Bild: DALL.E

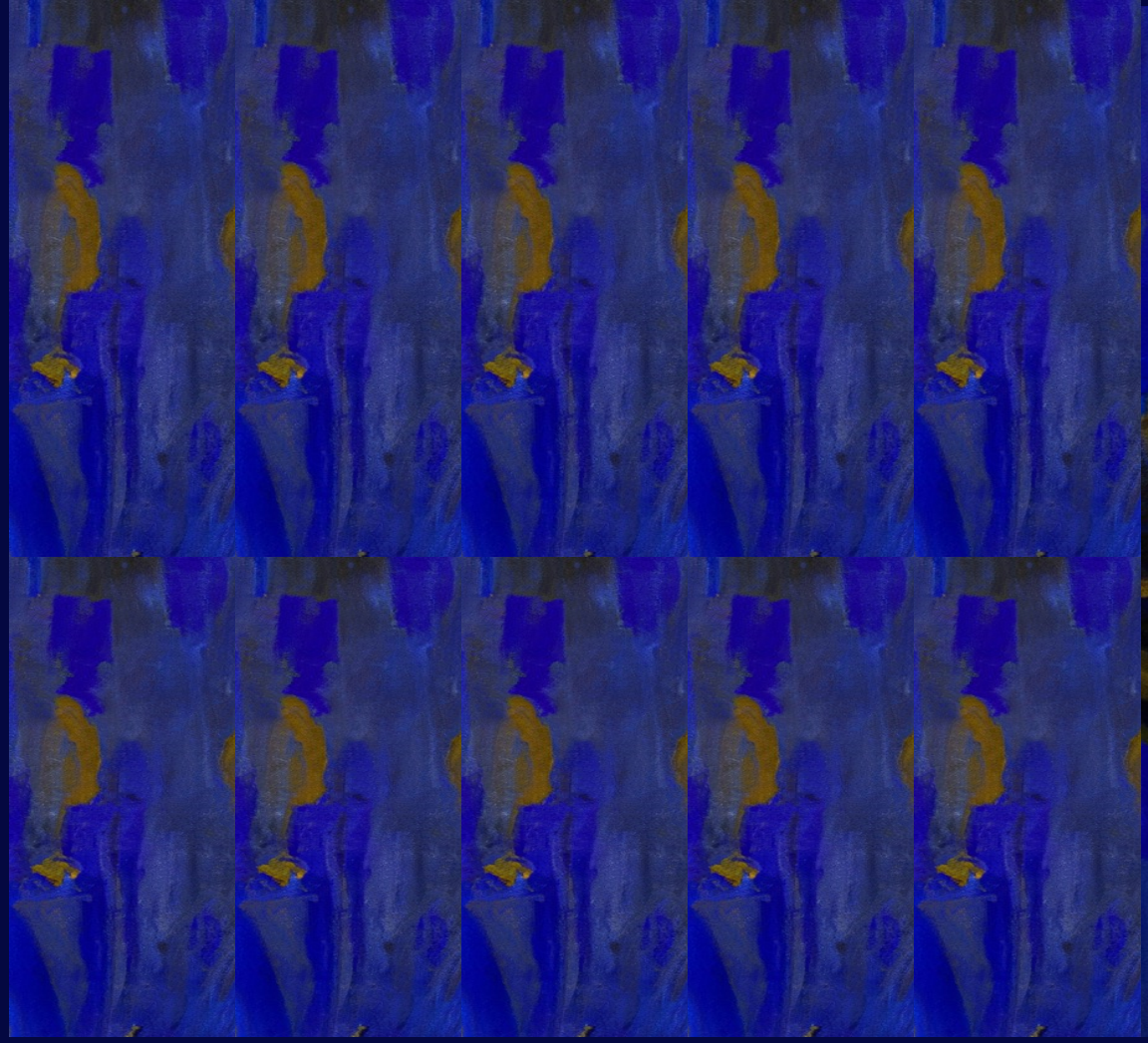
arc42 Canvas

low(est) effort architecture documentation

Benjamin Wolf
Senior Consultant

Gernot Starke
INNOQ Fellow

INNOQ

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World
Congress
2023
27.JULY–
28.JULY
BERLIN
CITYCUBE
Dr. Gernot Starke
Fellow at INNOQ


World
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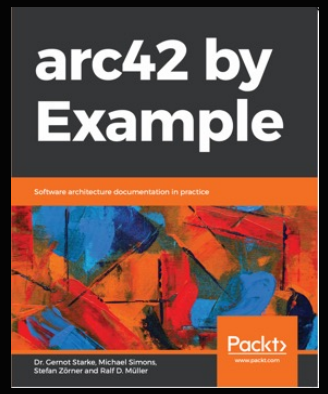

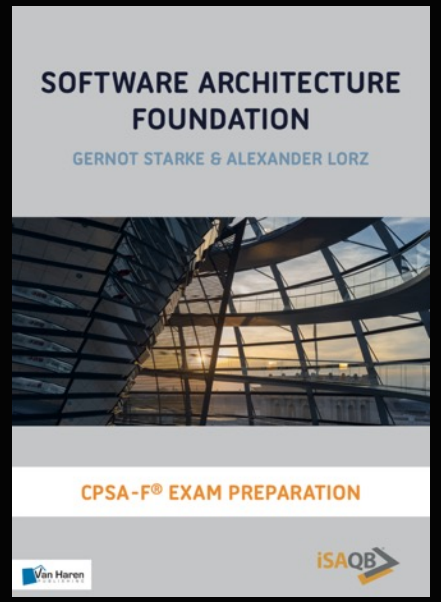

wm> World Congress 2023

27.JULY–28.JULY BERLIN CITYCUBE

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- Co-founder of aim42
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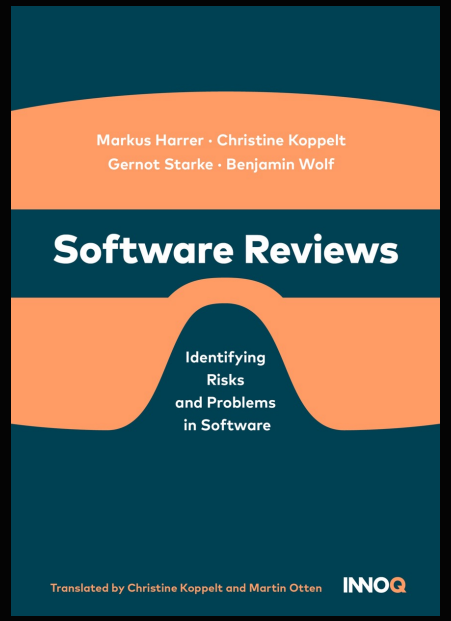

wm> World Congress 2023

27.JULY–
28.JULY

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Benjamin Wolf

Senior IT Consultant at INNOQ

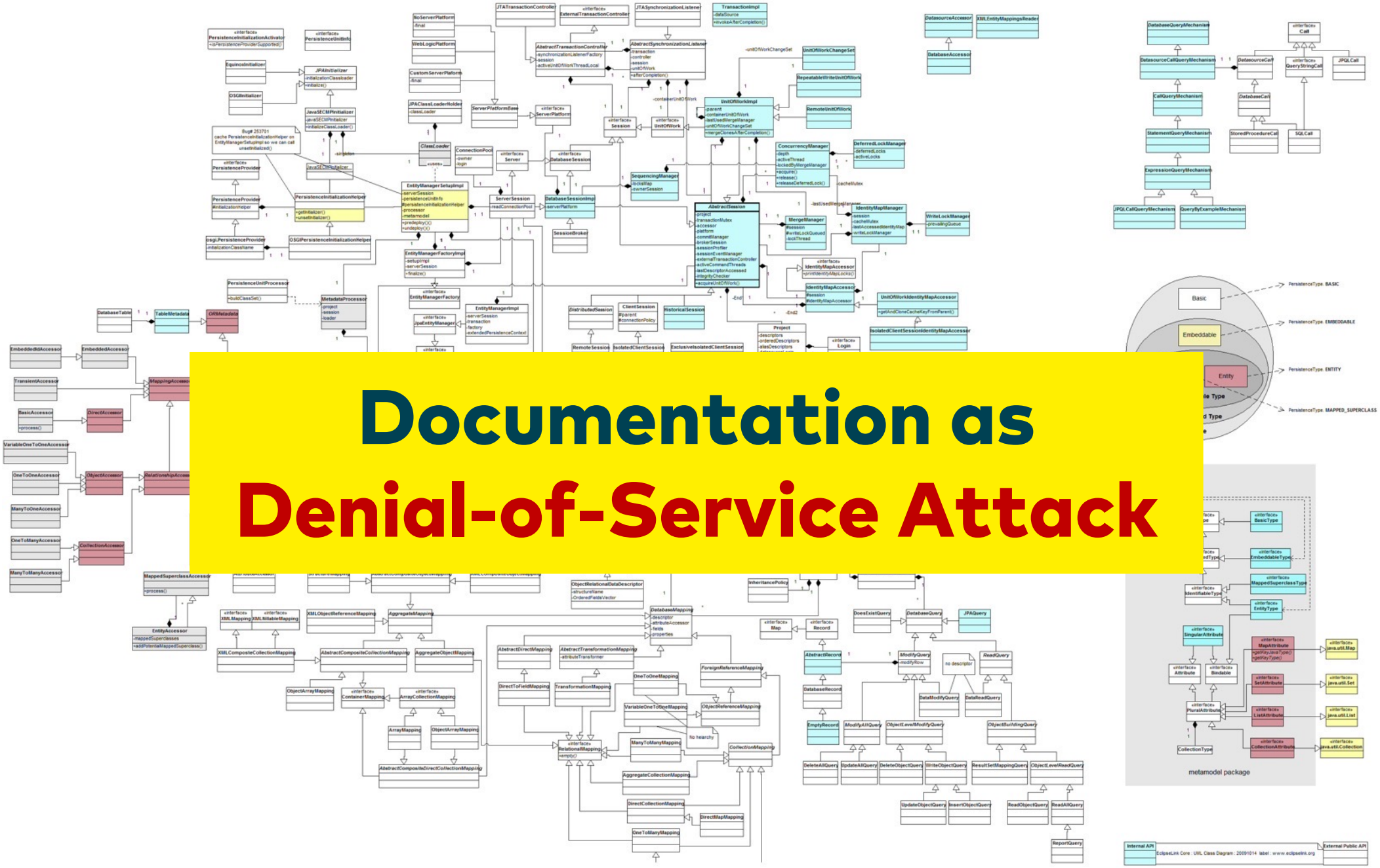
- arc42 practitioner and -maintainer
- Vice-president of iSAQB
- Coffee connoisseur

Why this topic?

Photo by Rubén Bagüés on Unsplash

nobody finds a thing

image by DALL.E



Documentation as Denial-of-Service Attack

https://wiki.eclipse.org/EclipseLink/Development/Architecture/EclipseLink/ClassDiagram

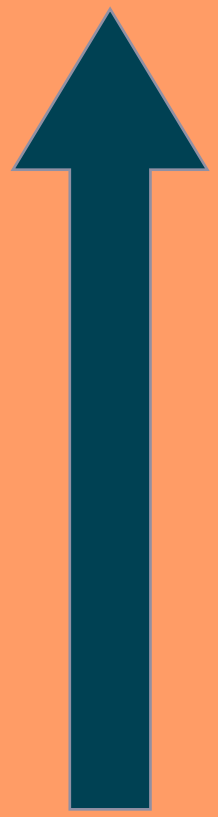
Assumption

You

- need* to document
- have limited time

* if we were younger and naive, we would have written „want“

Agenda



ACC

architecture communication canvas

arc42 in a nutshell

What is a Canvas?

Agenda

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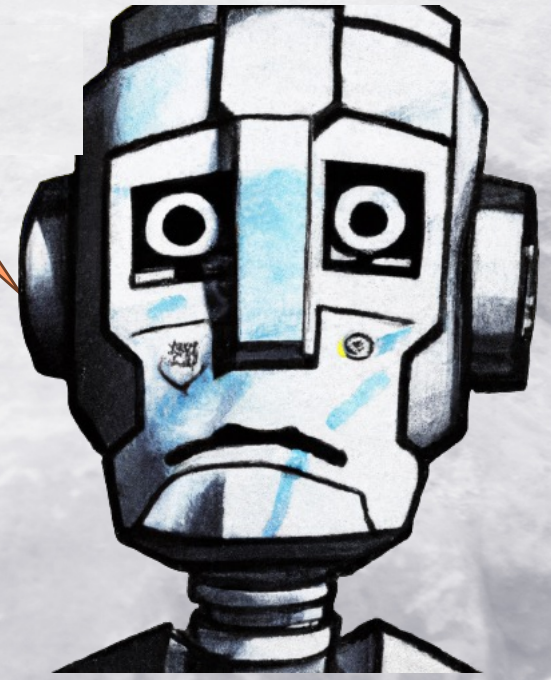
architecture communication canvas

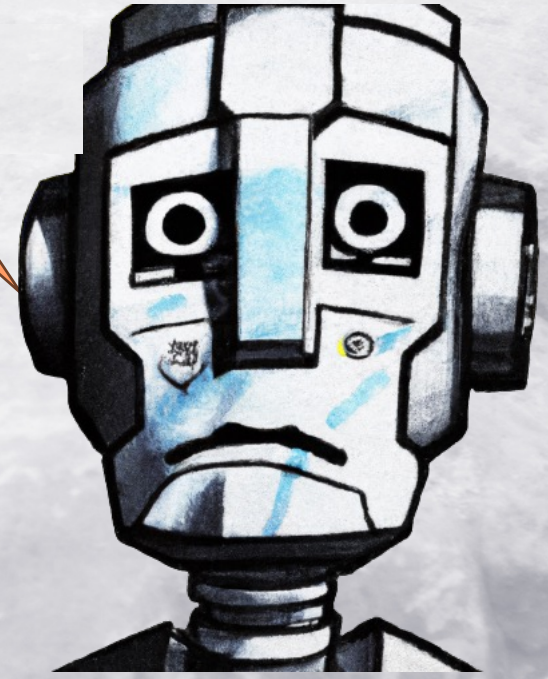
arc42 in a nutshell

What is a Canvas?

Use the Canvas



Can-what?



explained by chatGPT

Canvas (1)

In software engineering, a canvas typically refers to a visual container where users can interact and manipulate elements to create or modify content.

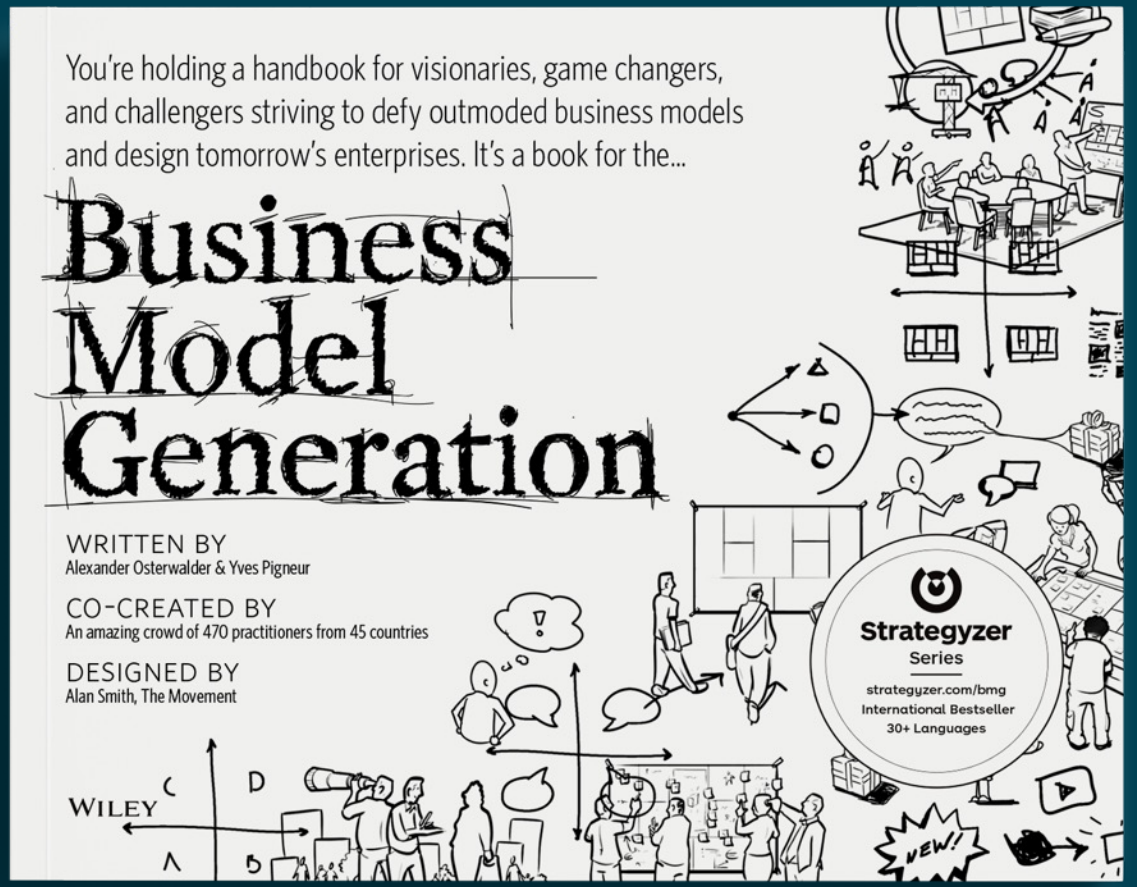
https://chat.openai.com/share/ce9455a9-4d17-4e32-a590-a53136ea481a

explained by Gernot

Canvas (2)

... A canvas is a structured visualization that facilitates understanding and analysis of key elements of specific topics..

Business Model Canvas

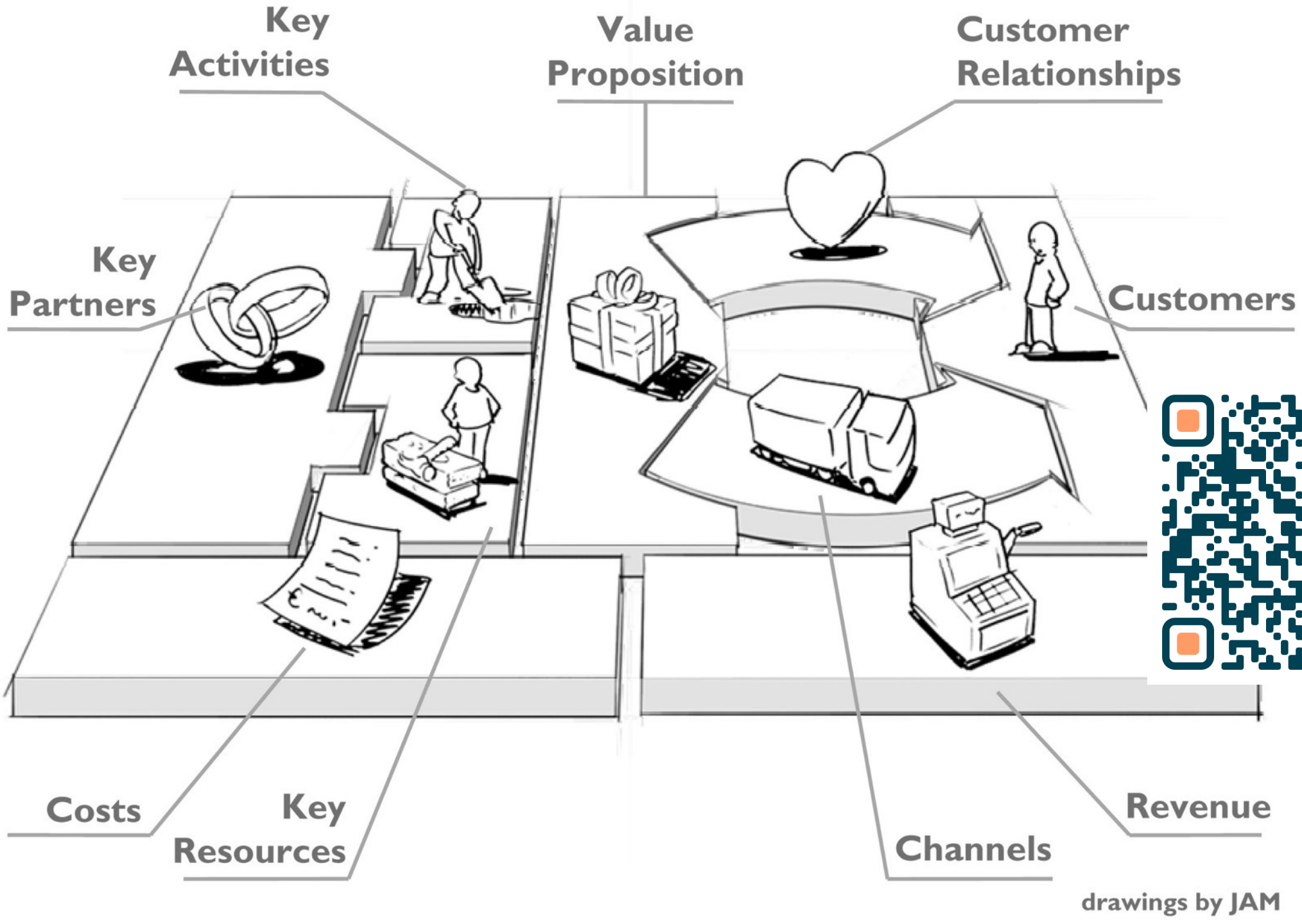


whow!

https://www.strategyzer.com/books

Business Model Canvas

https://www.projectwizards.net/en/blog/2019/09/business-model-canvas



Business Model Canvas

The Business Model Canvas

Designed for:	Designed by:	Date:	Version:

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
	Key Resources		**Channels**	

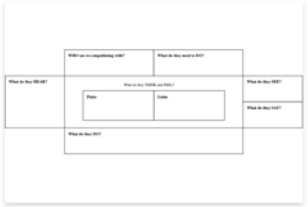
Cost Structure	Revenue Streams

DESIGNED BY: Strategyzer AG
The makers of Business Model Generation and Strategyzer

Strategyzer
strategyzer.com

many more...

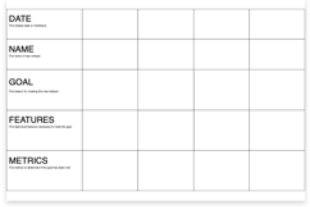
Empathy Map Canvas



Feedback Canvas

Future of Work Canvas

GO Product Roadmap Canvas



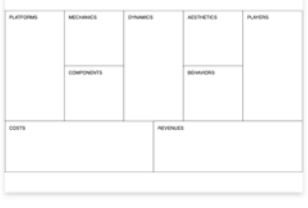
Personal Business Model Canvas

Personal Service Model Canvas

Pitch Planner Canvas

Platform Design Canvas

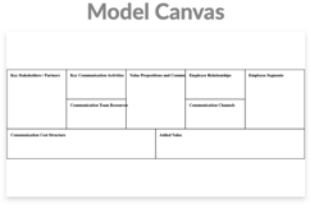
Gamification Model Canvas



Growth Hacking Canvas

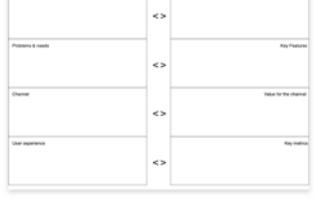
HR Innovation Canvas

Internal Communication Model Canvas



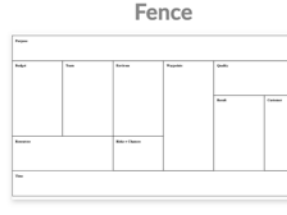
Product Vision Board Extended Canvas

Product-Market-Fit Canvas



Project Canvas

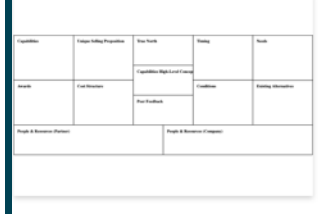
Project Canvas Over The Fence



Lean Canvas

Lean Change Canvas

Lean Procurement Canvas



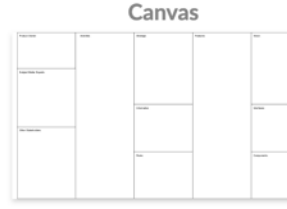
MVP Experiment Canvas

Pros & Cons Canvas

Q&A Horizontal Canvas

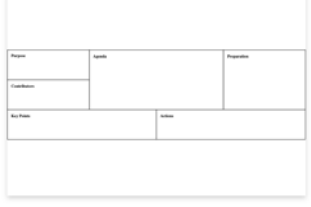
Q&A Vertical Canvas

Requirements Discovery Canvas



Matchup Canvas

Meeting Facilitator Canvas



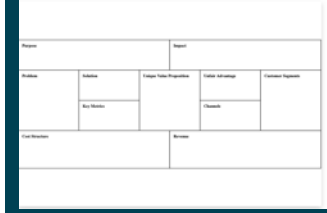
Mission Model Canvas

Organization Canvas

Roman's Product Canvas

SWOT analysis

Social Lean Canvas



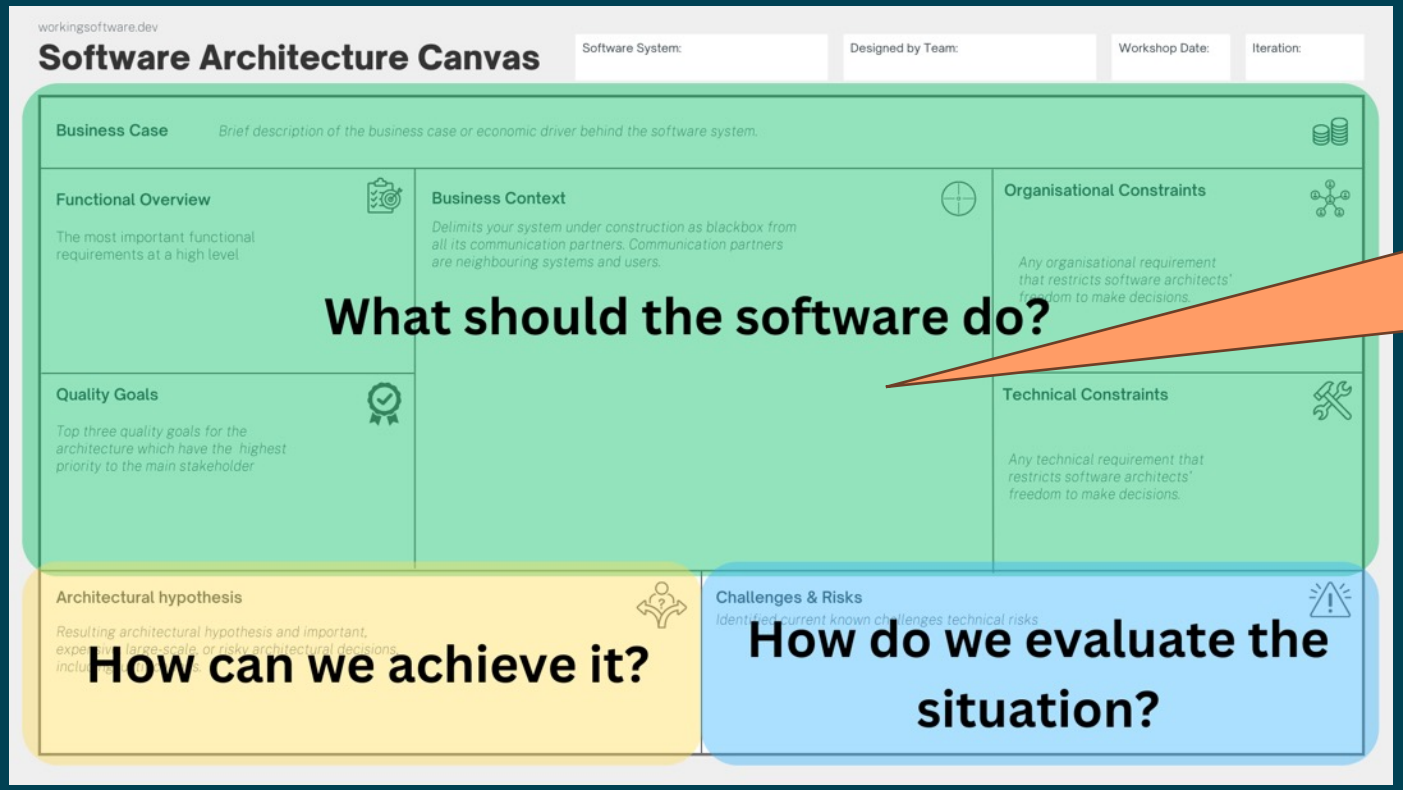
Software Testing Canvas

https://canvanizer.com

Thanks, Patrick!

https://www.workingsoftware.dev/software-architecture-canvas /

Thanks, Patrick!



for
new systems

https://www.workingsoftware.dev/software-architecture-canvas /

Agenda

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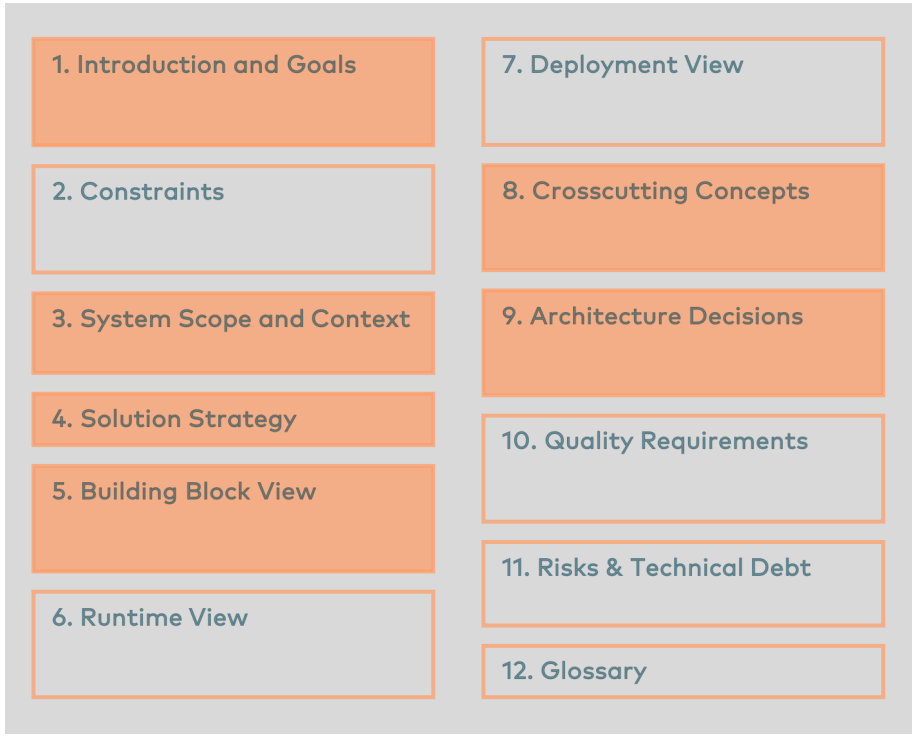
architecture communication canvas

arc42 in a nutshell

What is a Canvas?

