

Amazon.com: An Empire Stretching from Cardboard Box to Kindle to Cloud¹

a draft chapter provided for comment. Will eventually be included in the Summer 2013 version of the award-winning & low-cost textbook "Information Systems: A Manager's Guide to Harnessing Technology".

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INTRODUCTION:

LEARNING OBJECTIVES:

After studying this section you should be able to:

1. Appreciate the breadth of businesses that Amazon competes in.
2. Understand that Amazon's financial performance has not been consistent.
3. Begin to recognize the reasons for this performance inconsistency and set the stage for the examination unfolding in subsequent sections.

As CEO of tech industry research firm Forrester Research, George Colony is paid to predict the future. Firms spend big bucks for Forrester reports that cover trends and insight across the world of computing. So when Colony turned his attention to Amazon.com, the Internet retailer founded by Jeff Bezos, there were a lot of people paying attention. Colony proclaimed that the recently public firm would soon be "Amazon.toast" as larger traditional retailers arrived to compete online.¹ Colony wasn't the only Bezos-basher. *Fortune*, *The Guardian*, and *Barron's* were among the publications to have labeled the firm "Amazon.bomb". Bezos' personal favorite came from a pundit who suggested the firm should be renamed "Amazon.org" adopting the domain of a non-profit since it'll never make any money².

Amazon went seven whole years without turning a profit, losing over \$3 billion during that time. The firm's stock price had fallen from a high of \$100 a share to below \$6. Conventional wisdom suggested that struggling dot-coms were doomed as retail giants were poised to bring their strong off-line brands and logistics prowess to the Internet, establishing themselves as multi-channel dominators standing athwart the bloodied remains of the foolish early-movers.

But during those seven years and through to this day, Bezos (pronounced BAY-zose) steadfastly refused to concentrate on the quarterly results Wall Street frets over. Instead, the Amazon founder has followed his best reckoning on where markets and technology were headed, postponing profit harvesting while expanding warehousing capacity, building e-commerce operations worldwide, growing one of the net's most widely-used cloud computing platforms, leading the pack in eBook readers, and developing the first credible threat to Apple's dominant iPad in tablets.

¹ Faculty: I'll post my personal slides online at gallaughner.com, but there is also a wonderful deck by FaberNovel that covers much of the content in this case. You can find it at: <http://www.fabernovel.com/en/works/97-amazon-com-the-hidden-empire>

Tellingly, Amazon's first profit was posted the week one-time brick-and-mortar goliath Kmart went bankrupt. Kmart was also the former parent of another giant of the offline world, Borders, a firm that completely shuttered in the wake of Amazon's dominance. And for Amazon, profits continued. In a three-year period following the introduction of the Kindle, Amazon's net income climbed from \$476 million to \$1.15 billion. Barnes & Noble's fell from \$150 million to \$37 million before dipping into the red. Punditry is a dangerous business, but *Barron's* made up for the dot-bomb comment, putting Amazon on its cover under a headline proclaiming the firm the world's best retailer. *Fortune* atoned by naming Bezos the "Businessperson of the Year"³.

Amazon's future continues to be hotly debated as the firm's profitability swings wildly. Massive investments crushed Amazon profits in 2012, with the firm dipping \$39 million into the red. Yet stock performance during this period suggests Wall Street expects a huge upside. And Amazon was recently named as having the "Best Reputation of any US corporation."⁴ So is Amazon the "unstoppable monster of the tech industry" or a "charitable organization run by elements of the investment community for the benefit of customers"⁵? Both? Neither?

SIDEBAR: Jeff Bezos & the Long Term (in his own words and more)

*"Our first shareholder letter, in 1997, was entitled, "It's all about the long term." If everything you do needs to work on a three-year time horizon, then you're competing against a lot of people. But if you're willing to invest on a seven-year time horizon, you're now competing against a fraction of those people, because very few companies are willing to do that. Just by lengthening the time horizon, you can engage in endeavors that you could never otherwise pursue. At Amazon we like things to work in five to seven years. We're willing to plant seeds, let them grow—and we're very stubborn. We say we're stubborn on vision and flexible on details."*⁶

Just how far ahead is Bezos' time horizon? His personal investments include Blue Origin, a commercial rocketry and aviation firm that intends to send humans into space. Bezos has also built a 10,000 year clock deep inside a mountain on his ranch in West Texas. The timepiece plays an elaborate cuckoo-like sequence, composed by musician Brian Eno, to mark every year, decade, century, millennium and 10 millennia. How's that for a symbol of long-term thinking!⁷

Why Study Amazon.com?

Looking at the Internet's largest retailer provides a context for introducing several critical management concepts such as cash efficiency and channel conflict. We see ways in which tech-fueled operations can yield above-average profits far greater than off-line players. We can illustrate advantages related to scale, the data asset, and the brand-building benefits of personalization and other customer service enhancements. Amazon's Kindle business allows us to look into the importance of mobile computing as a vehicle for media consumption, a distribution channel for increased sales and advertising, a creator of switching costs, a gathering point for powerful data, and in competition for platform dominance. And the firm's AWS (Amazon Web Services) business allows us to see how the firm is building a powerhouse cloud provider, generating new competitive assets while engaging in competition where it sells services to firms that can also be considered rivals.

KEY TAKEAWAYS:

- Amazon is the largest online retailer, and has expanded to dozens of categories beyond books. As much of the firm's media business (books, music, video) becomes digital, the Kindle business is a conduit for retaining existing businesses and for growing additional advantages. And the firm's AWS cloud computing business is one of the largest players in that category.
- Amazon takes a relatively long-view with respect to investing in initiatives and its commitment to grow profitable businesses. The roughly seven-year timeline is a difficult one for public companies to maintain amid the pressure for consistent quarterly profits.
- Amazon's profitability has varied widely and analysts continue to struggle to interpret the firm's future. However, studying Amazon will reveal important concepts and issues related to business and technology.

QUESTIONS & EXERCISES:

1. Which firms does Amazon compete with?
2. Investigate Amazon's performance over the last five years. How has the firm done with respect to revenue, net income, share price? How does this compare with competitors you've mentioned above?
3. What are some of the advantages in having a longer time horizon? What are some of the challenges? What needs to happen to enable Amazon to continue to 'think long term'? What could derail this approach?

THE EMPEROR OF E-COMMERCE:

LEARNING OBJECTIVES:

After studying this section you should be able to:

1. Recognize how Amazon's warehouse technology and systems are designed to quickly and cost-effectively get product from suppliers to customers with a minimum of error.
2. Understand how high inventory turns and longer accounts payable periods help fuel a negative cash conversion cycle at Amazon, and why this is a good thing.
3. Gain insight into various advantages that result from the firm's scale and cost structure.
4. Appreciate how data can drive advantages not fully available to off-line firms, ranging from increased personalization to innovation and service improvements.
5. Identify the two-sides in Amazon Marketplace network effects, and why this is important in strengthening the firm's brand.
6. Appreciate how mobile access is influencing opportunities through additional changes in how, where, and when consumers shop.

Amazon got its start selling books online. The firm's first office was in a modest space boasting a then appealing 400 square foot basement warehouse in a low-rent area of Seattle, where neighboring establishments included the local needle exchange, a pawn shop, and "WigLand."⁸

Today the firm is decidedly larger. Its ninety plus distribution centers worldwide boast well over 26 million square feet of warehouse space.⁹ And Amazon is now the world's largest online retailer in dozens of categories. The stylized smile in the Amazon logo doubles as an arrow pointing from A to Z (as in "we carry everything from..."). A new downtown Seattle headquarters will take up three full city blocks anchored by three signature office towers.

How does a firm that sells products that pretty much any other retailer can provide, grow and create competitive advantages that keep rivals at bay? Look to the napkin – Amazon's headquarters lobby sports the framed vision scribbled out by Amazon's chief (see below).

