

Aktuelle Themen der IT IBAIT 2023

Patrick Gutgesell & Andreas Heck, SAP March, 2025





Agenda for Today

Start	Time [min]	Topic	Presenter
10:00	15	Overview + Working Group Assignment	Andreas
10:15	30	Introducing the Challenge	Patrick + Andreas
10:45	45	First Iteration of Business Process + Group Work	Andreas
11:30	15	Break	
11:45	60	Programming + Excercise	Patrick
12:45	45	Mittagspause	
13:30	60	Programming + Excercise	Patrick
14:30	60	Process Modelling + Excercise	Andreas
15:30	15	Break	
15:45	30	Deliverables + Team Roles + GitHub Basics	Patrick + Andreas
16:15	45	Group Work: Iterate your Process + Plan your Project	
17:00	30	Verify Results of Group Work → Exit Gate	
17:30		End	

Who we are...



Patrick Gutgesell

Manager / Team Lead / Architect

Married, one child

Lego

patrick.gutgesell@sap.com



Andreas Heck

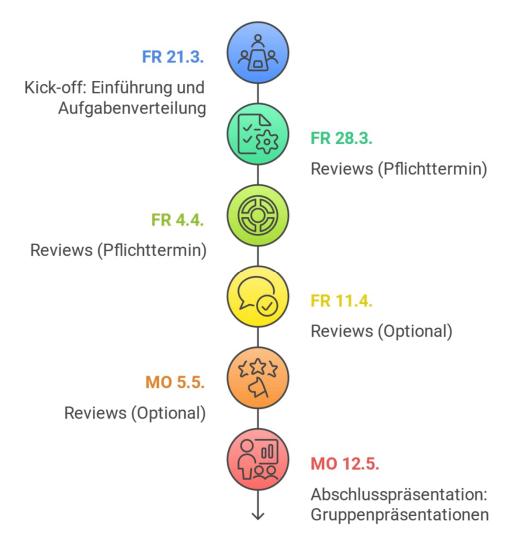
Program Manager for Product Security

Married, two children

Watersports

andreas.heck@sap.com

Zeitplan



Schedule

Datum	Uhrzeit	Veranstaltung	Kommentar	Ort
FR 21.3.	10:00-17:30	Kick-off	Aufgabenstellung, Einführung in Programmierumgebung mit Beispielen, Prozessmodellierung und Arbeitstechniken → Arbeitsgruppen sind Startklar	HWG Raum: A202
		Erste Woche		
FR 28.3.	10:00-13:00	Reviews (Pflichttermin)	Review der Designs aller Gruppen, um Abhängigkeiten/Überschneidungen abzustimmen	Online Teams
	13:00-15:45	Freie Gruppenarbeit		
FR 4.4.	10:00-13:00	Reviews (Pflichttermin)	Pflicht für ausgewählte Gruppen mit Lücken in den Designs	Online Teams
	13:00-15:45	Freie Gruppenarbeit		
FR 11.4.	10:00-13:00	Reviews (optional)	Auf Einladung oder Wunsch	Online Teams
	13:00-15:45	Freie Gruppenarbeit		
		3 Wochen	Dozenten sind erreichbar bei Bedarf	Online Teams
MO 5.5.	10:00-13:00	Reviews (optional)	Auf Einladung oder Wunsch	Online Teams
		Letzte Woche		
MO 12.5.	10:15-12:45	Abschlusspräsentation	Präsentation der Gruppen, mit Gästen aus den Unternehmen	HWG + Online Raum: C2.015

Aktuell Themen der IT Kurs-Ziele



TEAM-ARBEIT EINE NOTE



SOFTWARE PROTOTYP FUNKTIONSFÄHIG, GETESTET UND DOKUMENTIERT



BUSINESS PROZESS MODELLE MIT MEHRWERT FÜR POTENZIELLE KUNDEN

Benotung

Die Dozenten entscheiden über die Bewertung pro Gruppe entlang des Beurteilungsbogens <Link wird nachgereicht>

Erreichbare Gesamt-Punktzahl: 100 => Note: 1,0

Zusammenfassung aus Beurteilungsbogen = Vier Bereiche mit jeweils maximal erreichbarer Punktzahl:

DEVELOPMENT - 30P

- Programmierergebnis
- Technische Dokumentation
- Architektur/Design
- Wartbarkeit
- Clean Code
- Unit Tests

DESIGN - 30P

- Klare Beschreibung des Projekt-Umfangs
- Personas mit Mehrwert
- Prozessdiagramme
- UI-Designs
- Endbenutzer-Dokumentation

PRÄSENTATION – 20P

- Abschlusspräsentation (25min pro Gruppe)
- Mehrwert vermitteln
- Klare Struktur
- Relevante Inhalte
- Antworten auf Fragen
- Das ganze Team ist aktiv!

KREATIVITÄT – 15P

Überrascht uns!

Working Groups

Groups are assembled randomly with the goal to mix+balance companies and genders.

Working members of one group get the same grade for the project work.

Each group must cover several tasks.

→ We recommend to cover specific roles in each group.



Umfrage zur Vorbereitung

Programmierübungen:

- GitHub-Benutzer
- Java-Entwicklungsumgebung (IntelliJ Idea von JetBrains
- Java-23-Distribution

Übungen Prozess Modellierung:

