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KNOWLEDGE MANAGEMENT SYSTEMS SUCCESS MODEL FOR HEALTHCARE

A thesis presented in partial fulfilment of the

requirements for the degree of

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ABSTRACT

Healthcare professionals depend on access to high quality, up-to-date, contextualized knowledge to create optimal healthcare outcomes for their patients. They rely on information technology to create, capture, and transfer knowledge. Ad hoc or formal information systems employing information technology to facilitate knowledge management are known as knowledge management systems (KMS). Even though the importance of KMS for healthcare organisations is frequently emphasized in the literature, there is a dearth of empirical studies of the system and organisational factors contributing to the success of KMS in healthcare. Therefore, the purpose of this study is to (a) formulate a model explaining the success of KMS in the healthcare context by taking into account both system and organisational factors, and to (b) validate the model by testing it against empirical data.

A KMS success model for healthcare was formulated by adapting and extending the KMS success model of Kulkarni et al. (2007) (based on the DeLone and McLean, 2003, IS success model) to accommodate the specifics of the healthcare context. The model includes leadership, incentives, culture of sharing, and subjective norm as organisational factors; knowledge content quality, system quality, and perceived security as system factors relating to specific aspects of the system; and perceived usefulness and user satisfaction as system factors relating to user perceptions of the system overall. KMS use for sharing and KMS use for retrieval were used as the outcome variables—proxy variables for KMS success.

The KMS success model for healthcare was tested using a quantitative, cross-sectional survey involving all doctors practicing in two mid-sized cities in New Zealand: 525 doctors in Hamilton and 639 doctors in Wellington. The survey yielded a 25 percent response rate. Partial least squares structural equation modelling was used to test the model against the data.

The model explained 31 percent of the variance in KMS use for sharing and 58 percent of the variance in KMS use for retrieval, suggesting an acceptable model fit. Of the organisational factors, leadership had the strongest total effects on both KMS use for sharing ($\beta = 0.169$) and KMS use for retrieval ($\beta = 0.169$). Incentive, however, affected

KMS use for sharing only (β = 0.145). The rest of the organisational factors had no effects. Of the system factors relating to specific aspects of the system, knowledge content quality had the strongest effects on both the outcome variables (β = 0.275 for KMS use for sharing and β = 0.471 for KMS use for retrieval). System quality had much weaker effects (β = 0.094 and β = 0.175, respectively), and perceived security had no effect. As to the system factors relating to user perceptions of the system overall, perceived usefulness strongly affected both of the outcome variables (β = 0.435 and β = 0.664), but user satisfaction affected only KMS use for retrieval (β = 0.208).

Thus, the findings of the present study suggest that both system and organisational factors affect KMS use in healthcare, with system factors having stronger effects than organisational factors. The effects on KMS use for sharing clearly differed from the effects on KMS use for retrieval, suggesting that KMS use in KMS success studies should be treated as a two-dimensional construct.

The findings of the present study suggest that managers at healthcare organisations should visibly and directly support KMS use and should focus on knowledge content quality as the most important aspect of KMS.

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LIST OF ABBREVIATIONS

AVE	Average Variance Extract
CFA	Confirmatory Factor Analysis
CG	Clinical Governance
CKO	Chief Knowledge Officer
CPOE	Computerised Physician Order Entry
CR	Composite Reliability
DHB	District Health Board
EHR	Electronic Health Record
EKR	Electronic Knowledge Repository
EMR	Electronic Medical Record
ERP	Enterprise Resource Planning
ICT	Information and Communication Technology
IS	Information Systems
IT	Information Technology
KM	Knowledge Management
KMS	Knowledge Management Systems
OCP	Organisational Culture Profile
PLS	Partial Least Squares
SEM	Structural Equation Modelling
TAM	Technology Acceptance Model