

BUSINESS PROCESS MANAGEMENT

A prerequisite for Operational Excellence

Compiled for educational purposes by Dr. D. Stamoulis

- ▶ “a set of logically related tasks performed to achieve a defined business outcome”.
- ▶ "**a structured, measured set of activities** designed to produce a specified output for a particular customer or market. It implies a strong emphasis on how work is done within an organization"

Davenport 1993

WHAT IS A BUSINESS PROCESS?

■ Hammer & Champy [1993]

- “a **collection of activities** that takes one or more kinds of input and **creates an output** that is of **value to the customer.**”

■ Davenport [1992]

- “a **structured, measured set of activities** designed to produce a specific output for a particular customer or market. It implies a **strong emphasis on how work is done** within an organization, in contrast to a product focus’s emphasis on what. A process is thus a **specific ordering of work activities across time and space, with a beginning and an end, and clearly defined inputs and outputs**: a structure for action. ... Taking a process approach implies adopting the customer’s point of view. Processes are the structure by which an organization does what is necessary to produce value for its customers.”

■ Modeling Business Processes

- You understand **what is happening** in your organization.
- You understand **who is responsible** for certain tasks.
- You understand **which resources** are involved.

■ Simulating Business Processes

- You understand **how your processes** could be optimized.
- You can **identify bottlenecks, dead locks, waste of time and resources**.

■ Executing Business Processes

- You can **automate** parts of your business processes.
- You can **implement changes** to your processes **as you go**.

■ Monitor Business Processes

- You can get a **health status** of your organization in **real time**.

■ Optimize Business Processes

- You can **continuously improve** your organization's processes.

- ▶ **Entities:** Processes take place between organizational entities. Sometimes called Roles
 - ▶ *customer, help desk, sales point, warehouse, ...*
 - ▶ *Committees, meetings, computers as Entities (Roles)*
- ▶ **Objects** (Physical or Informational): Processes result in manipulation of objects.
 - ▶ *Data, goods, payments, invoices, reports, terms of reference, documents... (sometimes called Entities) Can be inputs/outputs of activities.*
- ▶ **Activities:** what actors do in their roles. E.g. carry out a clinical test; prepare submission to regulatory authority etc.
 - ▶ types of activities:
 - ▶ *Strategic (e.g. a business plan)*
 - ▶ *Managerial (e.g. develop a budget) and*
 - ▶ *Operational (e.g. fill a customer order).*
 - ▶ *Support (e.g. satisfy internal customer needs)*

3-D DEFINITION OF A PROCESS

- ▶ **FLOW**: methods for transforming input into output
- ▶ **EFFECTIVENESS**: degree of meeting customer expectations
- ▶ **EFFICIENCY**: degree of resources optimization
- ▶ **CYCLE TIME**: time for the transformation of input into output
- ▶ **ECONOMY**: expense of the entire process
- ▶ **STATUS**: started, paused, completed/delivered etc.

CHARACTERISTICS OF A PROCESS

- ▶ **Function Modeling Method** - IDEF \emptyset is a method designed to model the decisions, actions, and activities of an organization or system.
- ▶ **Information Modeling Method** - IDEF1 was designed as a method for both analysis and communication in the establishment of requirements.
- ▶ **Process Description Capture Method** - The IDEF3 Process Description Capture Method provides a mechanism for collecting and documenting processes.

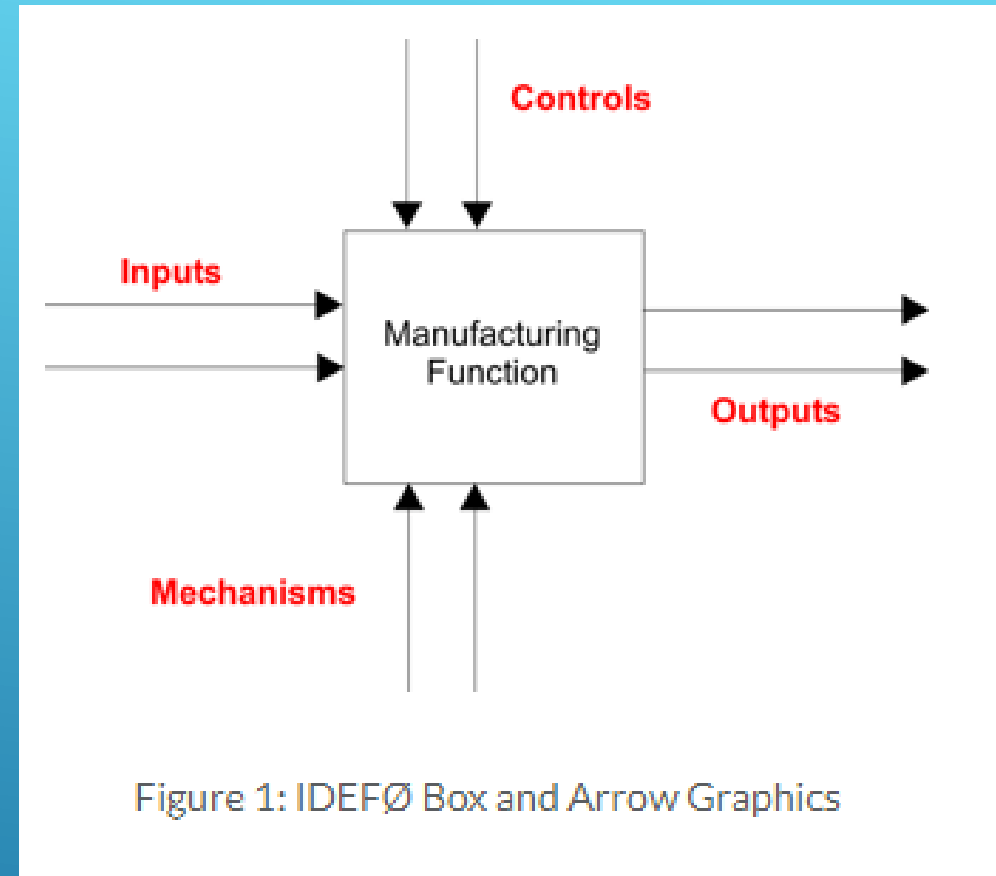


Figure 1: IDEF \emptyset Box and Arrow Graphics

- ▶ **Definition:** IDEF is the common name referring to classes of **enterprise modeling languages**.
- ▶ **Objective:** IDEF is used for modeling activities necessary to support system analysis, design, improvement or integration.
- ▶ **Originally,** IDEF was developed to enhance communication among people trying to understand the system. Now, IDEF is being used for documentation, understanding, design, analysis, planning, and Integration.

IDEFO	Function modelling
IDEF1	Information modelling
IDEF1X	Data modelling
IDEF2	Simulation model design
IDEF3	Process description capture
IDEF4	Object-oriented design
IDEF5	Ontology description capture
IDEF6	Design rationale capture
IDEF7	Information system auditing
IDEF8	User interface modelling
IDEF9	Business constraint discovery
IDEF10	Implementation of architecture modelling
IDEF11	Information artefact modelling
IDEF12	Organization modelling
IDEF13	Three schema mapping design
IDEF14	Network design

WHAT IS IDEF?