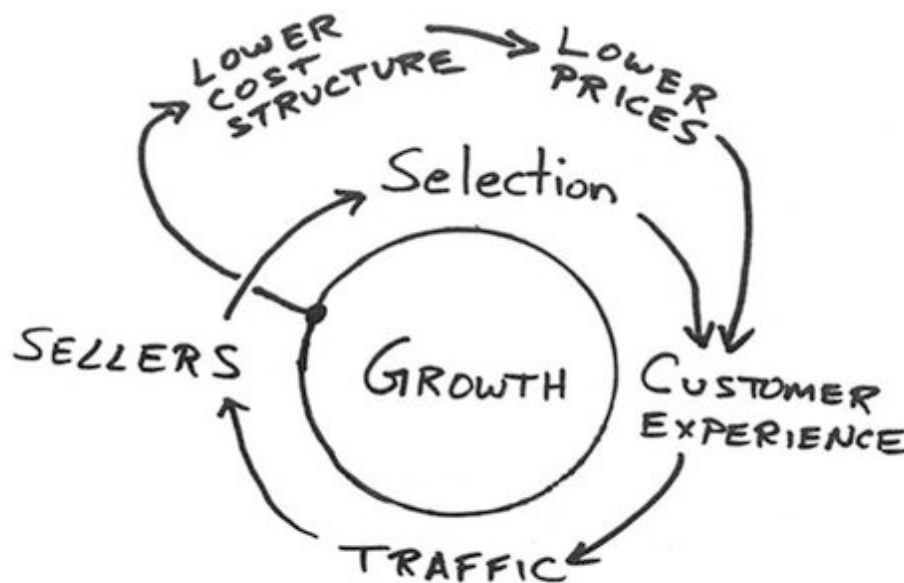


Figure X: Amazon's "Wheel of Growth", adapted from a Jeff Bezos napkin scribble (note: publisher needs to see if permission for use is required/can be obtained – has been widely shown in Amazon Investor Relations slides & reprinted in the media.

At the heart are three pillars of Amazon's business: large selection, convenience, and lower prices. Says Bezos "I always get the question, what's going to change in 10 years? I almost never get asked, what's NOT going to change in the next 10 years? That's the more important question, because you can build a business around things that are stable. [Things like] low prices... faster delivery [offering customer convenience]. Vast selection."¹⁰

The three pillars of selection, convenience, and low prices reinforce one another and work together to create several additional assets for competitive advantage. Exceptional customer experience fuels a strong brand that makes Amazon the first place most consumers shop online. More customers allow the firm to provide more products, creating scale. Amazon also opens its website up to third-party sellers – and a dynamic where more customers attract more sellers which attract still more customers (and so on). That virtuous cycle of buyer-seller growth is a *two-sided network effect*, yet another source of competitive advantage. And all this activity allows Bezos and Company to further sharpen

the business battle sword by gathering an immensely valuable data asset. Each digital movement is logged, and the firm is constantly analyzing what users respond to in order to further fine-tune the customer experience, squeeze out costs, and drive profits. Let's look at each of these items and see how Amazon's bold tech-based strategy is realizing additional advantages in the domain of marketing, accounting, and operations.

Fulfillment Operations – Driving Selection, Customer Convenience, and Low-Price

Amazon has always sold direct to consumers, but it didn't always do this well. The firm's early warehousing was a shambles of inefficient, money-burning processes. Said one analyst, Amazon's "inventory, and warehouse operating costs, [were] so high they made old-fashioned retailers look efficient."¹¹ The situation was once so bad that in order to stay in business Amazon had to issue more than \$2 billion in bonds. To fix the problem, Amazon looked to others for talent, hiring away both the Chief Information Officer (CIO) and Chief Logistics Officer from the world's largest retailer, Walmart (Walmart sued, the two eventually settled out of court). But raiding Walmart's talent pool wasn't enough. Amazon's warehouse and technology infrastructure is radically different than any conventional retailer. While Walmart warehouses that support its superstores ship large pallets of diapers to thousands of its retail locations, Amazon warehouses pick and pack boxes of disparate individual items, sending packages to millions of homes. To build a system that worked, Amazon focused on costs, data, and processes so that it could figure out what was wrong and how it could improve.

One effort, "Get the C.R.A.P. out" focused on products that "Can't Realize Any Profits". The firm's Senior Vice President of North American Operations recalls visiting a Kentucky warehouse and watching a staffer spend 20 minutes packaging up a folding chair – a process way too inefficient for a firm with razor-thin margins. To fix the situation, Amazon worked with the vendor to get chairs in pre-packaged, read-to-ship boxes, keeping the product while cleaving costs.¹²

In order to automate profit-pushing hyper-efficiency, Amazon warehouses are powered by at least as much code as the firm's website¹³ – nearly all of it home-grown.¹⁴ Technology lets a given Amazon warehouse send out over 2 million packages a week during the holiday season, all without elves or flying reindeer.¹⁵ The firm's larger warehouses are upwards of a quarter-mile in length and are packed with shelves stacked five or more rows high. Technology choreographs hundreds of workers in what seems part symphony, part sprint.

When suppliers ship new products to Amazon, items are scanned and prepped for order within hours of arrival. Dozens of workers examine the incoming shipments for defects. If a problem is spotted in the receiving area, the staffer flips an adjacent warning light from green to red, signaling a warehouse 'problem solver' to swoop in, deal with the issue, and make sure additional items can keep on flowing in.¹⁶

Amazon's items that produce the most sales volume (think bestselling books, Kindles) aren't even stocked on proper shelves, instead pallets of goods are dropped in an area called 'mass land' for fast pick-up that doesn't require scurrying through a maze of shelves.

Slower-moving items are racked up by ‘shelvers’, who place items in available spaces. Shelvers then scan a unique shelf code for that location so that Amazon’s systems know where an item has been stocked. The same item might be stored in a dozen different places throughout the warehouse, but that’s OK – the system knows where everything is. Amazon has an additional rule when stacking shelves – no two similar products can sit next to each other. While this makes Amazon’s shelves look like an unorganized hodgepodge, when a product is the only one of its type in a given area, this actually reduces the chances that a picker will confuse a size or color or otherwise grab the wrong thing.¹⁷ Reducing mistakes keeps customers happy in brand-building ways, and it reduces errors that can crush profits.

Staff known as warehouse pickers are in charge of building your order from a warehouse’s inventory. Wireless devices give pickers instructions on precisely where to navigate to and what items to grab within the maze of numbered isles and shelves. Pickers scan shelf codes after they get each item, and the device prompts them with their next marching orders. Warehouse software plots the picking path to minimize worker steps and maximize order fulfillment efficiency.¹⁸ Another group of ‘problem solvers’ scuttle about the warehouse with wheel-mounted laptops, observing operations and offering coaching on how staff can do things better.¹⁹

Once all items for a given order are picked, they are placed in orange bins that travel along conveyor belts for packing. Software then tells ‘packing associates’ the optimal size of smile-logoed Amazon cardboard box to use for a given order. Packed boxes are weighed and the software does an additional check to see if the weight is what’s expected. If an order is too light that’s a sign that a box is missing an item.

