

University of Pisa

MSc in Computer Engineering

Systems for Strategic Management and Support

LECTURE 5

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BASIC ONTOLOGY FOR PROCESS ORIENTATION APPROACH

- S059 A **business process** is a collection of interrelated **activities**, initiated in response to a triggering **event**, which achieves a specific, discrete **result** for the **customer** and other stakeholders of the process
- S060 An **activity** is work that might be named as a single unit but can involve multiple actors, each separately making a contribution
- S061 A **task** is an actionable item that needs to be performed to complete an activity. An activity may consist of more tasks
- S062 A **step** is work typical done by one (or cooperating) actors at a point in time
- S063 A **result** is an individually identifiable and countable entity
- S064 A **customer** is the recipient or beneficiary of the result (person, organization, broad marketplace,...)
- S065 An **event** is an action, a date or time reached, a condition (rule).

FRAMEWORKS AS A STANDARD FORMAT TO DESIGN PROCESS

S066

A **framework** in general is a particular set of rules, ideas or beliefs for discovering, organizing, and presenting ideas or information

S067

For example, The “three Ts” (Topic, Target, Timeframe) is a simple framework to state clear and actionable objectives.

Let us apply “3T” to a vague goal such as “Improving customer service” in a telephone company:

Topic: telephone hold time for calls to the customer service line;

Target: 60 seconds or less in 98 percent of the time;

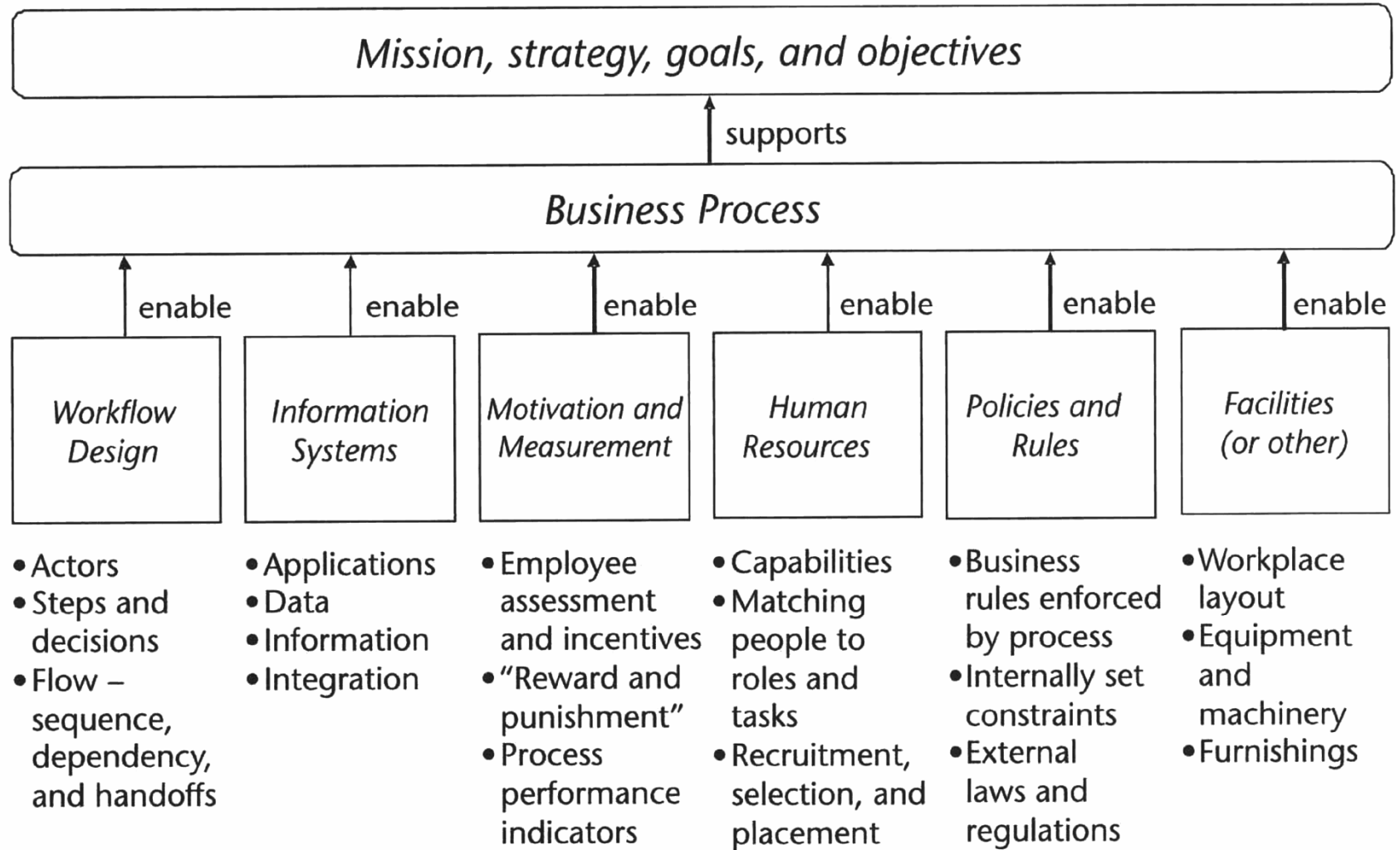
Timeframe: within 45 days.