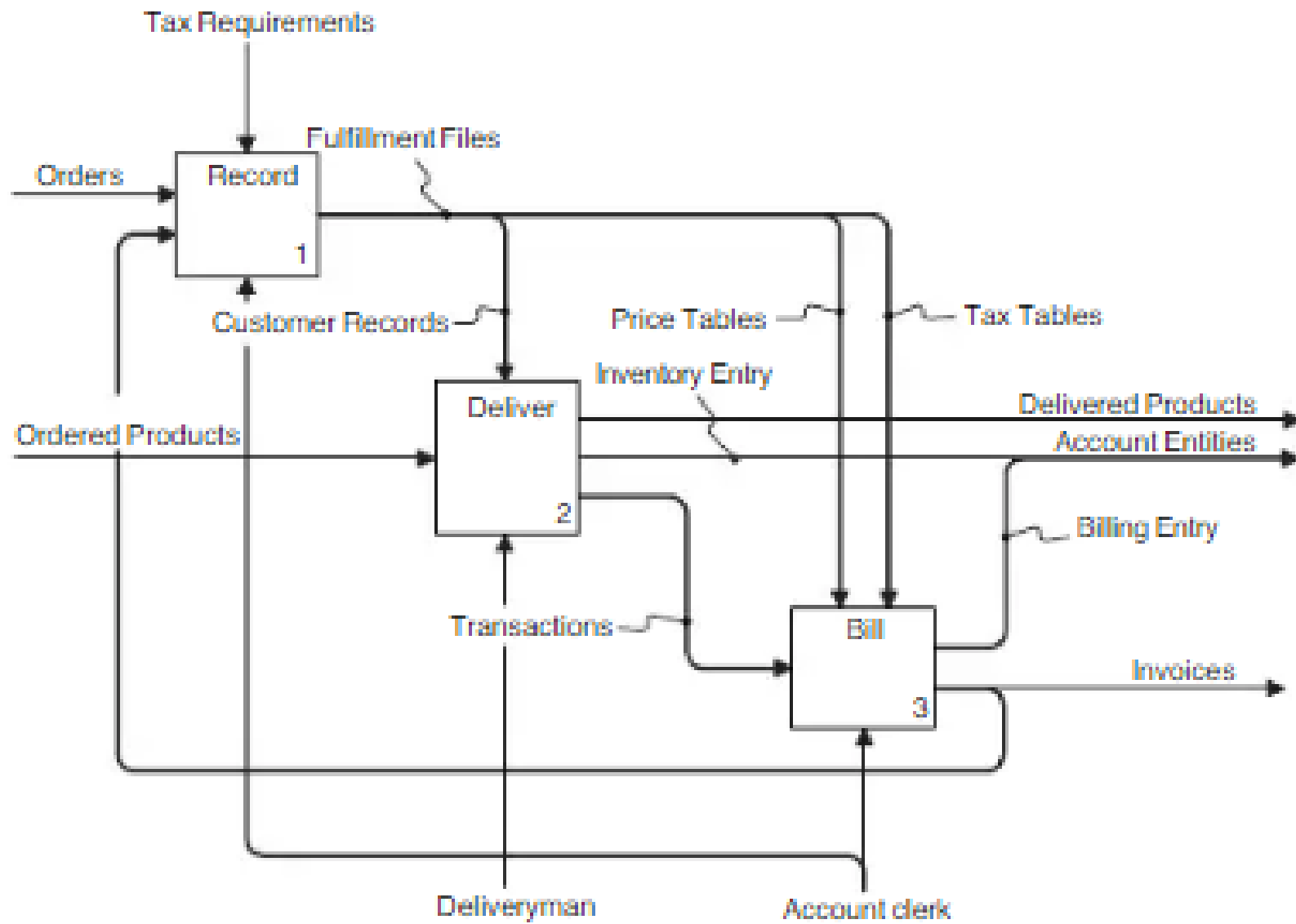
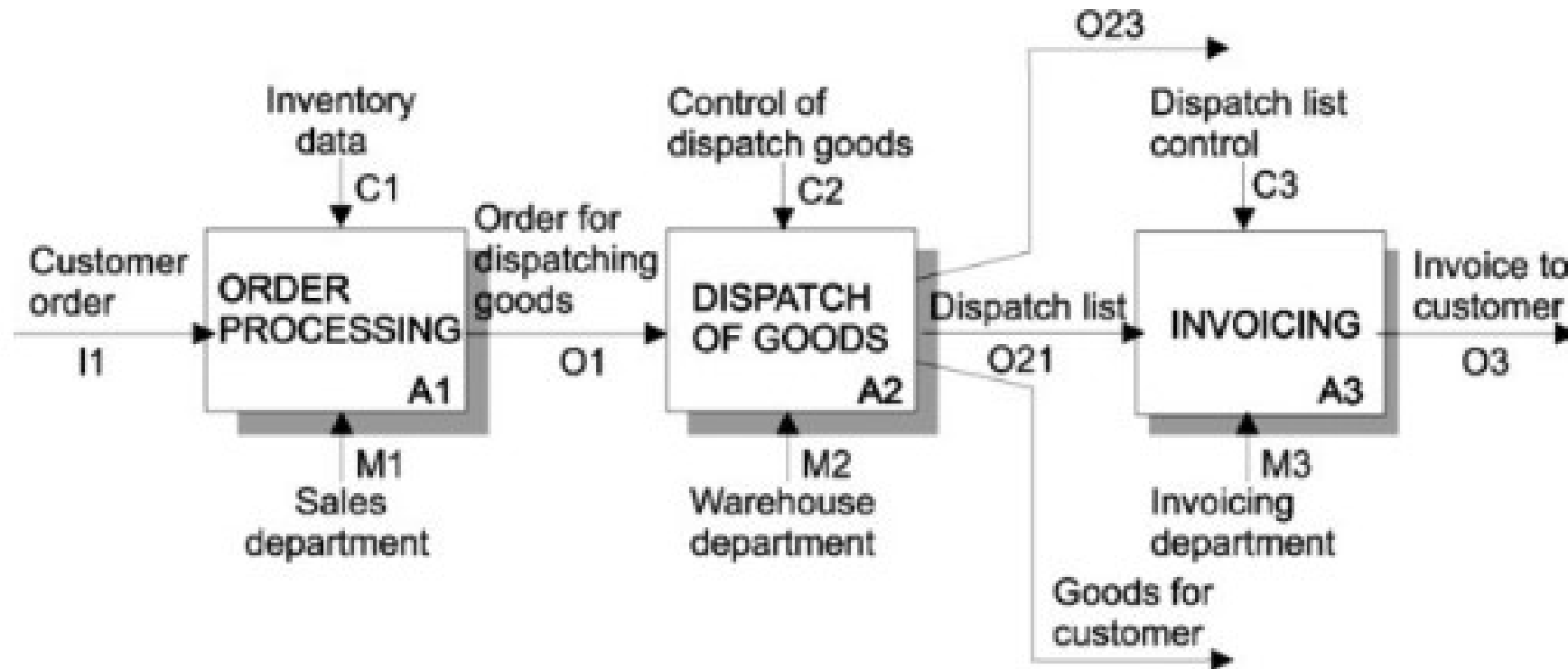
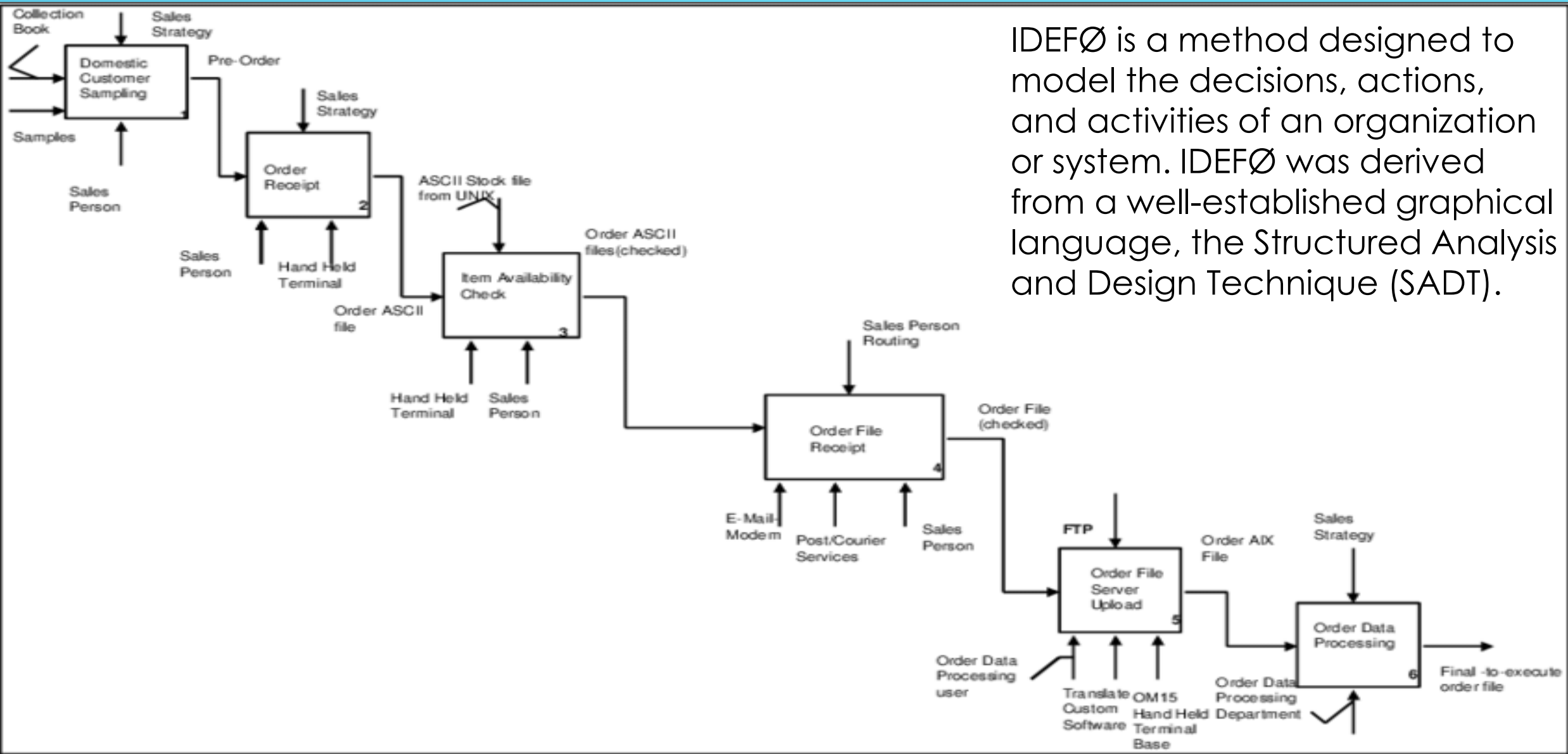


Fig. 3. An IDEF0 diagram

► A high level order fulfillment process





IDEF0 is a method designed to model the decisions, actions, and activities of an organization or system. IDEF0 was derived from a well-established graphical language, the Structured Analysis and Design Technique (SADT).



- ▶ *CREATE AN IDEF0 DIAGRAM SHOWING THE BUSINESS PROCESS OF TAKING AND PASSING SUCCESSFULLY THIS COURSE*
 - ▶ *10 minutes to prepare and then present!*

IN CLASS EXERCISE

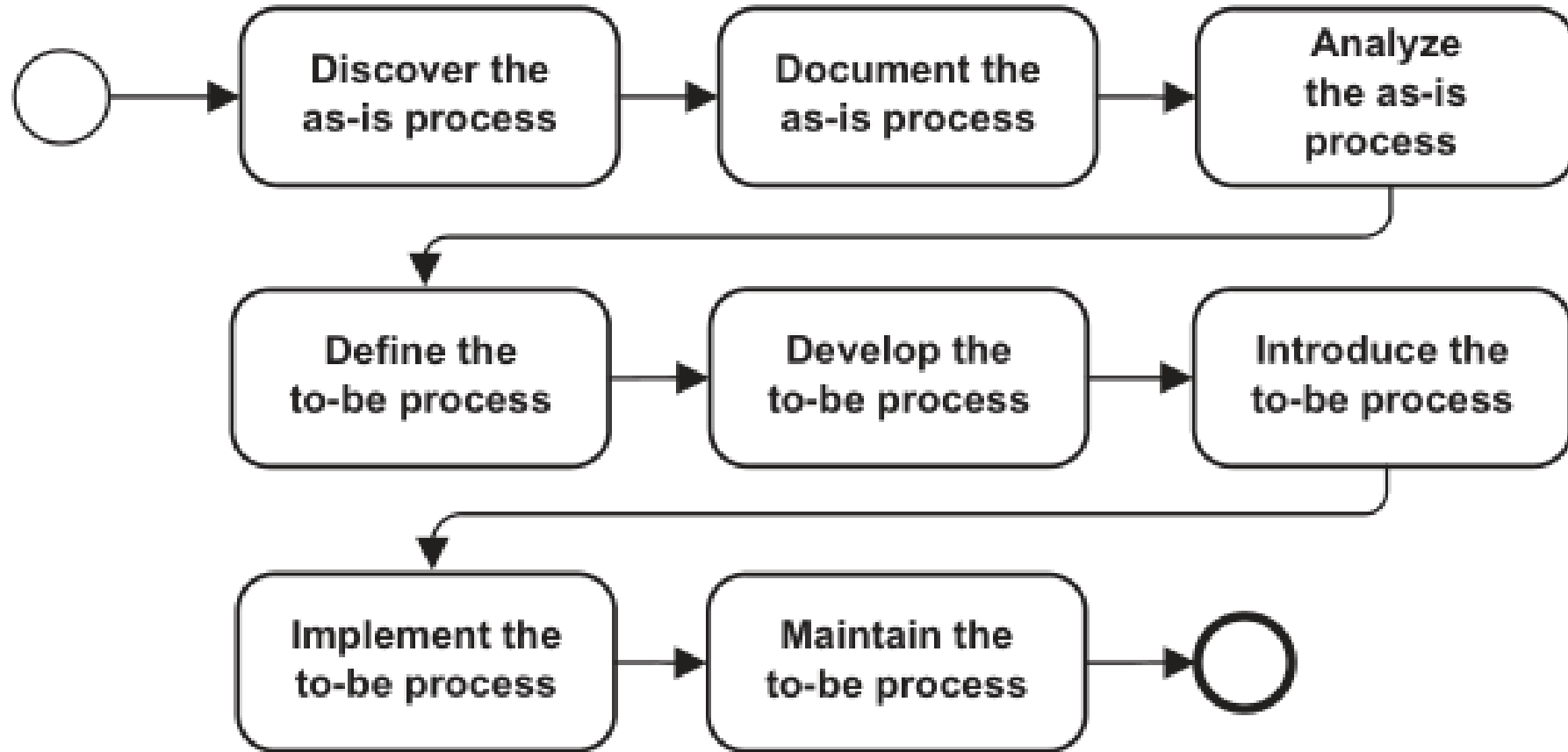


- ▶ **Business Process Redesign** is "the analysis and design of workflows and processes within and between organizations" Davenport & Short 1990
- ▶ **BPR** "*the critical analysis and radical redesign of existing business processes to achieve breakthrough improvements in performance measures.*" Teng et al. (1994)

WHAT IS BUSINESS PROCESS REDESIGN?

- ▶ *“Unless we change outdated rules and fundamental assumptions that underlie operations, we are merely rearranging the deck chairs on the Titanic”*
- ▶ **Quality** more important than **Cost**
- ▶ **Innovation** more important than **Growth**
- ▶ **Service** more important than **Control**

DON'T AUTOMATE, OBLITERATE !



BUSINESS PROCESS ANALYSIS & DESIGN

▶ **Job Description or Roles**

- ▶ Roles represent specific skill sets, responsibilities or positions in a business environment. Roles allow the modeler to define criteria required for performing the activity, rather than the specific individuals who will perform the activity.

▶ **Scope of a Process**

- ▶ boundaries of a process and includes start and end points, the context in which the process is performed and elements excluded from that context.

▶ **Workflow Diagram**

- ▶ It refers to a simple form of flowchart depicting the flow of tasks or actions from one person or group to another. It typically consists of a set of symbols representing actions or individuals connected by arrows indicating the flow from one to another.

BUSINESS PROCESS MANAGEMENT –
MAIN TERMS

▶ **BPM** is a systematic approach that is used to make an organization's workflow effective, efficient and responsive to changing environment.

▶ **Purpose of BPM**

- ▶ o reduce human error and avoid miscommunication.
- ▶ Link operational processes to corporate strategies.
- ▶ Measure performance indicators from processes for evaluation of business success.

▶ **Business Process Model**

- ▶ A Business Process Model (BPMd) typically consists of workflow diagrams, descriptions, inputs and outputs, KPIs and data that provide both overview and detailed information about an organization's business processes.

BUSINESS PROCESS MANAGEMENT – *KEY CONCEPTS*

▶ **Utility**

- ▶ it helps to measure requirements of a process and eliminates the risk of losing value through inefficient or inappropriate activities.

▶ **BPM Software**

- ▶ allows users to create BPM diagrams and integrate process content with critical business entities (departments, resources, etc.)

▶ **Business Process Re-engineering (BPR)**

- ▶ The realignment of business process strategies through the use of an analytic tool and an intense consultation process. BPR is an off-shoot of BPM implementation that involves a great deal of risk due to change management.

**BUSINESS PROCESS MANAGEMENT –
KEY CONCEPTS**

▶ **Business Process Design (BPD)**

- ▶ BPD is the systematic working by which an organization understands, defines and documents the business activities that enable it to function efficiently, effectively and economically.

▶ **Business Process Model (BPMd)**

- ▶ Illustrated description of business processes, usually created with flow diagrams. The model contains the relationship between activities, processes, sub-processes and information, as well as roles, the organization and resources. It is also termed as Business Process Mapping.

▶ **Workflow Simulation & Analysis**

- ▶ An executable specification of a workflow that is used to simulate the behavior of the workflow under different circumstances. This application is a typical example of decision support in matters as BPR and operational control. Various qualitative and quantitative analytical methods have been developed to assess the effectiveness of existing or new workflows.

**BUSINESS PROCESS MANAGEMENT –
KEY CONCEPTS**

- ▶ **Αναγνώριση (identification):** δεν είναι εύκολο. Τα όριά της πρέπει να καθοριστούν.
- ▶ **Ανάλυση (analysis):** συγκεντρώνονται πληροφορίες. Στόχος των αναλυτών είναι να κατανοήσουν το πλαίσιο στο οποίο δρα η διαδικασία, να συγκεντρώσουν πληροφορίες για τον τρόπο λειτουργίας της, τους πόρους που χρησιμοποιεί και τα συστατικά της στοιχεία. Εντοπίζονται εισοδοι και έξοδοι, οι δραστηριότητες και τα γεγονότα τα οποία λαμβάνουν χώρα και τα τμήματα της επιχείρησης που συμμετέχουν. Αναγνωρίζονται πιθανοί κίνδυνοι και προβλήματα που είναι δυνατόν να υπάρξουν κατά την εκτέλεση της διαδικασίας. Προσδιορίζονται οι ρόλοι και η ταυτότητα των εργαζομένων που είναι υπεύθυνοι για την εκτέλεση της διεργασίας. Επίσης, τεκμηριώνονται οι γενικότερες αλλαγές που μπορεί να προκύψουν στην επιχείρηση εξαιτίας ανασχεδιασμού.
- ▶ **Σχεδίαση και μοντελοποίηση (design and modeling):** διαδικασίες και αλληλεπίδρασή τους τυποποιείται και αποτυπώνεται σε κάποιο μοντέλο. Πριν να γίνει αποδεκτή γίνεται εγκυροποίηση (validation). Πχ με προσομοίωση της λειτουργίας των διαδικασιών, για να ελεγχθούν ποικίλα σενάρια

BUSINESS PROCESS MANAGEMENT LIFECYCLE

- ▶ **Εκτέλεση (execution):** Κατά τη φάση αυτή εξετάζονται στιγμιότυπα των διεργασιών που εκτελούνται. Με τον όρο «στιγμιότυπο διεργασίας» εννοούμε την αποτύπωση μιας διεργασίας σε συγκεκριμένο χρόνο λειτουργίας της. Αυτό σημαίνει ότι τόσο οι εισοδοί, όσο και οι έξοδοι της διεργασίας είναι συγκεκριμένες, αλλά και οι δραστηριότητες που την απαρτίζουν είναι ενεργές. Κατά τη φάση αυτή μπορεί να γίνει και διαμόρφωση των διαδικασιών, έτσι ώστε να ανταποκρίνονται στις πραγματικές συνθήκες.
- ▶ **Επίβλεψη/Έλεγχος (monitoring):** Η λειτουργία των διαδικασιών παρακολουθείται κατά τον χρόνο της εκτέλεσής τους. Δεδομένα που αφορούν τις διαδικασίες κατά τον χρόνο της εκτέλεσής τους συγκεντρώνονται και διάφοροι δείκτες υπολογίζονται. Στη συνέχεια, γίνεται εκτίμηση των στοιχείων, ώστε να εξαχθούν χρήσιμα συμπεράσματα σε σχέση με την αποδοτικότητα και την αποτελεσματικότητά τους σε σχέση επιχειρησιακούς στόχους.

BUSINESS PROCESS MANAGEMENT LIFECYCLE

- ▶ **1. Ενοποιημένη γλώσσα μοντελοποίησης** (Unified Modeling Language, UML)
- ▶ **2. Σημειογραφία μοντελοποίησης επιχειρηματικών διαδικασιών** (Business Process Modeling Notation, BPMN): σύνολο συμβόλων που χρησιμοποιούνται στην κατασκευή διαγραμμάτων για να μοντελοποιούν τις επιχειρηματικές διεργασίες και τη μεταξύ τους αλληλεπίδραση.
- ▶ **3. Διαγράμματα ροής** (flowcharts): αποτυπώνουν την ακολουθιακή ροή διεργασιών. Απλά διαγράμματα, χρησιμοποιούνται όταν δεν απαιτούνται πολλές πληροφορίες γι' αυτές.
- ▶ **4. Διαγράμματα ροής εργασιών** (workflow diagrams): Πρόκειται για μια τεχνική στην οποία αναπαρίστανται σχηματικά οι εργασίες που απαιτούνται για τη διεκπεραίωση μιας διαδικασίας. Οι εργασίες μπορεί να εκτελούνται από κάποια οντότητα σειριακά ή παράλληλα. Οι διαδικασίες μοντελοποιούνται ως ροή από εργασίες που η μία διαδέχεται την άλλη.
- ▶ **5. Αντικειμενοστραφείς μέθοδοι (object-oriented methods):** Ένα αντικείμενο μοντελοποιεί μία οντότητα του φυσικού κόσμου, για παράδειγμα μια διαδικασία. Κάθε αντικείμενο έχει μια δομή και βρίσκεται σε μια συγκεκριμένη κατάσταση. Η κατάσταση μπορεί να αλλάξει εκφράζοντας με αυτό τον τρόπο τη συμπεριφορά του αντικειμένου. Τα αντικείμενα μπορούν να ανταλλάσσουν μηνύματα μεταξύ τους.

BPM TOOLS

ΕΡΓΑΛΕΙΑ ΜΟΝΤΕΛΟΠΟΙΗΣΗΣ ΕΠΙΧΕΙΡΗΣΙΑΚΩΝ ΔΙΕΡΓΑΣΙΩΝ

- ▶ **6. Διαγράμματα ροής δεδομένων (data flow diagrams):** Τα διαγράμματα αυτού του τύπου αποτυπώνουν τη ροή δεδομένων ή πληροφοριών ανάμεσα σε διαδικασίες. Οι διαδικασίες μετασχηματίζουν τα δεδομένα εισόδου σε δεδομένα εξόδου.
- ▶ **7. Διαγράμματα ρόλων δραστηριοτήτων (role activity diagrams):** Οι ρόλοι είναι αφηρημένες αναπαραστάσεις οι οποίες μοντελοποιούν τη συμπεριφορά των διαδικασιών. Τα διαγράμματα αυτά είναι ιδιαίτερα χρήσιμα στην απεικόνιση της επικοινωνίας ανάμεσα σε διαδικασίες
- ▶ **8. Διαγράμματα αλληλεπίδρασης ρόλων (role interaction diagrams):** Τα διαγράμματα αυτά απεικονίζουν τις δραστηριότητες που αντιστοιχούν σε κάθε ρόλο και τη σύνδεση των ρόλων μέσω των δραστηριοτήτων. Τα διαγράμματα αυτού του τύπου μοιάζουν με πίνακες δύο διαστάσεων, όπου στις στήλες αντιστοιχίζονται ρόλοι και στις γραμμές δραστηριότητες

