Rejoinder for degree project

Version 2.1 – March 13, 2019

DV2572: Master's thesis in Computer Science

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Title	Using Blockchain for improving communication efficiency and cooperation: the case of port logistics
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Opponent 1	Srinivasa Vasanth Chowdary Kancheti
Opponent 2	

1 Introduction

This rejoinder is a modification and explanatory report made by Hangdong Chen on the issues raised from opposition report from Srinivasa Vasanth Chowdary Kancheti and during defense. For recommendations made in opposition report and questions raised by the audience during the defense process, an explanation was given. And the modifications were explained.

2 Response to opponent reports

The following questions are raised by Srinivasa Vasanth Chowdary Kancheti and written in the opposition report.

1. The author should correct the section of Related Work, put the Literature Review there that you did in order to understand what others did.

   Answer: I think this comment comes from a misunderstanding of the reader. The related work section mainly explains the investigation work on related research before the research starts. In this section, I explained the screening of KPIs and the determination of system boundaries before the study began to verify the feasibility of the study. However, I agree that more work needs to be explained in this part, so I modified section 2.1 Research status to explain the related research on the use of blockchain in logistics.

2. I am amazed by observing a very small literature review with respect to a purely experimental approach to solve a huge issue with the help of blockchain. There should be detailed literature. The author has to study much more about other researchers so that a new person when he tries to read the paper can better understand what others have done and this can help the author how can he improve his thesis.

   Answer: I agree with this comment. I added a description of the work of others in section 2.1.

3. In the chapter of methodology, the author has put the Literature Review. The author should move it to chapter two, meanwhile, the author should do a detailed Literature Review which supports its method.

   Answer: I think this comment comes from a misunderstanding of the reader. First, in this research, the purpose of Literature Review is to determine roles and functions, which is part of the methodology. The second chapter mainly explains the preparation and related

research before the research. So I don't modify this suggestion.

4. In the Result Section, the author must put the unit of quantities in the axes of graphs.

   Answer: I agree with this comment. And modified the units in the figure 11-17.

5. In the whole thesis, the author put the name of Tables at the bottom. The author has to put the names as per International Rules of Writing (Top of Table) but it is optional according to his /her professor's guidelines.

   Answer: I agree with this comment. And moved the names of all tables above the table.

6. The author should follow the International Rules and put the List of Tables and List of Figures next to the TOC which is optional but the thesis is about blockchain methodology which is a major topic in Computer Science these days and in the coming future which helps the readers to understand more about the method technically.

   Answer: I agree with this comment. Added table list and figure list in front of the catalog, and added acknowledgements

7. The author should work on the abstract and make it a small summary of the whole thesis. So, anyone can understand the core idea of the whole thesis just by going through the abstract.

   Answer: I disagree with this comment. According to bth-thesis_word_full_and_cover-sheet-template_v131, the abstract can be divided into Background, Objectives, Methods, Results, and Conclusions. I think this description of the abstract is clearer.

8. The author must proofread once again thoroughly to avoid grammatical errors.

   Answer: I agree with this comment. And reviewed the full text and revised some grammatical issues.

9. In the page no. 18, heading 3.2.3, the author put some points with the numbering list. The author must capitalize on the first alphabet of each line.

   Answer: I agree with this comment. And amended the capitalization issue in section 3.2.3.

10. The author should enhance the formatting of tables by making bold the top quantity headings and the left one too if applicable.

    Answer: I agree with this comment and modified the format of all forms.

11. On page 21, figure 7 is hidden the part of a table of fault injection test.

    Answer: I think this comment comes from a misunderstanding of the reader. The position of Figure 7 in the draft is correct, but I found that the labeling of the picture is wrong, so I corrected the picture number and adjusted the position of Figure 8-10 for easier reading.

3 Response to further feedback

This part is a comment or request for change during the defense, and the number indicates the person who raised the issue.

O1 = Opponent 1, Exa = Examiner, Au1 = Person 1 from audience

O1.1 Consider cost as well, and discuss about cost of investment for implementing block chain vs profits after block chain is implemented / losses inflicted if not implemented, is it worth to put that much investment of money

Answer: I think this comment comes from a misunderstanding of the reader. In the conclusion in the draft, I mentioned the possible cost problem, but this cost is because personal equipment cannot support a large number of distributed system simulations, so I think that additional equipment investment caused by equipment is needed. In this study I did not discuss the issue of cost further. So in the conclusion, I modified the description of the cost problem, clarified that this is the result of equipment problems, and added a description of this aspect in future work.

O1.2 About calculations of access factor

Answer: The problem with the opponent is that they don't understand how the data processing results are calculated. In section 5 Analysis, the collected data about Time for information reply is further analyzed and described.

O1.3 how can you justify block chain is the alternative based on trust issue between humans

Answer: I think this comment comes from the misunderstanding of the opponent. First of all, we can find papers supporting blockchain technology that can hopefully overcome the problem of trust through a literature review. Secondly, we haven't stated that any blockchain technology can replace the problem of trust between humans. In this research, blockchain technology is not the only solution. Because blockchain technology has the characteristics of built-in trust and distributed storage, we believe that blockchain technology may be one of the solutions and have studied it.

Au1.1 What is the unit of time?

Answer: In this study, since the simulation time is not equal to the real time, we call the simulation system time unit as T. In the draft, we describe the unit as “simulation time unit”, which may cause misunderstandings to the reader. Therefore, in section 4, we explained the time unit and used the symbol T as the time unit.

Exa 1 Does the length of the simulation time affect the results?

Answer: To answer this question, we extended the simulation time. It is found that when the time exceeds 200T, the system's regularity enters a loop. So in the research, we selected the first 300T results for analysis. The description and selection of time are explained in section 4.

Exa 2 The comparison between a manually operated system and a fully automatic system is unscientific and should be compared between two fully automatic systems.

Answer: In the draft system, we use queue waiting to simulate the steps of manual confirmation. I agree with this suggestion, so we have changed the manual part of the traditional model to a fully automatic method. In the traditional model, when a vehicle company receives an order request, it will automatically query the database for available vehicle resources, and automatically reply whether to agree to accept the request. After correcting the system model, we re-ran the simulation experiment, got new results, and modified the result and analysis conclusion sections. The modification of the model is also explained in section 2.3 System boundary, and the operation method is further explained in section 3.2.3.