

Digitalising Business Processes: BPaaS Approach

CloudSocket Overview Presentation

CloudSocket

Agenda

1. **Motivation:**

Some Observations concerning the Digitale Transformation

2. **Business Process in der Cloud**

The EU Project: CloudSocket

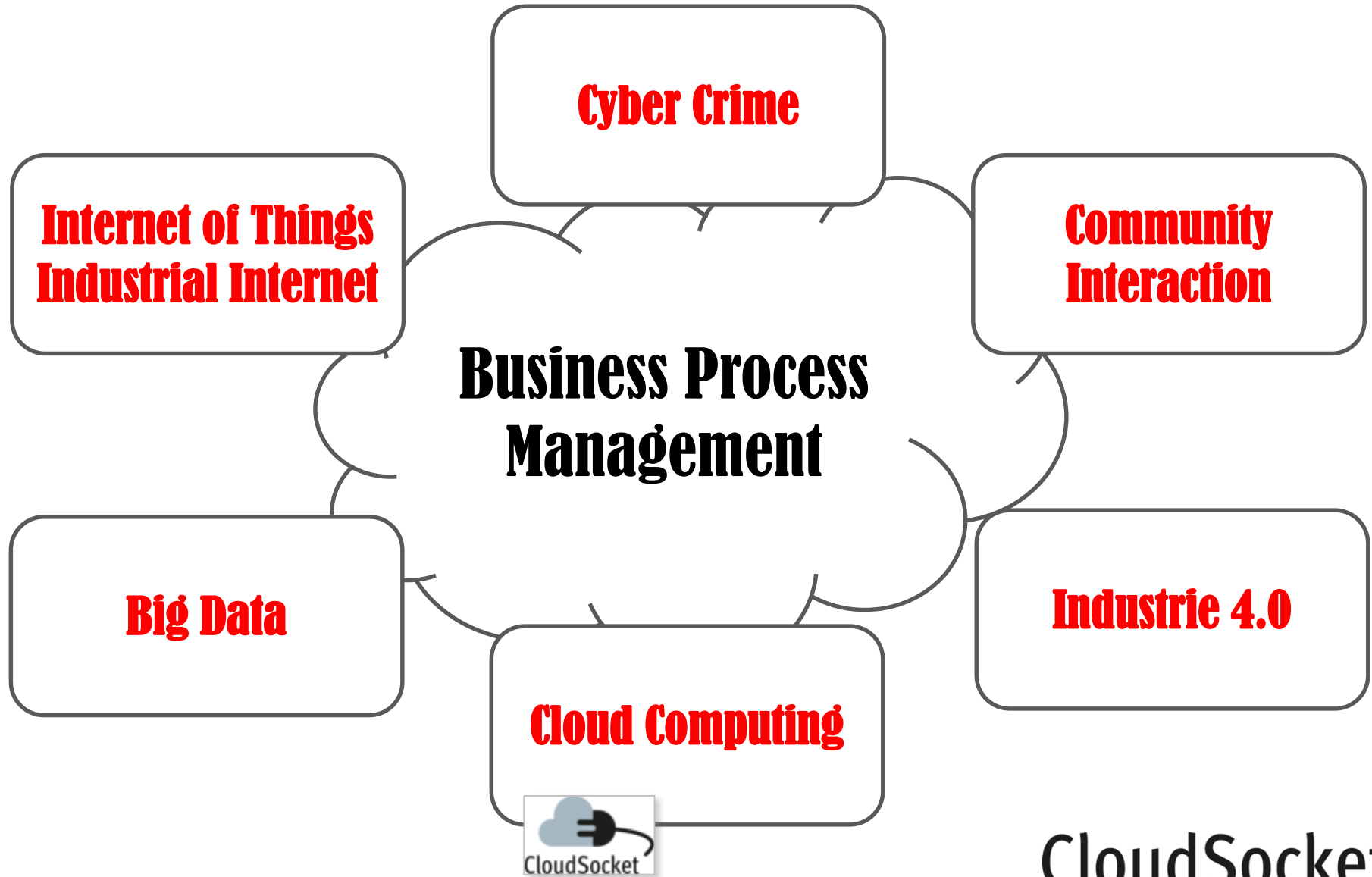
3. **First Realisation**

Process-based Cloud-Offering for Additive Manufacturing

4. **Conclusion and Outlook**

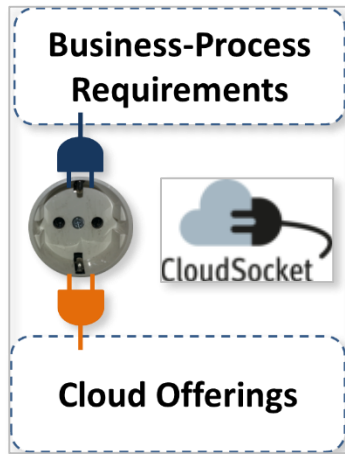
CloudSocket

1.Digital Transformation: Some Technology Fields



CloudSocket

1. Cloud Computing: Some Challenges



The Business Process in the Cloud:

„The Quality of the Business Process in the Cloud depends on the Quality of the Business Process.“

Interview mit Dr. Robert Woitsch im „com-magzin.de“, 18.11.2016

EU Cloud Challenges

“Data Protection, Security and Privacy in the Cloud”

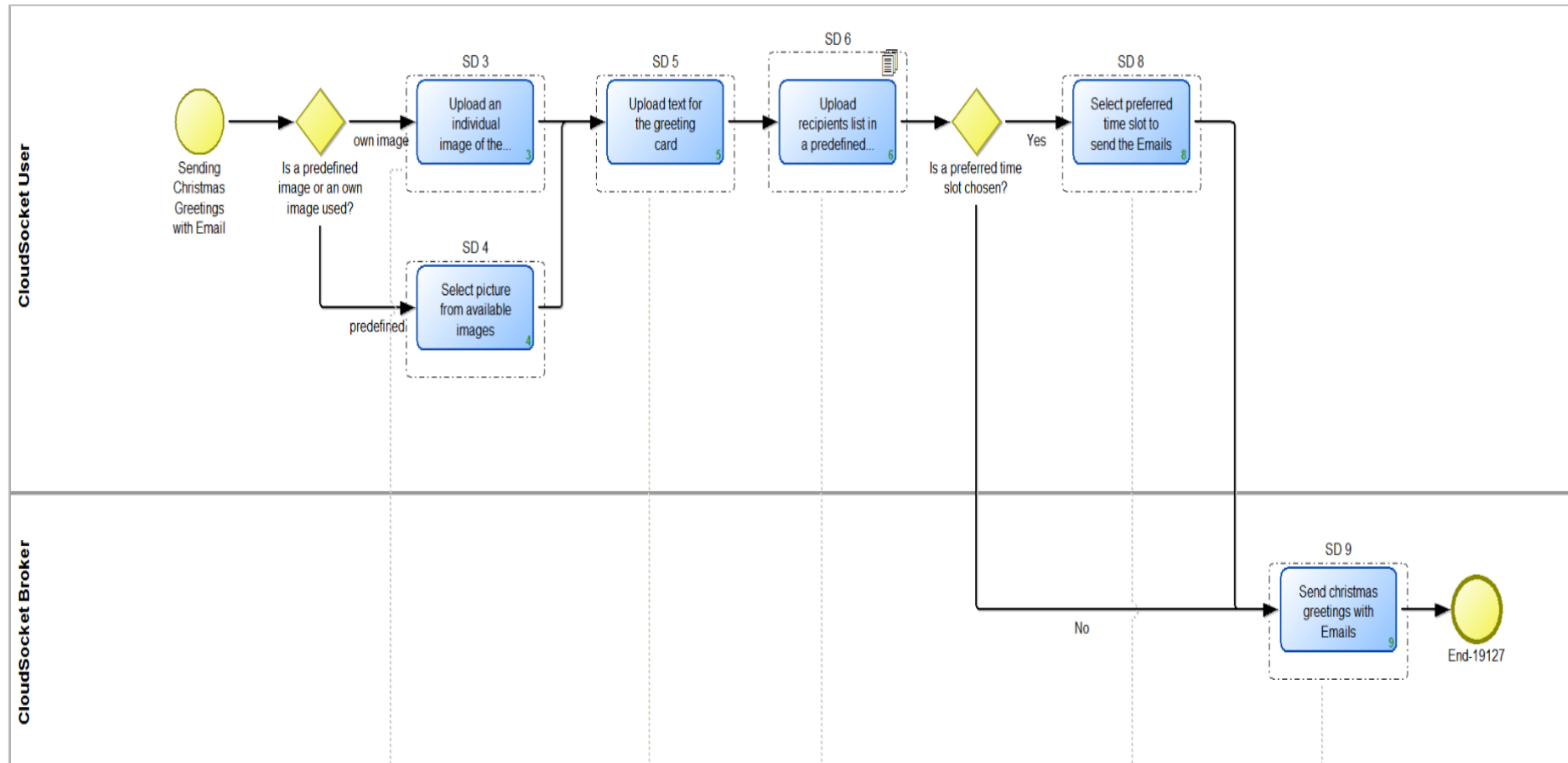
“Software Engineering for Services and Applications”

