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Review of Doctoral Dissertation

The review of the doctoral dissertation of mgr inż. Chaudhary Taimour Khalid, entitled „Impact of Intellectual Capital on Opportunity Recognition in SME’S of Pakistan”, written under the supervision of prof. dr hab. inż. Stefan Trzecieliński.

Introduction

The basis for the review is a letter from Prof. PP Dr. Hanna Włodarkiewicz-Klimek, Dean of the Faculty of Engineering Management, Poznan University of Technology, dated 3.10.2023, informing about the decision of the Discipline Council for Management and Quality Sciences of Poznan University of Technology to appoint me as a reviewer in the doctoral proceedings of mgr inż. Chaudhary Taimour Khalid.

The dissertation submitted for the review is in the research field of intellectual capital. In particular, it is devoted to the relationship between intellectual capital and opportunity recognition across small and medium-sized businesses (SMEs). This issue is of significant theoretical and practical importance. On the one hand, it contributes to the development of theoretical knowledge of how intellectual capital improves the capability of SMEs to recognize and capitalize on business opportunities. On the other hand, the research results obtained have potentially important implications for the development of SMEs in Pakistan, a group of enterprises crucial to the Pakistan economy, for their ability to identify and exploit business opportunities that correspond with their core capabilities.

The aim of the dissertation, which is “to identify whether intellectual capital affects the ability of Pakistani SME’s to recognize opportunities and with what elements of it, this ability

can be improved.” (p. 18), is up-to-date, significant and correctly worded. PhD Student has also developed specific theoretical and utilitarian objectives.

The research problem, which is “the mechanism of the impact of human, structural and relational capital existing in Pakistani SME’s and the synergistic impact of these factors on the ability of these enterprises to discover and create market opportunities” (p. 19), has been correctly formulated. The problem is significant and relevant, as well as appropriate to the rank of the doctoral dissertation.

The definition of the research problem is preceded by the identification of the research gap – although opportunity recognition is identified as to be critical to the expansion and success of SMEs, there is a dearth of empirical research that analyses how intellectual capital drives opportunity perception. The research gap identification and research problem formulation has been done on the basis of an in-depth literature analysis on the subject. The research problem is reflected in hypothesis H0: “As intellectual capital increases, the firm's ability to recognize opportunities (opportunity creation and opportunity discovery) increases.” (p. 19), and three specific hypotheses (H1-H3) related to different dimensions of intellectual capital.

Evaluation of the dissertation's structure and content

The reviewed work consists of four chapters: introduction, theoretical framework, empirical research and conclusions. In total, its volume, including bibliography, lists of figures and tables, and appendices, is 141 pages (101 pages of main text). The dissertation contains 6 figures, 23 tables and 2 appendices. The dissertation is based on 231 literature reports – monographs, scientific papers and conference materials. The structure of the dissertation is adequate.

The introduction provides a comprehensive research background and motivation for the selection of the topic, characterizes the research subject, discusses the identified research gap and the research problem, defines the aims of the study, formulates the research hypotheses and characterizes the structure of the dissertation. The introduction is systematic and precise, and is the result of the in-depth analysis of the literature on the importance of SMEs in Pakistan economy; the impact of intellectual capital (and its components) on the company’s (*incl.* SMEs) survival, development, performance, competitiveness and innovativeness; the significance of opportunity recognition (its identification and exploitation) by SMEs; and the theoretical potential of intellectual capital for opportunity recognition.

A comment should be made about the order of the issues presented. I believe that the aim of the dissertation should be placed only after the discussion of the research gap and the research problem statement. There is also some dissatisfaction with the literature grounding of the hypotheses (they are the result of all the considerations in the introduction). There should be indicated the procedure used in the literature review in relation to the issue of the relationship between intellectual capital and opportunity recognition. PhD Student did not specify which databases he included in the review and according to what criteria he incorporated individual items for further analysis. In my opinion, the clear procedure would allow for a more systematic presentation of the theoretical foundations and results of empirical research to date on the relationship between intellectual capital (and its dimensions) and opportunity recognition (opportunity creation and discovery).

In Chapter 2 key theoretical issues are systematically characterized: SMEs in Pakistan economy (Section 2.1), the definition of the concept of intellectual capital and its components (Section 2.2), and the essence of opportunities recognition (Section 2.3). Mr. Chaudhary Taimour Khalid indicated in the introduction to the dissertation that key research motivation was to support the development of SMEs in Pakistan, that the choice of this group of enterprises was in a sense a trigger for the research work. In Section 2.1 he comprehensively discusses the importance of SMEs to the Pakistan economy and the challenges faced by these enterprises. The scope of this part is sufficient, only the adoption of a specific definition of SME is missing. In my opinion, the key terms for the nature of SMEs should be presented.

Section 2.2 on the concept of intellectual capital and its individual dimensions defines the fundamental definitions and discusses the importance of intellectual capital for the operation and development of. There is some dissatisfaction with the lack of discussion of theoretical differences in the understanding of intellectual capital. Section 2.2 is also somewhat chaotic. In a few places, the Author has embedded the concept of intellectual capital in the context of the specifics of companies in Pakistan, less often SMEs in Pakistan, but in my opinion these references are not sufficiently systematized.