Systems only stamp names and addresses on boxes after orders are complete and boxes are sealed. No floor workers know who you are or what you’ve ordered. Packed boxes are then loaded on to separate trays that ride into another conveyor belt system, where they are scanned and tipped down the correct chute among dozens of choices so that the box is routed on to the correct truck for that order’s shipping provider and destination. Some warehouses ship products so quickly that outbound trucks are dispatched with a less-than three minute window between them.²⁰

To foster improvement, warehouse movements are continuously logged and productivity is tracked and plotted. Input from warehouse ‘problem solvers’ is also taken into account. Says one Amazon exec “If we discover a better way of doing something, we can roll it out across the world overnight.”²¹ Top-notch workers are praised throughout the day, as management calls out the names of workers who hit or exceeded their goals.”²²

Amazon often boasts on-time package deliver rates of up to 99.9% or more. Keeping customers happy stems in part from setting expectations, so Amazon’s systems receive weather reports, as well. Order a product during a pre-Christmas snowstorm and expect to see a message on the website indicating “adverse weather conditions are impacting deliveries.”²³

And Amazon isn't done with automation. It purchased Massachusetts-based robotics firm, Kiva Systems for over three quarters of a billion dollars. While most Amazon warehouses aren't yet set up for full robotic automation, Kiva's robots were already being used in the warehouse of Amazon-subsiary Zappos. Executives at Kiva say its systems can pick 200 to 400 items per hour.²⁴

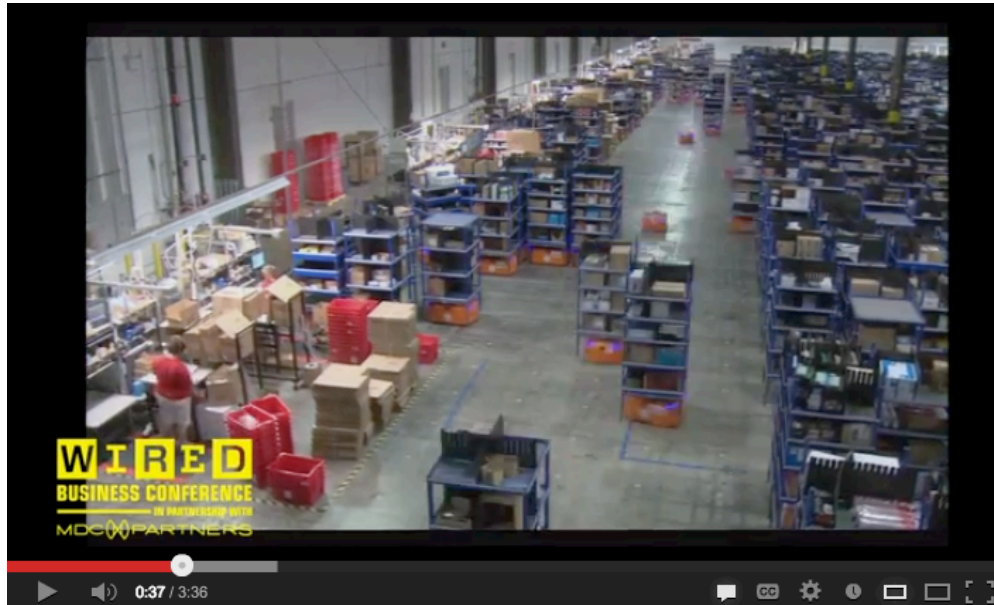


Figure X: A Day in the Life of a Kiva Robot. This YouTube Video shows Kiva robots in action at a massive warehouse. Publisher will likely need to secure permission to embed video (<http://www.youtube.com/watch?v=6KRjuuEVEZs>)

Amazon's Cash Conversion Cycle – Realizing Financial Benefits from Speed

Quickly moving products out of warehouses is good for customers, but Amazon's speed also offers another critical advantage over most brick and mortar retailers – the firm is astonishingly efficient at managing cash. Here's how.

When incoming inventory shows up at most retailers – and this is certainly true for Amazon, Barnes and Noble, and Best Buy – those firms don't pay their suppliers right away. Instead they log payment due for these goods as an *account payable*, a bill that says when payment is due sometime in the future. Accounts payable periods vary, but it's not uncommon for a big retailer to be able to hold products for a month or longer without having to pay for them. However, when customers buy from a retailer, they pay right away. Cash is collected immediately, and funds from credit cards and checks clear in no more than a few days. The firm's period between shelling out cash, and collecting funds associated with a given operation, is referred to as the *cash conversion cycle* (CCC). There are other factors that influence the CCC, but right now we'll concentrate on the hugely important time difference between paying for inventory and selling those goods. A retailer wants this number to be as small as possible, otherwise unsold inventory is sitting on shelves and doesn't generate any cash until it's sold. Especially cash-crunched firms may

even require short-term loans to pay suppliers, and those firms that can't generate cash quickly enough are referred to as having *liquidity problems*.

While a firm's cash conversion cycle varies from quarter to quarter, Barnes & Noble has reported that its inventory has sat on shelves 68 days on average before being purchased.²⁵ Best Buy has held inventory for as much as 70 days on average before a sale²⁶. Costco and Walmart sell goods more quickly, but they also pay for inventory before it is sold.²⁷ When compared to these peers however, Amazon alone among them consistently reports a *negative* cash conversion cycle – it actually *sells* goods *before* it has to pay its suppliers. This gives the firm a special advantage since it has an additional pool of cash that it can put to work on things like expanding operations, making interest-bearing investments, and more.

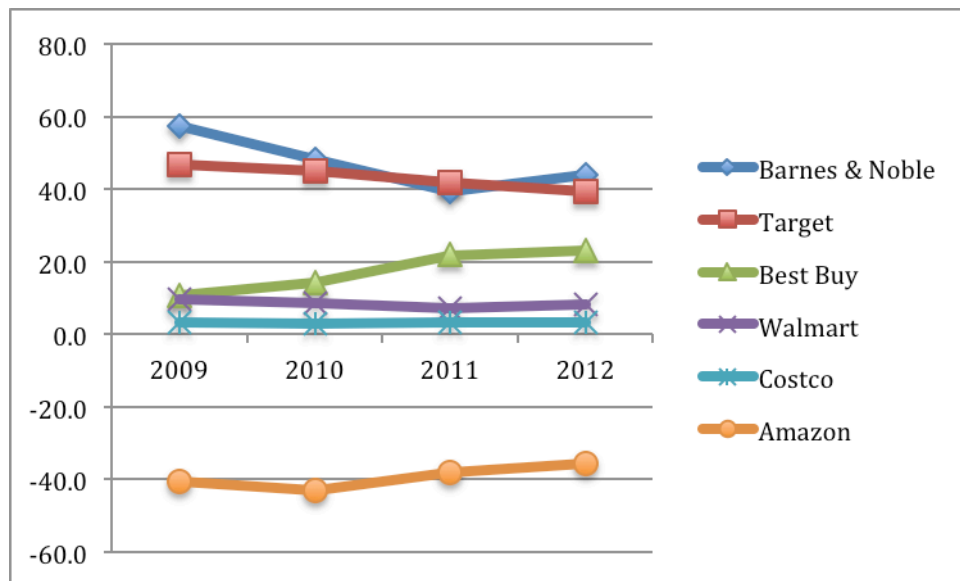


Figure X: Cash Conversion Cycle (in days) among select major retailers

The efficiency of a firm's cash cycle will vary over time. And numbers reported are an average for all products – some products are slow movers, while others are sold very quickly. But the negative cash conversion cycle is another powerful benefit that Amazon's fast-fulfillment model offers it over rivals. The goal for Amazon: keep inventory turns high (e.g. sell quickly), and pay suppliers later.

Internet Economics, Scale, and Pricing Power

Selling more goods often gives Amazon *bargaining power with suppliers*. And the size (scale) of Amazon's business provides the firm with negotiating leverage to secure lower prices and longer payment terms. But Amazon's cost-structure for operations is also superior to rivals. To be certain, Walmart's sales dwarf Amazon's. Walmart's 2012 sales figures were \$446 million. Amazon's \$61 million 2012 sales are about the same as Target's. But Walmart has 10,773 stores worldwide²⁸. Target has 1,778 stores²⁹. Amazon has 90-plus warehouses total and no conventional stores. While Amazon spends significantly on software, automation, and expansion of its warehouses, its overall costs for things like real-

estate, energy, inventory, and security will be lower than brick and mortar rivals. And employee efficiency should be greater as well, since Amazon shift workers are working at fairly constant rates throughout the day, while retailer activity fluctuates with the ebb and flow of customer visitation hours.

