# Tallinn University of Technology

**Informed Consent for Participants in Research Projects Involving Human Subjects**

**Title of Project:** Agent-Oriented Methodology for Requirements Engineering of Socio-Technical Systems.

**Doctoral Student:** Msury Mahunnah, School of Information Technology

**Supervisor:** Professor Kuldar Taveter, School of Information Technology

**I. Purpose of this Research Project**

The purpose of this empirical study is to compare modelling of requirements using the AOM4STS modelling tool with modelling of requirements using a pen and paper to demonstrate if the benefits expected from using the AOM4STS modelling tool are also present if used in a realistic environment by subjects unfamiliar with the AOM4STS methodology.

**II. Procedures**

The evaluation process includes three parts: (1) training, (2) creation of requirements models, and (3) completing a questionnaire. In the first part, you will learn the basic knowledge of agent-oriented modelling for socio-technical systems and about the AOM4STS modelling tool. In the second part, you will read the provided materials and use both treatments to create models of requirements based on the content of the materials. In the third part, you will complete a questionnaire to present your evaluation, comments, and suggestions about both treatments.

The entire process will take approximately 3 hours. The evaluation will be conducted as a part of a requirements’ engineering class at Tartu University.

**III. Risks**

The risks associated with the participation in this study are minimal. The researchers involved will work to ensure that all the responses collected through this study are stored securely and remain confidential.

**IV. Benefits**

Your participation in this empirical study provides information that will be used anonymously to validate the research results of this research project. No guarantee of benefits has been made to encourage you to participate in this study.

**V. Extent of Anonymity and Confidentiality**

The results of this study will be kept strictly confidential. Your written consent is required for the researchers to release any data identified with you as an individual to anyone other than personnel working on the project. The information you provide will have your name removed and only a pseudonym will identify you during analyses and any written reports of the research.

**VI. Compensation**

Your participation is voluntary and unpaid.

**VII. Freedom to Withdraw**

You may withdraw from the research project at any time and for any reason. You are free to refrain from answering any question without penalty. To withdraw, please inform the researchers listed at the bottom of this form.

**VIII. Subject's Responsibilities**

I voluntarily agree to participate in this study. I have the following responsibilities:

* I will follow the provided “Guide to the Experiment” when participating in the study.

**IX. Subject's Permission**

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent. Should I have any pertinent question about this research, and on the research subjects' rights, and in the event of a research-related injury to the subject, I may contact:

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Subject Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subject Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Empirical Study: On Paper – Software Modelling**

**Guide to the Experiment**

***You will be given the following sheets:***

* A pre-questionnaire
* Modelling task for case study 1
* Modelling task for case study 2
* A questionnaire for case study 1
* A questionnaire for case study 2
* A final post-questionnaire

***Your tasks:***

1. Fill in the pre-questionnaire.
2. Write the start time.
3. Carefully read the whole description of the first case study.
4. Imagine being an analyst and creating goal, role and domain models for the requirements of the first case study by using the first modelling approach, as detailed as possible.
   * Follow step-by-step the system description.
   * Please, try to remember the relative time used for the different modelling activities you perform.
5. Write the end time.
6. Answer to the questionnaire.
7. Repeat step 2 to 6 for the second case study by using the second modelling approach.
8. Fill in the short post-questionnaire.

Thanks you.

Assigned to you:

1. Case Study for Personalised Emergency System (PES)
2. Case Study for Meeting Scheduler System (MSS)

**Start Time: \_\_\_\_\_\_\_\_\_\_ End Time: \_\_\_\_\_\_\_\_\_\_**

**Case Study 1: Meeting Scheduler System**

**System Story:**

The aim of this system is to provide a computer based meeting scheduler service that supports the setting up of meetings. The requirements for this system state that for each meeting request, the meeting scheduler should try to determine a meeting date and location so that most of the intended participants will participate effectively. The system would find dates and locations that are as convenient as possible.

The meeting initiator would ask all potential participants for information about their availability to meet during a date range, based on their personal agendas. This includes an exclusion set – dates on which a participant cannot attend the meeting, and a preference set - dates preferred by the participant for the meeting.

The meeting scheduler comes up with a proposed date. The date must not be one of the exclusion dates, and should ideally belong to as many preference sets as possible. Participants would agree to a meeting date once an acceptable date has been found.

**Modelling Task:**

Try to model the requirements for the Meeting Scheduler System (PES) as detailed as possible, following AOM4STS methodology, starting from the goal model of the PES, followed the domain model.

