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Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Maksim Malyy

PhD Program: Engineering Systems

Title of Thesis: The data-driven model of technology-based new ventures growth

Supervisor: Associate Professor Zeljko Tekic, HSE University

Name of the Reviewer: Fred Phillips

I confirm the absence of any conflict of interest **CONFIRMED** (Alternatively, Reviewer can formulate a possible conflict)	**Date: 28-12-2021**

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. • The relevance of the topic of dissertation work to its actual content • The relevance of the methods used in the dissertation • The scientific significance of the results obtained and their compliance with the international level and current state of the art • The relevance of the obtained results to applications (if applicable) • The quality of publications The summary of issues to be addressed before/during the thesis defense

Dear Maksim,

I've finished reading your dissertation draft. It's impressive. You have successfully integrated a range of literatures, and you have been admirably careful about study design and sampling plan. Here are detailed comments. Many of them raise points that should be addressed in the final version of your document.

p3. Dynamics correlated with search traffic. Technically, only variables can be "correlated." Dynamics is not a variable. It's clear you're phrasing this informally, however, so it may not be essential to correct it on p.3. You do use the same phrasing on p.35 and in H2 on p.44; there in the body of the paper, more rigorous expression is needed.

p3, bottom. "due to their features." More specifics here would help the reader.

p15, 1st sentence, "…builds is operations…". This states an ideal. Most organizations' biggest problem is 'strategic alignment,' i.e., making sure 'managerial decisions' (as you mention at the bottom of the page) all serve to further the stated strategy.

p18. A more important comment: A 'disruptive' innovation creates a new market. 'Market share growth' is thus meaningless as a measure of the disruptive new firm's growth. One could say that the innovative firm initially has 100% of its newly created market and as imitators jump in, the first firm may grow in revenue while shrinking in share. So, a shrinking share in a newly created market could be a correlate of success!

The disruptive firm/innovation offers a new customer benefit (or benefits similar to products already on offer) at significant (at least 10x) improved cost/benefit ratio. So it's necessary to distinguish between share of product market, and share of benefit offerings.

p.19, top. In-person interviews are a qualitative technique, best only used as ways to structure subsequent quantitative market research. They are usually not sufficient in themselves to make marketing decisions.

p.21. Comment on whether you think 241 is a sufficient sample size for your purpose.

p.22. Is autocatalyticity a real word? Don't imply that I coined it!

p.23, "Since my model is quite…" From here to the bottom of the page, the achievements appear over-stated. In particular, "objective" may not be correct, as you later state the GT algorithms are opaque. You don't know how objective the GT data are.

p.24 and elsewhere. I'm delighted that you think the q value solves the product-market fit problem. I'm going to consult with Dr. Steve Walsh, who's familiar with the product-market fit idea, and send you further feedback on this. Keep in mind though that the p-m fit problem might equally be solved by repeat-buying rate, or by still something else.

p.26 is very interesting.

p.28. Why are SMEs relevant in this dissertation on TBNVs? Unlike TBNVs, which aim at growing fast, SMEs may persist while never growing at all. And if a hypothesis tested on 4600 SMEs only proved out on 5 of them (!), why is it worth mentioning at all?

p.30, 1st ¶ re validity and non-response bias. Good point! Also a very nice summary on p.32.

p.36:

- It's possible, actually likely, that potential unicorns are more heavily hyped by the VC investors. This will affect subsequent searches by journalists, analysts, small investors, etc.

- "The study makes two contributions" – This statement appears to be out of place. Put it in an intro section or in the later discussion section.

- "I add to the extant literature…" Only if the dissertation is published! And, you are hardly likely to add to a non-extant literature… And you repeat this statement and the one above, on p.86.

- "contribution is… primarily methodological." Too modest, you are making bold theoretical assertions in this dissertation.

p.37. "organized as follows." Repetitious – you already said this in earlier pages. Page 38 continues repeating earlier material.

p.39, bottom: "previously evidenced" Is it now different?

p.46, footnote: Are "digital paltforms" and "two-sided networks" really synonymous? Can you think of platforms that are not 2-sided markets, or vice versa?

p.60ff. As I said, you were very careful about sample selection. 241 companies met all your conditions. Are so many statistical tests appropriate on what is a relatively small (though necessarily small, as you explain) sample? Perhaps you over-analyzed, which can lead to false positives or false negatives. Why did you smooth the data before fitting? What value did this add?

p.89, ¶2: "important…contribution" – It is up to the doctoral committee and later journal reviewers/editors to decide whether it is important. Just state straightforwardly what you did.

p.94, last sentence of 2nd¶: Can you restate this in a way that does not insult the Jindal School faculty? Or insults them more subtly ;) ?

p.95. I believe Everett Rogers pioneered the sigmoid curve idea for diffusion of innovation. You are citing a late edition of his book. I think the 1st edition came out in about 1961. Of course epidemiologists used these curves earlier.

p.104: Explain "dynamic time warping," or be suspected of authoring science fiction!

p.110: The idea that the logistic curve has no tipping points, nor could have tipping points, is really due to Modis, though he didn't say that in exactly those words. It was his work on this that led me to look at the Bass curve as a way to uncover tipping points in new product diffusion.

p119, you mention hype. I'm surprised that you did not find (more?) companies that suffered through the hype cycle and then recovered and grew. The Gartner Group has now branded the hype curve as its own – mainly because it is indeed so common – but marketing researchers knew of it long before Gartner. See Fig. 2.7 of the attached chapter from my (now near-obsolete) 2001 textbook F. Phillips, *Market-Oriented Technology Management: Innovating for Profit in Entrepreneurial Times*. Springer, Heidelberg, 2001.

Appendix: In the body of the dissertation, explain why you have moved further methodological details to the Appendix. Then eliminate the significant amount of Appendix material that repeats (in Discussion, Conclusions, Limitations….) what was already said in the body text.

I hope you find these remarks helpful.

Best wishes,

Fred Phillips

Provisional Recommendation

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

X *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*