



SOTETO

Design of technical Support for a socio-technical evolutionary-teal Organization

Viva con Agua de St. Pauli e.V.



- non-profit organization
- access to clean drinking water for all people worldwide
- more than 20,000 volunteers
 - creative, joyful and self-organized activities
 - free-time activity
- about 50 crews:
 - regional groups of volunteers
 - loosely coupled
 - decentralized



[Arne Stanelle, CC BY-SA 3.0](#)

Viva con Agua can be characterized as an **evolutionary-teal organization**

(Laloux 2014, Das Gupta 2019)!



Problem / Challenge



- 2012 Introduction of the CSCW tool „Pool“
→ a socio-technical organization evolves
- 2014 Several challenges occurred:
 - Missing men power – Only one volunteer has implemented the tool.
 - Decentralization of crews has lead to several unrelated, less related or alternative requirements.
 - Volunteers can start using other tools instead of the provided one, since the usage is their freetime activity. Thus, they would break the socio-technical construct.
- 2017 Start of the „Viva con Viva“ project that addresses these challenges.

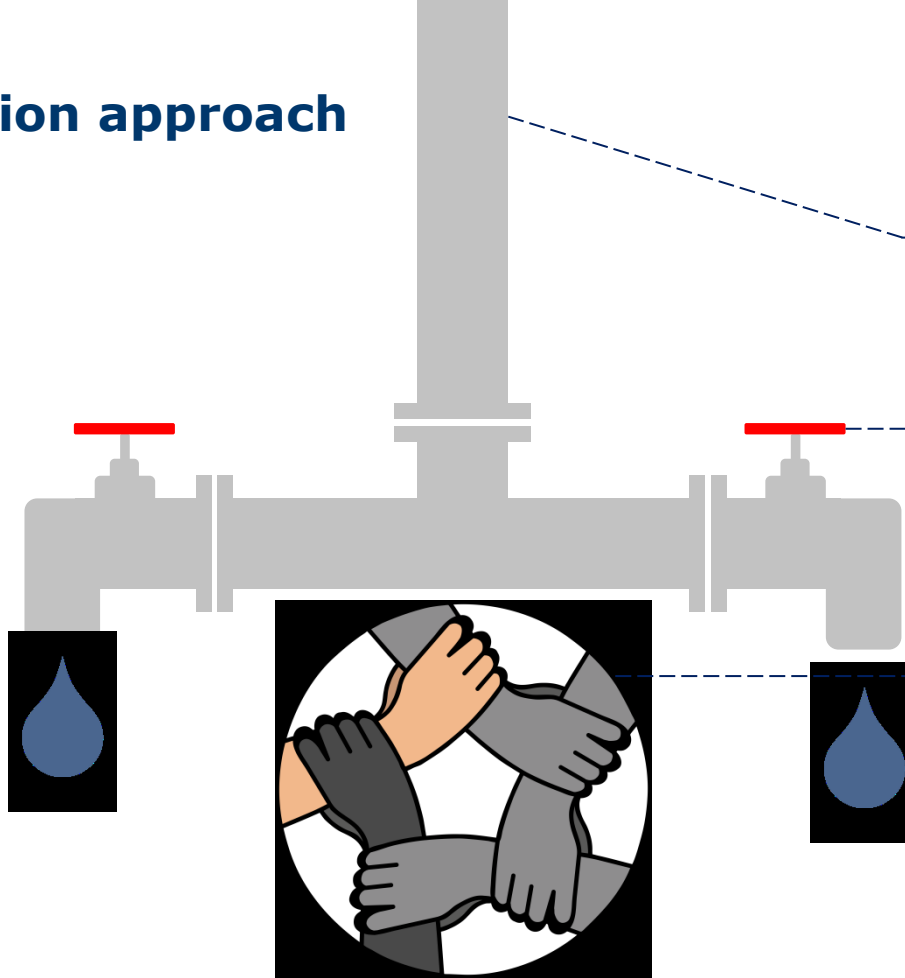


Research Question



How to enable system designers to satisfy joint optimization and organizational choice for socio technical evolutionary-teal organizations?

Solution approach



TECHNICAL PERSPECTIVE

The decentralized microservice architecture *Pool*².

