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Aligning IT Initiatives with Emergency Management Objectives

Developing and Adapting IT Governance Approaches for the Domain of Emergency Management

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Abstract

Today's society is exposed to numerous disasters and large-scale emergencies. Information Technology (IT) can help to prevent and mitigate the effects of threatening situations if applied appropriately. However, organizations in the domain of Emergency Management feel overwhelmed by the complexity of IT. They are often unable to estimate the value and risk involved in information system and associated technologies. Thus, they are either reluctant to utilize IT, or they use inappropriate solutions. As a result, IT and Emergency Management processes are misaligned.

This thesis is investigating the benefits of strategic IT alignment in the domain of Emergency Management in order to foster the utilization of IT and realize value from it. The research has identified current IT alignment barriers and the special requirements of this domain. Emergency management has in contrast to industry to deal with unpredictable situations, multi organizational collaborations, and fast changing responsibilities and processes. Thus, this paper proposes conceptual models and methods, based on contemporary IT Governance frameworks and tools, which will help Emergency Management organizations to align IT initiatives with Emergency Management objectives.

The researcher utilized qualitative, quantitative, and modelling techniques during the different research stages in order to develop and adapt IT Governance related models and methods. The three final concepts address the most important IT Governance issues of the researched Emergency Management organizations.

"ITICO4EM", is a simplified IT Governance framework based on COBIT and ITIL. It addresses the domains needs without creating too much overhead, while it used domain specific terminology and remains ITIL and COBIT compatible.

"IT-ORG/CrIO", proposes an organizational structure for effective IT Governance in the domain of Emergency Management. It addresses the inter-organizational relations and shifting responsibilities in this domain and suggests the implementation of a mutual IT Governance approach across departments,

units, and organizations by utilizing IT Governance committees and the implementation of a Crisis Information Officer (CrIO).

“IVEM²”, will support Emergency Management organizations to estimate the value of their IT initiatives for their Emergency Management operations. The proposed IT value estimation method is based on a modular approach, which enables Emergency Management organizations to create an IT portfolio, which can cope with uncertain emergencies and deliver value in all possible situations.

Finally, the three approaches are combined to the “ITEM-Governance Approach”, which should support Emergency Management organizations in their endeavour to align their IT initiatives with Emergency Management objectives in order to increase IT value, reliability, and utilization.

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Statement of Originality

This thesis is submitted to Bond University in fulfilment of the requirements of the degree of Doctor of Philosophy. This thesis represents my own original work towards this research degree and contains no material which has been previously submitted for a degree or diploma at this University or any other institution, except where due acknowledgement is made.

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Author's Publications

Vogt, M. (2009) *"ICT Governance & Disaster Management"*, PhD Curriculum Proceedings of the 6th International ISCRAM Conference, Gothenburg, Sweden

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Abbreviations

AUS	Australia
BVIT	Business Value of Information Technology
BSI	(1) British Standards Institution
	(2) Bundesamt für Sicherheit in der Informationstechnik
	(German Federal Office for Information Security)
CIMS	Critical Incident Management Systems
CM	Crisis Management
CMM	Capability Maturity Model
CMMI	Capability Maturity Model Integration
COBIT	Control Objectives for Information and related Technology
CRED	Centre for Research on the Epidemiology of Disasters
DM	Desaster Management
DRF	Deutscher Rettungsflug (Flight Rescue Germany)
DRK	Deutsches Rotes Kreuz (German Red Cross)
EM	Emergency Management
EMQ	Emergency Management Queensland
FEMA	Federal Emergency Management Agency
GER	Germany
GIS	Geo Information Systems
GPS	Global Positioning Systems
HPITSM	Hewlett Packard's ITSM Reference Model
IAEM	International Association of Emergency Managers
IFRC&RDS	International Federation of Red Cross & Red Crescent Societies
ICT	Information and Communication Technology

IS	Information Systems
ISO	International Organizations for Standardization
ISCRAM	Information Systems in Crisis Response and Management
IT	Information Technology
ITIL	Information Technology Infrastructure Library
ITSM	Information Technology Service Management
ITGI	IT Governance Institute
IT-GOV	IT Governance
MOF	Microsoft Operations Framework
NGO	Non-Governmental Organization
NPV	Net Present Value
NICTA	National ICT Australia
NRC	National Research Council
PMBOK	Project Management Book of Knowledge
PRM-IT	Process Reference Model for IT
RISK IT	Risk of Information Technology
ROI	Return of Investment
SARS	Severe Acute Respiratory Syndrome
VAL IT	Value of Information Technology