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August 5, 2018

Amazon Business Model: Fulfilment and delivery network

"I very frequently get the question: What's going to change in the next 10 years? And that is a very interesting question; it's a very common one. I almost never get the question: What's not going to change in the next 10 years? And I submit to you that that second question is actually the more important of the two – because **you can build a business strategy around the things that are stable in time.**

... **[I]n our retail business, we know that customers want low prices, and I know that's going to be true 10 years from now. They want fast delivery; they want vast selection.** It's impossible to imagine a future 10 years from now where a customer comes up and says, 'Jeff I love Amazon, I just wish the prices were a little higher;' 'I love Amazon, I just wish you'd deliver a little more slowly.' Impossible. And so the effort we put into those things, spinning those things up, we know the energy we put into it today will still be paying off dividends for our customers 10 years from now. When you have something that you know is true, even over the long term, you can afford to put a lot of energy into it."

Jeff Bezos, Founder and CEO Amazon Inc.

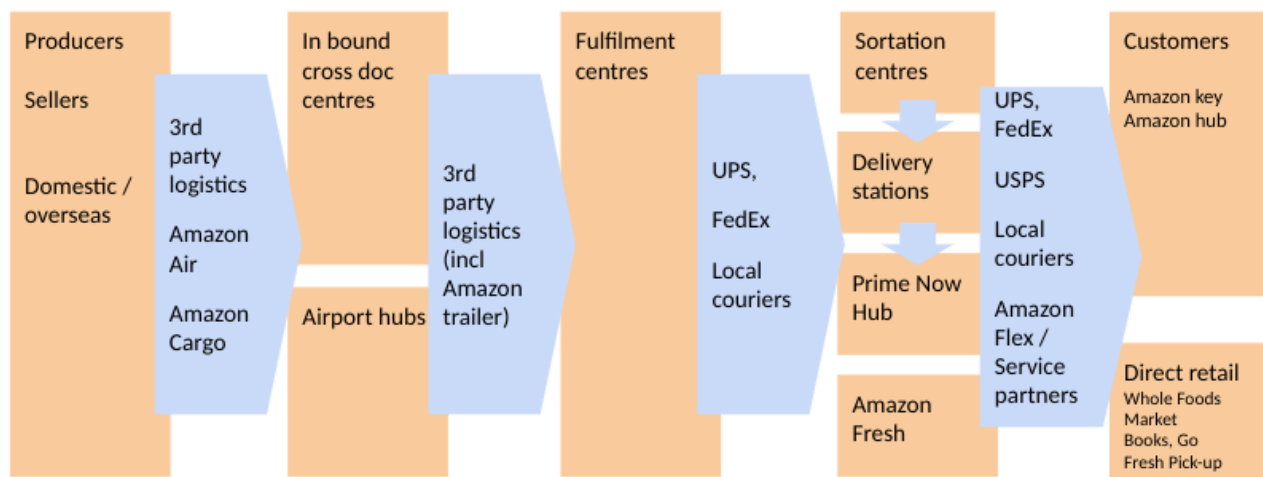
Overview

Every day we read about Amazon's latest innovation and disruption ideas. But how much do we really know about the things that make most of their revenues?

Today's focus will be on:

- How Amazon achieves low cost, faster delivery than any others and that despite providing vast choice
- The multitude of business models and the economics underpinning this
- Amazon's innovations

Amazon's fulfilment network is the key enabler for a vast selection and fast delivery. They have been expanding their network largely over time. But since 2013 it has seen vastly accelerated growth not just in the number of their facilities but also in the increasing type of facilities. From fulfilment centres to sortation and delivery centres to Amazon Prime air planes and air hubs.



The enabler of choice, low costs and fast delivery: Amazon's fulfilment and delivery network (and this is only a simplified view)

Amazon's fulfilment network

(1) Inbound Cross Dock centres

Inbound Cross Dock centres (IXD) are pretty much what it sounds like. They receipt goods coming from vendors, often from overseas. As such they are close to ports and borders. They act as buffers and package the incoming goods into truckloads and replenish fulfilment centres as needed.

(2) Fulfilment Centres

Amazon has over 100 [fulfilment centres](#) of 8 generations. They are at the heart of storing and distributing their goods. In the early days, they were built at locations chosen to avoid sales tax. Passing on the savings from sales tax onto the customer was one of their competitive advantages that was possibly instrumental in getting them through the dot-com bubble burst. Newer fulfilment centres are located closer to [population-dense areas](#) to reduce outbound transportation costs. Amazon still tries to negotiate certain tax benefits with local governments for bringing jobs to their area.

1. There are different types of fulfilment centres (FC):

- Small sortable FCs: generally store smaller items (<18") that can fit into a box. You name it: books, CDs, DVDs and lots of other things
- Large sortable FCs: contain larger items (>18") that still can fit into one box and transported via conveyors for automated sortation
- Non-sortable FC: For larger items that do not fit into a box
- Other fulfilment centres specialise on certain goods (jewellery, auto parts, apparel, shoes, etc)

2. Fulfilment centres are very large (up to 1,000,000 sqf or ~90,000 sqm) and have up to 3,000 staff

3. Amazon is also known for their robotics innovations within their fulfilment centres:

- Amazon has acquired Kiva systems in 2012 and stopped Kiva taking on external customers
- Kiva has now become [Amazon Robotics](#) and is working continuously innovating the robots
- The robots typically go to the shelf where an ordered product is located and [carry the entire shelf to the human pickers](#)
- The pickers pick the item put them on conveyor belts that bring them to the packers and then on a truck
- Typically each item requires [about one minute of human labour](#)
- There are differences depending on the type of FC and size of the good therein
- They have over [100,000 robots working](#) (and about 500,000 human workers)



Amazon has 8 generations of [fulfilment centres](#) which are at the heart of their distribution network. Newer generation FCs achieve a significant amount of automation through the usage of innovative robots (and other machinery)

Read the [ultimate overview of Amazon's business model here](#) – it is the epic summary of my 8 reports on Amazon (with additional content). Must read for anyone who wants to understand Amazon!

(3) Regional Sortation Centres

From 2013 onward, Amazon started to introduce so called [sortation centres](#) and delivery stations. Both serve the purpose of [gaining greater control](#) over delivery cost, delivery speed and customer experience. Amazon [utilises trucking partners to move goods within its warehouse network](#) (i.e. from fulfilment to sortation centres) and the [US Postal Service \(USPS\)](#) from its sortation centres to the customer's doorstep which saves costs compared to UPS and FedEx.

Here is what sortation centres do and are:

1. They are closer to the final destination of packages than fulfilment centres are and located closer to population-dense areas
2. They receive deliveries from one or more fulfilment centres and pallet packages together that are destined to the same zip codes

3. They are then moving these to neighbourhood US Postal Service (USPS) offices, local couriers or independent Amazon Flex drivers
4. This moves some volume from UPS and FedEx to the USPS
5. It reduces costs and allows Sunday deliveries (via USPS)
6. Where it makes more sense, they ship these to Amazon delivery stations (see below)
7. Sortation centres are typically standalone buildings but sometimes also near/adjacent to fulfilment centres
8. They are smaller in footprint with about 1/5 of the size (20,000-30,000sqm) and 1/10 in staff (200-500) compared to FCs
9. Started from 2014 in the US (and slightly earlier in the UK)



Amazon sortation centres are completely different from fulfilment centres. No shelves, no books or other products. Just packages that come from fulfilment centres that are being palletized together and then go to USPS postal offices or Amazon delivery centres. [image: [Columbus Dispatch](#)]

(4) Delivery Stations

Delivery stations make the next step to the customer. They are often positioned in metropolitan areas (often in proximity to airports) and are smaller than sortation centres. Routing packages through Amazon's sortation and distribution centres can [shave a day or more off](#) and reduce transportation costs, e.g. via their [own drivers](#) and local couriers. These facilities help to gain more control over the [last-mile logistics](#).

