# MIS 131: Information Systems Administration

## Part III: IS Operations

# Major Areas of ISD

## Application Development

Responsible for the development of different application systems used by the organization

## Operations

Responsible for the smooth running of the applications and ensuring that the data generated is accurate, reliable, timely, and relevant
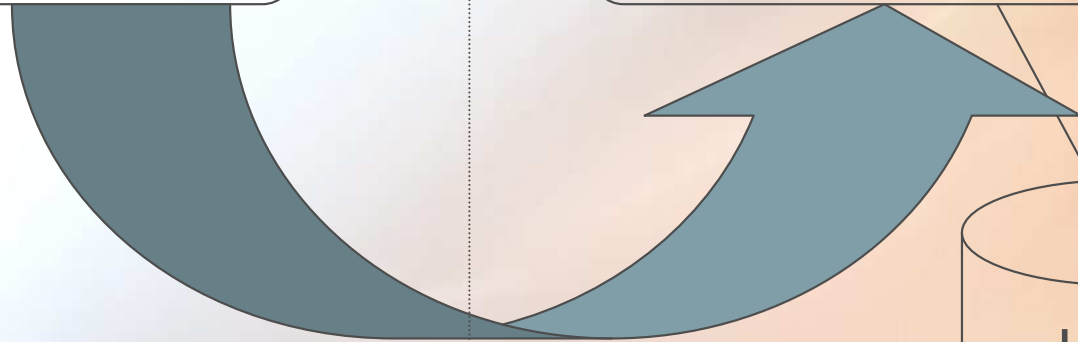
# Major Areas of ISD

**Application Development**

**Operations**

Development System

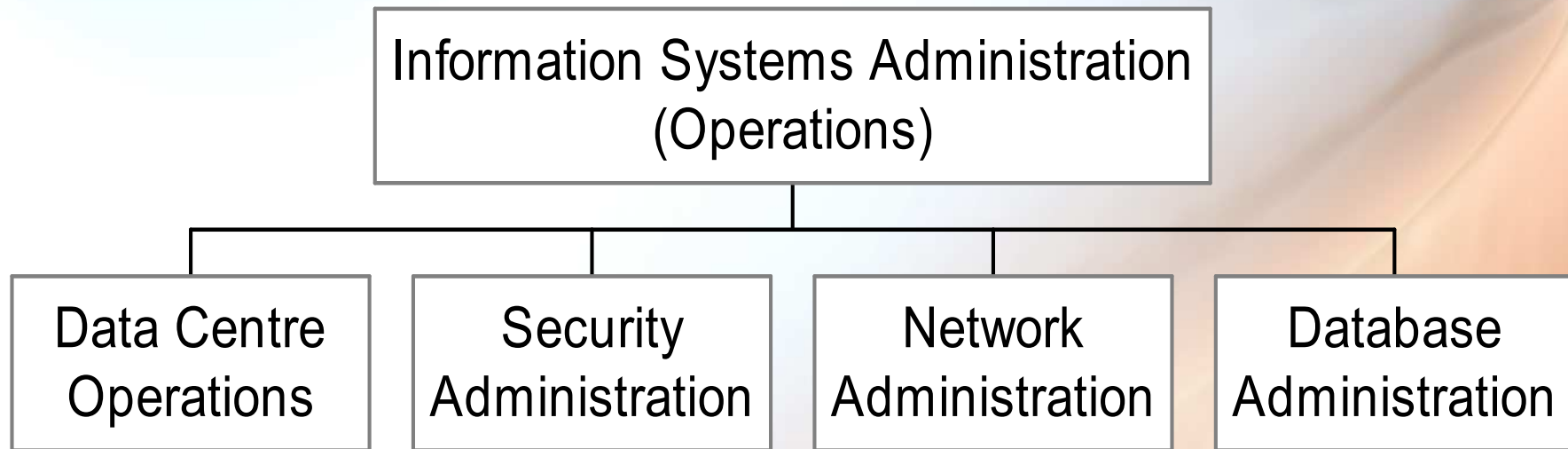Production System

Test Data

Live Data

# IS Administration

- **The effective and efficient management and administration of information systems to provide accurate, timely, reliable, and relevant information to an organization**
- **Effectiveness (doing the right thing)**
  - **Degree to which the right goals are achieved**
- **Efficiency (doing the thing right)**
  - **Measure of inputs (or resources) to achieve results**

