

Rejoinder to the opposition reports on “Topic Title Y”

Author Y

1. Introduction

This rejoinder summarizes the corrections which were applied on the thesis report, based the comments given by the two opponents. Both opponent reports were thoroughly analyzed and if clarifications were needed, the opponent was contacted by email to get further explanations on his comment. In the following, the reports are identified as OR1 (by Reviewer A) and OR2 (by Reviewer B).

The rejoinder is presented in a tabular form whereby the columns are:

- ID: An identifier for the opponent comment, IL for Reviewer A and respectively BA for Reviewer B, which is used in some cases in the “Description” column to refer to other comments.
- Comment: The *literal* transcription of the comment given by the opponent.
- Action: The action taken by the authors of the thesis report:
 - **Fix** – the comment identified an issue and is corrected in the final thesis report
 - **No fix** – the comment identified an issue and is *not* corrected in the final thesis report. The motivation is given in the column “Description”.
 - **Not valid** – the comment is proven to be wrong.
- Description: Elaborates the action taken by the thesis authors and gives motivations for not correcting an issue identified by the opponent.

**Note that references in the “Description” column refer to the final thesis report.*

2. Rejoinder for OR1 (by Reviewer A)

Table 1: Content issues

ID	Comment	Action	Description
IL1	<p><i>In Abstract: “Software Process Improvement (SPI) is a research area which is aimed to address the assessment and improvement issues in the software development process.”</i></p> <p>SPI full name is given in the abstract, so there is no need to write ‘software process improvement’ in the thesis.</p>	No fix	It depends on the context. The authors think that it is advantageous for the reader to be reminded in certain passages what is the topic of the thesis, namely “software process improvement”.
IL2	<p><i>Page-3: “The expected outcome of this thesis is twofold: first, the analysis and synthesis of the conducted systematic literature review will provide an</i></p>	Fix	The second outcome is mentioned implicitly in the second sentence after the cited text by the opponent: “ <i>The model will illustrate the main issues [...]</i> ”. Granted, this is not obvious and the

	<p><i>overview of the state-of-the-art in evaluating SPI initiatives.”</i></p> <p>Where is the second outcome? As authors have not mentioned the second outcome of the thesis.</p>		<p>second outcome is now explicitly mentioned on Page 3.</p>
IL3	<p><i>Page-1: “One important aspect in conducting a software process improvement initiative is the measurement of its effects on the process itself and the produced artifacts.”</i></p> <p>There is no motivation behind this statement. It would be better to give some references to prove this point.</p>	No fix	<p>This sentence is a connector between the previous and following statements, which are, in our opinion, well referenced. It is motivated by the next statement which follows the statement cited by the opponent: <i>“The measurement of the software process is a substantial component in the endeavor to reach predictable performance and high capability and to ensure that process artifacts meet their specified quality requirements [19] [20].”</i></p>
IL4	<p><i>Page-1: “The correct metrics need to be selected for the measurement to be effective and meaningful for the evaluation of the improvement.</i></p> <p>As there is no motivation. Give some reference to prove this point.</p>	Fix	<p>The opponent was right here since the cited sentence is the authors’ opinion based on the following statement: <i>“A measure developed without thorough understanding of the concept of interest and the context in which the measurement is taking place, is not a true measure and may lead to serious ambiguities when evaluating results [22].”</i></p> <p>The statement cited by the opponent should therefore follow the above sentence. This is now corrected on Page 1.</p>
IL5	<p><i>Page-1: “A measure developed without thorough understanding of the object of interest and the context in which the measurement is taking place, is not a true measure and may lead to serious ambiguities when evaluating results [22].”</i></p> <p>What do mean by thorough understanding of object? Is thorough understanding only the reason of failure of measurement program?</p>	Fix	<p>This statement should be clearer now with the correction of comment IL4. Furthermore, reference [21] in the original report is replaced with [22] in the final report due to a referencing error.</p>
IL6	<p><i>Page-1: Abrahamsson described that any direct measure of success remains inadequate if other dimensions are not considered and that the importance of</i></p>	Not valid	<p>The opponent cited the sentence erroneously. On Page 1 the following is written: <i>“Different metrics are used to measure the outcome of SPI initiatives.”</i></p>