arc42 in a Nutshell



1. Introduction and Goals
1.1 Requirements Overview
1.2 Quality Goals
→ Main requirements, especially quality goals

3. System Scope and Context
-> external interfaces
→ Neighbouring systems and external interfaces

4. Solution Strategy
→ Core idea of the solution, suggestion: bullet points only

5. Building Block View
5.1. Whitebox Overall System (Level 1)
→ Top-level structure of the code

8. Crosscutting Concepts
→ Cross-cutting concepts, highly detailed

9. Architecture Decisions
→ Important archictecture decisions, incl. decision makers and date

Agenda

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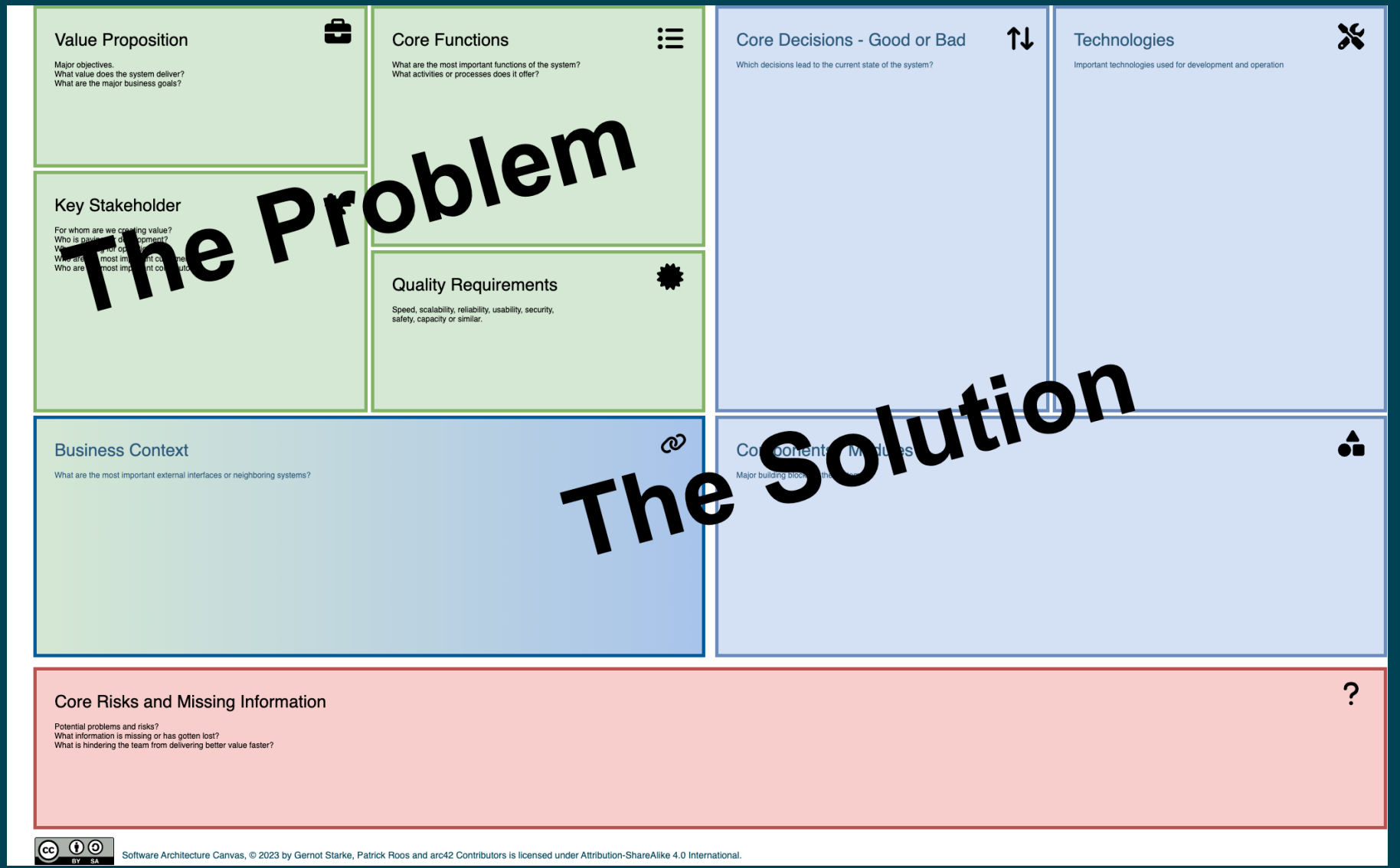
architecture communication canvas

arc42 in a nutshell

What is a Canvas?

Structure of the Canvas



Evolved from Key Questions!

- Business-Case-in-half-a-Tweet

- The 3 most important quality attributes
- Key Stakeholders

- Most important technologies
- Proud factors and worst decisions

Evolved from Key Questions!

- Business-Case-in-half-a-Tweet
- The 3 most important capabilities
- The 3 most important quality attributes
- Key Stakeholders
- Most important neighbouring systems
- Most important components
- Most important technologies
- Proud factors and worst decisions
- Risks and issues

Architecture Communication Canvas

System:	Created by:	Created for:	Date / Iteration:

Value Proposition

Major objectives.
What value does the system deliver?
What are the major business goals?

Core Functions

What are the most important functions of the system?
What activities or processes does it offer?

Core Decisions - Good or Bad

Which decisions lead to the current state of the system?

Technologies

Important technologies used for development and operation

Key Stakeholder

For whom are we creating value?
Who is paying for development?
Who is paying for operations?
Who are our most important customers?
Who are our most important contributors?

Quality Requirements

Speed, scalability, reliability, usability, security, safety, capacity or similar.

Business Context

What are the most important external interfaces or neighboring systems?

