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OPERATIONS AND PRODUCTIVITY

**PowerPoint presentation to accompany
Heizer and Render
Operations Management, Eleventh Edition
Principles of Operations Management, Ninth Edition**

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OUTLINE

- ❑ **Global Company Profile:** Hard Rock Cafe
- ❑ What Is Operations Management?
- ❑ Organizing to Produce Goods and Services
- ❑ The Supply Chain
- ❑ Why Study OM?
- ❑ What Operations Managers Do

OUTLINE - CONTINUED

- ❑ The Heritage of Operations Management
- ❑ Operations for Goods and Services
 - Growth of Services
 - Service Pay
- ❑ The Productivity Challenge
 - Productivity Measurement
 - Productivity Variables
 - Productivity and the Service Sector

OUTLINE - CONTINUED

- ❑ New Challenges in Operations Management
- ❑ Ethics, Social Responsibility, and Sustainability

Operations Management at Hard Rock Cafe

- ❑ First opened in 1971
 - Now – 150 restaurants in over 53 countries
- ❑ Rock music memorabilia
- ❑ Creates value in the form of good food and entertainment
- ❑ 3,500+ custom meals per day in Orlando
- ❑ How does an item get on the menu?
- ❑ Role of the Operations Manager



WHAT IS OPERATIONS MANAGEMENT?

Production is the creation of goods and services

Operations management (OM) is the set of activities that create value in the form of goods and services by transforming inputs into outputs

Produksi (*production*) merupakan sebuah penciptaan barang dan jasa.

Manajemen operasi (*operations management—OM*) merupakan serangkaian aktivitas yang menciptakan nilai dalam bentuk barang dan jasa dengan mengubah masukan menjadi hasil.

ORGANIZING TO PRODUCE GOODS AND SERVICES

Essential functions:

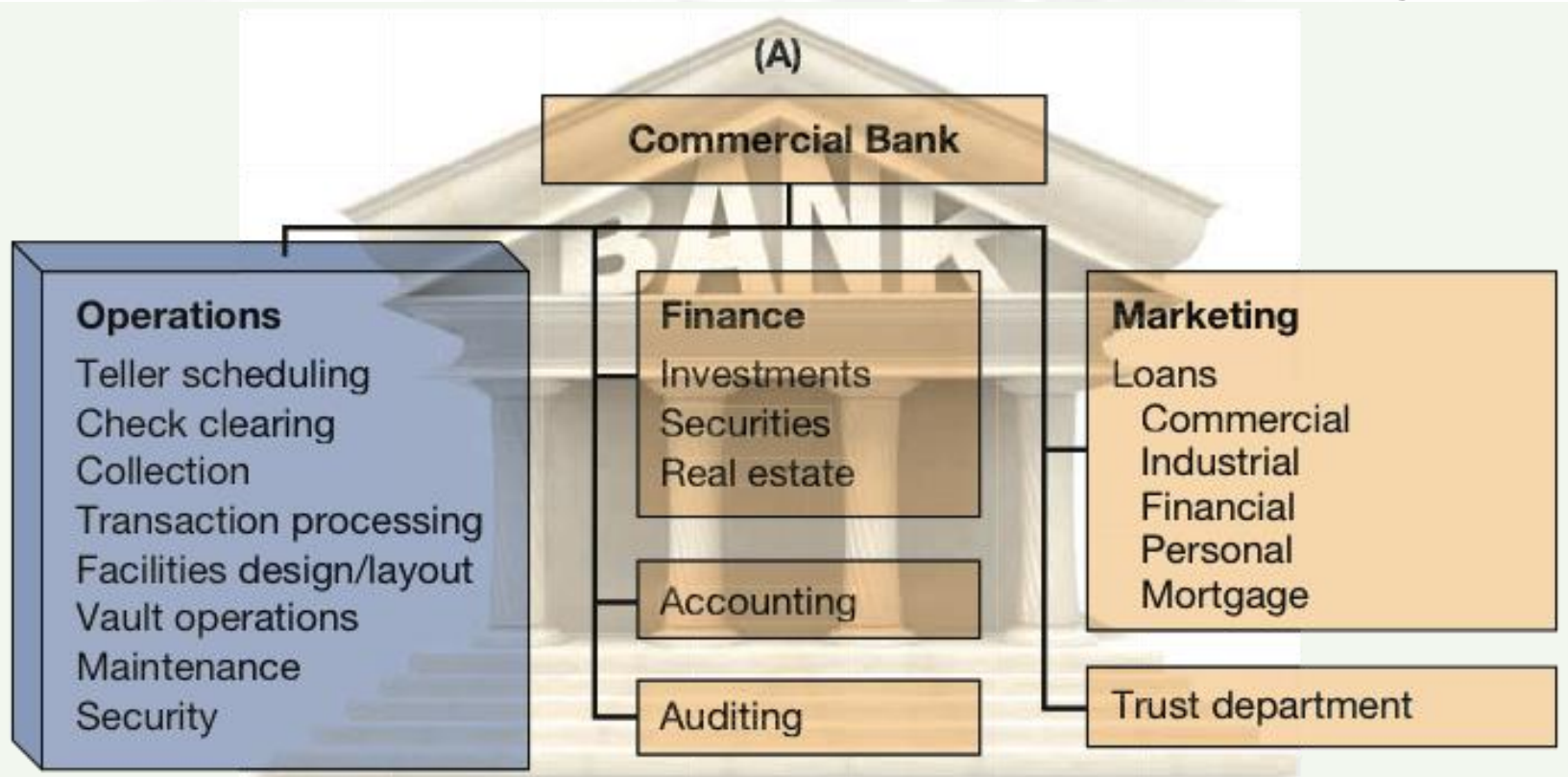
1. **Marketing** – generates demand
2. **Production/operations** – creates the product
3. **Finance/accounting** – tracks how well the organization is doing, pays bills, collects the money

Semua organisasi melakukan tiga fungsi untuk menciptakan barang dan jasa

1. Pemasaran, Megenerates Permintaan.
2. Produksi/operasi, yang menciptakan produk.
3. Finansial/akuntansi, melihat seberapa baik kinerja organisasi, pembayaran tagihan, dan pengumpulan uang.

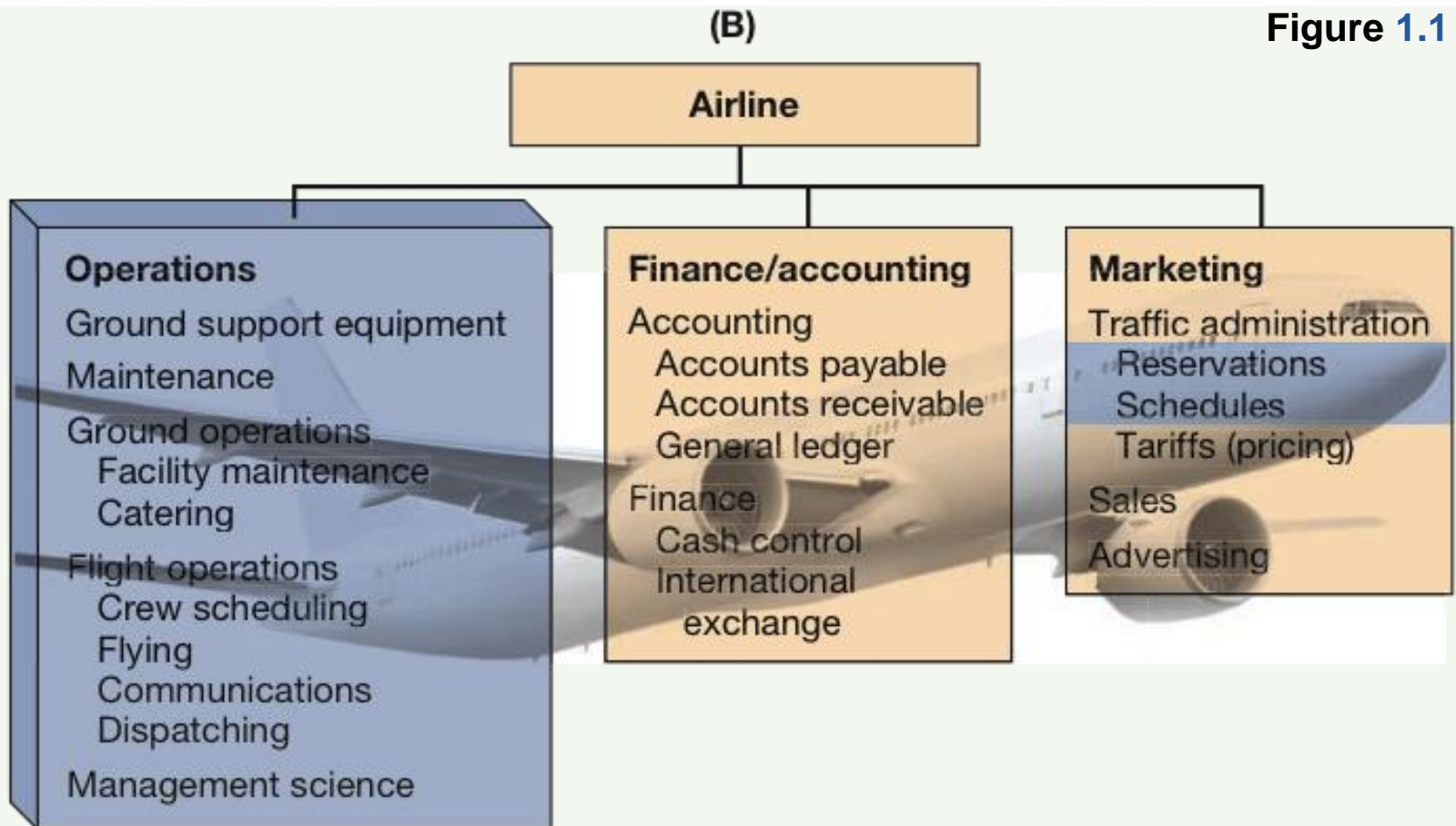
ORGANIZATIONAL CHARTS

Figure 1.1

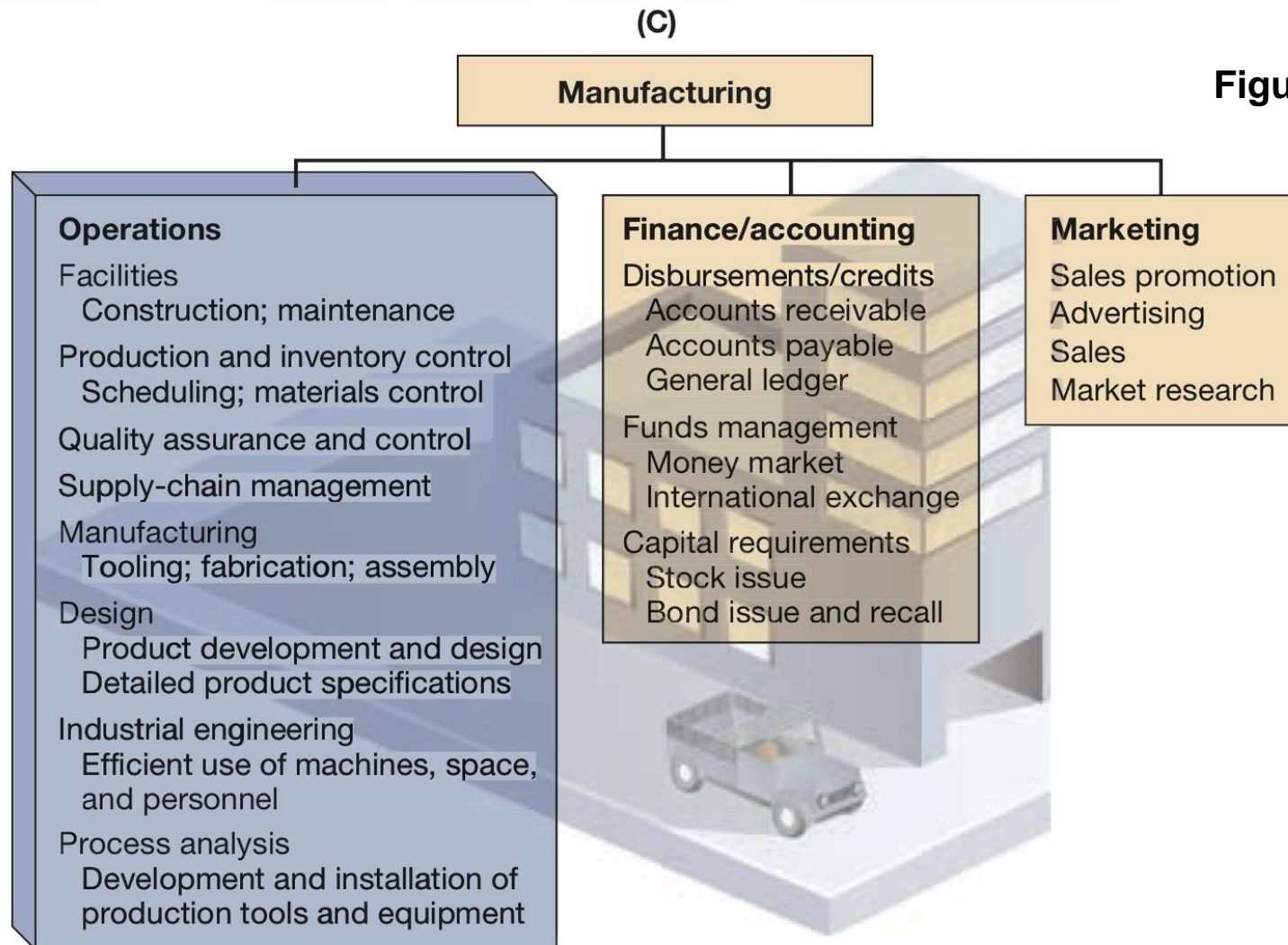


ORGANIZATIONAL CHARTS

Figure 1.1



ORGANIZATIONAL CHARTS



THE SUPPLY CHAIN

- ▶ A global network of organizations and activities that supply a firm with goods and services
- ▶ Members of the supply chain collaborate to achieve high levels of customer satisfaction, efficiency and competitive advantage.

Figure 1.2



WHY STUDY OM?

1. **OM is one of three major functions** of any organization, we want to study how people organize themselves for productive enterprise
2. **We want (*and need*) to know** how goods and services are produced
3. **We want to understand** what operations managers do
4. OM is such a **costly part of an organization**

OPTIONS FOR INCREASING CONTRIBUTION

TABLE 1.1

	CURRENT	MARKETING OPTION	FINANCE /ACCOUNTING OPTION	OM OPTION
		INCREASE SALES REVENUE 50%	REDUCE FINANCE COSTS 50%	REDUCE PRODUCTION COSTS 20%
Sales	\$100,000	\$150,000	\$100,000	\$100,000
Cost of goods	-80,000	-120,000	-80,000	-64,000
Gross margin	20,000	30,000	20,000	36,000
Finance costs	-6,000	-6,000	-3,000	-6,000
Subtotal	14,000	24,000	17,000	30,000
Taxes at 25%	-3,500	-6,000	-4,200	-7,500
Contribution	\$ 10,500	\$ 18,000	\$ 12,750	\$ 22,500

What Operations Managers Do

Basic Management Functions

- ▶ Planning
- ▶ Organizing
- ▶ Staffing
- ▶ Leading
- ▶ Controlling



Ten Strategic Decisions

DECISION

1. Design of goods and services
2. Managing quality
3. Process and capacity design
4. Location strategy
5. Layout strategy
6. Human resources and job design
7. Supply-chain management
8. Inventory management
9. Scheduling
10. Maintenance