Signavio Account →
 https://academic.signavio.com/p/register?link=37199dce4

 533472d8629d5aef7313588



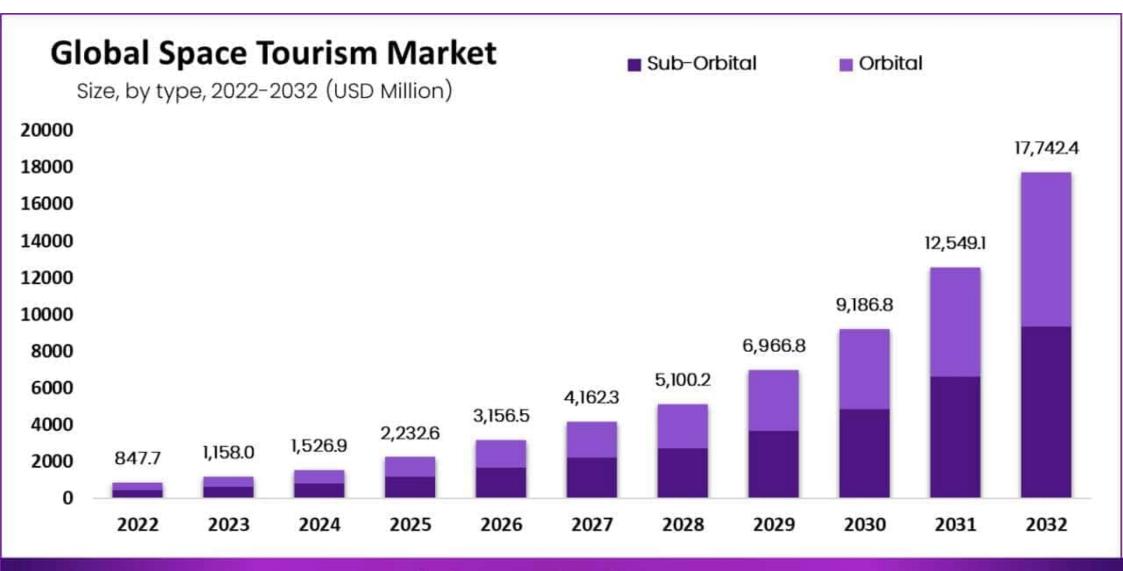
Agenda for Today

Start	Time [min]	Topic	Presenter
10:00	15	Overview + Working Group Assignment	Andreas
10:15	30	Introducing the Challenge	Patrick + Andreas
10:45	45	First Iteration of Business Process + Group Work	Andreas
11:30	15	Break	
11:45	60	Programming + Excercise	Patrick
12:45	45	Mittagspause	
13:30	60	Programming + Excercise	Patrick
14:30	60	Process Modelling + Excercise	Andreas
15:30	15	Break	
15:45	30	Deliverables + Team Roles + GitHub Basics	Patrick + Andreas
16:15	45	Group Work: Iterate your Process + Plan your Project	
17:00	30	Verify Results of Group Work → Exit Gate	
17:30		End	

Introducing the Challenge

Space Tourism





The Market will Grow At the CAGR of:

36.6%

The forecasted market size for 2032 in USD:

\$17,742.4M



Ausschreibung

Elon Bezos, ein Pionier auf dem Gebiet der Kommerzialisierung von Weltraumflügen, wurde jüngst für ein Amt in der Politik nominiert.

Bisher schraubt er am liebsten an Autos herum und betreibt nebenbei eine kleine Onlinebuchhandlung.

Doch seine wahre Leidenschaft gehört seiner neuesten Vision: Weltraumtourismus.

Bezos sucht nach Unterstützung, um sich mit seinem Unternehmen von der Konkurrenz abzuheben.

Er ist auf der Suche nach innovativer <u>Software</u>, die seine Geschäfts-Prozesse wertvoller für die Kunden macht und effizienter für sein Unternehmen.

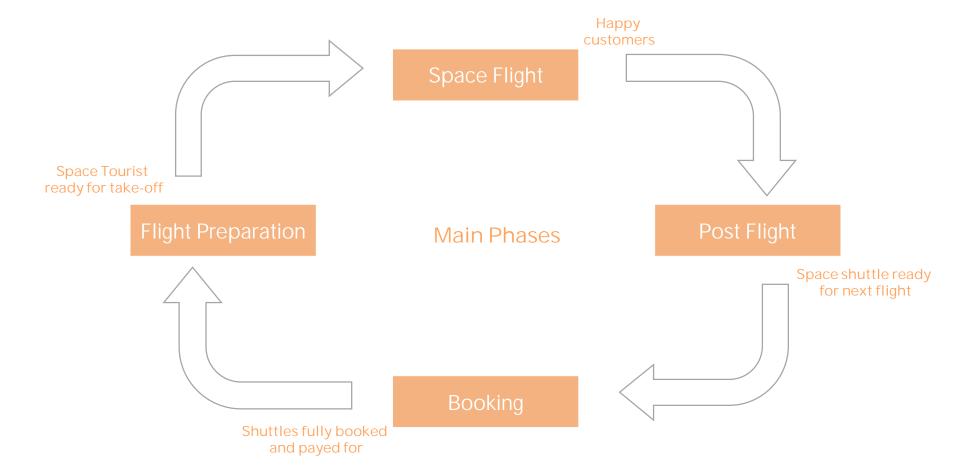


Die Aufgabe

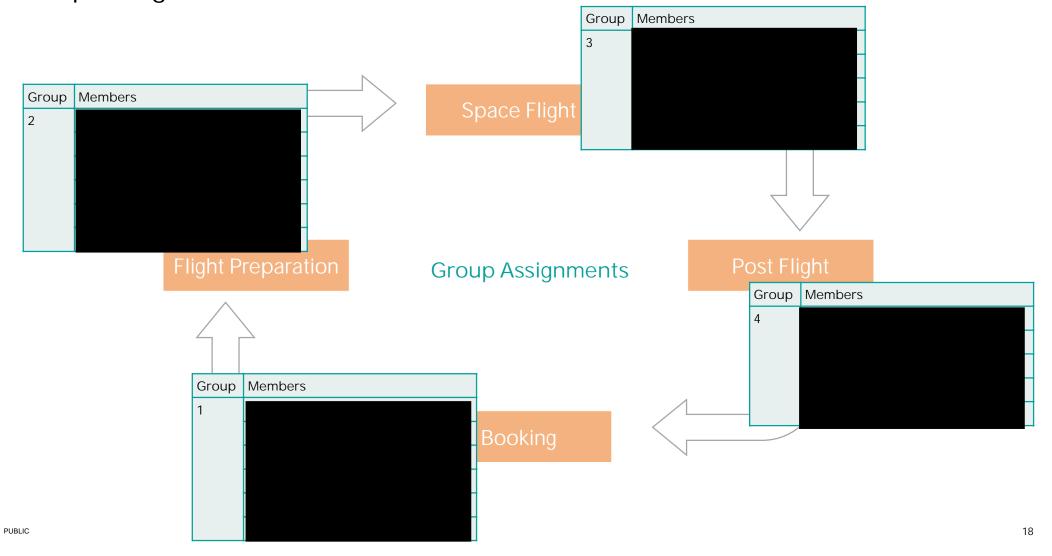
Überzeugen Sie Elon Bezos von Ihrer Idee:

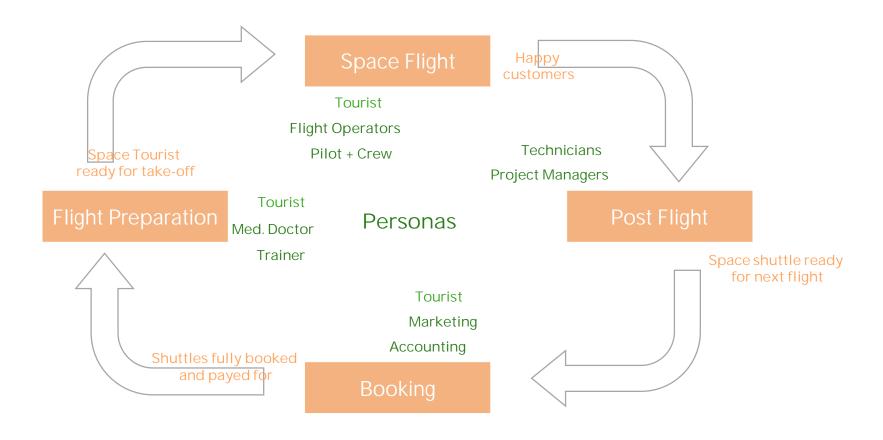
- Bilden Sie ein schlagkräftiges Team und planen Sie die Zusammenarbeit.
- Erstellen Sie ein Konzept, um mithilfe von Software kommerziell erfolgreich Weltraumtourismus zu betreiben.
- Modellieren Sie die relevanten Geschäftsprozesse rund um die Weltraumflüge.
- Erstellen Sie ein Design für die Software, die diese Prozesse unterstützt.
- Implementieren Sie einen Proof of Concept der sich auf einen Kernprozess fokussiert.
- Überzeugen Sie Bezos mit einer kreativen Präsentation in sechs Wochen dazu in die Idee Ihres Teams zu investieren.

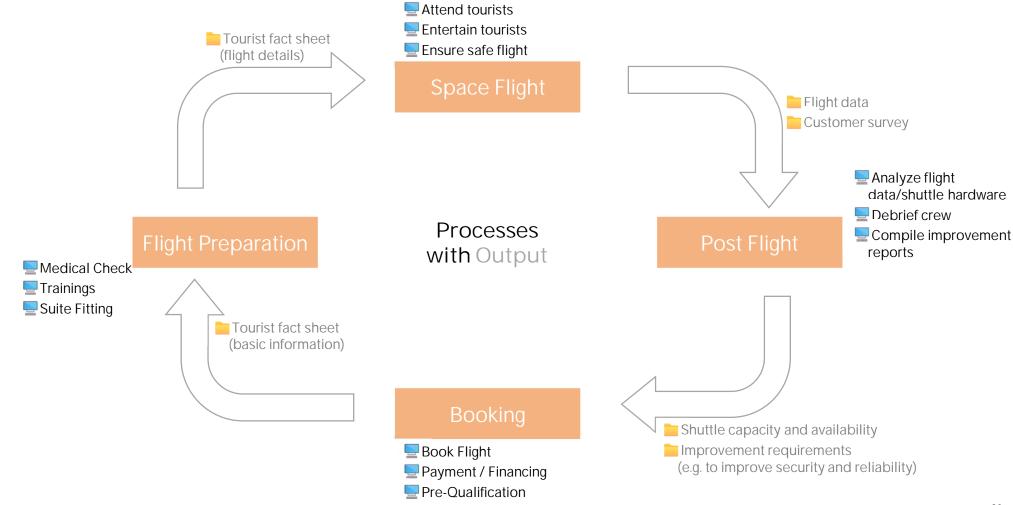




Group Assignments



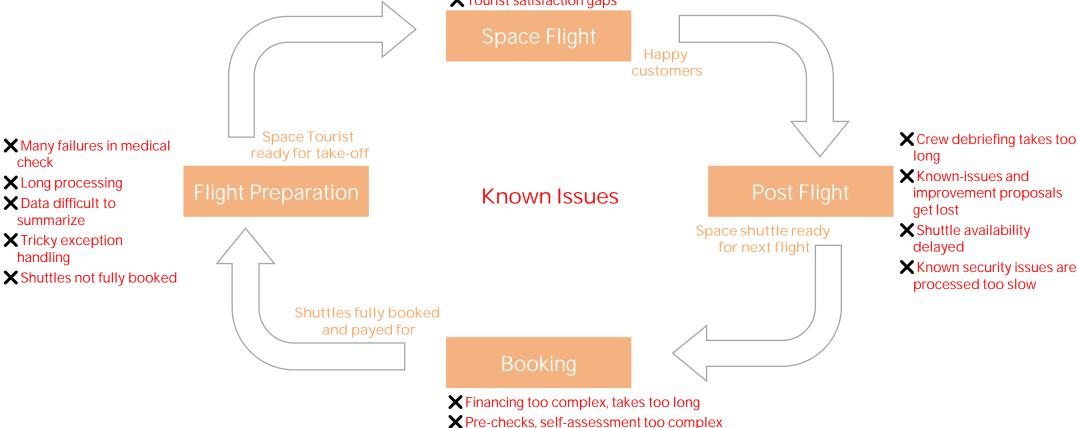




X Tourists would like to know more what is happening X Tourists miss communication/docu options

X Deal closing gaps, interested customers do not book

- X Special requirements for tourists not transparent to crew
- X Tourist satisfaction gaps



PUBLIC

X Many failures in medical

check

X Long processing

X Data difficult to

X Tricky exception

summarize

handling

long

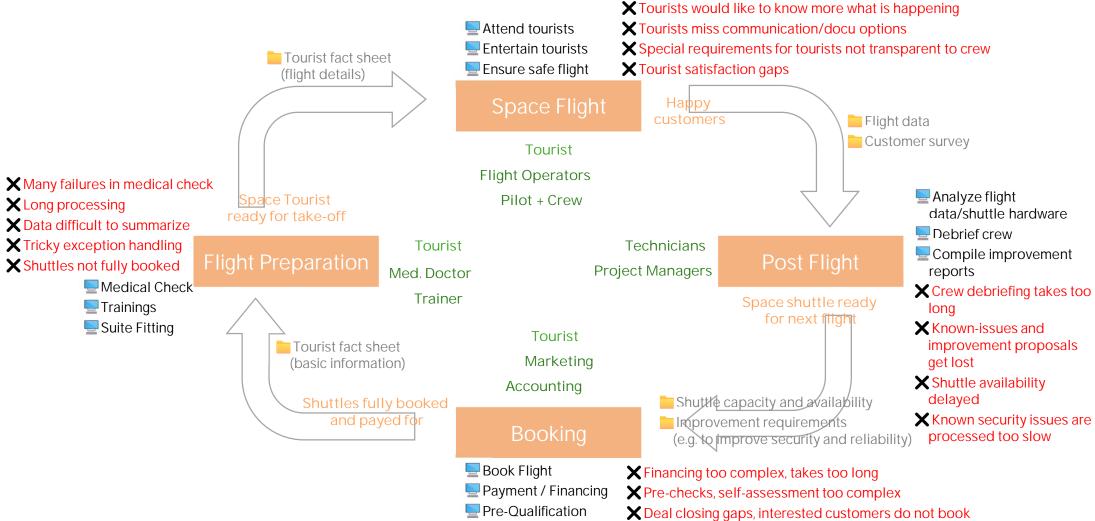
get lost

delayed

improvement proposals

processed too slow





Q&A

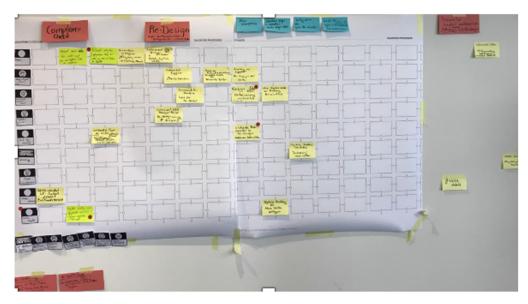


Agenda for Today

Start	Time [min]	Topic	Presenter
10:00	15	Overview + Working Group Assignment	Andreas
10:15	30	Introducing the Challenge	Patrick + Andreas
10:45	45	First Iteration of Business Process + Group Work	Andreas
11:30	15	Break	
11:45	60	Programming + Excercise	Patrick
12:45	45	Mittagspause	
13:30	60	Programming + Excercise	Patrick
14:30	60	Process Modelling + Excercise	Andreas
15:30	15	Break	
15:45	30	Deliverables + Team Roles + GitHub Basics	Patrick + Andreas
16:15	45	Group Work: Iterate your Process + Plan your Project	
17:00	30	Verify Results of Group Work → Exit Gate	
17:30		End	

First Process Iteration

Design Thinking Workshop Map Your Business Process



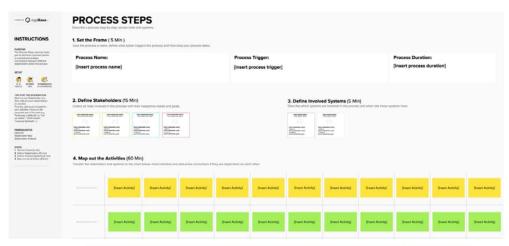
Start with analyzing the current as-is process. Afterwards discuss the to-be process.

Map Your Business Process

https://apphaus.sap.com/resource/map-your-business-process

MURAL Template

Map Your Business Process



Access the MURAL template*: https://app.mural.co/template/c5262537-951a-42a3-b5a8-d60d1b42be13/d2eeb596-a1ee-427a-8adb-b0a07ed735fe

*Registration require



Step-by-Step

Overall process phases for space tourism is known

Each group knows your process expertise (focus phase)

- 1. Identify the improvement potential in your focus which you want to cover with software
- 2. Identify the main actors for your focus and create <u>simple personas</u> for the main user
- 3. Design your target (to-be) process in your group by creating a <u>User Journey Map</u>



27

JBLIC .

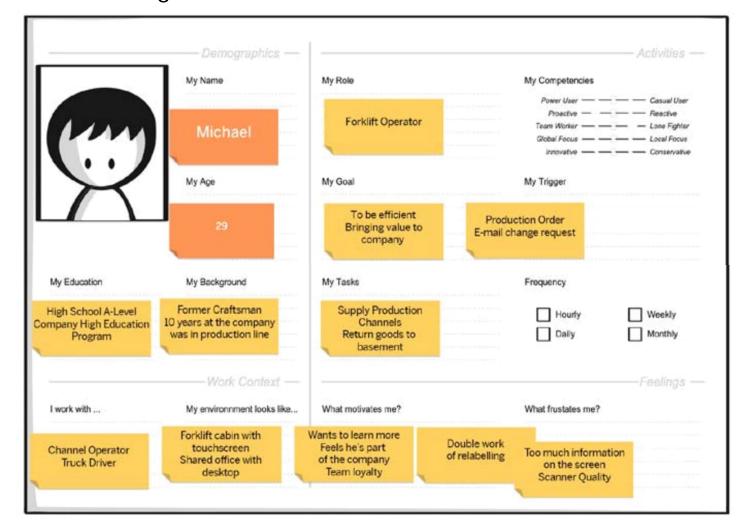
Persona

Get to know the user, who we are working for

Example

Persona: Michael,

29-year-old forklift operator.



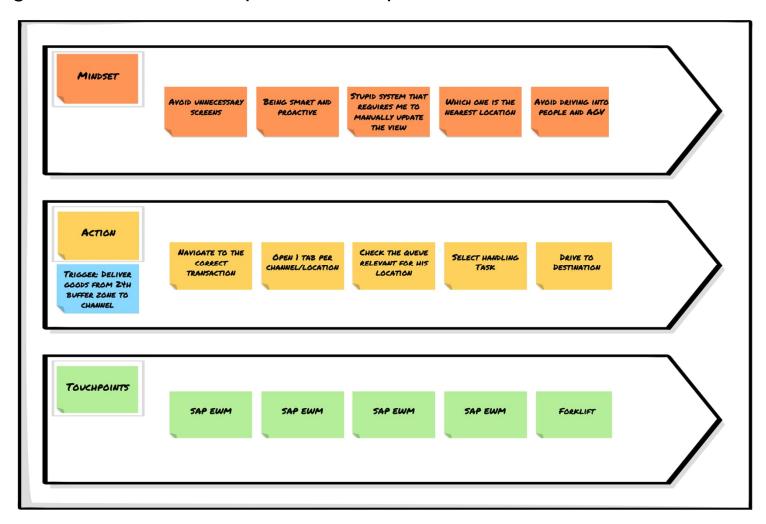
User Experience Journey What is the Persona doing and where are improvement potentials?

Example

Persona: Michael,

Forklift Driver

Trigger: deliver goods from 24h buffer zone to channel



First Process Iteration – <u>Group Work</u>

5min	Brainstorming	Für wen wollen wir welches Problem lösen / welchen Mehrwert schaffen?
10min	Persona	Nicht viel diskutieren, einfach mal eine erste Version einer konkreten Person mit Aufgaben, Motivation und Problemen
15min	User Journey Map	Welche Actions (Schritte) macht unsere Persona für ihre Aufgabe/Ziel? Welche Software (Touchpoints) setzt sie dabei ein? Was empfindet sie dabei (Mindset)? → Wo gibt es Probleme? → Wo wird unsere Software Mehrwert liefern?



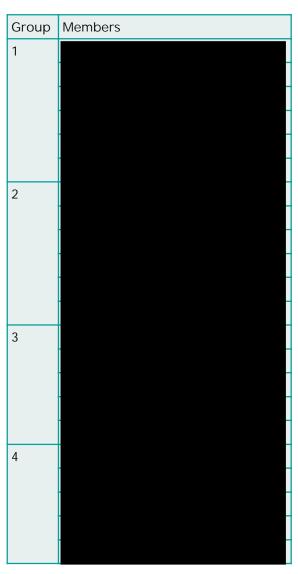
Gruppenarbeit

Raumaufteilung:

- Gruppe 1 →
- Gruppe 2 ->
- Gruppe 3 →
- Gruppe 4 →

Equipment

- DINA4 Templates f
 ür Persona and Journey Map
- Haftklebezettel
- Stifte
- Kreppband



31

Agenda for Today

Start	Time [min]	Topic	Presenter
10:00	15	Overview + Working Group Assignment	Andreas
10:15	30	Introducing the Challenge	Patrick + Andreas
10:45	45	First Iteration of Business Process + Group Work	Andreas
11:30	15	Break	
11:45	60	Programming + Excercise	Patrick
12:45	45	Mittagspause	
13:30	60	Programming + Excercise	Patrick
14:30	60	Process Modelling + Excercise	Andreas
15:30	15	Break	
15:45	30	Deliverables + Team Roles + GitHub Basics	Patrick + Andreas
16:15	45	Group Work: Iterate your Process + Plan your Project	
17:00	30	Verify Results of Group Work → Exit Gate	
17:30		End	

Programming

Programming Exercise

Agenda for Today

Start	Time [min]	Topic	Presenter
10:00	15	Overview + Working Group Assignment	Andreas
10:15	30	Introducing the Challenge	Patrick + Andreas
10:45	45	First Iteration of Business Process + Group Work	Andreas
11:30	15	Break	
11:45	60	Programming + Excercise	Patrick
12:45	45	Mittagspause	
13:30	60	Programming + Excercise 10min break?	Patrick
14:30	60	Process Modelling + Excercise	Andreas
15:30	15	Break	
15:45	30	Deliverables + Team Roles + GitHub Basics	Patrick + Andreas
16:15	45	Group Work: Iterate your Process + Plan your Project	
17:00	30	Verify Results of Group Work → Exit Gate	
17:30		End	

Process Modelling

What is it good for?

