Development of a Unified Framework for Business Motivation Driven Business/IT Alignment

-An application in Healthcare service sector

By

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Declaration by Supervisor

I certify that the candidate has adequately addressed all comments and incorporated all corrections, additions & amendments recommended by the examiners.

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Signature

TABLE OF CONTENT

LIST OF FIGURES VI

LIST OF TABLES VIII

ACKNOWLEDGMENTS IX

1 INTRODUCTION 1

1.1 General Background 1

1.2 Research Domain 4

1.3 Problem Statement 5

1.4 Research Question: 7

1.4.1 Purpose topic 1: How to derive goal oriented e-Service designing 7

1.4.2 Purpose topic 2: How to design & deploy complete and comprehensive e-Services 8

1.4.3 Purpose topic 3: How to develop SAIF compliance and sound e-Service deployment framework 8

1.5 Research Objectives 9

1.6 Research Benifits 10

2 RESEARCH BACKGROUND AND METHODOLOGY 12

2.1 Scientific Method 12

2.1.1 Applicability of Scientific Method to IS research 13

2.2 Grounded Theory 13

2.2.1 Applicability of grounded theory to Information System Research 14

2.3 Design Science Research Methodology 14

2.3.1 Applicability to IS research 15

2.4 Research Procedure 16

2.4.1 Design as an Artifact: 16

2.4.2 Problem Relevance: 17
2.4.3 Design Evaluation 17
2.4.4 Research Contribution: 18
2.4.5 Research Rigour: 19
2.4.6 Design as a Search Process 19
2.4.7 Communication of Research: 20
2.5 Disposition 20
2.6 Scientific Publications 21
3 LITERATURE SURVEY 22
3.1 Introduction 22
3.2 Running Scenarios 23
3.2.1 Surgery service in Healthcare organization 23
3.2.2 Infant immunization service 24
3.3 Business Ontology 25
3.3.1 Resource-Event-Agent (REA) enterprise ontology 25
3.4 Goal and Motivation modeling of the business 26
3.4.1 Business Motivation Model (BMM) 27
3.4.2 i* goal modeling 29
3.4.3 Reasons for choosing BMM as a goal modeling methodology 30
3.5 Business Value modeling 31
3.5.1 Value Theory 32
3.5.2 e^3-Value modeling 32
3.5.3 UMM –Business Requirement View 35
3.6 Business Process Modeling 36
3.6.1 UMM- Business Transaction View 36
3.6.2 PBMN 37
3.7 Service Oriented Architecture 37
3.8 Service Aware Interoperability Framework (SAIF) 38
3.9 Meta-models and Meta meta-models 42
3.9.1 UN/CEFACT Modeling Methodology 44

4 ENTERPRISE MODELING METHODS IN HEALTHCARE DOMAIN ...46

4.1 Introduction ... **46**

4.2 Healthcare 3-Tier Modeling perspectives based REA ... **47**

4.3 Proposed Healthcare modeling methods with SAIF framework ... **48**

4.4 Healthcare Motivation Modeling (HMM) ... **49**

4.5 Actors in Healthcare Domain ... **52**

4.6 3-tier Actor Perspectives in HC ... **54**

4.6.1 Primary Perspective ... 55

4.6.2 Governing Perspectives ... 56

4.6.3 Auxiliary Perspectives: ... 57

4.7 Value Actor classification ... **59**

4.8 Summary ... **60**

5 VALUE MODELING FOR HEALTHCARE DOMAIN ... 61

5.1 Introduction ... **61**

5.2 Value Modeling for Healthcare ... **62**

5.2.1 Values in Healthcare Industry: ... 63

5.3 Importance of Values in Service Identification ... **65**

5.4 Value Object Classification ... **66**

5.4.1 Intrinsic Value Objects (IVO) ... 67

5.4.2 Recurrent value objects (RVO): ... 69

5.4.3 Co-created Value Objects (CVO) ... 70

5.4.4 Affirmative Value Objects (AVO) ... 72

5.5 Healthcare Value modeling guidelines ... **74**

5.5.1 Guideline 1 ... 74

5.5.2 Guideline 2 ... 75

5.5.3 Guideline 3 ... 75

5.5.4 Guideline 4 ... 76

5.6 Advantages of Value Object Classification in Healthcare ... **76**

5.7 Application of the proposed VO classification ... **77**

5.8 Summary ... **83**

6 HC SERVICE PROCESS MODELING 84

6.1 Introduction 84

6.2 Value activities in Healthcare 85

6.2.1 Service acquisition value activities (SAVA) 86

6.2.2 Decision Making Service Activities (DMSA) 87

6.2.3 Directing value activities (DVA) 87

6.2.4 Service supportive value activities (SSVA) 88

6.3 Healthcare Collaboration Meta-modeling 89

6.4 Application of Value Modeling Sub frameworks 91

6.5 Choreography of VA 93

6.6 Authority Level Hierarchy (ALH) 96

6.6.1 In-category delegation 97

6.6.2 In-category override 97

6.6.3 Cross-category delegation 97

6.6.4 Cross-category override 97

6.6.5 Delegation of Execution without Authority 97

6.6.6 Shared Authorized Execution 98

6.7 Summary 98

7 REFERENCE INFORMATION MODELING (RIM) SUB FRAMEWORKS 100

7.1 Introduction 100

7.2 Reference Information modeling on healthcare value objects 101

7.2.1 Recurrent Value Object Referencing Information Model (RVO_{RIM}) 103

7.2.2 Co-created Value Object Referencing Information Model (CVO_{RIM}) 103

7.3 Application of Proposed Value object referencing information models 105

7.3.1 Application of RVO_{RIM} 105

7.3.2 Application of CVO_{RIM} 106

7.4 Summary 108

8 EVALUATION OF PROPOSED FRAMEWORK 109

8.1 Introduction **109**
8.2 Evaluation Strategies **109**
8.3 Evaluation Procedure **110**
8.4 Evaluation of the proposed framework **112**
8.4.1 Healthcare Motivation Modeling and Healthcare Value Modeling 113
8.4.2 Healthcare Service Process Modeling (HSPM) 114
8.5 Implications for different stakeholders **116**
9 CONCLUSION AND FUTURE DIRECTIONS **117**
9.1 Conclusion **117**
9.1.1 Comparison on System Development Approaches 117
9.1.2 Actor perspectives and value orientation 118
9.1.3 Service process designing 120
9.1.4 RIM for interoperability 121
9.2 Future Directions **121**
10 REFERENCES **123**
11 APPENDICES ..... **I**
11.1 Appendix 1 –List of Publications and Communications from thesis ..... **i**

LIST OF FIGURES

Figure 2.1: Design Science Research Process Model [11] 14
Figure 2.2: Summary of the research publications 21
Figure 3.1: optimal conceptual REA model [14] 26
Figure 3.2: BMM Overview [22] 29
Figure 3.3:e^3-Value model for the surgery case in Healthcare 35
Figure 3.4: The 3+1 MDA organization [30] 43
Figure 3.5:Meta-model Architecture [31] 44
Figure 4.1:Modeling ontologies of Enterprise modeling 47
Figure 4.2: Interconnectivity between SAIF and enterprise modeling layers 49
Figure 4.3: Motivation model for surgery case 51
Figure 4.4: HC Three-tier Actor Perspective 55
Figure 4.5: Meta-model for Value Actors 59
Figure 5.1: transferring of RVO s 70
Figure 5.2: Patient Health Record 72
Figure 5.3 : Meta-model for Value Object Classification 74
Figure 5.4 : Example -IVO 75
Figure 5.5 : Examples -RVO 75
Figure 5.6 : Example -CVO 76
Figure 5.7 : Example -AVO 76
Figure 5.8: e^3-Value model based identified VOs for surgery case 79
Figure 6.1: Meta-model for value activity classification 89
Figure 6.2: Metameta-model of Actor, VA and VO 90
Figure 6.3: MetaMeta-model for Healthcare Service 91
Figure 6.4: Meta-model for Healthcare Service 92
Figure 6.5 : Identification Paths SAVA 93
Figure 6.6: Identification Paths among activities SAVA, DMVA, DVA 94
Figure 6.7: Physician ALH, Figure6.8:NursingALH 96

Figure 7.1: Composition of Recurrent Value Object Referencing Information Model..
..... 104
Figure 7.2: composition of Co-created Object Referencing Information Model..... 104
Figure 7.3: composition of Co-created Object Referencing Information Model for EHR..... 108
Figure 8.1: HC modeling layers..... 111

LIST OF TABLES

Table 3.1: RACI model for basic healthcare services 41
Table 5.1: Comparison between values in healthcare context and values in ordinary business 65
Table 5.2: VO category for surgery case 82
Table 5.3: VO category for immunizing infants 83
Table 6.1: Identification Paths SAVA 94
Table 6.2 : Identification Paths among activities SAVA, DMVA, DVA 95
Table 8.1 : Comparative evaluation on value and actor perspectives of the framework 114
Table 8.2: Comparative evaluation on service process and value activity perspectives of the framework 115

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T.D.G.Geethika

ABSTRACT

Ever increasing complexities and dynamic nature of business operations with the adoption of technological advancements has resulted very many challenges on business service solution designers. Although this situation is common to any business domain when investigating healthcare (HC) service domain, it is overwhelmed e-Health service designers' burdens due several reasons. Among these, involvement of larger numbers of healthcare service providers, continuous introduction of medical service specialties and the need of their integration, as well as complex, dynamic and un-structured nature of information exchanges are prominent. Another facet of these issues is the difficulty of integration and interoperability with legacy and new HC applications mainly due to noncompliance deployments with global standards. In order to rectify aforementioned issues, there is a long standing necessity for a framework that could facilitate systematic alignment between higher level strategic and motivational requirements with lower technical level realizations while overcoming e-Health service designers' burdens.

This research work is an initiative contributing to get established a framework catering different modeling aspects of service design workflow. The proposed framework uses value orientation as the basis of the proposed approach. The framework

consists of three modeling layers HC Motivation Modeling (HMM), HC Value Modeling (HVM) and HC Service Process (HSP) Modeling together with related artifacts. For HMM three folded actor perspective; primary, governing and auxiliary has been proposed. The adopted value orientation and in particular HVM in the proposed framework is detailed out by means of Value Object (VO) classification schema. A Value Activity (VA) classification and an initial intuition on VA choreographing are fundamental for successful service designing effort that has been introduced in the framework as the foundation of HSP. Further, one of the promising approaches to tackle afore mentioned interoperability issues are the development of complete and sound enterprise-wide ontologies. However, in the proposed framework this requirement has been accomplished by means of defined set of healthcare related meta-models. These meta-models have also been extended with Reference Information Models based on VO schema that are capable of covering information modeling aspect of HSP layer.

The proposed framework could be considered as a designer assistant for successful HC service solution design and deployment. The framework provides a mechanism to capture higher level motivational requirements thereby systematic transformation of them into technical service system while ensuring completeness and correctness of the solution. The proposed framework also facilitates bi-directional traceability between higher level motivational requirements and subsequent lower level value and service modeling layers.

The development of proposed framework is completed by adopting Design Science methodology while aligning with globally accepted technological standards and HC specific recommendations. Comparative evaluation has been carried out for the proposed framework against well known generic approaches for system development.

1 INTRODUCTION

1.1 General Background

This chapter presents the background objectives and motivation of this research, and the work completed with respect to the "Development of a Unified Framework for Business Motivation Driven Business/IT Alignment -An application in Healthcare service sector".

Increasing complexity of business results in ambiguity of the requirement identification, which is a critical challenge in designing e-business systems. Therefore, most e-business solution development focuses on requirement engineering phase in order to systematically identify, analyze and represent system requirements based business goals.

A business organization offers goods or services to consumers, which can be referred to as common business; but deviations can exist depending on the type of business required to design e-commerce solutions accordingly. Mainly e-commerce solutions can be categorized into two main categories, Business-to-Business (B2B) and Business-to-Customer (B2C). Electronic transactions between two or more businesses, referred to as Business-to-Business (B2B), are more popular than Business-to-Customer (B2C). Both require standard solutions that offer goods or services electronically to overcome time or distance barriers. However, the complexity of replacing human interaction by computer is a reason that slows the expected adoption of electronic buying. Therefore, it is hard to obtain the expected advantages by utilizing them in real world. In the real world, dialogue is structured by grammatical, semantic, and syntactic rules that live in a shared context of social and cultural conventions [1]. There is a lack

of background to realize this type of rules in e-commerce which is the main reason of tendency to less use of these applications. Therefore, people are compelled to use well-structured standard frameworks to increase the applicability of e-commerce applications.

E-commerce applications are information systems, which are needed to be analyzed, designed, implemented and managed for the ultimate solution. Requirement engineering is the initial and most important step, and many modeling methodologies are available at this step. Conventional requirement analysis provides models that describe the operational aspects of a technology. But it is required to consider the actors having strategic interests, and also the bottom level involvement with the proposed system [2].

In order to fulfill strategic level requirements of the proposed system in business, several approaches are used nowadays. Among them enterprise modeling done with respect to different layers is a common approach. The different layers have different views of the system and these different layers can be modeled with different modeling techniques. For example, goal models are used to address the why aspects of the business; business models are used to model the aspects of the business and the process models are used to model the how aspects of the business. The literature concluded systematic mapping methodologies among these discrete layers are necessary in order to achieve business – IT alignment focusing higher level motivational requirements of the business. However, still there is lack of systematic guidance to framing services in healthcare ensuring the alignment between aforesaid modeling layers.

When considering the e-Solution designing for healthcare (HC) domain it has a lot of consequences in addition to the issues arising in common business solution