# Structure of IS Operations

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                  │  Information Systems Administration  │
                  │             (Operations)             │
                  └─────────────────────────────────────┘
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┌───────────────┐ ┌───────────────┐ ┌───────────────┐ ┌───────────────┐
│  Data Centre  │ │   Security    │ │    Network    │ │   Database    │
│  Operations   │ │ Administration│ │ Administration│ │ Administration│
└───────────────┘ └───────────────┘ └───────────────┘ └───────────────┘
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# Common Responsibilities of IS Operations

- IT security
- Network management
- Software deployment
- Recovery management
- Storage management
- Service level monitoring
- Escalation procedures
- Helpdesk
- Performance management
- Capacity management and planning
- Configuration management

# Service Levels

- **The identification of a specific service provided and a measurable amount to determine if the service objective has been met**

# Service Level Agreement (SLA)

- Formal agreement regarding the division of computing responsibility between end users and the ISD and the expected services to be rendered by the latter

- Advantages
  - Reduces "finger-pointing"
  - Provides a structure for design and delivery of end-user services
  - Creates incentives for end-users to improve their computing practices

# Key Clauses in an SLA

- **Service definition**
- **Performance tracking**
- **Problem management**
- **Fees and expenses**
- **Customer duties**
- **Warranties and remedies**
- **Security**
- **Legal compliance**
- **Termination**

# SLA Performance Tracking

- A key part of an SLA deals with monitoring and measuring service level performance

- Each service level must be measurable

- Service performance level must be reviewed regularly by both parties

# SLA Termination

- A SLA should include a means to end the agreement
- Covers compensation in the event of agreement termination

# Sample SLA

| Problem Priority | Status | Impact |
|---|---|---|
| Priority 1 | Mission critical | Serious financial impact |
| Priority 2 | Extremely urgent | Significant financial impact |
| Priority 3 | Urgent | Medium financial impact |
| Priority 4 | Medium priority | Minimal financial impact |
| Priority 5 | Low Priority | No financial impact |

### 4.3. Problem Escalation

To ensure that the Client receives senior management attention on unresolved issues, the Supplier operates a problem escalation procedure in order that any unresolved problems are notified to the Suppliers operational and management personnel on a priority basis dependent upon the severity of the problem. There are five levels of Problem Priorities and three levels of escalation. This escalation process is specified in Schedule I to this Agreement.

## 5. COMPENSATION

### 5.1. Professional Fees

The professional fees payable for performing either the Standard Services or the Non-standard Services are to be in accordance with the basis as defined in Schedule J to this Agreement.

### 5.2. Reimbursable expenses

Reimbursable expenses mean agreed incidental services reasonably incurred by the Supplier in performing its obligations, plus a 10% administrative fee. Expenses that may be considered as reimbursable are stated in Schedule J to this Agreement.

### 5.3. Invoices

The Supplier will submit invoices to the client for professional fees and reimbursable expenses on a monthly basis in arrears. Each invoice will clearly state the work performed, hours worked and reimbursable expenses incurred.

### 5.4. Payment terms

All fees and expenses are to be paid to the Supplier, in the currency of the invoice, by telegraphic transfer of funds to the account designated by the Supplier. All invoices are payable within 30 days from the date of the invoice. Any amounts disputed in good faith may be deducted from the invoice and the remainder must be paid by the due date. The disputed amount should be notified in writing to the Supplier within 15 days of receipt of the invoice giving the reasons for withholding payment. Upon receipt of the Client's dispute notice, the Supplier and Client will work

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together in good faith to resolve such disputes in a prompt and mutually acceptable manner. The Client agrees to pay any disputed amounts within 5 days once the issues have been resolved.

