College Guild
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Introduction to Business

Unit 3 of 6

Production & Operations

In this unit, we will discuss the basics of the production process, define key measures of business operations, and explore some of the broader impacts of business operations on our society.

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Important! Most questions in this course are essay questions and have no single correct answer.

Glossary of Terms:

1. **Capacity utilization** – measure of production efficiency: what proportion of time a company's employees or resources are being put to work (goal is 100% utilization).

2. **Inventory** – measure of finished goods ready to sell to customers.

Part 3: Production & Operations

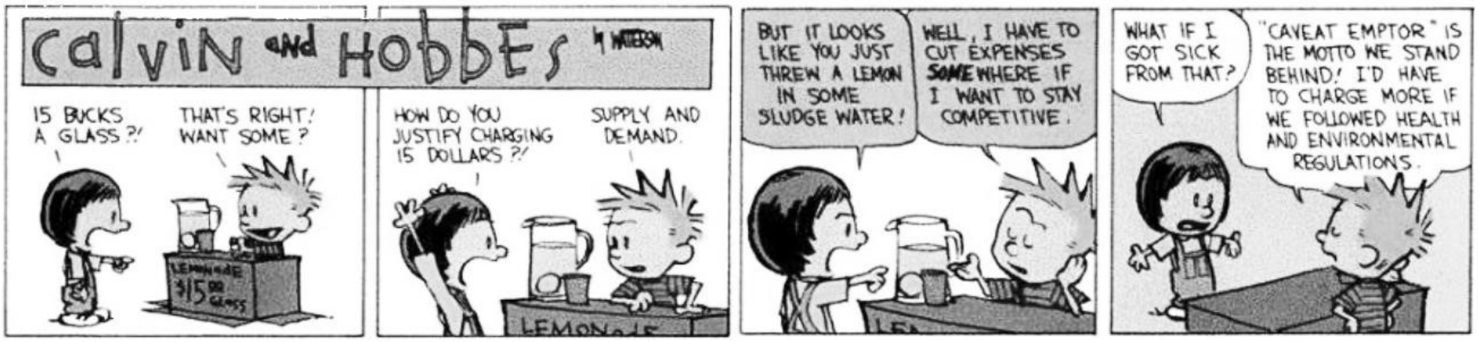
Production (in business the word "Operations" can mean the same thing) is the core of the company – without this function, the business would have nothing to sell. Production or Operations covers all the activities needed to make the goods or services that a company sells to its customers.

It is difficult to describe how critical this function is to the success of a business. A company with a strong production function can achieve:

- Better product quality, which can lead to higher customer satisfaction (and more sales)
- Lower costs needed to make its products (meaning higher profits)
- Safer work environments for its employees, which can lead to better employee loyalty

On the flip side, otherwise strong companies can be undone if their operations are not kept in order. Boeing is a good example. This company has been one of the world's largest airplane manufacturers for decades. However, two fatal crashes involving the Boeing 737 MAX in 2018 led to the entire fleet being grounded and investigated. The investigation uncovered multiple failures in the production and certification process of the manufacturing of the 737 MAX. This was due in part to the company placing more importance on cost-cutting and meeting production schedules than product safety and quality control. While the company still operates today, the value of the Boeing company has plummeted and two different CEO's have stepped down for reasons related to this crisis.

1. **Product quality is obviously important when talking about airplanes. Are there products for which quality is not that important?**



Bill Watterson, Calvin and Hobbes

Basics of the Production Process

Regardless of the type or size of a business, there are three main components of Operations: Inputs, Transformation, and Outputs:

- Inputs: these are the raw resources which a business uses to create the products or services it sells to its customers. Inputs can include:
  - Physical materials
  - Equipment
  - Knowledge or information
  - Employee labor and skills
  - Energy
- Transformation: the activities needed to convert the Inputs into Outputs, such as:
  - Manufacturing or converting raw materials into finished goods
  - Training employees with specific skills
  - Processing information or data
  - Solving problems for customers
- Outputs: the final product that are sold to customers, whether physical goods or services performed

A business must successfully obtain all the necessary Inputs and manage their Transformation, to be able to produce Outputs that it can sell. This is true for businesses that are product companies and those that are services companies.

