Fakultät II – Informatik, Wirtschafts- und Rechtswissenschaften
Department für Informatik

Interface Lifecycle Management on Enterprise Landscape Level

Dissertation for obtaining the degree
Doctor of Engineering (Doktoringenieur)

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Defense Date: 13.12.2016

Oldenburger Schriften zur Wirtschaftsinformatik

Band 20

Lama Balloul

Interface Lifecycle Management on Enterprise Landscape Level

Shaker Verlag
Aachen 2017

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at http://dnb.d-nb.de.

Zugl.: Oldenburg, Univ., Diss., 2016

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Printed in Germany.

ISBN 978-3-8440-5076-9
ISSN 1863-8627

Shaker Verlag GmbH • P.O. BOX 101818 • D-52018 Aachen
Phone: 0049/2407/9596-0 • Telefax: 0049/2407/9596-9
Internet: www.shaker.de • e-mail: info@shaker.de

I dedicate this thesis to my brother,
Ammar,
whom I lost during the civil war in Syria.
Without you, I would not be the person I am today.

We will never forget you.
Rest in Peace

Acknowledgements

A long difficult journey came finally to an end, which was only possible because of the support from many parties whom I would like to thank.

First and foremost, I would like to express my sincere appreciation to my supervisor Prof. Dr.-Ing. Jorge Marx Gómez for his guidance, constructive criticism, and support. He is like a father for me, believed in me as an academic researcher, and pushed me to the limit to get the best out of me. I also thank him for supporting me when I applied for the DAAD Scholarship.

I am very thankful for my second supervisor Prof. Dr.-Ing. Hergen Pargmann for his contribution during the last phase of my research. His constructive discussions and valuable suggestions helped me finish the thesis. Also, I would like to thank Prof. Dr. Andreas Winter for our brainstorming sessions, for his feedback about academic essays, for allowing me to join the meetings of his project groups, and for being honest about my progress.

A special mention goes to Matthias Rieken. I am particularly indebted to Matthias for sharing his practical expertise so willingly, for the long hours of intensive discussions, and for my good German today.

I would also like to acknowledge my debt to Dr. Daniel Süpke for checking my essays and providing feedback at the beginning of my doctoral journey.

I am grateful to CEWE Stiftung & Co. KgaA for hosting my internship. Special thanks go to Dr. Joachim Marz for giving me this opportunity. I thank Andre Hackmann for the discussions during my internship. I am grateful to all the members of the business IT department for their time and valuable information in the interviews.

I gratefully acknowledge the funding sources that made my Ph.D. work possible. I was funded with a scholarship by the DAAD (German Academic Exchange Service) for the first 4 years.

Similarly, my gratitude goes to my current employer Kuehne + Nagel (AG &Co.) KG for providing me with an educational leave to finish my Ph.D.

Many thanks to Daiany Palacios for listening to me during the rehearsal for my defense and to Dr. Cecile Deterre for her support that day.

Lastly, but by no means least, thanks go to my family, especially to my Mom for all the sacrifices she has made on my behalf, and to my sister, Rahaf, for cheering me up while being abroad.

Lama Balloul

Hamburg, January 2017

Abstract

This dissertation examines the effects on the enterprise landscape caused by interface changes. Nowadays, enterprise landscapes in companies keep growing and they are more and more characterized by heterogeneous systems. The big challenge is the integration of all process related systems, while creating successful IT supported businesses. The progression of interface technology opens new capabilities to companies. Manufacturers can interact with their suppliers in real-time, implement fully automatic customer data transfer in power industry, and exchange employee's data between authorities – Integration is the key to all these scenarios.