<https://pool.vivaconagua.org/>

SOCIAL-TECHNICAL PERSPECTIVE

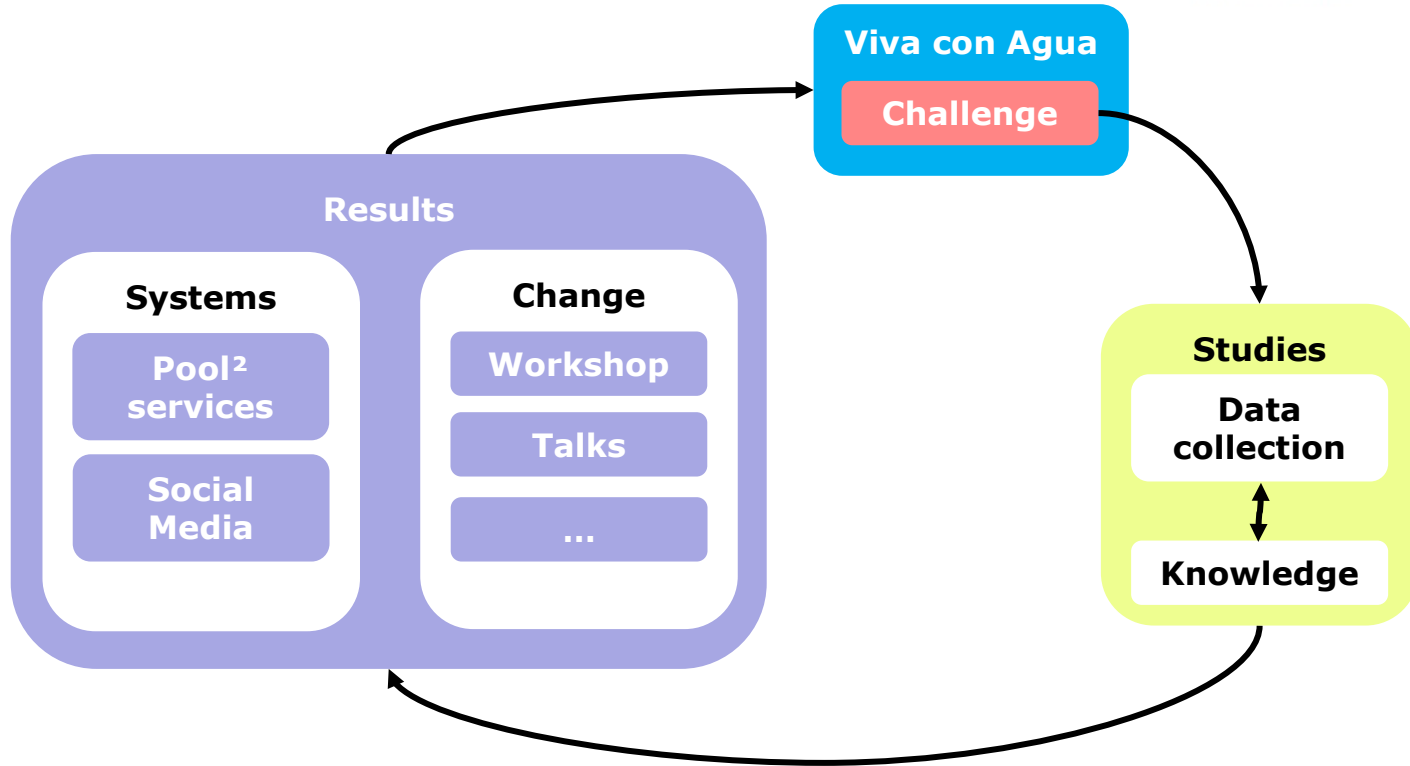
Idea marketplace, CSCW microservices supporting collaboration between Pool and WASH volunteers and social media strategies.

SOCIAL PERSPECTIVE

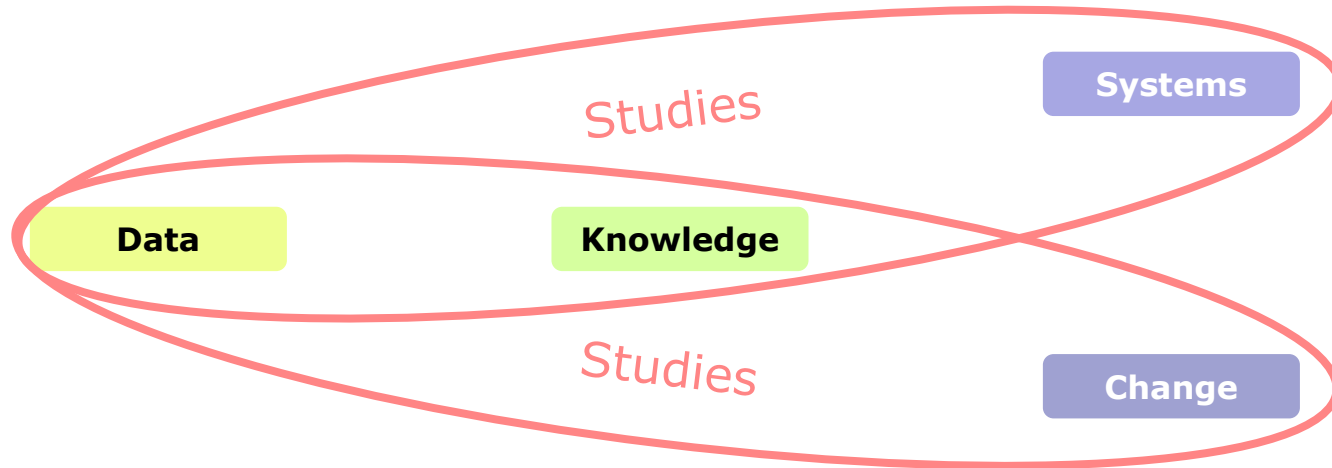
Repeatable collaborative workshops, talks, etc.

