

Amazon's Warehouse Operations and Cost Leadership Strategy

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Introduction and Scale of Amazon Operations

The numerical scale in this opening paragraph reflects an older source period and should not be treated as current. Amazon's official 2025 materials state that it employs more than one million people in the United States alone; seller, product-listing and daily-delivery counts change continuously and should be tied to a dated company disclosure rather than presented as fixed figures. (Occupational Safety and Health Administration, 2023)

Algorithmic Control of Warehouse Labor

That no worker wasted time, the company developed a huge control system, subject to strict algorithms. At the head of all – computer systems that calculate what each person should do. (U.S. Senate HELP Committee, 2024) Amazon has been fined several times for excessive rigidity on its employees. It works on wear and tear (well, or for those who want to lose weight very sharply). (Associated Press, 2024) The company very much does not like to share its secrets and disclose the algorithms that operate all of its 90 giant warehouses, the "Executive Centers". (Amazon, 2024) But we in Pochtoy take hundreds of orders from them daily, and still, something interesting about them was found (Kwansa, Mayo & Demirciftci, 2008).

Warehouse Design and Layout

Each executive center of Amazon occupies 50-60 thousand square meters. It's about eight football fields. Yellow and orange colors are everywhere and are branded by the company. The space is well-lit, but there are almost no sounds around despite the presence of more than two thousand people. Only the hum of the conveyor belts and the hum of the footsteps of the employees following the regular goods are heard. They silently collect orders and glue boxes. Everyone is focused on their business, there is no talk. The system monitors the effectiveness of a person, and if it does not fit into the standard, it is immediately fined or fired. Therefore, no one can afford to spend an extra second (Morden, 2007).

Inventory Storage and Barcode Systems

New workers should not learn departments with goods. They are not here. Each product is put where there is space. Infinite rows of shelves resemble a supermarket or library. Only all are in complete “chaos” without sections. The book can lie beside the plane, and the iPhone is near the jeans. A person cannot understand this logic (Morden, 2007).

The system operates on bar codes, which are stored in the database of the warehouse. Each new product receives its code and is sent to that cell, which is free and is located to it as close as possible. And when the site comes to order and the goods must be taken away, the nearest free worker on the display of his scanner “gun” shows the number of the row and shelf. When an employee arrives at the site, the barcode remains to be read again to confirm that no error has occurred. And then immediately on the scanner, the next target lights up – with the address of the cell and the expected time for which it is necessary to have time to take the goods. Sometimes this “target time” is 5-10 seconds (Kwansa, Mayo & Demirciftci, 2008). And your boss will see if you do not have time (Morden, 2007).

Workplace Monitoring and Productivity Pressure

The flow is big, and the trust in employees is zero. At the entrance to the warehouse, you must leave everything, including your phone, in your locker. You get a retro-reflective uniform without pockets and a hand-held scanner-a “gun”. Besides him, you can carry only a bottle of water and a transparent bag for money – to buy food in the dining room. In a separate room in front of the monitors is a security team that tracks the movements of all employees through their scanners. Such a system probably would use security in a high-tech prison. If a person goes somewhere or lingers for a long time in one place, a manager is sent to him to assess the situation. And on the way out – another check, like at the airport, to rule out cases of theft.

No, this is not Google for you. Amazon is also not among the best employers in the USA. But the system gives a result. Conveyor belts move so fast that, for example, the “Executive Center” in Kentucky can handle 400 orders in one second. A truck with parcels leaves the warehouse every two minutes. There is no such effective system in the world for anyone. The human factor is almost completely excluded, and algorithms control everything.

The Fulfillment and Packing Process

Manufacturers send their products to “Amazon”, and the company distributes them through its network of warehouses. This considers the previous history of orders, and if a region, say, especially likes to buy sneakers, it increases the likelihood that a new shipment will be sent there (Kwansa, Mayo & Demirciftci, 2008).

The process of receiving goods is almost as important as sending it. Workers open boxes in trucks, get things out of them, put a marker on them, and shift them into baskets for transportation. Conveyor lines deliver these baskets to different parts of the warehouse, where other workers unload them, put them on the shelf, scan the product itself, and scan the bar code of the cell in which it will be stored. The Amazon system will now know where this item is sitting. More such information is not present to anybody. For many, there is complete chaos and confusion here (Morden, 2007).

Shelves are divided into small sections, and things in them are stored, like books in the library. Each cell has a barcode and an alphanumeric code (for example, P-1 A526 770 8: section, row, number in the row, the order of the cell from the floor). The cell code does not say anything about its contents. Goods are evenly distributed throughout the warehouse so employees do not have to go long. The rule is only one: two identical products cannot sit in neighboring cells, which also minimizes the human factor (Morden, 2007).

When you order something on the site, the “Amazon” system quickly understands where such a product is located at the closest warehouse to you, and identifies the employee who is currently walking near this cell. He has information on the scanner on which to go. In the warehouse, there is an entire army of such “collectors”, moving from object to object in complete silence. For a day, each of them must find, scan, and carry a minimum of one thousand products to the conveyor.

The cargo is delivered to one of the packing stations on the conveyors. Workers place goods on high shelves on wheels. It is here that different goods from the same order are collected together. Each slot on the shelf is its own separate order. Then, the shelves roll to the place of packing, and the contents of the slots are “tampered” into suitable cardboard boxes known to anyone who has ever ordered anything from “Amazon” (Hill & Jones, 2012).

