

# UNIT 1 — Foundations of Process Thinking + Value + Performance

## A1. Process Thinking Origins

### 1) Division of Labour (Adam Smith pin factory) — what it means

**Definition:** Division of labour means breaking one job into smaller, specialized tasks so each worker repeats a narrow set of actions. This increases output because workers become faster, switching time reduces, and tools/skills become optimized.

#### Why it matters for BPR:

It created the *idea of a process*: work is not “one person does everything” but a **structured sequence** of steps. However, division of labour also created **functional silos**, which later become a major source of inefficiency (handoffs, approvals, rework).

**Example 1 (classic):** One person makes a whole pin slowly vs 10 people each doing one step → total pins skyrocket.

**Example 2 (modern):** In a bank: one team collects documents, another verifies, another approves, another disburses. Efficiency in each team can exist, but the full customer experience can still be slow due to handoffs.

**Key exam insight:** Division of labour optimizes *local tasks*; BPR optimizes *end-to-end outcomes*.

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### 2) Industrial Revolution → modern process structure

**Definition:** Industrial Revolution introduced mechanization, standardization, and large-scale production. Work became repeatable, measurable, and organized into steps.

#### What it produced in organizations

- Standard operating procedures (SOPs)
- Quality checkpoints
- Batch processing
- Hierarchical control structures

**Example 1:** Assembly line manufacturing: steps are sequenced, time-studied, and controlled.  
**Example 2:** University admissions: many standardized forms, fixed approval steps, defined roles.

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### 3) “Processizing” an organization

**Definition:** Processizing means designing work as **repeatable, documented, measurable processes** rather than informal “people just do it.”

#### Why it’s done

- Predictable quality
- Lower dependency on one person
- Easier training
- Easier measurement + improvement

**Example 1:** Helpdesk ticketing system replaces random WhatsApp messages.

**Example 2:** Purchase order workflow replaces “ask the manager verbally.”

**Risk / downside:** Over-processizing can create bureaucracy: too many approvals, too many forms.

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### 4) Functional silos → process-oriented organization

**Definition:** A **functional** organization is structured by departments (HR, Finance, Sales). A **process-oriented** organization is structured around end-to-end value streams (Order-to-Cash, Procure-to-Pay, Hire-to-Retire).

#### 6 differences (more than 4)

1. **Goal:** Functional = optimize department goals; Process = optimize customer outcome.
2. **Ownership:** Functional = many owners; Process = one process owner accountable end-to-end.
3. **Measurement:** Functional = local KPIs; Process = end-to-end KPIs (cycle time, defects, customer satisfaction).
4. **Coordination:** Functional = handoffs + approvals; Process = cross-functional teams + fewer handoffs.
5. **Customer view:** Functional = customer is “someone else’s job”; Process = customer at the center.
6. **Change ability:** Functional = improvements are slow + political; Process = redesign is clearer because the full flow is visible.

**Example:** “Order fulfillment” touches Sales, Finance, Warehouse, Delivery. In silos, each optimizes their own part; the customer experiences delays and errors. Process orientation redesigns the entire flow.

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## A1 Practice Questions (with answers)

### **Q1. Why did division of labour increase productivity, and how can it create inefficiency later?**

Division of labour increases productivity by specialization, reduced switching time, and standardized tools/skills, so output per hour rises. Over time it can create inefficiency because work is split across departments; the process gains handoffs, waiting time, approvals, and rework. This makes the end-to-end customer experience slow even if each department is efficient.

### **Q2. Explain “processizing” with two examples and one risk.**

Processizing means converting informal work into a defined, repeatable workflow that can be measured. Example: replacing ad-hoc complaint handling with a ticketing system; replacing verbal purchase requests with a purchase order approval workflow. Risk: excessive processizing can create bureaucracy (too many approvals, excessive documentation).

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## UNIT 1B — Business Processes & Value Creation

### B1. What is a business process?

**Definition:** A business process is a **structured set of activities** that transforms **inputs** into **outputs** to deliver value to a customer (internal or external). Processes are repeatable and cross functional.

**Example 1:** Order-to-Cash (customer order → payment received).

**Example 2:** Procure-to-Pay (need identified → vendor paid).

**Key note:** A “department task” is not a process. A process usually crosses departments.

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## B2. Value-adding vs non-value-adding steps

### Value-adding (VA)

A step is VA if it:

- changes the product/service toward what the customer wants,
- is done right the first time,
- customer would be willing to pay for it.

**Examples:** cooking food, diagnosing a patient, shipping the product.

### Non-value-adding (NVA)

A step is NVA if it:

- is waiting, rework, duplication, unnecessary approvals, reconciliation, searching for info.

**Examples:** waiting for signature, entering same data twice, matching an invoice because systems don't talk.

**Important BPR angle:** NVA steps are often "historical leftovers." BPR questions whether they should exist at all.

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## B3. Horizontal vs vertical integration

### Vertical (traditional)

Work flows **up and down hierarchy** (staff → supervisor → manager → director). It produces approvals, delays, and "control" but adds cycle time.

### Horizontal (process-based)

Work flows **across functions** (Sales ↔ Finance ↔ Ops). It reduces handoffs, reduces waiting, and improves customer experience.

### 4 differences

1. **Flow direction:** Vertical = hierarchy; Horizontal = value stream across departments.
2. **Speed:** Vertical = slower due to approvals; Horizontal = faster due to collaboration.
3. **Accountability:** Vertical = fragmented; Horizontal = end-to-end ownership.
4. **Customer value:** Vertical optimizes control; Horizontal optimizes delivery.

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## B4. End-to-end process thinking

**Definition:** End-to-end thinking means evaluating the process as a full chain from trigger to outcome, not isolated steps.