### 5.5. Taxes

The Client agrees to pay directly or reimburse the Supplier for any taxes directly arising directly out of this Agreement excluding any taxes on the Suppliers income.

### 5.6. Interest for late payment

If the invoice is not settled within 30 days from receipt of invoice, the Supplier may add an interest and administrative charge of 1.5% of the invoice amount per month.

## 6. CUSTOMER DUTIES AND RESPONSIBILITIES

### 6.1. Processing and authorisation of invoices

The Client undertakes to process and settle invoices by the due dates.

### 6.2. Client personnel, facilities and resources

The Client will ensure the Supplier has timely access to appropriate Client personnel and will arrange for the Supplier personnel to have suitable and safe access to the Client's facilities and systems. The Client will also provide suitable office space and associated resources for Supplier personnel working on-site including all necessary computing and office support resources.

### 6.3. Training on specialised equipment or tasks

The Client will ensure that all Client personnel who work on the Supplier's systems or equipment are adequately qualified and receive suitable training both to ensure the safety of the Client's personnel and to safeguard the Suppliers systems or equipment.

### 6.4. Approvals and information

The Client will respond promptly, and in any case, within five working days, to any Supplier requests to provide direction, information, approvals, authorisations or decisions that are reasonably necessary for the Supplier to perform the services.

# Escalation Procedures

- **The identification of how a problem will be escalated up the support structure of ISD and the timeframe if the problem remains unresolved at a lower level**

# Defining Escalation Procedures

- Identify who receives the request for the service
- Identify who will resolve the problem and how long it will take
- Identify next levels of support and how long it will take to resolve at each level
- Publish the procedure

# Help Desk

- **Pool of IT staff trained to respond to user inquiries, problems, and other requirements**

- **Help Desk can be tied up with Trouble Reporting Procedures, Change Management etc.**

- **Often the first point of contact between users and ISD personnel**

# Performance Management

- **The tool for defining, planning, measuring, analyzing, reporting, and improving the performance of hardware, operating systems, application programs, and system services**

- **Method**
  - **Performance definition**
  - **Performance planning**
  - **Measuring performance**
  - **Analyzing measurements**
  - **System tuning**

# Capacity Management and Planning

- **The periodic process of planning and controlling of system resources needed to satisfy users' current and future needs.**

- Capacity analysis
  - Determines current needs

- Capacity planning
  - Determine future requirements that take into account business growth, new application services, and improved service levels

# Configuration Management

- **Management of the various configurations of the hardware and software components within the technical environment**

- **Hardware**
  - **May be a database containing information about workstations, servers, and other equipment on the network**

- **Software**
  - **Provides a history such as date of installation of the software, dates of changes to the software, version numbers, etc.**

# Operational Measures

- **External measures**
  - **What customers see (e.g. response time, turnaround time, program failure)**

- **Internal measures**
  - **Of interest only to IS (e.g. disk storage utilization, age of applications, number of unresolved problems, etc.)**

# Operations: The Neglected Aspect

- **Emphasis on development justifies expenditures on development tools**
- **Operations inevitably account for the majority of IT spending**
- **Thus, there is greater opportunity for reducing total IT costs via savings in operations**
- **Minimizing downtime translates to reduced costs**

# Outsourcing

- **Process of turning over a firm's computer operations and similar functions to a vendor for a specified time**

- **Not only a IT issue but a business issue**

- **Part of the need for focus and value**

- **Need to achieve more efficient operations**

# Reasons to Outsource

- **Lack of manpower**
- **Lack of technical know-how**
- **Small operations**
- **Cheaper**
- **Convenience**
  - **Manpower can be optimized by concentrating on other tasks**

# Concerns in Outsourcing

- **Security**
- **Loss of control**
- **Access to confidential information by outsiders**
- **Differences in philosophy between outsourcing company and the organization**
- **May prove to be more expensive**