“Inter-cloud Challenges, Expectations and Issues”

“Novel approaches and technologies for resource and service management”

CloudSocket

1.Cloud Computing: Some Challenges

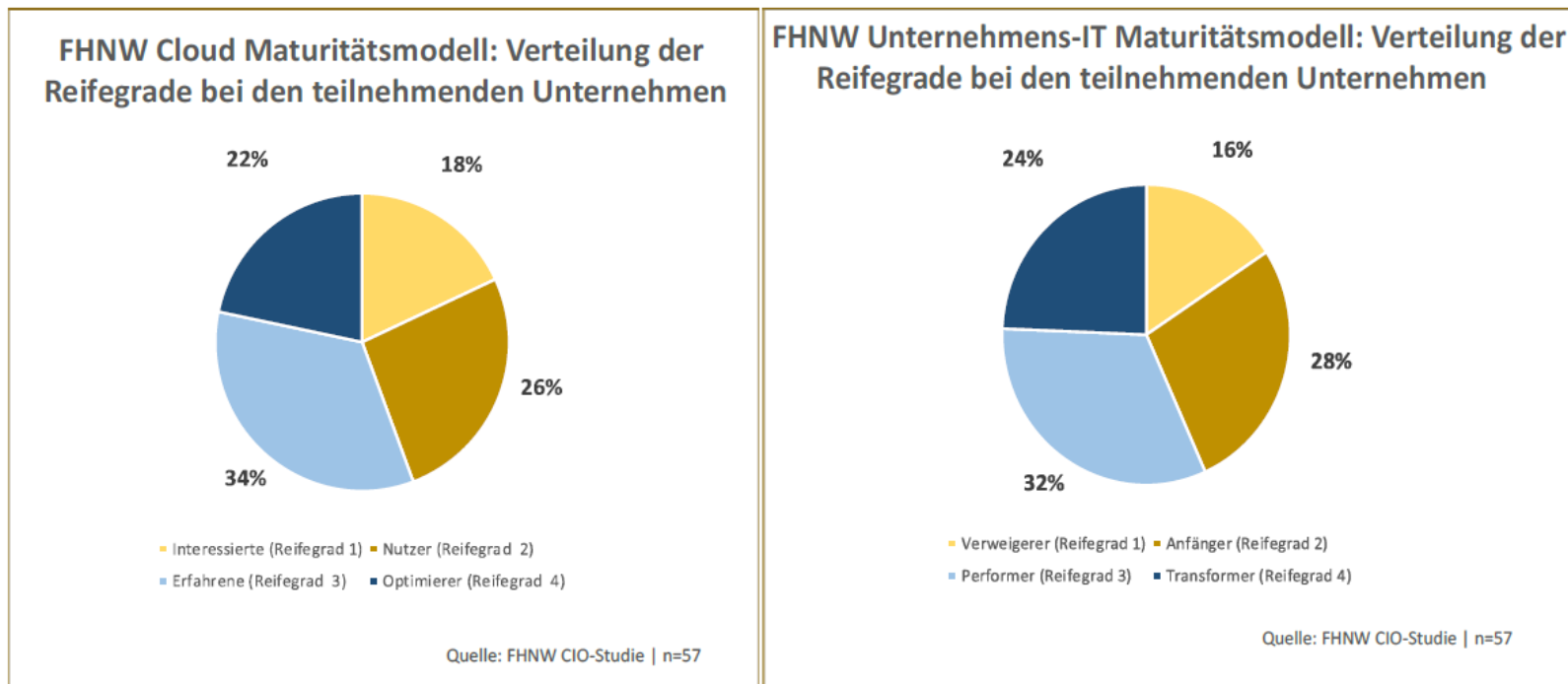


CloudSocket

1. Cloud Readiness Level

Studie FHNW CIO Studie September 2017, Leitung: Prof. Dr. Stella Gatzu Grivas, Seite 8

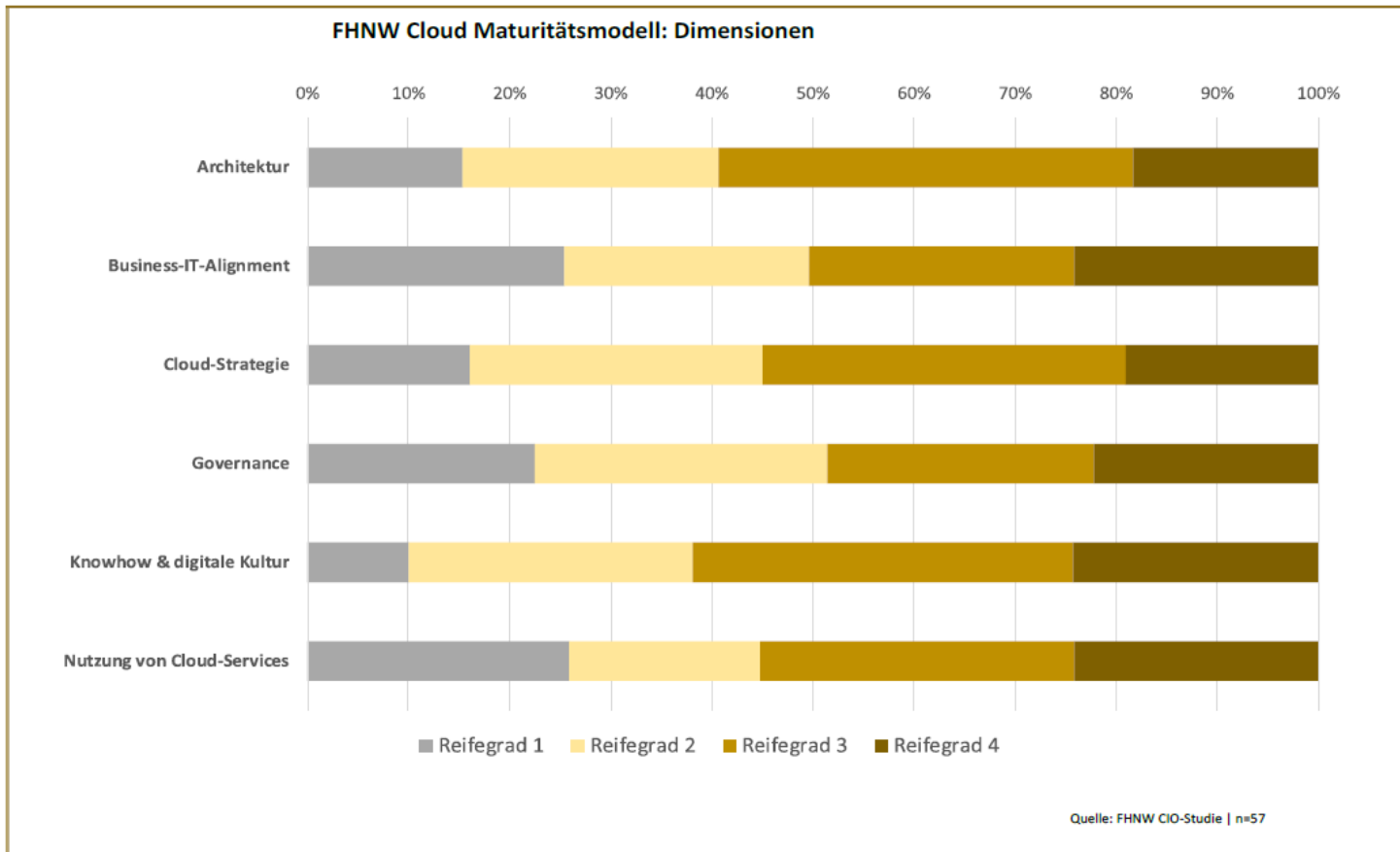
Auswertung - FHNW Cloud Maturitätsmodell und das FHNW Unternehmens-IT Maturitätsmodell: Dimensionen



Grafik 5: Die FHNW Maturitätsmodelle: Verteilung der Reifegrade bei den teilnehmenden Unternehmen

1. Cloud Readiness Level

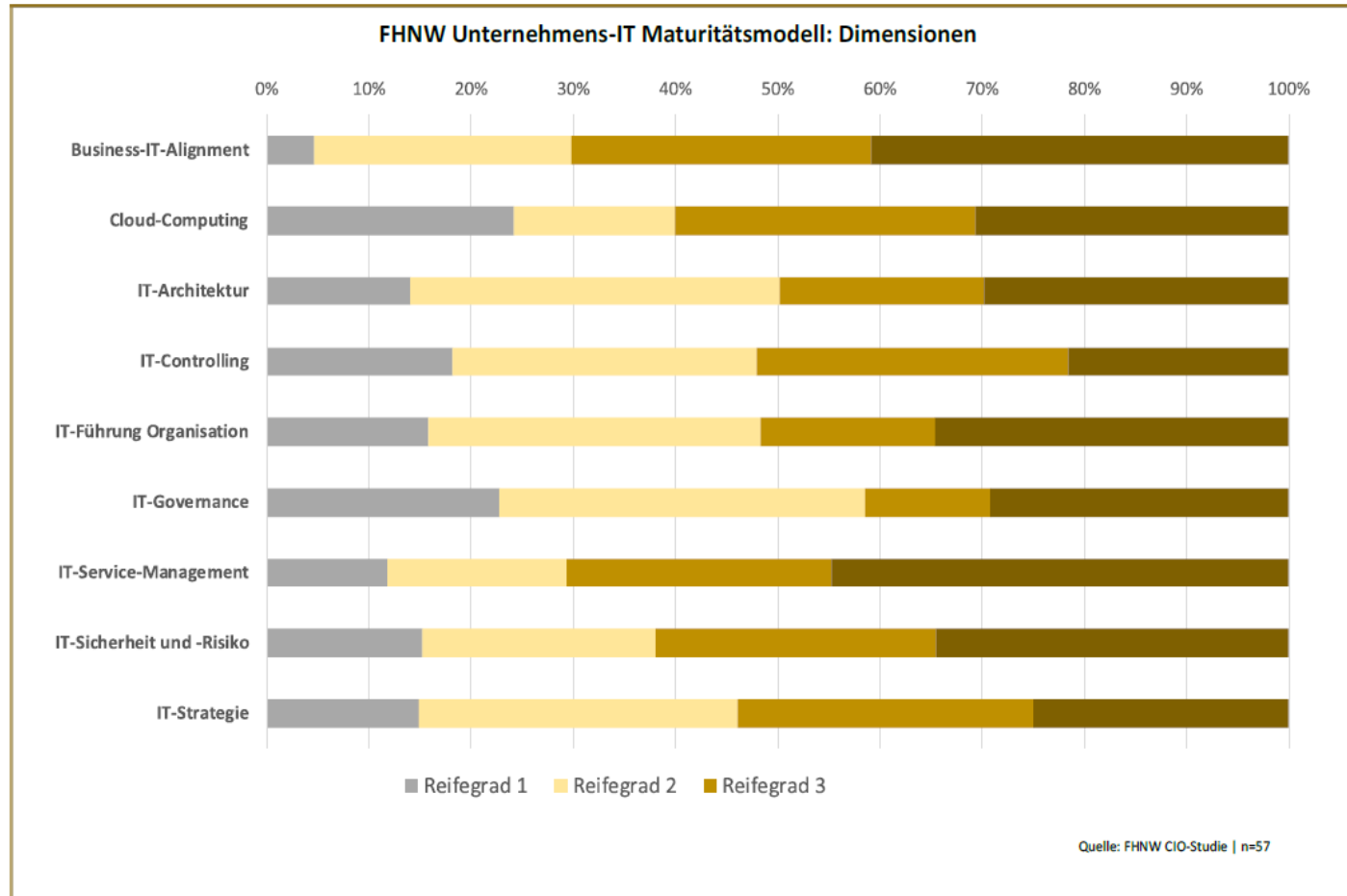
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Grafik 6: FHNW Cloud Maturitätsmodell: Dimensionen

1. Cloud Readiness Level

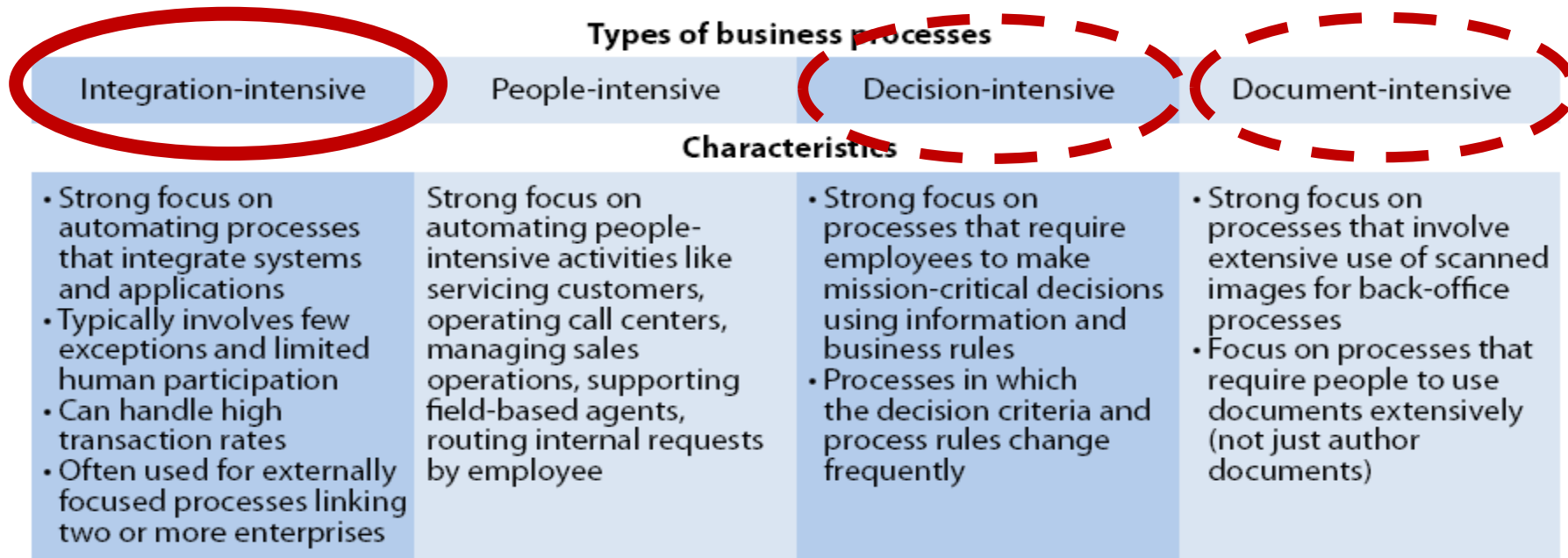
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Grafik 7: FHNW Unternehmens-IT Maturitätsmodell: Dimensionen

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Digitization of Business Processes: Process Categories



Source: The Forrester Wave™: Human-Centric BPM for Microsoft Platforms, Q4 2007

CloudSocket

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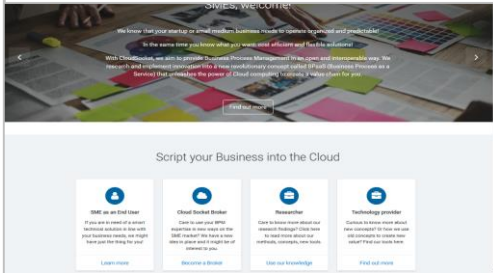
Process-based Cloud-Offering for Additive Manufacturing

