

Introduction to Business

Topic 3: Production and Quality

Lecture 1: Production and
Assembly Lines

Learning Objectives

- What is:
 - Production
 - Assembly Lines and Layouts

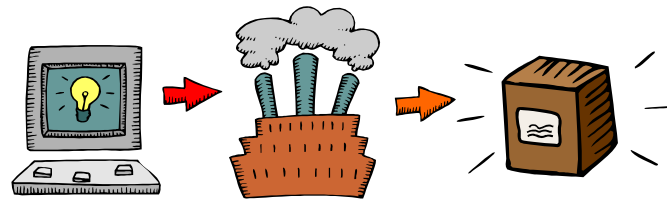


What is *Production*?

- The act of making products (outputs)
- Any form of activity that adds value to goods and services
- Including creation, transportation, and warehousing until used.

Production Processes - 1

- Production processes are all around us.
- Everything around us that isn't living and breathing has been produced by one or more processes.



Production Processes - 2

- Every service you have consumed today: radio, television, even this lecture has been produced by a process.
- Production managers are responsible for *producing* everything we *consume*; be it a hamburger, bus journey, a lecture, or a bed.

Inputs to the Production Process

- **Inputs** = What is put in, or taken in, or operated on by any process or system

Materials – the production process may transform raw materials' into finished goods.



Customers – the production process may transform customers' appearance.



Information – the production process may transform information.

Outputs from the Production Process

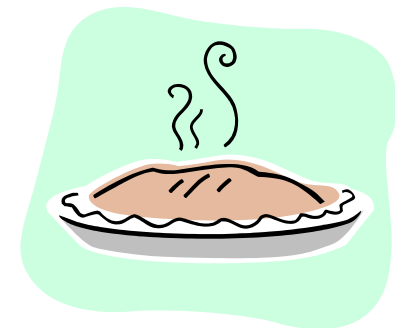
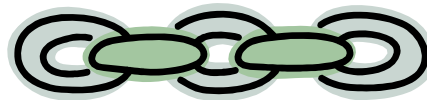
- **Outputs** = The produced goods or services
 - All processes produce either a product, service, or both.
 - Most processes produce a mix of both product and services, e.g. a restaurant – produces (manufactures) meals and offers a ‘service’ to customers.

Customers' Needs

- The production process is concerned with transforming a range of inputs into those outputs that are required by the market.
- Therefore, paying close attention to customers' needs is very important for successful businesses.

Production Chain

- A production chain is the steps that need to be taken in order to transform raw materials into goods which can then be used by consumers.
- For example, a primary product might be an apple and some wheat, and the chain of production will turn this into an apple pie.



Added Value

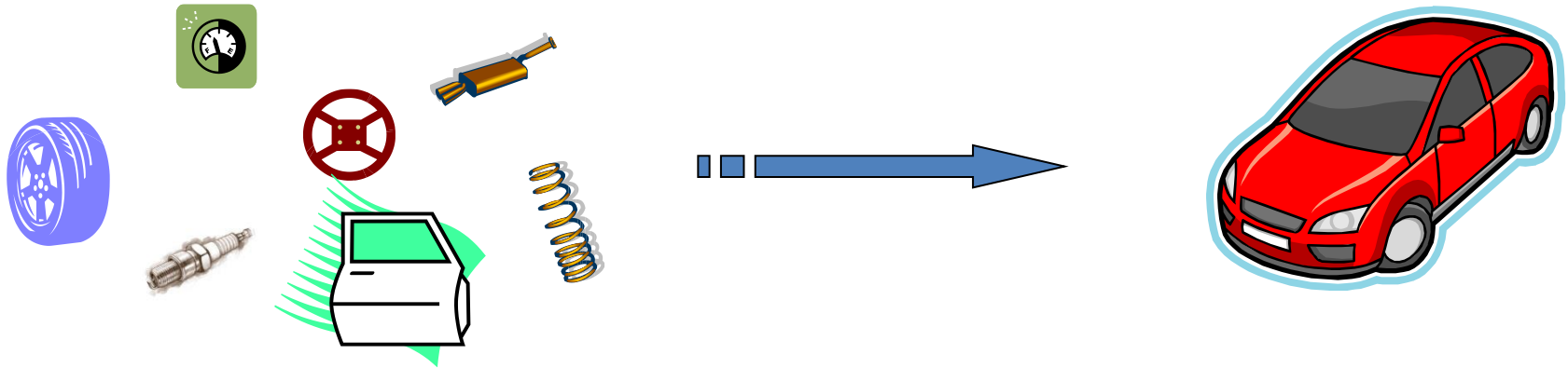
- At each step in the production chain, value is added to the product.
- A business *adds value* to a product by making it more desirable to a consumer, so that they buy that particular product rather than one from a competitor.
- They might even pay more for it!