	<p><i>these dimensions varies depending on the stakeholder (e.g. software developer, change agent or manager) evaluating it [23], as success means different things to different people [24].</i></p> <p>But in the start of paragraph you mentioned that "<i>Direct Metrics are used to measure the outcome of SPI initiatives</i>"</p>		
IL7	<p><i>In Section 2.1.2: "Tools are considered as an SPI initiative because the introduction of new tools or the upgrade of a tool can increase the performance of the software process in terms of productivity and efficiency.</i></p> <ul style="list-style-type: none"> • There is no motivation behind this statement. • Which tools (give example)? • Which initiatives? 	Fix	<p>The sentence cited by the opponent is now motivated by reference [43], "The impact of tools on software productivity".</p> <p>Examples of tools (for requirements management) are already given in the definition of <i>Tools</i>. Further examples (Configuration Management, Bug tracking) are added in Section 2.1.2 to clarify what is the authors' understanding of <i>Tools</i>.</p> <p>The categorization of SPI initiatives given in Section 2.1.2 is defined by the authors and this is clearly stated by the following: "<i>In this thesis work, SPI initiatives are defined as all software engineering methods or activities which are intended to improve the performance of the software process and are categorized as frameworks, practices and tools.</i>", Page 6. Therefore, <i>Tools</i> are regarded as SPI initiatives and should answer the opponents' last question.</p>
IL8	<p><i>In Section 2.1.3: "The two dominant streams in software process improvement differ conceptually in the way how the to-be-improved processes are identified."</i></p> <p>There is no motivation behind this statement.</p>	No fix	<p>This sentence is an introduction to the complete, well referenced paragraph, which, read as a whole, motivates the first sentence.</p>
IL9	<p><i>In Section 2.1.3.1: "Authors of this thesis took the picture of QIP from [46], but they did not use the reference in the text.</i></p> <p>Why?</p>	Fix	<p>Indeed a sentence missed to reference the mentioned paper ([46]). The sentence is: "<i>The QIP cycle (Figure 2) is comprised of two closed loop cycles – the organizational (larger) and the project (smaller) cycle.</i>", Section 2.1.3.1.</p> <p>Reference [46] is used to properly reference this</p>

			statement.
IL10	<p><i>In Section 2.1.3.2: “Six Sigma is another bottom-up SPI approach that aims to reduce process variances through application of various statistical analysis techniques like Statistical Process Control (SPC).”</i></p> <p>There is no motivation behind this statement.</p>	Fix	The statement in Section 2.1.3.2 is modified to “ <i>Six Sigma is another bottom-up SPI approach that aims to reduce process variances through application of various statistical analysis techniques.</i> ”, and properly referenced ([50]).
IL11	<p><i>In Section 2.1.3.3: “The CMM is probably one of the most well-known model-based SPI approaches. The framework specifies some generally accepted standard processes against which the organizations’ processes are benchmarked.”</i></p> <ul style="list-style-type: none"> • No motivation • What do u mean by “CMM probably”? • What is difference between ‘<i>model-based SPI approaches</i>’ and <i>framework</i>’ 	Fix	<p>The first cited sentence is modified into “<i>The CMM is one of the most well-known SPI approaches.</i>” and referenced with [51], “Improving software process improvement”. The term <i>model-based</i> is removed since the referenced paper does not explicitly state that CMM is a <i>model-based</i> approach, although the name (Capability Maturity Model) indirectly implies this. <i>Framework</i> in this context, and in general throughout the thesis report, refers to the definition of SPI initiatives given in Section 2.1.2.</p> <p>The second cited sentence, “<i>The framework specifies some generally accepted standard processes against which the organizations’ processes are benchmarked.</i>” is now properly referenced with [35].</p>
IL12	<p><i>In Section 2.1.3.3: “CMMI [52] and ISO/IEC 15504 [53]. These new standards attempt to address some of the issues identified with CMM and have some unique features as illustrated in the following Sections.”</i></p> <p>Both authors had not mention any issue in the following Sections.</p>	No fix	<p>The authors asked the opponent to clarify what he means by “both authors”, either the authors of the two referenced papers or the authors of the thesis report. He replied “<i>Yes I mean both authors of this thesis i.e. you and your colleague =.</i>”</p> <p>The aim in this background Section is not to identify issues in CMM which led to the development of CMMI. However, in Section 2.1.3.4, which follows immediately the statement cited by the opponent, the major reason for the development of CMMI is stated as: “<i>CMMI is an integration of different CMM versions including CMM for Software (SW-CMM), Integrated Product Development Capability Maturity Model (IPD-CMM) and Systems Engineering Capability Model (SECM) with the aim to eliminate the need</i></p>