4. Conclusion and Outlook

CloudSocket

2. CloudSocket: EU Project

WEB: cloudsocket.eu



Projekt Partner

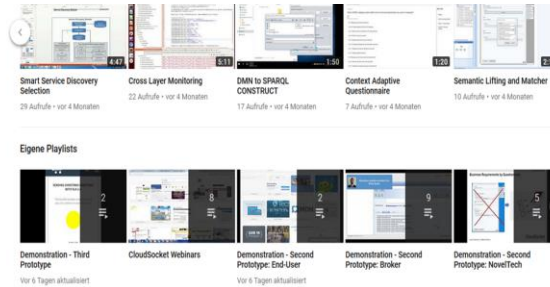


Fachhochschule
Nordwestschweiz

TWITTER: @cloudsocketeu



YouTube:
UC8qbCYS49FfG7S8j5AABpaA



Koordinator

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++43-1-905 10 56 - 0

BOC Asset Management GmbH

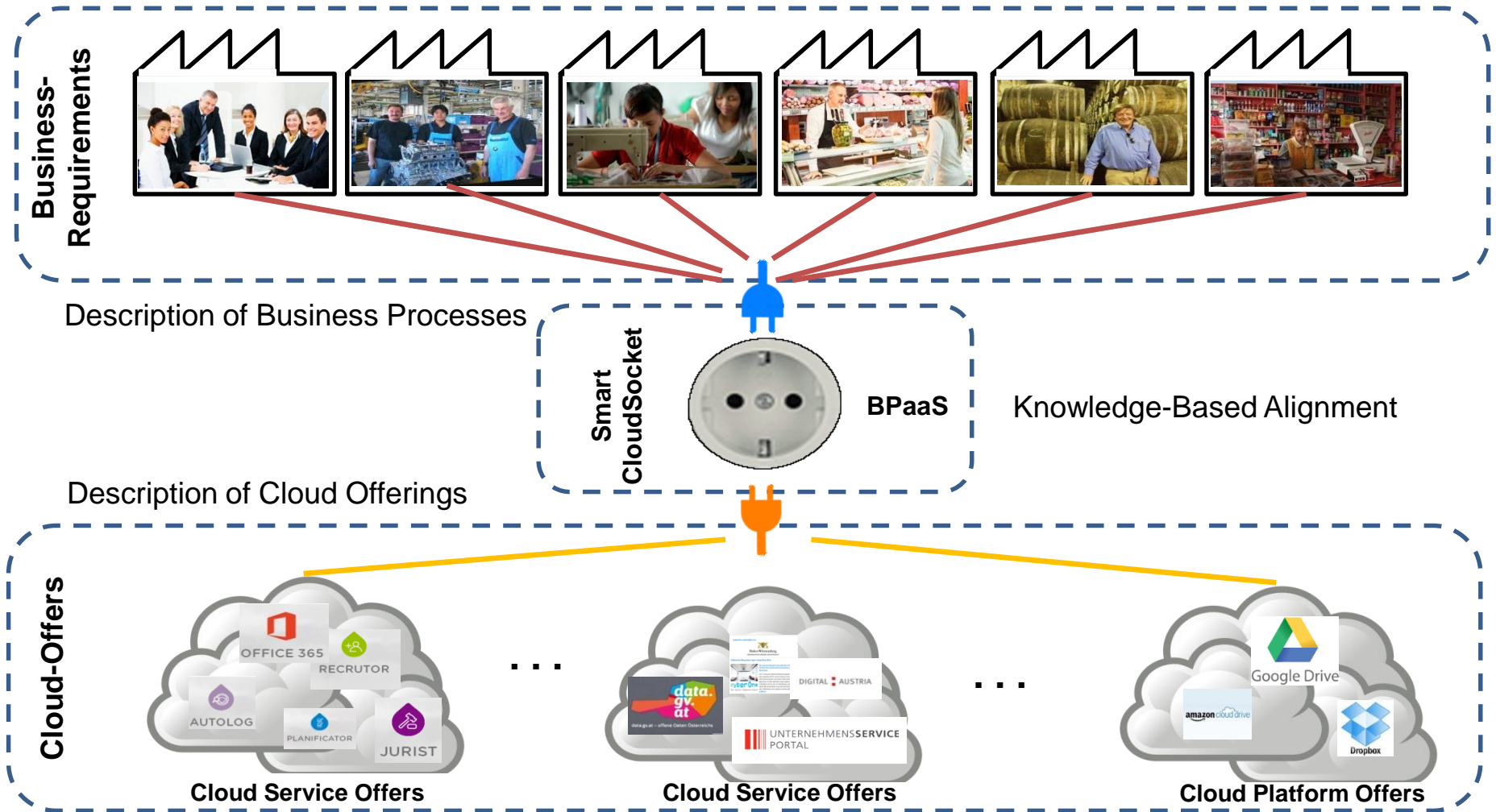
Operngasse 20b

1040 Wien, Österreich



CloudSocket

Use Case Scenario for CloudSocket



CloudSocket

1. The Vision of Selling Business Processes on a Marketplace

The screenshot displays the CloudSocket marketplace interface. At the top, a dark blue header contains the CloudSocket logo, a green 'SHOP' button, and navigation links for 'LOGIN', 'REQUEST BROKER ACCOUNT', and 'English'. A shopping cart icon shows '0 ITEMS'.

Below the header, a breadcrumb trail reads 'Home / Processes'. On the left, a sidebar offers filtering options: 'Status' (All, Tease, Active), 'Tags' (with an 'Invoice Ninja' tag and 'Apply Filter'/'Clear' buttons), and 'Price' (a slider from 10 to 473 with 'Apply Filter'/'Clear' buttons).

The main section, titled 'Processes', shows 'Showing 3 processes'. It features three process cards, each with a flowchart icon at the top. The cards are:

- SEND INVOICE SAAS WORLDWIDE**: The bundle provides the ability to create invoices based on customer data and the enterprise's needs. CRM service is hosted in Europe and Invoicing service is hosted in USA, both as SaaS. Price: €10.50. 'Add to cart' button.
- SEND INVOICE SAAS EUROPE**: The bundle provides the ability to create invoices based on customer data and the enterprise's needs. CRM service and Invoicing Service are hosted in Europe, both as SaaS. Price: €15.75. 'Add to cart' button.
- SEND INVOICE IAAS EUROPE**: The bundle provides the ability to create invoices based on customer data and the enterprise's needs. CRM service is hosted in Europe as SaaS and Invoicing Service is hosted in Europe as IaaS in a. Price: €21.00. 'Add to cart' button.

At the bottom, a pagination bar shows 'Showing 1-3 of 3 results' and a page indicator with '1' selected.

The Digitalisation Challenge

- Business Process Models **can be** used for configuring software but **also act** as a basis of organisational knowledge.
- Business Processes are interpreted as the **know-how platform of an organisation** serving both (a) human and (b) machine interpretation.

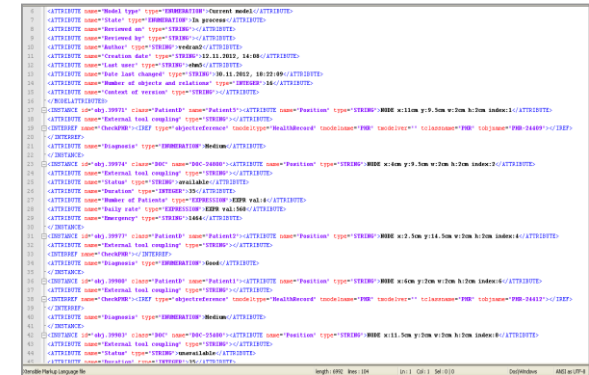


Human interpretation

Huge Semantic Distance



*no simple mapping but
knowledge-based solution*



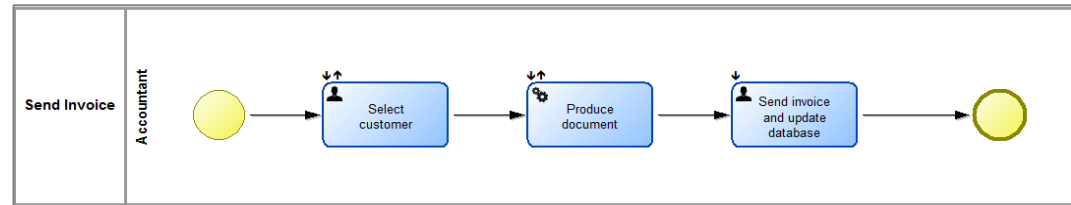
Machine interpretation

CloudSocket

Description of Business Process as a Service

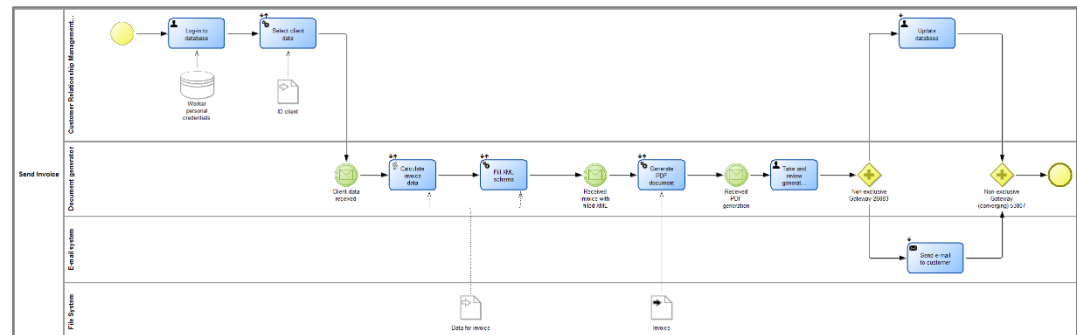
Business Process Model

Description of Business Case (BPMN)



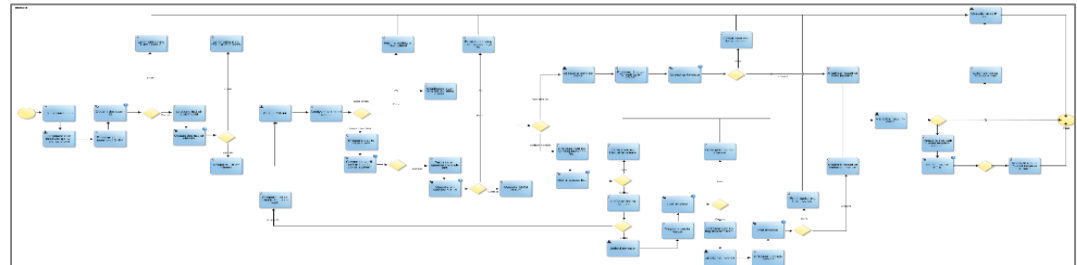
Abstract Workflow Model

Description of possible realisation (BPMN)



Concrete (Executable) Workflow

Implementation of executable Workflow (BPMN)