Process Models in Compliance

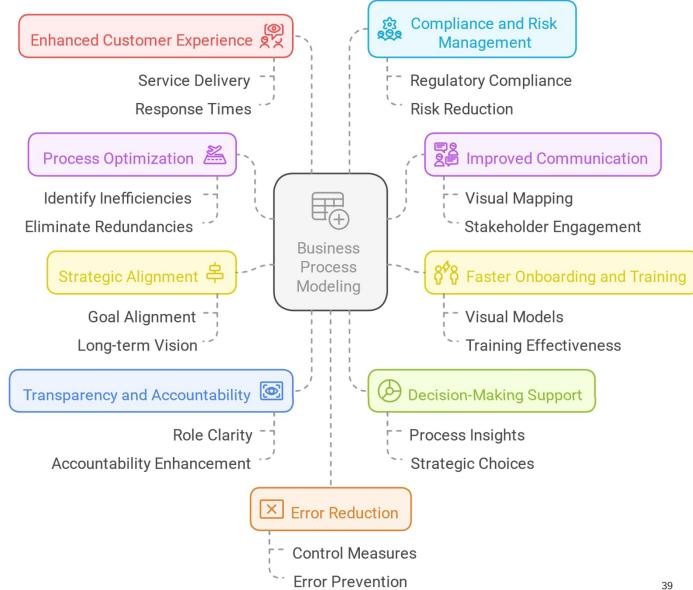
https://sapns2.com/security-and-trust/





38

Motivation for **Business Process Modeling** (BPM)



Start Simple = No Software

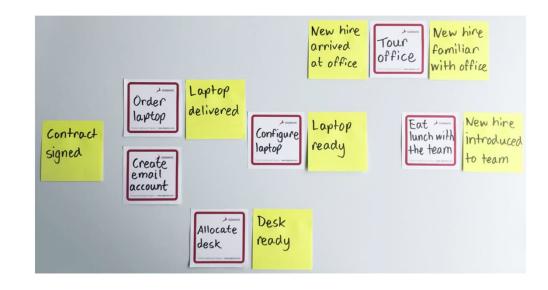
ess of a process mapping session depends on usir Vith process mapping, start simple. Until you've do paper, don't try using computer software.

ou can avoid getting bogged down in technical issu

colors sticky notes for each participant a large table for the sticky notes

Process-Mapping-Basics.pdf sent via mail Source requires registration:

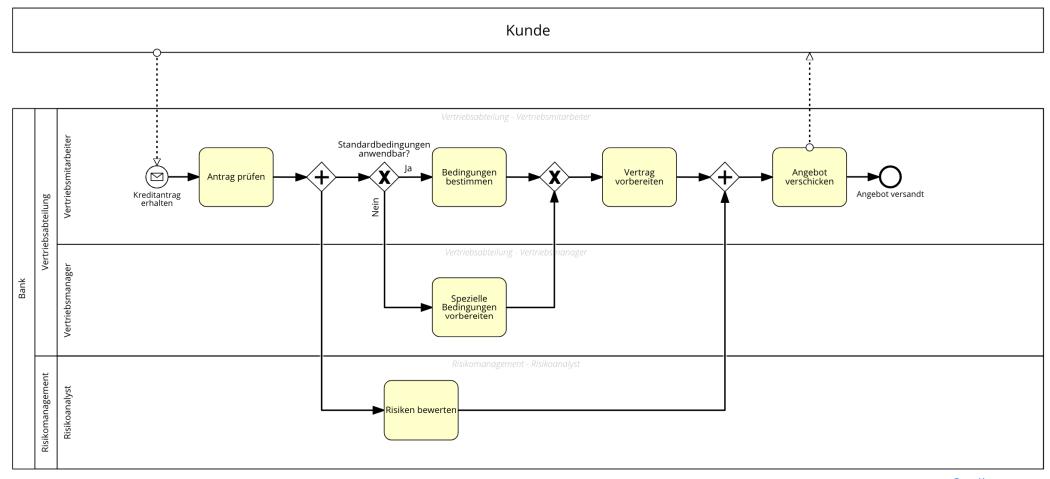
https://www.signavio.com/downloads/white-papers/process-mapping-basics/



One option:

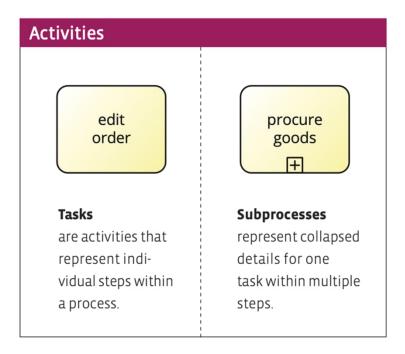
- Tasks + Results
- along a timeline

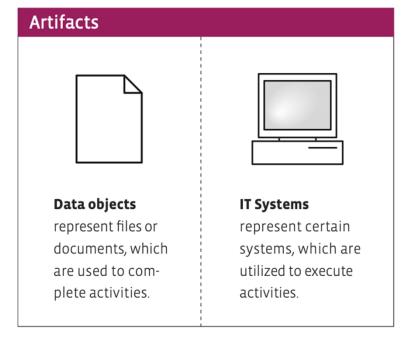
Beispielprozess → Elemente Kreditangeboterstellung



Public Quelle

41









Exclusive Gateways (XOR) are used when several conditions are mutually exclusive and only one selection is possible e.g. "yes" or "no".



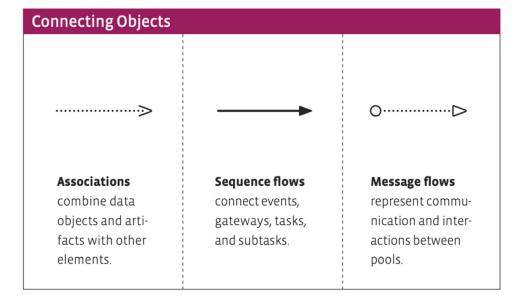
Inclusive Gateways
(OR) are used if one
or more conditions
are possible. Depending on the number of
conditions, the merging gateway waits for
all possible incoming
branches.



Parallel Gateways (AND) activate all outgoing branches simultaneously. They wait for all incoming branches to be completed before continuing the sequence flow.



Event-based Gate-ways are used if the ongoing process flow depends on the occurrence of an event. The process will continue with the first occurring event.



Lane = Persona

Pool = Organisation

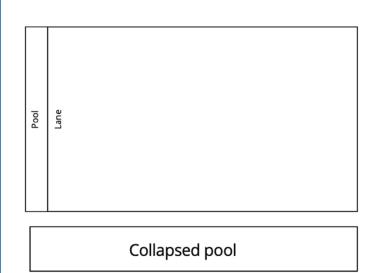
Collapsed Pool = External

Swimlanes

Pools and lanes

represent responsibilities for activities in a process. Pools represent whole organizational units, and lanes subdivide pools or other lanes hierarchically.

A **collapsed pool** represents an external organization.