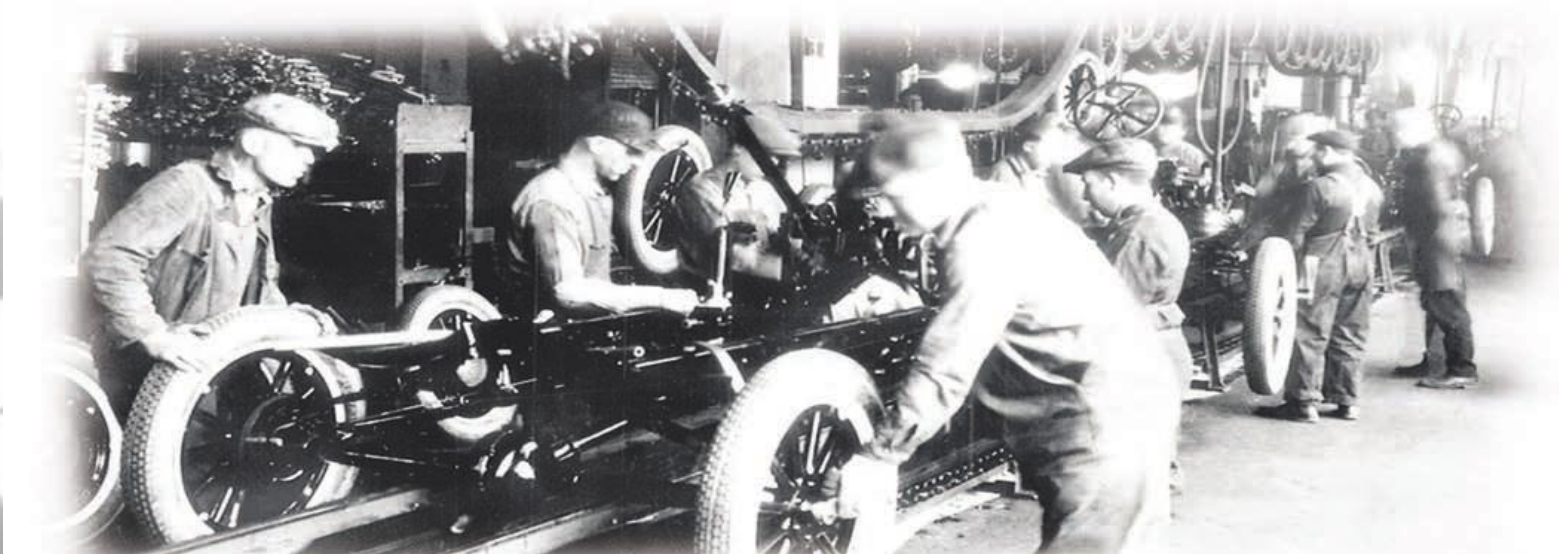
WHERE ARE THE OM JOBS?

- Technology/methods
- Facilities/space utilization
- Strategic issues
- Response time
- People/team development
- Customer service
- Quality
- Cost reduction
- Inventory reduction
- Productivity improvement

CERTIFICATIONS

- ❑ APICS, the Association for Operations Management
- ❑ American Society for Quality (ASQ)
- ❑ Institute for Supply Management (ISM)
- ❑ Project Management Institute (PMI)
- ❑ Council of Supply Chain Management Professionals
- ❑ Charter Institute of Purchasing and Supply (CIPS)

Significant Events in OM



Cost Focus	Quality Focus	Customization Focus	Globalization Focus	
<p>Early Concepts 1776–1880</p> <ul style="list-style-type: none"> Labor Specialization (Smith, Babbage) Standardized Parts (Whitney) <p>Scientific Management Era 1880–1910</p> <ul style="list-style-type: none"> Gantt Charts (Gantt) Motion & Time Studies (Gilbreth) Process Analysis (Taylor) Queuing Theory (Erlang) 	<p>Mass Production Era 1910–1980</p> <ul style="list-style-type: none"> Moving Assembly Line (Ford/Sorensen) Statistical Sampling (Shewhart) Economic Order Quantity (Harris) Linear Programming PERT/CPM (DuPont) Material Requirements Planning (MRP) 	<p>Lean Production Era 1980–1995</p> <ul style="list-style-type: none"> Just-in-Time (JIT) Computer-Aided Design (CAD) Electronic Data Interchange (EDI) Total Quality Management (TQM) Baldrige Award Empowerment Kanbans 	<p>Mass Customization Era 1995–2005</p> <ul style="list-style-type: none"> Internet/E-Commerce Enterprise Resource Planning International Quality Standards (ISO) Finite Scheduling Supply Chain Management Mass Customization Build-to-Order 	<p>Globalization Era 2005–2020</p> <ul style="list-style-type: none"> Global Supply Chains Growth of Transnational Organizations Instant Communications Sustainability Ethics in a Global Workforce Logistics

Figure 1.4

THE HERITAGE OF OM

- ▶ Division of labor (Adam Smith 1776; Charles Babbage 1852)
- ▶ Standardized parts (Whitney 1800)
- ▶ Scientific Management (Taylor 1881)
- ▶ Coordinated assembly line (Ford/ Sorenson 1913)
- ▶ Gantt charts (Gantt 1916)
- ▶ Motion study (Frank and Lillian Gilbreth 1922)
- ▶ Quality control (Shewhart 1924; Deming 1950)