This is what Amazon delivery stations are and do:

1. Customer packages arrive either from fulfilment centres or sortation centres
 2. Packages are being sorted by zip code, route optimised
 3. They are then dispatched directly via local couriers or Amazon Flex drivers and Amazon Delivery Service Partners
 4. The larger Amazon Delivery Service Partners with several dozen employees serve up to 40 routes
 5. Delivery stations serve a tightly defined urban area
 6. These buildings are typically between 60,000-100,000 sqf (=5,500-9,200 sqm)
 7. They can also handle fresh food deliveries on a same-day basis
 8. First started in 2013
-

(5) Amazon Prime and Prime Now

In 2014, [Amazon launched Prime Now](#). It allows Amazon Prime members to order selected items to be delivered within one hour for a delivery cost of \$7.99 or for no additional fee (but must be Amazon Prime members) within 2 hours. Amazon Prime Now has its own set of storage buildings.

1. They started initially in Manhattan followed by other metropolitan areas
2. They hold "tens of thousands of items across dozens of categories, including household items, groceries, electronics, gifts, seasonal items"
3. These items are held in small facilities (around 3,000 sqm) in the respective metropolitan area
4. But it also allows ordering from other providers such as:
 - [Amazon Restaurant](#)
 - Selected local stores
 - And Amazon Whole Foods Market
5. The ordered items are typically delivered by Amazon Flex drivers
6. Amazon has over 50 Prime Now hubs at this stage

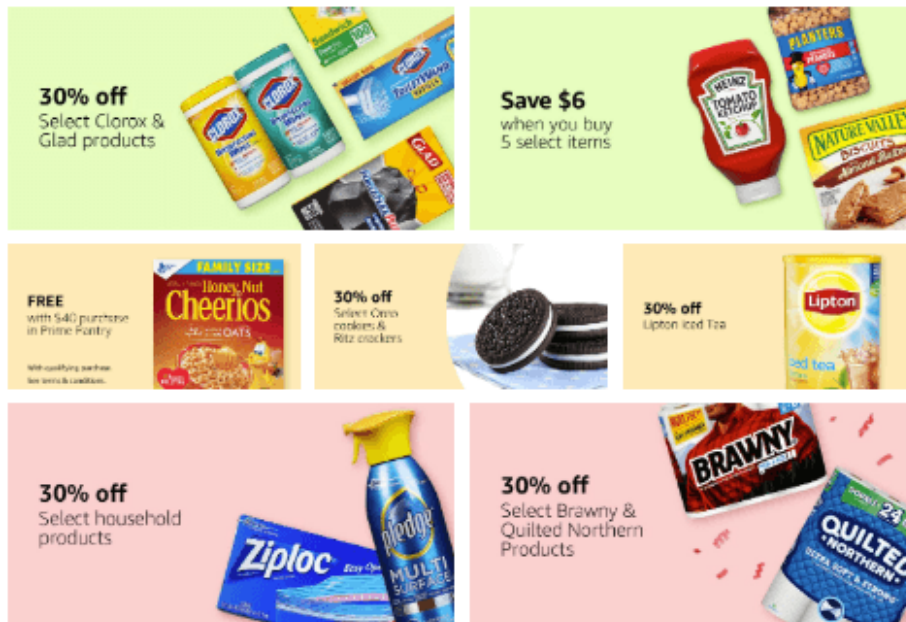


Inside an Amazon Prime centre: cereal next to window cleaner, next to teddy bear. Products are randomly ordered as space is available. Their location registered in the inventory management system. As orders come in, the system will calculate the optimal path for the worker to pick up the items and display it on a handheld device. [See the video here](#)

(6) Amazon Pantry/Fresh foods

[Amazon Pantry](#) offers groceries and household goods. It requires special infrastructure in cold and ambient storage centres.

1. In the US, Amazon Pantry is exclusive to Prime members
2. Amazon Pantry has its own set of distribution centres – 21 of them as you can see in the list above
3. We can be fairly certain that high-demand items from Amazon Pantry get delivered to Amazon Prime Now centres so that they are available to 1 or 2-hour deliveries
4. Amazon Pantry centres operate cold storages whereas fulfilment, sortation and distribution centres don't



No longer just a book or “things” retailer. Customers can avoid supermarkets by ordering through Amazon Pantry/Fresh

[Here is more on how Amazon grows into various product categories](#)

(7) Hosted areas in partnering factories


Amazon has started a [collaboration with P&G](#) whereby “employees of Amazon are packaging, labelling and shipping P&G products direct from the warehouses they are produced. [...] every day P&G loads a selection of products that have been ordered onto a pallet and hands them over to Amazon, who are inside a small ring fenced area within P&G’s factory. [...] Amazon are technically setting up small distribution shops inside P&G’s core warehouses [...] The birth of this business collaboration has come from Amazon’s desire to deliver traditionally bulky household products like diapers, paper towels and soap powder at an affordable price. These items were previously seen as bad candidates for online sales due to the cost of shipping them, as a consequence of their size to cost ratio. ”

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Business model economics

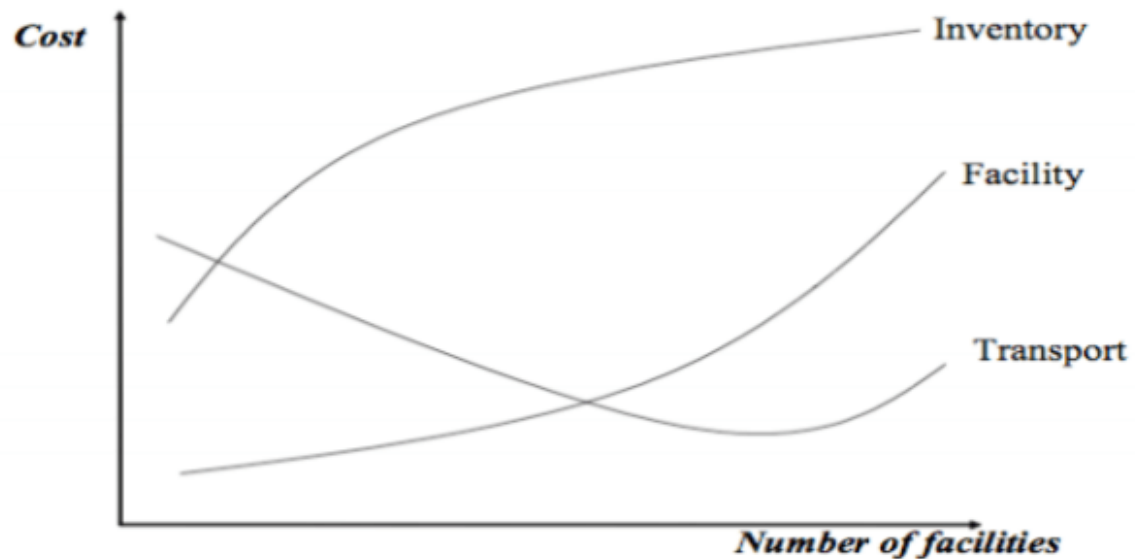
(1) Economies of scale

You might be wondering why there are so many different types of facilities? Why does Amazon have fulfilment centres, sortation centres, delivery stations (and more)? They sure add to the fixed cost base.