			<i>to use multiple models in the same organization [54].”</i>
IL13	<p><i>In Section 2.1.3.4: “CMMI comes in two basic versions: staged and continuous representation. Though both versions are based on the same key process areas, they differ in the way how they are represented and how they address SPI.”</i></p> <p>There is no motivation behind the statement.</p>	Fix	Three references were added in Section 2.1.3.4 to support the statement cited by the opponent ([52]) and the two following sentences ([42] and [99] respectively).
IL14	<p><i>In Section 2.1.3.5: “Both CMMI and SPICE are influenced by CMM, which is why there is a close similarity between these two models.”</i></p> <ul style="list-style-type: none"> • No motivation • What are the close similarities between CMMI and SPICE? 	Fix	<p>The statement cited by the opponent is rephrased and properly referenced as follows: <i>“Both CMMI and SPICE are influenced by CMM [40] and the organization of the process areas in the continuous representation of the CMMI is similar to that of SPICE [41].”</i></p>
IL15	<p><i>In Section 2.4: “The main motivation to treat the topic of confounding factors in a rather detailed way is to show that they are a major threat in empirical research in general.”</i></p> <ul style="list-style-type: none"> • No reference • How confounding factors are real threat to empirical research? 	Not valid	<p>The opponent did not cite the complete sentence, which is: <i>“The main motivation to treat the topic of confounding factors in a rather detailed way is to show that they are a major threat in empirical research in general and it is assumed by the authors of this thesis that this threat exists also in the evaluation of SPI initiatives.”</i></p> <p>The authors cannot refer their own assumptions.</p> <p>The authors asked the opponent to clarify what he means by “real” threat and he replied: <i>“Real threat means “main threat”...!!!”</i></p> <p>The authors never state that confounding factors are the “main” threat to empirical research.</p>
IL16	<p><i>In Section 2.3.2: “Actual benefit evaluation is another type of evaluation in which the evaluation is based on the actual benefit of the SPI outcome.”</i></p> <p>There is no motivation behind this statement; there should be some reference to prove this statement.</p>	No fix	<p>The sentence cited by the opponent is not referenced because it is the authors interpretation of the statements which follow and which are properly referenced: <i>“This type of evaluation focuses not on the compliance against a set of rules but is based on the evaluation results of applying certain measurements which are obtained from measurement derivation methods (e.g. GQM [80]) [79]. Although in an SPI initiative for which a formal assessment method is available, evaluating the actual benefit of SPI</i></p>