Class Exercise 1

- In groups, think about an item you have bought recently:
 - Discuss how this would have been produced
 - Work out how many steps would be needed to get from the basic ingredients to the finished product ready for the customer
- 10 minutes

What is an *Assembly Line*?

- A manufacturing process in which a product is put together by many people or machines doing specific parts of the overall manufacturing job.
- Where **inputs** are processed and turned into **outputs**



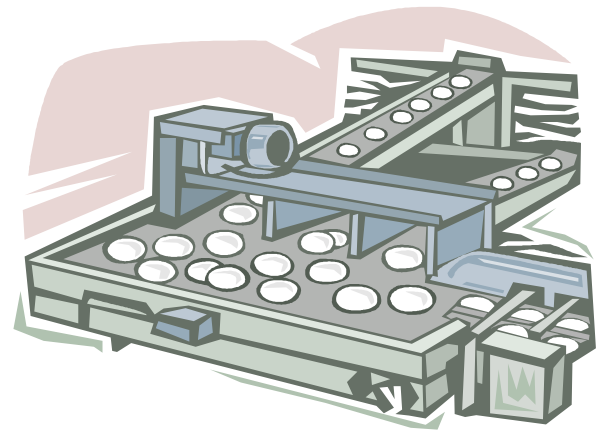
Components are processed



into a finished car

Production Layouts

- 4 Different kinds of Layouts:
 - Flow Production
 - Batch Production
 - Job Production
 - Cell Production