THE HERITAGE OF OM

- ▶ Computer (Atanasoff 1938)
- ▶ CPM/PERT (DuPont 1957, Navy 1958)
- ▶ Material requirements planning (Orlicky 1960)
- ▶ Computer aided design (CAD 1970)
- ▶ Flexible manufacturing system (FMS 1975)
- ▶ Baldrige Quality Awards (1980)
- ▶ Computer integrated manufacturing (1990)
- ▶ Globalization (1992)
- ▶ Internet (1995)

OPERATIONS FOR GOODS AND SERVICES

- Manufacturers produce tangible product, services often intangible
- Operations activities often very similar
- Distinction not always clear
- Few pure services

DIFFERENCES BETWEEN GOODS AND SERVICES

CHARACTERISTICS OF SERVICES	CHARACTERISTICS OF GOODS
Intangible: Ride in an airline seat	Tangible: The seat itself
Produced and consumed simultaneously: Beauty salon produces a haircut that is consumed as it is produced	Product can usually be kept in inventory (beauty care products)
Unique: Your investments and medical care are unique	Similar products produced (iPods)
High customer interaction: Often what the customer is paying for (consulting, education)	Limited customer involvement in production
Inconsistent product definition: Auto Insurance changes with age and type of car	Product standardized (iPhone)
Often knowledge based: Legal, education, and medical services are hard to automate	Standard tangible product tends to make automation feasible
Services dispersed: Service may occur at retail store, local office, house call, or via internet.	Product typically produced at a fixed facility
Quality may be hard to evaluate: Consulting, education, and medical services	Many aspects of quality for tangible products are easy to evaluate (strength of a bolt)
Reselling is unusual: Musical concert or medical care	Product often has some residual value

PRODUCTIVITY CHALLENGE

Productivity is the ratio of outputs (goods and services) divided by the inputs (resources such as labor and capital)

The objective is to improve productivity!

Important Note!
*Production is a measure of output only
and not a measure of efficiency*

Tantangan Produktivitas

- **Produktivitas** (*productivity*) merupakan rasio hasil (barang dan jasa) dibagi dengan masukan (sumber daya, seperti buruh dan modal).
- Produksi yang tinggi berarti memproduksi lebih banyak unit, sementara produktivitas yang tinggi berarti memproduksi unit secara efisien.

$$\text{Produktivitas} = \frac{\text{Unit yang dihasilkan}}{\text{Masukan yang digunakan}} \quad (1-1)$$

- **Produktivitas faktor tunggal** —Mengindikasikan rasio dari satu sumber daya (masukan) terhadap barang dan jasa yang dihasilkan (hasil).
- **Produktivitas multifaktor** —Mengindikasikan rasio dari banyak atau semua sumber daya (masukan) terhadap barang dan jasa yang dihasilkan (hasil).

Tantangan Produktivitas (Lanjutan)

Produktivitas multifaktor

$$\text{Produktivitas} = \frac{\text{Hasil}}{\text{Buruh} + \text{Bahan} + \text{Energi} + \text{Modal} + \text{Lain-Lain}} \quad (1-2)$$

Permasalahan pengukuran dalam produktivitas adalah:

- (1) kualitas mungkin dapat berubah,
- (2) elemen eksternal dapat mengganggu, dan
- (3) unit ukuran yang tepat mungkin kurang tersedia.

- Variabel produktivitas
- Masyarakat

TANTANGAN BARU DALAM MANAJEMEN OPERASI

- Fokus global , kolaborasi internasional
- Rekanan rantai pasokan, ventura bersama, aliansi
- Keberlangsungan, produk ramah lingkungan, daur ulang, penggunaan ulang
- Pengembangan produk yang cepat, kolaborasi desain
- Kustomisasi massal; produk yang dikustomisasi
- Kinerja *just-in-time*, ramping, peningkatan yang berkelanjutan
- Pemberdayaan karyawan, pengayaan pekerjaan.

THE ECONOMIC SYSTEM

Inputs

Transformation

Outputs