Flag	Country	Facility Type	Currently Active Facilities	Future Facilities	Active Square Feet	Future Square Feet
	United States of America	Fulfilment Centers, Supplemental Centers & Return Centers	123	44	94,196,194	35,803,847
		Pantry/Fresh Food FCs	21	1	3,845,456	140,000
		Whole Foods Retail Grocery DCs	12	0	1,043,850	-
		Prime Now Hubs	54	0	1,880,541	-
		Inbound Sortation Centers	8	1	4,683,164	615,440
		Outbound Sortation Centers	39	2	11,326,292	556,136
		Delivery Stations	72	9	6,055,172	848,031
		Other	3	0	112,665	-
		Airport Hubs	0	1	-	3,350,000
		SubTotal USA	332	58	123,143,334	41,313,454

Amazon's delivery facilities are of mind-boggling scale. The guys from MWPVL have compiled [a list of all Amazon facilities](#) with details on each one (thanks for doing such a gargantuan task!). The snippet shows the overview of the US footprint. If you put all (global) facilities together it reaches a 4 km x 4.5 km footprint. Fire up Google Maps and go, say, 4 km to the north and 4.5 km to the east from your home – imagine this to be all filled with Amazon buildings just to get an impression of the size! (still much smaller than Walmart's footprint)

The costs added by new facilities (and with that some inventory duplication) need to be justified by savings on transport costs. Time-tested supply chain fundamentals show the relationship between these costs with the number of facilities increasing.

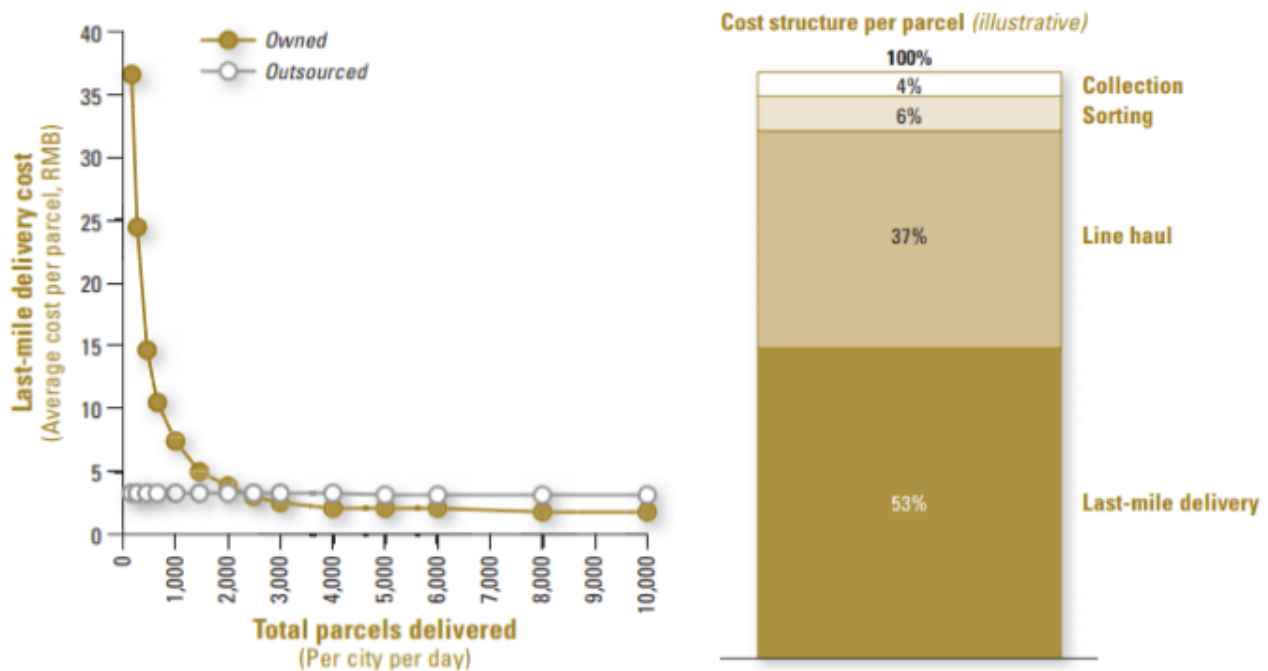


Transport costs fall as the number of facilities increases, at the same time facility costs as well as inventory costs increase (as some inventory duplication is unavoidable in order to reduce transport costs) [source: [Supply Chain Management](#)]

(2) Last-mile economics

Amazon's delivery network expansion (location of new fulfilment centres, sortation centres and delivery stations) is underpinned by the last-mile transport economics. The "last-mile" is not to be taken literally, it denotes the cost for the transport from the last facility to the customer's doorstep. One study from AtKerney, shows that last-mile unit costs can be in the ballpark of 50% of the total delivery costs per package.

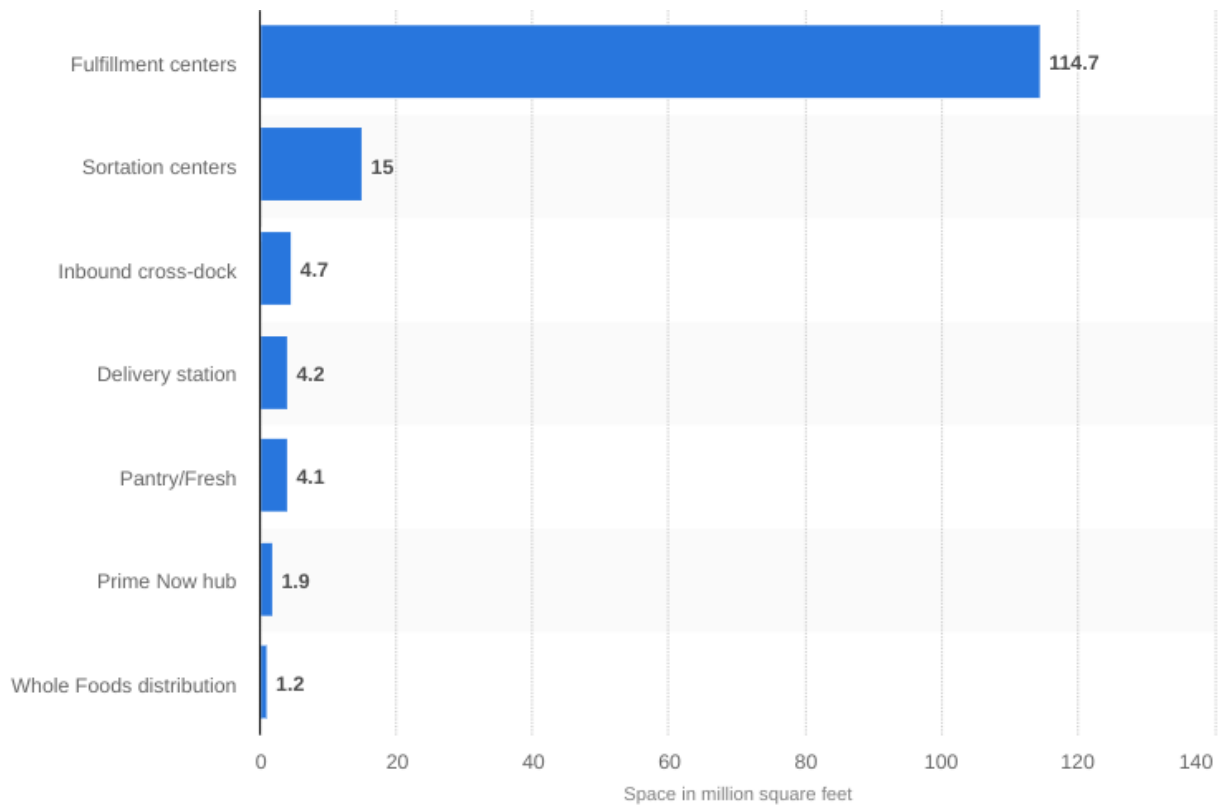
Now, this number comes from a study focusing on China. For the US, a frequently cited figure for the last-mile cost are up to 28% of total transportation costs based on one estimate of the [Council of Supply Chain Management Professionals](#). For our purposes, it is not so relevant if this figure is 50%, 25% or even only 15%. We can clearly see that it is not negligible. It makes clear that there will be a tipping point where it makes sense to start a delivery centre (Amazon does not necessarily own all their facilities but leases some as well). It is a trade-off between capex and lower variable costs.



The right chart shows that last-mile costs can be a significant part in overall transportation costs of parcel delivery costs. The left chart shows that it requires scale to do this cheaper than an outsourced solution. The breakeven point will depend on many factors such as population density, etc [source: [AtKerney study, pdf, China](#)]

The proximity of the last dispatching station to the served area is a big cost driver. All other factors being equal, it costs \$4 for one package when serving an area within 10 miles of the last dispatching station compared to \$6.15 per package if 50 miles away and \$8.53 if 75 miles away as one [supply chain expert calculates](#).

Another key variable is the time between individual deliveries which is where route optimisation comes into play. Amazon has started using Delivery Service Partners (more below) which – depending on the number of vans and employees – serve up to 40 (optimised) routes. These partners operate from the respective delivery centres (described above). While, once again, we don't know the detailed numbers it is clear that this will make sense where their critical density has been exceeded.



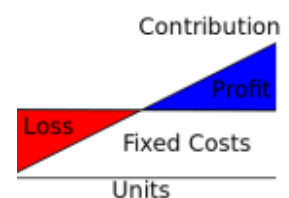
Amazon fulfilment capacity by facility type [source: Statista]

(3) Contribution margins ratios

A third common economical principle underlying a number of Amazon's business model are contribution margins. Whenever you see Amazon extending their own infrastructure onto others this principle is the explanation. Higher utilisation of high fixed-cost assets by opening it to external parties helps to get to scale faster.

Opening assets to others

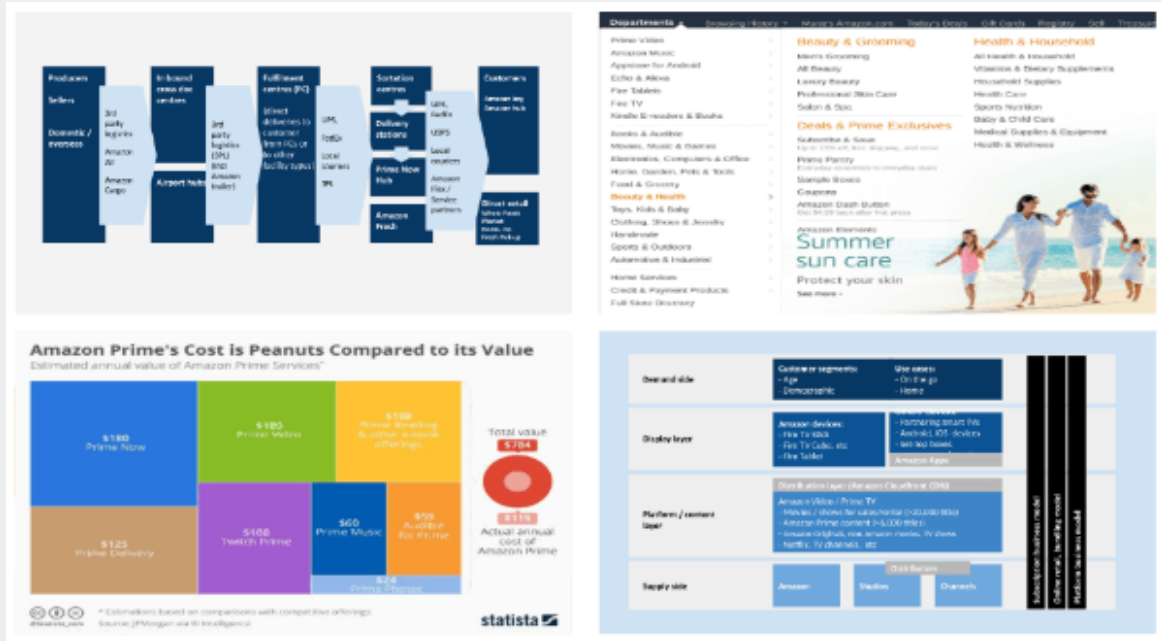
Amazon has lower fixed-costs than their brick-and-mortar competitors Walmart or Target (because they don't have all the stores). But they are still a high fixed-cost business with all their fulfilment infrastructure. Being able to increase the number of delivered packages thus improves their *contribution margin ratios*. I.e. more of an items revenue contributes to profits (or allows to reduce costs given Amazon prefers to pass savings onto customers).



Source: Wikipedia

Scale helps to improve contribution margin ratios. But Amazon does the next step and opens up their infrastructure to others to increase volume further and thus make revenues to improve contribution margin ratios more. This is a common business model principle across

many of Amazon's high fixed cost assets. You will see a number of examples below (Fulfillment by Amazon, Shipping with Amazon, etc).



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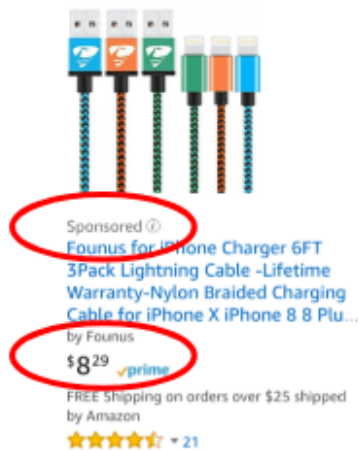
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Amazon Marketplace



Amazon Marketplace allows ordering 3rd party (i.e. non-Amazon inventory) products or services via Amazon's pages. These products typically get listed together with Amazon's inventory.

Amazon Marketplace products can be delivered by the merchant or by Amazon:

1. Fulfilment by Merchant (FBM) or
2. Fulfilment by Amazon (FBA)

Fulfilment by Merchant means that the seller will ensure the delivery of the items ordered.

The example shows an item sold by a merchant, fulfilled under the Amazon Prime 2-day banner (can be FBA or even FBM). The vendor uses Amazon advertising ("Sponsored") to rank high in the search results.

Fulfilment by Amazon (FBA)

FBA is a service by which businesses can use [Amazon's fulfilment network](#) for a fee. This includes:

1. Storing the goods at Amazon fulfilment centres (can be in one or more FCs)
2. The products can be ordered via Amazon Marketplace
3. When an order come in, Amazon will pick and pack the items
4. Amazon will deliver the items through their delivery infrastructure
5. FBA includes customer service on behalf of the merchant
6. Amazon extends this service to orders [purchased through non-Amazon channels](#) (this is called multi-channel fulfilment, MCF)
7. FBA can be set up as a [subscription service](#) for repeat fulfilment at a custom interval (e.g. send same product every month)
8. It allows the use of [additional features](#) (generally for a fee):
 - [Advertising](#) on Amazon pages (via sponsored products and search results)
 - [Global sales](#)
 - Participation in Prime if eligible
 - [Amazon Pay](#) and check-out process

- and more

Amazon Marketplace for services

Amazon also provides a [Marketplace for services](#). Amazon's service sharing platform is similar to AirTasker but has a more focused set of categories. Amazon's categories are limited to tradie and DIY type work. I have described [service sharing platforms](#) previously which is why I am keeping short here.

Amazon Marketplaces are popular with small and medium-sized businesses (SMEs). It has enabled [more than 140,000 SMEs to generate >\\$100,000 in sales](#). And as of 2017 [more than 52% of Amazon sales are third-party sales](#).

Amazon Marketplace business models

The key business models use within Amazon Marketplace are:

1. Platform business model
2. Service business model
3. Advertising business model

(1) Platform Business Model

Amazon Marketplace falls under the platform business model that I have described at length in many [articles \(here is an overview\)](#). It brings together the customer on one side and the merchant on the other side.

Merchants who are sell through Amazon Marketplace pay fees that fall under the platform business model. Those who use FBA pay additional fees. Fees under the platform business model are a percentage on the sales and are called a referral fee.

Referral fees depend on the category of the item sold, examples:

- Cell Phone Devices: 8%
- Office products: 15%
- Personal computers: 6%
- Services: 20% for the first \$1,000 and 15% for the rest

- All [details here](#) (including the full suite of fees)

Charging a percentage of the transaction value is the most common revenue model for platform business models.

Economic principles

Underlying economic principles underpinning the business model are direct and indirect network effects. The indirect network effects come to play in the Amazon Marketplace where more merchants attract more buyers and more buyers attract more merchants. I have described [indirect network effects here](#) and [here \(within the complete guide to the platform business model\)](#).

(2) Service business model

If the merchant chooses the fulfilment by Amazon (FBA) option, then it also falls under the Amazon service business model. This incurs separate fees. The pricing depends on a few factors with the size of the good(s) being the key driver of the costs. Here is a [pricing table](#).

Extension of assets to the external customers (as done in the case of FBA) falls under the contribution margin principle described above.

(3) Advertising business model

If merchants decide to advertise on Amazon, they pay to rank high (at the top or very close to the top) in the search results. The revenue model is an auction-based cost per click model, CPC (I have [described how CPC works here](#) for TripAdvisor).

You may have heard that in the recent quarterly report (Q2'18) advertising grew strongly.

Brick-and-mortar (direct) retail

Now that Amazon is the dominant online retailer in the US and some other countries, they start expanding into other business areas. Brick-and-mortar stores are one of them. But it wouldn't be Amazon if they didn't combine this with new innovation ideas.

Amazon Go

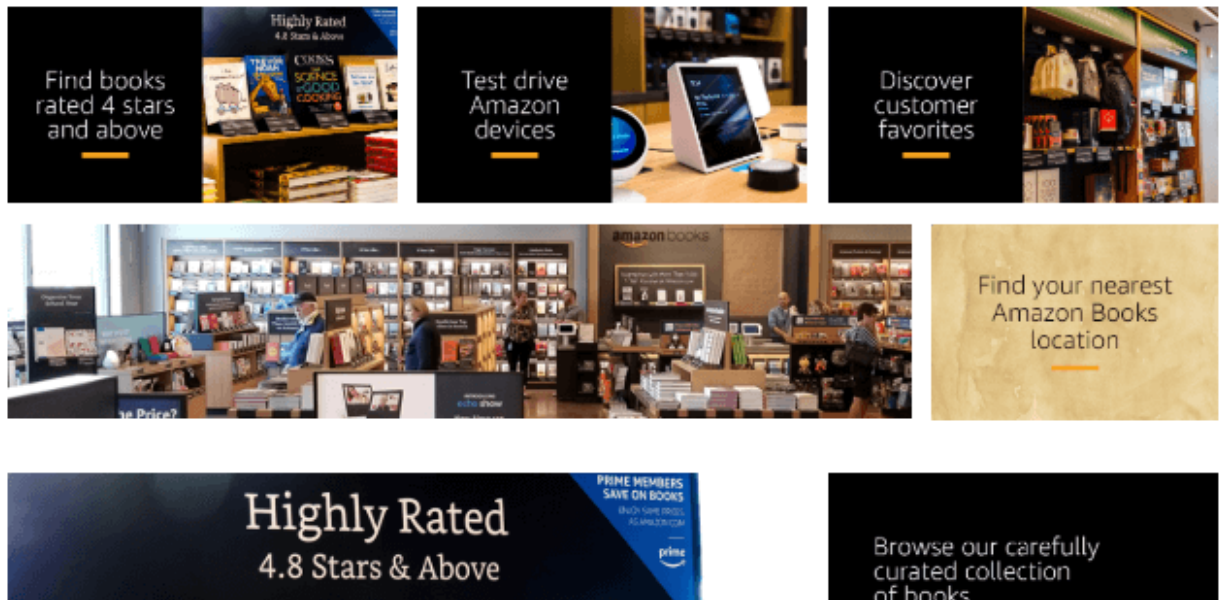
[Amazon Go](#) is a new shopping experience with no queues and no checkout interactions. Using the Amazon Go app to check-in on entry, customers can just grab the items they need and walk out without using a check-out counter. The technology will charge the customer's account and send a receipt to them automatically. As of July 2018, there is one Amazon Go store in operation (and rumour has it that 6 others are planned for 2018).