Flow Production Layout - 1

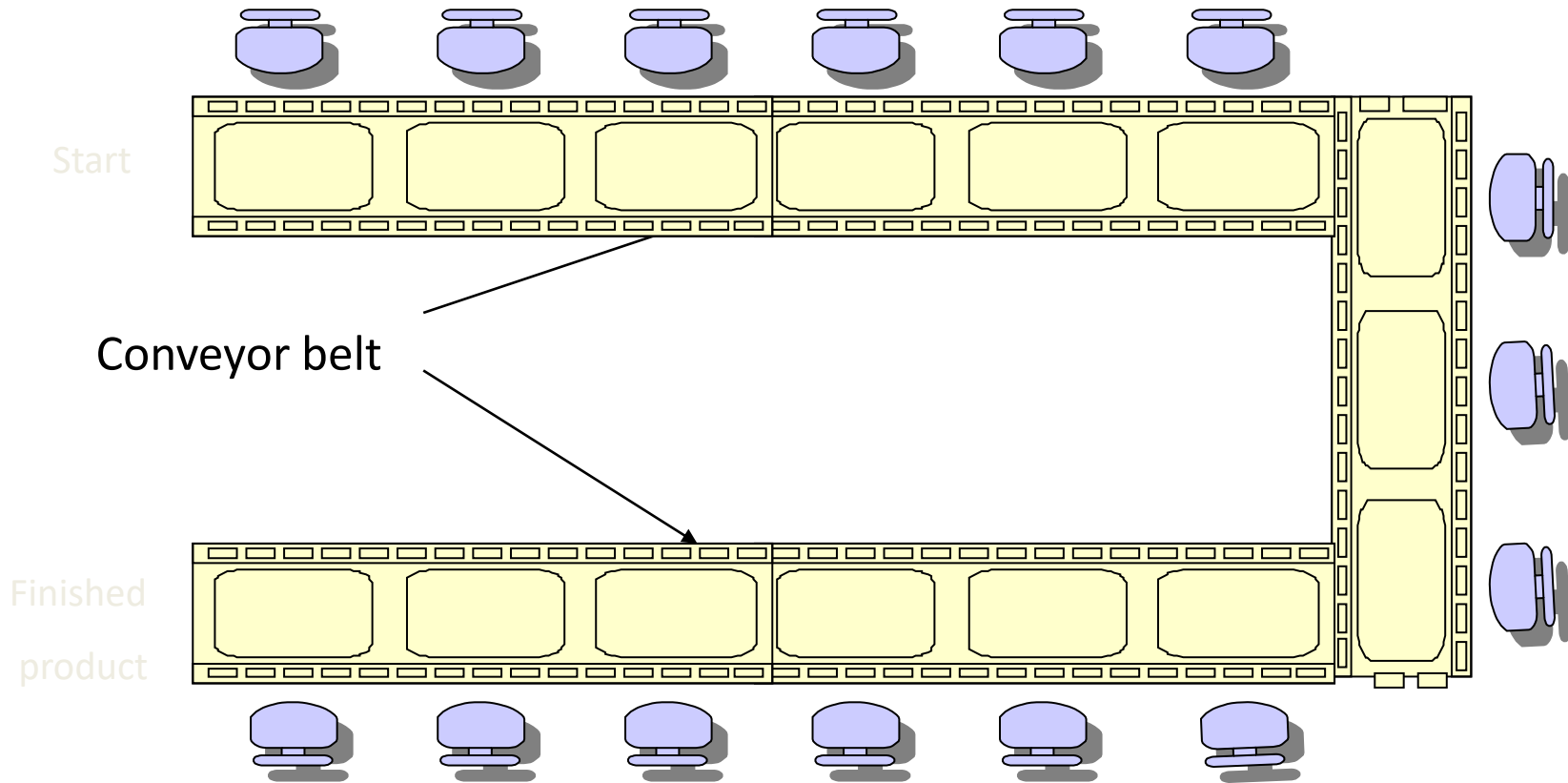
- Also known as *Mass Production*
- For products that are identical –suitable for mass market
- Each worker repeats one or a few related tasks.



Flow Production Layout - 2

- The workers use the same tool to perform identical or near-identical operations on a stream of products.
- The exact tool and parts are always at hand, having been moved down the assembly line consecutively.

Example of a Flow Production Layout



Batch Production Layout - 1

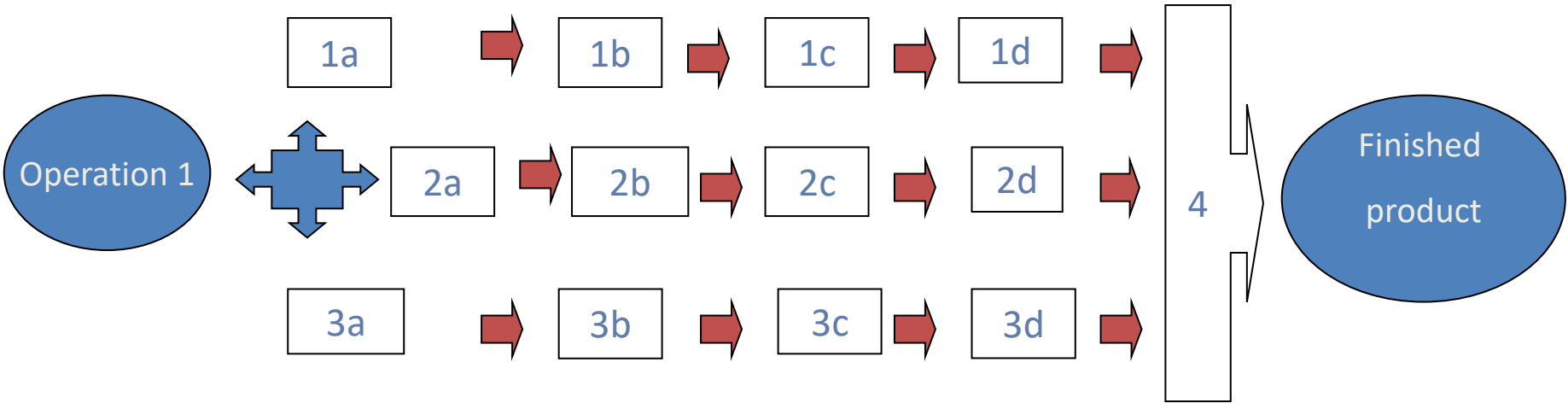
- As Flow Production layout, but in different stages
- To allow the item to have an operation completed on it before moving on to the next stage
- This allows changes to be made to products that otherwise are the same.

