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What is Amazon?

by Zack Kanter

39-50 minutes

What exactly *is* Amazon?

This is the question that has consumed me for the last ten years. I have sold to and bought from Amazon in about as many ways as one person can; I built an auto parts brand that sold thousands of SKUs to Amazon as a vendor (both stocking and drop ship) and as a marketplace seller (both "seller-fulfilled" and Fulfillment By Amazon, or FBA), before selling the company to a private equity fund in 2018. And I am now the founder and CEO of a startup called Stedi (a modern EDI platform, if you're familiar with EDI) that runs on Amazon Web Services; we automate transactions like purchase orders and invoices between brands and retailers.

Retail is my universe, and Amazon is my obsession. I've written this short book to summarize the mental model that this obsession has led me to.

Amazon over the past 20 years has been as meaningful an economic revelation as Walmart was in the 20 years before it, and I don't say that lightly: Walmart is one of the wonders of the modern world, built from scratch in a hyper-competitive environment, scaled from nothing to the largest company in the US by revenue and by headcount, all resulting from a singular vision of saving everyday people money with everyday low prices. It is the most successful social welfare system ever implemented, saving billions and billions of dollars for everyday Americans without costing taxpayers a dime. It is a testament to the power of compounding interest, to the power of a focused plan executed violently for decades.

But Amazon is something else entirely, isn't it? Its amalgamation of businesses don't seem to make sense. It lacks a cohesive product strategy. It defies norms of focus yet it executes faster than seems possible for an entity of its size, let alone scope.

I am going to answer the question – *what is Amazon?* – but you can't begin to understand Amazon without first understanding Walmart. Walmart revolutionized the retail game; Amazon "borrowed" Walmart's playbook as a starting point, just as Walmart borrowed the playbook from the early discount retailers as a starting point before it. And so I'll start by answering the question: *what is Walmart?*

What is Walmart?

Few people outside of Walmart realize Walmart's historical scope of innovation. It built the largest private satellite communications network, enabling unprecedented coordination at enormous scale. Computerized point of sale systems, a massive trucking fleet to enable best-in-class logistics, innovations in EDI, the Sam's Club format. The list goes on. But all of these innovations were really just developed in order to optimize what was a very simple formula: that is, the selection, pricing, and inventory of SKUs in, say, a 30,000-200,000 square foot store.

Of course, it took a lot more than that formula to run a store well – you had to give customers *all the things they really wanted*: in Sam Walton's words, "guaranteed satisfaction with what they buy; friendly, knowledgeable service; convenient hours; free parking, a pleasant shopping experience." I'll add a couple of things to that: the best location and effective marketing to bring customers into those stores to begin with. But, fundamentally, Walmart's business was mostly about the first two things that Mr. Walton always mentioned: "a wide assortment of good quality merchandise" at "the lowest possible prices."

And, for the first four decades or so, Walmart became the best in the world at doing exactly that: using the square footage it had in each store as effectively as possible, stocking it with good quality merchandise at the lowest possible prices, and maintaining sufficient inventory to satisfy the resulting customer demand. All of the complexity and innovation that happened in the background was in service of each store's merchandising efforts. The satellite communication system helped headquarters make sure that inventory was always in stock, helped one store learn from another store's experimentation with product assortment and pricing. The trucking fleet delivered the inventory quickly and efficiently in

order to make sure that stores had the inventory they needed for their customers, and cost-effectively so they could maintain the lowest possible prices. Computerized POS systems let customers check out quickly, or, in the event that they had to bring something back, return items as painlessly as possible.

Choosing the right SKUs, prices, and inventory levels for a 30,000-200,000 square foot store – the business was as easy, and as hard, as that.

Incalculable effort went into making Walmart absolutely world-class at merchandising. Walmart's buyers became gatekeepers for access to the largest marketplace on the planet. The buyer's job was to identify high-quality merchandise that the customer might want, and then negotiate the best possible price. As Claude Harris put it, "I always told the buyers: 'You're not negotiating for Walmart, you're negotiating for your customer. And your customer deserves the best price you can get. Don't ever feel sorry for a vendor. He knows what he can sell for, and we want his bottom price.'"