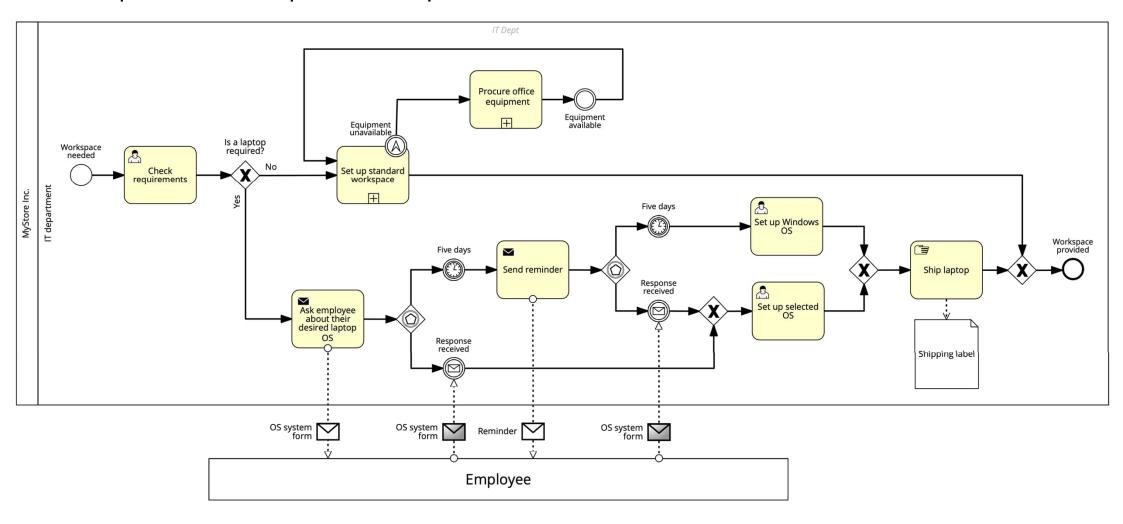


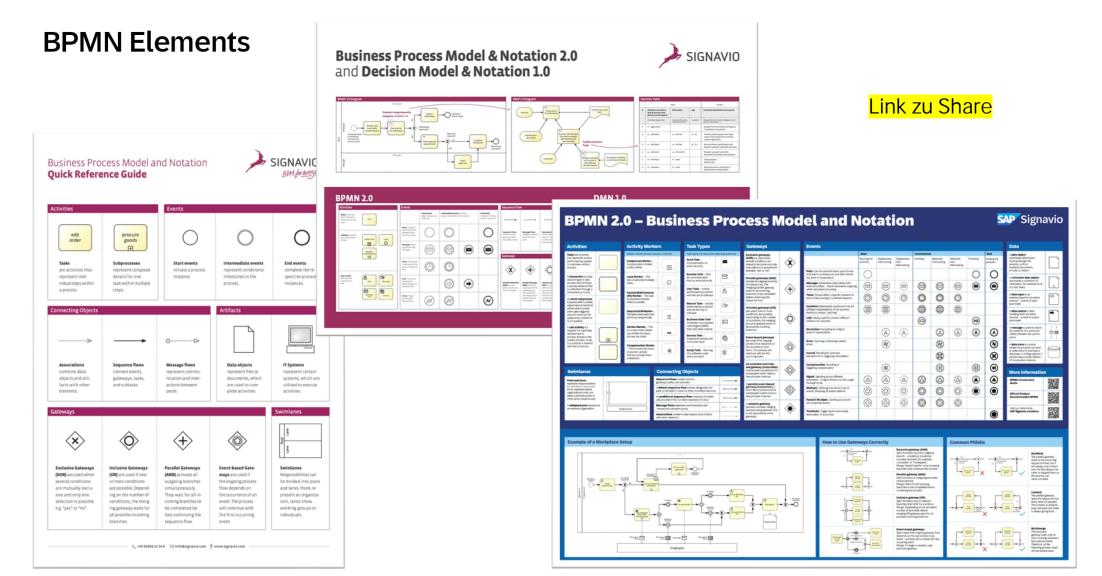
Events								
	Start			Intermediate				End
	Starting the process	Subprocess interrupting	Subprocess non- interrupting	Catching	Attached interrupting	Attached non- interrupting	Throwing	Ending the process
Plain : Can be used for every type of start, end event, or milestones, but don't inherit any form of visualization.								0
Message: Symbolizes interactions with external entities – black represents outgoing, white represents incoming								
Timer : Shows either a specific moment in time or the passing of a defined duration								

A **message** is used to depict the contents of a communication between two participants.



Example of a Workplace Setup





Signavio Demo

DISCLAIMER

Signavio is a product by SAP.

Using any Signavio's features like collaboration, or special presentation formats is

NOT relevant for your grades and evaluation.

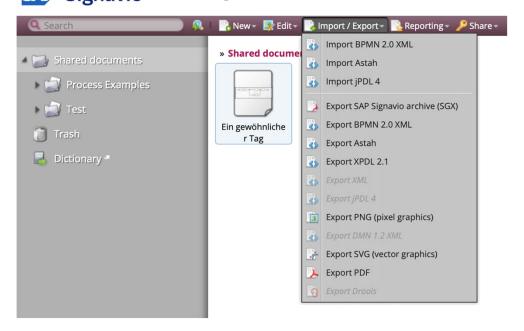
You are free to use any other editor to produce process diagrams in valid BPMN syntax for your project work.

PUBLIC 4⁴

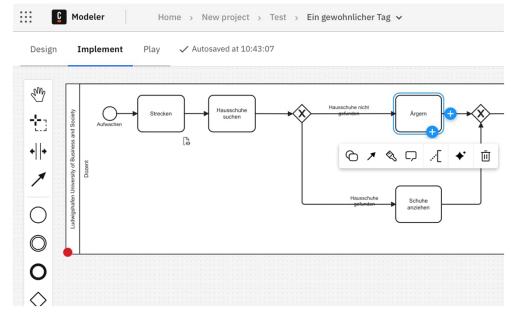
Export and Import Models

You can export models created/owned by you:

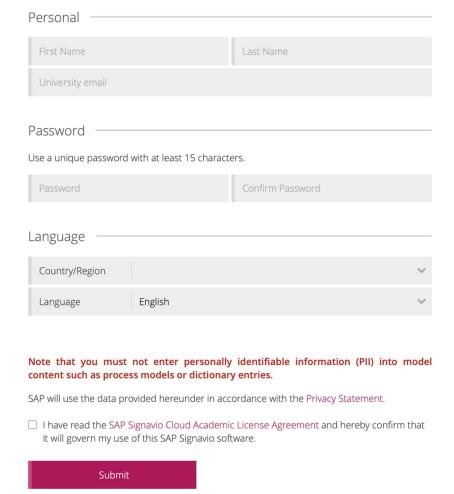
SAP Signavio Process Manager



Import into any other tool supporting the BPMN 2.0 standard:



Just an example: Camunda Modeler, free version



Academic workspace for

Ludwigshafen University of Business and Society -Andreas Heck

Registration for the SAP Signavio BPM Academic Initiative

Please confirm the invitation to the Ludwigshafen University of Business and Society workspace from Andreas Heck by filling in the form.

Right after that you can start modeling collaboratively with your colleagues in the secure workspace.

Are you already registered? Then please go to the login form directly.

