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Doctoral research project:

Business rules formalization & performance indicators arrangement
for enhancing enterprise architecture method « Praxeme »

Enterprise Architecture discipline:

One of the goals of Enterprise Architecture is to help the enterprises to pilot their transformation, including aligning their information system on their strategy. There are frameworks or methods that govern Enterprise Architecture. The two best-known frameworks are of American origin. They are Zachman [1] and TOGAF [2] frameworks. The French method Praxeme can fill up these frameworks and give them more consistency.

Public method Praxeme:

The Praxeme method is supported by the Praxeme Institute, a non-profit organization, which offers its document repository [3] freely available to the public. The Praxeme method focuses on the Enterprise, considered as a complex system as a whole (holistic approach). It offers a framework called "Enterprise System Topology". This framework identifies seven aspects, each aspect being represented by a particular model. This research project focuses on the upstream aspects (intentional, semantic and pragmatic), commonly grouped under the term Business Architecture. The downstream aspects (logical, logistics, physical and geographical) are grouped under the term Technical Architecture.

Initial question:

The initial question that guides my work is as follows: How to make the Enterprise Architecture method "Praxeme" more rigorous* and effective**?

* Using a scientific approach for a proof of concept.

** Using an engineering approach for applications.

This initial question allowed me to define three sub-projects.

Three distinct sub-projects:

This global doctoral research project can be divided into three separate sub-projects:

I- Business rules formalization:

- Formalize the Business Rules [4], acting on the business objects and the organizations through the process.
- Apply business rules formalized in a language or a notation understandable by business users using software such as BRMS (Business Rules Management System)

II- Performance indicator arrangement:

- Define and organize an appropriate set of business indicators constituting the Tree of Performance [5].
- Integrate the Tree of Performance into the Enterprise Architecture method Praxeme.
- Keep its overall approach, which fits perfectly with that of Enterprise Architecture.

III- Automated derivation of models:

- Derive, if possible in an automated manner [6], the different models used in Praxeme method to represent the aspects of the Enterprise System.
- Check the consistency and persistence of business rules and performance indicators, after a projection on the different aspects and the derivation of models that represent them.

New standard DMN:

This doctoral research project has officially started in January 2014. I am currently working on the first sub-project "Formalization of business rules." During my review of existing standard languages and notations to write a state of the art, I immediately noticed a new standard proposed by the OMG (Object Management Group), whose version 1.0 beta of the specification was published in February 2014: DMN (Decision Model and Notation). The final version 1.0 was published in September 2015, the latest version 1.1 was published in June 2016 [7]. The initial postulate, which links with business rules, is that the application of these rules is generally used to make decisions [8].

Bunch of OMG standards:

This new standard DMN is not isolated. On the contrary, it can rely on the vocabulary defined in SBVR (Semantics of Business Vocabulary and Business Rules) [9] and the objectives defined in BMM (Business Motivation Model) [10]. DMN is also interfaced with BPMN 2.0 (Business Process Model and Notation) [11]. Therefore, it will be noted that a real work of integrating these different standards (at least four) has to be done.

DMN & BPMN:

The interface of DMN with BPMN version 2.0 seems particularly interesting [12]. Instead of representing a business process by a collaboration diagram BPMN, with many gateways often nested in a cascade, it is enough to replace them with a single task "Make a decision" that directly returns a result [13]. Besides simplifying the diagrams, it is mainly a good example of separation of concerns, between the concerns of business analysts and IT people in particular.

DMN tool:

The drawback of this new standard is that DMN is not yet supported by so many tools (Here is the first one [14]). Our demarche is to consider DMN as a DSL (Domain-Specific Language) [15], where the domain studied is that of Decision. The OMG does not simply write a 182-page specification: a metamodel of DMN is also provided. The aim is to customize an existing tool to draw a decision model and automatically generate the corresponding notation. Then this DSL notation will be converted to PSM (Platform Specific Model) [16] for a rules engine, already interfaced itself with a BPM (Business Process Management) suite, to have a complete and operational demonstrator to verify the efficiency of DMN by comparing the practice to the theory.

Goal:

As DMN is relatively new, there are few articles about this specification. The first reference article was this one [17], oriented towards vulgarization. The short-term goal is to demonstrate that DMN is a relevant standard (or not) to formalize business rules according to clarified criteria. Thierry BIARD began to contribute by publishing his own article about DMN in October 2015 [18].

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