Amazon Go is a new shopping experience without check-outs and queues. It is another way (than Whole Food Markets) for Amazon to participate in the high-margin, high-frequency fresh food segment

Amazon Books

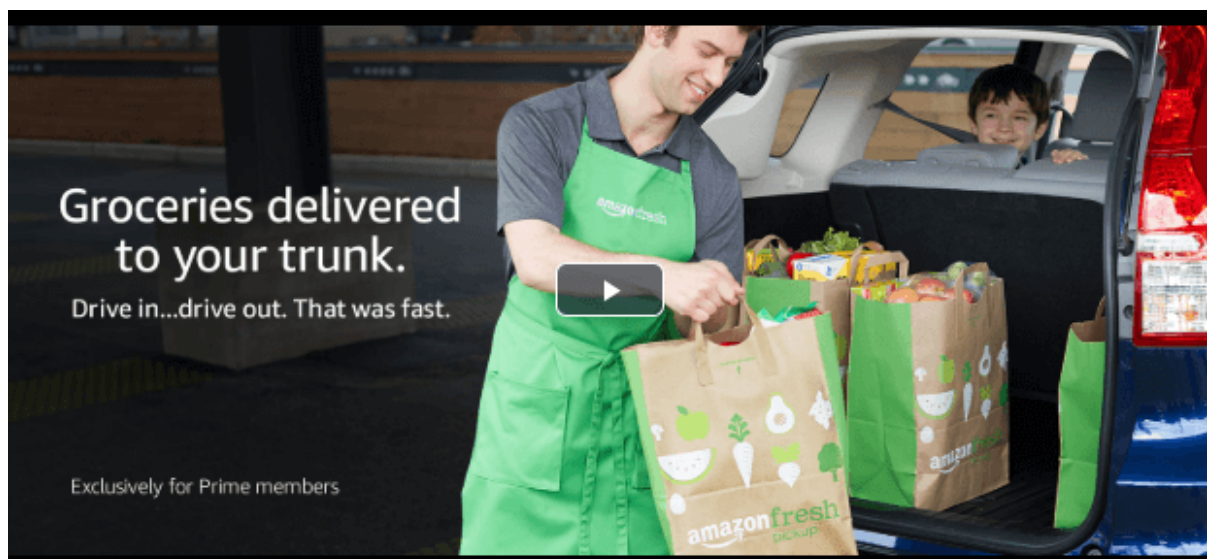
[Amazon Books](#) is a brick-and-mortar bookstore that had its debut in 2015. There are currently around 20 Books stores around with a few opening every couple of months. Amazon features their own electronics (Kindle, Fire, Echo, etc) as well as books and other media.



Amazon Books is a “back to the roots” approach to trial brick-and-mortar retail

AmazonFresh Pickup

I have described the Amazon Fresh infrastructure above. It has a delivery service (described below) and more recently a pick-up service. While not a physical store in the traditional sense, it now [allows self-pickup](#) in certain locations within 15 minutes of the customer ordering through the app.



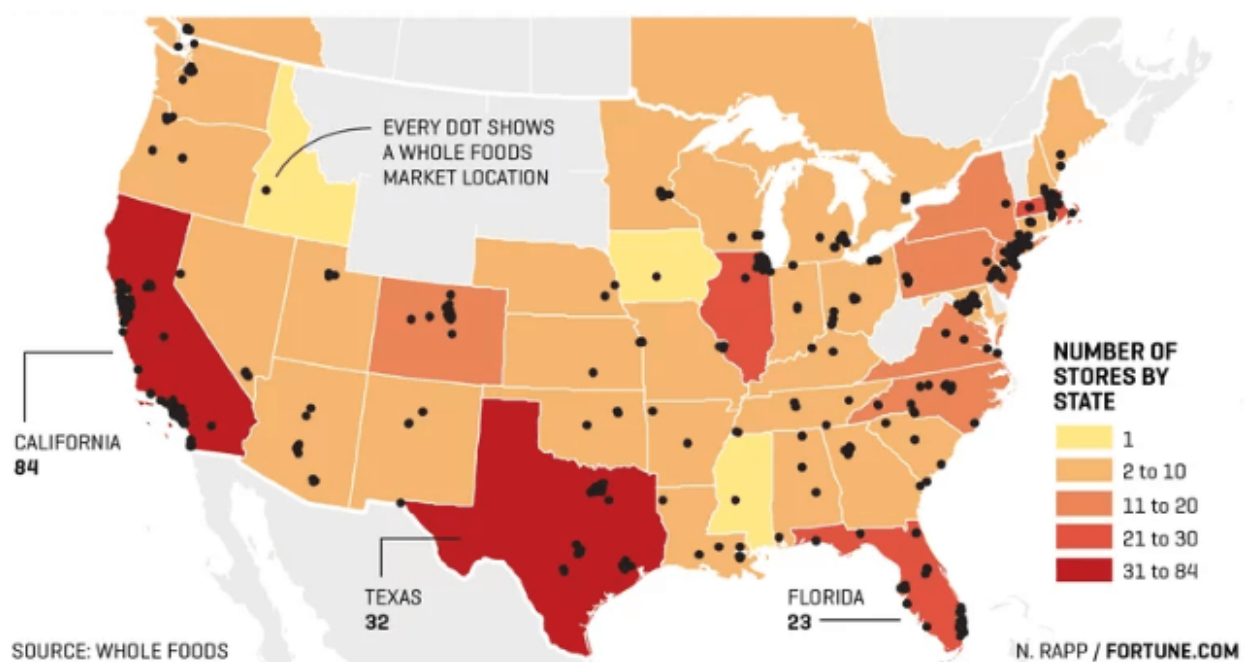
A different type of “delivery” – right into your car’s trunk within as short as 15 minutes of ordering

Amazon Whole Foods Market

In 2017, Amazon acquired Whole Foods Market who have their own set of distribution centres and shops.

1. Whole Foods has 12 distribution centres and over 300 physical stores
2. Their infrastructure is specialised on perishables
3. In some cities, Amazon added Whole Foods to Prime Now that delivers within 2 hours
4. We can expect that this move will expand to further cities
5. There are speculations whether Amazon would separate off a part of [Whole Food stores to a mini distribution centre](#)

Some have wondered why Amazon would go into the brick-and-mortar space when their strength is the online retail. But Amazon is simply a company that combines things in innovative ways. Being able to order Whole Foods Market products through Amazon Prime Now is one such innovation.



With the acquisition of [Whole Food Markets](#), Amazon entered the brick-and-mortar retail business. With over >300 stores it is by far Amazon's biggest direct retail channel. In some locations Whole Foods produce can be ordered through Amazon Prime Now

Transport and delivery

Some people find transportation very interesting, others ... not so much. But when you look at Amazon's ambitions in transportation there will be no doubt: it simply is interesting. Amazon's success has contributed vastly to an increased interest in finding new transportation solutions for goods and food.

The two key drivers for Amazon's interest in this area are (1) cost, (2) customer experience:

- **Last-mile transport** has become an area of massive interest, ideas like drones and self-driving robot deliveries have opened new opportunities. [Meal, grocery and parcel delivery](#) are among those where long-lasting growth is anticipated
- Fast delivery can help Amazon close the gap to the Walmarts, Targets and other competitors where customers can have **immediate gratification** (as part of the customer's experience). For Walmart and alike the last-mile is bridged by the customers. Walmart, however, has to make sure they are at convenient locations and provide generous parking
- Jeff Bezos has made clear many times that fast delivery is part of the **customer experience**. Amazon was not the first to invent same-day delivery. But they have popularised it and committed to it in a big way. Amazon Prime's success has demonstrated this and, bad for others, is shifting customer expectation's. Amazon's lead on this has become a **competitive advantage**
- In their early years, transportation was outsourced. But this is changing. Amazon has passed the critical mass threshold in many urban areas to be able to leverage **economies of scale** and is known to pass the savings onto the customer via cheap prices

With this background, let's look at Amazon's transport and delivery innovations. The last-mile is from Amazon's last warehouse to the customer's doorstep. The middle-mile is in between Amazon's delivery network buildings.

Last-mile delivery innovations

Drones

[Drones are part of Amazon Prime Air](#) and an exciting innovation idea for bridging the last-mile. You sure have heard about this many times. A similar last-mile idea are self-driving robots that



several companies experiment with. A recent Amazon patent covers driverless delivery vehicles, such as [drones and trucks](#).