Das Kleingedruckte

SAP Signavio Cloud Academic License Agreement

you must not enter personally identifiable information (PII) into model content such as process models or dictionary entries.

This is a free cloud service:

- ❖ No service level agreement and no support. → Evaluate alternative BPMN editor as backup.
- ❖ Eventually, your data will be deleted. → Make regularly use of export functionality.

Terms and Conditions SAP Signavio Solutions

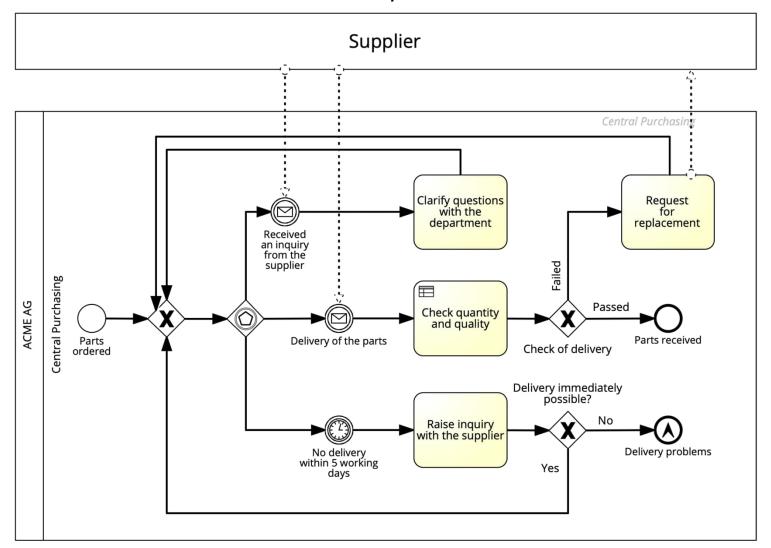
SAP SIGNAVIO CLOUD ACADEMIC LICENSE AGREEMENT FOR NON-PRODUCTIVE AND NON-COMMERCIAL ACADEMIC USE

Version 2 - These Terms and Conditions were updated on 03.11.2022

Please read the following SAP Signavio Cloud Academic License Agreement carefully (the "Agreement"). By clicking "I Accept", or by attempting to access or use certain SAP Signavio Cloud Services for non-productive academic use made available by SAP (the "Cloud Service") and other materials that accompany the Cloud Service ("SAP Materials"). You agree that the Agreement forms a legally binding agreement between You ("You" or "Your") and SAP SE. If You do not agree to the Agreement, do not click "I Accept", and do not attempt to access or use the Cloud Service or SAP Materials.

YOUR RIGHTS TO USE THE CLOUD SERVICE

Excercise: Create BPMN Model for *Receipt of Goods* Process



Signavio has many options In this course only use a subset of the functionality

Enables you to design, model and analyze your current and future state operational processes



Signavio Help Content

We are using Signavio Process Manager incl. the QuickModel option.

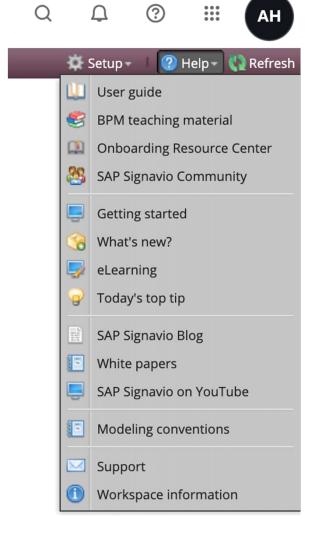
Short tutorial videos: https://www.signavio.com/video/signavio-tutorial-videos/

End-user docu online: https://help.sap.com/docs/signavio-process-manager/user-quide/intro

(Offline PDF:

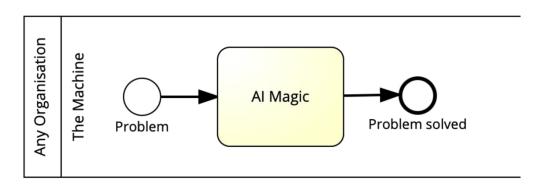
https://help.sap.com/doc/10ae12665b494798a8a332bcc195689d/SHIP/de-DE/sap-signavio-process-manager-user-guide-en.pdf)

- QuickModel https://help.sap.com/docs/signavio-process-manager/user-guide/quickmodel
- Modeling https://help.sap.com/docs/signavio-process-manager/user-quide/modeling
- Collaboration / Commenting https://help.sap.com/docs/signavio-process-manager/user-quide/comments
- Explorer View https://help.sap.com/docs/signavio-process-manager/user-guide/explorer-overview



Use of AI in your processes

Bad example:



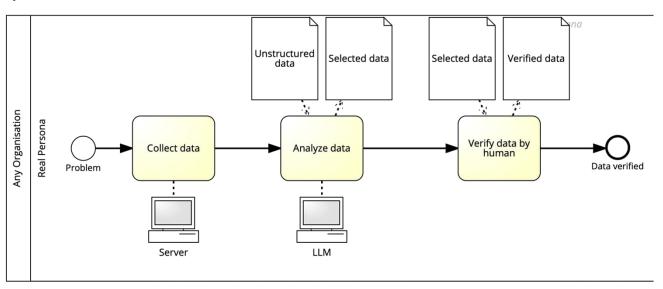


Instead:

- Create you detailed process without Al
- 2. Afterwards select tasks for Al support / enhancement

Use of AI in your processes

Better example:





Additional project documentation for Al services:

- Input for the AI Where does it come from?
- Output of the AI How is it used and how to verify reliability?
- Training the Al service
 - Where to get enough and quality data?
 - Training process (e.g. reinforcement, human-in-the-loop)
 - Type of suitable AI (e.g. generative, predictive)
 - Preferred Al currently on the market

Agenda for Today

Start	Time [min]	Topic	Presenter	
10:00	15	Overview + Working Group Assignment	Andreas	
10:15	30	Introducing the Challenge	Patrick + Andreas	
10:45	45	First Iteration of Business Process + Group Work	Andreas	
11:30	15	Break		
11:45	60	Programming + Excercise	Patrick	
12:45	45	Mittagspause		
13:30	60	Programming + Excercise 10min break?	Patrick	
14:30	60	Process Modelling + Excercise	Andreas	
15:30	15	Break		
15:45	30	Deliverables + Team Roles + GitHub Basics	Patrick + Andreas	
16:15	45	Group Work: Iterate your Process + Plan your Project		
17:00	30	Verify Results of Group Work → Exit Gate		
17:30		End		

Deliverables + Team Roles + GitHub Basics

Deliverables / Liefergegenstände

GitHub Wiki-Page

- Design des Start-up Angebots = "Marketing"
- Verlinkt alle Dokumente mit Zugriff für Dozenten!

Prozessmodellierung

- BPMN-Diagramme (Exporte in PDF, PNG)
- Personas der Kernprozesse (z.B. Kunde, Pilot, Technikerin...)
- UI-Mockups der Software

Implementierung (GitHub /src Folder)

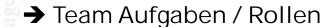
- Technische Docu mit Beschreibung der Architektur
- Programmaufbau/-ablaufe
- Diagramme, nicht aus dem Code generiert!

