

### The opponent review of the dissertation

**The name of doctoral student:** Najam Ul Zia

**Title:** Social capital and industry 4.0 readiness: Role of innovative capability, industry 4.0 efficacy, and knowledge based dynamic capabilities

**University:** Tomas Bata University in Zlin, Faculty of Management and Economics

**Degree Program:** Doctoral program Economics and Management

The submitted dissertation analyzes and interprets the issue of Industry 4.0 from the perspective of social and social readiness for the challenge associated with Industry 4.0. From the point of view of the choice of topic, it can be stated that it is a current topic and also appropriately chosen in view of the profile of the Faculty of Management and Economics. The work reflects this fact in one of the developing countries, namely Pakistan, which can be considered acceptable from a purely scientific and research point of view.

Specifically, the submitted dissertation seeks to determine the role of social capital dimensions for increasing readiness for Industry 4.0 in selected manufacturing firms of Pakistan. It also fills the missing gap in the mediating roles of innovation capabilities, knowledge-based dynamic capabilities and Industry 4.0 efficiency; between the relationship of social capital and readiness for Industry 4.0.

The work has a satisfactory and solid theoretical research basis, in the form of Chapter 2 Theoretical Framework and Chapter 3 The scope of the study and conceptual framework. The list of used and studied literature at the end of the text includes a total of 11 pages of resources. It can be stated that the analysis of the outputs published so far is sufficient in relation to the aim of the work.

The main goal of the work is to determine the impact of all three SC dimensions on i4.0 readiness and to look into the role of innovative capability, i4.0 self-efficacy, and KBDCs in mediating the relationship between SC and i4.0 readiness of manufacturing companies in developing economies context. The author subsequently defines 4 sub-goals of the work, namely:

to identify the role of SC (structural, relational, and cognitive SC) in influencing i4.0 readiness; To identify the mediating role of innovative capability between SC (structural, relational, and cognitive) and i4.0 readiness; To identify the mediating role of i4.0 efficacy towards the linkage between SC (structural, relational, and cognitive) and i4.0 readiness and To identify the mediating role of knowledge-based dynamic capabilities (KBDC) towards the linkage between SC. It adequately defines 4 research questions (p. 11-12).

The author defines the used work methods in chapter 4 Methodology (p. 27). The author combines the methods of: a quantitative approach and empirically examines the connection of the three dimensions of social capital and the readiness of manufacturing firms for Industry 4.0 with the mediating roles of innovation capabilities, dynamic capabilities based on knowledge and the efficiency of Industry 4.0. For quantitative research objectives, data collection was carried out based on survey strategy, questionnaire design and cross-sectional technique. Quantitative data analysis is performed using structural equation modeling. A total of 320 valid responses were obtained from 81 manufacturing firms in Pakistan. This data is analyzed using

SmartPLS and SPSS. Quantitative approach findings are obtained through interviews with top industry specialists. The results of the study are analyzed and discussed in detail.

The results of the studies are presented in chapters 5 and 6: QUANTITATIVE STUDY – Results and QUALITATIVE STUDY – validation and explanation of results. The results are presented in tables, they are clear, they are easy to navigate and reflect on, and they relate to the chosen 4 objectives of the work. Above all, the QUALITATIVE STUDY is properly discussed, elaborated and commented on (questionnaires, individual answers, explanations).

The discussion is contained in Chapter 7 from page 51. The results show that structural social capital, relational social capital, and cognitive social capital are positively associated with Industry 4.0 readiness, and innovation capabilities, knowledge-based dynamic capabilities, and Industry 4.0 effectiveness mediate this relationship.

In general, the work provides new and previously unpublished results, at least in the area of social capital and readiness towards Industry 4.0 in Pakistan. The work theoretically contributes to the existing knowledge of the understanding of readiness for Industry 4.0 and offers valuable insights for firms in emerging economies to improve their social capital with firms in advanced economies in the era of Industry 4.0. The study also presents the importance of Industry 4.0 efficiency, knowledge-based dynamic capabilities, and innovation capabilities to facilitate the relationship of social capital and Industry 4.0 readiness among firms in emerging and developed economies. Practical implications, limitations, and future research directions are also highlighted.

The conclusion is rather brief, which is a pity, because the work brings new knowledge and is scientifically original. This part also contains contributions to theory and practice, but also little detail. In general, it can be said that the text of the dissertation is quite subtle and that the results could be more and more deeply considered and commented on.

The thesis contains occasional formal deficiencies, both in the English language and in the text, the definition of "bookmarks", predefined formats (p. 7), Appedicies has page 733, etc. It shouldn't have happened.

One fact is also not discussed in the work, and that is the transferability of data and work results. Question for the oral defense: can the outputs of the work be applied and used for other economies as well? For example, for the advanced economies of the EU, Is social readiness in relation to Industry 4.0 higher in EU countries? Does the author have such knowledge, data, etc.?

However, for all the reasons mentioned above and even taking into account the shortcomings of the work, it is clear that the author has consistently dealt with the issue, that he is familiar with it, and that his work brought original and as yet unpublished outputs and knowledge. This is also proven by the list of publication activities during the period of study that was submitted. For these reasons, I recommend the submitted dissertation for oral defense at the Faculty of Management and Economics, and after its successful completion, the award of  
**Mr. Najam Ul Zia** degree

**"DOCTOR" - Ph.D.**

In Olomouc 1.10. 2022

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