			<i>is still important and beneficial since the compliance to a certain standard does not always guarantee that actual benefits are achieved [1].”</i>
IL17	<p><i>In Section 2.4.1: “Confounding factors represent a threat to the internal validity of the experiment and to the causal inferences that could be drawn since the effect of the treatment cannot be attributed solely to the independent variable.”</i></p> <ul style="list-style-type: none"> • Since there is no experiment in this thesis, so there is no need to discuss internal validity of an experiment. • No reference • Table 3 is not relevant to Software industry, it is better to explain confounding factors in term of SPI. 	No fix	<p>Confounding factors are, to the best of the authors’ knowledge, not discussed in the SPI literature. Therefore, references to areas where they are discussed, namely experiments and empirical research are used and brought into relation with SPI evaluation (Section 2.4.3).</p> <p>The sentence cited by the opponent represents the essence of what is explained in more detail in the following paragraphs. It is not referenced because it is the authors’ opinion/interpretation of what a confounding variable is.</p> <p>In this background Section, the reader should be given the necessary information to understand the following chapters. The simple example is given to illustrate the principle independent from the actual topic (SPI). Afterwards in Section 2.4.3, confounding factors are discussed in relation with SPI.</p>
IL18	<p><i>In Section 2.4.2: “Generally, the effect of confounding factors on the dependent variable can be controlled by designing the study appropriately.”</i></p> <ul style="list-style-type: none"> • Is it your opinion? If not then a reference should be given. • How appropriate designed study can help to control the effect of confounding factors on dependent variables? 	No fix	<p>Yes, this is the authors’ opinion, based on reading the cited book and interpreting the mentioned techniques to address confounding factors.</p> <p>Furthermore, the opponent did not cite the full sentence, which is: <i>“Generally, the effect of confounding factors on the dependent variable can be controlled by designing the study appropriately, e.g. by a random allocation of the treatment and control groups.”</i> For sake of brevity, the authors of the thesis report did not recapitulate all mentioned techniques in the book but described them on a high level in the paragraphs following the above citation (Section 2.4.2).</p>
IL19	<p><i>In Section 2.4.3: “A major problem of the previously discussed techniques is the assumption that the confounding variable is known to the researcher.”</i></p> <p>Confounding factors are “variables that may affect the dependent variables</p>	Fix	<p>To clarify the statement, it is changed into <i>“A major problem of the previously discussed techniques is the prerequisite that the confounding variable is known to the researcher.”</i></p> <p>The authors of the thesis report did not assume</p>

	without the knowledge of the researcher” [81]. How can you assume?		anything here, but it is inherent to the discussed techniques that the concrete confounding variable has to be known to the researcher <i>in advance</i> . To make this point clear “assumption” is replaced by “prerequisite”.
IL20	<p><i>In Section 3: “A study by Wilson et al. is aimed to create a framework for evaluation and prediction of SPI success [88].”</i></p> <p>What the difference between Wilson’s framework and your studies since Wilson have created a framework for evaluation and prediction of SPI success?</p>	No fix	The key term in this sentence is “prediction”. From the text which follows the opponents citation (Chapter 3, 3 rd paragraph) it should be clear that Wilsons proposal is related to SPI evaluation in terms of <i>predicting</i> companies’ readiness to implement SPI rather than <i>evaluating</i> the outcome of SPI.
IL21	<p><i>In Section 3: “The Software Engineering Institute published a technical report mentions a set of appropriate measurements and explicitly introduces an evaluation method; the study does not provide information on how the selection of measurement is conducted. Furthermore, the factors that can influence the measurement results are not discussed.</i></p> <p>There is an OMSD model, developed by two students of BTH, which gives the solution of measurement selection on the basis of factors that influence the measurement results.</p>	Fix	The OMSD model referred by the opponent is added and discussed in Chapter 3 (Related work).
IL22	<p><i>In Section 4.2: “It is mentioned that Conceptual analysis is highly dependent on the finding of systematic review”</i></p> <p>Why didn’t you apply Conceptual analysis independently on RQ-1?</p>	No fix	<p>The authors asked the opponent to clarify his question. He replied: “<i>yes I want to ask you did you do systematic review instead of conceptual analysis.... I mean you should put some motivation for choosing systematic review</i>”</p> <p>Conceptual analysis does not prescribe how to collect the to-be-analyzed data (see Section 4.1.3). Therefore, to answer RQ1, the systematic review is conducted to elicit the data on which the conceptual analysis is applied.</p>
IL23	<i>Section 5: “Authors of this thesis gave</i>	Fix	A reading guideline is added at the beginning of