BPM TOOLS

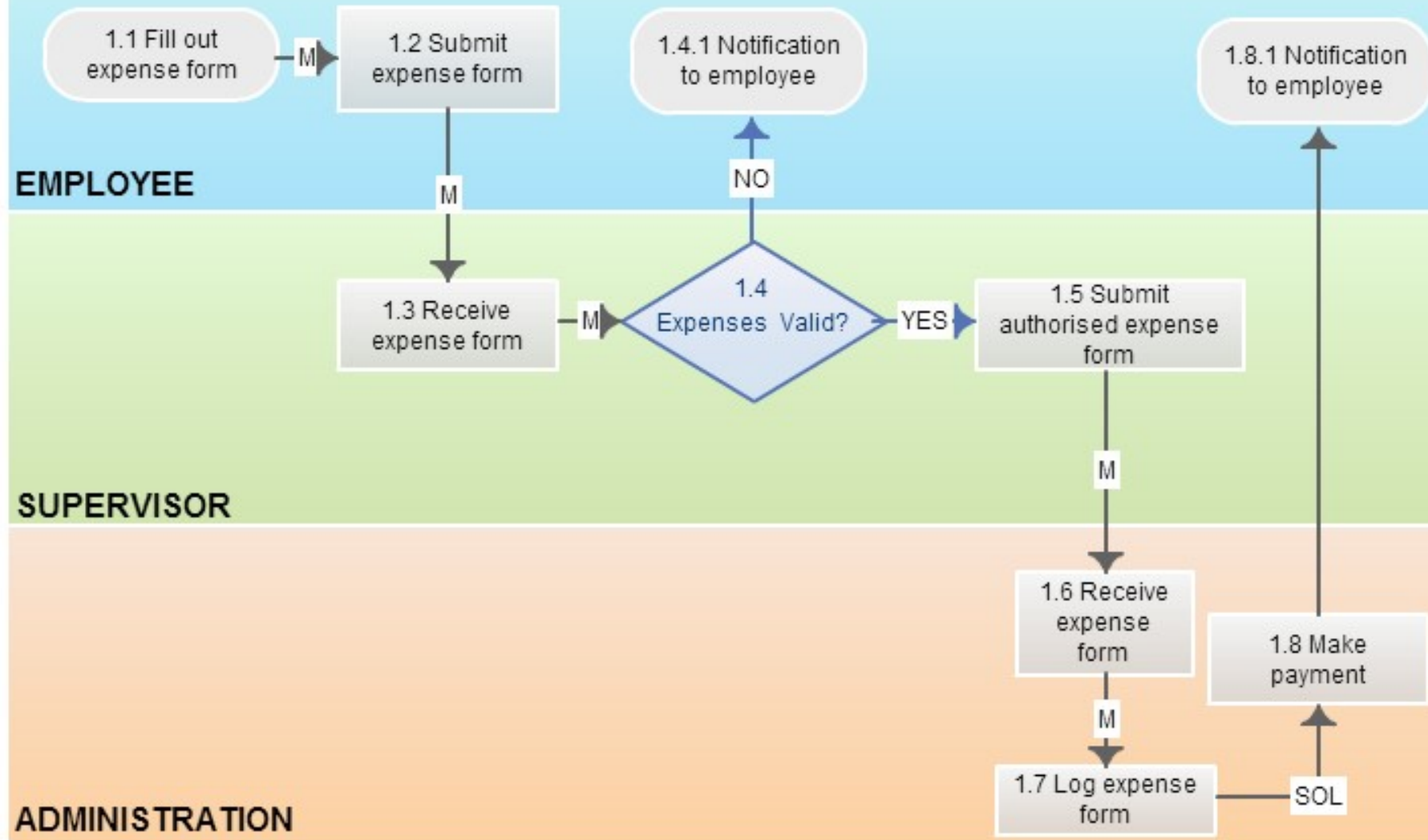
ΕΡΓΑΛΕΙΑ ΜΟΝΤΕΛΟΠΟΙΗΣΗΣ ΕΠΙΧΕΙΡΗΣΙΑΚΩΝ ΔΙΕΡΓΑΣΙΩΝ

- ▶ **9. Διαγράμματα Gantt (Gantt charts):** Τα διαγράμματα Gantt συσχετίζουν τις δραστηριότητες με τη διάρκειά τους στον χρόνο. Επίσης, παρουσιάζουν τις σχέσεις προτεραιότητας που υπάρχουν μεταξύ των δραστηριοτήτων. Οι δραστηριότητες απεικονίζονται σχηματικά. Τα διαγράμματα αυτά χρησιμοποιούνται κυρίως στη διαχείριση έργων.
- ▶ **10. Ολοκληρωμένος ορισμός συναρτησιακής μοντελοποίησης (Integrated Definition for Function modeling, IDEF):** Πρόκειται για ένα σύνολο γλωσσών που υποστηρίζει τη μοντελοποίηση διαδικασιών, την προσομοίωση, την αντικειμενοστραφή ανάλυση και σχεδίαση λογισμικού και τη μοντελοποίηση διαδικασιών.
- ▶ **11. Χρωματισμένα δίκτυα Petri (colored Petri nets):** Πρόκειται για έναν τρόπο μοντελοποίησης που βασίζεται στα δίκτυα Petri. Τα χρώματα έχουν τον ρόλο διαφορετικών συμβόλων. Χρησιμοποιείται για να μοντελοποιήσει τη συμπεριφορά διαδικασιών.
- ▶ **12. Προσομοίωση (simulation):** Η προσομοίωση επιτρέπει την εξέταση ενός μοντέλου της διαδικασίας ή του συστήματος διαδικασιών που μας ενδιαφέρει. Έτσι, μπορούν να συγκεντρωθούν πολύτιμες πληροφορίες που αφορούν τη λειτουργία και τη συμπεριφορά του.

BPM TOOLS

ΕΡΓΑΛΕΙΑ ΜΟΝΤΕΛΟΠΟΙΗΣΗΣ ΕΠΙΧΕΙΡΗΣΙΑΚΩΝ ΔΙΕΡΓΑΣΙΩΝ

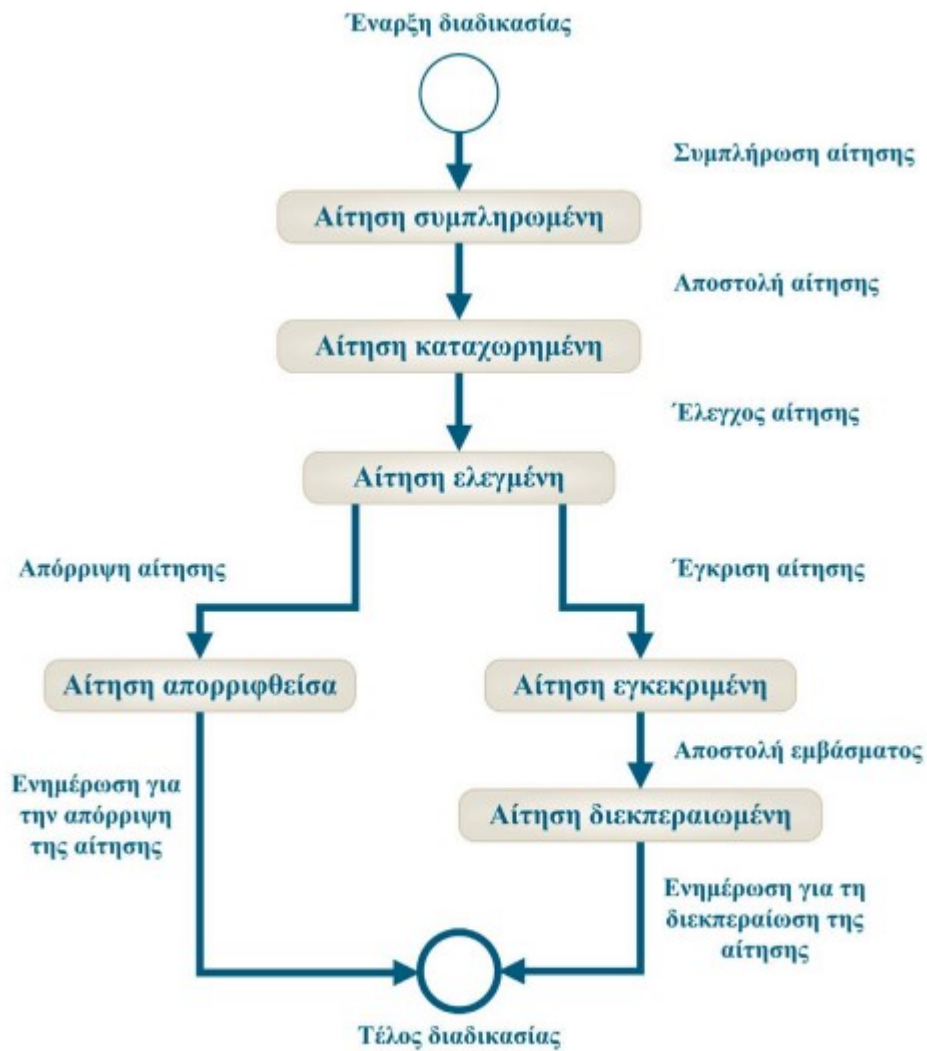
Expense Claim Process



M - Manual

Sol - Facilitated by Solution

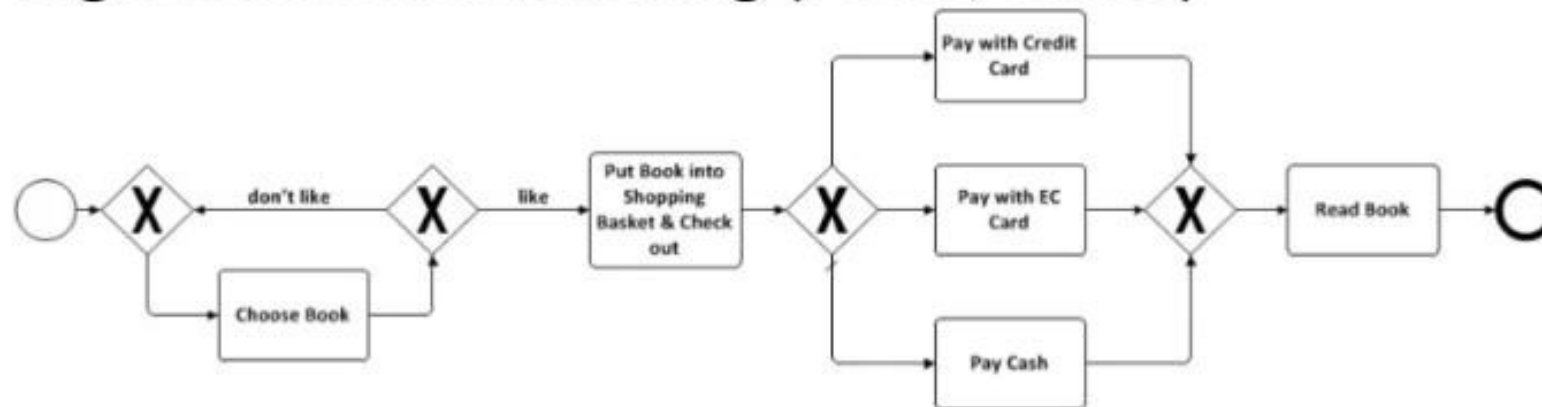
- ▶ **Διαγράμματα περιπτώσεων χρήσης (use case diagrams):** περιγράφουν ένα σύνολο ενεργειών τις οποίες μπορεί να εκτελέσει ένα σύστημα σε συνεργασία με έναν ή περισσότερους εξωτερικούς χρήστες του συστήματος. Εξάγονται μετρήσιμα αποτελέσματα από την αλληλεπίδραση των χρηστών με το σύστημα.
- ▶ **Διαγράμματα δραστηριοτήτων (activity diagrams)**
- ▶ **Διαγράμματα κατάστασης μηχανής (state machine diagrams)/ μετάβασης καταστάσεων.** Μοντελοποιούν τη συμπεριφορά ενός συστήματος με τη μορφή μεταβάσεων ανάμεσα σε πεπερασμένες καταστάσεις, έμφαση στη ροή του ελέγχου, περιγράφουν και τα γεγονότα στα οποία οφείλονται οι μεταβάσεις.
- ▶ **Διαγράμματα αλληλεπίδρασης (interaction diagrams):** ροή ελέγχου και δεδομένων που υπάρχει ανάμεσα στα αντικείμενα του συστήματος
- ▶ **Διαγράμματα αλληλουχίας (sequence diagrams):** αλληλεπίδραση ανάμεσα σε αντικείμενα, ανταλλαγή μηνυμάτων, έμφαση στη χρονική αλληλουχία, περιγράφουν τον κύκλο ζωής.
- ▶ **Διαγράμματα επικοινωνίας (communication diagrams):**
- ▶ **Διαγράμματα χρονισμού (timing diagrams):** επίδραση του χρόνου σ' ένα σύστημα.
- ▶ **Διαγράμματα εποπτείας συναλλαγών (interaction overview diagrams):** επίβλεψη ροής του ελέγχου ανάμεσα στα αντικείμενα του διαγράμματος



Σχήμα 3.1 Παράδειγμα διαγράμματος μετάβασης καταστάσεων.

Business Process Modelling Notation (BPMN 1.x)

- Notation for business experts to analyse, document and discuss business processes.
- Activities, Gateways, Events
- Control & Data flow (Sequence Flow, Data Objects)
- Organisational modelling (Pools, Lanes)



- No defined execution semantics!
- Calls for a technical language for business process automation

BPM Composer

Web based Process Customization and Creation from Template

The screenshot displays the Oracle BPM Process Composer interface. The main window shows a process flow diagram for 'Sales Onboarding'. The process starts with a start node, followed by a task 'Personal Info' (green box) which outputs 'Personal Data' (document icon). This leads to a task 'Validate Info' (blue box) with a decision diamond 'Info Valid?'. If 'No', it loops back to 'Personal Info'. If 'Yes', it proceeds to 'Tax Information' (blue box) and 'Benefits Enrollment' (blue box), which outputs 'Car PO' (document icon). This leads to 'Order Company Car' (green box). The process then branches into two paths: one through 'Equipment PO' (document icon) to 'Equip office' (blue box), and another through 'Laptop PO' (document icon) to 'Get Laptop' (blue box). The process ends with a final node.

Design and deploy
✓ Create new processes from a template

Pre-defined tasks

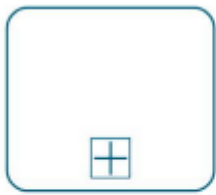
- Service calls
- Human interaction
- Business rules
- Pre-defined activities

Process model

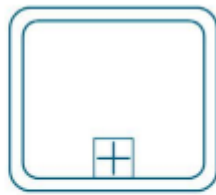
- BPMN notation for business users



Εργασία



Υποδιαδικασία



Δοσοληψία



Διαδικασία
κλήσης

Σχήμα 3.3 Σύμβολα ροής: δραστηριότητες.



ή



Αποκλειστική απόφαση
που στηρίζεται σε συνθήκες



Εναλλακτική
απόφαση



Διασταύρωση
ή ένωση



Διασταύρωση
ή ένωση για
την έναρξη
διαδικασίας



Σύνθετη
συνθήκη



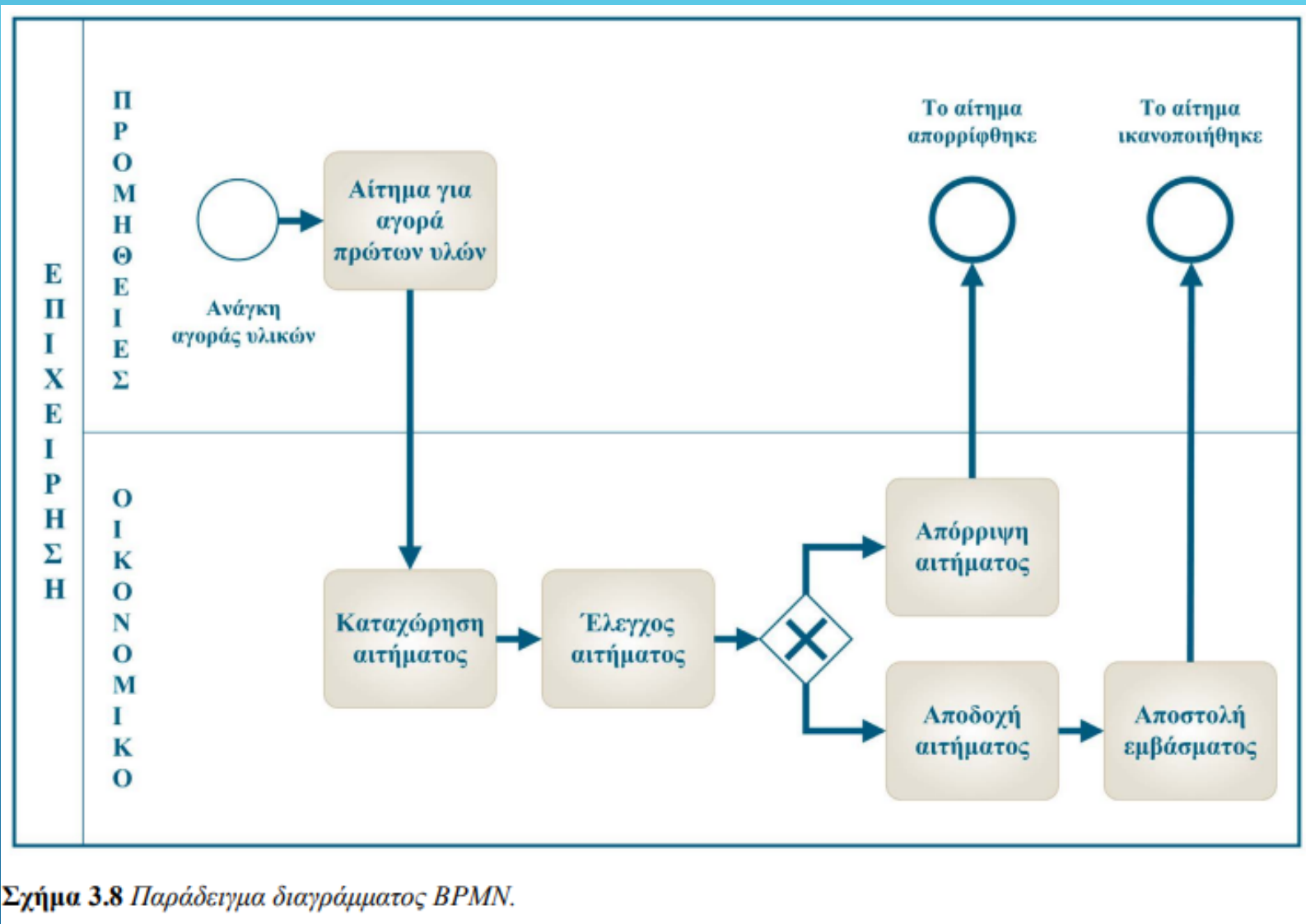
Αποκλειστική απόφαση
που στηρίζεται σε
γεγονότα



Αποκλειστική απόφαση
που στηρίζεται σε
γεγονότα
για την έναρξη διαδικασίας

Σχήμα 3.4 Σύμβολα ροής: πύλες ελέγχου.

BPMN

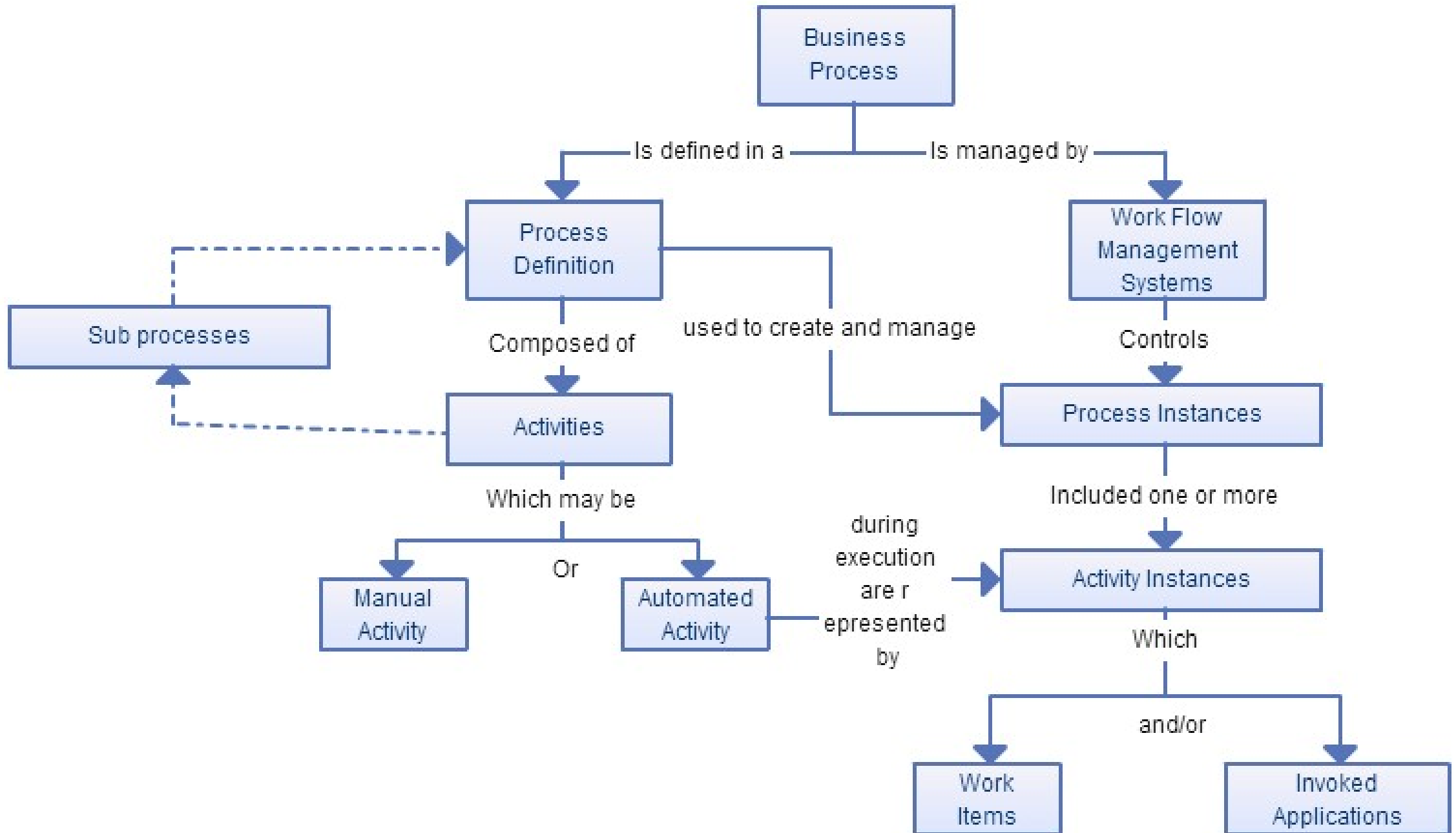


Σχήμα 3.8 Παράδειγμα διαγράμματος BPMN.

- ▶ Designing
- ▶ Modeling
- ▶ Executing
- ▶ Monitoring
- ▶ Optimizing



BPM LIFE – CYCLE



Mapping of Capabilities With Use Cases of BPA Tools

■ Must Have
 ■ Good to Have
 ■ Optional

Capabilities	Use Cases		
	Low-Complexity Workflow Automation	Enterprise Business Process Automation	Case Management
Process Modeling	Good to Have	Must Have	Must Have
Process Orchestration	Good to Have	Must Have	Must Have
Decision Automation	Good to Have	Must Have	Must Have
Integrations	Must Have	Must Have	Must Have
Low-Code Workflow Automation	Must Have	Good to Have	Optional
Collaboration and Task Management	Must Have	Must Have	Must Have
Continuous Intelligence	Good to Have	Must Have	Must Have
Document Handling	Must Have	Must Have	Must Have

Source: Gartner

739999_C

The purpose of BPD is to ensure that processes are optimized, effective, meet customer requirements, support and sustain organizational development and growth.

Designing a process that improves corporate performance is a challenging task that requires multi-disciplinary expertise and a plethora of inputs (for instance, organizational strategies, goals, constraints, human and technical capabilities, etc.).

The most common requirements of a BPD are:

- Customer and supply chain management
- Operational performance improvement
- Business process integration and automation
- Cost reduction
- New business opportunities.

1. DESIGNING

The output of a BPD project is a streamlined, comprehensive, easy-to-use model of the ways in which a business delivers output to its customers. One of the key purposes of process modeling is to provide a “process view” of the business.

BPMd typically consists of a set of diagrams, textual descriptions and data elements that provide both overview and detailed information about the business processes in a format that is easily understood by everyone.

The key components of a typical BPMd are as given below:

- The set of processes and activities that take place within an organization
- A written description of each process or activity or task
- Workflow diagrams
- Inputs & outputs
- KPIs

2. MODELING

It refers to automating processes by using BPM application software that executes the required steps of a process.

