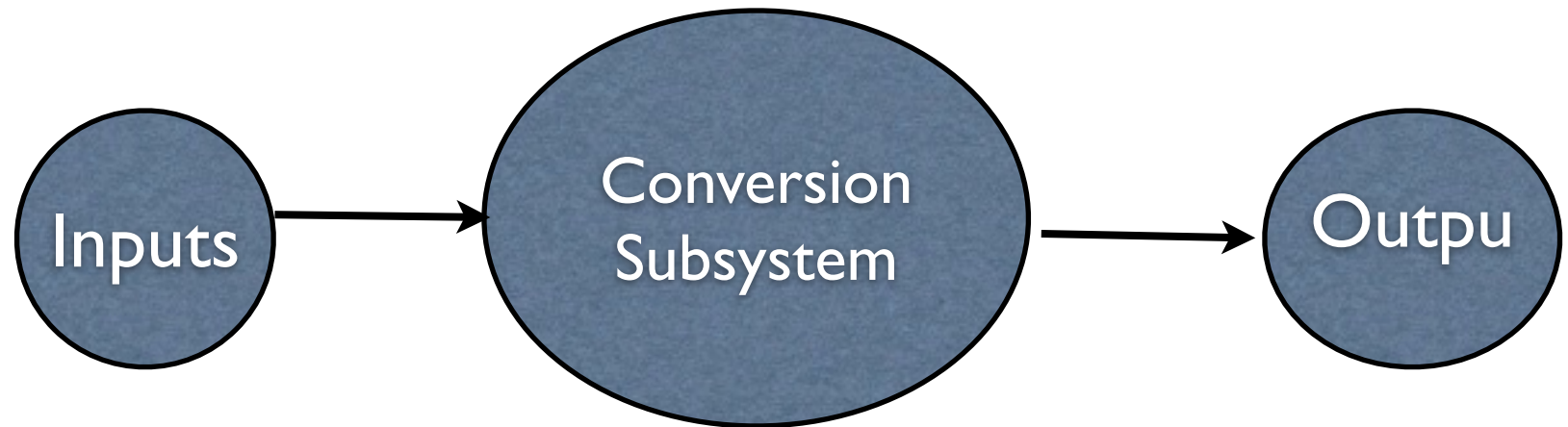


Type of Production systems



Types

1. Manufacturing Systems and Service Systems
2. Series and Parallel Production Systems
3. Continuous and Intermittent Production System

Manufacturing

1. Production systems that produce goods are often referred as manufacturing system.
2. Ex-Steel,Cement,automobiles,airplanes.
3. That produce services are referred service system
4. Health care,legal services
5. Products can be combination of goods and services-Restaurants.

Series and Parallel Production System

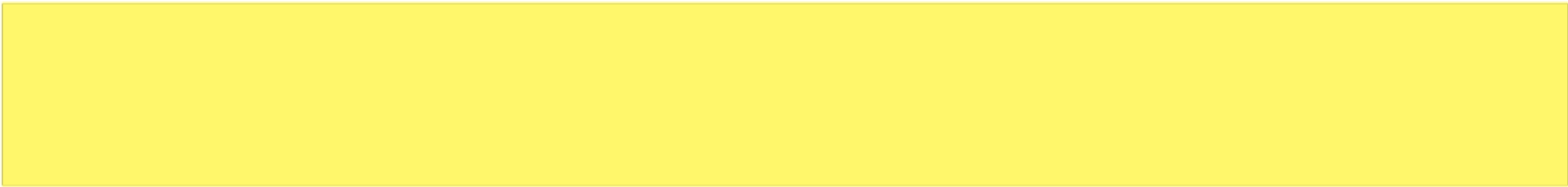
1. When completed products are shipped from the factory to a warehouse
2. They leave factory system to arrive at a second production system
3. Both are in series
4. May also exist in parallel
5. Automobile spare parts industry

Continuous system

1. Facilities are standardized.
2. Set process and sequence
3. Mass Production and Assembly lines
4. Chemical Process

Intermittent System

1. Flexible enough to handle wide variety of products and sizes.
2. No single sequence
3. Custom
4. Numbers of operations may vary from one to any finite number



Low High
Variety

Continuous

Intermittent

Flow
Production

Mass
Production

Batch

Job

Project

High Low
Uniformity

On basis of machinery

Continuous	Intermittent
Generalized Machinery	Specific Machinery
Permanent Machine Setup	Frequent Changes
Duplications machines	Less Machines Required

On basis of Material Handling and Labour use

Continuous	Intermittent
Unskilled	Highly Skilled
Mechanized	Not feasible to employ mechanized
Material Handling cost is less	High Material Cost
Investment in inventory is high	Need for Inventory is minimized

Basis of output

Continuous	Intermittent
Few Standard Products in large quantities	Wide Range of products in small quantities
Output on the basis of anticipation of demand	Output according to order reviewed

Basis of Maintenance and control employed

Continuous	Intermittent
Absence of maintenance may interrupt whole process	No danger of stoppages of whole line
Controlling is simple	Controlling is difficult

Characteristics of various type of production

Data	Types of Production			
	Job Shop	Batch	Repetitive or Assembly	Continuous
Description of outputs	Customised goods or services	Semi standardised goods or services	Standardised goods or services	Highly standardised goods or services
Examples of goods	Speciality tools	Cookies	Automobiles	Steel, paper, flour, sugar
Examples of services	Hair Styling	Education	Car wash	Heating, air-conditioning
Examples of manufacturing facilities	Machine shop	Bakery	Assembly line	Steel mill, paper mill
Examples of service facilities	Beauty shop Barber shop	Classroom	Cafeteria lines	Central heating system
Volume	<u>Low</u>	<u>Low to moderate</u>	<u>High</u>	<u>Very high</u>
Output variety	Very high ✓	Moderate ✓	Low ✓	Very low
Equipment flexibility	Very high	Moderate	Low	Very low
Advantage	Able to handle a wide variety of work	Flexibility	Low unit cost, high volume, efficient	Very efficient very high volume
Disadvantages	Slow, high cost per unit, complex planning and scheduling	Moderate cost per unit, moderate scheduling complexity	Low flexibility, high cost of downtime	Very rigid, lack of variety, costly to change, very high cost of downtime

standardised methods, materials and producing

Differentiating features of production system

1. Degree of standardization
2. Type of operations
3. Manufacturing operations Vs Service