A FRAMEWORK FOR PROCESS ENABLERS

- S068 A **process enabler** is a factor that can be adjusted to impact process performance
- S069 The two enablers that are studied in the Course are **workflow design** and **Information Systems**
- S070 A process is supported by 6 enablers in the complete framework:
- | | |
|---------------------------------------|---|
| [1] Workflow design | [2] Information Systems |
| [3] Motivation and measurement | [4] Human resources |
| [5] Policies and rules | [6] Facilities design (or other) |
- S071 A process does not work optimally if one or more enabler is not fine, e.g., [1]+[2] have little impact with untrained personnel [4]

A FRAMEWORK FOR PROCESS ENABLERS

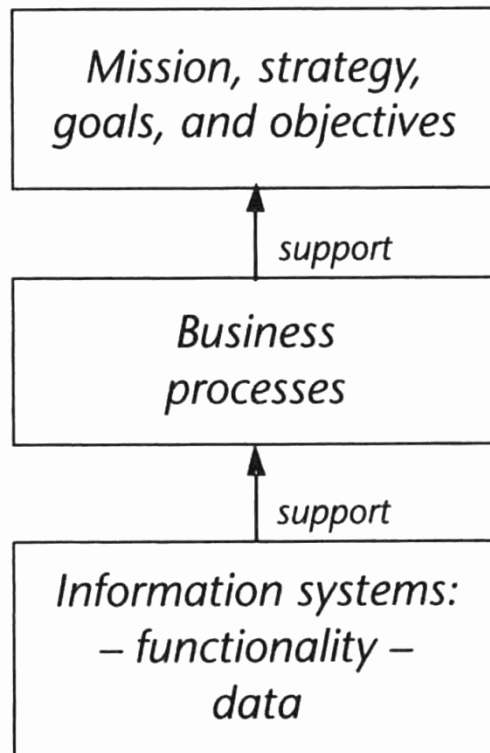
S072



A process is supported by six enablers.

A FRAMEWORK FOR PUTTING PROCESSES WITH INF. SYSTEMS

S073 The **three-layer** framework



Context for Business Processes
and Information Systems

The **mission** is the essential nature of the business, “what we do, who we do it for, how we do”

The **strategy** is a mission refinement and describes how an enterprise differentiates its products and services (e.g., low price, customization)

Objectives are measurable, intermediate destinations, whereas **goals** are end states