Amazon Key

Amazon key is a clever and secure way to [let a delivery person into your home](#). This can avoid the typical problem of having to wait for a package. The system has a camera and a smart lock. When the delivery person arrives they send a request via the app. The owner then can grant access. They can check via a camera who has sent the request / enters their home. This is a much more sophisticated solution than a static PIN which would pose all sorts of security risks.



Amazon Locker

Another solution are secure pick-up and return lockers. [Amazon lockers](#) are located with partnering convenience stores (7-eleven, Whole Food Markets). A similar solution is [Amazon Hub](#) which is located in apartment lobbies. This solution is made available also to other carriers.

Amazon Flex and Delivery Service Partners

Amazon contracts eligible people via [Amazon Flex](#). These contractors are couriers who pick up Amazon packages from either Amazon's or other (e.g. UPS, FedEx) delivery stations and [deliver them to the doorstep of the customer](#). Amazon Flex couriers [deliver to Amazon Prime Now customers](#) and also conduct standard Amazon package deliveries. The process of [getting](#)

work assigned can be difficult. Becoming an [Amazon Delivery service partner](#) is a serious commitment but also an entrepreneurial opportunity (more details below).



Amazon Fresh Delivery

As mentioned above, Amazon Fresh has its own storage infrastructure. It is exclusive for Prime members but [charges an additional \\$15 per months](#). It delivers free to your doorstep for orders above \$50 (or a delivery charge of \$9.99 for orders below \$50). Customers can have their [order left at the doorstep in temperature controlled totes](#) or choose an attended delivery (or pick it up themselves at certain locations

which I have described above).

Amazon Treasure Truck

The [treasure truck](#) sells one discounted item per day. Customers purchase the item upfront and can pick it up in the neighbourhood. The truck tours different areas on different days. Notifications come via SMS or [Twitter](#) to subscribers. This one is an experiment at this stage rather than a systematic attempt for a store-on-wheels. But who knows where it can lead to.



The middle mile

Amazon trailer fleet

Amazon started purchasing their [own fleet of truck trailers](#) to be used between their different types of warehouses, e.g. from a fulfilment centre to a sortation centre but not for the last-



mile. This gives Amazon more control over the transport, reduces their dependency on national carriers (UPS, FedEx), costs and increases speed by widening potential bottlenecks, especially in peak season.

Amazon Prime Air Planes

Amazon's ambitions are big. You can see this from their announcement to [lease 40 Prime Air Planes](#). It is "creating an air transportation network [and] is expanding our capacity to ensure great delivery speeds for our Prime members for years to come." This move has been followed by [starting an air hub](#) in Kentucky close to 11 of their fulfilment centres.



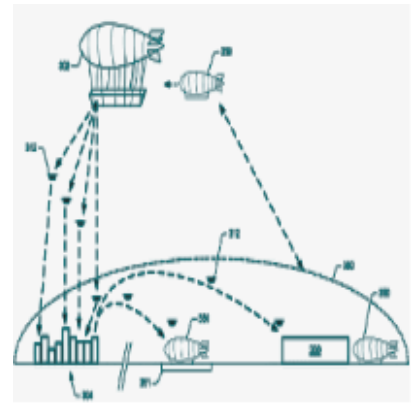
Amazon Cargo

In the next move to an end-to-end logistics network, Amazon reserved space on ocean vessels and obtained a licence as an ocean transportation intermediary which enabled them to ship goods under a [Non-Vessel Operating Common Carrier \(NVOCC\)](#) or Beneficial Cargo Owner status. But unlike their ambitions in the air, on the oceans, Amazon does actually not own the vessels. The licence, however, allows Amazon's China subsidiary (called Beijing Century JOYO Courier Service Co) to [sell respective transportation services to others](#) and act as acting as a [global freight operator and logistics organiser](#).

Airborne Fulfilment Centre

Amazon has patented an idea for an [airborne fulfilment centre \(AFC\)](#). The AFC would remain at high altitude and deliveries to the customer would be made via unmanned aerial vehicles

("UAV"), e.g. drones, or delivered to the neighbourhood via small airships and then use their last-mile delivery options. Replenishment would be conducted by shuttles (smaller airships) that also carry workers where required. This idea would certainly disrupt the entire static storage and transportation network that currently exists.



Amazon has brought a lot of innovative ideas into the transport and delivery space already. This is an interesting and – now – fast-evolving space. One document leaked in 2016 talks about a [larger ambition called "Amazon Global Supply Chain"](#) (here another [analysis](#) on this).

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Transport Business Models

Within Amazon's transport activities, I see the following types of business models:

1. **In-sourcing**
2. **Contracting**
3. **Partnering**
4. **Services**
5. **Platform business model**

Let's have a brief look at these.

(1) In-sourcing business model

Reaching scale, Amazon first started building a warehouse infrastructure closer to higher-density areas from about 2013 onward. You have seen the economic justification for this above. In the last 2-3 years, Amazon started entering the transport space in earnest. These two elements work in a complementary fashion and allow expansion into other areas such as speedy delivery of groceries and medication.

The innovations and activities that fit into the in-sourcing model are:

- Amazon Prime air planes and air hub
- Amazon ocean cargo (though the vessels are not owned)
- Amazon trailer fleet (at least partly) as the truck component is owned and operated by the couriers
- Amazon Fresh Delivery
- Delivery drones and self-driving trucks (though the latter might initially be a [mobility-as-a-service business model provided by Toyota](#))

(2) Contracting business model

Amazon Flex is a contracting business model of independent freelancers that do the last-mile delivery for Amazon. While it is not an in-sourcing due to the fact that the Flex drivers are not Amazon employees (and their cars are not Amazon's assets), it still takes some previously outsourced work away from the national carriers (UPS, FedEx) as well as USPS and local courier companies. Due to the lower cost structures (see [similarities to Uber](#)) and other arbitrage opportunities ([regulatory](#), tax, etc), we can assume that this is a cheaper option than some of their other commercial arrangements.

(3) Partnering (or franchising) business model

[Amazon Delivery Service Partner](#) takes the idea of Amazon Flex to the next level. As part of this program, [Amazon's stated goal](#) is to "take an active role in helping interested entrepreneurs start, set up and manage their own delivery business". This is not a part-time gig any more.

[Amazon provides](#) eligible candidates:

- Three weeks' of logistics training
- Discounted pricing/leasing on up to 40 Amazon-branded vans
- Exclusive deals on vehicle maintenance, insurance, fuel
- Licenses and insurance, handheld devices, uniforms
- Payroll, tax, and accounting services, legal support
- Health benefits and employee services
- and of course a seemingly "endless demand" of packages

Amazon calls this a partner program but there are a lot of similarities to a franchise business model (and only time will tell if this is one of the better ones). [Amazon projects the opportunity](#)

for the small business owners to be:

- Start-up costs as low as \$10k
- Annual revenue potential \$1M-4.5M
- Annual profit potential \$75K-300K

The latter two figures are for a fleet size of 20-40 vans whereas the start-up figure is obviously for a minimal fleet size. This [brochure \(pdf\)](#) has a lot of interesting details on how delivery service partnering works.

