

Model Driven Architectures for Enterprise Information Systems



UNIVERSIDAD
DE LOS ANDES
Mérida,
Venezuela



Judith Barrios^x
Selmin Nurcan^{*+}

^x Universidad de Los Andes

^{*} Université Paris 1 - Panthéon – Sorbonne / CRI

⁺ IAE de Paris

jjudith@ula.ve ; nurcan@univ-paris1.fr

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Introduction

- The evolution of the Information Systems and the ICT
 - New role for the IS – **dynamic environment**
 - ICT in favour of business evolution
 - Change in traditional business practices
- The notion of '*Business Modelling*'
 - Enterprise knowledge, IS and IT
 - Balance between social and technical organisational levels

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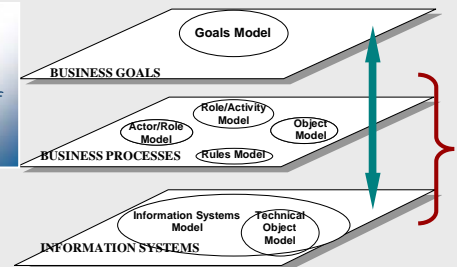
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EKD-CMM Organisational Vision

Enterprise Knowledge Development – Change Management

Supporting
*Business
Modelling* and
the Managing of
*Organisational
Changes*



Our work

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The EKD-CMM Product Model

- A *Product Model* defines the **set of concepts** and their relationships that **can be used to build a product**

Business goals

Business processes & activities

Roles & actors

Business objects

Business roles

IS components



a model representing a given enterprise

The Process Model

- The *Process Model* defines **how** to use the concepts defined within a *Product Model*

... in order to build a model representing a given enterprise

Information System Architecture - ISA

- The main goal of the IS Architecture (**ISA**) is to **support** business processes at the operational and strategic levels



- The **Information System Model** contains the representation of the set of **IS**, the definition of the local and shared **databases**, the **information requirements** and **management indicators** that should be satisfied by applications or IS...

Information System Architecture - ISA

- The definition of *information requirements* and *management performance indicators* is directly associated to business processes through the *Business Objects Model (BOM)*
- **BOM** constitutes the **central link** between the **business processes** and the **IS** that support them

The Business Processes & The Information System Architecture

Business rules:

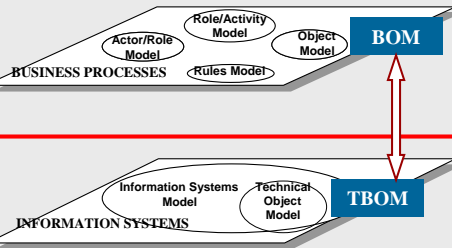
a link between the Business Objects (BOM) built at the

BP layer

and

the Business Objects (TBOM) built at the

IS layer



But, this relationship goes further...

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The ISA definition is based on

- **Business objects** owners and users
- **Legacy and acquired systems** and their integration through an Enterprise Application Integration (EAI) perspective
- The **kind of technology** required
 - execution of business processes
 - standardisation procedures
- The **ICT available and required** in the enterprise
- **Business processes execution dependencies**
 - inputs/outputs, support, and workflow coordination

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From BOM to TBOM

■ **The Business rules:** operations, conditions, business objects attributes, domains of validity, when operations are performed, non-functional requirements (*security, accuracy, etc.*)

■ **Software Engineering and Database concepts and techniques** for obtaining

- the logical data model expressed according to the object oriented paradigm
- the object implementation model

■ **Validation of the Data Model against BP model**

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The Business Processes & The Information System Architecture

Face to Business changes

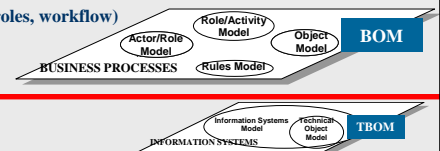
Process change (reengineering- new way of working, TQM)

Standardisation requirements (business processes, procedures, methodologies)

Technologies

Business structure

Organisation (actors, roles, workflow)



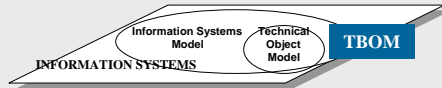
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The Business Processes & The Information System Architecture

Face to Business changes



Business objects (operations, structure, dependence degree, and owner);

IS functionalities (requirements, dependence degree, support technology);

ICT use (obsolescence, flexibility, versions, security, growth capacity);

IS implantation (purchase, ERP, integration, performance improvement)

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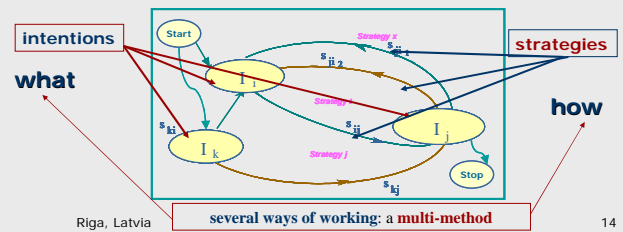
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About the Intention Oriented EKD-CMM Process Model

Based on the map formalism

- a navigational structure in the sense that it allows the modellers to specify paths from *Start* intention to *Stop* intention



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several ways of working: a multi-method

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About the EKD-CMM Maps

- A map expresses enterprise modelling **intentions** (business owners, business modellers, systems developers)
- It is a **navigational** structure
 - supports the dynamic selection of the **intention** to be achieved next and the appropriate **strategy** to achieve it
- It has **guidelines** that help in the **selection** of intentions and strategies
- It is sensitive to specific **situations** that may arise during the modelling process

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How to use the process maps as methodological guidelines ?