Cloud Deployment Configuration

Configuration of Cloud Application (CAMEL)

```
<?xml version="1.0" encoding="UTF-8"?>
<camel:CamelModel xmi:version="2.0" name="BundleCamelModel">
  <applications name="ApplicationModel" version="1.0" description="This is the CAMEL file generated by the Allocation Environment" owner="//@organisationModels.0/@users.0"/>
  <-organisationModels name="OrganisationModel">
    <organisation name="Mathema" www="" postalAddress="" email="">
      <-users name="Owner" email="simone.cacciatore+allocation_mathema@thoster.com" firstName="" lastName="">
        <cloudsocketCredentials password="not necessary for CloudSocket"/>
      </users>
    </organisationModels>
  </camel:CamelModel>
```


Description of Business Process as a Service

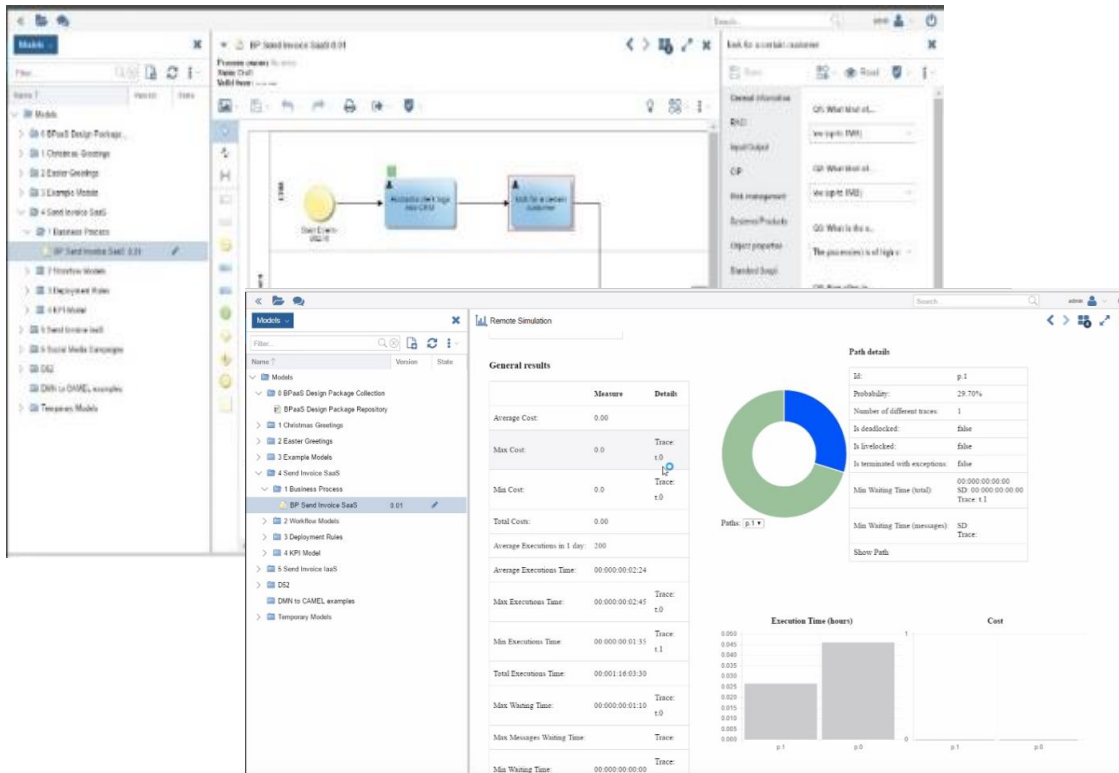


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Managing Business Processes as a Service

Identify and Check, if Business Process is capable to be digitalised.

Tools:



en.adonis-community.com/try-out.boc-cloud.com/auth.view

Contact



Watch Demonstration:

Design: youtu.be/Ce_KX3nC9Y8

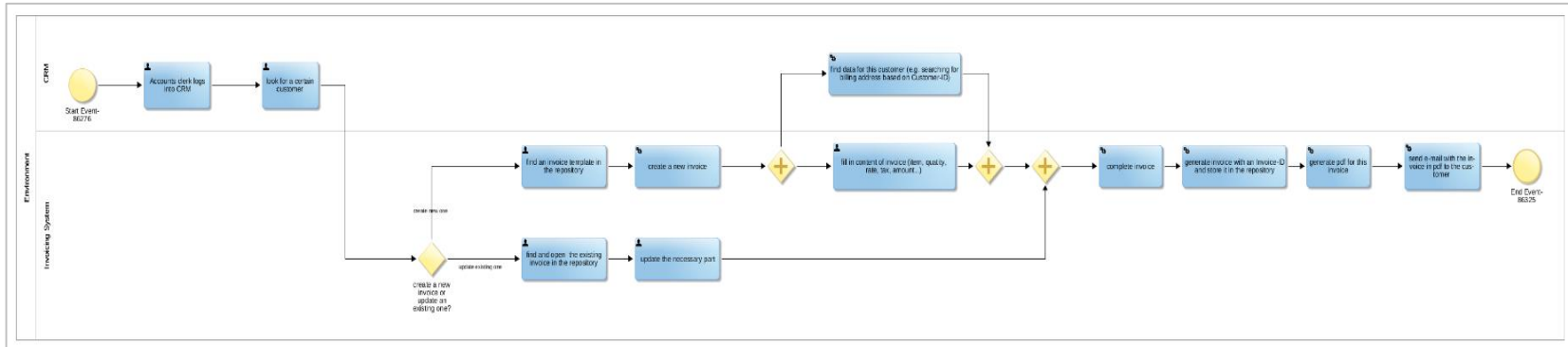
Check: youtu.be/OY-lq7orNZU

Simulate: youtu.be/bpWmgsuRCqY

CloudSocket

2. Consulting Package for Digital Transformation

Possible Business Process Management for the Cloud Transformation



Cloud Readiness Check of the Business Process

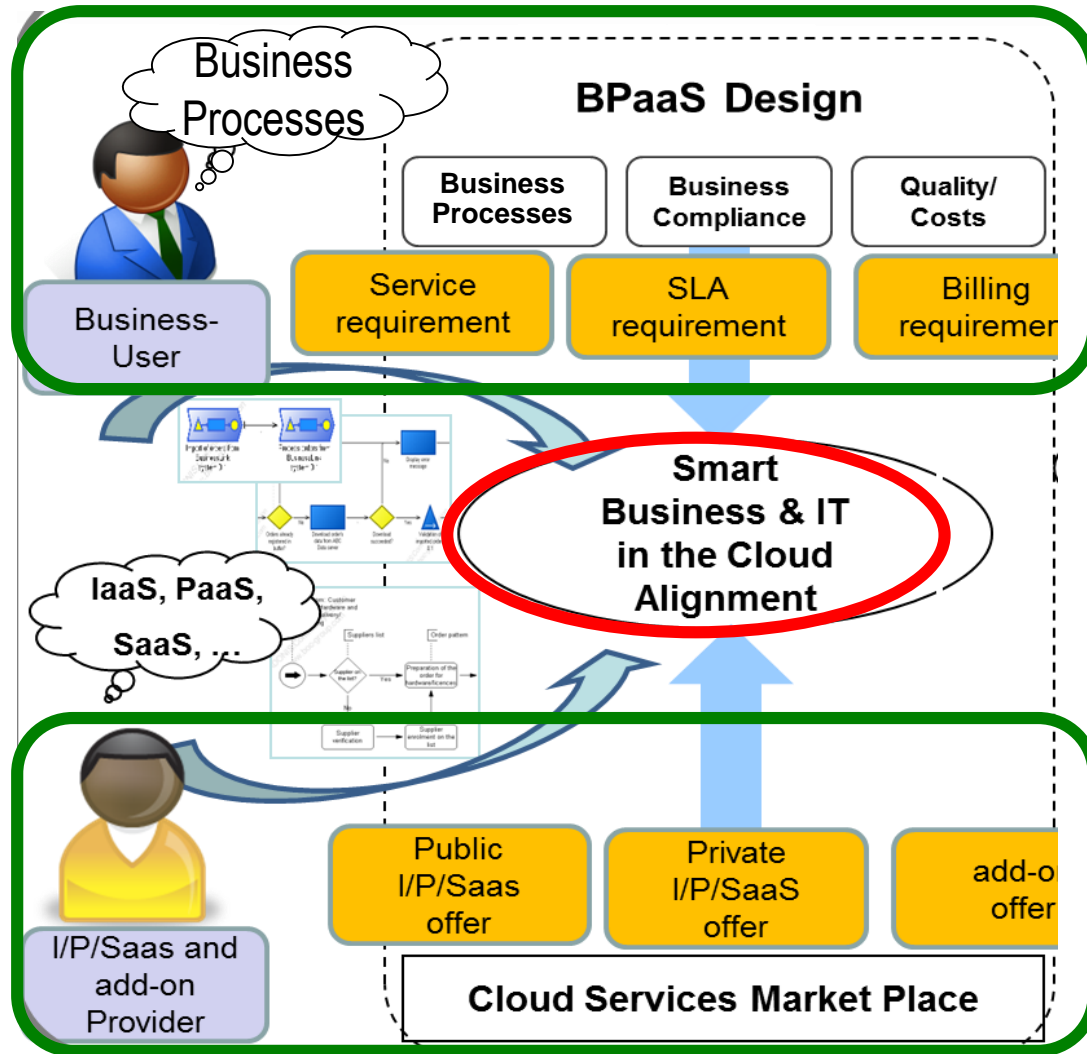
Mapping of Cloud Offerings corresponding to the Business Process

