

# **Supplementary Material**

## **How Agile Teams Make Self-Assignment Work: A Grounded Theory Study**

**Zainab Masood . Rashina Hoda . Kelly Blincoe**

The supplementary material provided in this document is part of a larger doctoral study conducted to study self-assignment which is a task allocation practice used by agile software teams. The first section of this document (Appendix A) presents the participants information sheet used for this research study. The second section of the document (Appendix B) presents the instruments used i.e. interview guides for Phase1 and Phase2 and the pre-interview questionnaire employed to gather participants' demographic information.

### **APPENDIX A. PARTICIPANTS INFORMATION SHEET**

### **APPENDIX B. INSTRUMENTS USED**



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## **PARTICIPANT INFORMATION SHEET**

### Software Practitioner

Project title: Self-Assignment: Task Allocation Practice in Agile Software Development

Names of Researchers: Dr. Rashina Hoda, Dr Kelly Blincoe, Zainab Masood

#### **Researcher introduction**

Dr. Rashina Hoda is a Senior Lecturer of Software Engineering in the department of Electrical and Computer Engineering at The University of Auckland, New Zealand.

Dr. Kelly Blincoe is a Senior Lecturer of Software Engineering in the department of Electrical and Computer Engineering at The University of Auckland, New Zealand.

Zainab Masood is a PhD candidate in the Department of Electrical and Computer Engineering at The University of Auckland, New Zealand.

#### **Project description and invitation**

Self-organizing teams are a fundamental principle of Agile methods. With the increasing popularity of Lean and Agile methods, more and more software teams are faced with the challenge of becoming self-organizing Agile teams. This research aims to explore the process followed by software development teams in order to become self-organizing Agile teams including project management and knowledge management in agile software development. Findings of this research will provide guidance for teams attempting to adopt Agile and become self-organizing as well as highlight the potential pit-falls to avoid in the process.

We invite software practitioners with a minimum of 2 years industrial experience of practicing Agile software development to participate in our research. Call for participation adverts will be posted to Agile user groups

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online. Upon showing willingness to participate, further information will be given about the project, participant's demographics will be collected and interview time will be arranged. All data collected will be kept confidential. See 'Anonymity and Confidentiality' section below for details.

### **Project Procedures**

This research uses Qualitative research methods i.e. Grounded theory. Using this method, data will be collected using face-to-face, semi-structured interviews, pre-interview questionnaires, and observation of workplace and practices. The interview will be approximately an hour long and will be audio-recorded and transcribed to assist in analysis. Observations will be approximately 2 hours long and will involve the research observing workplace settings and practices without causing any major disruption to normal mode of work. Photographs of workplaces settings and artefacts may be taken with permission from the participants.

Analysis of the data will involve comparing data from one interview to another in order to identify patterns of common concepts. Further abstraction of data at different levels will lead towards a ground theory which will help explain the task allocation strategies, challenges faced by software practitioners and their solution strategies.

Results from this research will be published for the benefit of the greater practitioner and researcher communities. Identity of the participant will be treated as confidential data and participant confidentiality and anonymity will be maintained in any publications arising out of this research. The data will be published in a manner that does not reveal you as the source. Participation in this research is voluntary.

### **Data storage/retention/destruction/future use**

Data (digital and paper artefacts) will be securely stored at the researcher's office under password protection (for digital artefacts) and under lock and key (for paper artefacts) for a period of 6 years and destroyed thereafter.

Interviews will be audio recorded and transcribed by either the researchers or another transcriber (or both). In case of a third party transcriber, the person will have signed an appropriate confidentiality agreement. You may request for a copy of the transcripts and will be given the opportunity to edit them if you wish within a period of time (30 days from date of interview) after the interview. Observations may include digital photographs of workplace and any other artefact as the participant agrees to share. Reproduction of these photos or artefacts in publications/reports etc. will avoid identification of the individual participant or company.

Your details, details of your company, and all information you share will not be made available to any third parties (except for a transcriber if used.) Your

confidentiality and that of your company will be maintained. Any publications or reports will not mention any specific names or details which make you or your company identifiable.