In the business of retail gatekeeping, the cost of errors was high. Stocking a Walmart store with inventory that the customer did not want was a compounding error: not only did it provide zero value to the customer, it also robbed the customer of the opportunity to buy something that they *did* need. Shelf space was a zero-sum game. And, even after confirming that the item was something that the customer wanted, there were many other factors to consider: Would the vendor be able to supply enough in order to meet Walmart's demand? Could the vendor ship on-time, and accurately? Were they in strong enough financial condition to absorb Walmart's payment terms? Were they accurate enough in their costing to make sure that they weren't selling at a loss, once all their indirect costs were taken into account?

Walmart, again, became the best in the business at weighing these considerations. The buyers became proxies for the customers, deciding what customers were likely to want and negotiating for ever-lower prices for those items, and taking into account all of the things that mattered to the customer that the customer likely did not even consider – like the vendor's ability to fulfill demand at projected volumes. Sam Walton drilled the idea of "thinking small" and focusing on the customer into Walmart's culture: What will the customer want when they walk into the store? What price will they want to pay? And how many will they want to buy?

Walmart reviewed more and more vendors, reviewed more and more SKUs. Most vendors and most SKUs did not make the cut, but, with the ones that did, Walmart's selection grew rapidly, and it expanded the size of its stores as much as the local communities could sustain, and stocked them with as many viable SKUs from quality vendors as it could find.

Sam Walton, watchmaker

The story of Walmart reminds me, of all things, of the *watchmaker analogy* – the classic argument for intelligent design, for a superintelligent or divine creator of the world around us, first posed by William Paley in 1802.

It goes something like this: suppose we were out walking in the woods and we came across a stone. We might pick up that stone and conclude that it had always been there, that it had occurred naturally. But if we continued on our walk and we came across a pocket watch, we would not likely think that the watch had always been there – we would conclude from its complexity, from its precision, from its *unnaturalness*, that at some point there existed a creator who understood its function, who contrived of its design and brought it into the world through careful thought and execution.

The argument follows, then, that if one were to look at the entire world in all of its complexity – the careful precision by which nature works, with infinitely complex mechanisms like photosynthesis, weather patterns and migratory habits, food chains and even the complexity of an individual organism, that there must exist an infinitely-wise, infinitely-capable creator who contrived of the entirety of the system's function and brought it into existence.

I have to imagine that if a visitor from the 1800s were transported to a Walmart Supercenter in the year 1994, they would have come to the same conclusion that William Paley came to: marveling at the 100,000+ carefully-chosen SKUs around them, with the associates stocking the shelves, helping the customers, checking inventory, collecting the shopping carts, that the 'invention' – the creation – of Walmart was the result of intelligent design.

In some ways, they would be right. Walmart, at its core – that is, a massive building filled with a selection of high-quality merchandise priced at the lowest possible prices – was a concept conceived of by a single man (though from what I've read about Mr. Walton, I doubt that he would have taken this sort of credit).

But the hypothetical watchmaker in our story had designed and placed *every single* wheel, pinion, jewel, and jewel in the watch's movement; Sam Walton certainly didn't place every aisle, product, promotion, or set every price and inventory level in that Supercenter. Rather, Sam Walton was the 'intelligent designer' behind the Walmart *algorithm*: that is, a) "a wide assortment of good quality merchandise", b) offered "at the lowest possible prices," c) backed by "guaranteed satisfaction" and "friendly, knowledgeable service," d) available during "convenient hours" with "free parking" and "a pleasant shopping experience," e) all within the largest, most convenient possible store size and location permitted by local economics.

In other words, the size, layout, format, product mix, and the selection/training of the associates in that Supercenter were *the result of the algorithm that Sam Walton had designed.*

So, back to our question: what is Walmart? Or, more accurately, what was Walmart, circa 1994?

Walmart can be thought of as a *bounded search for the optimal selection, inventory, and pricing of SKUs that a local market could support.* It was *bound*, or constrained, by the characteristics of the local economy, and so each Walmart location was a direct reflection of the local market dynamics. The immensely difficult job of the local management team was to predict and implement the optimal mix that could theoretically have been found if every possible permutation were tested by the local economy. Undershooting or overshooting – that is, having too few or many SKUs, or too little or much inventory – would be a costly mistake. By the same token, higher-level managers were responsible for estimating the optimal size and location of the building itself, and for choosing the best associates to manage it, and so on. Each level of management, then, was tasked with managing their own level of the algorithm.

