

Improving Productivity for Survival & Growth in challenging times (Author- Dr Kanak Madrecha)

Industrial Engineering: Industrial Engineering (IE) involves optimization of complex processes, systems, or organizations by developing, improving and implementing integrated systems of employees, materials, plant & machinery/equipment, money, information & knowledge and energy. The outcome of this optimization done by Industrial Engineers is measurement & improvement of productivity within a function or organization resulting into improved profitability.

Productivity: Productivity is commonly defined as **a ratio between the output (finished product or service) volume and the volume of inputs (Material, Manpower, Machine, Money, Energy, Space)** used in delivering product or service. Few Examples are:-

1. **Material Productivity** – Number of finished products made from set of raw materials
2. **Manpower Productivity** – Number of finished products made from set of manpower
3. **Machine Productivity**– Number of finished products made from one machine or equipment
4. **Space Productivity**– Number of finished products made from square meter of building space
5. **Money or Financial Productivity**– Number of finished products made from unit of money used
6. **Energy Productivity** - Number of finished products made from unit of energy used

Few Productivity Objectives & Measures for different industry sectors/functions:-

Function	Productivity Objectives	Productivity Measures
Accounts Receivable	Maximizing number of payments collected from customers or minimizing number of staff hours used	<ol style="list-style-type: none"> 1. Number of payments collected per Accounts Receivable Staff per day 2. Payment Collection Value per staff per day
Accounts Payable	Maximizing number of payments made to suppliers or minimizing number of staff hours used	<ol style="list-style-type: none"> 1. Number of payments collected per Accounts Payable staff per day 2. Payment Collection Value per staff per day
Sales	Maximizing Sales Volume or Sales Value or minimizing number of sales staff hours used	<ol style="list-style-type: none"> 1. Sales Volume per sales staff per day 2. Sales Value per sales staff per day 3. Number of new clients acquired per sales staff per day
Procurement	Maximizing Procurement Volume or Procurement Value or minimizing number of Procurement staff hours used	<ol style="list-style-type: none"> 1. Procurement Volume per procurement staff per day 2. Procurement Value per procurement staff per day 3. Manhours or Cost Per LPO Issued
Supply Chain & Logistics	Maximizing inventory stored (Quantity or Value) or minimize storage space used for the same inventory; Maximizing number of deliveries & “goods value delivered” to customers	<ol style="list-style-type: none"> 1. Storage Space Utilization (%), 2. Storage Cost as a % of Stock Value. 3. Number of deliveries made to customers per staff per day 4. Goods Value delivered to customers per staff per day 5. Number of deliveries made per delivery vehicle per day
Manufacturing	Maximizing production volume and minimizing materials, manpower, machine or equipment, energy (electricity, oil, gas, water) used for the unit of production.	<ol style="list-style-type: none"> 1. Production Quantity (Pieces or Kgs or Lts or Gallons) Per Day 2. Raw Material Consumption Per Unit of Production 3. Energy Consumption Per Unit of Production 4. Man-Hours or Manpower Cost Per Unit of Production 5. Machine Hours or Machine Cost Per Unit of Production

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