A FRAMEWORK FOR PROCESS-DRIVEN APPROACH

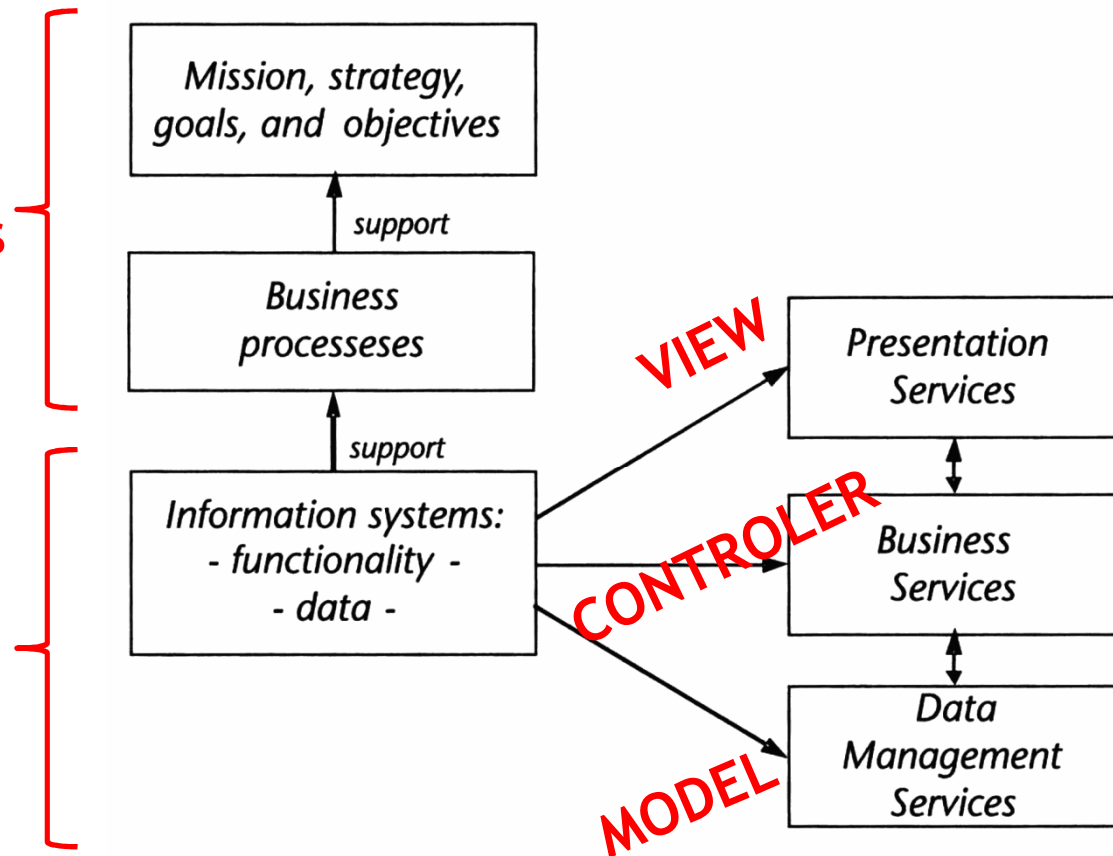
S074

An **I.S.** is made of layers (tiers) of interacting components

The focus of the Course is on the first two layers

We will also study how **process-driven approach** supports the specification and the building of I.S.

The extended **five-layer** framework



The three-tier information systems architecture.

A FIVE-TIER FRAMEWORK FOR BP ANALYSIS WITH SOME STANDARDS

S075

	Framework Layer	What it covers...	The Technique	
Business focus	<i>Business Objectives</i>	The mission, strategies (customers / markets, products / services, differentiators), goals, objectives, and measures (e.g., Key Performance Indicators) for the organization. (MSGO – Mission, Strategies, Goals, Objectives).	<i>Project Charter</i>	PLM
	<i>Business Process</i>	The activities the business carries out in order to meet its objectives. Includes the actors involved, the sequence of steps they carry out (workflow), and the result(s) produced.	<i>Workflow Modeling</i>	BPMN
Systems focus	<i>Presentation Services</i>	A mechanism through which an actor in a business process interacts with a system. Usually a GUI (graphical user interface) and reports, but could involve scanners, IVR (telephone) systems, etc.	<i>Use Cases</i>	UML
	<i>Business Services</i>	A “service” offered by a system – a specific function. Includes the business rules and data updates it is responsible for. Requires Event Analysis, State Transition Analysis, etc.	<i>Service Specification</i>	UML OCL SWRL
	<i>Data Management Services</i>	Files and databases that provide a system’s record-keeping functions. Determines the things a system “knows” about and the data that is maintained about those things. Data Models establish the language and basic rules for all other requirements.	<i>Data Modeling</i>	UML ERM OWL

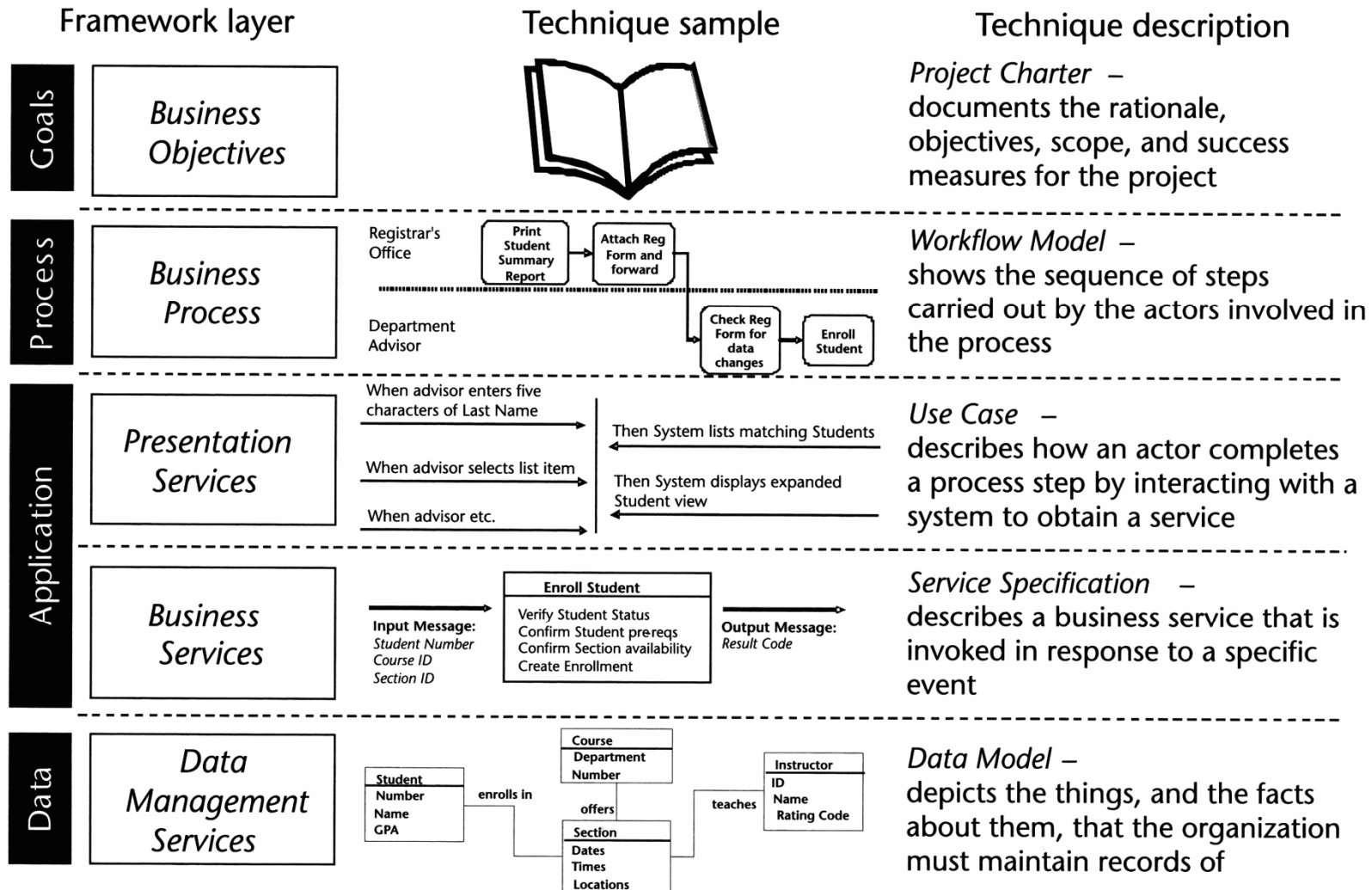
A five-tier framework for business analysis.

MODELS IN GENERAL

- S076 A **model** is an abstract representation of a class of phenomena.
- S077 **Iconic model**, e.g., aircraft or GUI mockup, resembles the physical/logical object it represents
- S078 **Mathematical/symbolic model**, e.g., weather, is not intended to look like the physical/logical object it represents, but some behavioral property of it
- S079 Successful models must:
- Be an abstraction of something (e.g. the flow of work) that cannot be directly observed
 - Highlight particular facets, masking unnecessary details (information hiding)
 - Employ conventions for progressive levels of detail
 - Use the minimum number of elements for studying the phenomenon

