COST STSM Reference Number: COST-STSM-IC1404-30528STSM Topic: Definition of the profile of MPM4CPS and a systematic literature review on modeling for CPS Systems

Period: 16.12.2015 to 23.12.2015.

COST Action: IC1404

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STSM Topic: Definition of the profile of a MPM4CPS course and a systematic literature review on modeling for CPS.

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REPORT

As Junior researcher (Phd. student) of a young research group at Faculty of Organizational Science, University of Belgrade in Serbia, I have applied for 1st Call for STSM of the MPM4CPS COST Action IC1404, with the aim of contributing to the work program of its Work Group 4 **(Education and Dissemination).** The chosen required task involved to proceed with a systematic literature review (SLR) on modeling for Cyber-Physical Systems. The purpose is twofold: First, to prepare an online questionnaire for the purpose of filling the goal of defining the different profiles of CPS engineers and catalogs the different courses across Europe that can contribute to define the Education Network of experts in CPS Modeling; Secondly, the preparation of the SLR on the topic of MPM4CPS to extensively and in a systematic fashion define the current state of the art.

The STSM plan was to visit a research institution of the Computer Science Department of the Faculty of Sciences and Technology at Universidade Nova de Lisbon, Software Engineering group in NOVALINCS from 16.12.2015 to 25.12.2015, but for reasons related to the Christmas Holidays in Portugal that meant pricy airplane tickets this visit was **2 days shorter** and therefore it happened from the **16.12.2015 to 23.12.2015.**

During the visit to NOVALINCS the first two days were used to get acquainted with the methodologies and techniques to realize Systematic Lecture Reviews (such as B. Kitchenham and S. Charters, Guidelines for Performing Systematic Literature Reviews in Software Engineering) and Systematic Mapping Study (such as K. Petersen, R. Feldt, S. Mujtaba, M. Mattsson, Systematic mapping studies in software engineering) in order to properly define our process. For this, the ASE research group at NOVALINCS, with research expertise on this techniques, made an intensive course into the topic. It was discussed several approaches for Systematic Lecture Reviews and for Systematic Mapping Studies. After that, I was able to start to define our process, and dedicate the last 2 days with the systematic selection process of

publications by building the queries and searching the several sets of publication repositories (IEEE, ACM, Springer, and Scopus), refining the keywords and going the quality assessment.

Finally, it was prepared the plan for the continuation of the activities after the mission. Several virtual meetings will take place in the month of January to prepare the work to be presented, discussed, and spread responsibilities in time for the next WG4 meeting.

The main results obtained from this STMS can be systematized in the following:

- We identify several approaches that can be used for Systematic Literature Reviews and Systematic Mapping Studies;
- We have defined the process that will conduct a SLR for the purpose of the Working group goals;
- We have defined objective, keywords, research questions and start SLR.

As result of this visit, we will proceed with the work as part of WG 4. This will involve producing a technical report and eventually publication in a relevant venue in the topic. We plan to achieve the conclusion of these goals during the month of March, 2016.

As a result of this research we expect to identify research and research groups that are most relevant in this field, as well as to contribute to the discussion within the scope of the COST action regarding the profile of a CPS-Modeling Engineering.

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