Walmart executed on this algorithm almost uninterrupted for over 30 years, and it got very, very good at it, until, in 1994 – almost overnight – the algorithm that Walmart had methodically honed over the past three decades started to quietly work against it.

Enter Amazon

Jeff Bezos had a big realization in 1994: the world of retail had, up until then, been a world where the most important thing was *optimizing limited shelf space in service of satisfying the customer* – but that world was about to change drastically. The advent of the internet – of online shopping – meant that an online retailer had infinite shelf space. While Amazon did not have the capital to stock every SKU on the planet, nor a warehouse large enough to do so, it didn't have a constraint on the actual 'shelves' themselves. An online retailer would be limited not by each local market, but by the economics and behavior of the national or international population at large.

Whereas a traditional retailer had to weigh tradeoffs within finite shelf space, an online retailer could display page after page of items with near-zero marginal cost for more items. Instead of choosing which items to stock, Amazon could let its customers do so – it would add all sorts of items to its catalog, measure web traffic for each item, and bring the items into stock that seemed most likely to sell.

Bezos, in other words, wanted to build an *unbounded* Walmart. By removing the constraint of geography – and therefore the local economy – and by adding search functionality, the new formula became simpler: the more SKUs it added, the more items would be discovered by customers; the more items that customers discovered, the more items they would buy. In this world of infinite shelf space, it wasn't the *quality* of the selection that mattered – it was pure quantity. And with this insight, Amazon did not need to be nearly as good – let alone better – than Walmart at Walmart's masterful game of vendor and SKU selection. Amazon just needed to be faster at aggregating SKUs – and therefore faster at onboarding vendors.

And so, back in 1994, Amazon kicked off its unbound search for the optimal selection of SKUs. Its algorithm – borrowed and modified from Walmart – was simple: a) a vast selection, b) delivered fast, c) at the lowest possible prices, d) backed by guaranteed satisfaction.

Amazon added as many vendors as it could feasibly add, far outpacing other retailers because of a bar that was far lower. But the pace was too slow; Amazon was aggregating demand – that is, customer traffic – faster than it was aggregating supply – that is, vendor selection. Amazon had bumped up against its first constraint: the speed at which it could add new vendors to its catalog and associated inventory to its warehouses.

Amazon correctly hypothesized that because *vendor selection* was not important in the world of infinite shelf space, Amazon itself – or, more accurately, its vendor onboarding process – would be the bottleneck to growth. Another way of saying this is that Amazon did not have enough time, knowledge, or capital to fill the infinite shelf space that they had created – and even for the items they did add, they

did not have the time, knowledge, or skill to effectively negotiate terms with the tens of thousands of new vendors who had come knocking. Amazon would never be able to match Walmart's hard-won skills in fighting on the customer's behalf for better prices, even with a small set of vendors – let alone the exploding vendor base it was starting to manage.

In its effort to remove this bottleneck, Amazon had an insight that would dramatically accelerate its strategy of mass SKU-aggregation: what if, instead of the painfully slow process of onboarding and negotiating with vendors, Amazon could instead open its website to third party sellers?

In the original six-page memo advocating for Amazon Marketplace in 2002, the memo's author had a vision: no matter where a seller was located and no matter what products that seller carried, the seller could start selling on Amazon immediately – even in the middle of the night.

A Cambrian SKU explosion

Amazon Marketplace solved a whole host of problems all at once. By allowing sellers to bypass the gatekeepers altogether, Amazon could rapidly fill its infinite shelf space with a vast selection of SKUs not available from other retailers. And instead of slowly building its own inventory on promising SKUs, Amazon could make a *seller's* already-stocked inventory instantly available to eager customers. And, perhaps most importantly, it solved the problem of how to negotiate pricing with a rapidly-expanding SKU base. When Amazon was competing against sellers for a given SKU, there were two possibilities: either Amazon had negotiated the best possible price with the vendor and would 'win' the sale, or it had failed to get the best possible price and another seller would win the sale instead – but Amazon would collect a 12-15% commission, and gain a data point that its nascent vendor team could use in price negotiation. And, of course, 'losing' the sale to a third party seller still meant that Amazon would keep the customer.