Components / Modules

Major building blocks of the system

Core Risks and Missing Information

Potential problems and risks?
What information is missing or has gotten lost?
What is hindering the team from delivering better value faster?

https://canvas.arc42.org

Use Canvas for Reviews

- Create canvas prior to review
- Common understanding
- Remind participants of „everything“

Use Canvas to Kickstart

- **Fastest possible start**
- **Avoid blank-paper syndrome**

https://unsplash.com/de/fotos/-4trKf0Kbow

Use Canvas in Emergency

- Fastest possible docu
- If nothing else works...

Examples

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architecture communication canvas

arc42 compact

What is a Canvas?

Health-Insurance Card

Architecture Communication Canvas

Software System:	Designed by Team:	Workshop Date:	Iteration:
MaMa CRM	arc42	June 2023	

Value Propositions

MaMa is a multi-tenant SAAS platform to produce e-health cards for insurance companies, providing maximum flexibility wrt. data formats and business rules.

Key Stakeholder

For whom are we creating value?
Who is paying for development?
Who is paying for operations?
Who are our most important customers?
Who are our most important contributors?

- **Hosting provider**
- **Tenants: health insurance companies**
- **Govnmt regulation body (Gematik GmbH)**
- **DRVB (Rentenversicherung Bund)**
- **Print service provider**
- **Scan service provider**
- **G&D card issuer**
- **TÜV (auditor)**
- **BSI (auditor)**

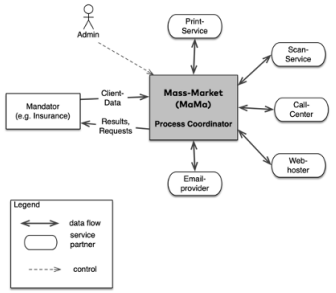
Core Functions

What are the most important functions of the system?
What activities or processes does it offer?

- **SAAS to create eHealth cards**
- **get photo from insured person**
- **2nd level support for eHealth data acquisition process**

Business Context

What are the most important external interfaces or neighboring systems?



Quality Requirements

Speed, scalability, reliability, usability, security, safety, capacity or similar.

1. **Strict separation of tenant data**
2. **New data alwas processed until EOB**

Core Decisions - Good or Bad

Which decisions lead to the current state of the system?

+ operate MaMa as SAAS
+ domain-specific configuration
+ one tenant per VM
- batch only data transfer

Technologies

Important technologies used for development and operation

- **Eclipse RCP frontend**
- **JBoss Drools rule engine**
- **Quartz scheduler**
- **Oracle DB**

- **Dedicated server, with**
- **Linux KVM hypervisor**

Components / Modules

Major building blocks of the system.

- **Configurator**
- **ImportHandler**
- **ExportHandler**
- **ProcessControl**

Risk and Missing Information

Potential problems and risks?
What information is missing or has gotten lost?
What is hindering the team from delivering better value faster?

- **Outdated UI (Eclipse RCP)**
- **Batch strategy limits acceptance**
- **No end-user self service options**

Salary Management

Architecture Communication Canvas

System:	Created by:	Created for:	Date / Iteration:

Value Proposition

- Adjust salary per employee
- Compare salaries
- Prevent a pay gap
- Less errors due to less manual steps

Key Stakeholder

- Executive Board
- Back office
- Employees

Core Functions

- Create, edit and approve agreements
- Create and edit benefits
- Compare salaries of employee groups
- View your own agreement and your agreement history

Quality Requirements

1. Maintainability
2. Security
3. Reliability

Core Decisions - Good or Bad

+ SpringBoot + ecosystem as core framework
+ PostgreSQL database
+ Test-driven development approach

o Liquibase for db schema management

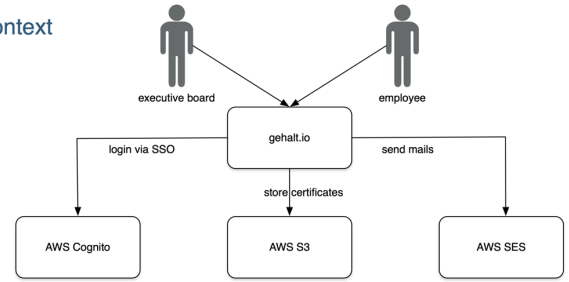
- JavaScript libraries for visualisation
- Translating terms to English instead of using Ubiquitous Language (German)
- Secure but complex deployment to AWS

Technologies

- Gradle 8
- Spring Boot 3
- Java 17
- jUnit 5
- Thymeleaf
- Node 18
- Vega, D3, Faucet (js libraries)

- AWS (Cognito, S3, SES, ECS, Lambdas)

Business Context



Components / Modules

- AgreementManagement
- BenefitManagement
- EmployeeManagement
- Audit
- AccessControl
- Notifications

Core Risks and Missing Information

- Limited access to development resources
- Better existing (SaaS) solutions available?
- Deployment tends to be too complex

https://canvas.arc42.org

Open-Source HTML Sanity Checker

Architecture Communication Canvas

Software System: **HtmlSanityCheck**

Designed by Team: aim42

Value Propositions

get rid of typical hyperlink errors in html documents

Core Functions

check for and **report**:

- missing images/resources
- wrong links
- duplicate anchors

suggest corrections

Core Decisions - Good or Bad

- open-source (Github)
- Flexible due to TemplateMethod pattern
- virtually no dependencies
- powerful reporting
- helpful suggestions

- use Gradle as execution environment
- BDD approach not applied consistently

Technologies

Programming language: https://groovy-lang.org/

HTML parser: https://jsoup.org/

Execution / Deployment: via https://gradle.com/

Testing based upon https://spockframework.org/

Key Stakeholder

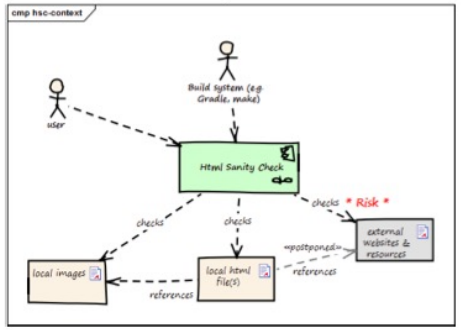
authors

- generating html of their documents
- writing in AsciiDoc, Markdown or similar

Quality Requirements

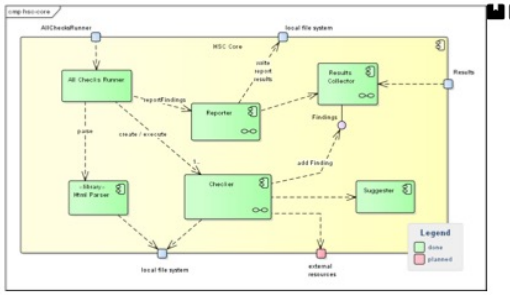
- no source document is ever changed
- all missing links/resources are found
- performance comparable to unit tests (< 1sec)