2. **The main Output of a book publishing company is books. Name at least three Inputs and three Transformation activities required to produce books as an Output.**

3. **A publishing company may also sell proofreading services, reviewing written materials, and correcting spelling and grammar errors. Name at least three Inputs and three Transformation activities required to provide this service.**

A successful business will manage all areas of its production process, and generally try to improve its product in three key areas:

- Quality – ensuring the product/service it sells is high-quality should be every company's goal. Producing high quality goods or services typically requires investment, whether it is better raw materials, more skilled or trained workers, or more advanced equipment or production processes.
- Time – almost all companies desire shorter production times to be able to provide their goods or services to customers more quickly. Quicker production has numerous benefits for companies: higher customer satisfaction, lower holding costs for inventory (we will discuss this more later), and the ability to get customer feedback and make refinements to products more quickly.
- Cost – the cost of production is often one of the largest expenses in running a business, and saving even 1 or 2% on production costs can result in a huge increase in profits. Companies usually do all they can to lower production costs, so long as the savings doesn't translate to a drop in product quality or increased production time.

4. **In business it is often said that a company can either excel at time (delivering its product fast), excel at cost (deliver its product cheaply), or excel at quality (deliver a high-quality product); but never all three at once. Why do you think that is?**

5. **Some businesses will sacrifice product quality in order to produce goods more quickly or cheaply. Can you give an example of a type of business (or even a specific company) where this is the case?**

Let us do a quick exercise: suppose you start a business that provides a laundry service, washing and folding large quantities of sheets, linens and other items for hospitals, hotels and restaurants.

6. **What are the production inputs for this business? Which of these will be the most difficult to obtain?**

7. **What are the transformation activities for this business? Which of these are most critical to delivering a high-quality service?**

8. **Considering your customers, which do you think is most important to focus on for your business operations: quality, time or cost? Which is least important? Why?**

9. **What is one way you can differentiate your business (competitive advantage) from other services like it?**

Measuring Operations

Speed, Cost, and Quality are all critical objectives to keep in mind for business operations. There are a couple other critical measures of operations, depending on the type of business.

For companies that sell services (not physical goods), **capacity utilization** is an incredibly important measure to track. For service companies, the most important resources are its employees or its equipment. Capacity utilization measures what proportion of time its employees/equipment are being put to work, with the goal being 100% utilization. One analogy for capacity utilization in business is using all the seats on a bus. If all the seats are filled up, the bus is being used well – that is 100% capacity utilization. But if there are many empty seats, the bus is not being used efficiently – since the bus costs the same to run whether it's full or not, a bus that has empty seats is less profitable than one that is full.

Let's go back to the example we used earlier: your laundry service business. Suppose your business employs four people who wash clothes and linens, and two workers who then dry and iron them. After doing some tracking and calculation, you determine that your four washers as a group are working at 50% capacity utilization (working only ½ of regular working hours), while your two dryers are working at 150% utilization (meaning they consistently work 50% longer than regular working hours).

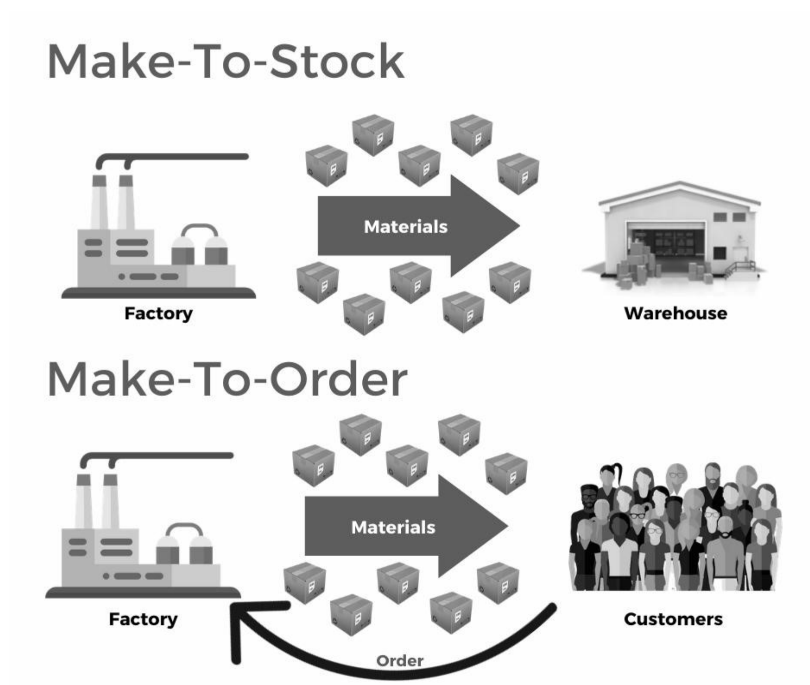
10. Why is this situation a problem? As the owner and boss, what could you do to correct this situation?

