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HABILITATION THESIS REVIEWER'S REPORT

Masaryk University	
Applicant	Ahad Zareravasan
Habilitation thesis	The Business Value of Business Intelligence & Analytics (BI&A)
Reviewer	prof. Ing. Vladimír Bureš, Ph.D., MBA
Reviewer's home unit, institution	Faculty of Informatics and Management, University of Hradec Králové

The submitted habilitation thesis positions itself in the field of Business Intelligence and Analytics (BI&A). The author presents a particular viewpoint on this discipline as an umbrella concept that encompasses various techniques or tools, each with its own goal, justification, set of guidelines, and guiding principles.

A synthesis of eight carefully chosen manuscripts that accurately reflect the author's work in the subject area forms the basis of the habilitation thesis. These articles have appeared in a variety of reputable and leading scientific journals. The thesis's structure is appropriately organised. The author gives adequate attention to the flow of his ideas as well as their clarity and significance. This effort primarily focuses on connecting the chosen papers to the framework for BI&A that already links this concept to organizational performance and business value. The conversion process, use process, and competitive process are the three basic processes that make up this model. The current interconnection is slightly unbalanced since each process has assigned two, one, or five papers respectively. The final process is not only the one that has been studied the most thoroughly, but it also contains manuscripts that are at a noticeably higher level of quality than those from the first two processes combined. The two questions that this paper assignment raises, which also represent fundamental concerns, are 1) why the framework was chosen at all, and 2) would it not be more appropriate to focus only on the last process and provide a deeper level of understanding into the problem, given that the first two processes seem to be marginal?

Why are these questions so essential? Considering the first one, Trieu published the applied framework in 2017. Four of the author's publications were published between 2014 and 2016. As a result, the assignment of papers to the framework is retrospective. Thus, in relation to this ex-post framework utilisation, the author's work cannot be considered goal-oriented. There would not be any way to dispute if the selected papers were published only after the framework had been released. Present circumstances present two fundamental issues. First, the generality of the used framework makes it useful for assigning practically any topic to it. Second, there is no justification for its selection, and the author does not specify the criteria used to make the decision. It's suitable for the author because Trieu did a good job of developing a framework that is generally valid both retrospectively and prospectively. The selection justification would clarify why the author selected Trieu rather than the work of Soh and Markus, which serves as the basis for Trieu's work (which the author himself states on page 26). The author of this thesis only applies the foundations presented by Soh and Markus back in 1995 and does not use the extension offered by Trieu. Therefore, their work would be

a better choice. According to Trieu, Soh and Markus "used a 'process model' to describe the relationship, and argued that it could help researchers to explain uncertain outcomes better than a variance model could". Therefore, it would be beneficial to apply any framework accepted by the research community and demonstrate that the eight papers fit into it to keep scientific rigour. Baars and Kemper, for instance, provide an interesting framework which can be used, and they are not the only ones. Other valuable alternatives, however, are neither considered nor discussed in the thesis. The thesis is superficial as it is not supported by a thorough analysis of the framework which is poorly presented and its application is insufficiently justified. Additionally, for habilitation theses, the unifying comments typically take a more comprehensive and coherent form, from which it is possible to see an apparent synthesis of the author's work. In the thesis, the synthesis is represented only by delivering a few paragraphs to each manuscript. With respect to the framework issue, the thesis appears to have been sloppily written. In the concluding section, the author claims that the structure is clear as it contains contributions, addressed research concerns and limitations. However, it is not strictly followed. For instance, the research questions are explicitly presented in different ways (RQs or the bulleted list) in section 3.1 and are not presented in sections 3.1 and 3.2. A unified structure similar to structured abstracts offering the context, research questions, applied methods, contribution, limitations, implications, and future research would be beneficial when the introductions of the papers are so short.