Section 2.3 provides a theoretical discussion of opportunity recognition. First of all, the key concepts – opportunity and opportunity recognition – are defined, and opportunity indicators are identified and characterized. At this point in the dissertation, a typology of factors promoting opportunity recognition should be included, along with the rationale for selecting intellectual capital as potentially important in the context of other factors.

Referring to the entire theoretical chapter, one should definitely appreciate the systematic, unambiguous definition of basic concepts (with the possible exception of the term SME), which provides a solid theoretical basis for empirical research. There is, however, some dissatisfaction with the lack of a more extensive literature discussion of the differences in the understanding of key phenomena (both intellectual capital and opportunity recognition), the limited embedding of these concepts in the specifics of SMEs, and the lack of theoretical grounding of intellectual capital against the background of other potentially important drivers of opportunity recognition by enterprises.

Chapter 3 is devoted to an empirical studies. The research model, considering intellectual capital dimensions as independent variables and opportunity recognition as dependent variable, is throughout correctly defined in the context of the aim of the dissertation. The model is a consequence of the literature discussion in the Introduction and in Chapter 2, both in terms of defined terms and relationships. As a result, it can serve as a basis for the verification of research hypotheses.

In the first part of the chapter the general research approach (*i.e.* positivism) and questionnaire as research instrument are widely discussed. Next, Liker scale, the statistical methods used and the study sample are presented. Finally, PhD Student faced ethical considerations of ongoing research. All methodological choices have been justified in a systematic way, their benefits and limitations have been pointed out. Methods of empirical research have been correctly selected.

Next, all variables (dependent and independent) with a discussion of their structure (frequency tables were used) are characterized, however, it was surprising that in the data analysis the perspective of levels on a scale were adopted rather than the perspective of individual variables (then a graphical presentation would be a histogram). The descriptive statistics of the variables and reliability of all scales are systematically reported. Sometimes the terms factor and variable have been used interchangeably, which is incorrect (p. 49).

The survey tool has been well constructed. I find questions measuring company characteristics and dimensions of intellectual capital to be correctly formulated. The scales developed for opportunity recognition are not always appropriate for the Likert scale because they are not symmetrical. At the same time, I believe that the scales proposed in the dissertation (scales measuring both the use of intellectual capital dimensions and opportunity recognition), with minor adjustments, can be a valid theoretical proposal for a standard tool for measuring both phenomena.

The next part of the chapter contains the most important empirical findings on the relationship between intellectual capital and opportunities recognition by SMEs in Pakistan. The results of the correlation analysis and Kruskal-Wallis test for the relation between separated items building intellectual capital dimensions and opportunities recognition are systematically presented and discussed in a broader context.

A few minor comments can be made. On page #52, PhD Student used the phrase "the cause-and-effect correlations" which is not correct. Correlation (co-occurrence of two variables) is not the same as causation (something results from something). There is no causality without correlation, but correlation does not yet mean causality, which the Doctoral Student is aware of ("However, it's essential to keep in mind that correlation doesn't always mean causation; even though a significant correlation exists between the variables, it doesn't conclusively establish a cause-and-effect relationship." (p. 77)). Doctoral Student in presenting the results of the correlation analysis systematically referred to statistical significance and the direction of the correlation, but in few cases he used colloquial statements regarding its strength (for example pp. 77, 78). The level of significance has not been reported. I also see an opportunity to make more use of the results obtained. PhD Student confirmed the consistency of the scales of the individual intellectual capital dimensions and the opportunities recognition scale, so the relationship between the overall constructs (3 variables relating to the intellectual capital dimensions and 1 variable measuring opportunities recognition) could also be examined. Such an analysis could provide additional important insights. Some doubts have been also raised about the lack of empirical research on factors other than intellectual capital that affect opportunity recognition, however, it would undoubtedly increase the complexity of the research.

In summary, the presentation of the research results is systematic and clear, the results on the compounds studied are comprehensively reported and discussed, and the analyses allowed verification of the research hypotheses.

In conclusions (Chapter 4), the Author cited the most significant results of his study with their relation to the aim of the dissertation. He discussed the theoretical and practical implications of the conducted research, addressed its most important limitations, and made recommendations for further research.

The formal side of the dissertation raises many objections. Although the dissertation is rather written in correct and understandable language, it is prepared carelessly and contains

many errors. There are so-called typos in the text (e.g. pp. 11, 51, 61, 92), punctuation errors (e.g. pp. 37, 38, 40, 44, 46), other linguistic or stylistic errors (e.g. pp. 37, 42), errors in literature references (e.g. pp. 11, 27, 44, 45), errors in formatting of the text (e.g. pp. 6, 18), inconsistency in the use of uppercase and lowercase letters (e.g., on p. 43 entrepreneur is capitalized and later lowercase) and translation of abbreviations (SMEs is interchangeably translated as “small and medium-sized enterprises (SMEs)” or “small and medium-sized businesses (SMEs)”), the title of Chapter 3 in the text does not match the title from the table of contents. Figures, tables and charts are prepared fairly, and most of them consistently use formatting.

Conclusions

Both the degree of achievement of the dissertation' aim and objectives, and the quality of their implementation I evaluate positively. Such an assessment is influenced by the following main qualities of it:

- 1) Identification of an important and topical research problem and its very sound, comprehensive justification - both theoretically and practically;
- 2) Consistency of the conceptual base, which is key to evaluating the quality of the doctoral dissertation. The basic concepts for the reviewed study were the following categories: intellectual capital and its dimensions, opportunity recognition and SMEs. These concepts were mostly defined in a correct manner, sufficient for the preparation and implementation of a reliable empirical research;
- 3) The research methodology adopted is relevant. Both the stages of the research process and the description of the activities undertaken in the research are not objectionable. The logical and transparent manner of the research procedure indicates PhD Student's ability to conduct scientific analysis and is suited the purpose of the dissertation;
- 4) The Author's own research results obtained are significant as he:
 - determined the role of intellectual capital and its dimensions for opportunity recognition of SMEs in Pakistan – both theoretically and empirically;
 - formulated the directions of shaping dimensions of intellectual capital for the development of SMEs through opportunity recognition.

Mr. Chaudhary Taimour Khalid has solved well the research problem undertaken.

- 5) The theoretical determination of the relationship between intellectual capital (including its dimensions) and opportunity recognition by SMEs in Pakistan and the results of its empirical verification should be considered an important and original achievement. The reviewed dissertation makes a significant contribution to the development of theory on

the factors that enable opportunity recognition by enterprises (and, by extension, the factors that foster enterprise agility) and theory of intellectual capital. The work has also an important practical significance. On the one hand, it is related to the choice of SMEs in Pakistan as the subject of the study, *i.e.*, enterprises of particular importance to the Pakistan economy. For the first time such a relationship was investigated in the context of Pakistan SMEs. On the other hand, the value of the work in practical terms is determined by the directions formulated by PhD Student with regard to the formation of intellectual capital dimensions for the development of SMEs in Pakistan.

It is worth noting that the quality of the reviewed dissertation would be even higher if it were not for some shortcomings. These include:

- 1) In the theoretical chapters, there is relatively little scientific discussion of the views and concepts presented in the literature. In particular, it would be valuable if the formulation of individual research hypotheses were in the nature of a discussion, based on a critical, systematic analysis of the literature reports;
- 2) PhD Student did not indicate the procedure used in the literature review, did not state which databases he considered in the review, and by what criteria he included (and rejected) individual items for further analysis. In my opinion, systematic literature review would allow for a more reliable presentation of the theoretical foundations and results of empirical research to date on the relationship between intellectual capital (and its dimensions) and opportunity recognition (opportunity creation and discovery);
- 3) The dissertation makes a very good case for the importance of intellectual capital (and its dimensions) as an enabler of SMEs' capacity to recognize opportunities. However, it would have been more complete if it had included other factors influencing opportunity recognition along with a justification for choosing intellectual capital in the context of other factors;
- 4) In a few places, the Author has embedded the concept of intellectual capital in the context of the specifics of companies in Pakistan, less often SMEs in Pakistan, but in my opinion these references are not sufficiently systematized;
- 5) It also has not been explained why the relationship between intellectual capital and opportunity recognition has a special character in SMEs, whether it is different for this group of companies (compared to the population as a whole), whether this difference is due to the specific characteristics of SMEs or perhaps SMEs in Pakistan;

- 6) The study used the correlation method. The correlation analysis does not imply causation. In the study, based on an in-depth analysis of the literature, PhD Student assumed that the dimensions of intellectual capital would be the independent variables, and would promote the growth of opportunities recognition (dependent variable). While this assumption is strongly supported by the literature discussion, reverse causality is also possible;
- 7) There is also an opportunity to make more use of the results obtained. The Doctoral Student confirmed the consistency of the scales of the individual intellectual capital dimensions and the opportunities recognition scale, so the relationship between the overall constructs (3 variables relating to the intellectual capital dimensions and 1 variable measuring opportunities recognition) could also be examined. Such an analysis could provide additional important insights;
- 8) Finally, a number of deficiencies were found in the formal side of the dissertation.

The comments raised in the review are mostly of a debatable nature and do not detract from the unequivocally positive assessment of the substantive level of the dissertation. The dissertation under review is an independent, cohesive scientific work of high academic merit as regards the formulation of research questions, methodology, theoretical and empirical foundation, documentation, treatment of the literature and form of presentation. A study of the dissertation allows to conclude that Mr. Chaudhary Taimour Khalid is capable of planning and effectively conducting scientific research in the discipline of management and quality sciences.

Therefore, I declare that the dissertation of Mr. Chaudhary Taimour Khalid, entitled „Impact of Intellectual Capital on Opportunity Recognition in SME’S of Pakistan”, fully meets all formal and customary requirements for the doctoral dissertations and I request that Mr. Chaudhary Taimour Khalid be admitted to the following stages of the PhD procedure.