Business Context



Components / Modules

AllChecksRunner	Coordinates the various (and configurable) types of checks, sends collections of findings to Reporter.
HtmlParser	the JSOUP parser, returns an in-memory representation of the respective HTML file.
Reporter	creates a JUnit-style report in HTML, containing both errors and suggestions
ResultsCollector	Gathers all results (errors and suggestions)
Suggester	Tries to give suggestions what could have been meant, especially for image links (e.g. if missing file is "a.jpg" and "a.png" exists on filesystem)
Checker	coordinates and executes all (configured) checks on the (configured) html file(s). Calls for suggestions in case of errors, reports findings to ResultsCollector

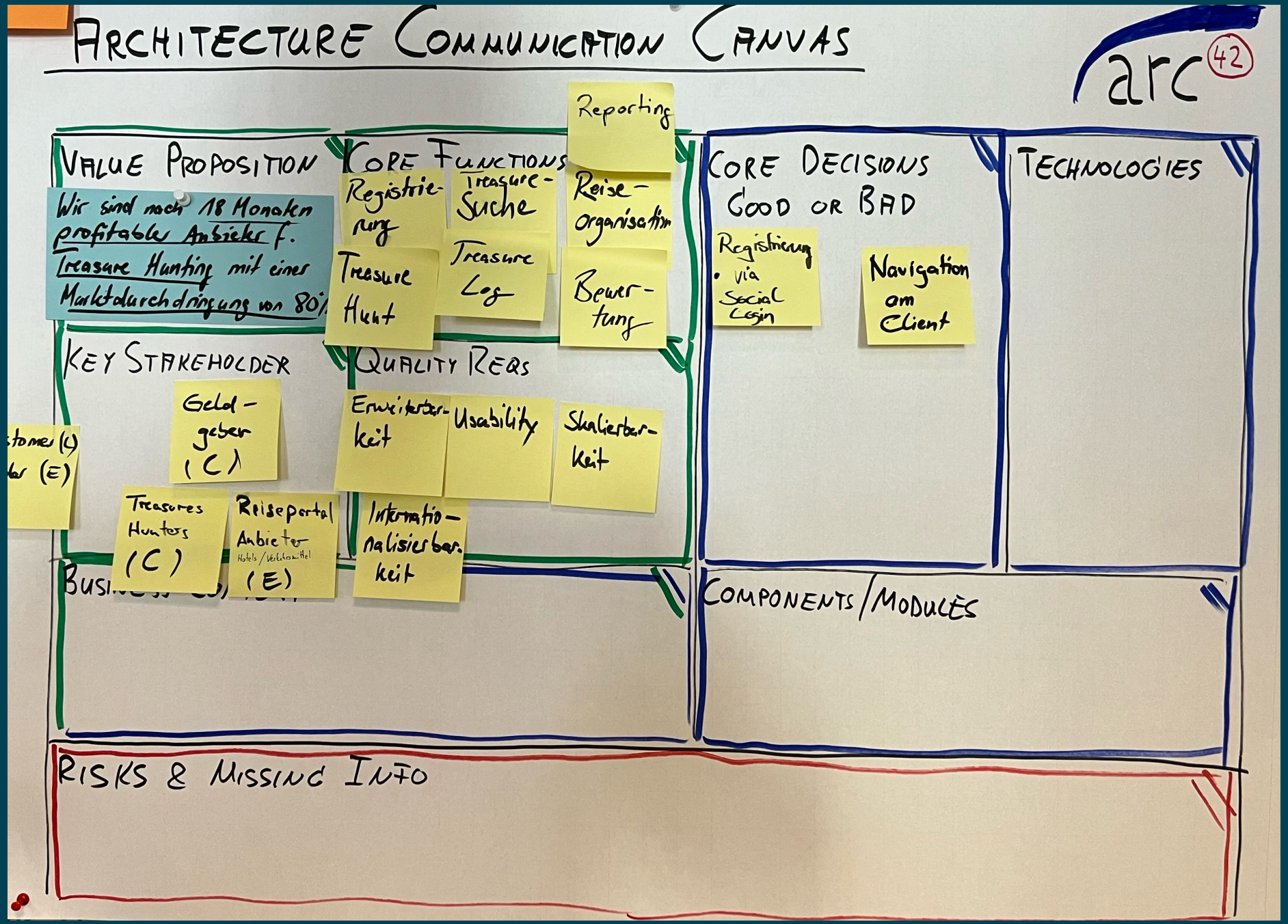


Risk and Missing Information

- community too small to support regular updates
- dependency on gradle hinders adoption
- Some weird dependencies in code
- outdated documentation due to pure-code-commits
- outdated technologies (e.g. Gradle 4)

Real Talk

- Valuable documentation in less than 2 hours!
- Aha moments, lost treasures, fun!
- Getting started with documentation!


ARCHITECTURE COMMUNICATION CANVAS
arc 42
VALUE PROPOSITION
Wir sind nach 18 Monaten profitabler Anbieter f. Treasure Hunting mit einer Marktdurchdringung von 80%
CORE FUNCTIONS
Registrierung
Treasure-Suche
Reporting
Reiseorganisation
Treasure Hunt
Treasure Log
Bewertung
CORE DECISIONS GOOD OR BAD
Registrierung
• via Social Login
Navigation am Client
TECHNOLOGIES
KEY STAKEHOLDER
Geldgeber (C)
Treasures Hunters (C)
Reiseportal Anbieter Hotels / Verkehrsmittel (E)
QUALITY REQS
Erweiterbarkeit
Usability
Skalierbarkeit
Internationalisierbarkeit
COMPONENTS / MODULES
RISKS & MISSING INFO

More Info on ACC

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