Simulation of Cloud Costs within the Business Process

Formale Verifikation of the Business Process

CloudSocket

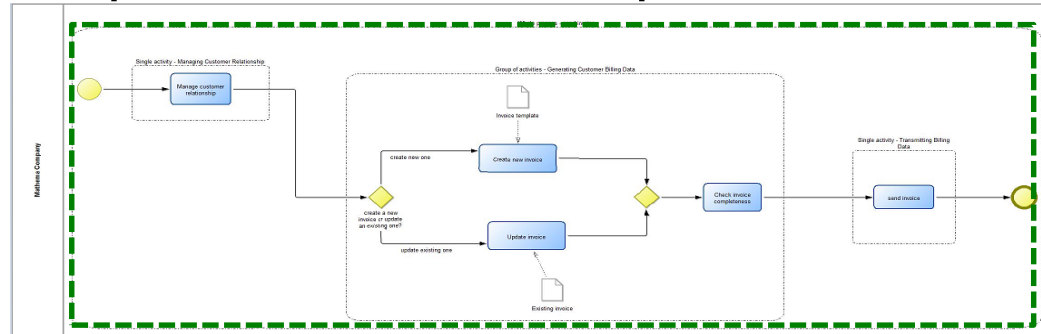
Alignment of Business and IT in the Cloud



CloudSocket

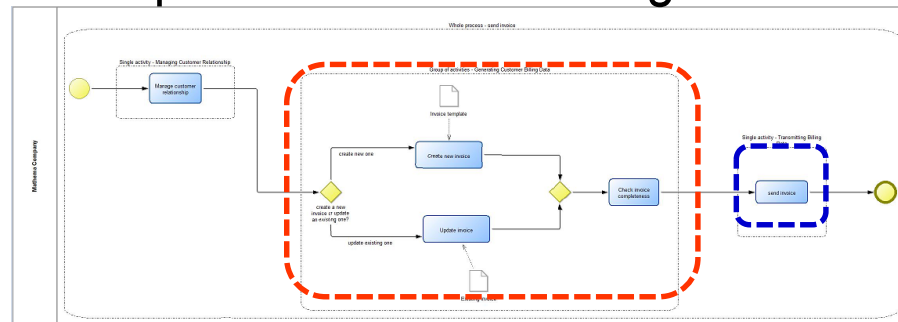
Hierarchical Service Identification

1. Lookup service for whole process



2. If not found

- I. Split process into process fragments
- II. Lookup service for each fragment



3. If not found for a group, go to 2

CloudSocket

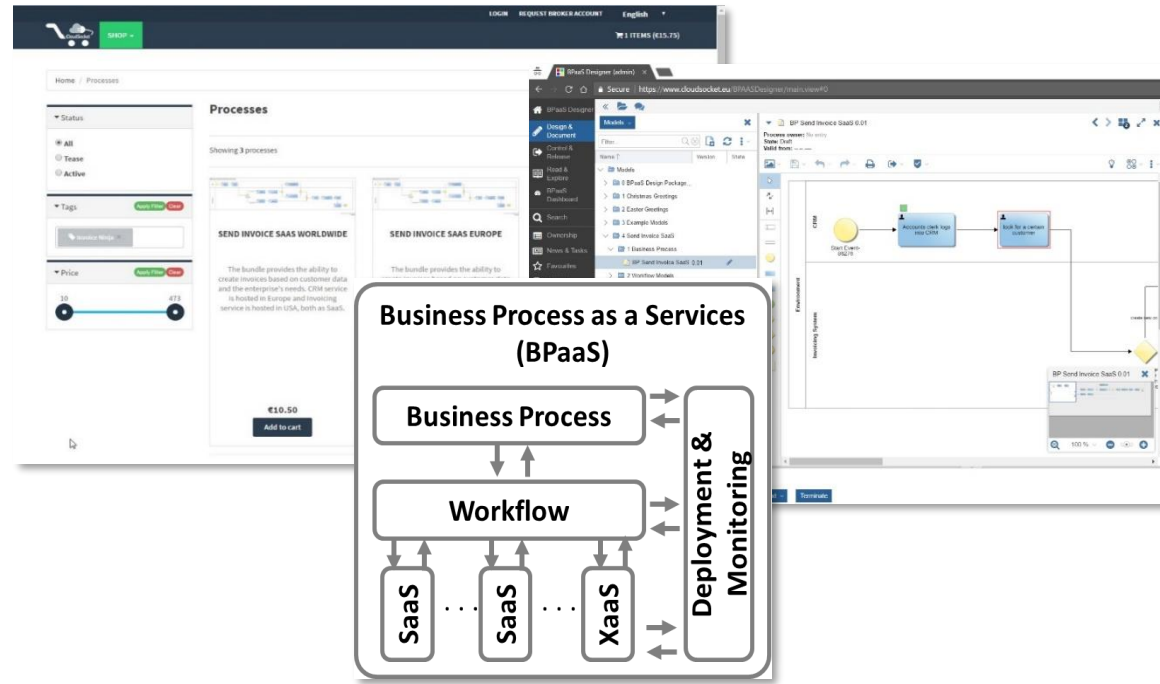
CloudSocket Results

Software Tools¹⁾:

- BPaaS Design Environment
- BPaaS Allocation Environment
- BPaaS Marketplace
- BPaaS Execution Environment
- BPaaS Evaluation Environment

Research Items²⁾:

- Semantic Lifting and Matcher
- Context-Adaptive Questionnaire
- DMN-based Ontology Querying Service Discovery
- Smart Service Discovery and Selection
- DMN-to-CAMEL Mapper
- PaaS orchestration and Cross-layer adaptation
- Cross-layer monitoring
- Monitoring Information Harvesting
- KPI drill down



Sustainability via Communities³⁾:

- FIWARE – Workflow Engine
- GitHub – OpenSrc Projects
- ADOxx.org – Modelling and Semantics

Download at cloudsocket.eu:

- 1) D4.6_7_8 and Tool download section
- 2) Innovation Shop and Zenodo
- 3) Get involved

CloudSocket

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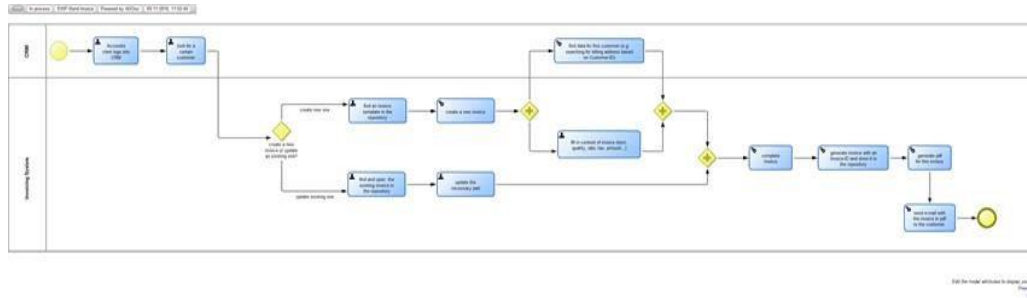
Sending Invoice

4. Conclusion and Outlook

CloudSocket

Send invoice

Company Golden Worm: Early stage



Customer Management System

Sugar CRM Specifications:

Storage Location: Germany

Storage Type: Local (File System)

Availability: 99%

N. simultaneous users: 3

Simple
Invoices

Invoice Management System

Simple Invoice Specifications:

Storage Location: Germany

Storage Type: Local (File System)

Availability: 99%

N. simultaneous users: 3

CloudSocket

Send invoice

Company Golden Worm: Business Expansion

BPaaS Requirements for all services



- **Storage Type:** from **File System** to **Cloud Storage service**
- **Storage Location:** from **Germany** to **Austria, Italy, Spain, Switzerland, Greece and Romania**
- **Downtime:** from **8 hours per month (99%)** to **2 min (99,995%)**
- **N of daily transactions:** from **100** to **2000**
- **N of concurrent users:** from **3** to **10**

Send invoice

Broker Consultancy and Modeling



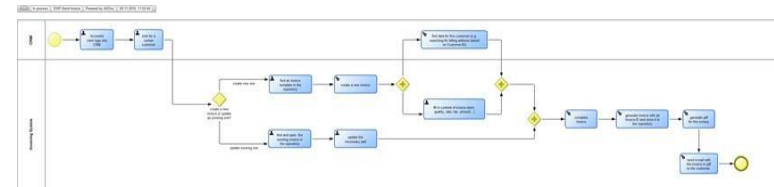
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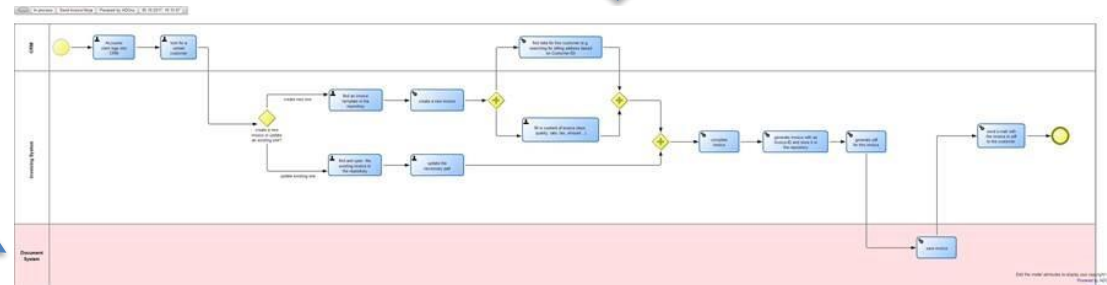
Availability: from **8 hours per month (99%)** to **2 min (99,995%)**

N of daily transactions: from **100** to **2000**

N of concurrent users: from **3** to **10**



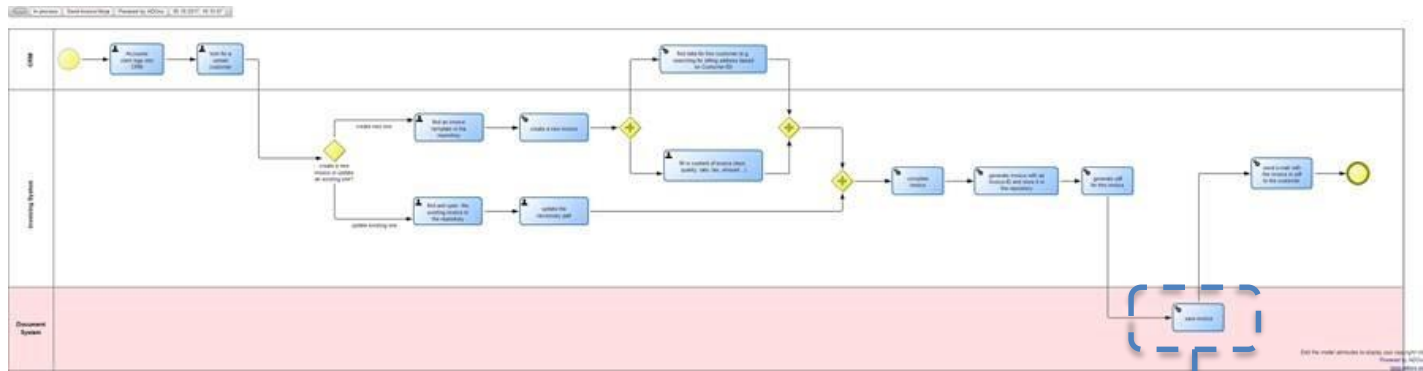
Lane: **“Document System”**
Activity: **“Manage Document”**



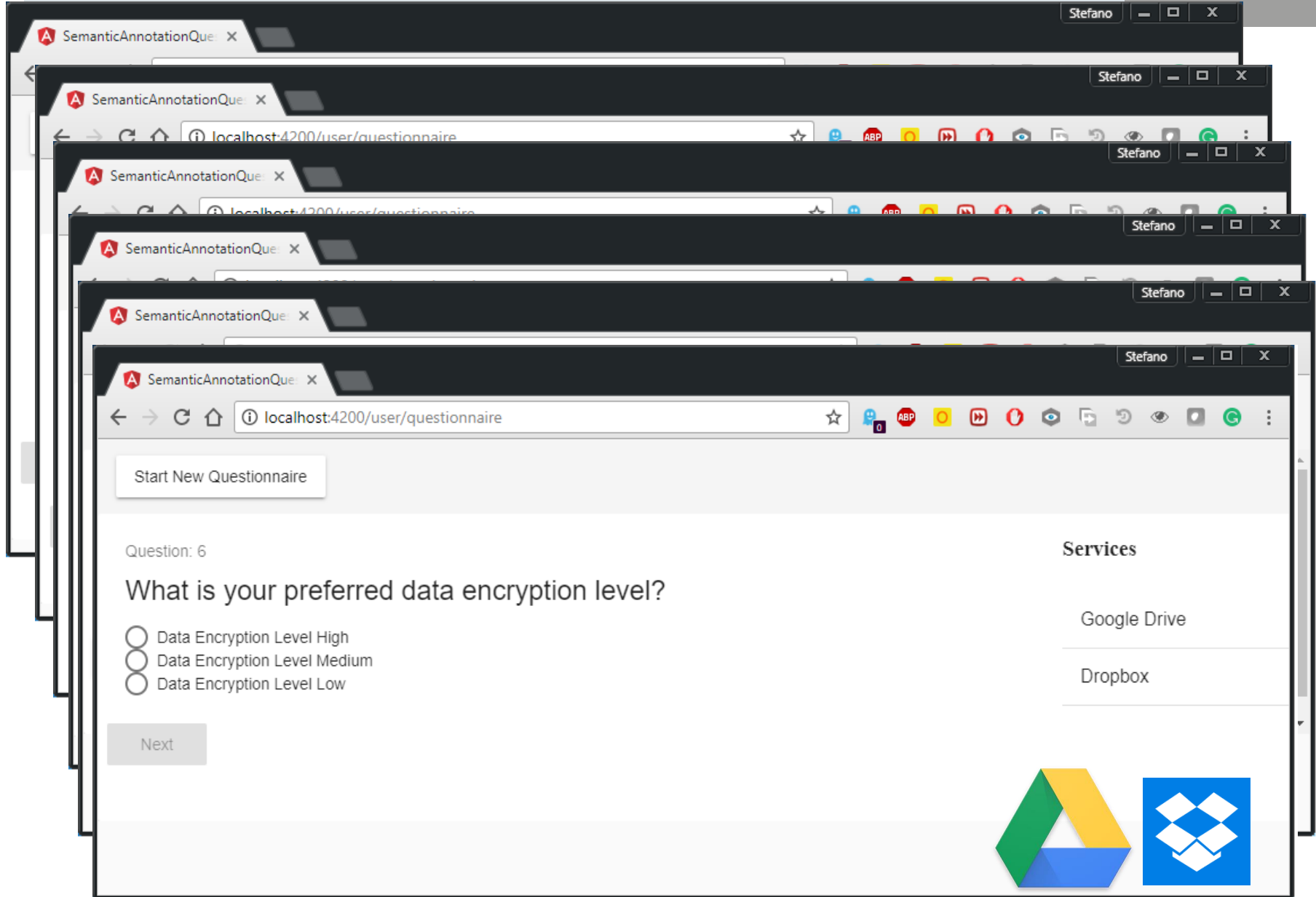
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Send Invoice

Identification of Services satisfying the requirements



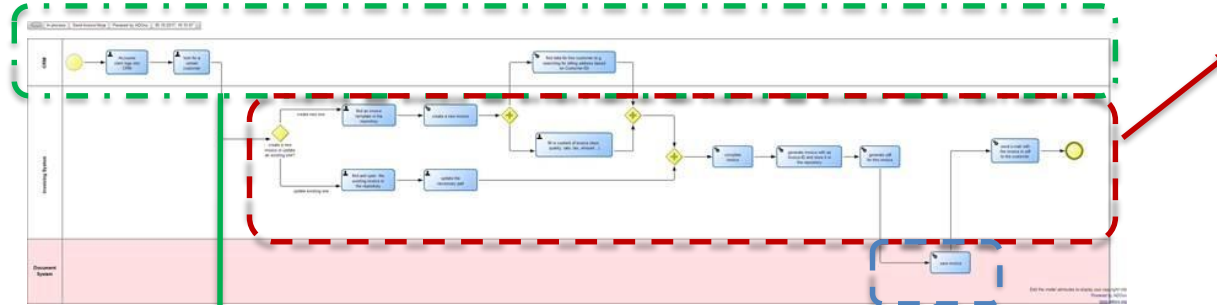
Activity "Manage Document"



CloudSocket

Send Invoice

Identified Services



Customer Management System

Specifications

Action: Manage

Object: Customer

APQC: 3.5.2.4 Manage Customer Relationship

Storage Location: Europe

Availability: 99.999%

N. simultaneous users: 100

www.cloudsocket.eu, info@cloudsocket.eu



Action: Manage

Object: Document

APQC: 9.2.2.2 Generate Customer Billing Data

Storage Type: Storage Service

Storage Location: Europe

Availability: 99.999%

N. simultaneous users: 100



Invoice Management System

Specifications

Action: Generate

Object: Invoice

APQC: 9.2.2.2 Generate

Customer Billing Data

Storage Location: Europe

Availability: 99.999%

N. simultaneous users: 100

CloudSocket

The Winner Is ...