There are lots of questions that arise: How can companies keep an overview of all their interfaces and data flows? Can implementation costs of the interfaces be reduced? How can potentials risks be recognized? The current research of Enterprise Architecture Management (EAM) considers only whole-system landscapes and their relationship to the business processes. The details are limited to systems, which are the smallest entities in this perspective. Interfaces are addressed only as a part of an IT system instead of considering them as subsystems. This also takes place when we look at the lifecycle of a system. The system lifecycle management stops at the system level, and since interfaces are parts of them, they are underappreciated. On the other hand, the application lifecycle management, which deals with the application and its business value, often uses interfaces to fulfill their function, though interfaces are not part of the scope. Because of the increasingly significant role of interfaces in today's world, the consideration of lifecycle for interfaces is required, as it is implemented in the manufacturing industry with product lifecycle management.

Interface management in the field of management and communication science already monitors the interfaces between the units of organization – people in projects – and moderates their potential risks, but this is not applied in the field of interfaces in IT.

This dissertation joins the different disciplines with a strong focus on interfaces. It conceptualizes a model which presents the typical lifecycle of an interface, in addition to its interaction with other interfaces within the enterprise landscape. While addressing interfaces only as simple parts of systems is insufficient, the model considers interfaces as their own subsystems. The basis for this model is the interface catalogue, which can be used as an artifact to document and monitor interfaces of a system landscape. The catalogue enables managers and IT staff to impact analysis on the interface level. Furthermore, corresponding key performance indicators (KPIs) can be derived. Both the catalogue and the usage of KPI could be justified by two case studies at companies in the manufacturing and logistics sectors.

Perhaps it is adequate to contemplate at the systems level without considering the interface in less complex landscapes, but the gain of landscape knowledge by the interface lifecycle management is a success factor in the fields of business, where integration is crucial.

Table of Contents

1 Introduction 1
1.1 Motivation 1
1.2 Problem Statement 4
1.3 Research Objectives 9
1.4 Contribution of the Thesis 10
1.5 Research Methodology 11
1.6 Research Limitations 15
1.7 Thesis Structure 16
2 Related Work 18
3 Conceptual and Theoretical References 22
3.1 Enterprise Architecture Management 23
3.1.1 Definition of Enterprise Architecture 23
3.1.2 Enterprise Architecture Approaches 25
3.1.3 Definition of Enterprise Architecture Management 26
3.1.4 Enterprise Architecture Management Approaches 26
3.1.5 Examples of Enterprise Architecture Management Tools 27
3.1.5.1 LeanIX: EAM for everyone 28
3.1.5.2 KEEP®: Krallmann Enterprise Architecture Evaluation Platform 30
3.1.6 Relevance and Demarcation to EAM 32
3.2 Lifecycle Management 32
3.2.1 Product Lifecycle Management 33
3.2.2 System Lifecycle Management 34
3.2.3 Application Lifecycle Management 35
3.3 Interface Management 37
3.3.1 Interface Definition 39
3.3.2 Interface Notation 42
3.3.3 Interface's Attributes 43
3.3.4 Importance of Interfaces 44
3.3.5 Interface Related Documents 47
3.3.6 Integration vs. Interoperability 48
3.3.7 Interface's Schema of Functionality 49
3.3.8 Interface Management Approaches 53
3.4 Change Management 53
3.5 Summary 57
4 Interface Lifecycle Management 60
4.1 Target Audience 62
4.2 Interface Lifecycle 63
4.3 Interface Catalogue 69
4.3.1 Stakeholders of Interface Catalogue 70
4.3.2 Utilization of Interface Profile 70
4.3.3 Interface Profile 75
4.3.4 Data Model of Interface Profile 85
4.3.5 Procedures of Data Collection 90
4.3.6 Governance of Interface Profile 92

4.4 Impact of Change on Interface 93
4.5 Interface Metrics 97
4.6 Summary 106
5 Evaluation 108
5.1 Case Study 1: CEWE Stiftung & Co. KGaA 109
5.2 Case Study 2: The Logistics Company 115
5.3 Comparison and Results 125
5.4 Summary 126
6 Conclusion and Outlook 127
6.1 Research Summary 127
6.2 Future Work Directions 129
6.2.1 Interface Landscape Visualization 129
6.2.2 Interface Ontology 130
7 Reference List 132
Appendix A 150