BPaaS Evaluation Environment

Training Material

CloudSocket

SCORECARD INTRODUCTION

Definition of Initial Situation

Use a Formal structure approach in order to:

- to model complex relationships
- to analyse and describe the system under study
- to document relevant parts important for Steering

Sample: University Scorecard

Research & Teaching

UG 2002 (§)

Goals

Vision

Indicators

Knowledge Balance

Strategy

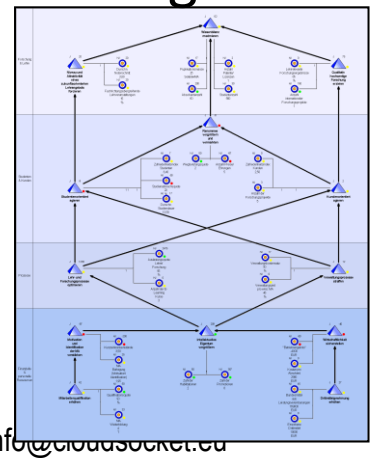
„Old Structure“

Agreements on Results

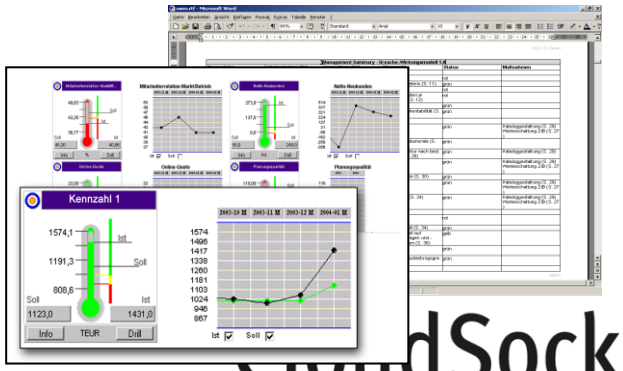
National Stakholders

UNIVERSITÄT WIEN

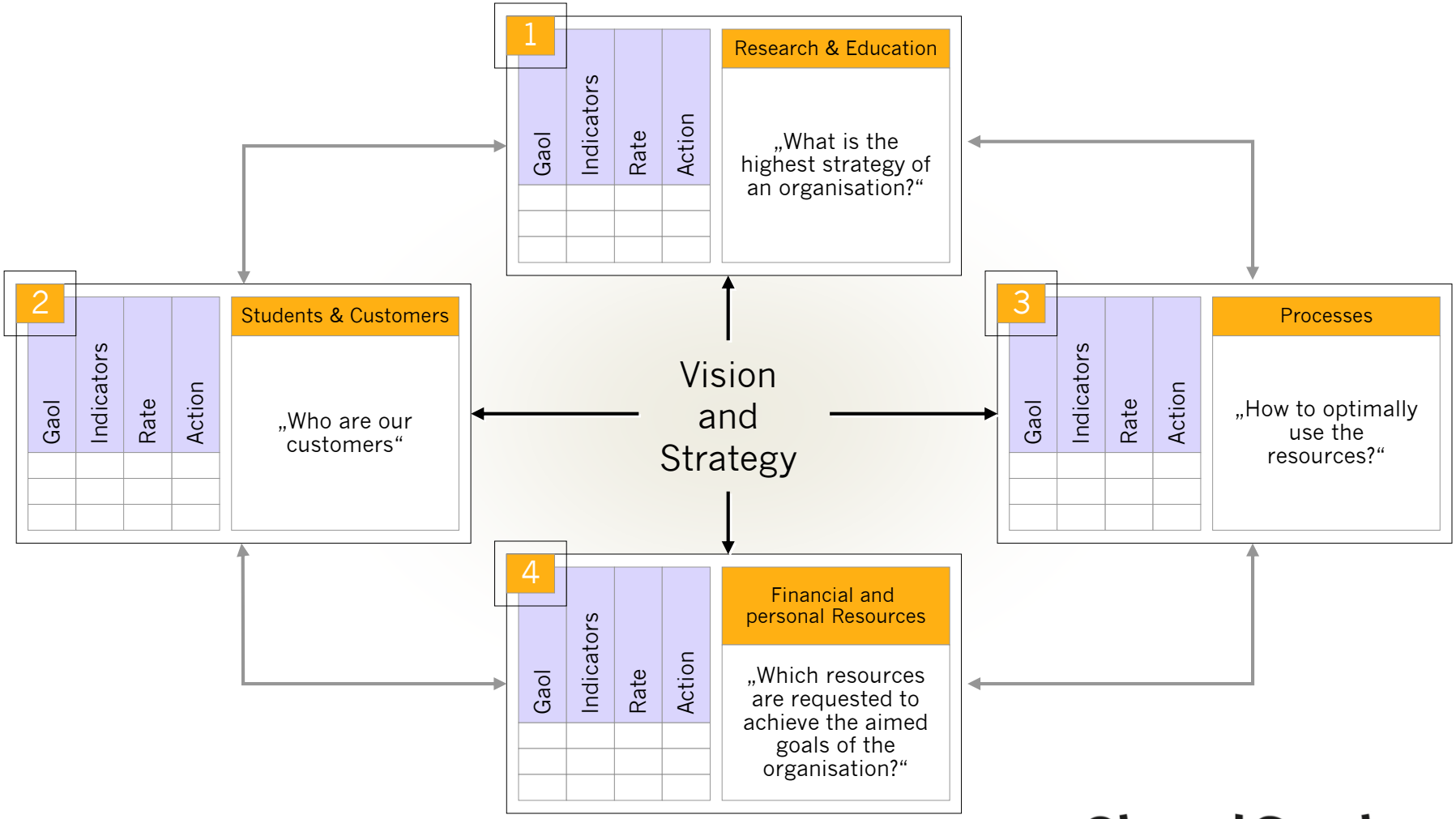
Steering and Management



Communication and Documenation



Resulting Perspectives for University Scorecard



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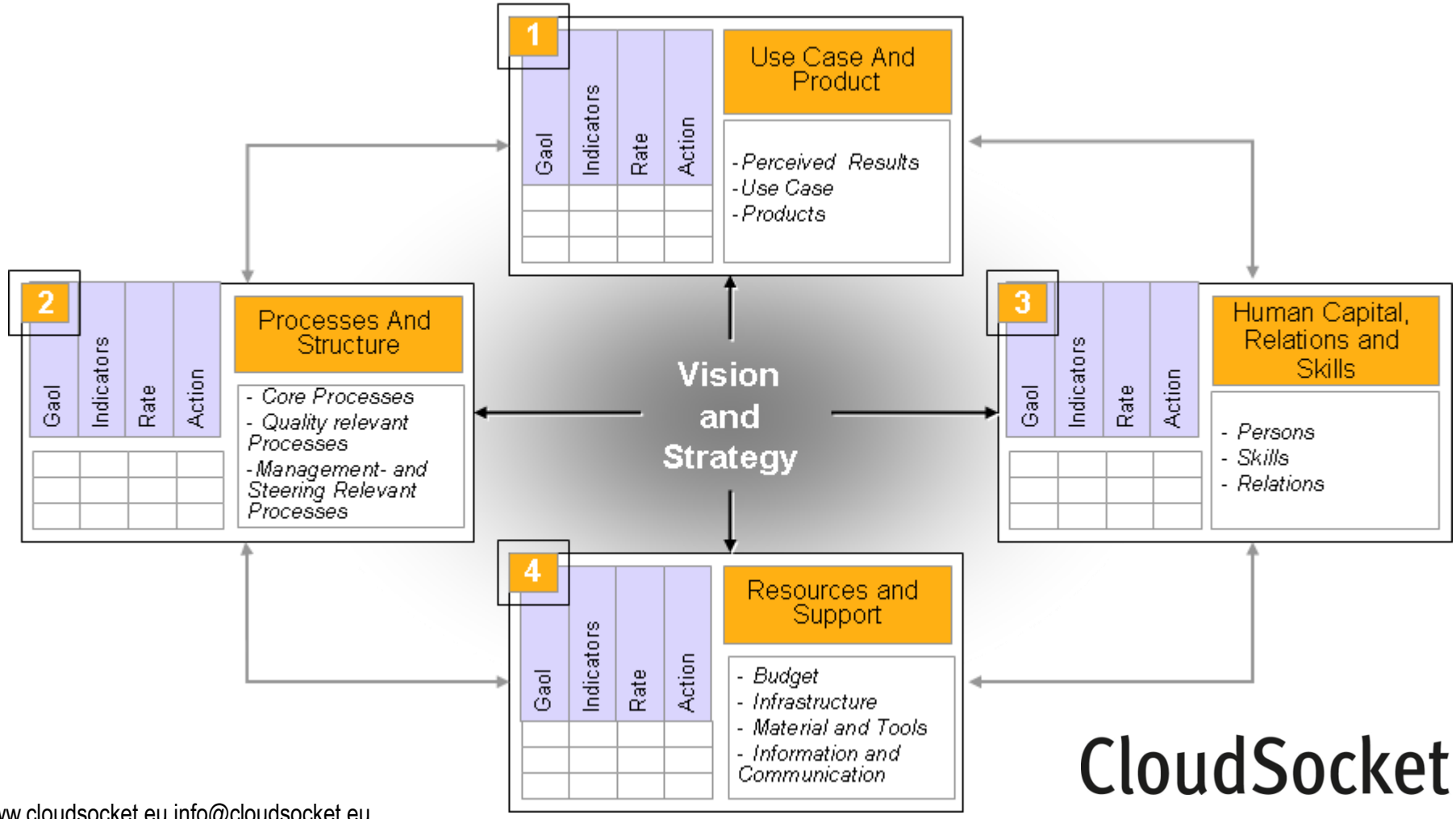
Alternative Perspectives for Innovation

Originally the Balanced Scorecard uses the Financial Perspective as the target perspective, whereas other forms of scorecards (innovation, performance, …) use the impact on use cases as top target perspective.



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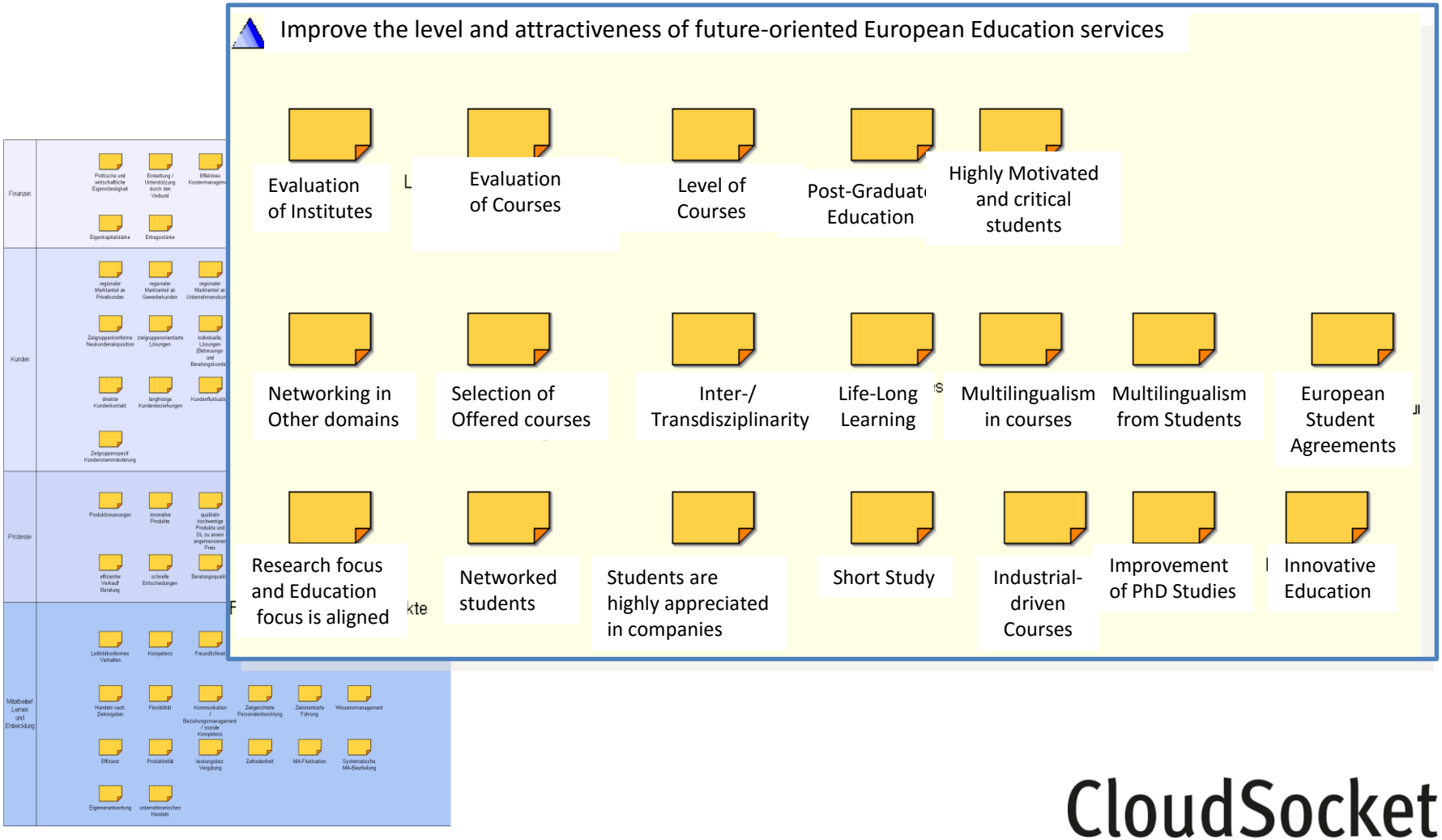
Collection of Critical Success Factors

Collection of critical success factors become one Goal



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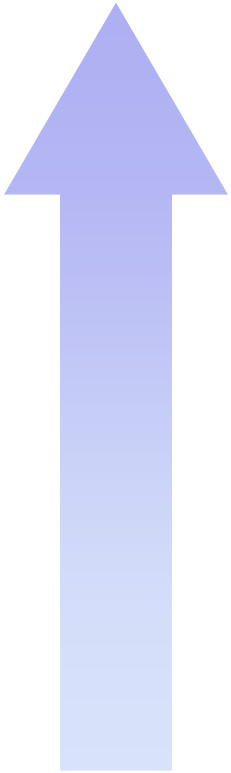
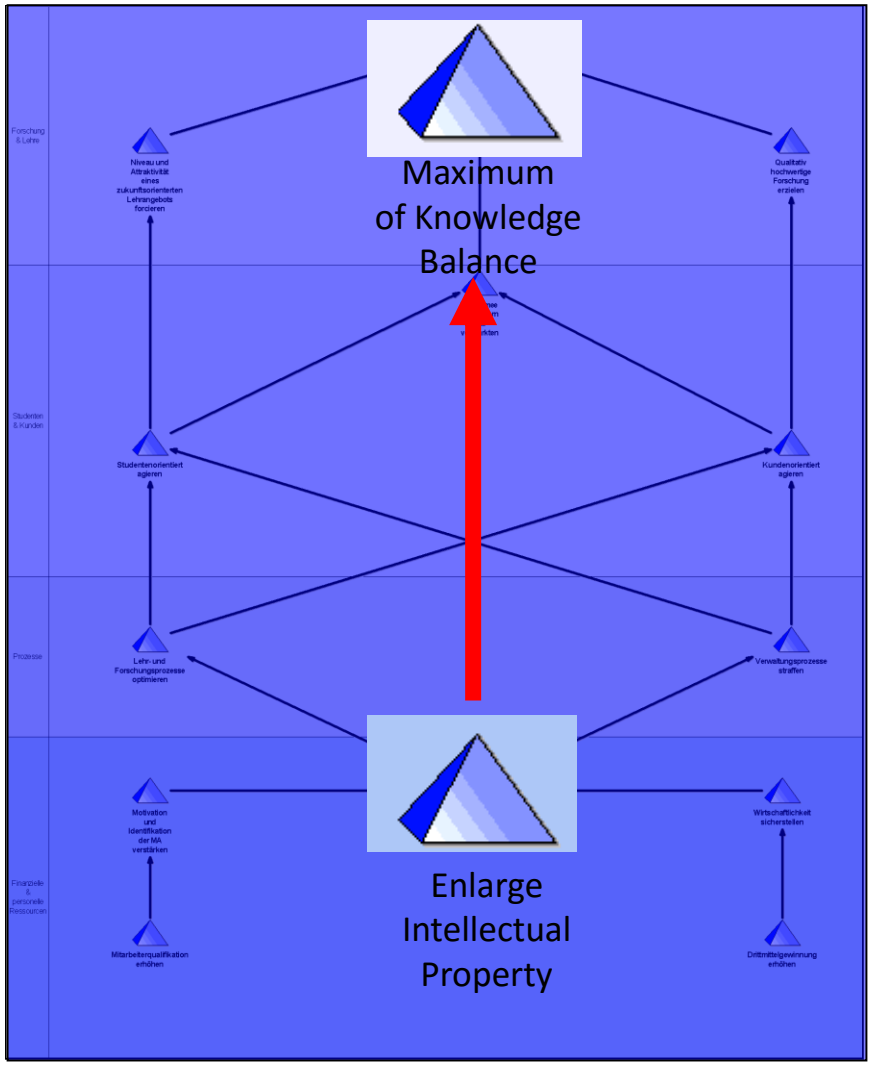
Identification of Cause and Effect

Output



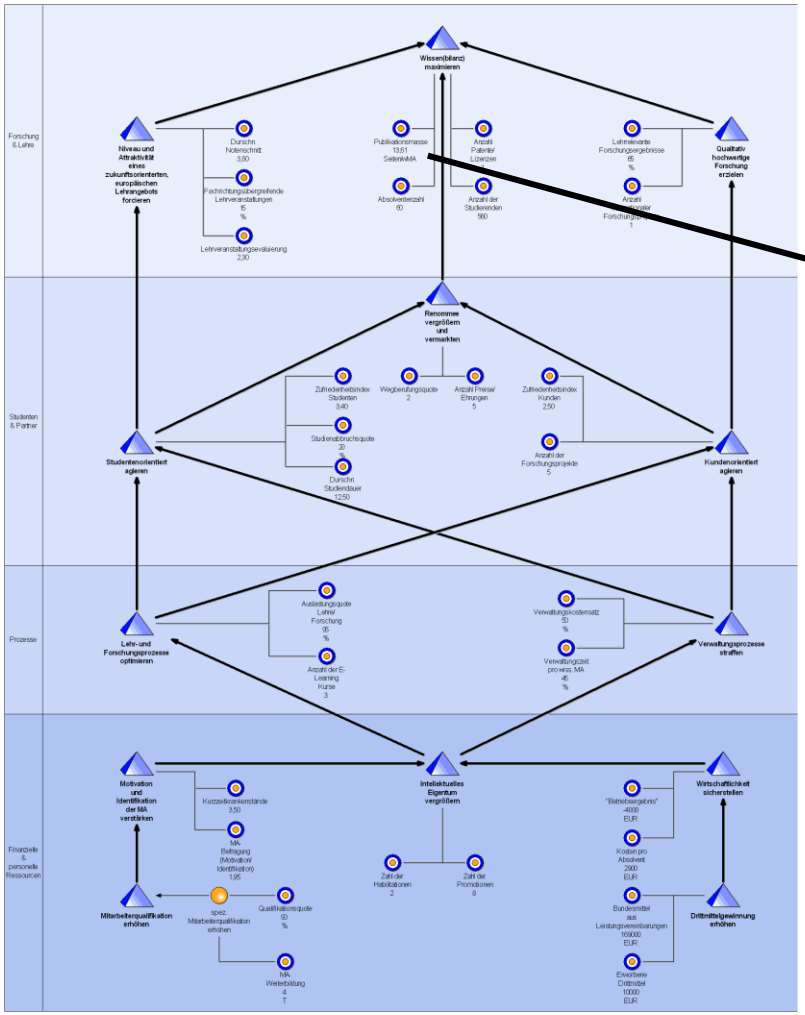
Input



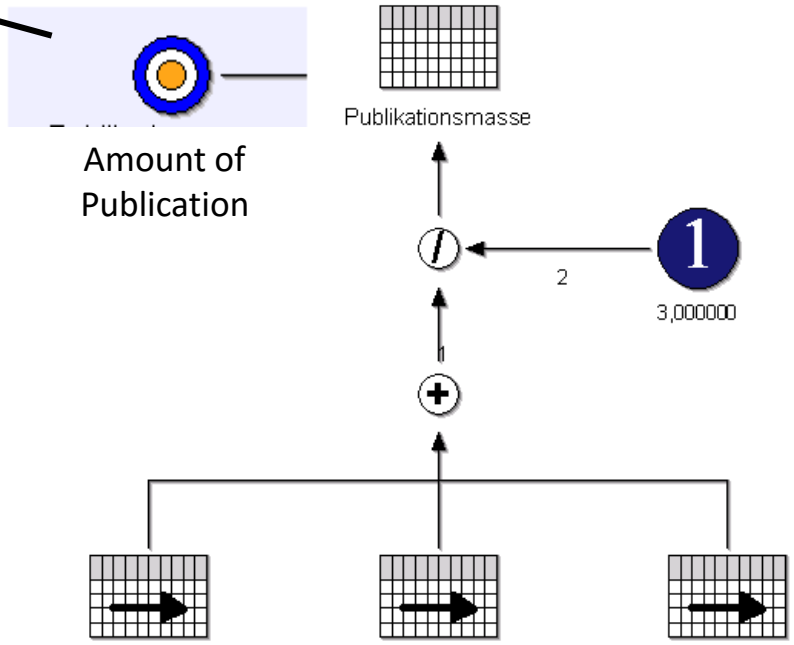
CloudSocket

based on Lichka 04

Key Performance Indicator and corresponding Sensors



- Internal Indicators
- Thresholds from Ministry
- International Benchmarks
- ...



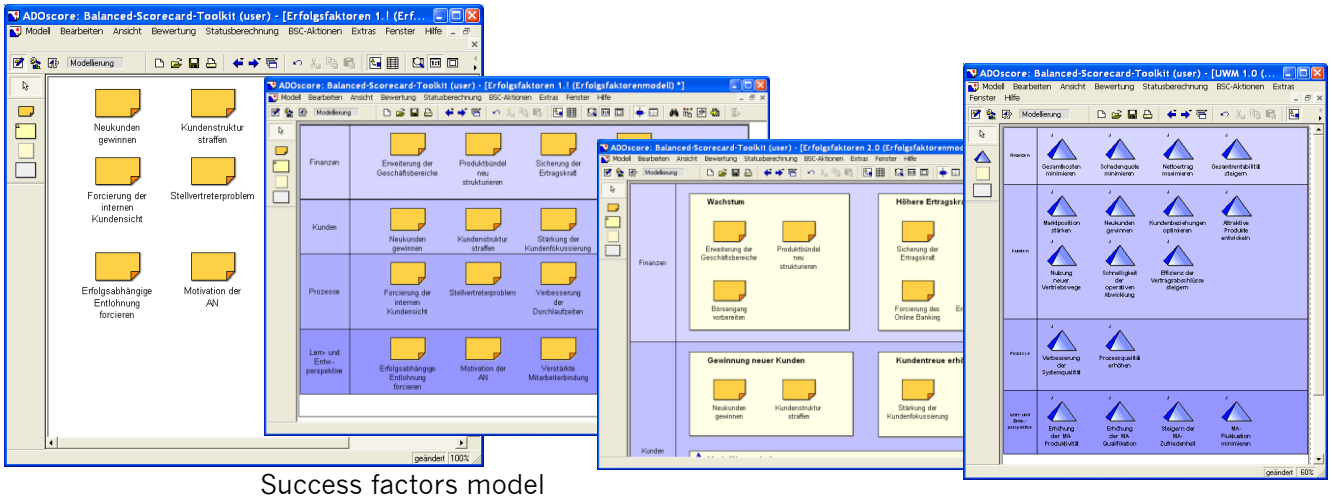
CloudSocket

based on Lichka 04

Success Factors and Strategic Goals

We propose the definition of the strategic goals based on the overall strategy, by deriving groups of critical success factors as goals and sub-goals.

definition of success factors → assignment to perspectives → Aggregation to strategic goals

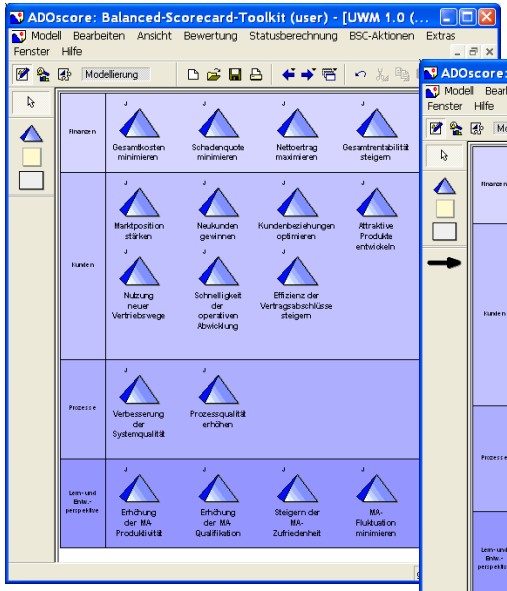


Success factors model

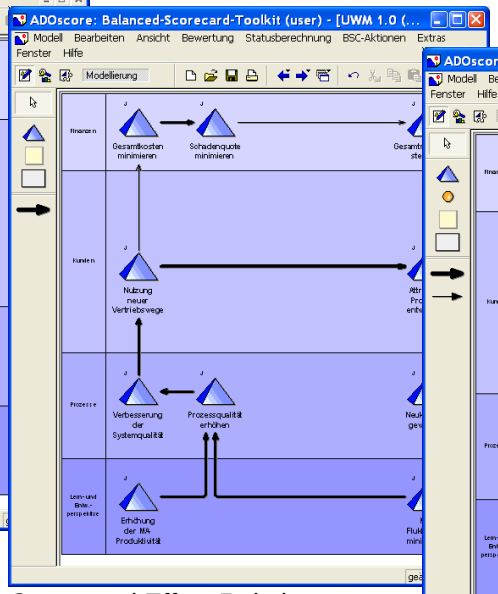
„For strategy-conforming and consistent Goal definition!“

Goals and Cause & Effect Relations

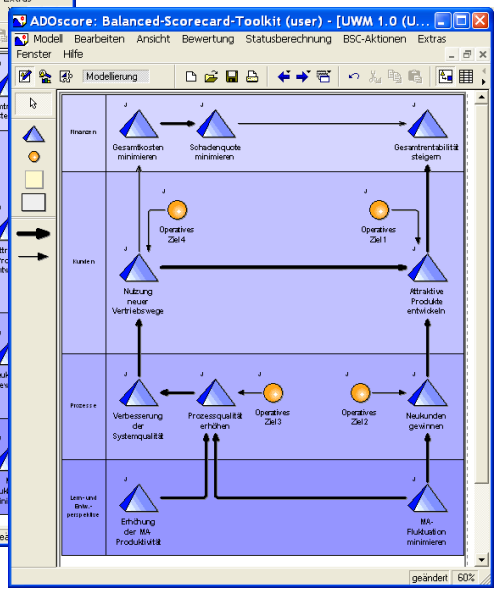
Definition, design and communication of the Cause and Effect Relations allows alignment and focusing of the company resources on the higher level strategy.



Cause and Effect Relations



Cause and Effect Relations
(only Strategic Goals)

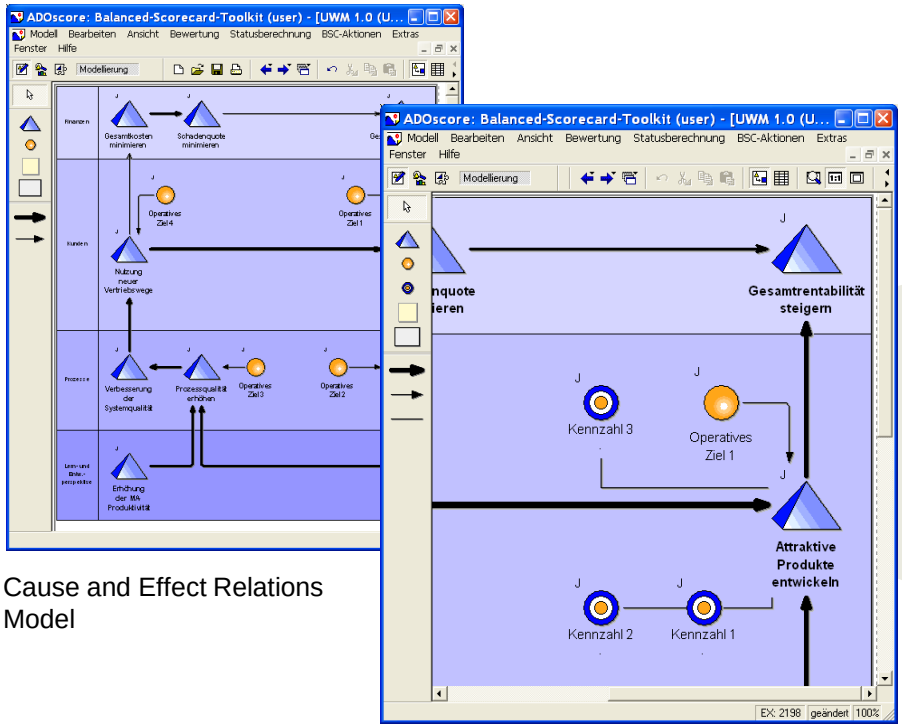


Cause and Effect Relations
(Strategic und Operative Goals)

Criteria and Performance Drivers

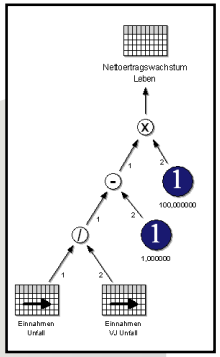
Goal quantification is carried out through provisioning of the Criteria; Criteria Structures (indirect data link) are calculated or data can be provided through direct data links (Criteria Pool's)

„If you can't measure it,
you can't manage it!"

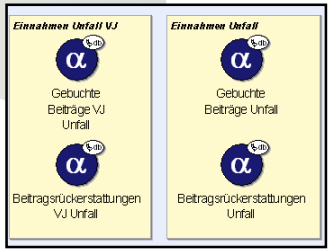


Cause and Effect Relations Model

Assignment of Criteria und Performance Drivers



Criteria Model
(indirect data link)



Criteria Pool
(direct data link)

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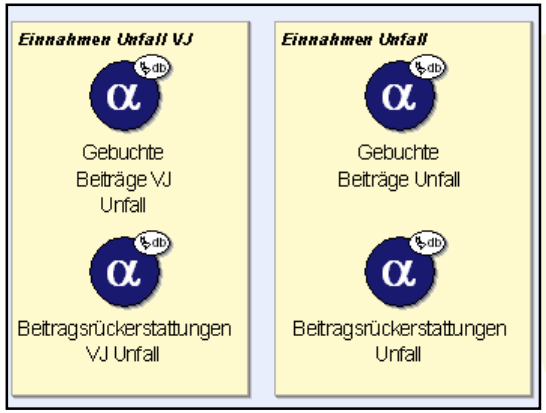
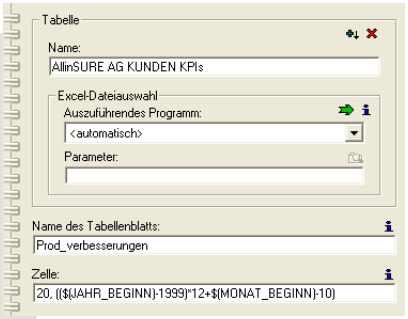
Operative Data Coupling

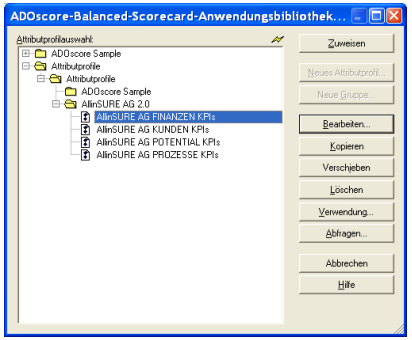
Data Coupling is possible through interfaces to MS Excel, SELECT Statements when accessing relational Databases or manual. Re-usable profiles simplify the data access.



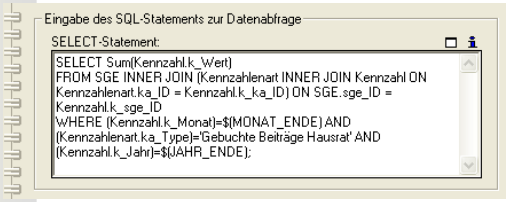
Criteria Pool



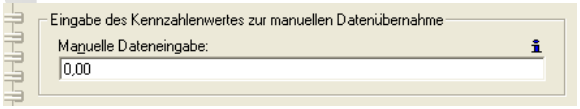
Coupling using MS Excel



Attribute profile for Excel-Coupling



Coupling with relational Databases



Coupling with manually available data

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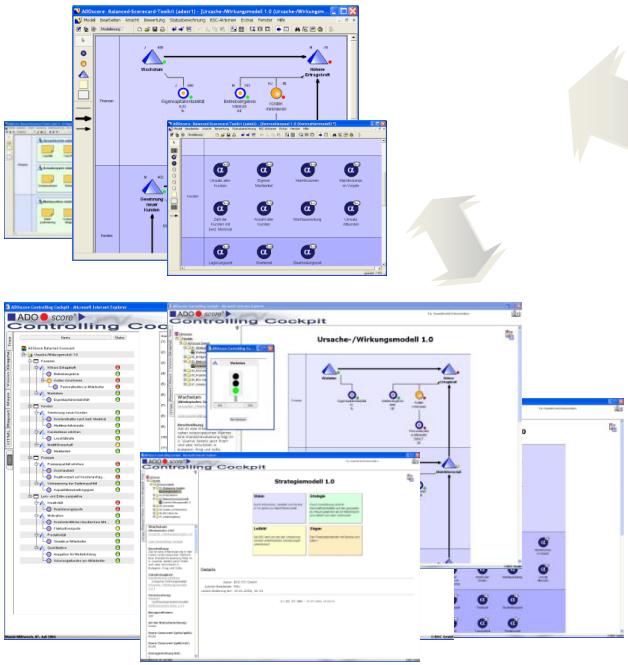
Reports and Documentation

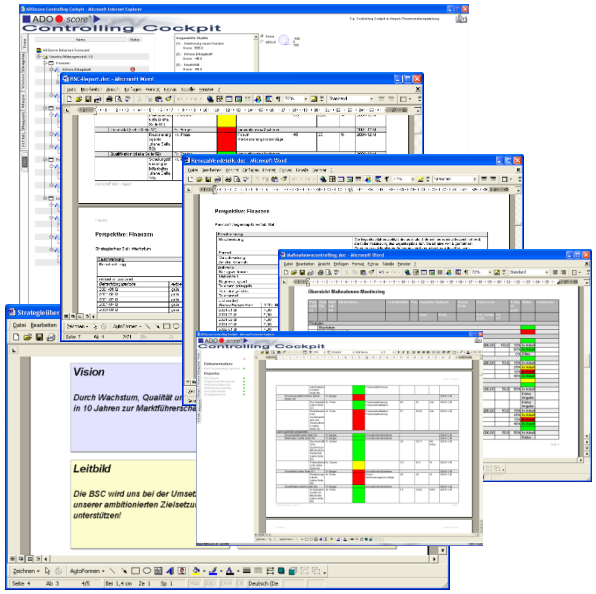
Reports can be integrated in Controlling Cockpit, or generated as individual Management Summaries. Additionally, Cockpit allows Documentation and Model Graphs to be presented and accessed.

Evaluation Design



Presentation of Documentation and Model graphs in Cockpit

Evaluation Monitoring



Presentation of Reports in Cockpit

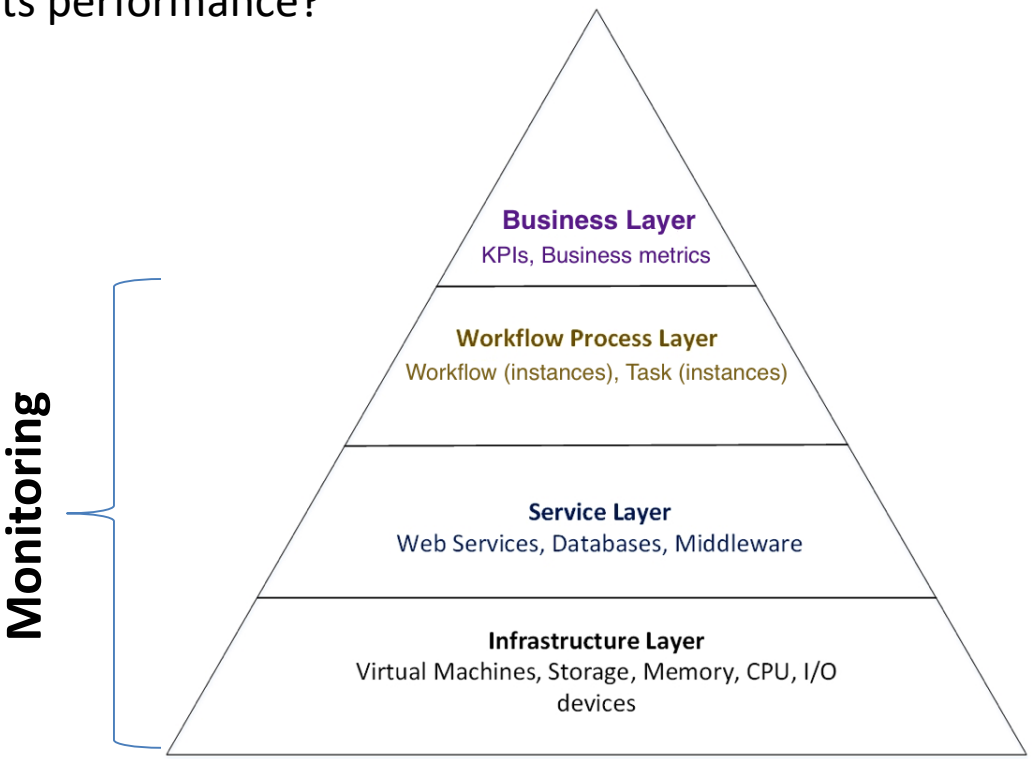
CloudSocket

BPAAS SCORECARD

Identified Perspectives of the Scorecard

Challenge: Operational Layers Pyramid

How a BPaaS can be monitored across all the operational layers, in order to gain a clear view about its performance?



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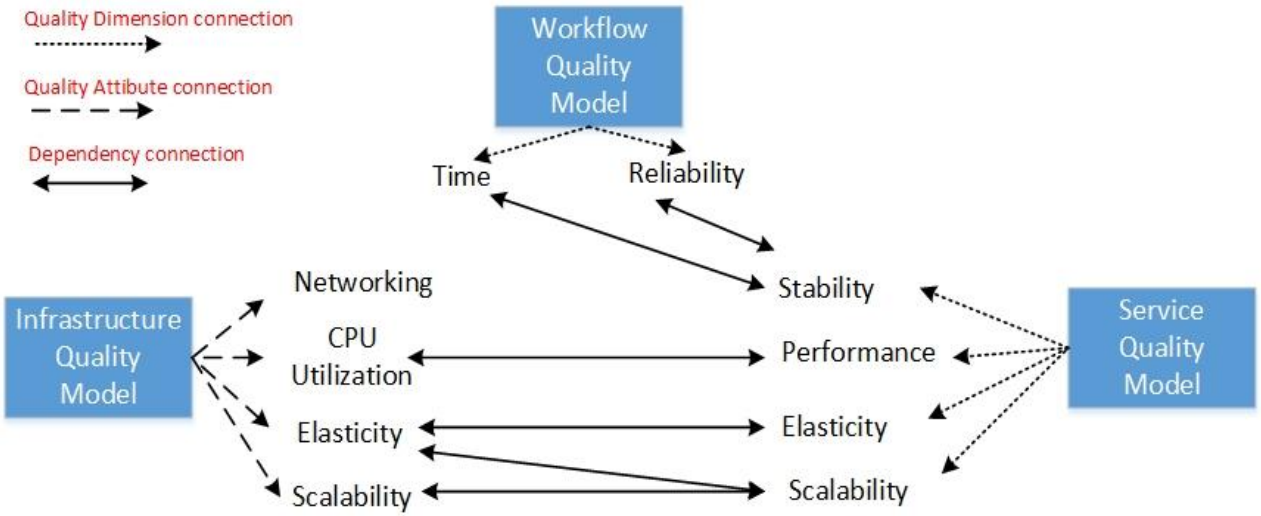
Identified Cause and Effect Model

Cross-Layer Metric Dependencies Model

- Quality models for Workflow, Service and Infrastructure layers

- ***Workflow Quality Model***
  - Time
  - Cost
  - Reliability
  - Security
- ***Service Quality Model***
  - Performance
  - Stability
  - Scalability/ Elasticity
  - Security
- ***Infrastructure Quality Model***
  - Performance
  - Scalability/Elasticity
  - Security



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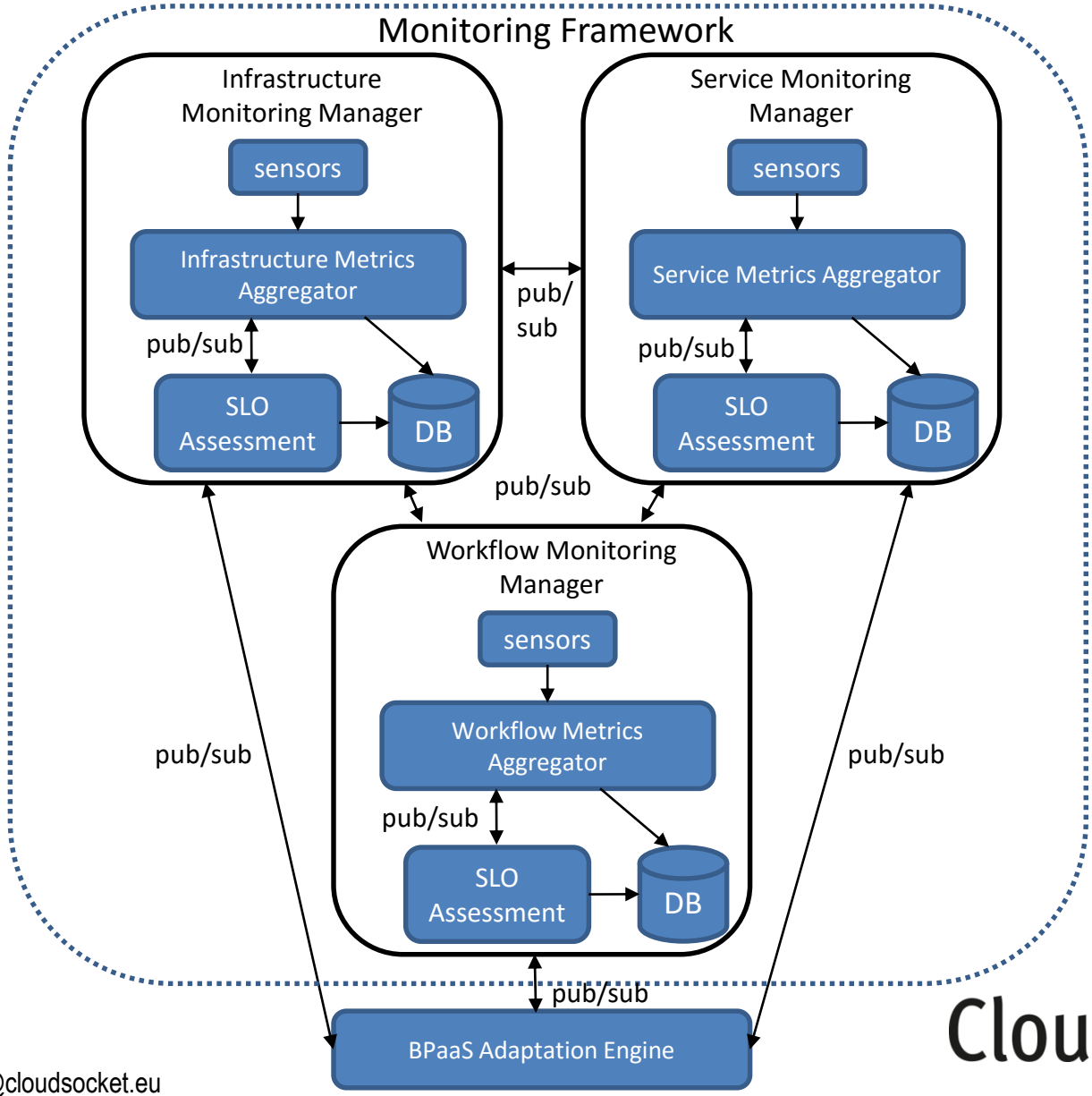
Realisation of Data Sensors for KPIs



Cross-Layer BPaaS Monitoring

- **Cross-layer metric model** to cover the measurement gap in same or across connected layers
- Layer-specific **monitoring mechanisms**
- **Publish-subscribe** for propagation of measurements from lower to higher-levels
- **SLO condition evaluation** via Complex Event Processing (CEP)

BPAAS EVALUATION

Problem

- Evaluate BPaaS to:
  - Check BPaaS performance
  - Find root-causes of problems (KPI violations)
  - Support additional types of analysis
- Issues:
  - Disparate information in different formats from different services / components
    - Need to harvest & integrate all relevant information across all levels for BPaaS evaluation
  - Current frameworks for KPI analysis & drill-down:
    - Cover 1or 2 layers at most
    - Adopt a non flexible & sometimes db-dependent approach for KPI evaluation
    - Limited set of fixed KPI metrics considered
  - Most frameworks focus only on KPI analysis and drill-down
    - No further information is given in order to optimise the BPaaS design and allocation

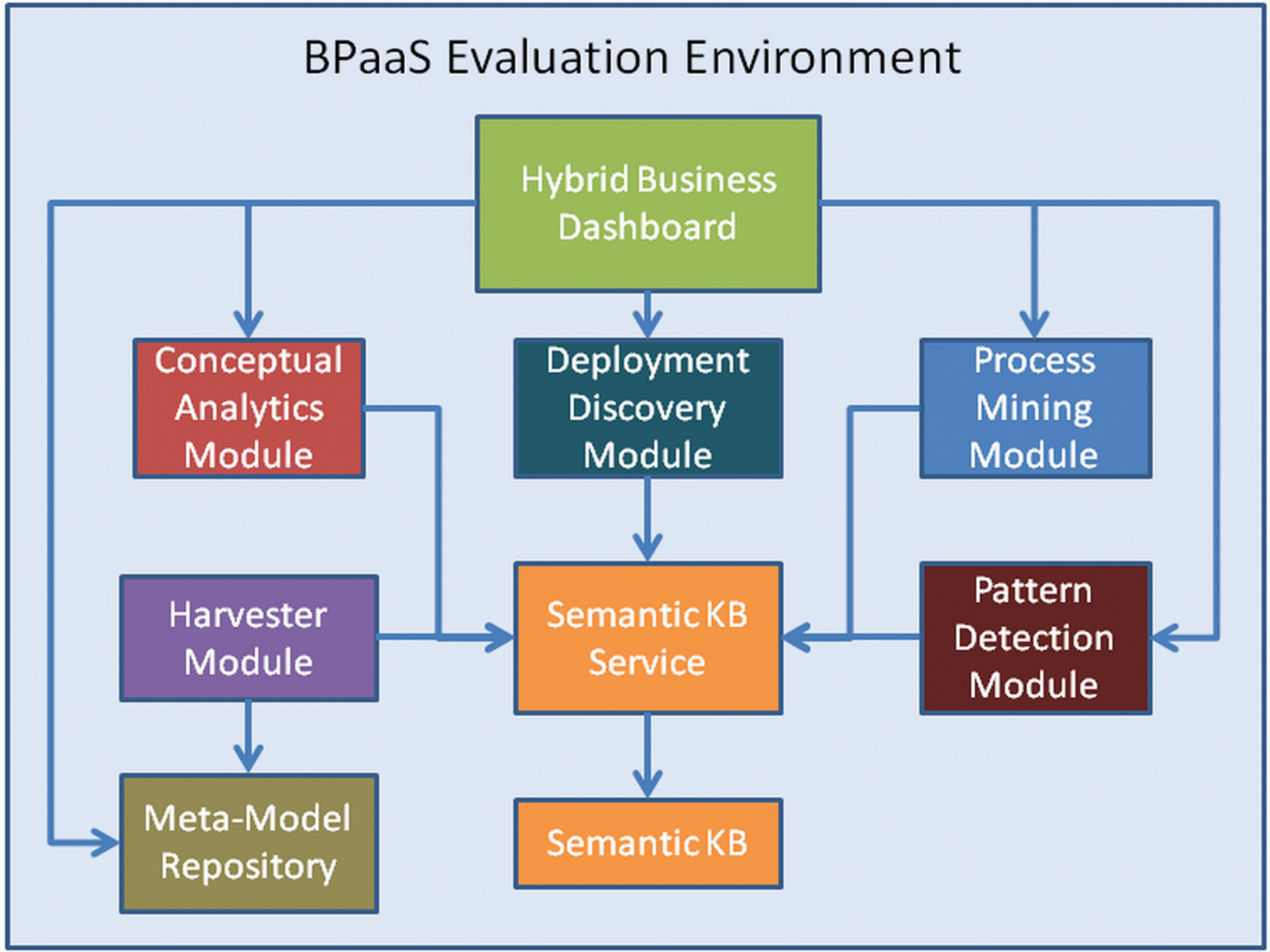
Solution

- Adopt a semantic approach
  - Semantic frameworks appropriate for information integration
  - Dependency information modelled via an Evaluation ontology
  - KPI modelling via OWL-Q [2] KPI extension
- Information harvested from different components, semantically lifted and linked
- KPIs evaluated via SPARQL queries
  - Transformation from OWL-Q KPI to SPARQL
- KPI drill-down based on KPI metric hierarchies
  - KPI evaluation in bottom-up approach to form the KPI drill-down results

Solution

- Apart from KPI analysis & drill-down, other types of BPaaS analysis are supported:
  - *Best Deployment Discovery*: the discovery of the best deployments for a BPaaS, based on the execution history of this and other BPaaSes, that can assist in optimising its allocation
  - *Event Pattern Detection*: the discovery of event patterns that lead to KPI violations which enables to semi-automatically formulate BPaaS adaptation rules mapping these event patterns to adaptation workflows. This analysis functionality assists in optimising the adaptive behaviour of a BPaaS
  - *Process Mining*: wrapping of state-of-the-art process mining algorithms in form of a REST service. Capability to even semantically derive the current process model of a BPaaS and compare it to the designed one in order to find respective discrepancies and thus have the ability to improve/optimise the BPaaS design

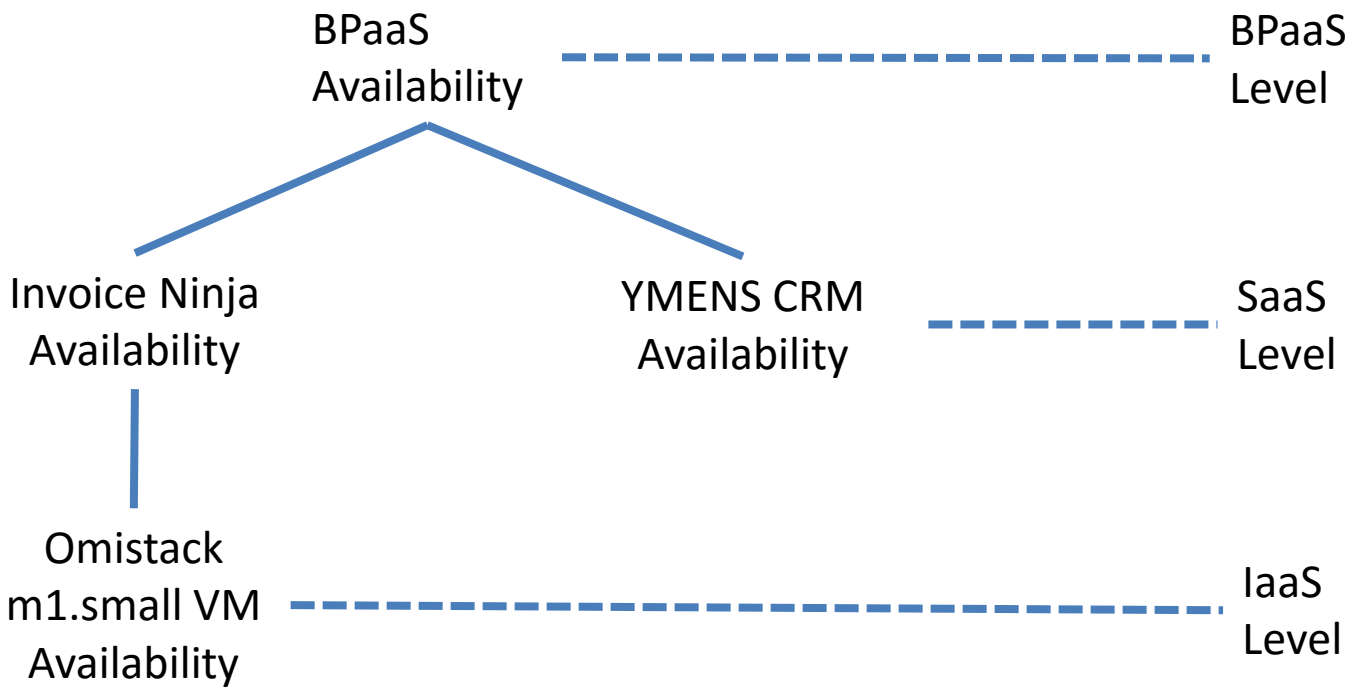
CloudSocket

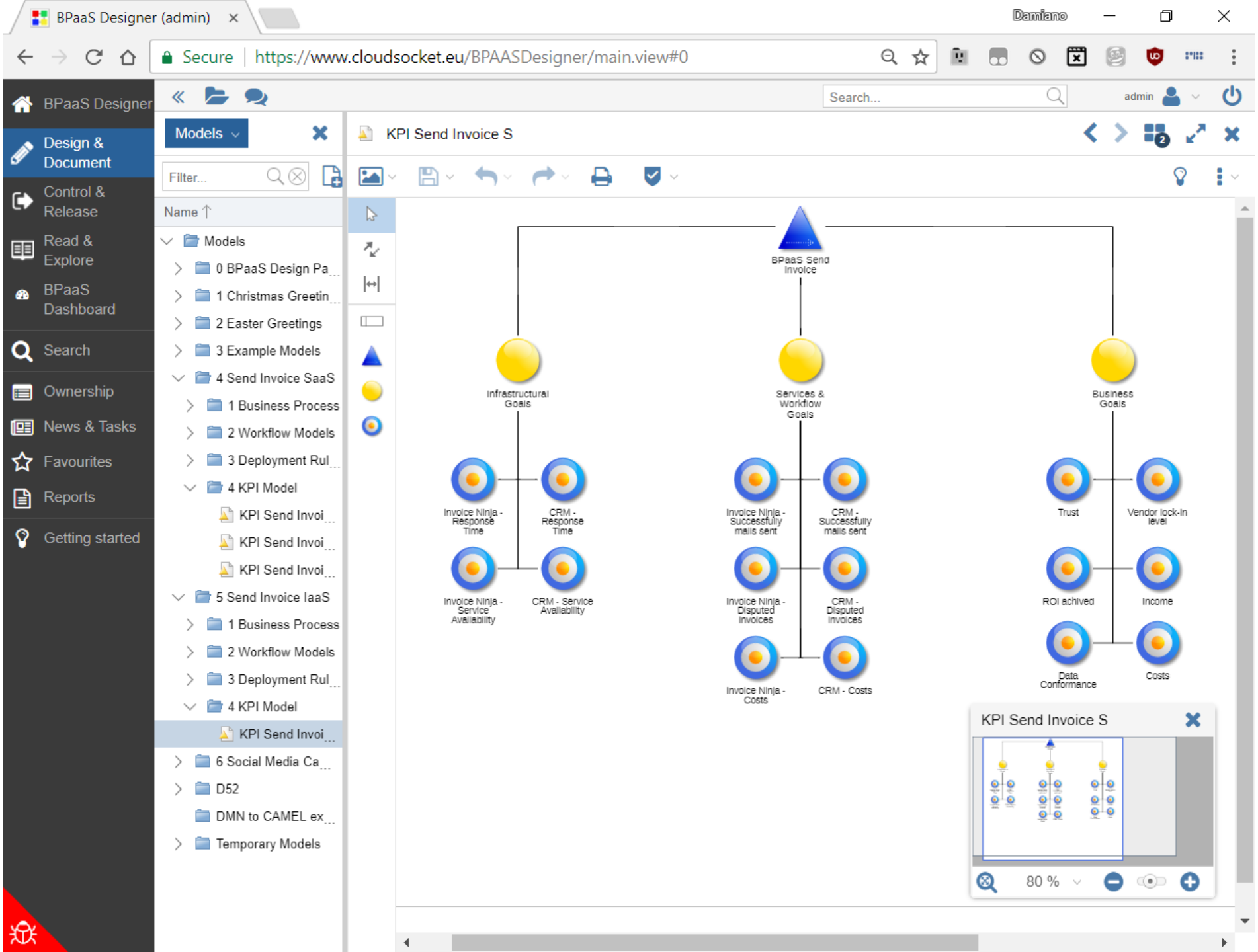

BPaaS Evaluation Environment
Hybrid Business Dashboard
Conceptual Analytics Module
Deployment Discovery Module
Process Mining Module
Harvester Module
Semantic KB Service
Pattern Detection Module
Meta-Model Repository
Semantic KB

BPaaS Evaluation Demonstration

- Rely on Send Invoice use case
- 2 Videos can be viewed:
  - One showing the Dashboard of the BPaaS Evaluation Environment and how it can be used to initiate the BPaaS analysis functionality plus visualise back the obtained results
  - Another showing the REST API of the Conceptual Analytics Module which is invoked to perform a KPI drill-down based on the Send Invoice BPaaS availability
  - Supporting slides for these two videos are shown in the next 2 slides

KPI Hierarchy for Availability




BPaaS Designer (admin)
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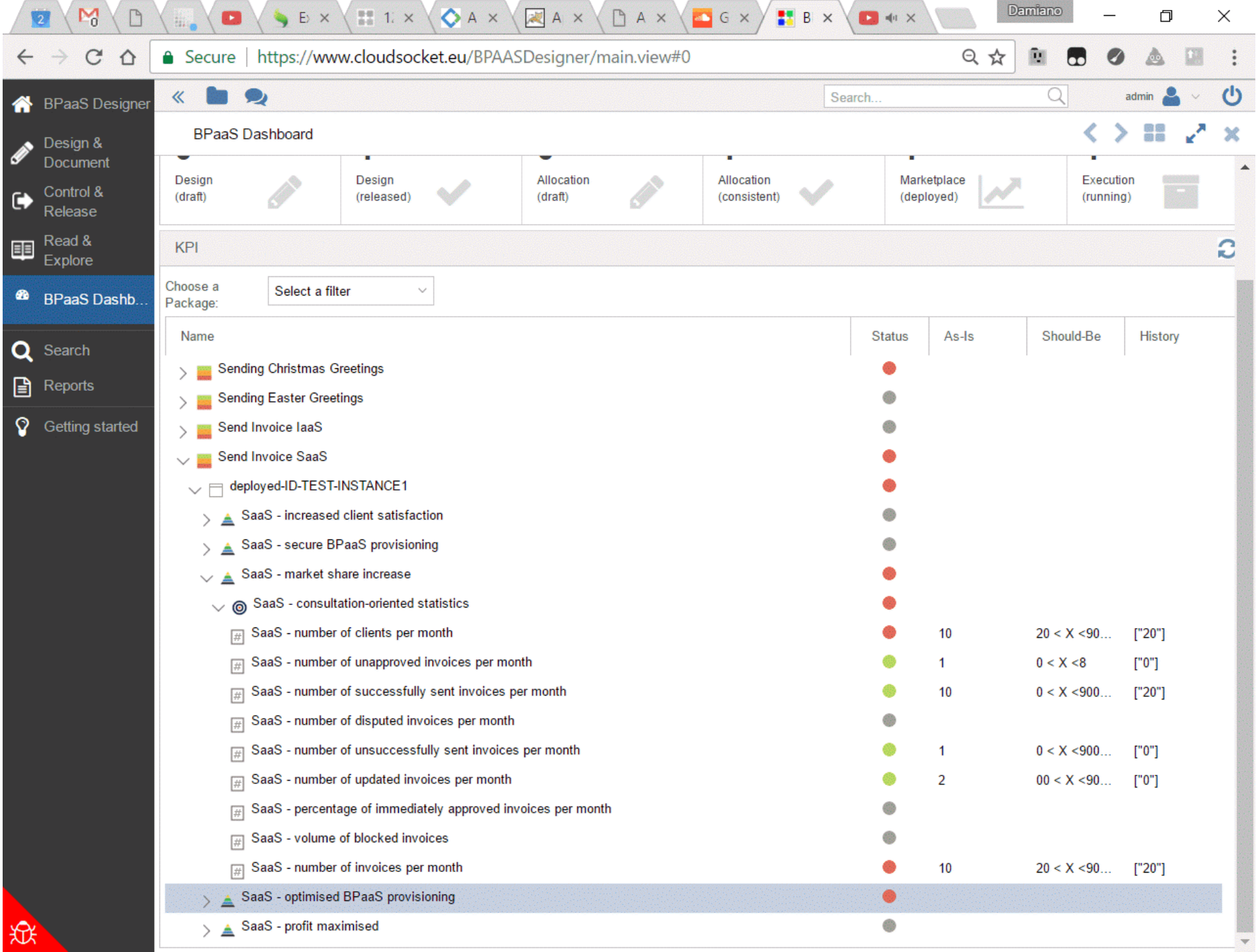
Secure
https://www.cloudsocket.eu/BPAASDesigner/main.view#0
BPaaS Designer
Design & Document
Control & Release
Read & Explore
BPaaS Dashboard
Search
Ownership
News & Tasks
Favourites
Reports
Getting started
Search...
admin
Models
Filter...
Name
Models
0 BPaaS Design Pa...
1 Christmas Greetin...
2 Easter Greetings
3 Example Models
4 Send Invoice SaaS
1 Business Process
2 Workflow Models
3 Deployment Rul...
4 KPI Model
KPI Send Invoi...
KPI Send Invoi...
KPI Send Invoi...
5 Send Invoice IaaS
1 Business Process
2 Workflow Models
3 Deployment Rul...
4 KPI Model
KPI Send Invoi...
6 Social Media Ca...
D52
DMN to CAMEL ex...
Temporary Models
KPI Send Invoice S
BPaaS Send Invoice
Infrastructural Goals
Services & Workflow Goals
Business Goals
Invoice Ninja - Response Time
CRM - Response Time
Invoice Ninja - Service Availability
CRM - Service Availability
Invoice Ninja - Successfully mails sent
CRM - Successfully mails sent
Invoice Ninja - Disputed Invoices
CRM - Disputed Invoices
Invoice Ninja - Costs
CRM - Costs
Trust
Vendor lock-in level
ROI achived
Income
Data Conformance
Costs
KPI Send Invoice S
80 %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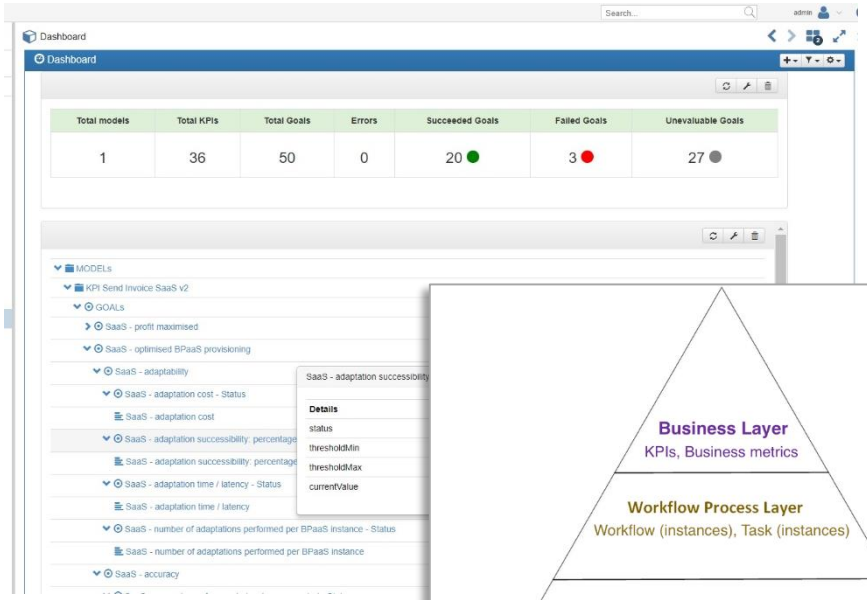
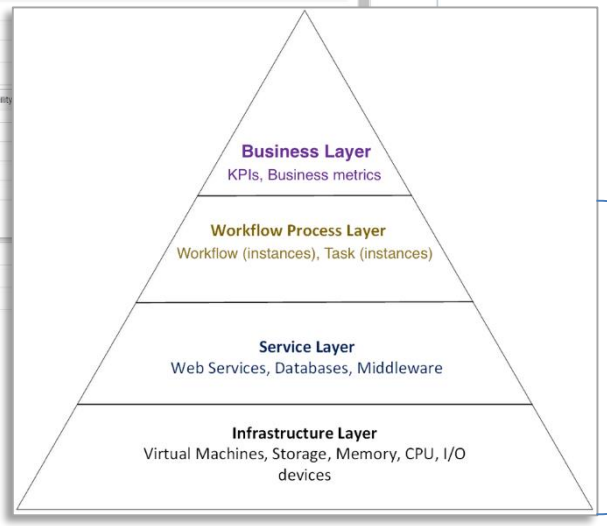
Secure | https://www.cloudsocket.eu/BPAASDesigner/main.view#0
BPaaS Designer
Design & Document
Control & Release
Read & Explore
BPaaS Dashb...
Search
Reports
Getting started
Search...
admin
BPaaS Dashboard
Design (draft)
Design (released)
Allocation (draft)
Allocation (consistent)
Marketplace (deployed)
Execution (running)
KPI
Choose a Package:
Select a filter
Name
Status
As-Is
Should-Be
History
Sending Christmas Greetings
Sending Easter Greetings
Send Invoice IaaS
Send Invoice SaaS
deployed-ID-TEST-INSTANCE1
SaaS - increased client satisfaction
SaaS - secure BPaaS provisioning
SaaS - market share increase
SaaS - consultation-oriented statistics
SaaS - number of clients per month 10 20 < X <90... ["20"]
SaaS - number of unapproved invoices per month 1 0 < X <8 ["0"]
SaaS - number of successfully sent invoices per month 10 0 < X <900... ["20"]
SaaS - number of disputed invoices per month
SaaS - number of unsuccessfully sent invoices per month 1 0 < X <900... ["0"]
SaaS - number of updated invoices per month 2 00 < X <90... ["0"]
SaaS - percentage of immediately approved invoices per month
SaaS - volume of blocked invoices
SaaS - number of invoices per month 10 20 < X <90... ["20"]
SaaS - optimised BPaaS provisioning
SaaS - profit maximised

Evaluating Business Processes as a Service





Cloud Monitoring

BPaaS Evaluation

Tool:

ADOSCORE

Contact

www.boc-group.com

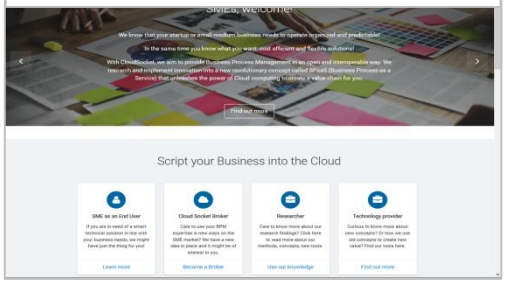
Watch Demonstration:

Design: youtu.be/lXOmgpmgiCI
Individual Sensors drill down:
youtu.be/P2DI-v2nlxU?list=PLZVFNQ-78g4XuMS7srmzTVBSSH9Ghjnfx

CloudSocket

2. CloudSocket: EU Project

WEB: cloudsocket.eu



TWITTER: @cloudsocketeu

Projekt Partner

www.boc-eu.com

Atos

CLOUD IS NO LIMIT YMENS

FHOSTER Information Systems On Demand

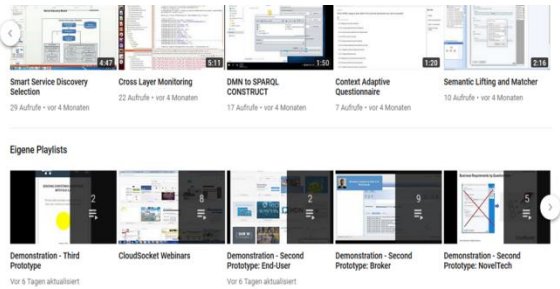
mathema

bwcon

FORTH INSTITUTE OF COMPUTER SCIENCE

Fachhochschule Nordwestschweiz

YouTube: UC8qbCYS49FfG7S8j5AABpaA



Koordinator

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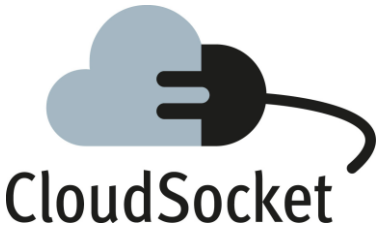
Stay in Touch



www.cloudsocket.eu

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

CloudSocket