	<p><i>reference of Kitchenhamn, so that there is no need to explain the systematic review in much detail, because reader interest can be diverted.”</i></p>		<p>the thesis report (Section 1.4) instead of removing the suggested material. The guideline defines the optional, background material which may be useful for readers not familiar with the topic.</p> <p>Furthermore, the chapter discusses and refers to important information concerning systematic reviews which is <i>not</i> provided by Kitchenham, e.g. [95], [103].</p>
IL24	<p><i>Section 6.1.2: Table 7.</i></p> <p>There is no need to write Research question again and again in the tabular form. Give reference or write questions in bullet form.</p>	No fix	<p>In the opinion of the authors, repeating important information, such as the research questions, in strategic positions in the report is a help to the reader. Furthermore, the systematic review design mandates the definition of research questions for the review.</p>
IL25	<p><i>In Section 6.1.3.1.1: “You have mentioned five reference databases i.e. Compendex, Inspec, SCOPUS, IEEE and ACM.”</i></p> <p>My question is why you didn’t select</p> <ul style="list-style-type: none"> • Springer (as mentioned by the Kitchenhamn that it is necessary to consider SpringerLink to access Journals such as Empirical Software Engineering and Springer Conference Proceedings) • Citeseer library (citeseer.ist.psu.edu) • ScienceDirect (www.sciencedirect.com) • White Papers • Another point is both authors of this thesis have not mentioned the conference proceedings, so there is a possibility to miss important SPI conference e.g. EuroSPI 	No fix	<p>The mentioned sources are not explicitly selected because:</p> <ul style="list-style-type: none"> • Springer: is covered by Engineering Village (Compendex and Inspec) • Citeseer: is just another reference database, already two are used: Engineering Village and SCOPUS • ScienceDirect: is covered by Engineering Village • White papers: not peer-reviewed, so not considered • Proceedings: are covered by reference databases (Engineering Village and SCOPUS)
IL26	<p><i>In Section 6.2.1.2: “During the initial piloting, both authors have calculated Fleiss’ Kappa value and it is very low i.e. 0.182.</i></p> <p>How do they know the reason of poor results were ‘broad definition of research scope’ and ‘poor inclusion exclusion criteria’?</p>	No fix	<p>The statement cited by the opponent does not match with his question. Obviously, the authors did not know in advance that the identified issues (broad definition of research scope, poor description of inclusion and exclusion criteria, varying understanding of research questions) were the <i>only</i> root causes of the poor piloting result. For this reason a <i>second</i> piloting was conducted as described in Section 6.2.1.3.</p>
IL27	<p><i>In Section 6.2.2.2: “Both authors</i></p>	Fix	<p>A short description of the tool the authors used</p>

