EXTENDING THE THEORY OF EFFECTIVE USE: THE IMPACT OF ENTERPRISE ARCHITECTURE MATURITY STAGES ON THE EFFECTIVE USE OF BUSINESS INTELLIGENCE SYSTEMS

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ABSTRACT

- There have been few studies clearly articulated a theoretically grounded model or provided empirical data to explain what factors influence the effective use of BI.
- Drawing on the theory of effective use (TEU) and literature on enterprise architecture, business intelligence and IT user performance, I developed a research model to examine the impact of different stages of enterprise architecture maturity on the representational fidelity of BI, which has been identified as one of the critical dimensions of effective use of BI influencing managers' decision-making performance.
- The study will adopt a mixed methods approach combining qualitative and quantitative data collection from managers in BI-based organizations.
- This study makes theoretical contribution to the study of effective use of BI, and also makes a practical contribution by providing insights into the creation of environments to facilitate more effective BI use in the pursuit of better decision-making performance.

OBJECTIVES

To develop a theoretically grounded explanation of:

- The reasons why the certain stages of EA maturity are beneficial
- How the use of BI systems can be beneficial
- How BI-based organizations can enrich their understanding and improve their level of effective use of BI systems.

RESEARCH QUESTIONS

How do the stages of IT enterprise architecture maturity of organizations influence the decision-making performance of managers through their impact on the effective use of BI?

BACKGROUND

BUSINESS INTELLIGENCE SYSTEM

- BI system refers to a compendium of information systems that provide the user the "intelligence" for making "informed" managerial decisions (Kulkarni and Robles-Flores, 2013).
- Integrated data repository is a foundation for organisation-wide BI (Sabherwal & Becerra-Fernandez, 2011, Watson, Ariyachandra, & Matyska Jr, 2001).
- The presence of a mature, consistent, and integrated data plays a crucial role in BI systems as it is an essential condition for information availability, information access, and information quality, all of which are critical for the effective use of BI.

CONTACT INFORMATION

I hope you like this research. I am interested in your feedback and further comments, so please feel free to contact me!

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BACKGROUND

ENTERPRISE ARCHITECTURE (EA) MATURITY STAGES

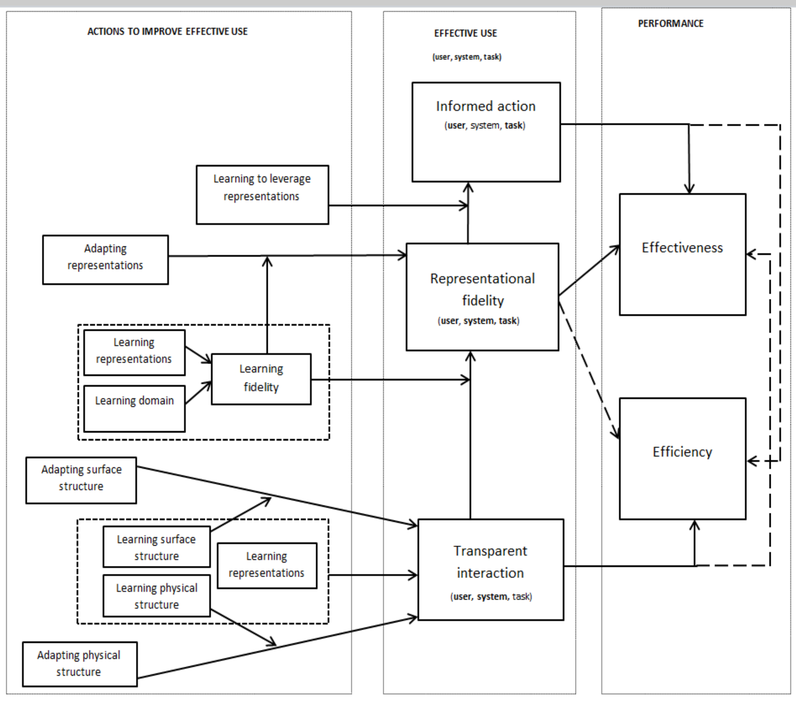
- EA maturity measures a firm's progress in building platforms to integrate and standardise the business and data (Ross et al., 2006)
- Data integration helps to provide quality information for decision-making (Reynolds et al. 2012), and only really occurs, once an organization moves to higher stages of Enterprise Architecture (EA) maturity (Ross et al., 2006).

Non-data integrated / Data integrated

Table 1. Enterprise Architecture Maturity Stages

EA Maturity Stages	IT Capacity	Standardization and Integration
Stage 1: Business Silos	Local IT application	Business processes and applications not standardized or integrated. Multiple data sources.
Stage 2: Standardized Technology	Shared technical platforms	Standardization is introduced; however, transactional data is still often enclosed in individual applications.
Stage 3: Optimized Core	Building a platform. Companywide standardized processes and databases	Business processes and IT applications standardized if appropriate, transaction data is extracted and made available to all appropriate processes and across the organization.
Stage 4: Business Modularity	Reusing and leveraging a platform. Plug-and-play business process modules	Reusing and leveraging a platform of shared business processes and/or organization data (using and improving the platform). Both customized and industry-standard components are integrated achieving a "plug-and-play" capability integrating internal and external business processes.
Stage 5: Dynamic Partnering	Seamless merging with partners' systems	Organizations which have progressed to dynamic partnering will provide business partners with selective access to their key data and business processes sharing an integrated data repository for their respective businesses.

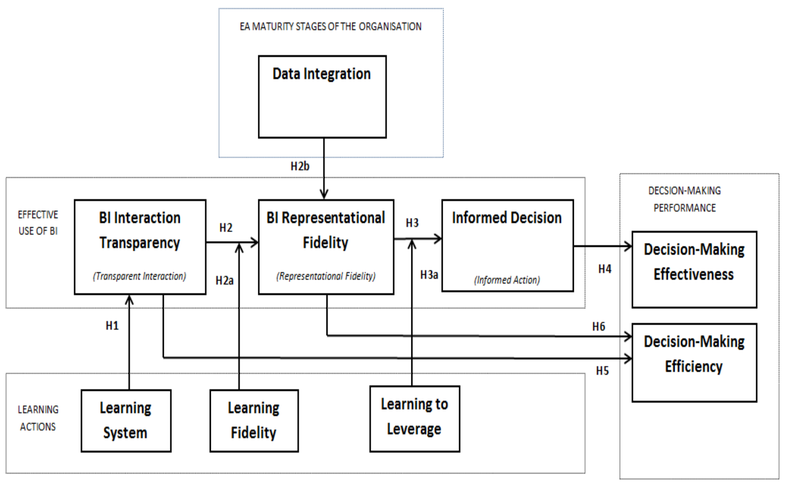
THEORY



THEORY OF EFFECTIVE USE (TEU)

- The TEU proposes that system use has to be effective to result in positive outcomes, and it explains how effective use and performance evolve and how effective use improves performance.
- Effective use at an individual level is explained as "using a system in a way that helps attain the goals for using the system" (Burton-Jones & Grange 2013 p. 4)

RESEARCH MODEL

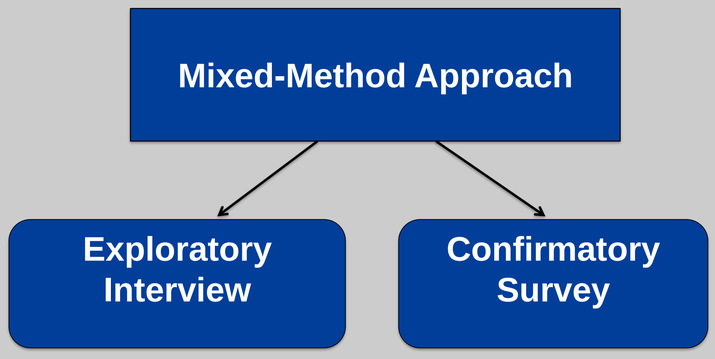


This study proposes that having mature EA development, in which data integration is defined, is a key factor influencing the degree to which a user can obtain BI representations faithfully. Further, the study suggests that decision-making task performance will be enhanced and optimized resulting from effective use of BI.

METHODOLOGY

MIXED-METHOD APPROACH

To answer the research question and to test the validity of the research model this study will adopt a mixed methods approach combining exploratory interview and confirmatory survey



Exploratory Interview:

- Semi-structured in-depth questions with managers in Australia who have knowledge and experience in using BI for decision-making tasks .
- To gather descriptive information of the phenomena being investigated.
- To help refine the model, the variables, and the proposed hypotheses.
- To help to develop the survey instrument items to be used in the second phase.

Confirmatory Survey:

- Survey managers with different levels of seniority who have used BI, or activities involved in the use of BI, for decision-making tasks.
- To further validate the model and instruments derived from literature, and enhanced by the results of the exploratory phase.
- To reconfirm the research model and measures using quantitative data.
- Adopt Structured Equation Modelling approach for quantitative data analysis

(EXPECTED) CONTRIBUTION

- This research takes an initial step to systematically explore the black box of effective BI
- This study identifies dimensions of effective use of BI. By doing so, this study stimulates a platform for research on what factors influence the effectiveness of BI use, and how BI systems are and need to be used to attain desired outcomes.
- This study may help organizations improve their level of effective BI use by providing a better understanding of the factors that drive the effective use of BI.
- This study provides organizations with insights to create an environment that facilitates and motivates BI users to more effectively use BI in the pursuit of better decision-making performance.
- The research will help organizations to recognize of the potential value of transition through the stages of EA maturity and demonstrate how organizations can maximize the likelihood of deriving potential benefits from different EA stages.

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