will be of this type, quietly but meaningfully improving core operations.

Amazon hopes to scale AI to lower the costs and barriers of entry so that any organization can take advantage of the opportunities that come along with having access. Under the Amazon Web Service pillar, the AI-as-a-Service product offers machine learning algorithm training for startups that meets their company size needs. It can be quite expensive for startups to train their algorithms, so Amazon is looking to provide a solution at affordable prices.

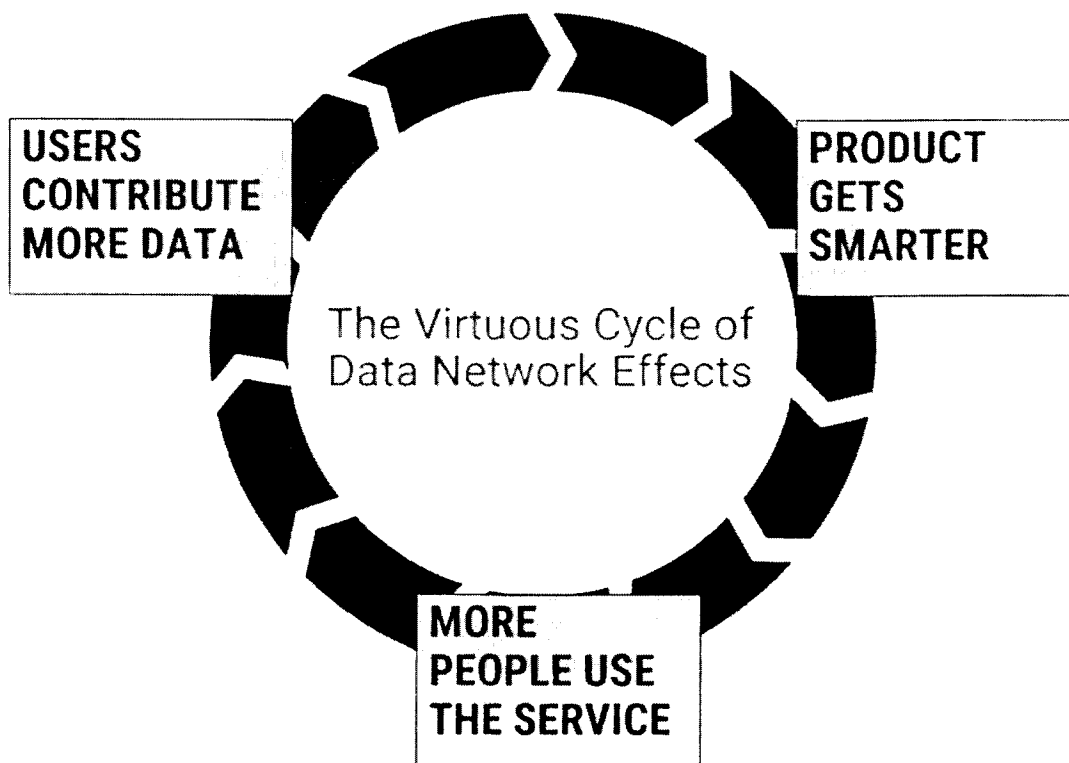
Amazon's AI aspect that will continue to facilitate consumer experience is within Alexa Voice Services. These services, which are integrated into the Amazon Echo, enable customers to seamlessly order more goods on Amazon and even to collaborate with third parties for services such as hailing a cab. The end goal of this product is to utilize it in such a way that the service would power everything, from your car dashboard to all of your home appliances. In addition, Amazon appears to be the hungriest AI recruiter by

far. The company's average annual investment is \$227.8 million with 1178 AI jobs posted. Amazon's Alexa voice assistant is part of this effort, but Amazon is pushing the technology into every part of the company.

Other areas where AI and machine learning are observed are through the autonomous Amazon Air drone delivery, and the **Amazon Go convenience stores** (Introduced in Seattle, it is a new kind of store with no checkout required; customers take products and go), which uses automated-machine vision to check out customers without utilizing a checkout line.

Amazon is always thinking of how to stay ahead by building its future today, and has invested in improving its core business, by developing new ones. In order to accomplish this goal, in nearly all of its main categories, Amazon's position as a platform works in a data feedback loop: Amazon owns the richest data set on how consumers consume, how sellers sell, and (among the richest) in how developers develop. This, in return, allows Amazon to optimize its online shopping experience, its logistics network, and developer environment (and even its voice AI), making Amazon's offerings even richer.

Source: CB Insights Report



In short, many of Amazon's businesses follow the classic network effect flywheel, and this model will continue to help Amazon stay ahead of the pack.

Even though there is more information regarding AI and machine learning, Amazon has not yet presented a plan on how each (AI and machine learning) can improve Amazon's core operations. AI and machine learning are critical drivers in their algorithms that forecast demand, optimize product search rankings, and recommend product deals, among many other operational improvements. Hence, there is no doubt that by scaling AI for their Amazon Web Service developer community, Amazon is able to get more in return, eventually becoming a key driver in many aspects of their growth, a triple win situation for consumers, developers and Amazon. This model also reflects the virtuous cycle of data network effects referenced above.

