

University of Heidelberg
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Bachelor thesis

Messaging Architecture for Integration of Customer Self-Services

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I assure that I have written this bachelor thesis on my own and only used the specified sources and resources and that I followed the principles and recommendations "Responsibility in Science" of the University of Heidelberg.

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Zusammenfassung

Abstract

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1 Context

The german ministry of economy and energy recognizes that "we have long since arrived in a digitized world". This realization of the german government comes along with important federal and european legislation. Most prominent are DSGVO, OZG and DVG, modernizing data protection, governmental administration and health care.

Enterprises, organizations and authorities are required to provide additional digital services for its customers and users. Those include for example the deletion of non-mandatory data and the digital application for unemployment benefit.

Working with existing system- and data architectures, integration of new solutions is necessary.

2 Objectives

This bachelor thesis describes digital self-service as a solution for the additional requirements. It explains the basis of what customer self-service (CSS) is, what relevant legislation is about and how CSS providers can help in the digital transformation.

The technological challenge of integrating CSS providers into existing system architectures is focus of this bachelor thesis. An integration architecture is presented, which provides solutions for the following questions (ToDo: In Textform schreiben):

1. How can services of a CSS provider be accessed by the enterprise architecture?
2. Which systems of a typical enterprise architecture are required?
3. Which data objects of a typical enterprise architecture are required?
4. Which additional systems and data objects are required?
5. How can heterogeneous enterprise architectures be integrated the same way?
6. How can the integration be non-invasive?
7. How can the speed of integration development be increased?
8. How can the speed of integration deployment be increased?
9. How can the integration system be reliable and maintainable?

The architecture is evaluated in respect to technological feasibility and real-life applicability. The results are incorporated into an operating manual, providing guidance in developing and deploying the presented integration architecture.

3 Structure of Work

4 Customer Self-Service (CSS)

4.1 Definition

4.2 Description

4.3 Benefits

4.3.1 Customer

4.3.2 Organization

4.4 Examples

5 Governmental Regulations

5.1 Purpose

5.2 Importance for Organizations

5.3 DSGVO

5.4 OZG

5.5 DVG

5.6 Challenges for Organizations

6 Compliance through CSS

6.1 Description

6.2 CSS-Scenarios

6.3 Requirements

7 CSS Providers

7.1 Description

7.2 CSS Solutions

7.3 Business Connector

8 Enterprise Architectures

8.1 Modeling of the real world

8.2 Modeling Challenges

8.3 Enterprise Architecture Patterns (EAP)

9 Relevant Systems and Data

9.1 EAPs

9.2 Architecture Bricks

9.3 Data Bricks

9.4 Integration Requirements

9.4.1 Regarding Integration Architecture

9.4.2 Regarding Business Connector

10 Integration

10.1 Definition

10.2 Requirements

10.2.1 Loose Coupling

10.2.2 Homogeneous Landscapes

10.3 Enterprise Integration Patterns (EIP)

10.3.1 Pattern 1

10.3.2 Pattern 2

11 Business Connector

11.1 Functionalities and Interfaces

11.2 Integration Requirements

11.2.1 Regarding Enterprise Architecture

11.2.2 Regarding Integration Architecture

11.3 Documentation

11.3.1 Connector as Architecture Brick

12 Integration Architecture

12.1 Scenario 1

12.1.1 Integration Documentation

12.1.2 System Integration

12.1.3 Data Integration

12.2 Scenario 2

12.2.1 Integration Documentation

12.2.2 System Integration

12.2.3 Data Integration

13 Integration Architecture Evaluation

13.1 Technology

13.2 Customer Example

13.3 Operating Manual

Bibliography