

# $\pi$ SOD-M: Building SOC Applications in the Presence of Non-Functional Requirements

*(List of changes and answers to the reviewers' observations)*

October 5, 2017

## **Editor's remarks:**

We have received the review reports for your paper "pisodm: Building SOC Applications in the Presence of Non-Functional Requirements".

We require now that you implement in your submission the following recommendations made by the reviewers:

All the comments have been taken into account and they are addressed in the paper. Our answers to the reviewers (below) explain how this has been done.

The text included in the new version is highlighted for a better identification of the changes to the document.

## **Reviewers' comments:**

### **Reviewer A:**

First of all, on the form:

1. Footnotes do not appear in the paper.

Fixed in the new version.

2. On page 21, title 5.2.4 you have a missing reference.

Fixed in the new version.

3. On page 23, second paragraph, you have an incomplete sentence: “  
...are implemented according a the knowledge...”

Fixed in the new version.

On the content:

1. On Section 2, the related works are cited as such. This section lacks of an evaluation of these works, and of the motivation of your proposed method.

We added 2 paragraphs at the end of Section 2: (i) considering the evaluation of the related work; and (ii) also motivating our proposed method.

2. This method can be fully automated? Is it appropriate to non-IT professionals?

We highlighted at the beginning of section 4, that the method is semi automatic, and we added a comment in as footnote explaining the reasons the method is not completely automatic.


3. While designing the application to develop using your models, how is the selection of services done?

We highlighted in section 3.2.2, how the service is chosen. To be chosen and executed the service must fit the contract (constraints). If the service fits the contract it will be used in the execution flow.

4. The paper validates the method with an industrial use case, but it lacks of a real evaluation that shows how the proposed method improves the existing once. For instance, evaluating the satisfaction of the users of the method, and comparing their satisfaction with the use of another development method.


We intend to evaluate our solution as suggested by the reviewer in our future work. That said, it is worth mentioning that the effectiveness of the solution proposed was showcased in the paper using a real-world application that underlines the features of our solution. In page 24 Section 5.3 we discussed about the importance of the use case for validating the methodology and about the perspectives of evaluating (i) time to market when a new module will be designed and implemented in the system (ii) maintainability of the new module having a separated and clear vision of business logic and non-functional properties.

5. How the integration and the description of the constraints (Non-functional properties) improves the development process and the developed application?




We believe that across the paper we have shown that decoupling the description (specification) of non functional properties from the functional aspects, provides developers with the means to focus on the logic of their application. This isolates them from the nitty-gritty aspects of non-functional aspects. Furthermore, it improves modularity by allowing the same application to be run under different non-functional settings, if needed.


6. These non-functional requirements can include other types of constraints?



As the non-functional requirements concept used in our method are related to business rules (constraints / contract rules) associated to the behavior of the application (services), it is possible include different types of constraints. The constraints are defined as pre- and post-conditions relates to services. So, during the design process, it is possible to include different kind of contracts related to services. Figure 4 ( $\pi$ -UseCase Meta-Model.) presents the Policy View Concepts used to design the constraints.



7. On page 13, you specify that the model can be automatically translated into actual computer programs. Is this actually developed? If not, how is that can be possible?



Yes, it is automatically translated into  $\pi$ -PEWS [?, ?, ?, ?] specification programs. It is possible because of the PIM to PSM transformation rules described in sections 4.3 and 4.4 (using Acceleo specification programs) and also described in [?].

## Reviewer B:

Changes which must be made before publication: + Footnotes do not appear

Fixed in the new version.

+ Some references are not inserted [?]

Fixed in the new version (Section 5.2.4).

+ Page 4, section 3.1.1: what is "value activities"? operations on values?

We added a footnote explaining the value activity concept (according to [?]).

+ Page 5 , paragraph following items: e3 value value model...

Fixed in the new version.

- + Page 22 paragraph on the bottom of the page: a too long sentence; I do not understand anything in this paragraph.

We have rewritten the paragraph.

- + Page 23: service composition instead of services composition

Fixed in the new version.

- + The method is an extension of SOD-M, but I was wondering why the new name is piSOD-M. If an explanation exists, it would be interesting to indicate (since there is nothing to do with pi-calculi sometimes used in the WS world)



**There is no specific motivation behind the name.** It just sounded appropriate for an extension of the existing SOD-M approach.

- + Section 6 does not mention any future work (except on its title!)

We have added a final paragraph describing directions of future work.

## Final remarks

We would like to acknowledge the anonymous referees for their useful and constructive critics to our paper.