Another important aspect of Amazon's growth lies with Whole Foods, which the company acquired recently. Some analysts predict that Whole Foods label products, such as 365 Everyday Value, will be available through **Amazon.com, Prime Pantry, Prime Now and AmazonFresh**. Customers could one day use Amazon's popular voice-activated home speaker products to buy Whole Foods goods. And Amazon Lockers will soon be placed in select Whole Foods stores, so customers can pick up e-commerce orders or send back returns during a grocery run. Others see Amazon's move as not only buying Whole Foods grocery stores, but also buying 431 upper-income, prime-location distribution nodes for everything it does. Many also believe that Amazon bought 440 distribution centers. The fact of the matter is that Amazon's acquisition signaled that the company has a strategy for the grocery industry, and will certainly transform the industry with its core values of simplifying consumer experience, reducing prices for shoppers and delivering goods faster.

Next Generation Logistics

There is no doubt that Amazon's position in the market right now is connected to its world class logistics network. Through their efficient network, Amazon has made it possible for Prime customers to obtain deliveries in just about two days, and would like to improve their delivery system to make it even faster. Some of the new initiatives on the logistics front include a large investment in next-generation logistics as a part of Amazon's research and development. In 2016 alone, nearly 80 patents were focused on developing Amazon's logistics network, which is significantly higher than a few years ago.

For their future logistic networks, Amazon is looking to create flying warehouses that would dispatch drones loaded with packages to the ground. This "Airborne Fulfillment Center" is described as an airship that remains at high altitudes. In other patents, there are details about a drone network that alerts other drones about their surroundings as well as robotics used to assemble orders by tossing items through the air. All these initiatives point to the future of Amazon including faster delivery and greater efficiency.

Amazon's Future Growth

- **Amazon's latest acquisitions could indicate its future expansion:** Amazon had a large uptick in M&A in 2017, buying [Harvest.ai](#), a cybersecurity player; [Do.com](#), a meeting productivity software; [thinkboxsoftware.com](#), a platform for creative solutions for media and design content creation; [Whole Foods Market](#), grocery stores, while also buying its way into a new geography with [Souq.com](#), a Middle Eastern e-commerce site, [wing.ae](#), Same Day, Next Day, Saver and Urgent Pickup and delivery service in UAE. This is different behavior given the company's generally more conservative M&A history and could mean Amazon is shifting to a more proactive stance to fuel its AI and enterprise ambitions.
- **Amazon's next pillar will certainly be Artificial Intelligence:** In a letter to shareholders published in April 2017, Bezos wrote extensively about AI and machine learning as a focus of new company efforts to maintain relevance and an edge over the competition. Voice, virtual assistants, and natural language processing will continue to be a focus. But Amazon is also focused on AI-as-a-service and putting the basic tools of AI in the hands of its cloud computing and developer community. More than ever before, Amazon has aspirations to become a platform company.
- **Amazon's interest in GRAIL may foreshadow healthcare AI interest:** Its investment into [GRAIL](#) was a vote of confidence that genomics, with its massive data and processing needs, will be a major area for computing. Amazon's existing tools for big data and AI mean it is well positioned to enter the healthcare arena, where many AI startups are already proliferating.
- **Amazon's corporate venture arm, the Alexa Fund, has nurtured the developer and hardware ecosystem around Alexa as a universal AI assistant:** The Alexa platform offers SDKs which allow third-party developers to build skills for the AI assistant and other manufacturers of hardware to integrate the Alexa assistant into their products. The Alexa Fund's investments also point to new interfaces like gesture controls championed by [Thalmic Labs](#) — as well as hardware category possibilities, like robotic companions, such as those developed by [Embodied](#).
- **The company is also making more diversified investments into logistics, cloud apps, and media:** Amazon's recent investments into logistics and media foreshadow areas of new business interest. Amazon tends to invest mainly where it can make strategic partnerships. India-based [Housejoy](#) will help expand its reach in the region, and [Twilio](#) has partnerships with AWS.
- **Secretive R&D skunk work Lab126 is behind Amazon's recent consumer tech hits:** The secretive Silicon Valley-based R&D lab is behind hardware hits like the Echo and Kindle. And although it was also where the ill-fated Fire phone was developed, it is an under-appreciated example of Amazon's internal dedication to innovation.
- **Next-generation logistics is a centerpiece of Amazon's R&D:** Nearly 80 of Amazon's 2016 patents are

focused on developing its logistics network, which is already far more than just a few years ago. Amazon also patents heavily for its cloud computing and cybersecurity efforts.

- **Amazon has also raised its profile in consumer goods and physical retail:** Amazon operates its own shoe lines and apparel brands, as well as consumer goods grouped under its Amazon Basics label. It has begun opening brick & mortar bookstores, and has launched its Amazon Go, check-out free, convenience store concept. It is conceivable that Amazon Go could become a licensable white-label solution for retail tech. Certainly, Amazon is putting more pressure on traditional retail than ever before.

Important videos about Amazon future

<https://www.youtube.com/watch?v=WQqxCeHhmeU>

<https://www.youtube.com/watch?v=NrmMk1Myrxc>

All of Amazon's future initiatives, as well as potential growth opportunities, point to the fact that the company will need a skilled educated workforce (mostly technical) that will have the capability to drive its ambitions around **Amazon Prime, Amazon Web Services, and Amazon Marketplace**, (which are being integrated) in order to accomplish the goal of simplifying consumer experience, reducing prices for shoppers and delivering goods faster. The company's evolution shows that **Jeff Bezos has constantly pushed the company to explore areas outside of Amazon's core business**, and such a strategy has worked mainly because Amazon is able to recruit talent that can carry out current R&D projects while continually looking for new opportunities to improve their services and logistic abilities.

One of the main areas where Amazon future lies on appears to be around Artificial Intelligence (AI). Within a crowded landscape that includes Facebook, Google, Amazon, IBM, Baidu and Microsoft, finding the talent needed to drive AI work will be difficult. Amazon will have to invest in finding and keeping talent with appropriate technical skills (**deep neural networking**) in order to stay ahead of the race to control AI.

It is important to point out that progress in AI will manifest itself as incremental improvements to internet services that companies like Amazon already use every day. It is expected that search engines will produce more relevant results and recommendations will be more accurate. Within a few years everything will have embedded intelligence to some extent. In addition, **being able to talk to computers will make them accessible to people who cannot read and write, and cannot currently use the internet.** Amazon already has some advantages on this aspect with the release of the Echo Show, which is a remarkable machine that clarifies Amazon's vision of the future of computing. It is becoming the model for a new kind of communal, household computer.

Experts have concluded that the major reason behind Amazon's new plan to build a second headquarters elsewhere in North America is the need to hire thousands more software developers. They believe that

will almost certainly be cheaper and easier in a city other than Seattle, where Amazon's growth has helped fuel soaring labor and real-estate costs and a shortage of space. There is no doubt that the cost of living is a factor for determining where Amazon will move, in part because it could save the company money (a core value since the company's founding). For example, average annual compensation and the average wage will vary depending on the final location. Seattle now ranks ninth for the highest cost of living in the U.S., sharing the spot with San Diego, according to the Cost of Living Index, and that means higher salaries for Amazon workers in those places. Hence, it could be beneficial for the company to expand in a city where the cost of living is lower.

After looking at all Amazon projects as well as analyzing the market expectation, it is fair to conclude that Amazon's strategy for future growth lies around building new business pillars in AI, next generation logistics, and enterprise cloud applications. Amazon is seeking to become the central provider for AI as a service and to stay ahead of its competitors. There is no doubt that Amazon Web Service and the company AI assistance (Alexa) will play an important role in this goal. Finding a skilled and educated workforce will always be Amazon's priority because it is seen as the key to continuously transforming the company.

Amazon Initiatives with Educational Institutions and Potential Outcomes

In 2012, the company gave a \$2 million endowment to establish two Amazon professorships in machine learning to the University of Washington (Computer Science department).

The Amazon Catalyst Program was launched at the University of Washington in 2015. The goal of the program is to identify, fund and support bold, risky, and globally impactful projects. It is open to current UW students, faculty, and staff across all three UW campuses and all disciplines. Winners receive mentoring and funding from anywhere between \$10,000 to \$100,000.

In October 2016, Amazon donated \$10 million to build a second Computer Science & Engineering building on the University of Washington campus. The new building will provide the space needed for UW to double the number of degrees awarded to more than 600 annually by the Department of Computer Science & Engineering (CSE). All of these moves help to increase the pipeline of technology talent for Amazon's headquarters in Seattle. Amazon currently employs more than 1,000 UW graduates.

Amazon.com Inc. recently announced the Alexa Fund Fellowship, a program that will fund universities and researchers seeking to advance artificial intelligence (AI) voice technology in the areas of natural language understanding, automatic speech recognition, text-to-speech conversion, and conversational artificial intelligence.

The initial four university participants are **Carnegie Mellon University, University of Southern California, Johns Hopkins University, and University of Waterloo in Canada**. The universities will develop undergraduate or graduate level classes in voice technology and "will receive funding, access to Alexa devices, and mentoring from an Alexa Science team member."

Amazon Web Services (AWS) Educate is an educational program designed to encourage learning about cloud computing systems and services by making it easier for faculty to have students experiment with AWS in their classes.

The key components of the program are:

- Free credits to use web services for class projects or academic research
- Self-training materials and a shared Educators' Collaboration Portal of educational resources