Regarding the second question, the author does not offer information regarding where the presented manuscripts are situated within the particular processes. There are entirely no mutual interconnections explained in both processes with multiple papers. The author only discusses what the particular paper addressed, what it resolved, and what the limitations are in the solitary description. For instance, the Conversion process only refers to the purchase of a solution. However, one needs to know which other sub-processes or activities are there as well (e.g. Alignment with non-BI investments presented in the framework). The presentation should not only categorize the papers according to processes, but also explain how it fits into the process's overall structure. The added value of the manuscript to the process can then be evaluated in its entirety. For instance, the author claims that the model presented in section 3.1.1 is "case-dependent". Does it take other conversion-related activities into consideration? Which are these? Trieu herself refers to a "chain of necessary conditions" on page 26. What is the connection between these conditions, how do papers account for them, accept, fulfil or eliminate them? The internal structure of the framework's processes is not provided or explained. Unfortunately, the author provides no additional analysis or insight beyond stating where a paper belongs. Therefore, it can be challenging to recognize the actual contribution of manuscripts and their add value to the chosen process.

Based on the two aforementioned major concerns, I disagree with the author's claim that "detailed commentary has also been presented illustrating my contributions to each paper" in the concluding section on page 52. In fact, it is shallow and insufficient.

Other parts of the thesis are problematic, in addition to the conclusion mentioned above. For instance, the statement "BI&A is considered an analysis instrument, providing automated decision-making about business conditions" can be found on page 21. However, not everything in BI&A is automated, so this claim is not entirely true. In addition, the author states on page 23 that "objective of BI&A is to support the strategic decision-making process," which is reflected in the definition that serves as the foundation for the work and is presented on page 25. This is incorrect. Although operational and strategic decision-making are distinct, BI output can support both of them. Even the author admits this on page 24, where he asserts that there are OLAP and ad hoc querying or that they could be related to a particular decision-making context. Hence, decision-makers at various organizational levels use provided information. Additionally, he states on page 38, in reference to the fourth paper, that "in both tactical and strategic levels for understanding, managing, and coordinating the

operations and processes in organizations" and then "According to the goal of BI&A, which covers decision support in all organizational levels...". This provides an inconsistent viewpoint. However, more importantly, the definition given on page 25 conflicts with how the author describes and views BI&A. Furthermore, it contains repetitive formulations. On top of this, the definition is based on an analysis of existing BI&A approaches (section 2.1), from which it generates propositions that are quite evident and represent the essential characteristics of all information systems. There is no need to analyse existing literature to find out that there are limitations in terms of functions, systems or system types, or that BI&A provides relevant information to support organizational management.

There might be additional, however less important, comments. For instance, a paper from 2012 shouldn't be referred to as "recent" (Popovič et al., 2012, p. 30).

The habilitation thesis is on the border of the required minimum from the perspective of the anticipated quality. However, when evaluating the author's overall contribution to the field of business intelligence and analytics, it is important to consider the quality of the published results, originality, and scientific and practical value. The chosen research subject is topical, and the results are original and accurate from a scientific point of view. Despite the significance of the aforementioned concerns, I recommend allowing the thesis to be defended in front of the scientific committee and, if successfully defended, award Mr. AHAD ZARERAVASAN the degree of docent in the field of Business Economics and Management.

Reviewer's questions for the habilitation thesis defence:
You used the framework created by Trieu, which expands the work of Soh and Markus. However, you did not use the extension, only the original part from 1995. If Trieu's work is a more appropriate alternative, how do you consider the extension parts? Reformulated, more than 30% of research papers belong to the category which deals with BI Assets and BI Impact. Apparently, your work is aligned with the mainstream in this domain. However, the white rectangles with poorly explored factors need to be investigated and seem to also be a subject of your interest. Is there a way in which your work supports these areas and how?

Conclusion

The habilitation thesis entitled *The Business Value of Business Intelligence & Analytics (BI&A)* by Ahad Zareravasan **fulfils** the requirements expected of a habilitation thesis in the field of Business Economics and Management.

Date: January 30th, 2023   Signature: