An open source method to address the needs of IT departments

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For a common methodology

"Praxime" is the name of an open initiative, involving several companies with the aim of elaborating a public methodology. The name of this common, open source method is "Praxeme"[1]. This approach brings two benefits, at least: first, by sharing investments in order to answer shared needs; second, by developing a genuine touchstone methodology that is widely embraced and therefore easily assimilated and applied.

We observe that many organisations are facing the same issues and have the same needs. Without a common methodology – after the decline of traditional methodologies –, the operational processes are no longer guided by a strict framework. It becomes difficult to guarantee that key competencies needed for the success of ever more challenging projects are available.

Many businesses fumble and advance blindly through the jungle of technological and ideological novelties. The most prudent invest in methodological research which remains confidential and restricted in its application by the limited size of budgets granted.

The Praxime initiative suggests that organisations combine their efforts to develop a reference methodological framework. Newcomers take advantage of previous contributions and their own contribution is used to further develop the reference framework. Following the example of Merise, the resulting methodology is to be made public in order to be widely distributed.

An approach using multiple points of view in order to organise competencies

This methodology covers multiple activities: from enterprise strategy to software development, through business process design and system architecture. The goal is to organise proficiencies and procedures, whose value is reduced by their disorganization. The Praxeme methodology aims to neither reject these specialised proficiencies nor specialise itself: it insists on the necessity of a global framework within which all knowledge can be arranged. This is a condition in order to take full advantage of the knowledge. This way, enterprise strategy becomes a starting point which is applied on a daily basis, taking effect within each layer of the Enterprise System. Furthermore, technical solutions like BAM or EAI or other possible investments become meaningful if aligned to the strategic vision. Therefore, a complex network of relationships and links must be created.

The problem resides not so much in specifying the various activities than in their scheduling and sorting. The real challenge is to simultaneously establish an organizational and conceptual order, with the purpose of restricting the loss of energy and vision. The term "governance" is not too strong to describe this art, *one which is not restricted to management, because what is urgent here is to act upon representation and content.*

Consequently, the methodology must embrace all aspects of the enterprise. The Praxeme methodology is supported by a theoretical base which includes various skill sets. The methodology can be compared to the Zachman framework. This schema and founding principle is the "Enterprise System Topology", also called "Action System Topology" when applied to other kinds of systems[2]. The topology includes and structures eight aspects of the System (see table 1). Each of the aspects features a different modelling approach, hereby preventing one of the greatest causes of problems which affect projects: confusion. The method provides a strict modelling framework for organising information and classifying decisions. However the models should not remain isolated. If, for instance, the process model doesn't relate to the knowledge or business model or on the other hand to the information system model, nothing can be achieved. The most important issue is the articulation of the different models that represent the System in each of the eight aspects. At the same time, another major concern for big projects must also be avoided: the confusion produced when everybody works on everything, without any competency mapping and any clear responsibility distribution.

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[1] From the Greek: "praxis" (action) and "semeïon" (meaning).

[2] This methodology has been applied not only to prises and software systems but also to military defence and drone systems.

Modelling for management

The underlying principle is that modelling must precede any action. Only adequate modelling can organise plethoric information the managers have to cope with; only modelling allows rational decision making, in a complex world. The Praxeme methodology defines models and representations for all aspects of the enterprise. It carefully organises them in order to be able to integrate them within a coherent workflow, which goes from strategy to implementation. It also specifies modelling techniques, organised around a common core and specialised according to the aspect being described. The modelling techniques benefit from the UML standard and are explicitly orientated towards communication.

Table 1. Aspects of the Enterprise System

Aspect	Equivalent terms	Definitions
Semantical	Conceptual, Essential, Business Model	The semantic aspect is only concerned with those objects that make up the essence of the business activity. Only the knowledge is described and is represented independently to the way the business is actually performed.
Pragmatical	Organisational	The pragmatic aspect describes the way business activities are performed: actors, responsibilities, actions on objects, process, and work contexts.
Geographical	Communication, Environment	The geographical aspect models the location of objects and actions. It shows concepts such as sites, locations and communication requirements.
Logical	Functional	Intermediate aspect where decisions are be taken on the most important structures of the information system, in a way that is relatively independent from technical solutions.
Technical	Technological	The technical aspect is concerned with the choice of technologies and the way they are implemented.
Hardware	Logistical	The hardware aspect features all physical hardware of which the system is composed, with all their properties (capacity, interoperability, cost etc.). Examples of hardware are PCs, telephones, fax machines, sensors etc.
Software	Applicative	The software aspect displays all software components which automate some part of the system.
Physical	Deployment	From the physical aspect, the distribution of software components (including databases) on hardware is described.