Retail can be a cut-throat business. The exact same products in one store are often available through competitors, so competition often boils down to whoever has the lowest price. Amazon's scale enables it to operate with thin margins, giving it the strength to sustain lower prices. As former Amazon employee Eugene Wei puts it, this allows Amazon to "thin the oxygen" of competitors.³⁰ Amazon's breadth of operations brings in cash from other businesses, in-effect allowing the firm to "hold its breath longer" if challenged in an unprofitable price war. Consider DVD Empire's reaction to the launch of the Amazon Video Store. DVD Empire was, at the time, the largest seller of online video. Feeling threatened by Amazon's arrival, DVD Empire lowered prices to an unsustainable 50 percent below retail. Amazon wouldn't make any money at 50 percent off, either, but as Wei puts it "Our leading opponent had challenged us to a game of who can hold your breath longer" and Amazon had "bigger lungs". The lesson is clear – a smaller firm looking to pick a price-fight with Amazon might not survive.

Amazon's retail prices aren't just cheaper than other e-commerce firms, they're usually cheaper than larger rival Walmart, too. Wells Fargo compared a diverse basket of products available at both firms and found Walmart prices were actually 19 percent more expensive than Amazon. Target was 28 percent more expensive, while products purchased at specialty retailers cost 30 percent more. Even more impressive, Amazon seems to be monitoring the availability of products at competitor websites and using stock-outs as an opportunity to earn more. The Wall Street Journal reports that "where rivals sold out of items, Amazon responded by raising its prices an average of 10 percent."³¹ Firms should be careful – consumers have been known to react angrily to so-called *dynamic pricing* if they feel they are taken advantage of.³² But the insight does show how data can drive a nimble response to shifts in the competitive landscape.

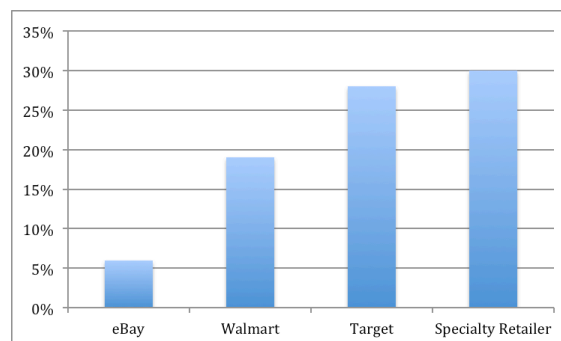


Figure X: Key Retailer Avg. Price Difference Above Amazon.com³³

While not well known for its own brands beyond Kindle, Amazon's scale has allowed it to create several product lines that it has branded itself. Amazon's private-label brands include AmazonBasics (cables, batteries, and other consumer electronics accessories),

Pizon (kitchen gadgets), Strathwood (outdoor furniture), Pike Street (bath and home products), and Denali (tools).³⁴

Putting its own brand on high-volume products should allow Amazon to cut out some pricing that would otherwise go to a branded supplier. The willingness to sell its own brands can also give Amazon even more negotiating leverage with suppliers. Firms unwilling to provide Amazon with the price breaks, payment terms, or complete product-line access it demands may see Amazon compete directly with them via a private-label product. And a scale-reinforced brand that screams 'best price' in a space crowded with me-too retailers selling the exact same thing is a powerful asset and enormous barrier for competitors to try to overcome. Amazon can keep advertising spending down as customers see the firm as the first and often only stop needed when moving from product research to purchase. Consider that Target (with roughly the same revenues as Amazon) is a member of that elite club of firms that spends over \$1 billion in advertising (\$1.62 billion in 2011), while Amazon didn't even make the list.³⁵

Amazon also sees growth beyond consumers. AmazonSupply is billed as "The Store for Business & Industry" and carries a range of business, scientific, and industrial goods for corporate customers. Getting most products in and out of a warehouse is the same, regardless of category, so Amazon can effortlessly expand in any area where it thinks the model will work.

Customer Obsession

For a firm that does so much, Amazon's moves are largely motivated by one thing – relentless customer focus. Sure, every firm says they care about their customers, but consider this: in meetings, Bezos is known to insist that one seat be left open at the conference table as a symbol representing 'the most important person in the room', the Amazon customer.³⁶ To keep even the most senior executives empathetic to the customer experience, every two years every employee from Bezos on down must spend two days on the service desk answering customer calls.³⁷

It's an eye on improving the customer experience that has motivated so many of Amazon's pioneering efforts, among them: 1-click ordering (which the firm patented), customer reviews, recommendations, bundles, look and search inside the book, where's my stuff, free supersaver shipping. While pioneered by Amazon, many of these efforts are now accepted as must-have features across e-commerce categories.³⁸

As we've mentioned earlier, strong brands are built largely through customer experience. As evidence of the strength of customer experience, Amazon has repeatedly scored the highest rating on the University of Michigan's American Customer Service Index. It was a rating that not only bested all other Internet retailers, it was the highest score of *any firm* in *any* service industry.



Figure X: Letter posted to Amazon's home page following the firm's second record-breaking ACSI Index score (note to publisher: I screen-grabbed this from Amazon's public website posting years back. I am assuming it is within copyright to do so. Kindly verify).

Leveraging the Data Asset – A/B Testing, Personalization, and Even an Ad Business

Moving early and having scale allows Amazon to amass that profoundly valuable tech-derived competitive resource – data. The more customers a firm has, the more accurately the firm can understand various patterns related to recommendations, preferences, customer segments, price tolerance, and more.

At Amazon, data wins arguments, and the corporate culture gives employees the freedom to challenge even most senior managers all the way up to Bezos himself. When Amazon coder Greg Linden proposed that Amazon present 'impulse buy' recommendations that match patterns associated with the consumer's shopping carts (e.g. customers who bought that also bought this), he was originally shot down by a senior vice president. Linden was undeterred, he ran an *A/B test* - capturing customer response for those who saw option "A" (recommendations) vs. option "B" (those who didn't). The result overwhelmingly demonstrated that recommendations would drive revenue.³⁹

SIDEBAR: Two-Pizza Teams: Keeping An Entrepreneurial Culture in a Big Firm

One challenge growing firms often face is they become slow and less innovative as they expand.⁴⁰ In order to keep Amazon nimble and innovative, Bezos has mandated a rule known as “two-pizza teams”, stating that any individual project team should be small enough so that it can be fed by no more than two pizzas.⁴¹ This helps ideas flourish, discourages the kind of ‘groupthink’ that diminishes the consideration of alternative approaches, and even provides a mechanism where several efforts can compete to identify the best solution.

While the ‘abandoned shopping cart’ problem plagues many web retailers, Amazon is considered one of the best ‘converting’ e-commerce sites, moving customers from product evaluation through completing checkout.⁴² A/B tests drive this – the firm has relentlessly experimented with tests that modify and compare all sorts of variables including the wording associated with images and buttons, screen placement, size, color, and more. Relentlessly measuring customer activity also helps the firm direct its investment in infrastructure. One test, for example, revealed that a tenth of a second’s delay in page loading equaled a one percent drop in customer activity, pointing to a clear ROI for keeping server capacity scalable.⁴³

While you’re shopping on Amazon, you’re likely part of some sort of experiment, perhaps several. While Amazon doesn’t say how many A/B tests it runs, Google runs over 7,000 annually. Amazon has gotten so good at A/B testing that it launched a service offering scalable options for running simultaneous tests and gathering measured results for developers that use the Amazon app store. A/B testing is yet another advantage e-commerce firms have over conventional retailers. Constant experimentation, refinement, and re-testing is far easier in the digital world when every user’s click, delay, and back-track can be measured and compared.

