

## SCIENTIFIC ADVISOR'S REFERENCE

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|-------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Program:</b>         | <b>Master in Management</b>                                                                            |
| <b>Student:</b>         | <b>Shestun Aleksandr</b>                                                                               |
| <b>Title of thesis:</b> | <b>POTENTIAL OF BLOCKCHAIN IMPLEMENTATION IN HEALTHCARE IOT FROM BUSINESS AND CONSUMER PERSPECTIVE</b> |

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| <p><b>Justification of the topic choice. Accuracy in defining the aim and objectives of the thesis.</b> Justification of the topic choice; accuracy in defining the aim and tasks of the thesis; originality of the topic and the extent to which it was covered; alignment of the thesis' topic, aim and objectives.</p> <p>Digital transformation (DT) in healthcare (HC) is of increasing relevance for both scholars and practitioners in the field. DT of organizations is supported currently by such disruptive digital-enabled concepts: 1) The fourth industrial revolution, or Industry 4.0 (I4.0). It is based on the concept of the Internet of Things (IoT), which describes the interconnection of computing power and data flows of smart objects that enable the autonomous control of daily life processes (Klewes et al., 2017); 2) Artificial Intelligence, understood as the transformation of service processes into automated processes that rely on intelligent computer systems or computer-controlled robots that do not require human intervention to execute tasks associated with intelligence (Copeland, 2019). DT in HC refers to the adoption of new technologies that enables the shift towards secure, high-quality care (Haggerty, 2017) and adds the aspects of “new developments as self-tracking, big data and predictive analytics, e-health, mobile health, participative medical research, e-patient communities, [...] and shared decision making in diagnosis and e-therapy” (Belliger and Krieger, 2018, p. 311). Considering all above, the master thesis of Aleksandr Shestun seems to be surely topical. The title, research problem and research questions are clearly specified. The goal is real, accurately expressed and the tasks are defined in a good form.</p> |
| <p><b>Structure and logic of the text flow.</b> Logic of research; full scope of the thesis; alignment of thesis' structural parts, i.e. theoretical and empirical parts.</p> <p>The thesis is organized mostly in a logical way. The structure of the research is divided into four main parts. The first chapter is related with the IoT in the healthcare industry. In the second chapter author describes blockchain in IoT and healthcare. In chapter three Aleksandr investigates the potential of blockchain integration in IoT devices of healthcare industry. He discusses the prerequisites of blockchain integration in healthcare IoT, technology acceptance models (TAM, UTAUT), the technological and environmental dimensions, and makes generalization of examined literature. Here we can find the description of the general research design and the primary data collection. Finally, Aleksandr discusses results, theoretical and managerial implications. In conclusion Aleksandr summarizes the paper's results. Both theoretical and empirical part of the thesis are consequently aligned in terms of their structure.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p><b>Quality of analytical approach and quality of offered solution to the research objectives.</b> Adequacy of objectives coverage; ability to formulate and convey the research problem; ability to offer options for its solution; application of the latest trends in relevant research are for the set objectives.</p> <p>Author demonstrates ability to formulate and convey the research problem and to offer options for its solution applying the latest trends in relevant research.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <p><b>Quality of data gathering and description.</b> Quality of selecting research tools and methods; data validity adequacy; adequacy of used data for chosen research tools and methods; completeness and relevance of the list of references.</p> <p>The dataset used in this thesis was extracted through survey and does not infringe or breach any confidentiality. Quality of selecting research tools and methods is mostly good. Author demonstrates adequacy of used data for chosen research tools and methods. The data samples are described and analysed. The list of reference is mostly complete and relevant. Results of the assessment models analysis: supported and not supported hypotheses.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p><b>Scientific aspect of the thesis.</b> Independent scientific thinking in solving the set problem/objectives; the extent to which the student contributed to selecting and justifying the research model (conceptual and/or quantitative), developing methodology/approach to set objectives.</p> <p>In research leading models of acceptance are described and analysed together with results of the CFA analysis: supported and not supported hypotheses. Author shows that from the theoretical perspective the effects of both blockchain and IoT in the healthcare industry are in a lot of aspects transformative and disruptive for the traditional way of business. The most impactful will these two technologies be when they complement one another, resulting in complete, transparent, data-driven information along the entire medical supply chain.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**Practical/applied nature of research.** Extent to which the theoretical background is related to the international or Russian managerial practice; development of applied recommendations; justification and interpretation of the empirical/applied results.

The practical contribution of the thesis is that it summarizes the current state of blockchain and IoT healthcare market with the lack of feasible business solutions, which can be useful for healthcare providers, government actors regulating blockchain and IoT, and business representatives that are willing to develop IoT technologies for healthcare sector. The consumer perspective of the research can be of use for the above mentioned actors to concentrate on the key features of IoT needed for consumers. Furthermore, the created technology acceptance model may serve as a foundation for further research works on the topic.

**Quality of thesis layout.** Layout fulfils the requirements of the Regulations for master thesis preparation and defence, correct layout of tables, figures, references.

Layout fulfils the requirements of the Regulations for master thesis preparation and defence. All the tables and figures are properly edited and represented. Unfortunately, there are some misspellings, typos and formatting issues in the text.

**Originality of the text.** All sources of match identified by the Safe Assign system follow the allowed cases, the paper does not contain any elements of plagiarism.

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The Master thesis of **Aleksandr Shestun** meets the requirements for master thesis of MIM program thus the author of the thesis can be awarded the required degree.

Date: 14.07.2021

Scientific Advisor:

Assoc. Professor Sergey Yablonsky

