

# Modeling and Analysis of Complex Technology Adoption Decisions: An Investigation in the Domain of Mobile ICT <sup>1</sup>

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## Dissertation Abstract

**Scope.** Over the past few years, mobile information and communication technologies (ICT) have generated a significant amount of hype and interest. Recent advances in mobile ICT have led to the emergence of new types of enterprise applications and information systems. These emerging solutions leverage the unique characteristics of mobile ICT to provide end-users anywhere and anytime access to context-critical enterprise applications and data. Experts have argued that mobile enterprise solutions have an enormous potential to transform enterprises, business processes, and services, improve employee productivity, effectiveness, and efficiency, and confer competitive advantage and business agility. Despite its value and many potential benefits, however, widespread enterprise adoption of mobile solutions has not been as extensive as anticipated. While mobile ICT promise to fundamentally change the “way” business and commerce will be done, the “way” is still emerging, and the path and contextual conditions to get there have not been addressed. Hence, the following two questions are of critical importance:

1. What is the (transformational) value and impact of mobile ICT in enterprises?
2. What are key determinants of enterprise adoption of mobile ICT and their relative importance?

The objectives of this dissertation are to fill the theoretical gap and address these two questions by conducting a comprehensive investigation of the value propositions and associated costs and benefits of mobile ICT, developing a theory of mobile enterprise transformation, and introducing and developing the concept of mobile readiness.

**Methodology.** To capture the complexity of mobile ICT adoption decisions, this dissertation uses a theory-building approach by combining quantitative and qualitative research methodologies. Drawing on theories from the information systems, technology management, and organizational innovation literature, the dissertation first develops an integrative conceptual framework of salient organizational, technological, managerial, and environmental factors that influence enterprise adoption of mobile ICT. The dissertation then uses a modified Delphi approach to validate and enrich the mobile ICT value and adoption framework and determines the relative importance of the key elements in the framework using a multi-criteria decision theory approach. Lastly, these findings are integrated into a web-based decision support tool.

**Contributions.** This study is a valuable and useful resource for both researchers and practitioners concerned with the adoption of emerging ICT, in general, and mobile ICT, in particular, and contributes in multiple important ways. First, from a theoretical perspective, this research identifies the salient determinants of mobile ICT adoptions and their relative importance, develops a theory of mobile enterprise transformation, and introduces and develops the concept of mobile readiness. Second, from a practical perspective, this research develops a web-based technology decision advisor, which aids decision makers to assess their current state of enterprise mobility, determine the degree of mobile readiness, and facilitate the development of appropriate enterprise mobility strategies.

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<sup>1</sup> The author would like to thank his dissertation chair Dr. William B. Rouse and his dissertation committee members, Dr. Stephen E. Cross and Dr. Richard A. DeMillo, for their valuable help and guidance.