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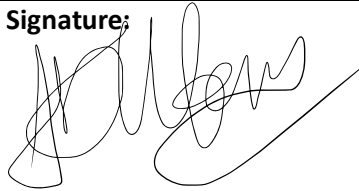
Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Nicola Garzaniti

PhD Program: Engineering Systems

Title of Thesis: A DECISION SUPPORT SYSTEM FOR AGILE DEVELOPMENT OF COMPLEX HARDWARE SYSTEMS

Supervisor: Alessandro Golkar

Name of the Reviewer:

I confirm the absence of any conflict of interest (Alternatively, Reviewer can formulate a possible conflict)	**Signature:** Oct 11 13:22:52 MSK 2021

The purpose of this report is to obtain an independent review from the members of PhD defense Jury before the thesis defense. The members of PhD defense Jury are asked to submit signed copy of the report at least 30 days prior the thesis defense. The Reviewers are asked to bring a copy of the completed report to the thesis defense and to discuss the contents of each report with each other before the thesis defense.

If the reviewers have any queries about the thesis which they wish to raise in advance, please contact the Chair of the Jury.

Reviewer's Report

Reviewers report should contain the following items:

- Brief evaluation of the thesis quality and overall structure of the dissertation.
  This thesis deals with a very interesting topic of using software production management methods for hardware production. This work proposes a method, conducts real time implementation, validation and evaluation. The overall structure of the dissertation is very good.
- The relevance of the topic of dissertation work to its actual content
  The author makes a very good job in discussing the topic in the thesis provided.
- The relevance of the methods used in the dissertation
  The methods are relevant to the topic
- The scientific significance of the results obtained and their compliance with the international level and current state of the art

The results provide experimental validation of the methods proposed. The framework can prorbably be extended in some kind software product. As far as I know, nothing exists of on the market. The thesis certainly contributes to the state of the art the product management and production field.

- The quality of publications
  Two journal publications and a number of conference papers is a great result.

The summary of issues to be addressed before/during the thesis defense

I'm always looking for validation of the method proposed. In section 3.5 you're proposing validation of the technique, There are a few approaches that you mention, but what I'm looking for is some kind of graph "expectation vs. reality" and you're showing that for example your method is 95% close to something. May be this approach is not applicable in your case, but I'm looking for some metric of validity of your method.

Clearly Chapter 4 describes in detail application of the method - this is great. But do you have a comparison of your method and "business as usual". The main argument people have against systems engineering is that it carries significant overhead relative to a process we have a team. E.g. it was great that you were able to contribute to the workings of the startup, but I don't think start-ups typically have a luxury to employing these techniques. There's probably an optimal size of the enterprise, where this method is applicable. that is, if you only have 3 people, the overhead will to much, but if you have like 50 people, probably it is going to be ok.

It seems to me that your method requires a very good knowledge of task durations and how long things will take. My (bad) experience tells me that especially in research projects it is very difficult to estimate times and resources required for tasks. That's why all the projects are late. It will be useful to elaborate a bit on how to compile a proper database of durations of various tasks.

Provisional Recommendation

☒ *I recommend that the candidate should defend the thesis by means of a formal thesis defense*

☐ *I recommend that the candidate should defend the thesis by means of a formal thesis defense only after appropriate changes would be introduced in candidate's thesis according to the recommendations of the present report*

☐ *The thesis is not acceptable and I recommend that the candidate be exempt from the formal thesis defense*