Feel free to ask us questions on modelling constraints.

Model the system requirements step-by-step following the system story. When modelling, interpret the requirements freely. There is no “right” or “expected” solution to which your models have to conform.

**Start Time: \_\_\_\_\_\_\_\_\_\_ End Time: \_\_\_\_\_\_\_\_\_\_**

**Case Study 2: Personalised Emergency System**

**System Story:**

The aim of this system is to support a person, generally an older person, to remain living at home longer. Emergency systems typically have the following two features: (i) an emergency alarm: the older person can raise an alarm if he/she requires emergency attention by e.g. pushing a button on a pendant worn around his/her neck or wrist; and (ii) a wellbeing check: the older person informs a service provider that he/she is well, on a daily basis, via e.g. pushing a button on a base station.

If no indication of wellbeing is received during a specified period, the service provider initiates checks on the older person. The emergency system is installed in an older person’s home, and a service provider monitors data from the system. If the older person raises an alarm, the service provider contacts the person to ask if he/she requires help, or to check that the call is not a false alarm (accidental triggering of the alarm).

If the service provider fails to make contact, or makes contact but the older person is in need of help, the service provider calls a nominated relative or friend to provide assistance, and ultimately, emergency services (e.g. ambulance) is provided if none of the nominated contacts can attend.

For the wellbeing check, the older person is required to register their wellbeing each day, generally within a fixed period, e.g. 7am–11am. If the older person do not check in by the end of the period, the service provider calls the older person. In most cases, the older person has simply forgotten to press the button. If the older person cannot be reached, a similar process as for raising an emergency is initiated.

**Modelling Task:**

Try to model the requirements for the personalized emergency system (PES) as detailed as possible, following the AOM4STS methodology, starting from the goal model of the PES, followed by the domain model.

Feel free to ask us questions on modelling constraints.

Model the system requirements step-by-step following the system story. When modelling, interpret the requirements freely. There is no “right” or “expected” solution to which your models have to conform.

**Questionnaire for Case Study 1 – Meeting Scheduler System**

**Post-modelling questions:**

How much % of the time did you approximately spend in:

Reading the AOM4STS methodology description: \_\_\_\_\_%

Reading and understanding the case study: \_\_\_\_\_%

Modelling the case study: \_\_\_\_\_%

**1 – Strongly agree 2 – Agree 3 – Not certain 4 – Disagree 5 – Strongly disagree**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | The description of the case study was clear to me | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 2. | I had no difficulties in modelling the goal model | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 3. | I had no difficulties in modelling the domain model | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 4. | I had enough time for accomplishing the modelling task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 5. | Goal decomposition was very useful in this task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 6. | The concept of AOM4STS methodology were detailed enough to model the | |
|  | requirements of the system. | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
|  |  |  |
| 7. | The effort of modelling seems too high for an efficient use of the methodology in | |
|  | practice. | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |

**Questionnaire for Case Study 2 – Personalised Emergency System**

**Post-modelling questions:**

How much % of the time did you approximately spend in:

Reading the AOM4STS methodology description: \_\_\_\_\_%

Reading and understanding the case study: \_\_\_\_\_%

Modelling the case study: \_\_\_\_\_%

**1 – Strongly agree 2 – Agree 3 – Not certain 4 – Disagree 5 – Strongly disagree**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | The description of the case study was clear to me | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 2. | I had no difficulties in modelling the goal model | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 3. | I had no difficulties in modelling the domain model | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 4. | I had enough time for accomplishing the modelling task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 5. | Goal decomposition was very useful in this task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
| 6. | The concept of AOM4STS methodology were detailed enough to model the | |
|  | requirements of the system. | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
|  |  |  |
| 7. | The effort of modelling seems too high for an efficient use of the methodology in | |
|  | practice. | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |

**Questions for the AOM4STS modelling software:**

**1 – Strongly agree 2 – Agree 3 – Not certain 4 – Disagree 5 – Strongly disagree**

|  |  |  |
| --- | --- | --- |
| 1. | In my opinion, information propagation between requirements models is very useful feature, | |
|  | for analysing the requirements of system. | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
|  | My thoughts about information propagation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  |  |  |
| 2. | In my opinion, consistency checking during modelling is very useful feature for improving | |
|  | the correctness of the requirements models. | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
|  | My thoughts about consistency checking: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  |  | |
| 3 | In my opinion, the use of coloured arcs (lines) in the modelling is very useful feature | |
|  | for improving the readability of requirements models. | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | |
|  | My opinion about the use of coloured arcs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |