Participant Information Sheet
APPROACHES TO EVALUATING THE COMPLEXITY OF AN ENGINEERED SYSTEM

I would like to invite you to take part in my research project. Before you decide whether or not to participate, I would like you to understand why the research is being conducted and what it would involve for you. You are welcome to talk to others about the study if you wish and please ask me questions if anything is unclear.

I would like to talk to you about your personal experiences with system complexity and how the complexity of an engineered system is evaluated throughout a system lifecycle. You will either be given: (i) an existing decision-support tool that has been in use for several years, or (ii) a newly developed decision-support tool, or (iii) no decision-support tool. For (i) and (ii) you will be provided the decision-support tool itself and a user guide, designed to help evaluate the complexity of an engineered system. For (iii) you will not be given a decision-support tool but will be provided additional background information about evaluating the complexity of a system. You will not know which tool you will be given ahead of time. However, at the end of the project, you will be given a copy of all three approaches used here.

You will be asked to evaluate the complexity of a fictitious engineered system in a virtual, collaborative workshop with three other participants and a facilitator. You will be asked to individually answer several questions concerning your judgements of system complexity in an anonymous survey. You will then be asked to use the tool, or information given, to evaluate the complexity of the fictitious system. You will then be asked to repeat the survey. Finally, your thoughts on the utility of this tool, or approach, will be discussed in a one-on-one interview with the facilitator, to be conducted at a later, mutually agreeable date. The collaborative workshop and one-on-one interview will be conducted via Skype and will be audio recorded. The recordings will be transcribed and redacted to protect your identify.

Background:

There is academic literature concerning aspects of complexity evaluation from a theoretical perspective. There also exists in literature decision-support tools designed to support the evaluation of the complexity of an engineered system. However, there is little information about how easy these tools are to use and how successfully they can be utilised in practice. Several organisations have proprietary decision support tools to aid complexity evaluation, however, there is little information about how easy these are to use and how successfully they can be utilised.

Why have you been selected?

You have been selected as an interviewee as you are someone who is actively engaged with evaluating engineered systems. Participants from Thales Group and members of the International Council on Systems Engineering (INCOSE) are being invited to take part in this project. However, participants from Thales Group will be grouped together and participants from INCOSE will be grouped together.

What will be involved in the project?

The project should take around 3.5-hours. You will be provided pre-reading (30 minutes) ahead of the collaborative, virtual workshop (2.5 hours) which will take place between 10-28

Aug 20. You will be invited to arrange a one-on-one interview (30 minutes) at a mutually convenient date once the workshop is complete. You will be asked several questions concerning your thoughts on evaluating system complexity via a survey. You will be asked to evaluate the complexity of a fictitious system using a decision support tool as a group. Finally, you will asked about your thoughts on the complexity evaluation decision-support tool.

Your responses to the survey will anonymised. The virtual workshop and one-on-one interviews will be audio recorded via Skype. The audio recordings will be transcribed and redacted to preserve your anonymity. The audio recording will then be deleted. Your responses to this research project will be kept confidential and I will protect your identify by referring to anything you say with a number, and only I will have access to the translation from your identity to your number. Your identity will never be disclosed and your responses will be kept confidential. Anonymous survey responses, anonymous workshop audio transcriptions, and anonymous one-on-one interviews will be published as open data in the University of Bristol data repository and stored in accordance with the UK Research Council Data Management Guidelines for 10 years. The data captured from this research project are stored in an encrypted folder within a University of Bristol filestore. The study protocol was approved by the University of Bristol Ethics Committee on the 2nd of July 20 (Application ID 105925).

You do not need to take part in this project and your participation is entirely voluntary. You do not need to discuss anything with me that you are uncomfortable with and you can terminate your involvement in the project (withdraw consent) at any time without having to give a reason. However, if you wish to withdraw at a later date please note that once the data has been anonymised and analysed your data cannot be withdrawn.

Further information and contact details:
If you would like any further information in relation to this study or have any questions you are welcome to contact me using any of the methods below:

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