The advent of the internet had brought about a Cambrian explosion in SKUs. An increasingly connected global world meant that more and more products from abroad were coming to the US, and it was also easier than ever for US companies to launch and expand new product lines. The marketplace that Amazon had built took advantage of this trend; Amazon systematically removed friction from the seller onboarding workflow, doing seemingly small things like eliminating the UPC code requirement that would serve as a barrier for newer, less established sellers. All of these small changes started to add up, and Amazon became the fastest way for a company to start selling online. Customers began to associate Amazon with selection, and Amazon became the de facto storefront for the fledgling world of online commerce.

With every seller that signed up for Amazon Marketplace, Walmart's prized vendor selection machine became more and more of a liability. Here was an entire organization optimized towards one constraint – shelf space – and that constraint had been almost completely removed overnight. Even if Walmart had recognized this immediately, it would have been an enormous ship to steer – and, in the meantime, Amazon's SKU aggregation juggernaut was running an unbound search for customer value nationwide, while Walmart's army of finely-tuned retailer gatekeepers was still running a *bounded* search in local geographies. The effects began to compound, and Amazon's ecommerce growth accelerated further.

Platforms

To make sense of what started to happen after Amazon rolled out Marketplace, you have to understand that *things get really weird when you run an unbounded search at internet-scale.* When you remove "normal" constraints imposed by the physical world, the scale can get so massive that all of the normal approaches start to break down.

Walmart had solved problems of vendor management, product management, and bureaucracy at an almost unfathomable scale. It engineered intricate systems, aligned incentives, and built a culture of thinking small to stamp out inefficiencies wherever it could find them. Walmart solved problems that were *almost* impossible to solve at Walmart's scale, creating a wonder of the modern world, perhaps the pinnacle of what is possible with complex coordination. And Walmart, at its heart, is a company of merchants; it is a human-powered company, and its advantage in the marketplace is that it merchandises better than any other company on the planet. Walmart understands its customers extraordinarily well, and its merchants play a hand in every product that shows up in its aisles.

Amazon, by contrast, is an illustration of what happens when a massive global market is freed by the internet from the geographical constraints that previously kept it manageable; it is an illustration of what happens when you enter a problem space so large that you have to bypass the human element altogether. What was *just barely* solvable with carefully-built systems at Walmart's scale of shelf space

would have been impossible to solve with shelf space that stretched on to infinity. Amazon had to find a way of abdicating responsibility for solving these problems altogether; with Marketplace, Amazon had begun to grasp at a solution that would do exactly that.

After removing the vendor bottleneck, Amazon had discovered the next constraint to filling its theoretically-infinite shelf space: computing power and data storage. To his horror, Bezos had discovered that Amazon's software engineers were waiting weeks for technical resources like servers and storage to be provisioned. Instead of being limited by how fast they could write code, they were limited by how fast they could *deploy* that code to Amazon's infrastructure, and so, alongside an effort to dramatically simplify and improve its codebase – which had evolved into a mess of 'spaghetti code' in the ten years that Amazon had been in business – Amazon began to build a platform that would allow its software engineers to provision on-demand resources immediately. In a radical move, the platform – Amazon's own technological infrastructure – would be made available to external developers, too. It would be called Amazon Web Services.

Another constraint had emerged around the same time, this time on the customer-facing front: Amazon could no longer *practically* keep up with the *theoretical* pace of innovation that its exploding SKU catalog had enabled. In other words, Amazon could not possibly develop features on its website fast enough to take advantage of all the merchandising opportunities that its products had brought. This became apparent as other sites – run by independent, third party members of Amazon's affiliate marketing program – began 'scraping' Amazon's catalog in order to surface new items, track price changes, and offer all manner of other functionality that Amazon.com itself did not offer. In other words, Amazon was not limited by *demand* (traffic) or *supply* (SKU selection) – it was limited by the conversion rate and average order value it could achieve with its current catalog functionality.

Amazon needed to get faster at implementing new catalog functionality internally, and it could also benefit immensely from allowing the outside world to innovate using that same toolkit. In a similarly radical move, Bezos decided to expose Amazon's entire product catalog via an application programming interface – an API – so that any software developer, internal or external, could programmatically access Amazon's catalog and use the SKU data, within reason, in any way the developer saw fit.

And so, circa 2002, we start to see the emergence of a pattern: 1) Amazon had encountered a bottleneck to growth, 2) it had determined that some internal process or resource was the bottleneck, 3) it had realized that it could not possibly develop and deploy enough resources internally to remove that bottleneck, so 4) it instead removed the bottleneck by building an *interface* to allow the broader market to solve it en masse. This exact pattern was repeated with vendor selection (Amazon Marketplace), technology infrastructure (Amazon Web Services, or AWS), and merchandising (Amazon's Catalog API).

Amazon was becoming a *platform*; that is, an aggregation of *resources* made available through a series of *interfaces*. In the case of Marketplace, the resource was customer demand, and the interface was a web portal called 'Seller Central,' which allowed sellers to list items in Amazon's catalog and process the resulting orders. With AWS and Catalog, the resources were computing power and a monetizable ecommerce catalog, respectively, and the interfaces were corresponding web portals and APIs (application programming *interfaces*) that software developers could access programmatically.

Platforms spring up as a necessity borne from unbound searches running at internet scale. A company like Walmart, despite being positively massive in terms of revenue, can operate as a monolith – that is, a tightly-coupled collection of internally-facing resources – because it is dealing with a constrained problem space. Walmart's problem space (for argument's sake, 100,000 SKUs and 100,000 square feet) was, for the most part, limited enough that Walmart could, with sufficient effort and innovation, solve its own problems internally. It could manage vendor selection, it could merchandise its own catalog, and it could manage, and mitigate, the growth of its own bureaucracy.

There is a notable exception here: the scale of Walmart's purchase order volume was so large that it could not feasibly continue to manage the purchasing process on its own. To solve this, Walmart built Retail link – perhaps Walmart's first platform – to expose its purchasing 'resources' externally. Retail Link gave Walmart's vendors tools to manage purchase orders and much more, taking an enormous burden off of Walmart itself.

Walmart began sharing its inventory data with key suppliers, too. The problem of coordinating Walmart's inventory had grown too large for Walmart to solve on its own. By sharing its inventory levels and internal projections with vendors – by making its internal numbers available externally – Walmart could draw on the wisdom of the broader 'market' – its vendors – to arrive at better outcomes than it could have achieved within a silo.

Like with Amazon's various platforms, Walmart built Retail Link out of pure necessity; without it, the purchasing process would have remained a constraint to Walmart's growth. The difference is that, with its unconstrained shelf space, Amazon was encountering these problems – and implementing platform solutions – everywhere.

Captive customers

It is worth noting that there is one key difference between Walmart's Retail Link platform and the platforms that Amazon was beginning to develop in the early 2000s: forced competition.

Suppliers have no choice but to use Retail Link; the supplier is a 'captive customer' of the Retail Link service. The problem with having captive customers is that, lacking external competitive pressure, a service inevitably begins to degrade over time. The service provider is removed from the feedback loop, since, 1) given sufficient market power, suppliers can't feasibly stop using the service, and 2) the service provider itself doesn't experience the pain of using its own service. The canonical example here is the DMV; while the DMV is technically a platform – meaning, it makes government resources available to external 'customers' – its customers cannot go elsewhere for service, and the DMV does not experience the pain of interacting with itself, and so the DMV will perpetually remain in stasis at best.

Now, the DMV is an extreme example, and I don't mean to imply that using Retail Link is in any way analogous to the experience of visiting the DMV. The point is that when a service has captive customers, it will inevitably degrade compared to market alternatives.

