

# **Cultural Aspects and their Impact on the Adoption of Electronic Invoicing**

Master Thesis

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## **Abstract**

The purpose of this master thesis is the analysis of a relationship between cultural differences and the adoption of electronic invoices. Furthermore, information will be given on the impact of culture on innovative technologies in general. In order to, analyse this connection a meta-analysis as well as a survey was conducted, focusing on participants that are either on the management level or have direct contact with the invoice process. The questionnaire was sent to suitable recipients in China, North America and West Europe. In the study a connection between the power distance and uncertainty avoidance defined by Hofstede was identified. The negative relationship of both dimensions indicated a possibility of increasing the adoption rate of electronic invoices by focusing the specific characteristics presented by an individual in such an environment. The study is unable to guarantee the correctness of the findings based on the small sample in the questionnaire. Electronic invoice providers should focus the improvement of interoperability in an uncertainty avoidance environment. Furthermore, to address the cultural background a focus on the information exchange is necessary. This study is, based on the personal knowledge, the first examination of the relationship of cultural differences and the adoption of electronic invoices. Therefore, additional research on this topic is recommended, although the focus should be adjusted to a smaller environment.

Keywords: Cultural Differences, Electronic Invoicing, Electronic invoices, Adoption of Innovative Technologies.

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# 1 Introduction

The number of countries setting themselves up for the adoption of electronic invoices is constantly rising. The annual Global E-Invoicing Study by Baseware presents a decrease of resistance on the adoption of electronic invoices from 46% in 2011 to 26% in 2012 (E-Invoice Platform, 2012). Obviously there must be many positive effects that motivate countries, companies and individuals to make use of electronic invoicing. But there still remain some barriers, which affect the global adoption rate of electronic invoicing. These barriers need to be identified in order to support the distribution of this procedure. The issue of this resistance is one key factor of this master thesis. The approach focuses on the influence of culture. The cultural environment impacts the whole life of an individual. The developed characteristics of an individual, that are based on the surroundings, can determine the attitude, the view or the behaviour of a person. This might lead to widely spread relationships of an individual to innovative technologies, business processes or working methods. Due to this, the main task of this master thesis is to enquire potential influences from cultural dimensions on technical aspects like electronic invoicing. This will be assessed with the following research question.

*“How does the culture of a country influences the adoption of electronic invoices?”*

In this particular context, the cultural dimensions by Hofstede (2001) are taken as foundation to analyse the influence of culture on the adoption of electronic invoices. The examination includes the dimensions power distance, the uncertainty avoidance, the individualism and the masculinity of a society. Each individual dimension presents different characteristics, which are tried to be linked to the adoption of electronic invoices. First of all, a theoretical framework is presented, which focuses on defining electronic invoices and the legal environment of North America, Europe and the People’s Republic of China. Afterwards the possibilities of implementing electronic invoices in the business system as well as the formats will be presented. This topic includes additionally the concept for the process of an invoice in an electronic form. Furthermore, the Chinese method will be included, because of the special characteristics of the operation. In addition, challenges and benefits of electronic invoices will be presented as well as an in detail presentation of the cultural dimensions. Based on this theoretical background is the methodology explained, which

includes a meta-analysis as well as an online questionnaire. The basis for the meta-analysis will be an extensive literature analysis including studies, which focus the relationship of the cultural background and the adoption rate of innovative technologies. The connection of the culture and the adoption of electronic invoices will be addressed by the creation of hypotheses that will be evaluated by the findings of the meta-analysis as well as the statements in the questionnaire. The questions in the survey are designed for open answers and will be analysed qualitatively. The questionnaire contains questions on the cultural background as well as on the relationship of the individual with electronic invoices. The results of the survey and the meta-analysis will present the basis for the development of recommendations, which include the main characteristics that need to be focused, when implementing new technology in a specific cultural environment. In addition, in the discussion, connections between the challenges of electronic invoices and the characteristics of the individual dimensions will be examined. This discussion will be extended on various environmental factors that can be connected to the cultural background, while influencing the implementation of electronic invoices. Finally, a conclusion will be drawn on the features that a governmental and organizational environment needs to address in order to increase the adoption rate of electronic invoices.

# 7 Conclusion and Outlook

This master thesis focused on the influence of cultural dimensions on the adoption of electronic invoices and innovative technologies. The analysis showed that the cultural background has a direct as well as indirect influence on the acceptance of technology. However, the study presented differences in the influences of the dimensions regarding the technology that was focused. On the one hand, individualism, uncertainty avoidance, and power distance were identified as relevant influences on the adoption rate of innovations. On the other hand, a connection between individualism and the implementation of electronic invoices was not confirmed. The masculinity in a culture has based on the finding no noticeable influence on the adoption of neither innovation, nor electronic invoices. The relevance of power distance and uncertainty avoidance for electronic invoices relates directly to the known challenges that are well-known in the current environment. The power distance presents the inequality of power in a society or organizations. This dimension is found to have a negative influence on the adoption of electronic invoices. A higher power distance decreases the adoption of electronic invoices. In order to address this negative relationship, the main focus should be the communication with the managing level of companies or countries. China in particular is a special example for this situation. The use of electronic invoices depends fully on the decisions of the government. In order to have the complete control over the invoices in the country the switch from paper format to an electronic format had additional complications. Therefore, the high power distance, as seen in the central decision making, slowed down the process of adopting electronic invoices. The present invoice system included in the GTP is still depending on paper format. The changes of this process fully rely on the willingness of the government to change the methods. This results in a late adoption of the new processes. In comparison, the first standardized formats were developed in Europe, a region with a lower power distance, focusing the optimization and promotion of electronic invoices. In general, the findings of the questionnaire indicated a higher adoption of electronic invoices in the regions with a lower power distance. This is consistent with the results from the meta-analysis, stating a negative relationship between the power distance and the adoption of electronic invoices. The second dimension was found to have influence is the uncertainty avoidance in a culture. This dimension has impact on the adoption of innovations in general as well as electronic invoices. This result allows to draw conclusions on the aspects that are the key to improve the adoption rate in this cultural

environment. A necessary aspect is the transfer of information. However, the focus of these information should lay on the security, ruling, standardization and interoperability. The individuals in a high uncertainty avoidance environment are in need of a higher trust on the technology. The factor can be addressed by emphasizing the security of the processes. Furthermore, the development of standards and the integration in the legal environment is necessary to increase the adoption of electronic invoices.

The distribution of electronic invoices will increase in the future, based on the possibilities of cost saving as well as process improvement. In an environment with continuous development of technologies and rising responsible automation, the process of electronic invoicing offers high potential of improvement. The increase of standardization can be particularly helpful for this process. Missing standards raise the need for additional outlays regarding the adjustments on differences in the used methods. Giving attention to the cultural preferences in the development of the processes, can support the adoption rate of electronic invoicing