Organising proficiency

Enterprises and their CIO's or CEO's are currently concerned with some important issues:
- enterprise management : balanced scorecard, Six Sigma and other methods like ABC or TQM
- business modelling (more specifically, semantic modelling): enterprise repository and knowledge management
- business organisation: business process optimisation and reengineering
- information systems: city planning, innovation using the expected potential of emerging technologies, infrastructure optimisation…

All these trends – once the hype cycle has matured – have added value for the enterprise. Their principles and technical contents must be rapidly fixed, before the original ideas get distorted by vulgarisation and approximation. A simple precaution which should be taken in order to take advantage of them consists in placing every procedure on the global map. This way, we specify the level of reflection and the path to follow towards implementation. The Enterprise System Topology is the tool to use for this kind of planning.

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Figure 1 shows how the above mentioned disciplines are mapped on the eight aspects. It represents, using the UML package diagram formalism, the aspects and their organisation. The dashed arrows show the dependency or usage links.

Equipped with this cartography, managers can organise projects and skills more easily. Topology handles the System, the object on which we should act. The understanding of its structure is a prerequisite for organising action. From this schema we can deduce the constraints for the different activities, as well as the activities that can be executed in parallel. For instance, the "Y"-life cycle is present in the schema. It is validated by the fact that the logical and technical aspects are relatively independent1.

Figure 1. Procedures are mapped on the Enterprise System Topology
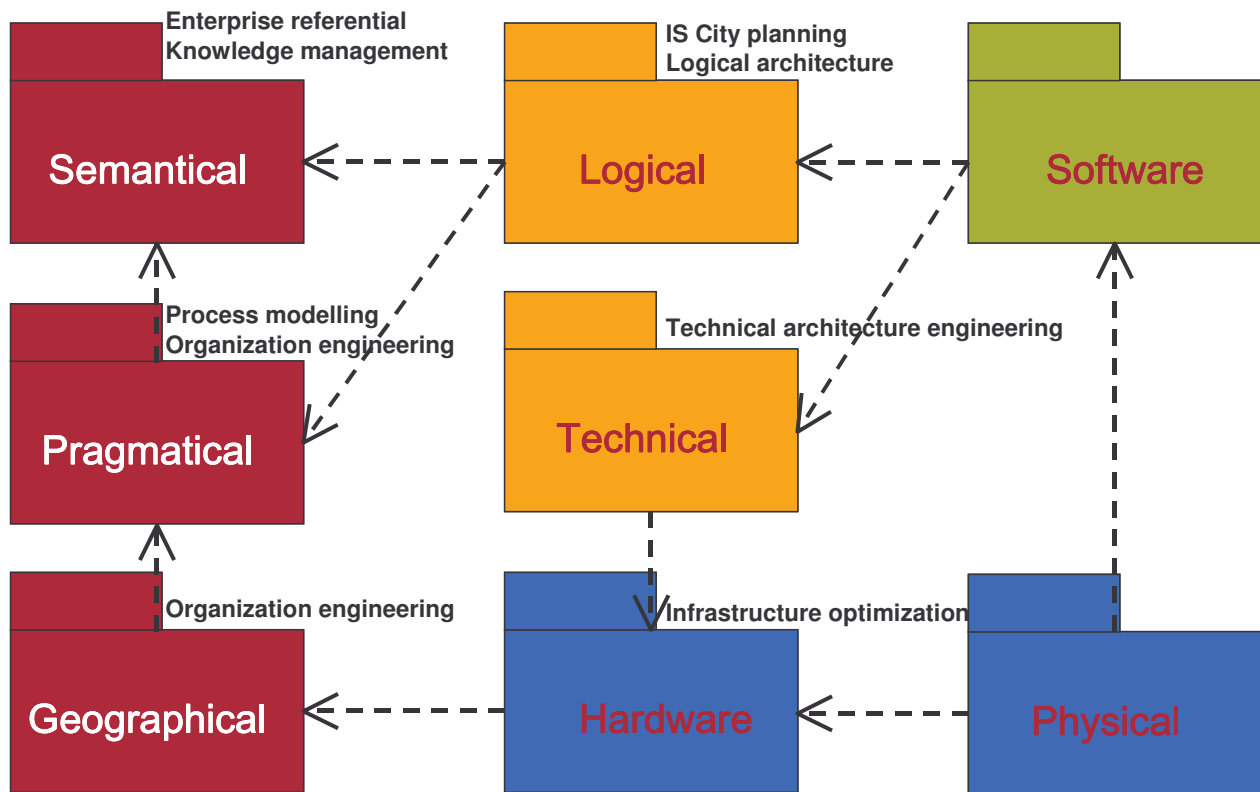
Praxime's financial model

Today several corporations are involved in the Praxime initiative and find a means of strengthening or rapidly developing methodological answers to the issues their activities or projects are bringing forth. The first contributors which allowed the development of a common foundation are SAGEM (the defence department) and SMABTP (insurance). Others companies and organisations have since joined: Caisses d'Allocations Familiales (public administration), French army, Calyon (bank), Direction Générale pour la Modernisation de l'Etat (a central administration, advising the prime minister). Each new contributor has access to previously developed elements and co-finances further, specific, research & development. Any specific R&D is aimed at answering urgent issues of the new contributor; it is then used to enrich the common knowledge base. More broadly, the Praxeme Institute – a non profit association – gathers members and organises the different activities: communication, feedback on the methodology, etc.

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<u>Additional information</u> :

1 Content

Components of the common knowledge base:
- A general guide gives the common base and the main concepts
- Each of the eight aspects is described in a methodological guide presenting the concepts related to each aspect, its place in the workflow and associated procedures
- Forms, developed when needed and applied on several projects
- Training materials for modelling

In the long term, actual components will be strengthened by real life examples; a management guide will be developed.

Praxeme relies on recognised standards notably UML (Unified Modelling Language) for modelling, MDA (Model Driven Architecture) for workflow engineering and SPEM (Software Process Engineering Metamodel) for defining the development process. These three standards are published by the OMG (Object Management Group).

2 What's new

The Praxeme methodology clarifies domains and skill sets. Each aspect requires well defined competencies. The Enterprise System Topology provides visibility upon the required responsibilities in a top-down approach and allows each stakeholder to understand the workflow and his role. Moreover, in the MDA approach, the models are designed so that they can be automatically derived, passing from one aspect to the other, until finally obtaining software. Activity management and productivity are therefore enhanced.

3 Praxeme compared to UML and UP

The public methodology makes the most of the UML standard, which offers largely unexploited modelling possibilities. In general, instead of using it as a general modelling and communication technique, it is only used for software design. Important application opportunities are forgotten, such as business domain modelling (semantic modelling), organization and business process modelling, or logical and technical architecture.

On the other hand, UML is not and was never meant to be a methodology. The standard leaves many issues that its application involves unanswered. UML is a toolbox without instructions for use. Praxeme provides these instructions, not only in terms of process, but also in terms of procedures and best practices.

Concerning the literature on UML, it hasn't, in general, reached the level of maturity of previous methodologies. The current state of the art has almost completely eclipsed the achievements of previous research in the field of software engineering. For instance, Merise provided formal rules for normalizing and transforming models, rules which were efficiently used; the same strictness cannot be found in UML literature, leaving users without a practical guide. If Praxeme adopts the new paradigm, it doesn't reject the rest of the methodological heritage. On the contrary, the Initiative has the objective to use older achievements, by updating them and fitting them into new approaches, like object oriented design, service oriented architecture or process engineering.

In comparison to UP (Unified Process), the Praxeme methodology is different in several ways. The field of UP is limited to software development and even, more precisely, to application development projects. Praxeme can be used to outline strategy and also for business modelling, city planning and architecture design. Moreover, the Initiative stems from the need for facilitating communication and building synergies among joint competencies. For this reason its principal concern is modelling initial aspects of projects and organizing different the aspects of the enterprise from it business model to its infrastructure through strategy development and organization reengineering. The methodology is not only meant for IT specialists, but also for business experts and corporate officers.