BPM softwares are either purchased or developed to fit to the requirements of a company.

3. EXECUTING

Monitoring refers to tracking of individual processes, so that information about them can be checked.

An example of the tracking is being able to determine the stage of a customer order (e.g. order arrived, awaiting delivery, invoice paid) so that problems in its operation can be identified and corrected.

The degree of monitoring depends on what information a business requires to evaluate and analyze and how that business needs it to be monitored, in real-time, near real-time or ad-hoc. Here, business activity monitoring extends and expands the monitoring tools generally provided by Business Process Management Suites (BPMS).

4. MONITORING

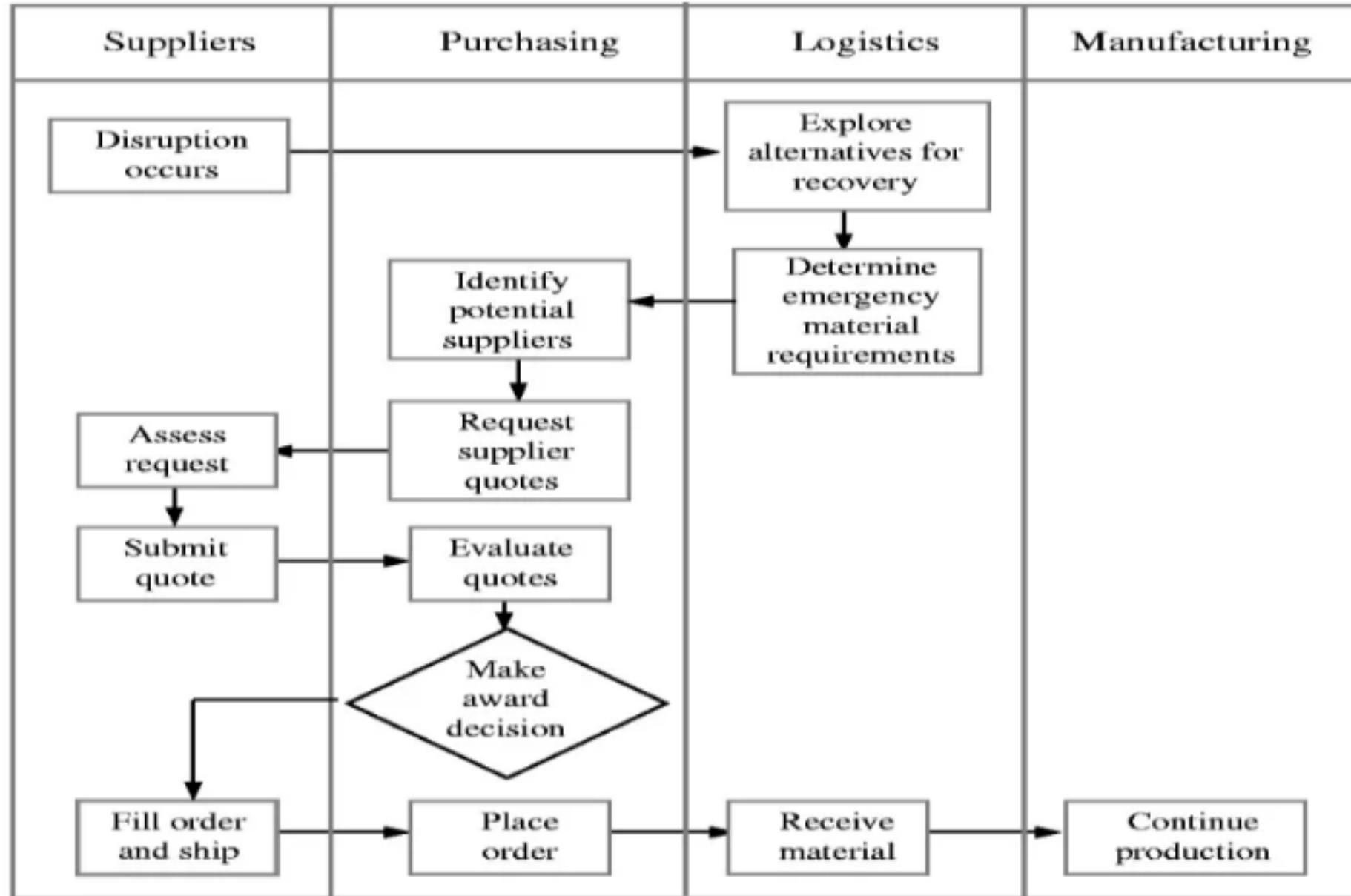
- ▶ Refers to retrieving process performance information from monitoring phase, identifying the potential or actual problems, recognizing the opportunities for cost cuttings or further improvements and then, applying those enhancements in the design of the process.

In more specific terms, optimizing may include the following activities:

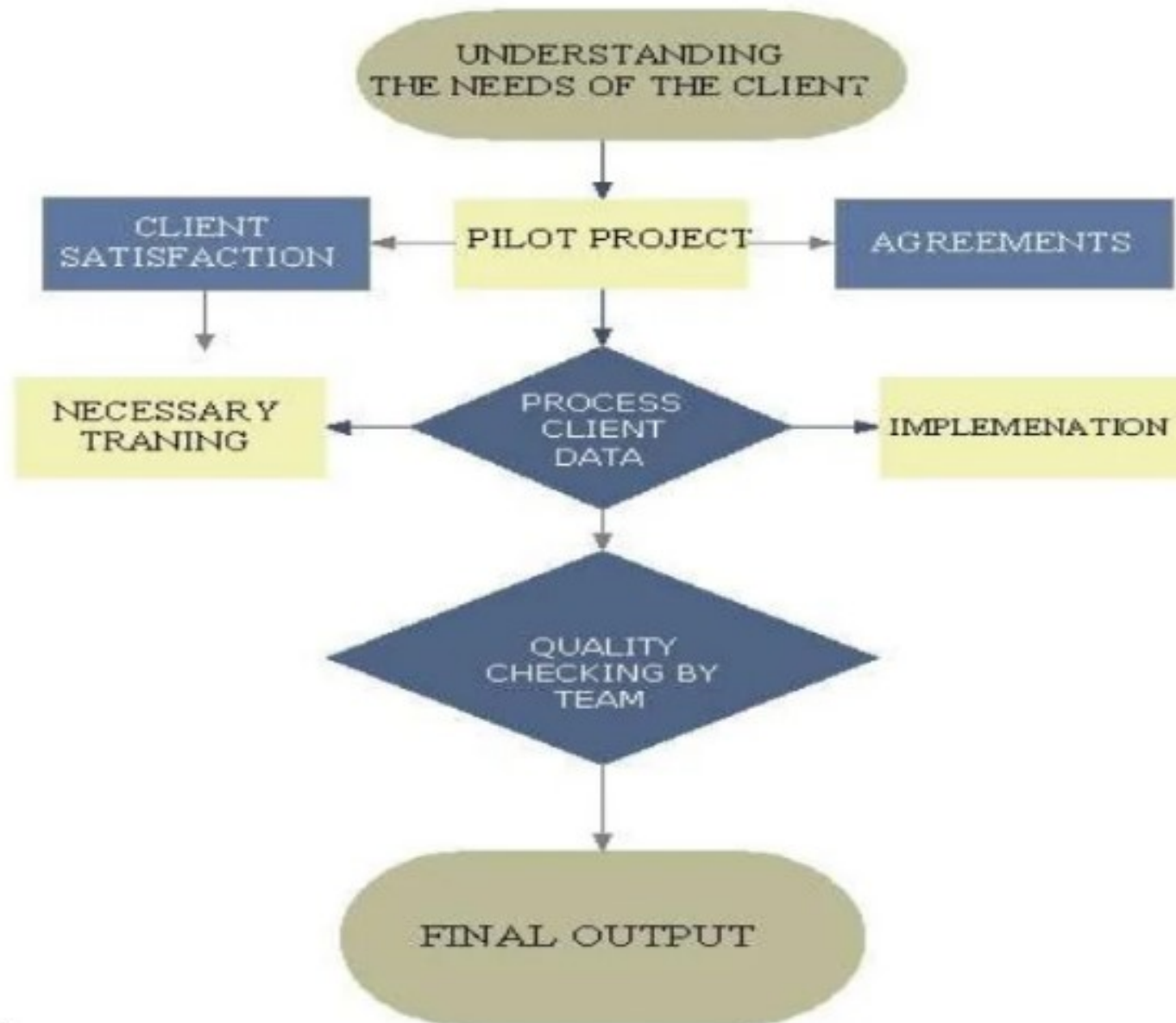
- ▶ Improve processes and performance by reducing inefficiencies identified during monitoring.
- ▶ Simulate these changes using “what-if” simulation.
- ▶ Determine which changes will deliver the maximum improvement.
- ▶ Build the processes on firm footing.

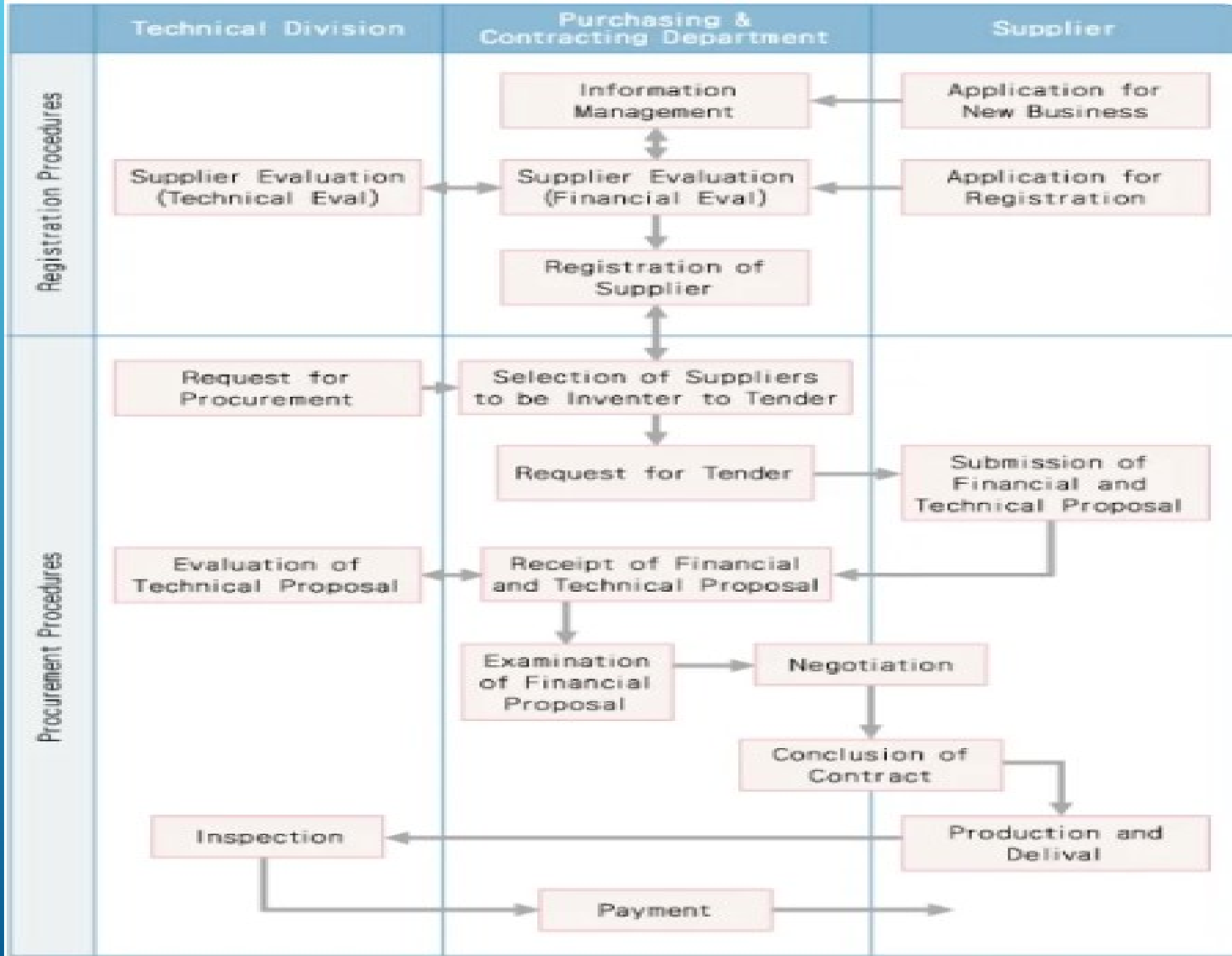
5. OPTIMIZING

Workflow for Purchase of Materials



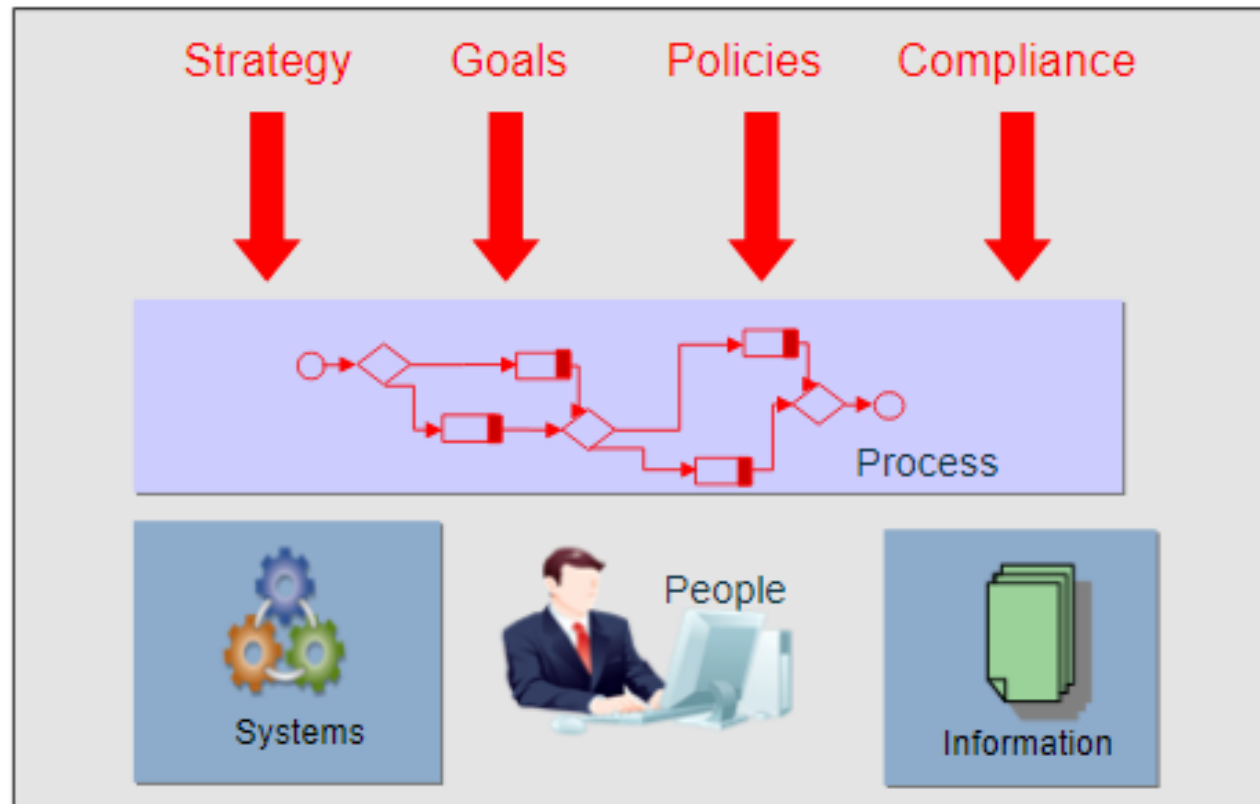
Workflow for Project Delivery





Business Process Management (BPM)

Software and strategy for
modeling, automating, managing and **optimizing**
business processes across
organizational divisions, systems and applications



Oracle BPM Solution Components

Methodology Driven
Process Modeling and
Analysis



- Process Experts
- Six Sigma, Lean
- Enterprise Modeling
- Documentation

Human Centric
Business Process
Management



- Business user friendly
- Human centric
- Collaborative
- Frequent process changes

System Centric
Process Management
and SOA




- SOA architecture
- Apps integration, AIA
- BPEL
- High performance STP
- Round-tripping with BPA

1. Improves process quality, reliability and output.
2. Helps for continuous process improvement that provides foundations for BPR.
3. Maximizes process visibility that helps in reducing costs.
4. Improves strategic decision-making by providing correct information at correct time. It provides end-to-end performance visibility and optimization of resources.
5. Improves operational efficiency that results in the avoidance of wastage and loss of company resources.
6. Consistent execution reduces process cycle time.
7. Improves customer satisfaction by delivering better and enhanced value.
8. Promotes organizational flexibility and business agility.
9. Promotes communication and collaboration between departments.
10. Helps in standardization of procedures.
11. Helps in measuring KPIs and thus improves accountability.
12. Promotes safe working conditions that protect company resources.
13. Defines roles and responsibilities that increases employee efficiency and satisfaction.
14. Simplifies regulatory compliance.

BENEFITS OF BPM

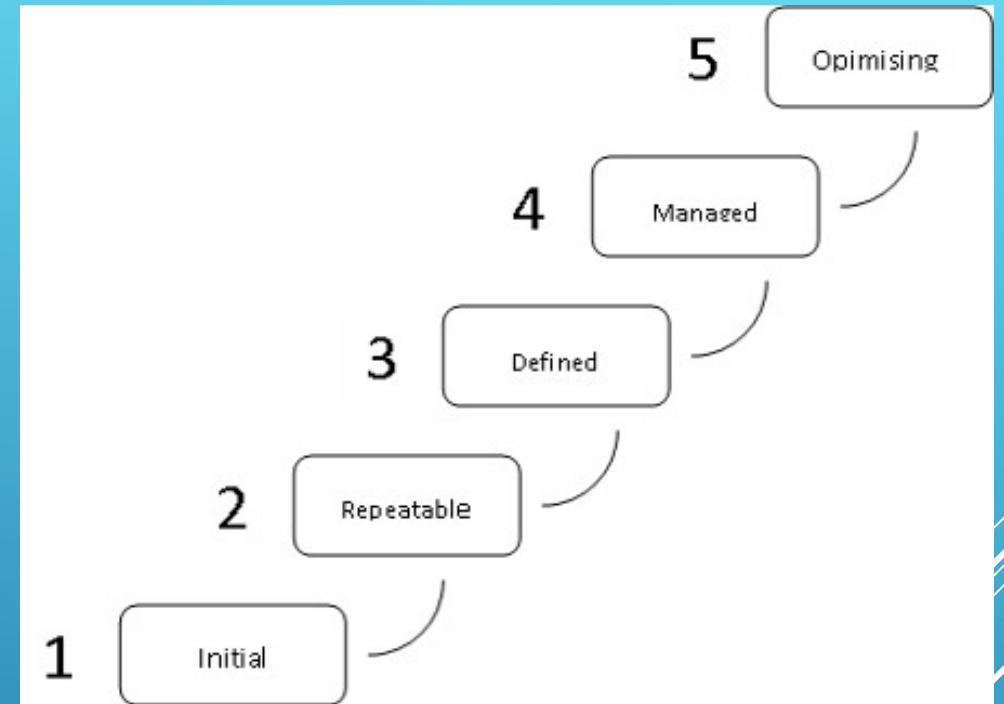
#	BPM Software	Website
1	Accu Process Modeler	http://www.accuprocess.com
2	RunMyJobs	http://www.runmyjobs.com
3	BPMS	http://www.sydle.com
4	BPM from IBM	http://www-142.ibm.com
5	ProcessMaker	http://www.processmaker.com
6	Appian BPM Suite	http://www.appian.com
7	webMethods BPMS	http://www.softwareag.com
8	Ultimus BPM & Workflow Solution Software	http://www.ultimus.com
9	Progress® Savvion®,	http://www.progress.com
10	Sequence Kinetics™ BPM Software	http://www.pnmsoft.com/
11	Oracle Business Process Management Suite	http://www.oracle.com/us/technologies/bpm
12	Skelta BPM & Workflow Software	http://www.skelta.com
13	SharePoint 2010	https://www.microsoft.com

- ▶ BPMN 2.0 | A simple, 5-minute introduction (read the coronavirus update below) – YouTube
 - ▶ www.youtube.com/watch?v=Uk6WaW9QWn8
- 
- A decorative graphic consisting of several parallel white lines of varying lengths, slanted upwards from left to right, located in the bottom right corner of the slide.

SOFTWARE CAPABILITY MATURITY MODEL (CMM)

The background is a solid blue gradient. On the right side, there are several white, parallel diagonal lines that sweep upwards from the bottom towards the top right corner, creating a sense of motion and modern design.

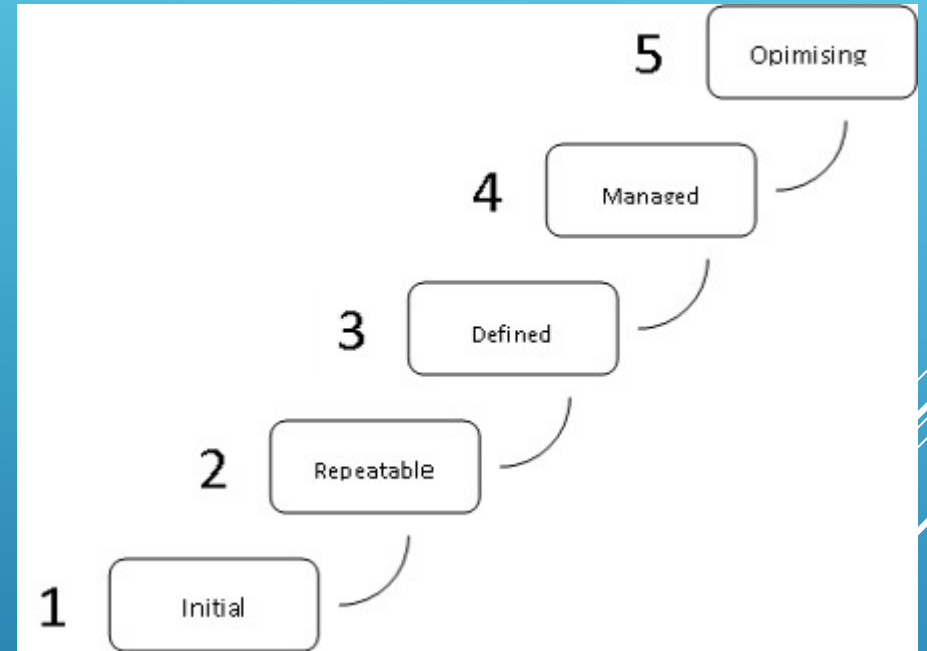
- ▶ The Capability Maturity Model (CMM) is a framework that lays out five maturity levels for continual process improvement.
- ▶ This framework is integral to most management systems that aim to improve the quality of development and delivery for all products and services.



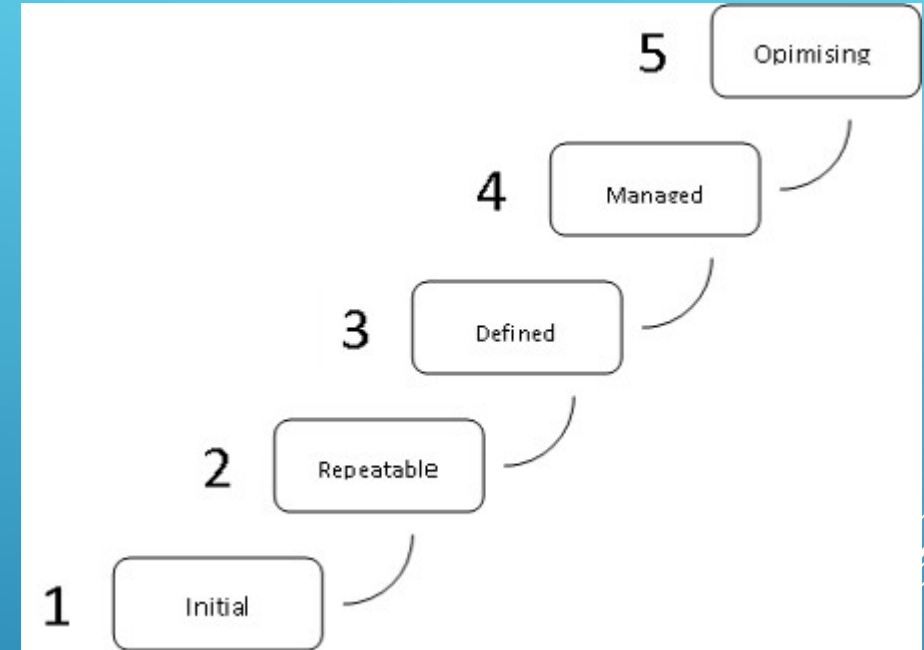
THE CAPABILITY MATURITY MODEL (CMM)

- ▶ The software process is characterised as ad hoc, and occasionally even chaotic. Few processes are defined, and success depends on individual effort.

1. INITIAL

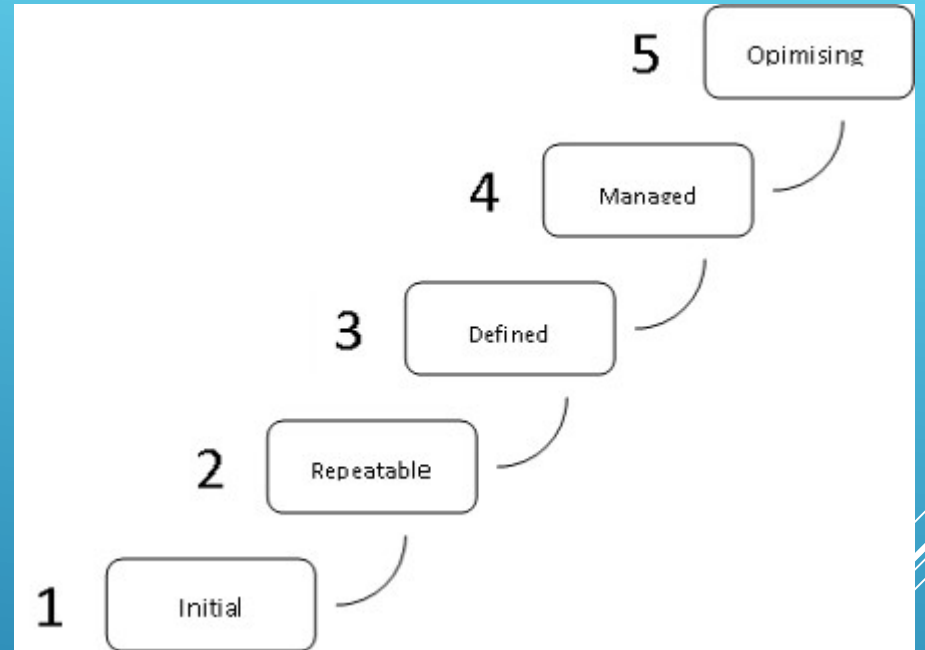


- ▶ Basic project management processes are established to track cost, schedule and functionality. The necessary process discipline is in place to repeat earlier successes on projects with similar applications.



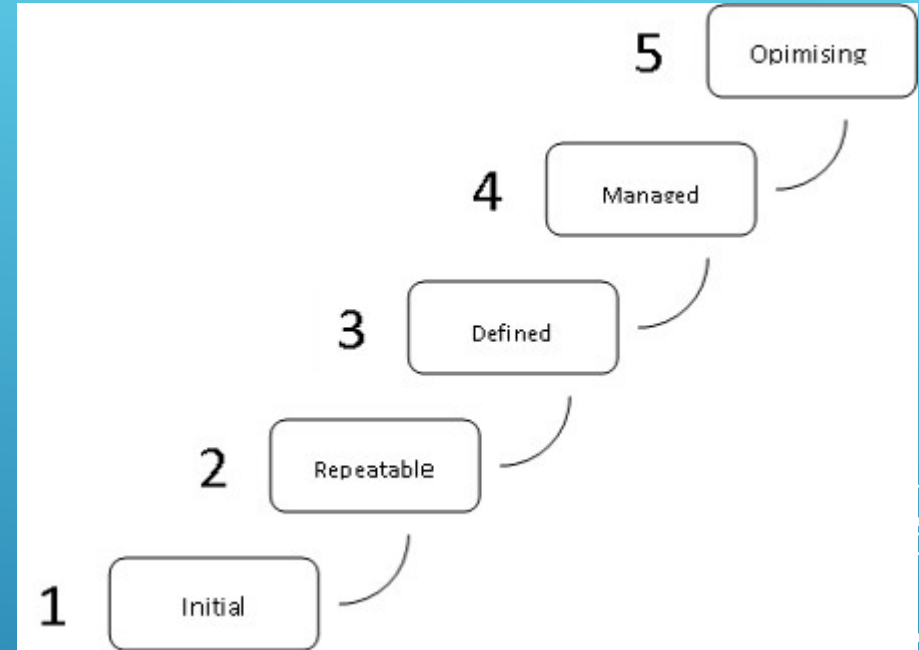
2. REPEATABLE

- ▶ The software process for both management and engineering activities is documented, standardised and integrated into all processes for the organisation. All projects use an approved version of the organisation's standard software process for developing and maintaining software.



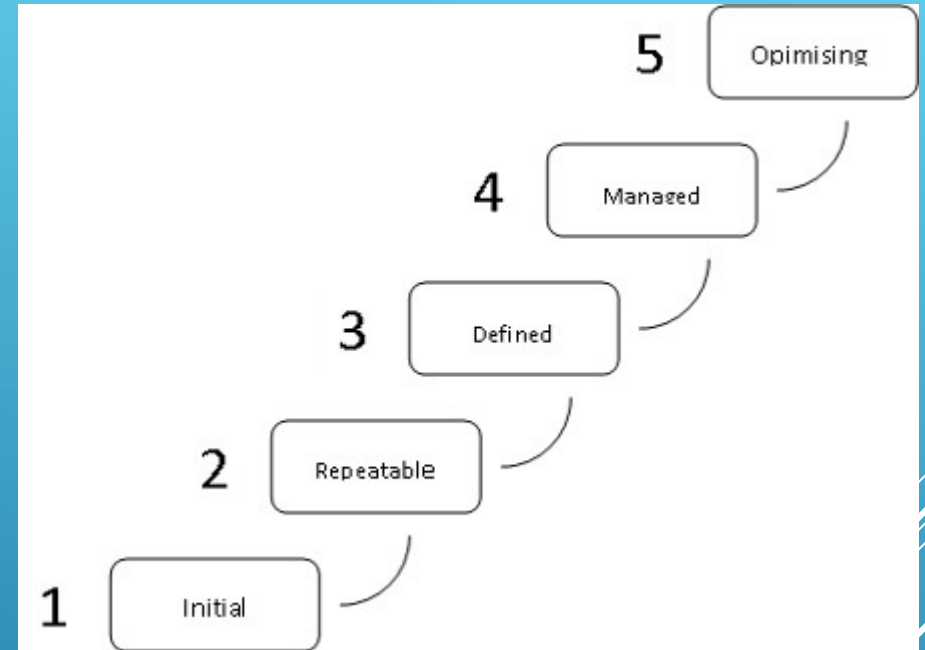
3. DEFINED

- ▶ Detailed measures of the software process and product quality are collected.
- ▶ Both the software process and products are quantitatively understood and controlled.



4. MANAGED

- ▶ Continuous process improvement is enabled by quantitative feedback from the process and from piloting innovative ideas and technologies.



5. OPTIMISING

- ▶ is the successor to CMM and combines a number of maturity models into one integrated model. Developed by the Software Engineering Institute of Carnegie Mellon University, CMMI can be used to guide process improvement across a project, a division, or an entire organisation.

CMMI

THE FIVE LEVELS OF THE CAPABILITY MATURITY MODEL INTEGRATED (CARNEGIE MELLON 1999)

Level	Focus	Key process
1. Initial	Individual effort	
2. Repeatable	Project management	<ul style="list-style-type: none">•Software Project Planning•Software Planning & Oversight•Software Subcontract Management•Software Quality Management•Software Configuration Management•Requirements Management
3. Defined	Engineering process	<ul style="list-style-type: none">•Organisation Process Focus•Organisation Process Definition•Peer Reviews•Training Programme•Intergroup Coordination•Software Product Engineering•Integrated Software Management

THE FIVE LEVELS OF THE CAPABILITY MATURITY MODEL INTEGRATED (CARNEGIE MELLON 1999)

Level	Focus	Key process
4. Managed	Product & process quality	<ul style="list-style-type: none">•Software Quality Management•Quantitative Process Management
5. Optimising	Continual improvement	<ul style="list-style-type: none">•Process Change Management•Technology Change Management•Defect Prevention

- ▶ An organisation cannot be certified in CMMI but can be appraised. With the traditional approach, the organisation establishes an Engineering Process Group and Process Action Teams. These members are trained in CMMI, and an informal appraisal is performed. The process areas are then prioritised for improvement.

CMMI APPRAISAL

- ▶ https://www.idef.com/idefo-function_modeling_method/
- ▶ [https://www.academia.edu/713671/The IDEF family of languages](https://www.academia.edu/713671/The_IDEF_family_of_languages)
- ▶ <https://creately.com/blog/diagrams/business-process-modeling-techniques/>
- ▶ <https://www.youtube.com/watch?v=G1NF5Slnw4>
- ▶ <https://ftpdocs.broadcom.com/cadocs/0/e003091e.pdf>
- ▶ <https://www.itgovernance.co.uk/capability-maturity-model>
- ▶ **Διαχείριση Επιχειρησιακών Διαδικασιών (klidarithmos.gr)**
- ▶ *Business Process Management – Practical Guidelines to successful implementations, John Jeston & Johan Nelis, foreword by Tom Davenport, Elsevier, 2006*
- ▶ **Business Processes : Modelling and Analysis for Re-Engineering and Improvement 1st Edition**

ΠΗΓΕΣ - ΕΝΔΕΙΚΤΙΚΑ