Batch Production Layout - 2

- Batch production is popular in bakeries and in the manufacture of:
 - sports shoes
 - pharmaceutical ingredients
 - inks
 - paints
 - adhesives



Example of a Batch Production Layout

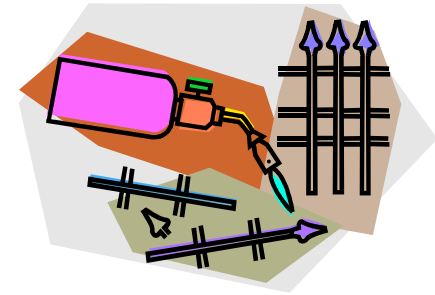


Job Production

- For productions where each item might have particular specifications
- Such as a one-off product for a specific customer
- Job production is most often associated with small firms.

Examples of Job Production

Making railings for a specific house



Building/repairing a computer for a specific customer

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- Making flower arrangements for a specific wedding



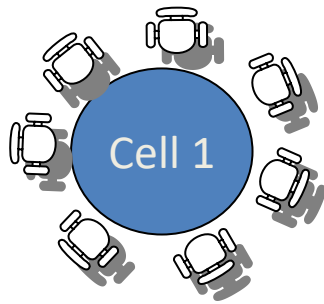
Cell Production Layout -1

- In a cell production layout, workers are organised into multi-skilled teams.
- One team to each cell

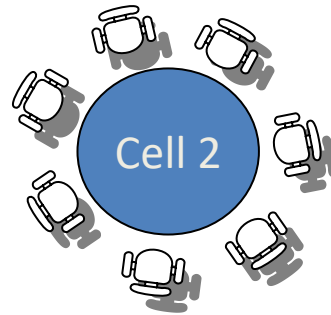
Cell Production Layout -2

- Each team is responsible for a particular part of the production process, including quality control, and health and safety.
- This can lead to efficiency improvements due to increased motivation, team spirit and workers sharing their skills and expertise.

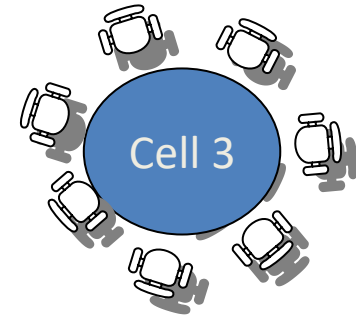
Example of a Cell Production Layout



Finished Product



Finished Product



Finished Product

Class Exercise - 2

- In groups, complete the following quiz on production methods:
 - Which production method uses workers organised into multi-skilled teams?
 - A pair of trainers would be made from which method of production?
 - Which production method is used to make a large number of identical goods?
 - What production method is used to make a single item?
 - What method of production would be used to make a run of products?

• 10 minutes

Conclusions

- Production is the act of making products.
- Production processes are all around us.
- The four basic production layout types are:
 - flow production
 - batch production
 - job production
 - cell production

Topic 3 Lecture 1

- Any questions?