**Example 1:** Student registration end-to-end: admission → fee payment → course enrollment → ID card.

**Example 2:** Banking end-to-end: customer opens account → KYC → verification → activation.

**Why examiners like this:** It's the logic behind BPR. You can't reengineer if you only look at one department.

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## B-section Practice Questions (with answers)

### **Q1. Define a business process and give two examples.**

A business process is a repeatable set of activities that converts inputs into outputs to deliver value to a customer. Examples include Order-to-Cash (order to payment) and Procure-to-Pay (request to vendor payment).

### **Q2. What is the difference between VA and NVA? Give two examples each.**

VA steps directly contribute to what the customer wants and would pay for, like assembling a product or diagnosing a patient. NVA steps add time/cost without improving output, like waiting for approvals or re-entering the same data in multiple systems.

### **Q3. Why is end-to-end thinking essential for BPR?**

Because BPR aims for dramatic improvements in overall performance. If you optimize isolated tasks, bottlenecks and handoffs remain and the customer experience stays slow. End-to-end thinking reveals the true delays, rework, and ownership gaps.

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## UNIT 1C — Process Performance + Bottlenecks + Measurement

### C1. Efficiency vs Productivity (must-know)

**Efficiency:** Doing the same output with fewer resources (time, cost, waste).

**Productivity:** Producing more output per input (units per hour, transactions per employee).

## 6 differences

1. **Focus:** Efficiency = resource minimization; Productivity = output maximization.
2. **Metric style:** Efficiency often cost/time based; Productivity often ratio based (output/input).
3. **Risk:** High efficiency can reduce flexibility; High productivity can reduce quality if rushed.
4. **Scope:** Efficiency can be local; Productivity usually requires system balance.
5. **Example:** Reduce staff time per order (efficiency) vs increase orders/hour (productivity).
6. **BPR link:** BPR usually targets both by removing NVA and redesigning flow.

**Example 1:** If a cashier becomes faster, efficiency improves.

**Example 2:** If the whole ordering process is redesigned so more customers are served per hour, productivity improves.

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## C2. Core performance metrics (with clear meaning)

### Throughput

**Definition:** Number of units completed per time period (customers/hour, applications/day).

**Example:** 120 orders/hour.

### Cycle Time

**Definition:** Total time from start to finish for one unit.

Includes work time + waiting + delays.

**Example:** From order placed to order received = 12 minutes.

### Lead Time (often used similarly)

**Definition:** Time from customer request to delivery outcome.

Lead time is often “customer visible.”

### Cost

**Definition:** Total cost per unit or per period (labor, materials, overhead).

**Example:** cost per processed invoice.

### Waste (process waste)

Common types:

- Waiting
- Overproduction
- Rework/defects
- Excess movement
- Excess processing
- Inventory/WIP
- Unused talent

**Example:** repeating KYC verification because data isn't shared.

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## C3. Bottleneck (the most testable concept)

**Definition:** The bottleneck is the step with the lowest capacity (or highest time per unit) that limits overall throughput.

### How to identify (methods)

1. **Queue build-up:** where work piles up.
2. **Longest cycle time step:** step taking most time per unit.
3. **Highest utilization:** step always busy while others idle.
4. **Data approach:** timestamp each stage and compute average waiting + service time.

### Why “improving non-bottleneck doesn’t help”

Because system output is capped by the slowest step. Improving a faster step only increases WIP before bottleneck.

**Example:** If verification team can process 30/day but approval team processes 10/day, approvals are the bottleneck. Training verification team to do 60/day won't increase completed applications.

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## C4. Incremental improvement vs radical change (BPR need)

### Incremental improvement

Small optimizations within existing structure (reduce errors, shorten a step).

## **Radical redesign**

Change the sequence, remove steps, change roles, combine activities, leverage shared data.

### **5 differences**

1. **Magnitude:** Incremental = small gains; Radical = dramatic improvements.
  2. **Time:** Incremental is continuous; Radical is project-based transformation.
  3. **Risk:** Incremental lower risk; Radical higher risk but higher payoff.
  4. **Mindset:** Incremental = “improve this step”; Radical = “should this step exist?”
  5. **Example:** Automating invoice matching (incremental) vs removing invoices using shared data (radical).
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## **C-section Practice Questions (with answers)**

### **Q1. Define throughput and cycle time with examples.**

Throughput is the number of units completed per time period, like 200 customer transactions per day. Cycle time is the total time for one unit to go from start to finish, like 15 minutes from placing an order to receiving it, including waiting and processing.

### **Q2. What is a bottleneck and how do you identify it?**

A bottleneck is the step that limits overall process output due to lowest capacity or highest time per unit. It can be identified by where queues build up, which step has the highest utilization, which stage has the longest service time, and by analyzing timestamps to find where most waiting occurs.

### **Q3. Explain why BPR prefers radical redesign over incremental changes.**

Incremental changes improve existing steps but keep the same structure, so core delays like handoffs, approvals, and duplication remain. BPR seeks dramatic performance improvements by removing non-value steps, combining tasks, redesigning roles, and using shared information so the process itself changes, not just its speed.

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## **Mini “Exam Question Bank” for Unit 1 (quick prompts your teacher can use)**

1. Define a process. Differentiate task vs process.
2. Explain division of labour and its impact on modern organizations.
3. Why do functional silos create inefficiency?

4. Explain value-adding vs non-value-adding steps with examples.
5. Define throughput, cycle time, lead time.
6. Identify bottleneck in a given scenario (short story).
7. Why is end-to-end thinking central to BPR?
8. Efficiency vs productivity: define + compare.
9. Why incremental improvements sometimes fail to improve overall performance?
10. Explain “processizing” and one risk of over-processizing.