At this stage, the algorithms again force people to work at the peak of power. The computer screen shows the optimal size of the box for each order – and the time for which it should be packed. From the side, it rolls out with air, playing the role of pillows and softening the delivery, and tape, which all this business should be glued together. The assembly of one order usually takes thirty seconds. Hundreds of people work at a speed that we usually see only from the Chinese in the untwisted YouTube video.

Employee Performance and Turnover

The difference with the Chinese is that employees in factories in the Middle Kingdom give bonuses for overfulfilment of the plan, and employees of the Amazon warehouse are only fined for delays. Because of this tough approach, which journalists in the US call “a paradise for the client, hell for the employee,” the staff turnover is very high. On average, they can withstand 12 months. At Amazon in this plan the second (from the end) result in the list Fortune 500 (Hill & Jones, 2012).

A closely related analysis is available in [“Inside Amazon’s Warehouse” Article Analysis](#).

Just for interest: in Microsoft, staff on statistics are 4 years, in Xerox – 7, 2 years. EBay and Yahoo! – only 2 years. And worst of all known companies are the case with Google. Of the search engine on average leave after 14 months. However, these highly paid professionals have gone on to increase or enter the start-up. Out of “Amazon”, slightly different people leave with different perspectives and a different level of pay (Aaker, 2011).

The Shipping and Delivery Network

Packed boxes are sent on one more conveyor to the machine that puts the marking and postal stickers. Then, stamped, orders go down to a large concrete basement and wait for loading. Hence, they are transported by FedEx, UPS, other mail/logistics companies, and Amazon itself.

So far, the algorithms for optimal “packing” of parcels in a truck retailer have not yet come up – and, perhaps, it loses a couple of percent on this, if not all loaders in their childhood loved Tetris. However, the firm compensates for this thanks to a powerful separate system that analyzes the best route and method of delivery for each individual product. Saving gasoline per year results in millions of dollars, and the parcel comes to the buyer several hours, and even a few days earlier. The firm claims that on its three busiest days in 2016 – Black Friday, Cyber Monday, and the first Monday in December- it delivered 99.9% of orders on the site’s stated terms.

In the US, delivery for many products is free. In America – you have to pay, and often quite a lot of money. Amazon does not do this (in fact, some of the goods are delivered, but for fabulous money), so the parcel normally goes through one of the intermediaries. Payment directly depends on the weight of the goods. The cheapest option is FastBox, which costs \$ 8.99 for 500 grams (Aaker, 2011).

To further accelerate the delivery and reduce commission for them, removing the monopolists from the market, in April 2017 the company launched the delivery by air. In America, already running giant aircraft with the brand livery Prime Air. At its fleet, including Boeing 767 and drones, Amazon is going to spend \$ 1.5 billion.

Lean Operations and Waste Reduction

In 2009, Jeff Bezos, the founder and head of Amazon, wrote a letter to the company’s shareholders, declaring war on Muda. This is a Japanese term meaning “uselessness”, “loss” or “waste”, which was first used by Toyota. For Amazon, this meant that everything that could be done should work as efficiently as possible. The company’s statistics, for example, show that the acceleration of page loading by 1/10 seconds leads to increased consumer activity by 1%. For Amazon, it’s billions of “bonus” dollars. Delays in delivery are also unacceptable, even for a couple of hours. The company in this regard, you can say, is a fad.

Automation and Robotics

The use of drones for delivery in cities has not yet been authorized, and speed limits apply on the roads for cars. Therefore, almost the only way to significantly speed up delivery – continue to optimize the work of “collectors” in the warehouse (Dogan, 2015).

And there is something to optimize, even in spite of the fact that they find the goods with their scanners-rifles in seconds. The main problem that Amazon defined for itself is the human factor. First, according to the requirements, workers should be able to rise to 22 kg and spend 10-12 hours on their legs. For the change, they pass 12-20 kilometers between the regiments. Errors in this mode are almost guaranteed. And if someone can not lift something, or if a person suddenly confuses a row/shelf/cell number, this is another slowdown.

Therefore, warehouses of “Amazon” are actively robotized. In 2012, the company bought a robot manufacturer, Kiva Systems for \$ 775 million. Now, in the stores of the store, there are about 40 thousand of their machines, similar to large orange rumba. Ideally, such robots will choose the right product and deliver it to the truck, but so far they have a simpler task. The mobile shelf is placed on top of the robot. And when the goods in one of the cells become necessary to the buyer, the robot delivers the regiment to the person. It turns out much more efficiently: people do not have to run, they make fewer mistakes. The robot does not get tired, it can work indefinitely and move any weight. A bunch of automatic and human brain power is proving to be the most productive. However, the technology of the Amazon Robotics department continues to improve, and, perhaps, in the near future, two hundred thousand American “collectors” and “packers” will have to look for new jobs. And the automatic drones of Amazon, delivering goods to the house, are called to replace drivers of trucks soon (Dogan, 2015). The man is the only superfluous link in the perfectly tuned machine of the Internet giant.

Cost Leadership Strategy

The developed infrastructure and huge scale allow “Amazon” to keep the minimum prices. In some categories of goods, the retailer works at a loss, only to not give in to competitors. Prices on the site are usually one and a half to two times lower than American prices (without jokes).

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