	<p><i>extracted 10817 papers and 3893 of them duplicate, 6924 are unique, 234 are Non-full text and 7 of them are Non-English.</i></p> <p>How do they calculate duplicate, unique and non full-text papers out of 10817 papers? Since they have not specified any tool in order to check paper duplication.</p>		<p>for reference management and how duplicates were identified is added in Section 6.2.2.1.</p>
IL28	<p><i>In Section 6.2.3: “In data extraction there is a data reference template.”</i></p> <p>There is no reference.</p>	Not valid	<p>The authors asked the opponent to clarify to which data reference template he refers to. He replied: “<i>sorry It was my mistake. its "DATA EXTRACTION FORM TEMPLATE in SPREADSHEET"</i>.”</p> <p>There is no need to reference the template since it is developed and designed by the authors of the thesis report.</p>
IL29	<p><i>In Section 7.1.2.1: “In figure 16, total percentage is 99.81%”</i></p> <p>The total percentage is 99.81%. It should be 100%.</p>	Not valid	<p>No, it sums up to 100.01%. The 0.01% deviation is due to rounding errors produced by the used spread-sheet application (MS Excel).</p>
IL30	<p><i>In Section 7.1.3.2: “It is mentioned that 50% of the studies had not stated the size of company.”</i></p> <p>Isn't it difficult to identifying the success factors of SPI and initiatives without knowing the size of company?</p>	Not valid	<p>The aim of the authors was not to identify SPI success factors. See Section 1.2 for the stated research questions.</p>
IL31	<p><i>In Section 7.1.4.1: In table 18 (Limited Framework), REPEAT?</i></p> <ul style="list-style-type: none"> • Full abbreviation should be given with reference. • Does it mean Requirement Engineering Process at Telelogic? 	Fix	<p>Yes, it means “<i>Requirements Engineering ProcEss At Telelogic</i>” and is added to Table 18.</p>
IL32	<p><i>In Section 7.2.1.2: “The most common evaluation method found is pre-post comparison. However, the validity of the pre-post comparison, in terms of whether the results are in causal relationship</i></p>	No fix	<p>This is the result of the systematic review (presented in Chapter 7), i.e. the authors did not “select” pre-post comparison in this context but it is shown by the data that this evaluation method is very common. However, the method is selected</p>

	<p><i>with the SPI initiative, is rarely discussed.”</i></p> <p>If there is a validity threat with pre-post comparison then why it is selected for evaluation?</p>		<p>for the model since there exist techniques to control the threat of confounding factors (Section 2.4.3). The model does indeed not prescribe how to address the concrete threat which is however noted in future work (Section 10.2) which refers to Table 32:</p> <p>The issues of evaluation validity are addressed by: “[...] showing a list of potential confounding factors in evaluating SPI initiatives and by referring to examples in the literature which show how to compensate for their distorting effect. Currently it is only superficially described how confounding factors affect the evaluation and further research is needed to discover possible relationships between confounding factors and particular evaluation methods. Then, concrete suggestions can be given for choosing the appropriate evaluation method [...].”</p>
IL33	<p><i>In Section 7.2.3.2: “Authors have mentioned that 66% of total papers in this study reported only measurement for the project perspective.”</i></p> <p>In Figure 23, there is 67% of total papers reported measurement for the project perspective.</p>	Fix	In Section 7.2.3.2 the number is changed to 67%.
IL34	<p><i>Section 7.3: “first bullet of conclusion”</i></p> <p>ROI stands for?</p>	Fix	ROI stands for Return-on-investment. Although this is stated in several locations before (Page 39, 40, 72, 74 and 75), it is reasonable to repeat it in this Section again (7.3 Conclusion). This comment also supports the authors’ motivation for not fixing IL1, as it shows that repetition to some extent is beneficial to the readers’ understanding.
IL35	<p><i>In Section 7.3: Since pre-post comparison is the most prominent evaluation method in the inspected SPI initiatives there is a need to identify which confounding factors can affect the result of the evaluation.</i></p> <p>Confounding factors are stated in Table 31. It would be better if these confounding factors are also considered.</p>	Fix	The authors asked the opponent to clarify his statement. He replied: “you have mentioned that “there is a need to identify which confounding factors can affect the result of the evaluation” and you also mentioned examples of confounding factors in table 31.... The thing which i want to say is that ... it is better to give suggestion that which evaluation method consider what confounding factors i.e. TABLE 31, since you took these confounding factors from systematic