### **Right to Withdraw from Participation**

You can ask for the recorder to be turned off at any time. You have the right to withdraw from participation at any time up to 30 days after the interview without giving a reason.

### **Anonymity and Confidentiality**

All materials collected will be stored in a confidential way and will be destroyed at the completion of the research. Personal information (name, age group, occupation) collected by means of the pre-interview questionnaires will be securely stored using password protected folders with restricted access (if collected electronically) and under lock and key (if data collected on paper). Personal data of the participants shall only be accessible by the concerned researchers. The researchers will keep the participants' identity confidential. The audio recordings will be stripped of any personal information before being sent to the transcriber. Any papers published as a result of the study will not identify the participants, company or its staff. As a general practice of ethics approval, we will need the written consent of the interviewee to be interviewed. A consent form to the same effect is attached herewith.

### **Contact Details and Approval Wording**

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For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Office of Research Strategy and Integrity, Private Bag 92019, Auckland 1142. Telephone 09 373-7599 ext. 83711. Email: [humanethics@auckland.ac.nz](mailto:humanethics@auckland.ac.nz)

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 10-May-2019 FOR THREE YEARS, REFERENCE NUMBER 022381

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## APPENDIX B.

### INTERVIEW GUIDE (PHASE1)

This interview guide seeks to gather participant's basic and professional information. All the participants are asked the same questions in the same order to cover the first two parts of the guide. The part3 of the interview guide was semi-structured listed questions started a discussion on the task allocation process and practices but provided an opportunity to explore topics relevant to that particular participant or task allocation process followed by them.

#### **Professional details**

- Q. Please tell me about your professional background?
- Q. What is your current role?
- Q. What is your total experience in current company?

#### **Agile experience**

- Q. What is your total agile experience?
- Q. How long have you been using agile practices?
- Q. Which agile methodologies have you used and no. of years used for?

#### **Current team and project**

- Q. What is the team size (no. of people)?
- Q. What is the project focus and domain?
- Q. What is the software method used for this project?
- Q. Which agile practices have been used regularly on this project?
- Q. How long are your iterations?

#### **Task Allocation Practices**

- Q. In what form does work arrive to your team?
- Q. In what form does work arrive to you (individually)?
- Q. Who allocates work to your team?
- Q. When does individual task allocation happen?
- Q. How does task allocation happen in your team? Please provide an example.
- Q. What is the default or most common task allocation style? Why?
- Q. Who helps you the most with task allocation?

## PRE-QUESTIONNAIRE (PHASE2)

This form is intended to gather the basic information of the participant, company, team and the projects through an online google form. The questionnaire states in the beginning that the details of the participants, their companies, and all other confidential information will be kept confidential. The names and personal details of the participants will not be specified in any of the publications or reports.

<b>Part 1: Personal Information</b>	
Full Name	
Email address	
Age Group (select one)	26-30 / 31-35 / 36-40 / 41-45 / 46-50 / 51-55 / 56+
Gender	
Ethnic Group	New Zealand European/New Zealand Non-European/ Maori/ Asian/ Pacific Peoples/ Middle Eastern/Latin American/African /Other European /Chinese / Japanese/ Korean/ Filipino/ Malaysian / Indian/ Pakistani/ Other Asian
<b>Part 2: General Professional Information</b>	
Total experience in software industry	Years
Total non-agile experience (years)	Years
Non-agile experience in (select all that apply)	Check all that apply. None /Waterfall/ Spiral/ Other:
Total agile experience (years)	Years
Experience with agile software methods	None /Scrum / XP/ Scrum and XP combo/ Kanban/ Crystal / Feature Driven Development/ Dynamic Systems Development Method / Spotify Other: Other (please specify name):
<b>Part 3: Current Company/Project Information</b>	
Current Company Name	
Reference to company e.g. website	
Type of company	Check all that apply. Single Product/ Multiple Products / Consultancy/ Other Services (please specify name):
Job Title (select all that apply)	Check all that apply. Developer /Tester / Scrum Master /Manager /Business Analyst Other: (please specify name):
Experience in current company	Years
<b>Part 4: Project and Team Information</b> (Please recall ONE current/past project or product where you used self-assignment as a task allocation approach, and which stands out in your experience and use that project/product to answer the following. This selected project will be the basis of our interview conversation)	
Domain of project	Check all that apply. IT Finance & Banking /Transport /Medical / Telecom / Healthcare / Manufacturing Other: (please specify name):
Your role on project	
Was it using Agile or Traditional?	Agile /Traditional / Other: (please specify name):
How long is the team following agile practices	Years
Agile method used:	Check all that apply. None/ Scrum / XP /Scrum-XP/ Combo / Kanban/ Crystal / Other:

Iteration length:	Not applicable/ 1 week/ 2 weeks/ 3 weeks / 4 weeks
Project focus	Check all that apply. Migration, New Development, Software as a service (SAAS), Other: (please specify)
Team Size (Number of people)	
Distribution of team(s)	Check all that apply. Collocated, Distributed Other:
Team Composition Team composition here refers to the technical attributes of people in a team. Specialists have knowledge in a specific area and likely to pick work appropriate to their skill set while generalists have a broad knowledge in various domains.	Check all that apply. Specialists, Generalists, Mixed, Other: (please specify)
Agile practices followed very frequently	1 (Never) /2 (Rarely) / 3 (Occasionally) /4 (Frequently) /5 (Always) Short iteration, sprints Iteration Planning, User Stories, Product Backlog, Sprint backlog, Collective estimation, Daily standup or team meeting, Release planning, Pair programming, Self-assignment, Customer Demos, Review meetings, Scrum or Kanban board, Definition of Done, Retrospectives
When does task allocation (self-assignment) happen in your team?	Check all that apply. During project or release planning (before project starts), During iteration planning (before iteration starts), During the daily team meeting, Tasks can be allocated at any time (during the iteration) Other: (please specify):
In what form does work arrive to you and your team	Check all that apply. Epics, Features, User Stories, Technical Tasks, Other: (please specify)
Rate how often task allocation is done using the following approaches:	<i>1: Never or almost never; 2: Rarely; 3: Occasionally; 4: Frequently; 5: Always</i> Manager-driven task allocation (manager directly allocates tasks to a team member), Manager-assisted task allocation (tasks are allocated to team members with some assistance from the manager), Team-driven task allocation (team discusses and mutually decides who will perform which task), Team-assisted task allocation (team member self-assigns tasks with some assistance from fellow team members), Individual-driven task allocation (tasks are self-assigned independently i.e. selected and managed individually without any assistance from others)

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## INTERVIEW GUIDE (PHASE2)

This interview guide is used to facilitate the interviewer and includes semi-structured list of questions to explore various aspects of self-assignment. These questions are just samples, and varied with what participant shared during the interview. This question list was updated over time.

- Q. What are your major responsibilities as per [role mentioned in the pre-interview form]?
- Q. In your opinion, is it better to pick up tasks for yourself or for tasks to be assigned by a manager? How?
- Q. How does work come to your team?
- Q. In what form does work arrive to your team? Can you please elaborate with few examples?
- Q. Who allocates work to your team and How?
- Q. In what form do you pick the work?
- Q. Who provides the details related to the work to your team?
- Q. When are the tasks available to your team?
- Q. How does self-assignment takes place in your team?
- Q. When do you pick/self-assign tasks?
- Q. Do you practice self-assignment differently for work items of different nature? If yes, please illustrate the different strategies followed? If no, illustrate the common strategies?
- Q. What problems do you (as a developer)/your team (as a manager) face while picking up tasks?
- Q. How do you overcome these problems? Please provide examples with how these problems were solved.
- Q. What benefits of self-assignment have you experienced? Please provide some examples.
- Q. Based upon your experience, is self-assignment better than delegation? How? Any weaknesses?
- Q. Any improvements you would suggest improving current process of self-assignment?
- Q. When did your team start with self-assignment? How and when self-assignment was introduced as a practice in your teams?
- Q. Based on your experience, what leads to an effective self-assignment?
- Q. What are the situations when self-assignment does not take place? Why?