Amazon’s data trove on you individually, and users collectively, fuels the firm’s personalization effort (efficiently referred to internally as p13n, since there are 13 letters between the p and the n in the word ‘personalization’). When visiting the Amazon home page it’s more accurate to say that you’re visiting *your* Amazon homepage at a given point in time. Your page may vary not only based on any ongoing A/B tests, but also based on Amazon’s best guess of what you’ll want to see as well as any myriad of other sales and promotion goals. Behind the scenes, your web browser receives a unique tracking string called a *cookie* and Amazon tracks your surfing behavior as well as your buying history. Rate products? Even better! Amazon knows what you liked and what you didn’t. The firm’s proprietary *collaborative filtering* software compares a user’s data with that of others, mapping a best guess of what you’ll like to see each time you visit. A parent who has searched for and bought items for young children will likely see recommendations for other age-appropriate kid products – maybe even guessing at your kids gender and likes. Athletes, gamers, romance novel fans should also expect interest revealed by surfing and purchasing to create a custom experience. Scale means the firm has more users doing more things, allowing the firm to collect more observations that fuel greater accuracy in tailoring the user experience. And this fuels that oh-so-important brand-building positive customer experience.

All of this customer insight data also positions Amazon to grow a massive, Google-competing ad business. Amazon initially sold ads as a way to generate more sales through its website, but Amazon now offers advertisers the ability to advertise on Kindles, on other Amazon-owned sites like IMDb, within mobile apps, and via Amazon-targeted ads on third-party websites. Amazon ad offerings are feature-rich, including things like the ability to play a movie-trailer in an ad, or embedding a discount coupon in a click-to-purchase offering. Amazon reportedly charges up to \$1 million for ads placed on the welcome screen of new Kindle Fires.⁴⁴ Don't like ads? You can pay \$20 more for a Kindle without the 'special offers'.

Selection & Network Effects

Amazon's radical focus on customer experience also caused it to take what many would consider a contrarian move – offering products provided by others alongside its own listings. Third party products are referred to as being part of the 'Amazon Marketplace'. Amazon doesn't own inventory of marketplace items. Sellers can warehouse and ship products themselves, or they can opt to use Amazon's warehouses as part of the 'Fulfilled by Amazon' program. The latter lets Amazon handle logistics, storage, packaging, shipping, and customer service, while customers get Amazon shipping prices – including super-saver discounts and free shipping for customers enrolled in the Amazon Prime program. Customers also benefit if they already have credit card and other information on file with Amazon (a switching cost potentially deterring users from going to a new site).

As much as 40 percent of all units sold by Amazon are from the firm's 2 million participating Amazon Marketplace sellers worldwide.⁴⁵ Marketplace allows Amazon to build a *long tail* of product offerings without the costly risk of having to take ownership of unproven or slow-moving inventory, while the firm gets fat and happy in the middle of a *two-sided network effect* (i.e. more buyers attract more sellers, and more sellers attract more buyers). Some Marketplace products compete directly with Amazon's own offerings, but the firm doesn't shy away from allowing competitive listings, new or used, even if they're cheaper. Competition among sellers reinforces low-price, and lowers the chance that customers will look first to sites like PriceGrabber, Shopping.com, Google or eBay. Even if a rival wins a sale, all products sold through Amazon allow Bezos' firm to collect a fee. And when Amazon sells third party goods through its site, it continues to 'own' much of the customer relationship for that sale, gathering data that would otherwise be lost if customers went elsewhere. Amazon also won't hesitate to kick out sellers with bad ratings to ensure quality and protect the Amazon brand.

Not only does Amazon allow others to sell products through its site, it allows others to market for the firm, too. The Amazon Associates program is the world's largest *affiliate marketing* program, offering a sort of 'finders fee' for generating sales. Website operators can recommend Amazon products on their site and Amazon gives the affiliate a percentage of sales generated from these promotions. For Amazon, fees paid are pay-for-performance – associates get a commissions only if their promotions generate sales.

Fostering an Addition to Amazon: Prime, Mobile, and More Markets

Amazon is also creating habit-changing behaviors that fuel sales growth. Subscribers to Amazon Prime get free two-day shipping for unlimited qualifying purchases. Prime encourages impulse or on-demand purchases – no need to wait to aggregate purchases for a super-saver rate. The rise of mobile commerce also changes buying patterns. The cash register is now in your hand, and with you at all times. Why create a shopping list when you can buy immediately when the need arises?

Amazon doesn't break out mobile sales, but some analysts suspect the percentage may be as high as 10 percent, and growing.⁴⁶ Other retailers are reporting even more impressive figures. One Kings Lane, a firm bringing in over \$200 million a year selling home furnishings, claims 25 percent of its sales are from mobile devices, and that mobile shopping carts ring in an even higher average order size than orders from PCs.⁴⁷ And this is from a firm that sells bulky items like couches and chairs!

Acquisition of other firms and the growth of new internal businesses has allowed Amazon to accomplish several things including: broadening the firm's product offerings to underscore Amazon as the 'first choice' shopping destination, absorbing potentially threatening competitors before they get too big, experimenting with new product offerings and services, and integrating value-added businesses and technologies into the Amazon empire. *BusinessWeek* once ran a cover story titled "What Amazon Fears Most", featuring a diaper-clad toddler. The implication was NJ-based Quidsi, operator of diapers.com, could grow brand and scale in staple products, drawing customers away from Amazon. Amazon's response? They bought the firm for over half a billion dollars. Today the Quidsi subsidiary has seven brands that can deliver a range of goods from cosmetics to green cleaning products, in some cases within the same day. While Amazon hasn't yet made the decision to integrate Quidsi completely into the Amazon experience, they are now full owners of the biggest threat to grabbing high-growth markets that Amazon didn't dominate.⁴⁸ Same thing with Zappos, which Amazon paid nearly \$1 billion for, and which continues to operate as a separate brand.⁴⁹ Other acquired firms include Alexa, a web analytics and tools provider; Audible, the leading provider of digital audio books; GoodReads and Shelfari, social networking sites for book readers; Woot, a *flash-sales* site; and LoveFilm, often described as the Netflix of Europe.



Figure X: Just some of the brands & businesses owned by Amazon.com

Amazon is also growing its own brands in new categories. Examples include MyHabit, a fashion flash-sales site, competing with the likes of Gilt Groupe and Rue La La. Amazon Instant Video offers streaming TV and movie titles for rental, purchase, and some included free with an Amazon Prime subscription. And Amazon Fresh is a FreshDirect-like competitor, offering same day delivery of groceries and more. Amazon has also begun building warehouses close to major metropolitan areas, a move which many think is targeted at growing same-day delivery (Walmart, eBay, and even Google also offer same-day delivery services in some areas). The move is a departure for Amazon, which for years built warehouses in low-population states to avoid tax laws that require sales tax collection where the firm has a physical location.⁵⁰ As Amazon gives in on sales taxes, it's poised to launch an all-out assault on markets handled by local retailers.

KEY TAKEAWAYS:

- Amazon's sophisticated fulfillment operations speed products into and out of inventory, reinforcing brand strength through speed, selection, and low prices.
- Rapid inventory turnover and long payment terms enable Amazon to consistently post a negative cash conversion cycle. The firm sells products and collects money from customers in most cases before it has paid suppliers for these products.
- The cost structure for online retailers can be far less than that of offline counterparts that service similarly-sized markets. Savings can come from employee costs, inventory, energy usage, land, and other facilities expenses.
- Amazon's scale is a significant asset. It allows the firm to offer cheaper prices in many categories than nearly every other firm, online or off. Scale gives Amazon additional bargaining leverage with suppliers. And the firm's scale-driven low-prices reinforce Amazon as the 'first choice' shopping destination.
- Amazon's ability to acquire and leverage data further allow the firm to enhance customer experience and drive sales. Internet retailers have a greater ability to gather

personal data on consumers than do offline counterparts. Data is used in personalization and in innovation fueled by the result of A/B experiments.

- The rise of mobile is resulting in an increase in shopping among many retailers, and fuels immediate purchases rather than the creation of shopping lists.

QUESTIONS & EXERCISES:

1. When you walk into a conventional retailer, similar items are stacked next to each other. But Amazon tries not to do this in its warehouses. Why?
2. How does Amazon warehouse staff know where to find items? How does technology help make the process most efficient?
3. Does Amazon buy most of its warehouse automation software from others or is most of the software written in-house? Why do you suppose this is the case?
4. In what other ways do Amazon's information systems reduce errors? Why is error reduction so critical to firm performance?
5. Which requires more code, the firm's customer facing website or warehouse automation?
6. Although Amazon is investing in robotics, human beings still do most of the product picking and packaging. How does Amazon ensure customer privacy is protected, despite heavy human involvement? Do you think it needs to go to such great lengths? Why or why not?
7. What is the cash conversion cycle? What factors enable Amazon to have a cash conversion cycle that is negative? Why are off-line rivals unable to match these efficiencies? What advantage does this give Amazon over rivals?
8. How do Amazon's prices compare with rivals? What gives Amazon such advantages? What other pricing advantages does Amazon have that a conventional retailer might not be able to take advantage of?
9. What is dynamic pricing and why might this be risky?
10. What are private-label products and what advantages do they offer Amazon?
11. Log into Amazon (or pull up a page if you 'remain' logged in). Compare it to a classmate's page. What similarities do you notice? What differences? Why do you think Amazon made the choice to show you the things that it did? Do you think it guessed accurately regarding your interests? Why or why not?
12. Amazon's unique customer data has allowed the firm to enter the advertising business. Which firms does this bring Amazon into competition with? Research Amazon's role in matching advertisers to consumers. How big a player is Amazon? How do you feel about a firm using your personal data on purchases, product browsing, and recommendations for advertising? Under what circumstances (if any) are you comfortable with such targeting, and under what circumstances are you concerned?
13. How does Amazon keep management focused on customer issues and 'putting the customer first'?
14. Describe how Amazon Marketplace offers two-sided network effects.
15. Besides network effects, what additional benefits does Amazon gain by allowing other retailers to sell potentially competing products on Amazon?
16. How does mobile change buying habits? Are retailers seeing decreasing usage due to the rise of mobile or more shopping? Give an example from your reading or from subsequent research.

17. Amazon's operations are a marvel of automation and procedural efficiency, but the firm has also been subject to criticism regarding its warehouse work environment. Investigate these criticisms on your own. Do you feel they are valid? Are any of the critics also worthy of criticism? If so, how? Do you feel Amazon has responded appropriately to this criticism? How would you have responded if you were CEO of the firm? What take-aways from your own investigation will inform your own actions as a manager?

KINDLE AND THE RISE OF DIGITAL

LEARNING OBJECTIVES:

After studying this section you should be able to:

- Understand the motivation behind Amazon's Kindle business.
- Recognize the various ways that Amazon earns money and strengthens its competitiveness via the Kindle platform.
- Examine the changes Amazon's digital media offerings have brought to traditional the publishing industry value chain.
- Understand key concepts such as channel conflict, wholesale pricing, and agency pricing.

While Amazon has built solid advantages by selling a broad array of products, media (books, music, and video) represents over 1/3 of the firm's revenue,⁵¹ and nearly all of that business is going to shift from atoms to bits, shipped not in physical packaging, but through the Internet. Losing this market would be a blow any publicly traded company, especially one with razor-thin margins, would find difficult to sustain. This is what has prompted the creation of the Kindle. While many refer to Kindle as an e-Reader, Kindle isn't as much about reading digital books as it is about putting a store in the hands of the firm's over 150 million customers⁵², allowing them to not only lap up goods from an increasingly massive digital trough, but also instantly linking those customers with the firm's entire inventory of physical products.

The Kindle arrives linked to your Amazon account. That means the device comes, out of the box, as a pre-configured cash register with a vacuum attached firmly to the credit card in your wallet. The first Kindle was optimized for book reading and featured a black and white display that used e-Ink. That display can't refresh fast enough for animation or video, but it is legible in sunlight and only draws power when flipping a dot from black to white or vice versa, offering exceptionally long battery life. Thanks to Moore's Law, Kindles, originally offered at \$399, grew in power while plummeting in price, with a low-end model selling for just \$69 five years after introduction. When introduced, the high-resolution color Kindle Fire offered a touch-screen tablet experience for half the price of the competing iPad and quickly became the second best selling tablet on the market. The Kindle is also a cloud machine. The first Fire came with half the RAM of the iPad, the thought being that your media would be snugly stored on Amazon's servers, downloaded when you need it. While Amazon doesn't promote this fact, the Fire is also built on a

modified version of Google's Android OS, allowing the tablet to run a subset of native Android apps.⁵³

The success of Kindle is staggering. By the holiday season of the product's second year, the Kindle was Amazon's top selling product in both dollar volume and unit sales.⁵⁴ That means Amazon was selling more Kindles than any single book, CD, movie title, toy, or any other product among the millions that it offers. Even more noteworthy for competitors in the eBook and tablet space, Amazon doesn't look to make money directly from Kindle hardware sales - various Kindle versions are regularly sold at or below costs.⁵⁵ But once that cash register is in the hands of consumers, the sales ring up. As an always-on bookstore, the Kindle works pretty well. Roughly a million titles are offered, with "search inside the book" features and the first chapter downloadable for free. Estimates of the firm's Kindle-generated revenue bump vary, but all point to positive Kindle-fueled sales gains. RBC Capital estimates that despite being sold at a loss, each Kindle Fire generates over \$136 in operating income with operating margins above 20 percent over the lifetime of the device.⁵⁶ Kindle owners buy three to four times more books than they did prior to owning the device.⁵⁷ And Amazon today sells more electronic books overall than their print counterparts.⁵⁸ In terms of fueling overall sales, SmartMoney reported that Amazon customers who don't own a Kindle spend an average of \$87 each month, while those with a Kindle spend \$136, and Kindle Fire owners spend over \$150.⁵⁹

As device and storefront, Amazon has begun to vertically integrate, capturing several segments in the traditional book value chain. The printed book, or "dead-tree" publication value chain involved a publisher, bookstore, agent, and author. Publishers typically get half of a physical book's retail price, the bookstore takes about 30 percent, the author keeps about 20 percent as a royalty, but shares 15 to 20 percent of this with their agent. At the time of Kindle's rise, six large publishers controlled about 60 percent of the US book business commonly referred to as 'trade publishing' (that means most of the books you'd find in a typical bookstore, but not titles such as educational, scientific, and medical texts).⁶⁰ While most Kindle titles are from publishers that sell both print and dead-tree versions, Amazon has gotten into the publishing business, as well - creating several of its own 'imprints' (publishing divisions that specialize in a genre, like foreign translations, romance, or sci-fi). For authors wanting to bring books to market through Amazon instead of traditional publishers, Amazon offers royalty options ranging from 35 to 70 percent. There's even a "Kindle Singles" program that allows authors to sell work too short for a stand-alone book (fiction, essays, magazine articles).⁶¹ And since digitally published work doesn't require printing, shipping, and shelf-stocking, these titles can often come to market far faster than physical offerings. Using Amazon as a publisher doesn't mean your titles will only be available through Kindle.⁶² The firm will also produce print books and even offer them to bookstores willing to carry the titles. But Amazon has incited many authors to sell exclusive through the world's biggest e-commerce outlet and largest eBook platform. By March 2012, Bezos was proclaiming 16 of the firm's top 100 bestselling titles were "exclusive to our store."⁶³

And Amazon's digital publishing ambitions aren't limited to the printed word. The firm's Amazon Game Studios has released titles for Kindle Fire as well as Android, iOS, and

Facebook.⁶⁴ And in video, Amazon Studios is touted by Bezos as a “completely new way of making movies” and television shows.⁶⁵ The firm has floated several feature film ideas and television pilots ranging from children’s programming to adult comedies (many featuring well-known actors), with the promise that crowd feedback will drive what makes it to market.⁶⁶

Channel Conflict

Amazon’s ambitions to be a publisher that also sell eReaders, content, and just about everything else, put it at odds with partners who also increasingly see Amazon as a rival. *Channel conflict* exists when a firm’s potential partners see that firm as a threat. This threat could come because it offers competing products or services via alternative channels, or because the firm works closely with especially threatening competitors. Amazon has become a victim of channel conflict when other retailers have dropped its offerings. For example, Barnes and Noble and other book retailers have refused to carry titles from Amazon’s publishing arm.⁶⁷ And Walmart and Target once carried the Kindle but stopped, fearing Amazon’s eReader would also be a conduit for stealing physical sales, as well.⁶⁸ Authors and firms partnering with Amazon can also suffer channel conflict. When Amazon announced a partnership with DC Comics involving exclusive digital rights to Superman and Batman comics, Barnes and Noble and other book retailers pulled DC titles from their shelves.⁶⁹ The winner in channel conflict is the firm or group that offers greater value to conflicted partners.⁷⁰ As Amazon’s scale grows to a seemingly insurmountable size and offers additional deal-sweeteners like better author royalty rates, authors and providers of other goods may not care that working with Amazon will cut off other distribution channels. Those fearing that Amazon is achieving this kind of scale worry that the firm may gain near-monopoly market power.⁷¹

A lawsuit involving Apple and Amazon shows the uncertain terrain when a firm with feared dominance (Amazon) comes up against an oligopoly of suppliers seeking to balance the market by favoring a rival (Apple). Amazon’s initial pricing agreement with many eBook publishers was what is often referred to as *wholesale pricing*, where Amazon paid publishers for titles and then sold those books at whatever price it wished. Jeff Bezos has stated traditional trade books should not be priced more than ten dollars⁷², and Amazon offered many digital titles near or even below the wholesale price in order to fuel the market for Kindle and cement its own dominant standard. When Apple introduced the iPad, five of the top publishers switched from wholesale pricing to *agency pricing*, where the publisher sets the price and the reseller gets a cut (usually around 30 percent). Agency pricing isn’t illegal, but rivals colluding to set prices is. A lawsuit contends that publishers collectively introduced agency pricing to the iOS bookstore, and shut out Amazon unless Bezos’s firm agreed to switch to agency pricing, too.⁷³ Many publishers have since settled the case, and Amazon has regained the ability to offer wholesale pricing, but the case shows challenging issues that rise as network effects, switching costs, scale, and standards in the digital world create radical power shifts. And even as publishers allow Amazon to resume wholesale pricing, Apple still has weapons to wield on its own devices. Apple legally charges app developers 30 percent for all revenue earned through in-app purchases, a fee that would further crater Amazon’s thin-to-non-existent margins on many eBooks. As a

result, Amazon dropped the 'purchase' button from iOS Kindle apps (you can still buy eBooks to read in your iOS Kindle app, but you've got to exit the app and do so from the Web, from a Kindle, or some other standard that Apple doesn't control).

KEY TAKEAWAYS:

- Over 1/3 of Amazon revenues come from the sale of media businesses that are rapidly shifting from atoms to bits.
- Moore's Law has allowed Amazon to radically drop the price of Kindle offerings, while increasing device functionality.
- Amazon does not make money by selling Kindle hardware, instead it seeks to fuel media and e-commerce sales, plus side-businesses such as on-Kindle and in-app advertising.
- The dominance of the platform potentially creates several advantages including network effects (more Kindle users attract more Kindle-compatible titles and products), switching costs, and user data.
- Amazon has upended the publishing value chain and significantly changed the cost-structure of the industry.
- Amazon and partners have also been victim of channel conflict, stopping sale of Kindles and blocking sale of books published through Amazon imprints. But when channel conflict occurs, the winner will likely be the channel that offers the greatest aggregate value to its partners.

QUESTIONS & EXERCISES:

1. Roughly how big is Amazon's existing 'media' business? What is happening to much of the physical media business?
2. Both Amazon and Apple would like you to store books, music, and other media in their 'cloud'. What critical key strategic advantage comes to a firm when consumers adopting one firm's cloud vs. the other?
3. Amazon prices Kindle hardware at or below cost. Conduct research to find out Apple's margins on iPad hardware. How does Amazon make money from the Kindle? Which firm do you think will win the battle for tablet computing? Is it the same firm you think will win the battle for eReaders? Do you think there be one winner? Why or why not?
4. Why is eInk useful in an eReader?
5. How does the traditional publishing value chain differ from the Kindle value chain when Amazon is an author's publisher? List the rough percentages of revenue taken by each element in the value chain.
6. If you were an author, would you use Amazon as a publisher or not? What factors would influence this decision? What do you think will happen regarding trends and these factors over time?
7. How is Amazon acting as a hothouse for content creation beyond books? What other categories of media products is Amazon involved in developing? Investigate these – has Amazon done well or have these products been flops? Does your research suggest why the firm has had success or has struggled in various categories?
8. What is channel conflict and how has Amazon been subject to channel conflict?

9. Is Amazon good or bad for the book business? Explain your answer.
10. Consider the eBook publishing case between Amazon and Apple and research the current state of the market and any court rulings. Is Amazon a monopoly? Does Amazon have too much power and do you think it should be regulated? Is Amazon's pricing 'predatory' in a way that unfairly disadvantages would-be competitors? Should Amazon be allowed to continue agency pricing without limitations? Do you think publishers were wrong to work with Apple? What is the current status of this case (note: similar cases in the US and Europe may be at differing stages or have differing outcomes)? Come to class prepared to discuss your opinions and your findings.

AMAZON & THE CLOUD: FROM PERSONAL STORAGE TO AWS

LEARNING OBJECTIVES:

After studying this section you should be able to:

- Identify several of Amazon's personal cloud offerings, how they are used, and the value they provide both users and Amazon.
- Understand Amazon's cloud computing offerings, the services provided, the firms that use AWS, the size of this business, and the firm's vision for its future growth.
- Recognize why firms use cloud computing platforms, and some of the risks associated with giving up control of certain infrastructure.

Amazon's shift from selling media atoms to selling media bits has led to its expansion into consumer cloud-based offerings that store and serve up digital content over the Internet. It's already been pointed out that the Kindle stores some purchased content off-device and can load a customer's 'virtual bookshelf' on demand, even if you delete purchases from your device. Same thing with Kindle Fire apps. Amazon Cloud Drive offers file storage similar to Dropbox and Google Drive. And Amazon Cloud Player will stream music purchases through a web browser or smartphone app. Amazon has even negotiated rights with major labels, retroactively loading digital copies of a customer's CD and even vinyl record purchases into a customer's Cloud Player account.⁷⁴ But Amazon's biggest cloud push comes in offering access to corporate-quality computing as a service.

AWS, or Amazon Web Services, allows firms, and really anyone with a credit card, to rent industrial-strength computing capacity on an as-needed basis. The best-known offerings are Amazon's EC2 (Elastic Computing Cloud), which provides the virtual equivalent of physical computing hardware; and S3 (Simple Storage Service) providing Web-based storage. But AWS provides dozens of service offerings including various operating systems, database products, enterprise software, programming environments, networking services, and more.

For years, big server firms like IBM, HP, and Sun worked at creating a market for so-called "utility computing", a rent-not-buy model where consumers paid for technology as-needed, similar to how one pays for water or electricity. But in true disruptive form, it wasn't enterprise-class hardware firms, but a company originally launched as an online bookstore

that managed to get real traction in this market. Today AWS powers hundreds of businesses, including Etsy, Airbnb, Pinterest, Yelp, and Zynga. It's Amazon's services that allowed thirteen guys to scale Instagram to tens of millions of users and a billion dollar acquisition price in just fifteen months. And firms that might consider Amazon as a rival, including Netflix and Dropbox, rely on AWS, as well. What's notable is that many of these firm's aren't just big firms, they're the *largest* firms in their categories.⁷⁵ NASA, Eli Lilly, the New York Times Corporation, and ESPN have all used AWS for key tasks, too. Advantages of using the cloud are outlined in the chapter "Software in Flux," but include allowing organizations to rent server capacity as needed – scaling up during high demand periods or intensive but short-term projects, without having to over-invest in hardware, software, and personnel. And Amazon's deep experience in scalability, security, and fault-tolerance are usually far better than a smaller firm could develop on its own. AWS isn't fool-proof. Well known outages have temporarily taken down or dramatically slowed several sites that have used the service, but most don't feel they could do a better job at a better price, even if this means relying on another firm to provide vital resources. Target provides a cautionary tale – the discount retailer had been relying on Amazon to power its website, but left in an effort to create its own infrastructure. Three weeks later an unexpectedly popular Target promotion crashed the firm's website.⁷⁶

AWS was introduced in 2006, although some offerings were available as early as 2002. Google's competing AppEngine wasn't offered until 2008, and Microsoft's Windows Azure cloud platform came out in 2010. There are advantages to moving early as a platform provider. An early lead with a market-serving product creates a big share, customer lock-in, internal learning, and a network effect derived from complementary offerings ranging from the employment base provided by a growing number of AWS-skilled developers to a rich assortment of software capable of using the platform. Even server providers like Rackspace and HP are playing catch up with Amazon.⁷⁷

AWS is just a single-digit percentage of Amazon's overall revenue, but it is already a multi-billion revenue-generator and the firm's fastest-growing business.⁷⁸ Bezos has stated that he thinks AWS can eventually become as big as Amazon's retail business.⁷⁹ Why did Amazon decide to get into this business in the first place? Some have suggested that AWS came out of Amazon's desire to make money from the firm's excess computing capacity, but the firm's CTO has debunked that as a myth and misconception. The real goal of AWS was to monetize the firm's *expertise* in scalability and reliability and turn this into a revenue-generating business. The benefits of having an entire skilled division of technicians creating reliable, standard platforms that Amazon can then use itself (instead of buying these services from others) is also seen as a key benefit.⁸⁰ Building this capacity doesn't come cheap. AWS accounted for the majority of the \$1.6 billion increase in technology and content spending that the firm reported in 2012.⁸¹ But long-term Bezos sees the future unfolding, and he wants to rake-in billions more not only by selling you just about everything you need, but also by powering any organization that is willing to farm out computing to the cloud.

KEY TAKEAWAYS:

- Amazon offers personal cloud storage options for all forms of media, including books, games, music, and video. It even offers file storage akin to Dropbox and Google Drive. These personal cloud offerings allow users to access files from any app, browser or device with appropriate access.
- Amazon Web Services (AWS) allows anyone with a credit card to access industrial-strength, scalable computing resources. Services include computing capability, storage, and many operating systems, software development platforms, and enterprise-class applications.
- Firms using cloud providers lose control of certain aspects of their infrastructure, and an error or crash caused by the cloud provider could shut-off or scale-back vital service availability. Amazon and other vendors have experienced outages that have negatively impacted clients. Despite these challenges, most firms believe they lack resources and scale to do a higher-quality or more cost-effective job than specialized cloud providers.
- AWS and computing cloud services offer several advantages, including increased scalability, reliability, security, lower labor costs, lower hardware costs, and the ability to shift computing from large fixed-cost investments to variable costs. Since Amazon also uses products developed by AWS, the firm's e-commerce and Kindle operations also benefit from the effort.
- Bezos believes that Amazon's AWS business can be at least as big as the firm's e-commerce efforts.

QUESTIONS & EXERCISES:

1. What other personal cloud products exist for vendors beyond Amazon.
2. Do you use personal cloud services? Do you use Amazon products or products provided by rivals? Why have you made the choices you have regarding cloud platforms?
3. What is AWS and what services are provided? Investigate online and report back on the costs associated with key services such as EC2 and S3.
4. Which firms use AWS? What do they gain by using a cloud provider and what do they give up? How might Amazon or other cloud firms reduce concerns potential and existing clients might have?
5. If there are alternatives available, why would firms that compete with Amazon in some businesses use Amazon anyway?
6. Are network effects at work in cloud platforms? How so? What kinds of complementary products might make AWS seem more attractive than a new cloud computing effort?
7. How big is this business compared to Amazon's other divisions? How big does Amazon think it can get?
8. Why did Amazon decide to get into cloud computing? This business is radically different from shipping books and other physical products, do you think Amazon should continue to keep AWS as part of Amazon.com, or should it spin the firm out as a separate company? What would be the advantages to either approach? Search online to see if you can find opinions that analysts or journalists may have regarding AWS's growth prospects in Amazon or as a separate firm, and be prepared to report your findings back to class.



About This Work

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He's actually not as stuffy as this profile sounds, but he does hope that you read the rest of his book and, if you're a professor, that you adopt the textbook for your class. He loves hearing from readers via Twitter (@gallaugherr), e-mail, and Google Plus.

DEFINITIONS:

Account payable – money owed for products and services purchased on credit.

Cash Conversion Cycle – period between distributing cash, and collecting funds associated with a given operation (e.g. sales).

Dynamic pricing – pricing that shifts over time, usually based on conditions that change demand (e.g. charging more for scarce items).

Liquidity Problems – arise when organizations cannot easily convert assets to cash. Cash is considered the most *liquid* asset, that is it is widely accepted with a value understood by all.

Inventory Turns – the number of times inventory is sold or used during a specific period (such as a year or quarter). A higher figure means a firm is selling products quickly.

A/B testing- a randomized group of experiments used to collect data and compare performance among two options studied (A and B). A/B testing is often used in refining the design of technology products, and A/B tests are particularly easy to run over the Internet on a firm's website. Amazon, Google, and Facebook are among the firms that aggressively leverage hundreds of A/B tests a year in order to improve their product offerings.

Cookie – a line of identifying text, assigned and retrieved by a given web server, and stored by your browser.

Collaborative filtering- a classification of software that monitors trends among customer and uses this data to personalize an individual customer's experience.

Two-sided network effect- products or services that get more valuable as two distinct categories of participant expand (e.g. buyers and sellers).

Affiliate program – marketing practice where a firm rewards partners (affiliates) who bring in new business, often with a percentage of any resulting sales.

Channel conflict exists when a firm's potential partners see that firm as a threat. This threat could come because it offers competing products or services via alternative channels, or because the firm works closely with especially threatening competitors.

Flash-sales – offering deep discounts of a limited quantity of inventory. Flash sales often run for a fixed period or until inventory is completely depleted. Players include Guilt Groupe and Amazon's MyHabit in fashion, and OneKingsLane in home décor,

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