MODELING TECHNIQUES FOR THE BP ANALYSIS FRAMEWORK

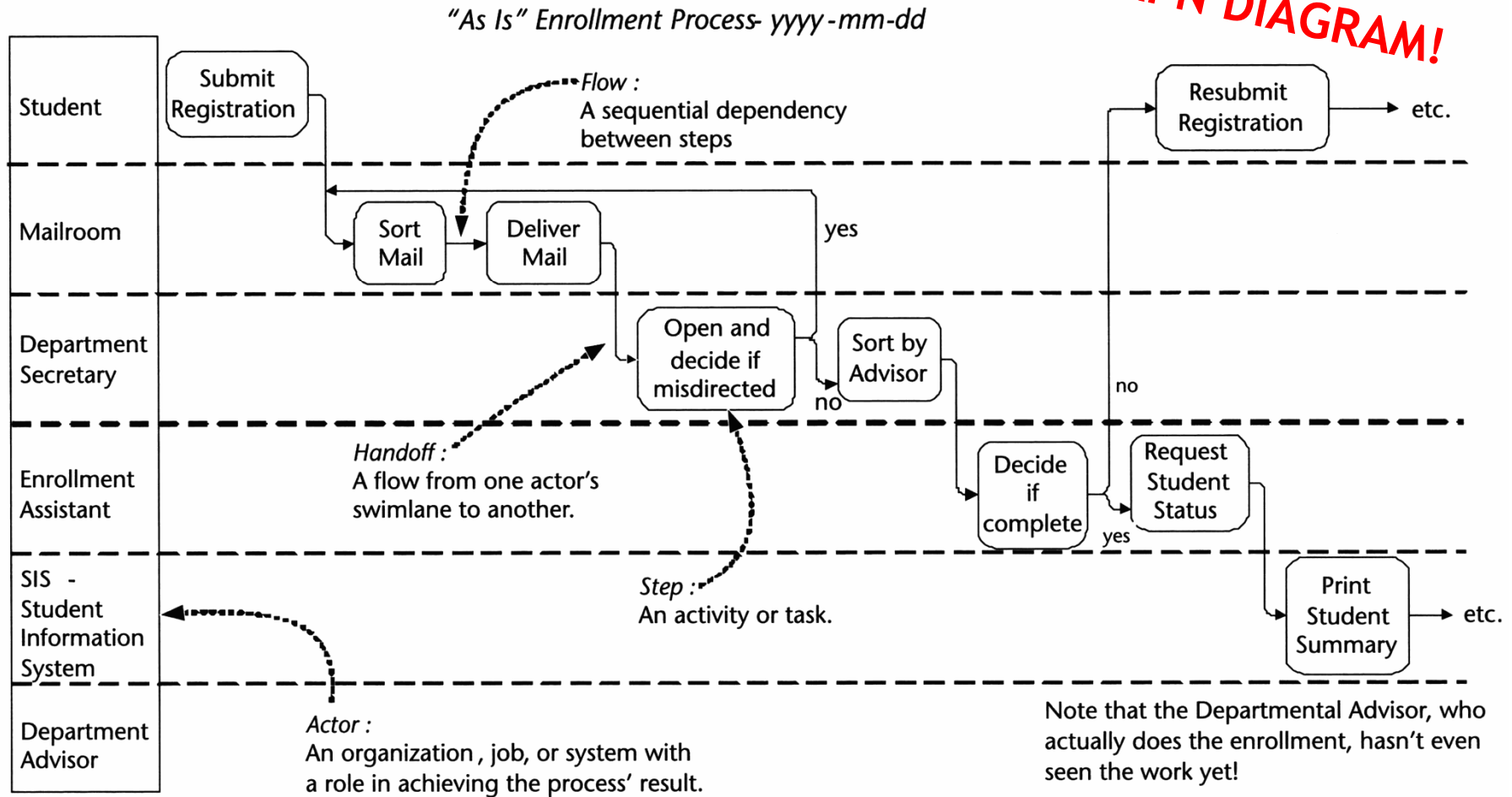
S080



The business analysis framework and corresponding modeling techniques.

A PROCESS WORKFLOW MODEL

WAIT, THIS IS A BPMN DIAGRAM!



A workflow process model or swimlane diagram.

BUSINESS VS. TECHNICAL MODELING

- S081 A **business model** uses only core symbols of the BPMN.
- S082 A **technical model** can use more specific BPMN symbols, and it is best suited for drawing specification level or technical (executable) workflow models, for configuring an automated workflow facility or a BP Management System (BPMS)

An example of BPMS: **Webratio**



EXERCISE, BUILD AN EXPENSE REPORT SYSTEM VIA WEBRATIO BPM

Technical model:

