



# dqualizer: Domain-centric runtime quality analysis of business-critical application systems

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FUNDED BY



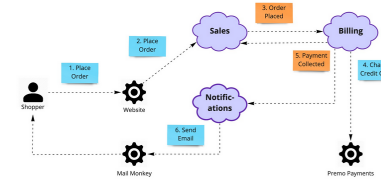
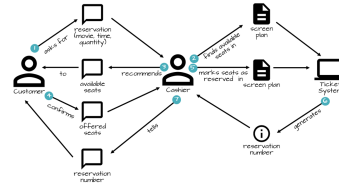
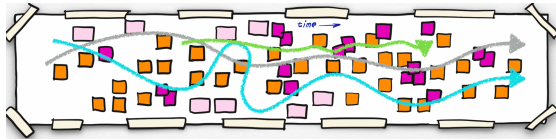
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# Runtime quality analyses are mostly technical



# Domain first in architecture and design

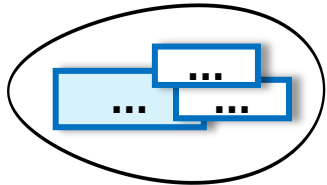
## Exploration and Analysis



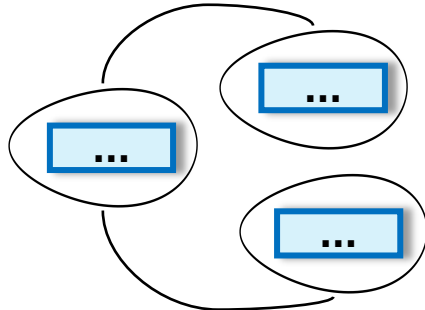
Strategic Design

Tactical Design

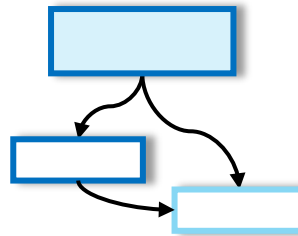
Ubiquitous Language & Bounded Context



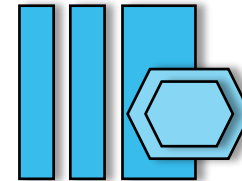
Context Mapping



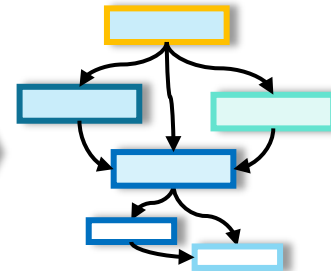
Aggregate



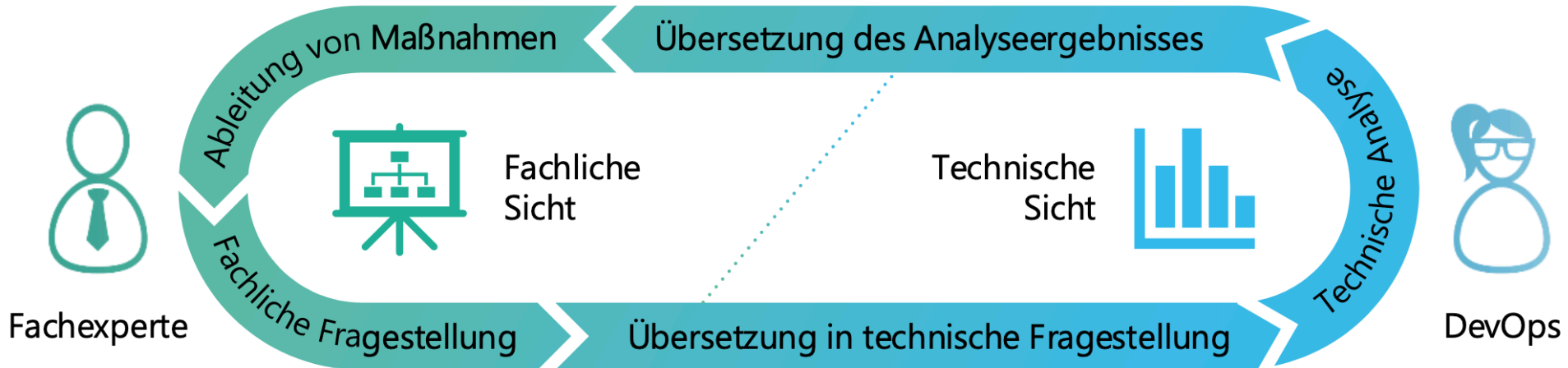
Software Architecture



Building Blocks

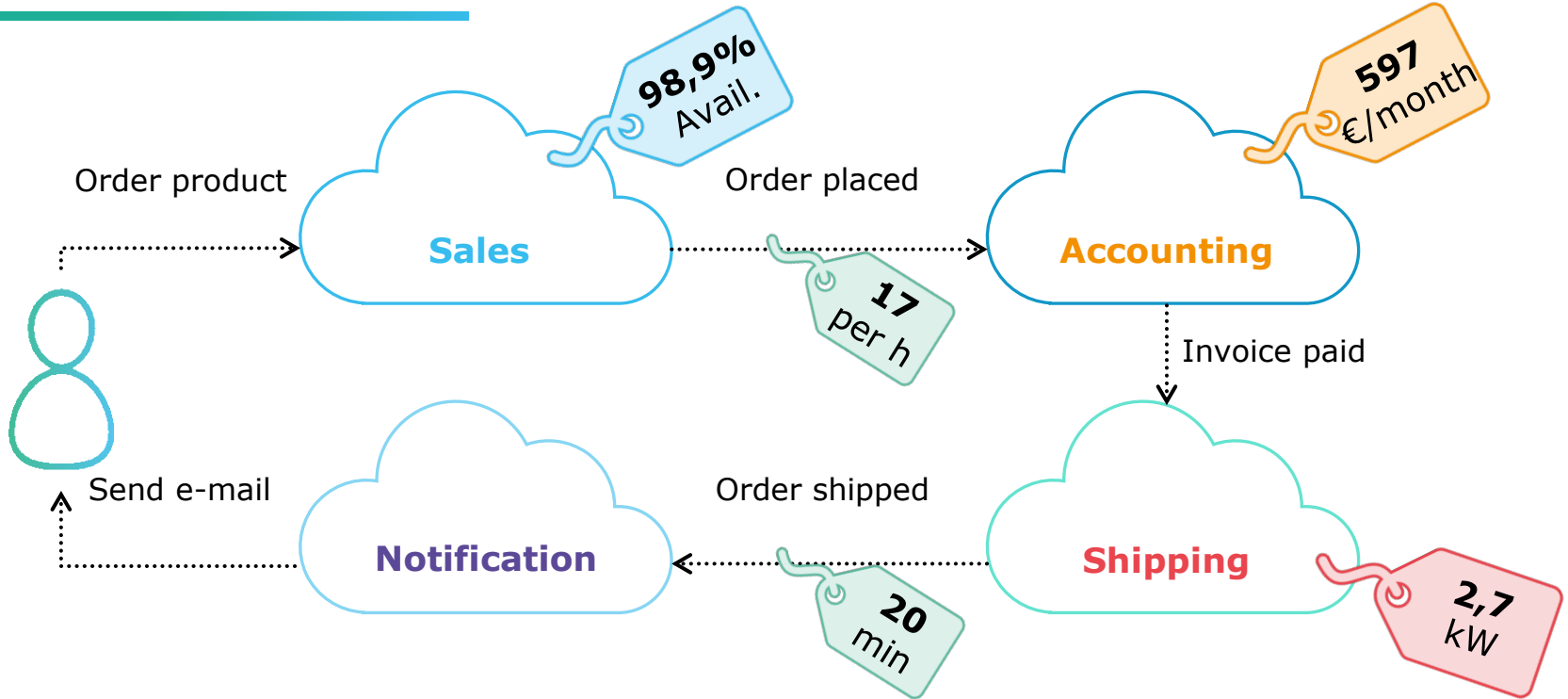


# Collaboration with the dqualizer approach

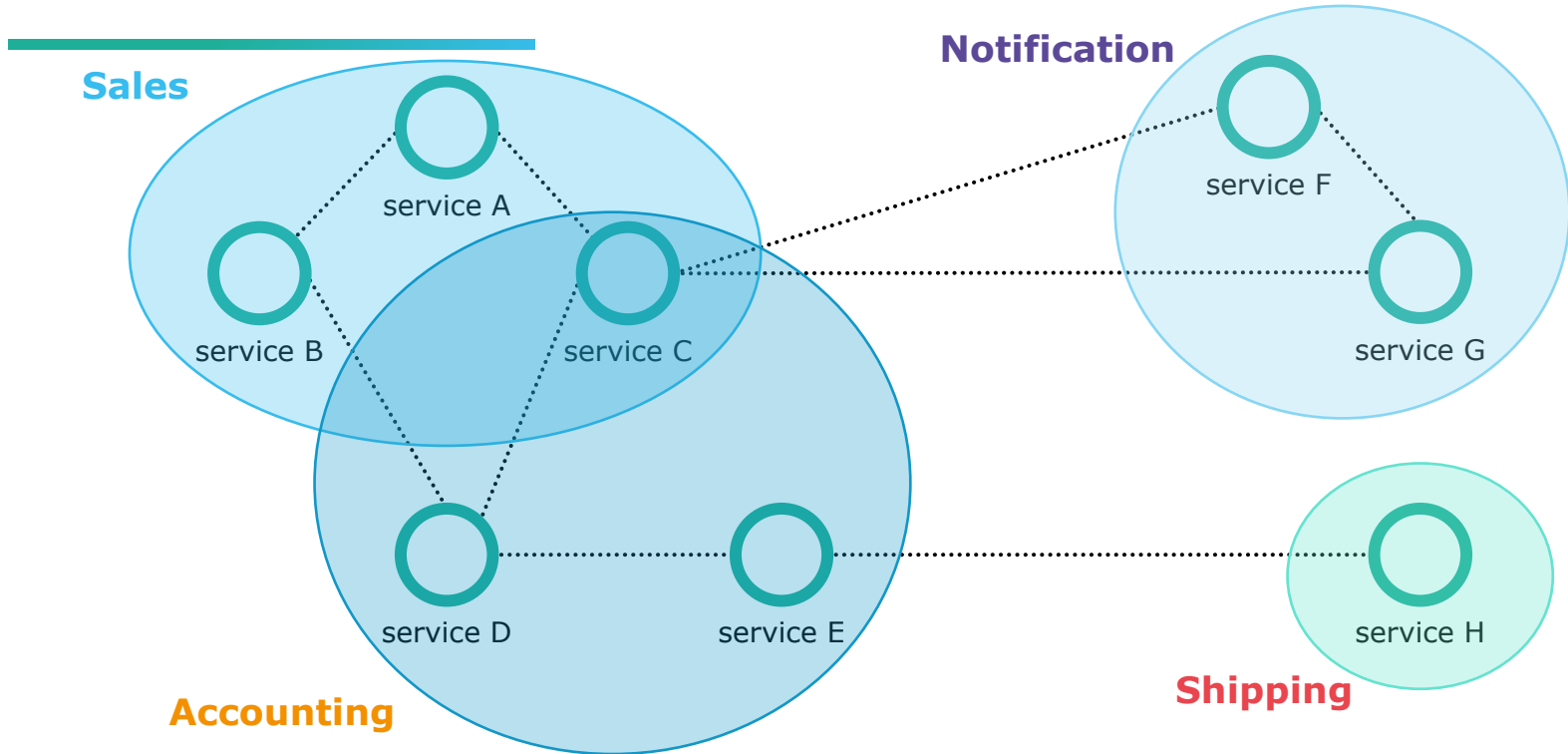




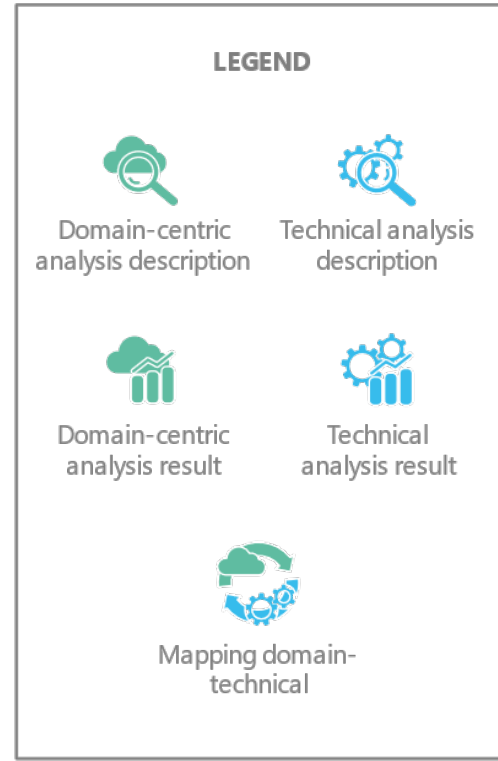
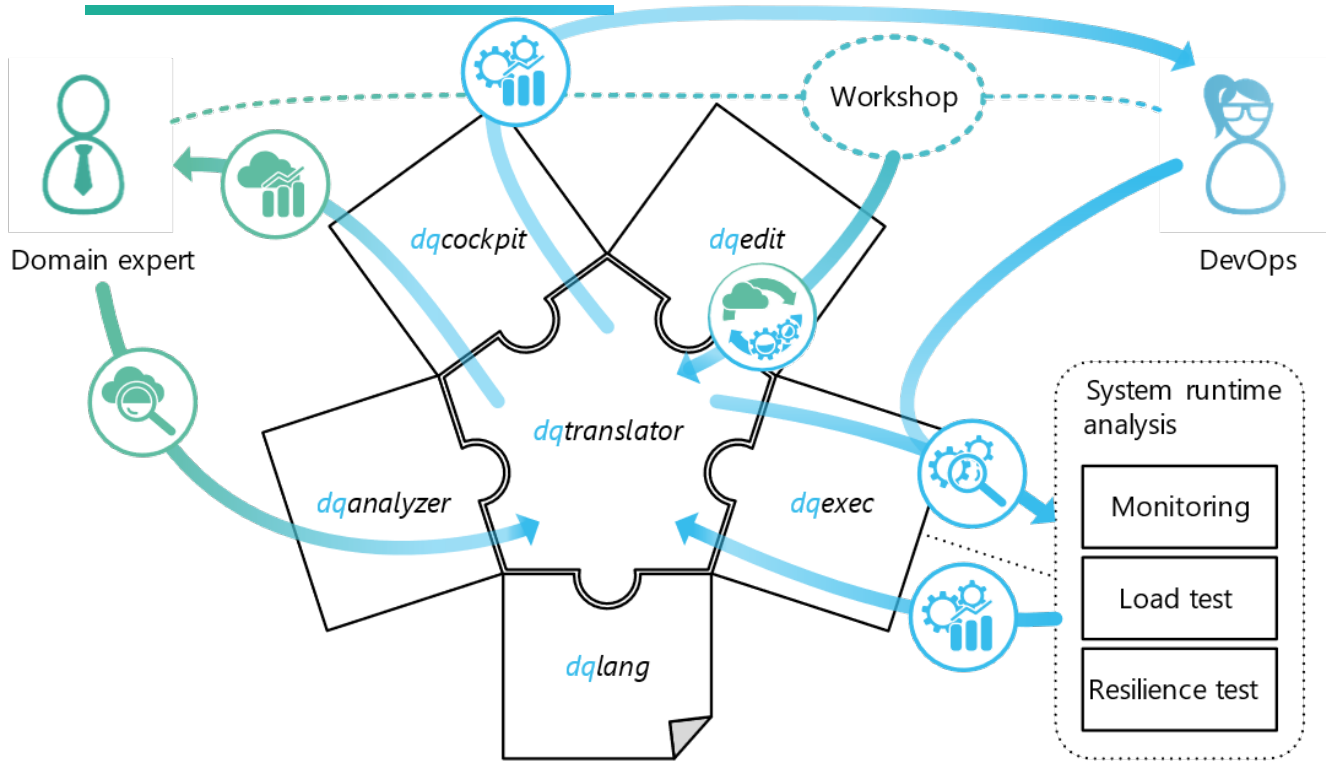
# Quality attributes of the domain



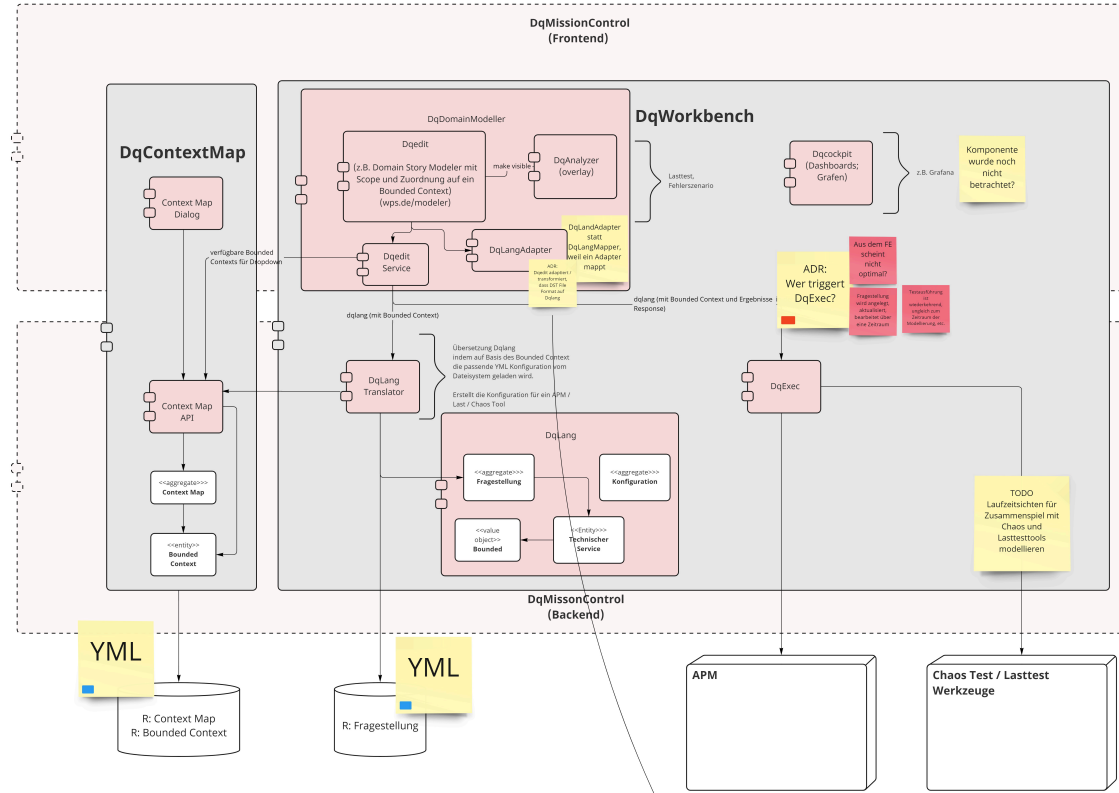
# Enriching the technical monitoring with business domain



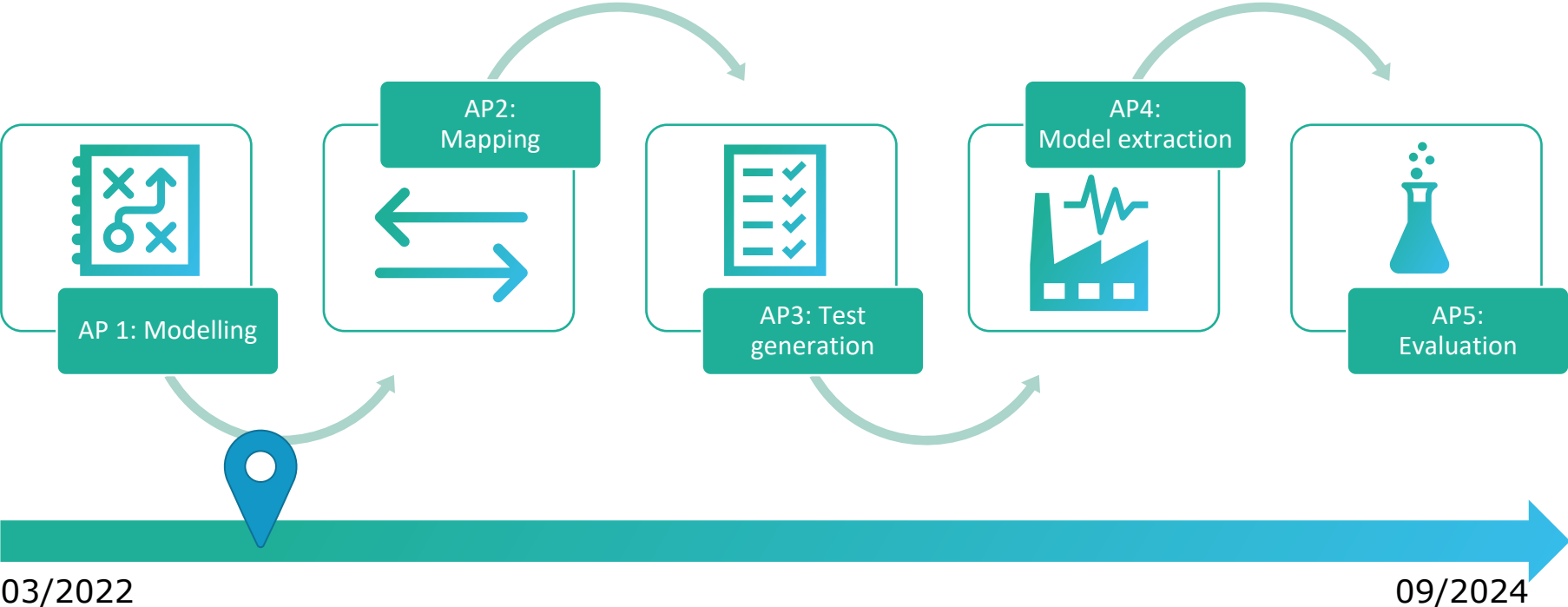
# dqualizer approach – architecture



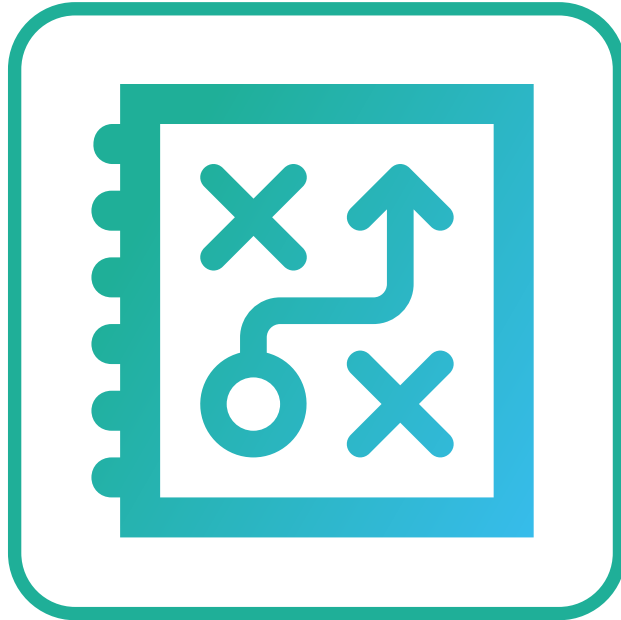
# dqualizer approach – architecture



# Schedule and working packages



# AP 1 – Modelling of the business domain and quality attributes



1.1 - DDD und quality attributes?



1.2 – DDD-modeling language



1.3 – Enriching with quality scenarios and annotations

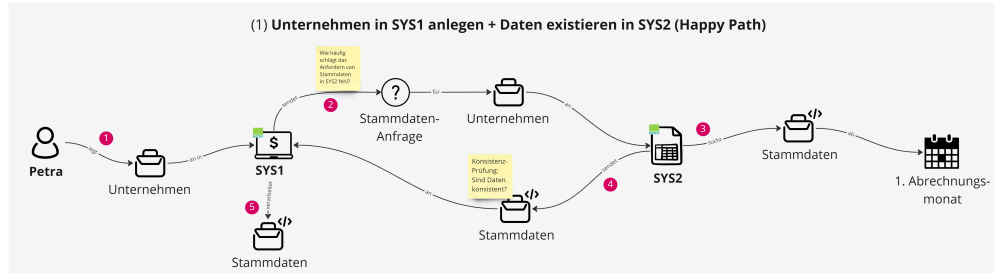


1.4 - Editor und persistence for the modeling

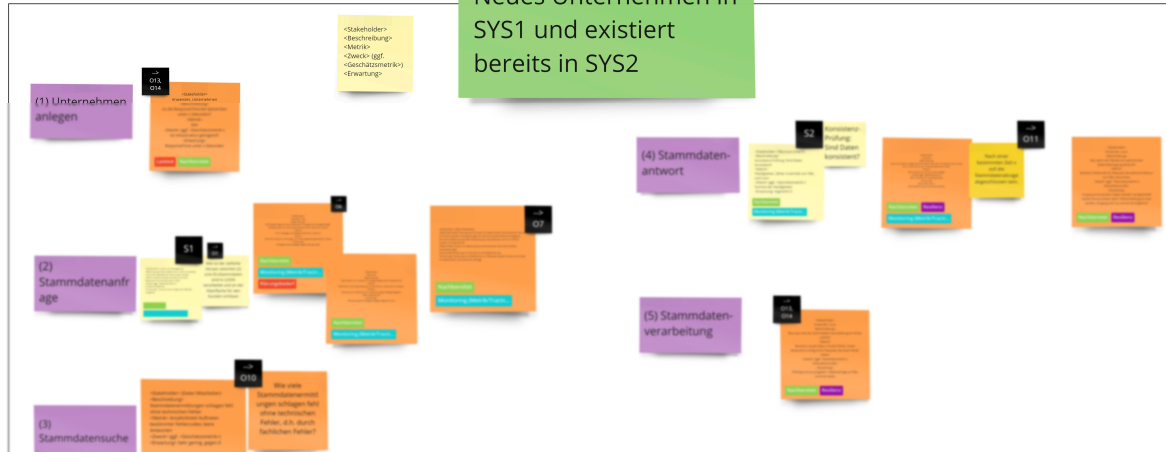


# AP 1/5 – Workshops

## Fragestellung Storming 2



<Story>  
Neues Unternehmen in  
SYS1 und existiert  
bereits in SYS2







# AP 1 – dqDomainModeler – first prototype

Beispiel 4 - Ticketverkauf Happy Path (digital)

Annahmen: Happy Path: Kinobesucher hat kein Abo  
Domain: M

### Resilience Scenario

Artifact: Kinokasse Applikation

Stimulus (\*) ①: Failed request

Accuracy of Results (\*) ①: 100%

Response Measure (\*) ①: Satisfied | Tolerated | Frustrated

Recovery time: Satisfied | Tolerated | Frustrated

Response time: Satisfied | Tolerated | Frustrated

Error rates: None | Low | Medium | High

How often does the stimulus occur? (\*) ①: Once

Do you want your users to notice the stimulus? (\*) ①: No

Select a time slot for your scenario ①

Office Hours 08:00 am to 16:00 pm

Off Schedule after 16:00 pm

Use existing loadtests

Show loadtests

Save Close

Vorstellung → in → Kinokasse Applikation → sucht nach → Saalplan → in → Verkaufte Plätze → in → Ticket

Saalplan für → Saalplan in → Verkaufte Plätze → Platz auf → Ticket

Kinokasse Applikation

Logo: vga.de DOMAIN Storytelling

# AP 1 – dqDomainModeler – first prototype

Beispiel 4 - Ticketverkauf Happy Path (digital)

Annahmen: Happy Path: Kinobesucher hat kein Abo  
Domain: Metropolis

Resilience Results

We executed the resilience test with the stimulus **Failed request** using Chaos Toolkit, in the environment **TESTING**. You stated that the test should be executed **during regular office hours, i.e., between 08:00 am and 16:00 pm**. You also added **existing load tests to simulate real user behavior**. The stimulus was repeated **Once**. The test results should have an Accuracy of **100%**. As a hypothesis you stated the **Error rate to be Low**.

Sadly, your experiment was **not successful!!!** The hypothesis did not hold because the Error rate was higher than the measure you specified. :-)

Close

The diagram illustrates a domain model for a ticket sale system. It features several entities and their relationships:

- Mitarbeiter** (Employee) is connected to **Saalplan** (Seating Chart) via the relationship **ruft auf** (calls up).
- Mitarbeiter** is connected to **verkaufte Plätze** (Sold Seats) via the relationship **markiert** (marks).
- Mitarbeiter** is connected to **Vorstellung** (Performance) via the relationship **schreibt** (writes).
- Saalplan** is connected to **verfügbaren Plätzen** (Available Seats) via the relationship **für** (for).
- verkaufte Plätze** is connected to **Saalplan** via the relationship **in** (in).
- Vorstellung** is connected to **Ticket** via the relationship **auf** (on).
- verfügbaren Plätzen** is connected to **Ticket** via the relationship **in** (in).
- Kassette Applikation** (Ticket Application) is connected to **Vorstellung** via the relationship **sucht nach** (looks for).
- Kassette Applikation** is connected to **verkaufte Plätze** via the relationship **in** (in).

The diagram also includes a toolbar on the left with various icons for editing and viewing the model, and a logo for 'www.de DOMAIN Storytelling' in the bottom right corner.

# AP 5 – (Continuous) Evaluation



5.1 – Laboratory studies



5.2 – User tests



5.3 – Case study DATEV eG



5.4 – Case study VHV solutions GmbH



# AP 5 – Evaluation – First insights

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Workshops using **domain-centric approaches** (e.g., Domain Storytelling) are feasible



Workshops turned out to be **enabler** for the domain experts to „ask the right questions“



there are domain-centric questions covering all our investigated fields (monitoring, load, resilience)



It is **hard to engage** with the employees if they do not see an immediate benefit



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<https://dqualizer.github.io/>



<https://github.com/dqualizer>



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