For a company selling physical goods, **inventory** is a critical concept and measure. Inventory refers to all the goods held by a business that are ready to sell to customers. It's a critical measure because it helps businesses make sure they have enough of what people want to buy, but not too much that it sits around collecting dust. Inventory is a true 'Goldilocks' measure – a company with not enough inventory will be leaving customers unhappy, as the products they want to buy are not available, so the customers will likely look to spend their money elsewhere. A company will have high costs: more inventory means higher production costs, and potentially also the expense of having the goods stored until customers want to buy it. A company must keep its inventory level just right!

When a company manages its inventory well, it can make more money by ensuring it has enough goods to sell when customers want them, while also saving money by avoiding making too many goods before customers are ready to buy.

There are two main ways for a physical goods company to make its inventory, each of which has a very different impact on operates:

- Make-To-Stock – the company manufactures its goods in bulk, stores them in a warehouse or other facility, then delivers them to customers after they place orders. The advantages of make-to-stock production are: 1) it is typically much cheaper (per unit) to have large quantities of goods produced at once, and 2) goods are ready to be delivered to customers right when they want them.



Redstone Logistics

- Make-To-Order – the company takes orders from customers, then manufactures the goods only after the orders are received. The advantages of make-to-order production are: 1) the company does not have to spend money on inventory until it already has a customer order in hand, and 2) goods can be customized to customer specifications since they are made after the order is received.

11. Consumer goods companies (like Heinz or Kraft) operate in the make-to-stock model. If they changed to a make-to-order model, what problems would they face?

12. On the other hand, restaurants typically operate in the make-to-order model. What problems would restaurants encounter if they operated in a make-to-stock model instead?

Production and Society

Production for a business is an incredibly hard function to set up successfully. How a company operates can also have dramatic effects beyond the business itself. With a constant goal to grow profits, businesses will continue to find new advantages to make their production processes better, faster and cheaper – this can have both positive and negative impacts on people, society, and the planet.

Off-shoring is the practice of relocating critical activities to lower-cost labor markets, typically in other countries. Starting in the 1970s, many US companies started to off-shore manual manufacturing jobs from the US to places like Asia and Latin America, to take advantage of lower labor costs, tax breaks, and laws that are less strict. The companies can save significant money in the process by doing this, and oftentimes, they can then price products more cheaply to make them more affordable for end-consumers. In the U.S. today, almost all the products sold in some categories (like clothing, toys, electronics) are made overseas.

13. Off-shoring is done primarily to improve cost. What impact does off-shoring have on time and quality?

Automation is the practice of using technology to increase speed and consistency in production, primarily by reducing the need for manual labor. Automation can be achieved through machines, software, or robotics to perform repetitive tasks efficiently and accurately. Automation can also dramatically decrease the amount of worker injuries, and is used across many industries today, not just manufacturing. However, it also raises concerns about the elimination of jobs and the need to train workers for different types of work.

Improving cost and speed in production can have tragic downsides. In Bangladesh (a country in Asia that neighbors India), an 8-story building called Rana Plaza collapsed in 2013. The building contained several garment factories, and over 1,100 people were killed, with thousands more suffering injuries. This tragedy highlighted serious safety and labor violations in the garment industry, including unsafe working conditions, overcrowding, and too-long work shifts. Many international brands, including Wal-Mart, Children's Place and others, bought clothing from the factories located in Rana Plaza. This disaster was unspeakably tragic, but has led to industry-wide initiatives focused on safety and worker rights, all to prevent similar tragedies in the future.

14. Who or what is to blame for the Rana Plaza disaster? Is there anything American consumers can do to help ensure that something like this never happens again?

Sustainability in business production means making things in a way that doesn't hurt the environment or communities, and is a consideration that more and more companies care about each year. Some companies are choosing to use eco-friendly materials and methods to make products without creating unnecessary waste or polluting. This helps protect nature and saves money in the long run, and customers like buying from companies that care about the Earth. By being sustainable, businesses can stay popular and make more money – it also pushes companies to find new and better ways of making things, which is good for everyone and for the planet.

SheaMoisture is a personal care brand that makes natural and organic skincare and haircare products. The company was founded by Liberian immigrant Nyema Tubman in 1991, and prioritizes fair labor practices and community empowerment. SheaMoisture works closely with women cooperatives in West Africa to ethically source shea butter (a key input in many of their products), providing fair wages and economic opportunities to women there. SheaMoisture also supports various initiatives aimed at empowering black and minority communities, including entrepreneurship programs and initiatives promoting education and social justice.

15. **Are you more likely to buy from a company that practices sustainability in its operations like SheaMoisture? Would you pay more for their products than for goods from companies who don't operate so sustainably?**

Case Study: FUBU

In 1989, Queens NY-native Daymond John started a clothing brand, selling a batch of hand-stitched, wool beanies under the label "FUBU" (which stands for "For Us, By Us"). Mr. John and his partners used the profit from each batch sold to pay for the next batch of clothing to sell. In the meantime, John grew the brand with the help of high-profile musicians. Hip-hop group Brand Nubian, rappers Ol' Dirty Bastard, Busta Rhymes and LL Cool J all took turns sporting FUBU in their music videos.

FUBU.com

At a fashion trade show in Las Vegas, Mr. John and his partners secured over $400,000 in orders from retail customers, for clothes that weren't made yet! John needed to expand production quickly to be able to make the clothes to fulfill those orders – he approached 27 banks for a business loan but was turned down by them all. Ultimately, his mother took out a mortgage on her home to finance his expanded operations.

Daymond John and his FUBU partners used the money to turn John's mother's home into a clothing factory. As Daymond John describes, "we took all of the furniture out of the house, sold what we could, and the rest we burned in the backyard. We put all the raw materials down in the basement, and on the first floor, put eight sewing machines in the living room and we hired some seamstresses. In the dining room, we put a cutting table where we cut all the fabrics. The kitchen, well, the kitchen was still the kitchen."

FUBU paid its workers on time and had to buy raw materials in advance, while the brand's customers would often pay on 90-day credit terms (paying 90 days after taking delivery of the product). FUBU ran out of money within 4 months, at which point it had completed only $75,000 of the $400,000 in orders they promised. John worried about losing his mother's house, and knew he needed a strategic investor to fund operations and growth. FUBU placed a classified advertisement in a local newspaper asking people to fund the company – almost all of the responses were from loan sharks looking to charge extremely high interest rates. But one response was from the head of Samsung's textiles division. Samsung agreed to pay for FUBU's operations, but only if the brand would commit to selling $5 million within the next 3 years. FUBU sold $30 million in 3 months, and at its peak in 1999, sold more than $350 million annually.

16. **Even with a unique brand and an inspired marketing strategy, Daymond John and the rest of FUBU struggled to build successful operations. What did they do right? What should they have done differently?**

17. **Most companies in the clothing industry aim to build a reliable production process and a pool of inventory first, *then* try to sell the goods (the "make-to-stock" model). Mr. John and FUBU did these things in the opposite order. Why did they do it this way?**

Self-Reflection Exercise

18. **What was the most interesting thing you learned about Production and Operations?**

19. **How do the lessons of Production and Operations apply to your own life?**

20. **Do you believe off-shoring and automation in business are good or bad for society? Why do you think that?**

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Remember: First names only & please let us know if your address changes

Appendix
Introduction to Business: Unit 3 of 6

Sources:

https://hbswk.hbs.edu/item/why-boeings-problems-with-737-max-began-more-than-25-years-ago
https://thehundreds.com/blogs/content/the-rise-and-fall-of-fubu
https://www.sheamoisture.com/our-story/