Identified Cloud Services satisfying the requirements



OpenSourceBilling



Google Drive



Solutia Ymens CRM



InvoiceNinja



DropBox

FINAL SELECTION IS BASED ON TECHNICAL ASPECTS AND COST NEGOTIATIONS

CloudSocket

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CloudSocket

4. Conclusion

- Technology independent Business Processes enable the basis for digital transformation.
- Enterprise Architecture Management and Business Process Management have the potential to support the digital transformation.
- Encouraged realisation of innovation within organisations enables the successful digital transformation.
- Risk management addressing digital transformation can be supported with human and machine-based knowledge techniques.

4. Outlook

Start of Test operation of CloudSocket solution via a Startup

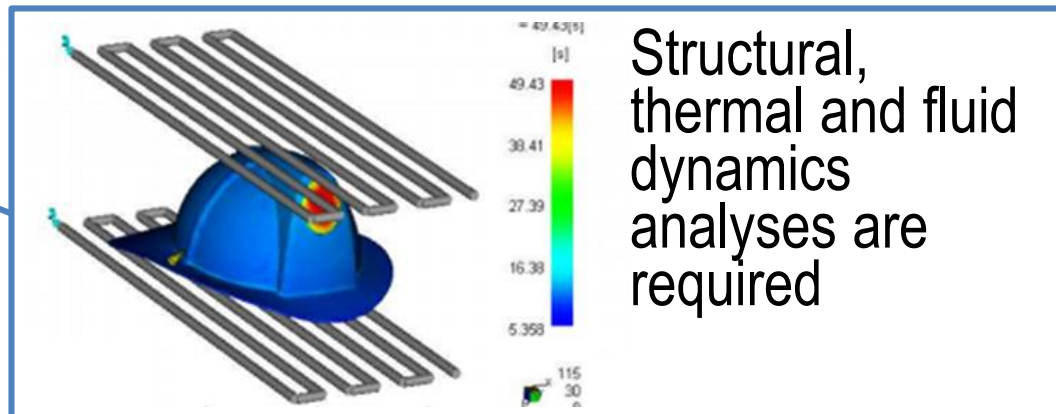
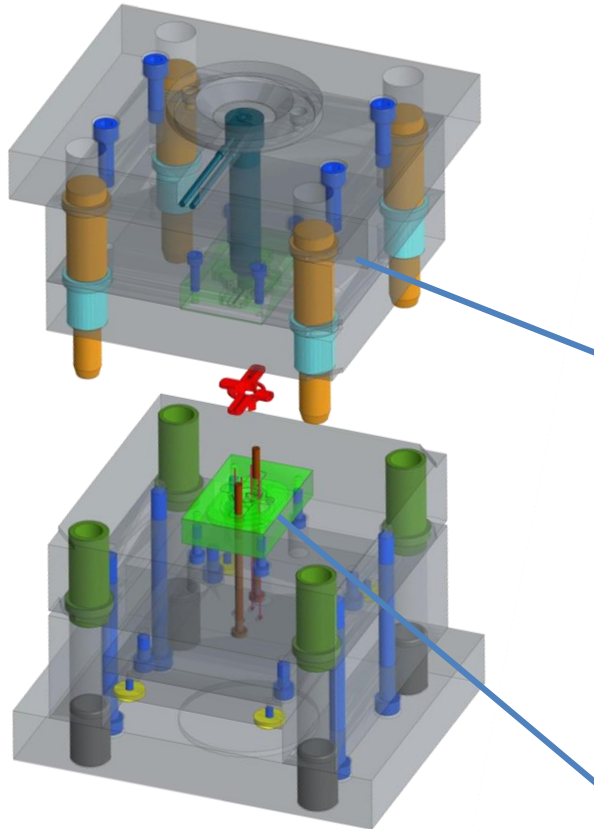
- ▶ In order to **Operate** AM-Design Simulation workflows in the **Cloud** it is necessary to:
 - ▶ have high AM-, Simulations- und IT expertise,
 - ▶ make significant investments by the startup,
 - ▶ sign extensive Service Level Agreements (SLA) with operating partners
 - ▶ have a high willingness to take risks to invest in the correct workflows
- ▶ The Provision of Consulting Services using Business Process Management enables:
 - ▶ to cooperatively define of the configuration of the AM-Design Simulation workflow for the cloud with the interested users,
 - ▶ To minimise the risk of wrong workflow investment, as the workflow is established and configured after an appropriate and individual interaction with the customer,
 - ▶ To offer an additional consulting services beside the simulation of AM-Design.
- ▶ Furthermore, the Business Process Management tool was used to structure the offering of the startup itself.

CloudSocket

Motivation:

SERVICE FOR INDIVIDUALIZED PRODUCTION

An injection mold is at the core of thermoplastic injection technology. After closing the mold, it is filled with molten plastic under pressure, cooled by water before being opened to eject the produced part.

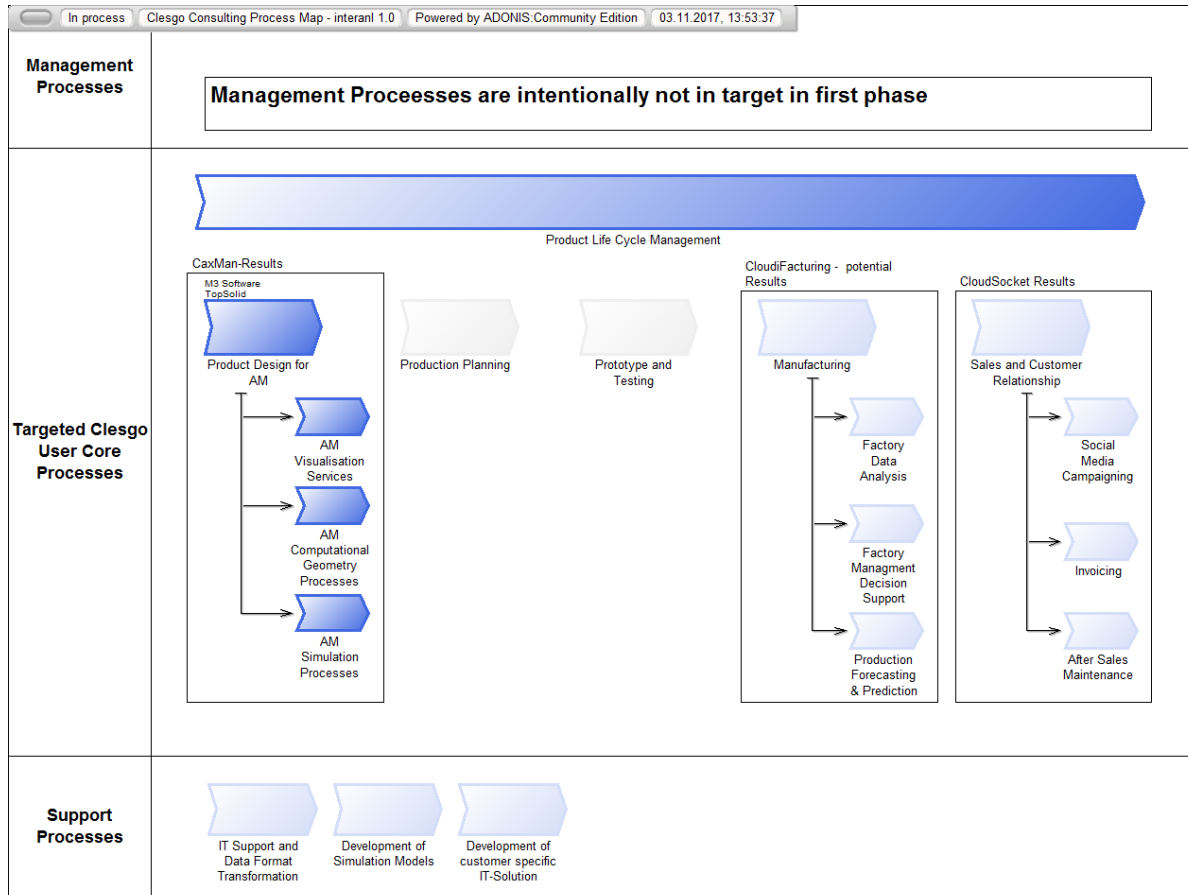


Complex geometries, undercuts, moving parts, cooling channels

CloudSocket

Process Map for Additive Manufacturing Consulting

Identification of business processes for a digital business services



Selected Business Processes

Product Lifecycle Management

Product Design for AM:

- Visualisation Service
- Computational Geometrie Processes
- AM Simulation Processes

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IT Services Landscape for Additive Manufacturing Consulting

Identified Cloud Offerings to support Business Processes

CloudSocket - results

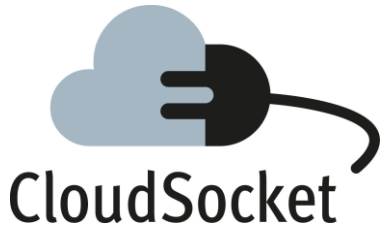


CaxMan results



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<https://www.youtube.com/channel/UC8qbCYS49FfG7S8j5AABpaA>

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