Acquisition of Management Information Systems
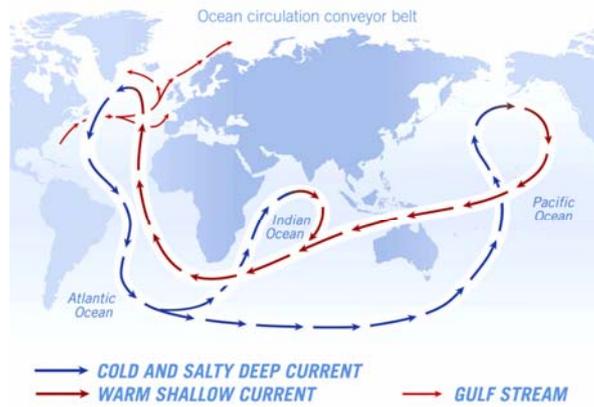
Management Information Systems

08

- 166137-01+02
- Management Information Systems
- Spring 2014
- Sync Sangwon Lee, Ph. D
- D. of Information & Electronic Commerce
- WONKWANG University

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00. Contents

- 01. Acquisition of Management Information Systems
- 02. Methodology
- 03. Development Model of Management Information Systems
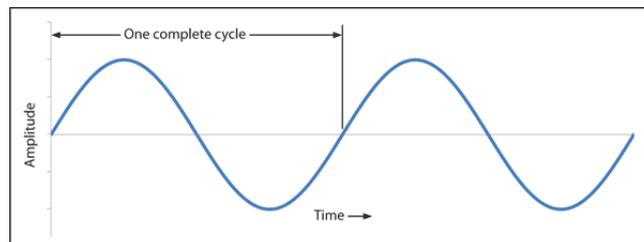
03. Development Model of Management Information Systems

• Circulation

http://www.earthzine.org

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03. Development Model of Management Information Systems

• Cycle

03. Development Model of Management Information Systems

• Life Cycle

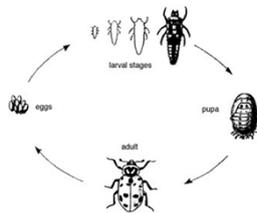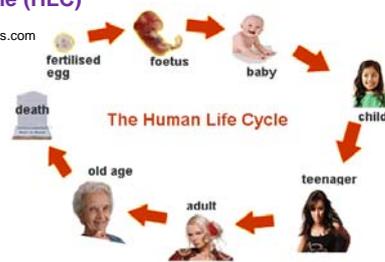**Product Life Cycle (PLC)**

http://www.mrgoodacre.com
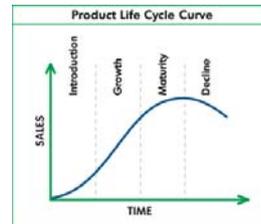
Biological Life Cycle (BLC)

http://biocontrol.entomology.cornell.edu

Human Life Cycle (HLC)

http://www.alltoptens.com

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03. Development Model of Management Information Systems

• Types of Development Model of Management Information Systems

Types of Development Model of Management Information Systems

Traditional

Waterfall Model - System Development Life Cycle (SDLC)

Prototyping Model

Spiral Model

Miscellaneous

- **Rapid Application Development (RAD)**
- **Joint Application Design (JAD)**
- **Object-oriented Development (OOD)**
- **Component-based Development (CBD)**
- **Enterprise Resource Planning (ERP)**
- **End User Development (EUD)**
- **Application Service Providers (ASP)**

03. Development Model of Management Information Systems

- Types of Development Model of Management Information Systems

Waterfall Model: System Development Life Cycle (SDLC)

Information Technology for Management, E. Turban

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03. Development Model of Management Information Systems

- Types of Development Model of Management Information Systems

Waterfall Model: System Development Life Cycle (SDLC)

http://en.wikipedia.org
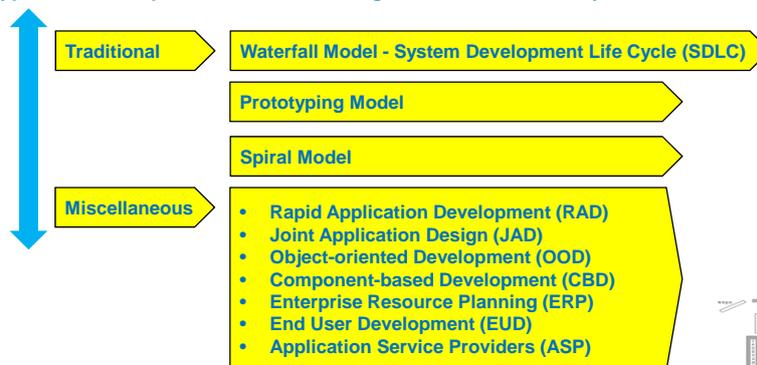
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03. Development Model of Management Information Systems

- Types of Development Model of Management Information Systems

Prototyping Model: Prototype

http://www.smashingmagazine.com

03. Development Model of Management Information Systems

- Types of Development Model of Management Information Systems

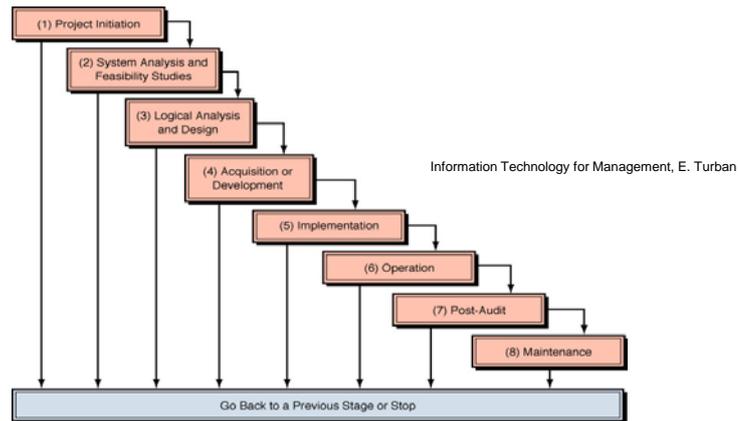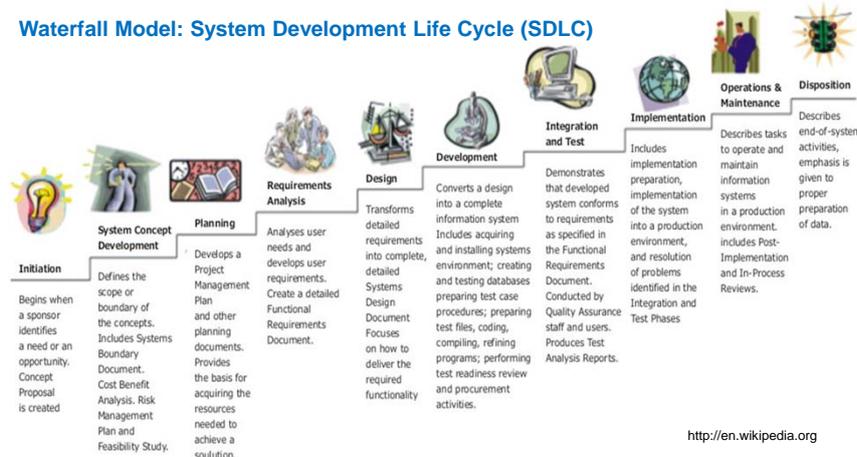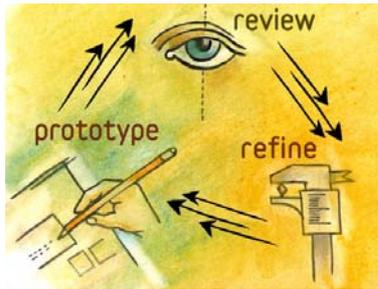**Spiral Model = Waterfall Model + Prototyping Model**

http://www.ultimatesdlc.com
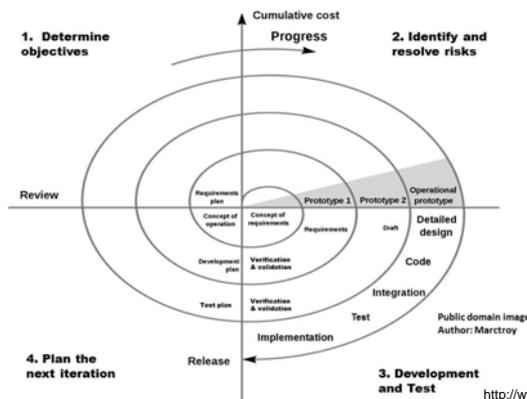
03. Development Model of Management Information Systems

• Barns & Dennis Application Development Methodology
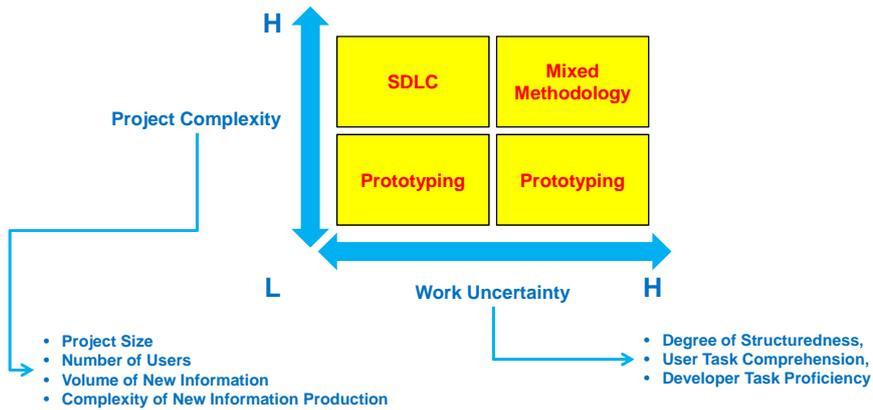
H

Project Complexity

SDLC	Mixed Methodology
Prototyping	Prototyping

L   H

Work Uncertainty

• Project Size
• Number of Users
• Volume of New Information
• Complexity of New Information Production

• Degree of Structuredness,
• User Task Comprehension,
• Developer Task Proficiency

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03. Development Model of Management Information Systems

• Approaches of Methodology

Approaches of Methodology

Flow Methodology
• System Flow Chart
• Program Flow Chart

Structured Methodology
• Structured English
• Decision Tree
• Decision Table

Object-Oriented Methodology
• Object-Oriented Development
• Component-Based Development
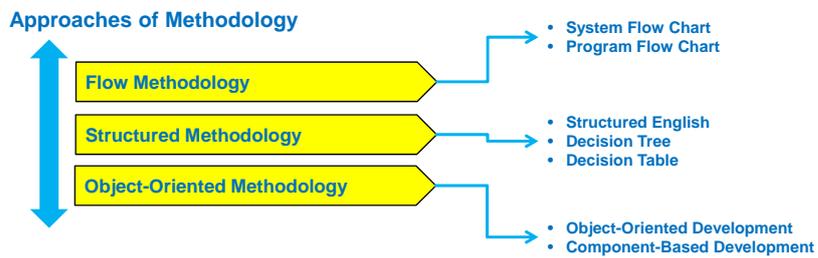
03. Development Model of Management Information Systems

- Approaches of Methodology
  - Examples of Tools

- **Hierarchy, Input, Process and Output (HIPO)**

- **Flow Chart (FC)**

- **HIPO Functional Diagram for monthly Invoice Processing Case**

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03. Development Model of Management Information Systems

- Approaches of Methodology
  - Examples of Tools

- **Structured English**

- **Decision Table**

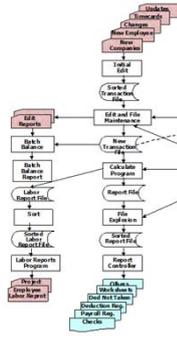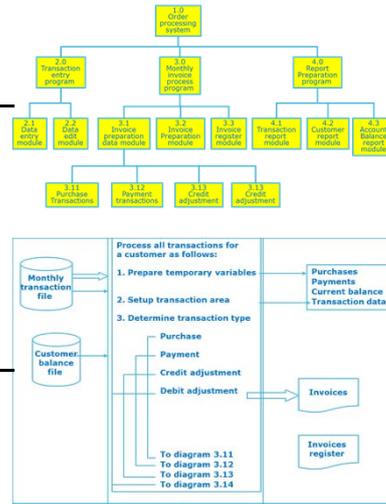| CONDITIONS	RULES			
	1	2	3	4
1. Invoice > $500	Y	N	Y	N
2. Account overdue by 60 + days	Y	Y	N	N
ACTIONS				
1. Issue Confirmation	N	Y	Y	Y
2. Issue Invoice	N	Y	Y	Y
3. Msg to C.A.R.	N	Y	N	N

Policy For Invoice Processing

If the amount of the invoice exceeds $500

    If the account has any invoice more than 60 days overdue, hold the

      confirmation pending resolution of the debt.

    Else (account is in good standing), issue confirmation and invoice.
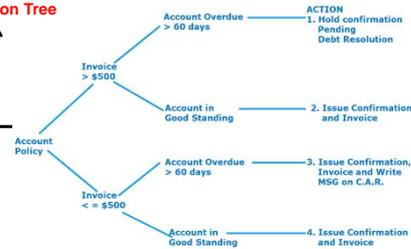
Else (invoice $500 or less).

    If the account has any invoice more than 60 days overdue, issue

      confirmation, invoice and write message on the credit action report.

    Else (account is in good standing), issue confirmation and invoice.

- **Decision Tree**

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03. Development Model of Management Information Systems

• Approaches of Methodology
  • Structured Methodology

Factors of Structured Methodology

Abstraction
- • **Summary, Simplification**
- • **Understanding the Intrinsic Nature of Problem**

Formality
- • **Documentation**
- • **Mathematical Strictness**

Divide and Conquer
- • **As a Means for Dissolving Complexity**
- • **One thing at a time**

Hierarchical Ordering
- • **Segmentation with Phases**

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03. Development Model of Management Information Systems

• Approaches of Methodology
  • Structured Methodology

Factors of Structured Methodology

Abstraction

Formality

Divide and Conquer

Hierarchical Ordering

http://masters.donntu.edu.ua

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03. Development Model of Management Information Systems

• Approaches of Methodology
  • Structured Methodology

3 Phases of Structured Modeling
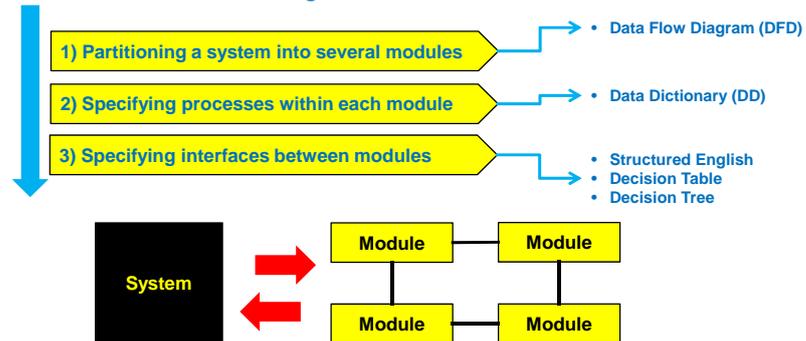
1) Partitioning a system into several modules → • Data Flow Diagram (DFD)

2) Specifying processes within each module → • Data Dictionary (DD)

3) Specifying interfaces between modules → • Structured English
• Decision Table
• Decision Tree

System

Module — Module

Module — Module

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03. Development Model of Management Information Systems

• Approaches of Methodology
  • Structured Methodology

Divide and Conquer

Module (= Subsystem)

Mutually Exclusive and Collectively Exhaustive (MECE)

人間全体 | 男性 | 女性 | MECE

人間全体 | 男性 | 女性 / 子供 | 重なりがあり MECEでない

人間全体 | 男性 | 既婚女性 | 漏れがあり MECEでない

http://www.leadershipinsight.jp

03. Development Model of Management Information Systems

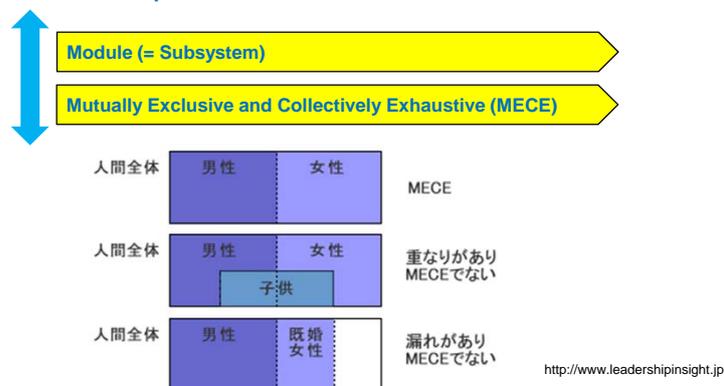- Approaches of Methodology
  - Structured Methodology

Advantages

Easy to maintain

Easy to be understood

Easy to be tested module-by-module in a top-down fashion

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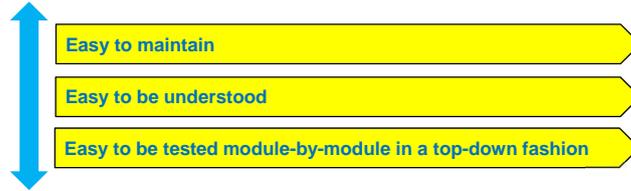
03. Development Model of Management Information Systems

- Maintenance

Types of Maintenance (Swanson)

Adaptive Maintenance → • **Coping with changed requirements**

Corrective Maintenance → • **Removing errors**

Prefecture Maintenance → • **Eliminating inefficiencies**

→ • **Highly frequent in corrective maintenance**
• **High cost in adaptive, prefecture maintenance**
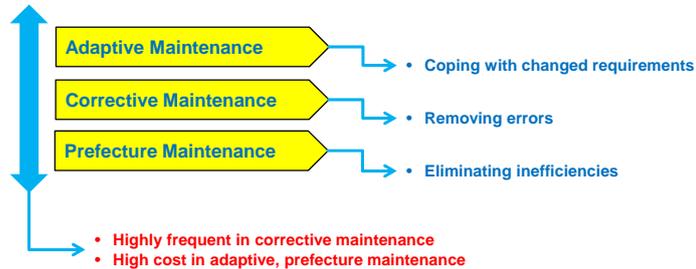
03. Development Model of Management Information Systems

• Maintenance

Why is the Maintenance Difficult? (Edwards)
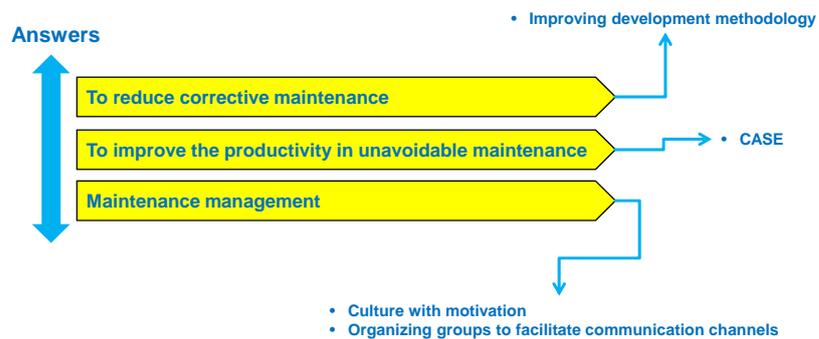
- Intellectually Difficult
- Technically Difficult
- Unfair
- No Win, No Glory
- Lives in the Past

• **Patch Syndrome**

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03. Development Model of Management Information Systems

• Maintenance

Answers

- To reduce corrective maintenance
- To improve the productivity in unavoidable maintenance
- Maintenance management

• Improving development methodology

• CASE

• Culture with motivation
• Organizing groups to facilitate communication channels

03. Development Model of Management Information Systems

- Computer-Aided Software Engineering (CASE)
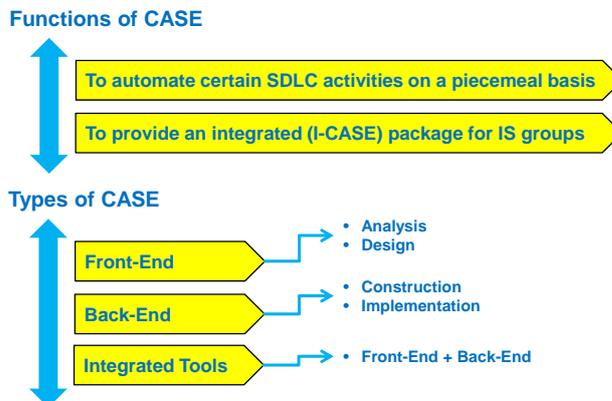 - = A tools that is marketed as individual items or in a set (toolkit) that automates various aspects of the development process

http://visual-paradigm.ab-archive.net

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03. Development Model of Management Information Systems

- Computer-Aided Software Engineering (CASE)

Functions of CASE

> To automate certain SDLC activities on a piecemeal basis

> To provide an integrated (I-CASE) package for IS groups

Types of CASE

- **Front-End** → • Analysis
                    • Design
- **Back-End** → • Construction
                   • Implementation
- **Integrated Tools** → • Front-End + Back-End

03. Development Model of Management Information Systems

• Computer-Aided Software Engineering (CASE)

Components of CASE

Diagramming Tools

Centralized Information Repository (DD)

Interface Generator → • **for mockup prototype**

Code Generator → • **75% perfect**

Management Tools

→ • **Reverse Engineering**