The strategic considerations for this move are capacity (thus cost) and customer experience considerations:

- The risk of increasing transport costs based on [reliance “on a limited number of shipping companies”](#) to deliver inventory to us and complete orders to our customers” (As per Amazon’s annual report)
- This risk is elevated by the combination of increasing demand and little control over capacity. This [article reports that UPS is increasing capacity](#) without, however, qualifying if it does so in commensurate amounts
- A case could be made that the transport industry has not necessarily enough incentives to increase capacity commensurately as it will improve their financial performance if demand growth outpaces supply growth
- Gaining more control over customer experience (speed of delivery), optionality as part of negotiations



**Fulfilment and transport cost as a percentage of net sales
(=revenue minus return, discounts, allowances) are increasing
[source: Statista] It is assumed that Amazon makes about \$9b of
shipping revenues through a portion of the Prime membership fees
and the FBA services**

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(4) Services – Shipping with Amazon (SWA)

The idea behind SWA is similar to Amazon Marketplace where they open their infrastructure (webpages and fulfilment network) to other merchants. [SWA opens their transport network to merchants](#). Media has been framing this as a disruption of UPS and FedEx. But this is [a bit of a stretch](#) at least in the short term.

The motive in the short and medium run is once again that of reducing unit cost (through improved contribution margin ratios) on their transport assets that I have described above. Other considerations are that of having more control over the speed of delivery and a better negotiation position with the other carriers.

(5) Platform business model

If you combine the above initiatives and business model you will inevitably land on a platform business model for the transport component. It brings together several sides: small/medium size courier business, merchants and customers.

This presumes that shipping with Amazon (SWA) utilises Amazon Flex and/or Amazon Delivery Service Partners. Merchants that offer their product on Amazon Marketplace have the options to do their own fulfilment or have fulfilment by Amazon which also then includes shipping with Amazon.

You see inevitably parallels in business models applied between Amazon's storage/fulfilment network and their delivery network.

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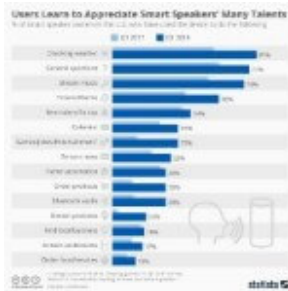
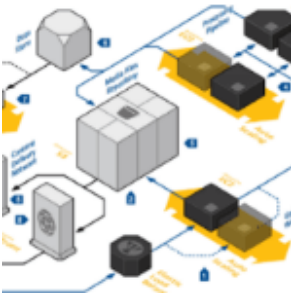
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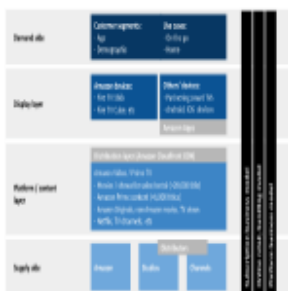
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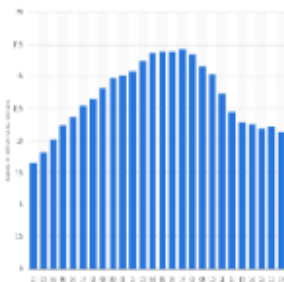
[Amazon Web Services](#) has become one of Amazon's most significant offerings and business models. Netflix, a remarkable innovator in its own right, is fully hosted on AWS. Considering Netflix consumes 15% of global internet bandwidth as reported recently this shows the remarkable capabilities of AWS.



Amazon's smart speakers are the gateway to the voice-controlled [Alexa platform](#) that promises to change how humans interact with machines.

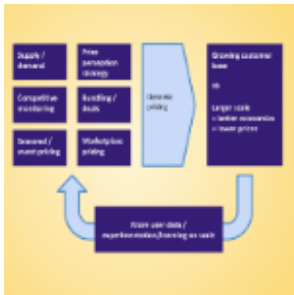


[Amazon Prime Video has 10 business models](#) with six having their equivalent in Amazon Kindle and four being different. My focus today will be on the Prime Video business models that are different to those of the Kindle platform.



The latest: [The 10 Business Models of Amazon Kindle](#): The Amazon Kindle is a fascinating platform that has allowed Amazon to disrupt traditional industries (bookstores and publishers). Understand the power of the 10 business models it has enabled.

[Amazon's 3 key customer value propositions](#): How Amazon made their 3 key value propositions work at scale.



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About Dr Murat Uenlue

Murat Uenlue, PhD (Engineering), Program Management Professional (PgMP), Project Management Professional (PMP). Project managing the most significant strategic innovation project for our company >\$1 billion. Best way to contact me is *LinkedIn* ([click here](#)) but please add a note that you are coming from this site!

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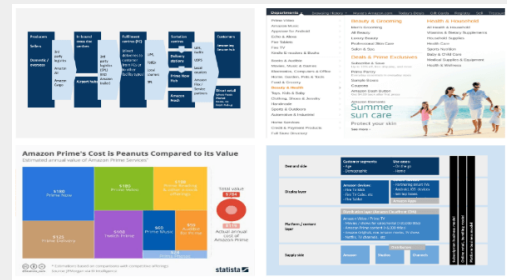
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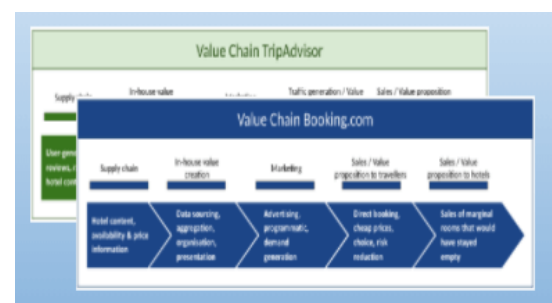
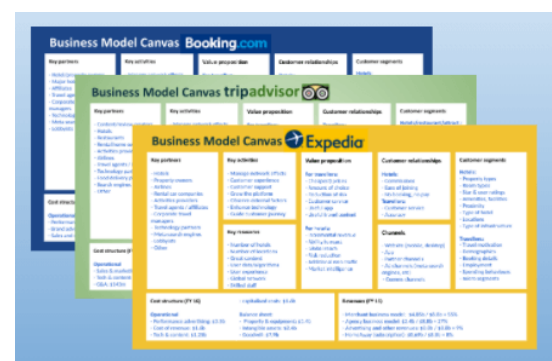
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Murat Uenlue, PhD, Program Management Professional (PgMP), Project Management Professional (PMP). Currently program managing the most significant strategic innovation project for our company >\$1 billion total value.

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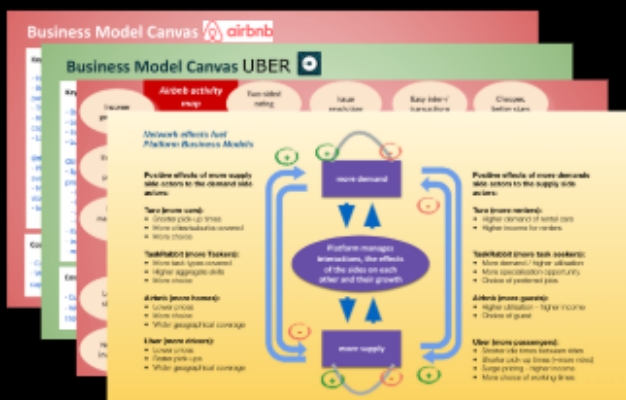
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