With AWS, the risk was that Amazon would become a captive customer to its own technology services group. Amazon eventually arrived at an elegant solution: instead of just building an internal platform through which its software engineers could requisition resources on demand, it would open the platform to outside customers as well. Amazon had already established a strong culture of customer obsession; in any *customer*-facing product, AWS was virtually guaranteed to show continuous improvement and innovation. Amazon would simply use the exact same tools and products that its customers used, and would thereby get the exact same benefits that its customers enjoyed. In other words, Amazon would become just one of many AWS customers – solving its own technological bottleneck once and for all – without creating the typical trap caused by vertical integration. The addition of a massive, high-margin revenue stream would be a nice $30 billion side benefit to boot.

As these examples of the same pattern – Marketplace, AWS, and catalog – emerged around the same time in 2002, Jeff Bezos had the most important insight he would ever have: in the world of infinite shelf space – and platforms to fill them – the limiting reagent for Amazon's growth would not be its website traffic, or its ability to fulfill orders, or the number of SKUs available to sell; it would be its own bureaucracy. As Walt Kelly put it, "we have met the enemy, and it is us." In order to thrive at 'internet scale,' Amazon would need to open itself up at every facet to outside feedback loops. At all costs, Amazon would have to become just one of many customers for each of its internal services.

And so, as told by former Amazon engineer Steve Yegge, Jeff Bezos issued an edict: *1) All teams will henceforth expose their data and functionality through interfaces, 2) teams must communicate with each other through these interfaces, 3) all interfaces, without exception, must be designed from the ground up to be exposed to developers in the outside world, and 4) anyone who doesn't do this will be fired.*

This principle, this practice, this pattern, would enable Amazon to become the sprawling maze of complexity that it would eventually become without collapsing under its own weight, effectively future-proofing itself from the bloat and bureaucracy that inevitably dragged down any massive company's growth.

Platforms, platforms, platforms

Bezos did not meticulously assemble Amazon into the collection of high-growth businesses that it is today; he 'merely' designed Amazon's algorithm. His first stroke of genius was in making it unbound; his second – the masterstroke – was devising a solution to the bureaucratic complexity that would have otherwise caused it to implode. Instead of being a bureaucratic liability, Amazon's sprawl would become a massive surface area of customer contact from which Amazon could spawn dozens of revenue streams.

With an established pattern for solving the practical and bureaucratic issues that arose from infinite shelf space, Amazon began systematically removing bottlenecks to growth. It found that Marketplace sellers were not particularly adept at shipping directly to Amazon's customers, causing a poor experience for customers and a frustrating experience for the sellers themselves. At the rate that new sellers were signing up, Amazon could not feasibly convert all of these sellers to its vendor program, nor did it have

sufficient capital to carry all of the inventory on its balance sheet; instead, Fulfillment By Amazon (FBA) allowed sellers to ship their inventory to Amazon's fulfillment centers, thereby giving Amazon complete control over the customer experience. It carried with it the tremendous added benefit of honing Amazon's own rapidly-expanding fulfillment network, which were certainly at risk of bloat and slop, with the sharp edge of *seller* expectations; just as with AWS, Amazon became just one of many "customers" for its own fulfillment centers.

Platforms became Amazon's answer to every growth obstacle it encountered. Platforms became part of the algorithm. Sellers are limited by access to capital? Launch Amazon Lending. Customers can only buy things when they are in front of their computer or phone? Build Echo. UPS and FedEx can only deliver within 24 hours? Launch Amazon Flex and Amazon Logistics.

Amazon assembled a massive machine to deploy its algorithm over and over, and the momentum was unstoppable. Every barrier in its path was solved with a platform – until one of these platforms led Amazon to a catastrophic mistake.

Ads

From infinite shelf space comes a problem: how do customers discover new products? If Amazon's website were visualized as a physical retail store, in other words, how would Amazon decide which products went on the end cap and which went halfway down the aisle on the bottom shelf? For a given category like water bottles, Amazon might have thousands of pages of search results.

Amazon would never be able to effectively curate such a sprawling array of product categories. It isn't particularly good at merchandising to start with, and, even if it were, it could never build a large enough army of merchandisers to curate such a massive selection. Instead, Amazon relies on a ranking algorithm that heavily weights product reviews and sales velocity. The more reviews a product has and the more units it sells, the higher it climbs in rankings. Of course, this creates a positive feedback loop: the more a product is exposed to customers, the more it sells; the more it sells, the more reviews it gets, and the higher it climbs in rankings, starting the loop all over again. *(Yes, this is a gross oversimplification of Amazon's extraordinarily complex ranking algorithm)*

This creates a big problem for Amazon's customers, who want the latest and greatest products, and for its sellers, who want to develop and sell exciting new items. Failure to satisfy these demands would put Amazon's ecommerce dominance at risk.

Amazon answered this problem in typical fashion: with a platform. Amazon Advertising allowed sellers to feature 'Sponsored Products' – paid ads that appear at the top of search results. Sponsored Products solved three problems at once: *new product discovery* for the customers, *new product introductions* for the sellers, and, as an added bonus, pure gross margin revenue for Amazon – to the tune of $8 billion annually.

The problem with Sponsored Products is that sponsored listings are not actually good for customers – they are good for sellers; more specifically, they are *good for sellers who are good at advertising*, and bad for everyone else. Paid digital advertising is a very specific skill set; the odds that the brand with the best product also happens to employ the best digital marketing staff or agency is extraordinarily low. Further, the ability to buy the top slot in search results favors products with the highest gross margin – hence the highest bidder – not the products that would best satisfy customers.

The issue is compounded by the fact that the average customer is unable to tell the difference between an "organic" search result and a sponsored product. The top four results in an Amazon search are now occupied by sponsored listings, which means that the average Amazon customer is disproportionately likely to be purchasing a sponsored product. And since the sponsored listings favor high-margin products pushed by savvy digital marketers, it is highly *unlikely* that Amazon's customer is buying the optimal product that the market could provide.

To be sure, very poor products get rated poorly and are weeded out quickly, but, by and large, sponsored listings drag the average quality of products sold closer to mediocrity, and further from greatness. That's bad.

Another way of framing the issue: as an Amazon customer, what benefit do sponsored listings bring you? The only answer I can think of is 'new product discovery,' but there are far better ways of solving that problem; one part of the solution would be a lifespan for product reviews.

For high-volume categories, product reviews should not live on in perpetuity. After a period of time, product reviews should be removed – the faster-selling the item, the shorter the period. This serves a

dual purpose: 1) it ensures that product reviews apply to the most current state of the product – solving the problem of an increase or decrease in manufacturing quality over time, while 2) evening the playing field for newcomers. For a fast-moving item, the review lifespan could be set, for example, as a rolling six-month period; rather than competing against 5 years of accumulated reviews, a new entrant would only need to compete against the most recent ones that were given over the past six months.

Instead of solving the root cause of the discovery problem, Amazon layered a solution on top: ads. This would normally be a reversible decision, but the extraordinary amount of ad revenue it is generating will likely prove impossibly addictive for a company with Amazon's appetite for capital. One way of thinking about this is that the $8 billion generated by Amazon Advertising fuels roughly ⅓ of Amazon's entire R&D budget.

This may seem like a minor footnote in the grand picture of Amazon, but it is an absolutely devastating misstep for Amazon's retail business. This isn't "just" search results; search results are the entire driver of Amazon's retail engine. Remember that in the world of infinite shelf space, the ranking algorithm is practically the entire merchandising strategy. Organic, customer-centric product rankings – the strategy that brought Amazon to $250 billion in retail revenue – has been permanently distorted. And everyone is praising them for it.

The platform problem

More broadly, though, Amazon's misstep is symptomatic of the weirdness that eventually happens when an unbound search runs across such a massive problem space. In building Marketplace and removing itself as the constraint for vendor onboarding, Amazon has opened itself up to inevitable 'gaming' by sellers. Another way of saying this: as soon as a system's rules are understood, it will be gamed according to the rules that have been created.

With infinite shelves that are constantly expanding and filling without constraint, Amazon cannot possibly police the ever-growing universe that it has created. Another way of thinking about this is that while Amazon's catalog of SKUs is constantly growing, the number of top slots for popular categories is not; no matter how many thousands of water bottles get added to Amazon's catalog, there are a fixed number of page-one results. But the growing horde of competition puts enormous pressure on the entire system; companies are always trying to find ways to knock the current king off the hill. Bad-actor tactics inevitably surface, and Amazon is in a constant war to keep its own platform consistent with its customer-centric mission. This is a war that Amazon will never be able to "win"; the best it can hope for is to try to keep up with the evolving bad-actor tactics, which seems like a tall order given that the total set of sellers is constantly increasing (one might call this "the IRS problem").