			<p><i>review.... I hope you get my point...!!!"</i></p> <p>Following statement is added in Section 7.2.6.2 to clarify this point: <i>"In addition, it is found that the evaluation methods for 12 of the papers listed in Table 31 are based on pre-post comparison. However, it cannot be generalized or deduced that the confounding factors and the solutions presented in these 12 papers are related to pre-post comparison in general because these papers only represent a small population of the papers in systematic review."</i></p>
IL36	<p><i>In Section 8: "Authors of this thesis proposed a model (Evaluation Model for the Evaluation of SPI initiatives) by conducting systematic literature review."</i></p> <ul style="list-style-type: none"> • There is a validity threat, since it is not validated by any software company. • Systematic review is good, but not enough to validate the model. 	Fix	<p>The validity threat identified by the opponent is added and discussed in Chapter 9. The authors considered the validation of the model for future work, but missed to include it as a threat to validity.</p> <p>The intent of the systematic review was not to <i>validate</i> the model, but rather to <i>elicit</i> the required information to develop it.</p>
IL37	<p><i>In Section 8.3: "Table 33 and Figure 34 has three viewpoints i.e. Implementer, Coordinator and Sponsor"</i></p> <p>However in the start of second paragraph of <i>Section 8.3</i> there are three viewpoints i.e. <i>Implementer, Controller</i> and <i>Sponsor</i>.</p> <p><i>Controller</i> should be <i>Coordinator</i>.</p>	Fix	<p>The correction proposed by the opponent is applied.</p>

Table 2: Grammar issues

ID	Comment	Action	Description
IL38	<p>In acknowledgement, last paragraph.</p> <p>Last but not least, we are deeply grateful to our families and friends for always being with us.</p>	Fix	<p>The correction proposed by the opponent is applied.</p>

IL39	Section 1.2: Research Question 1.1: To identify different types of concrete evaluation methods that are used and how they are applied in practice to assess SPI initiatives.	No fix	Not applied since the correction by the opponent changes the meaning of the sentence and not the grammar.
IL40	In Expected Outcome, the expected outcome of this thesis is twofold; first is described but second is not described by authors.	Fix	Already addressed by comment IL2.
IL41	Page 6, Frameworks, last line: Integrated (CMMI), ISO/IEC 15504 (also known as SPICE – Software Process Improvement & Capability determination (dE termination))	No fix	It is common to write the letters which compose the acronym in capitals, see e.g. [56].
IL42	<i>Page 14-Section 2.3.2-last line-</i> This thesis is mainly focuses on the issues of evaluating SPI's actual benefit.	Fix	The correction proposed by the opponent is applied.
IL43	<i>Page 7-Section 2.1.3.1-QIP-first line-</i> QIP is based on the bottom-up approach and is inductive in nature.	Fix	The correction proposed by the opponent is applied.
IL44	<i>Page 8-Section 2.1.3.2-Six Sigma-Line 3-</i> It is originated from the manufacturing.....	Fix	The correction proposed by the opponent is applied.
IL45	<i>Page 9-Section 2.1.3.3-CMM-second paragraph-5th line-</i> Each key process area is comprised of common features that specify key practices, that, when collectively addressed, it can accomplish the goals of the key process area.	Fix	The correction proposed by the opponent is applied.
IL46	<i>Page 21-Section 4.1.1-Systematic review- line 4and 6-</i> Inconsistency in using the capital letter ' S ' for the word systematic.	Fix	Changed to small letter for the term “systematic review” in Section 4.1.1 (only one inconsistency found in the report).

IL47	Page 40-Section 6.1.4-Review Protocol Evaluation- line 3- every step is documented, focused and precise OR precisely documented and focused .	Fix	The correction is applied as “ <i>every step is precisely documented and focused.</i> ”
IL48	Page 50-Section 7.1.3.2-Analysis and discussion- line 9- For well-known organizations.	Fix	The correction proposed by the opponent is applied.
IL49	Page 59-Row 9-Goal Question Metrics- line 7- Do you mean "consequently" instead of "consecutively" here?	Not valid	The authors mean “consecutively”, as in “the following step” or “by way of sequence”.
IL50	Page 60-Section 7.2.1.3-summary-line 5- Other evaluation methods includes.	Fix	The correction proposed by the opponent is applied.

Table 3: Formatting issues

ID	Comment	Action	Description
IL51	Figure 34: Evaluation areas are little blurred.	Fix	The patterns inside the circles are removed to improve the readability of the text.
IL52	Figure 14: Primary studies selection is not clear.	Fix	The resolution of the image is increased to decrease the blurriness.
IL53	In Section 6.1.3.2(Study Selection Criteria) – there is no space between 1st and 2nd paragraph.	Fix	Space is added.

3. Rejoinder for OR2 (by Reviewer A)

Table 4: Content issues

ID	Comment	Action	Description
BA1	<p>However, despite the clarity the texts are voluminous and some irrelevant information or what I could regard as “academic write up” is the order of the thesis. For instance in Chapter 5, I suppose should not be part of the thesis since it is clear that Kitchenham guidelines is used and well referenced.</p>	Fix	<p>A reading guideline is added at the beginning of the thesis report (Section 1.4) instead of removing the suggested material (Chapter 5). The guideline defines the optional, background material which may be useful for readers not familiar with the topic.</p> <p>Furthermore, the chapter discusses and refers to important information concerning systematic reviews which is <i>not</i> provided by Kitchenham, e.g. [95], [103].</p>
BA2	<p>However, efforts would have been geared in suppressing or compressing the volume of the written text since the result of the study seems to be relevant for attention. In my own opinion, chapters 1, 2, 3 and 4, introduction, background, related work and research methodology respectively could be merged together and remove any information that referencing can take care of. Then chapters 5 and 6, systematic review and be systematic review design and execution respectively merged. Other chapters that follows can be allow in the way they are structured.</p>	Fix	<p>The chapters are not merged as each of these chapters is deemed by the authors to be separately important. However, a reading guideline is added in the thesis structure Section (Section 1.4) at the beginning of the thesis to specify which chapters are optional and can be skipped.</p>
BA3	<p>However to make it more attractive to follow, understand and eliminate boredom associated in reading it, the above changes suggested above (i.e. Section 5 of this report) should be effective.</p>	Fix	<p>A reading guideline is added at the beginning of the thesis instead of making the suggested changes. The rational for this correction is elaborated in the description of comments BA1 and BA2.</p>
BA4	<p>Albeit not explicitly stated, a reader can easily draw the boundaries of the report without questioning. Every aspect intended for coverage is well explored and covered. Nothing irrelevant was included in the report. For more clarity, we suggest the study scope be stated or define explicitly showing inclusion and</p>	Not valid	<p>The opponent contradicts himself by saying first “a reader can easily draw the boundaries of the report without questioning” and then by saying “the study scope be stated or define explicitly showing inclusion and exclusion areas” in the same paragraph.</p>

	exclusion areas.		
BA6	However, the study fails to identify the greatest threats to validity of their study which is the validity of the proposed measurement and evaluation framework. I suppose should be part of the validity threats.	Fix	A discussion of this threat is added in Chapter 9. See also IL36.
BA7	The proposed model is well stated and the components briefly explained to aid comprehension. There is a clear relationship between the results of the study and the framework. However what is lacking is the validity and implementation feasibility.	Fix	See BA6.

Table 5: Grammar issues

ID	Comment	Action	Description
BA8	The word “consideration ” in Section 7.2.1.3 could be change to “consideration ” if right.	Fix	The correction proposed by the opponent is applied.
BA9	The phrases “select the as still valid estimated evaluation results” in Sections 8.7.1, paragraph 6 in page 103 should be corrected.	Fix	Rephrase into “ <i>select the evaluation results which are estimated as still valid.</i> ”
BA10	The word “thoroughly” in table 34, under Partial evaluation, page 105 could be corrected to thoroughly, if right.	Fix	The correction proposed by the opponent is applied.

4. Conclusion

The authors of the thesis report would like to thank both the opponents for their time and their valuable input. Out of the 63 identified comments, 41 were addressed, 15 were not fixed, and 7 were deemed as invalid. The corrections were implemented in the final thesis report.