1) How to select the right map section to progress (the **next** intention and the **most appropriated strategy** to achieve it)

.... **SSG and ISG**

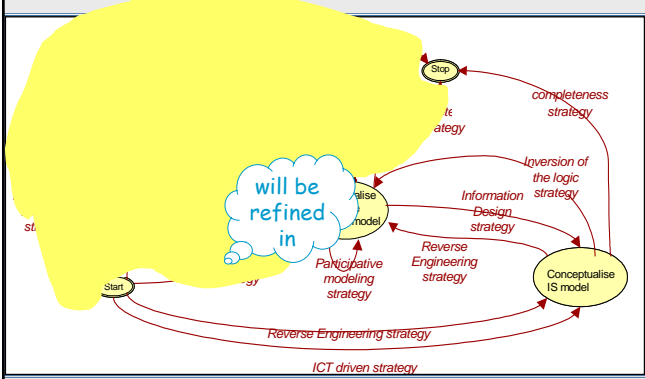
2) How to fulfil the **modelling intention** according to a **strategy**.... **IAG**

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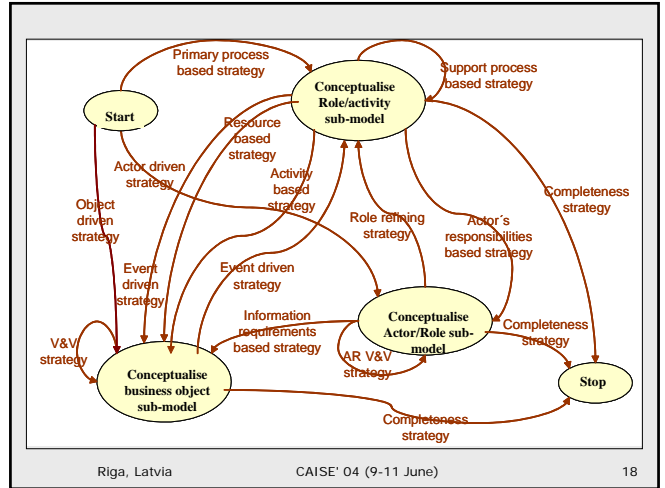
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The EKD-CMM Global Map

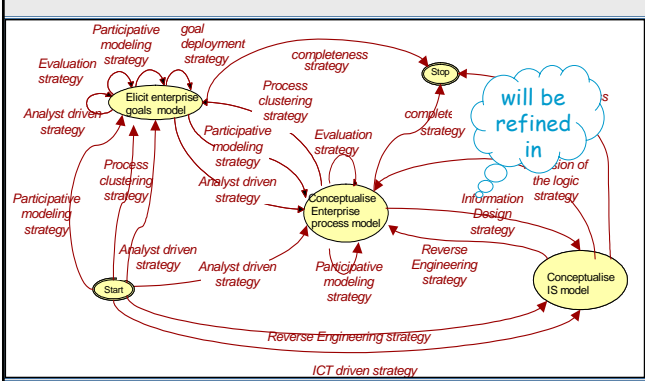


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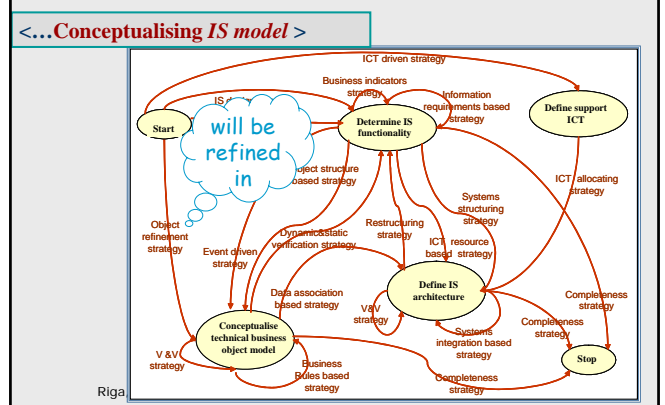
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The EKD-CMM Global Map



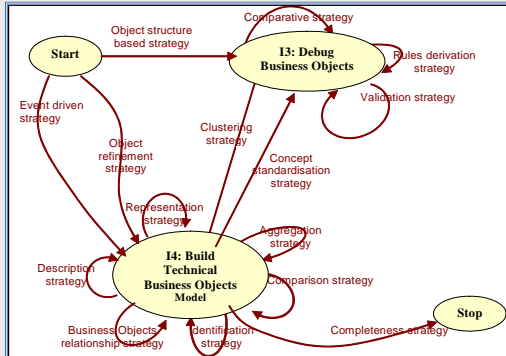
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Detailing Global Intentions... EKD-CMM locals Map – IS level



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Conceptualising TBOM using the *object refinement strategy* - IS layer



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Conclusions and Future Work

We report the use of an **intentional framework** for *modelling enterprise knowledge* using *business models* and *IS models*

- The framework provides a *systematic and flexible way to organise and to guide the enterprise modelling processes*
- It assures that *business processes* are at the origin of the *technical business objects*, information requirements.

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Conclusions and Future Work

- The framework **contributes to define accurate decision making** processes inside modern organisations
– *highly dependent of ICT*
- It reinforces the ability of companies to adopt a policy of **knowledge management**
- Our **future work** will consist to integrate in the framework the ability to handle the **BP and IS layers issues** that are more **vulnerable to change**

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Thanks for your attention



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