The hidden cost of SKU proliferation, then, is that the overall quality of the SKU assortment begins to suffer. This is not a particularly meaningful problem when it comes to categories like phone cases, where the cost of a suboptimal purchase is minimal, but it leads to enormous frustration when customers are making a purchase of even mild consequence. The same customer who is somewhat annoyed by a poor quality phone case would be meaningfully more irritated if they bought a poor quality accessory for their muscle car, motorcycle, rifle, boat, or other passion or pastime-related item – let alone a more sensitive category like grocery or health.

With its marketplace platform, Amazon has created a Wild West for sellers – with all of the tremendous benefits, and pitfalls, that come with it. It continues to accumulate marketplace sellers at an incredible pace. Amazon's next decade (in retail) will be consumed with capitalizing on this opportunity, along with mitigating all of the extraordinary challenges that come with trying to maintain order in a marketplace at a literally inhuman scale.

It is easy to look at Amazon's exploding marketplace numbers and see insurmountable success, but we are only beginning to see what it has signed up for by building a world of infinite shelf space and opening the door to anyone who wants to set up shop. Amazon's herculean challenge will be retaining its crown as "earth's most customer-centric company" given the marketplace dynamics that it has created.

Amazon, in other words, has not yet figured out how to extend its internal incentive structure – the incentive structure that has been so successful in keeping the company customer-obsessed – to its external platform participants: the sellers.

To be clear, there isn't a competitor anywhere on the horizon, and, failing the emergence of an extraordinarily formidable competitor, Amazon's missteps are unlikely to cause anything close to existential problems. The point is that two years ago, it was hard to think of even *theoretical* ways that

Amazon could have been caught; today, there is an opening – a real one, of meaningful size. (Walmart is, for the moment, the only company with the resources to capitalize on it, but, as a company, it has not yet found a way to accumulate unfair advantages at internet scale.)

I say this not as an Amazon naysayer – I say this as someone who has been, and continues to be, unabashedly, wildly bullish on Amazon – but, for the first time in a decade or more, Amazon's expected value has, at least by my estimation, gone down.

The question on my mind is whether Amazon has grown so large that, hidden beneath a golden goose laying $8 billion eggs and tens of thousands of new marketplace sellers every year, the missteps in its retail business – the loss of customer focus – might go unnoticed. Perhaps the most interesting wildcard here is the threat of antitrust action across the industry.

We've seen the strategy that Amazon takes when it sees a regulatory threat looming on the horizon; it voluntarily started collecting sales tax in many states before states could force it to do so, and adopted a $15 minimum wage before it drew the full ire of a populist movement. With multiple headquarters distributed across multiples cities and outside access provisioned for all of its key products and services, Amazon seems more likely to break itself up – along its own preferred lines – than it is to be forcibly disassembled by regulators.

Recall Bezos's 2002 edict: *1) All teams will henceforth expose their data and functionality through interfaces, 2) teams must communicate with each other through these interfaces, 3) all interfaces, without exception, must be designed from the ground up to be exposed to developers in the outside world, and 4) anyone who doesn't do this will be fired.*

If every meaningful Amazon product or service is exposed to outside developers via an interface, what does it matter whether Amazon is one single company or many? Antitrust action to break it apart could do nothing that it has not done to itself already; this is no doubt by design.

Said a different way: I would be equally happy to own a half dozen Amazon stocks as I would to own one – perhaps even happier, since each resulting subsidiary would have a smaller surface area, and better focus.

So, what is Amazon? It started as an unbound Walmart, an algorithm for running an unbound search for global optima in the world of physical products. It became a platform for adapting that algorithm to any opportunity for customer-centric value creation that it encountered. If it devises a way to keep its incentive structures intact as it exposes itself through its ever-expanding external interfaces, it – or its various split-off subsidiaries – will dominate the economy for a generation. And if not, it'll be just another company that seemed unstoppable until it wasn't.

I remain fascinated to see what will happen next.

Follow me on Twitter @zackkanter.

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