End-user Docu

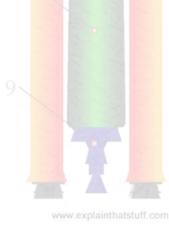
- Anleitung zur Implementierung
- Bedienungsanleitung

Abschlusspräsentation

- Moderation
- Demos



- Product Owner
 - Produkt/Service Design und Marketing
 - Prozessdefinition und Modellierung
- UI-Design
- Developer / Architect
 - Programmierung
 - Technische Docu
- Dokumentation
 - Enduser-Dokumentation
 - Abschlusspräsentation erstellen/koordinieren



Benotung

Die Dozenten entscheiden über die Bewertung pro Gruppe entlang des Beurteilungsbogens < link>

Erreichbare Gesamt-Punktzahl: 100 => Note: 1,0

Zusammenfassung aus Beurteilungsbogen = Vier Bereiche mit jeweils maximal erreichbarer Punktzahl:

DEVELOPMENT - 30P

- Programmierergebnis
- Technische Dokumentation
- Architektur/Design
- Wartbarkeit
- Clean Code
- Unit Tests

DESIGN - 30P

- Klare Beschreibung des Projekt-Umfangs
- Personas mit Mehrwert
- Prozessdiagramme
- UI-Designs
- Endbenutzer-Dokumentation

PRÄSENTATION – 20P

- Abschlusspräsentation (25min pro Gruppe)
- Mehrwert vermitteln
- Klare Struktur
- Relevante Inhalte
- Antworten auf Fragen
- Das ganze Team ist aktiv!

KREATIVITÄT – 15P

Überrascht uns!

GitHub



GitHub Demo

register user

create repository

add collaborators

create main folders /doc + /src (generated by Maven)

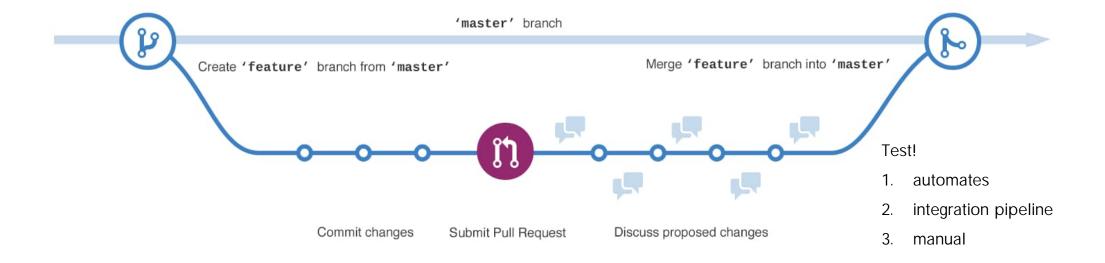
create wiki page

create project with KANBAN board

https://github.com/andreasheck/ATdIT-2025-sample



Universal Resolver — Branching Strategy https://github.com/decentralized-identity/universal-resolver/blob/main/docs/branching-strategy.md



https://github.com/copilot

Extended Pro version is free for students and teachers (requires credit card)

Plugin for IntelliJ

More instructions e.g.: https://www.youtube.com/wa tch?v=3w2df18ns-8



Welcome to GitHub Copilot. Here's how to get started.

You now have access to GitHub Copilot in VS Code and github.com for free as part of your GitHub user account—and that includes support for models from OpenAI and Anthropic.

Ask Copilot how to get started

What's included:

- 2,000 intelligent code completions a month: Get context-aware code suggestions that draw context from your GitHub projects and VS Code workspace.
- 50 Copilot Chat messages a month: Ask Copilot for help understanding code, refactoring something, or debugging an issue.

Agenda for Today

Start	Time [min]	Topic	Presenter	
10:00	15	Overview + Working Group Assignment	Andreas	
10:15	30	Introducing the Challenge	Patrick + Andreas	
10:45	45	First Iteration of Business Process + Group Work	Andreas	
11:30	15	Break		
11:45	60	Programming + Excercise	Patrick	
12:45	45	Mittagspause		
13:30	60	Programming + Excercise 10min break?	Patrick	
14:30	60	Process Modelling + Excercise	Andreas	
15:30	15	Break		
15:45	30	Deliverables + Team Roles + GitHub Basics	Patrick + Andreas	
16:15	45	Group Work: Iterate your Process + Plan your Project		
17:00	30	Verify Results of Group Work → Exit Gate		
17:30		End		

Group Work: Iterate your Process + Plan your Project

Verify Results of Group Work → Exit Gate



- □ High-level processes sketched
- □ Implementation focus defined
- □ Team roles assigned



Patrick + Andreas walk around and are available for questions and presenting your plan.

- → When P+A are happy, you can go home.
- → See you next Friday!

Gruppenarbeit

Raumaufteilung:

- Gruppe 1 ->
- Gruppe 2 →
- Gruppe 3 →
- Gruppe 4 →

Equipment

- Haftklebezettel
- Stifte
- Kreppband
- + Laptops

Group	Members
1	Fuchs, Marco
	Fuhrmann, Helena
	Herrscher, Elena
	Raffel, Felix Emil Wilhelm
	Schmitt, Tim Joerg
	Wagner, Thies Johannes
2	Blazquez Perez, Daniel Justo
	Hampele, Luc Alex
	Hartmann, Konstantin
	Rohr, Philipp Lennard
	Schmidt, Lisa
	Zeidler, Joline
3	Bretscher, Leonie
	Juston, Jonas Maximilian Wilhelm
	Mountassir, Inas
	Simon, Oliver Michele
	Weber, Vanessa
4	Cornacchione, Marco Antonio
	Domnick, Jonas Fynn
	Knorr, Hannah Alina Zoe
	Ott, Roman
	Vu, Thu Giang

Schedule

Datum	Uhrzeit	Veranstaltung	Kommentar	Ort
FR 21.3. 10:00-17:30		Kick-off	Aufgabenstellung, Einführung in Programmierumgebung mit Beispielen, Prozessmodellierung und Arbeitstechniken → Arbeitsgruppen sind Startklar	HWG Raum: A202
		Erste Woche		
FR 28.3.	10:00-13:00	Reviews (Pflichttermin)	Review der Designs aller Gruppen, um Abhängigkeiten/Überschneidungen abzustimmen	Online Teams
	13:00-15:45	Freie Gruppenarbeit		
FR 4.4.	10:00-13:00	Reviews (Pflichttermin)	Pflicht für ausgewählte Gruppen mit Lücken in den Designs	Online Teams
	13:00-15:45	Freie Gruppenarbeit		
FR 11.4.	10:00-13:00	Reviews (optional)	Auf Einladung oder Wunsch	Online Teams
	13:00-15:45	Freie Gruppenarbeit		
		3 Wochen	Dozenten sind erreichbar bei Bedarf	Online Teams
MO 5.5.	10:00-13:00	Reviews (optional)	Auf Einladung oder Wunsch	Online Teams
		Letzte Woche		
MO 12.5.	10:15-12:45	Abschlusspräsentation	Präsentation der Gruppen, mit Gästen aus den Unternehmen	HWG + Online Raum: C2.015