- WASH volunteers
- Pool volunteers

SOTETO Project



Four type of results





Study Example



WASHPoolCollab (1 / 3)

Data

Workshop aims to transform vague needs of WASH volunteers into concrete (technical and non-technical) goals.

Workshop consists of

1. Problem Statements
2. Clustering
3. Brainstorming: goals addressing the problems

Transcript, Problems, Goals

Knowledge

How does WASH-Volunteers and Pool-Volunteers collaboration can be supported by a CSCW system?

Interpretation

Change



Workshop Design

WASHPoolCollab (2 / 3)



Data

Workshop aims to transform vague needs of WASH volunteers into concrete (technical and non-technical) goals.

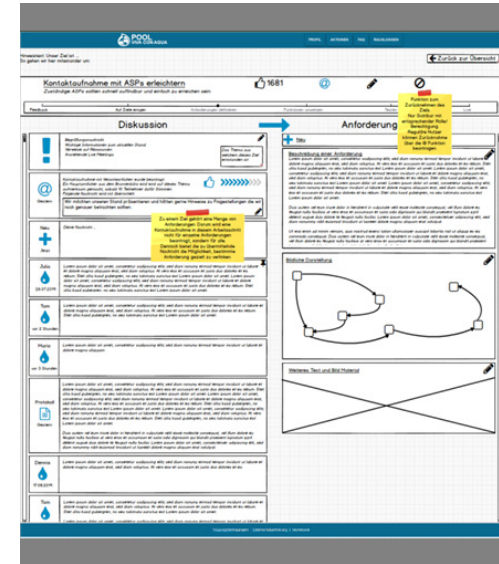
Workshop consists of

1. Problem Statements
2. Clustering
3. Brainstorming: goals addressing the problems

Knowledge

How does WASH-Volunteers and Pool-Volunteers collaboration can be supported by a CSCW system?

Systems



Transcript, Problems, Goals

Interpretation

System requirements



WASHPoolCollab (3 / 3)



Results:

- Workshop transcript
- Problem statements
- Concrete Goals
- Evaluation of workshop design
- (reusable) Workshop design
- Technical requirements

Data

Data

Data

Knowledge

Change

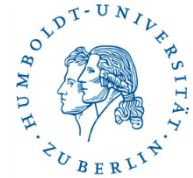
Systems



Data collection

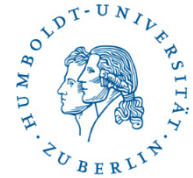


Overview [Anonymized]



| Acronym | Context | Methods | Date | Expected Outcome |
|----------------|--------------|------------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------|
| JointRev | [Anonymized] | Analyse publications regarding a Selection Procedure | Oct. 2019 – Apr. 2020 | Set of publications |
| WASHPoolCollab | [Anonymized] | Design Thinking Workshop and Questionnaire | 04.01.2020 | Problem statements (PS) Aims addressing PS Workshop transcript Qual. Questionnaires |
| AC_WASH_UI | [Anonymized] | Design Thinking Workshop | 30.11.2019 | Problem statements Workshop transcript |
| WASHEthno | [Anonymized] | Design Thinking Workshop and Questionnaire | Jan. 2020 | Aims addressing PS User Stories Workshop transcripts Qual. Questionnaires |
| WASHMotivation | [Anonymized] | Interview and Questionnaire | Dec. 2019 – Mar. 2020 | Interview transcripts Qual. Questionnaires |

Outlook *[Anonymized]*



| Acronym | Context | Methods | Design | Expected Outcome |
|---------------|---------------------|--------------------------------------|------------------|-------------------------------|
| PoolEthno | <i>[Anonymized]</i> | Programming diaries and observations | Sommer 2020 | Diaries and observation notes |
| ArchiUsa | <i>[Anonymized]</i> | Think Alouds | Sommer 2020 | Think Aloud transcripts |
| DeployConsole | <i>[Anonymized]</i> | Interview | Feb. / Mar. 2020 | Interview transcript |



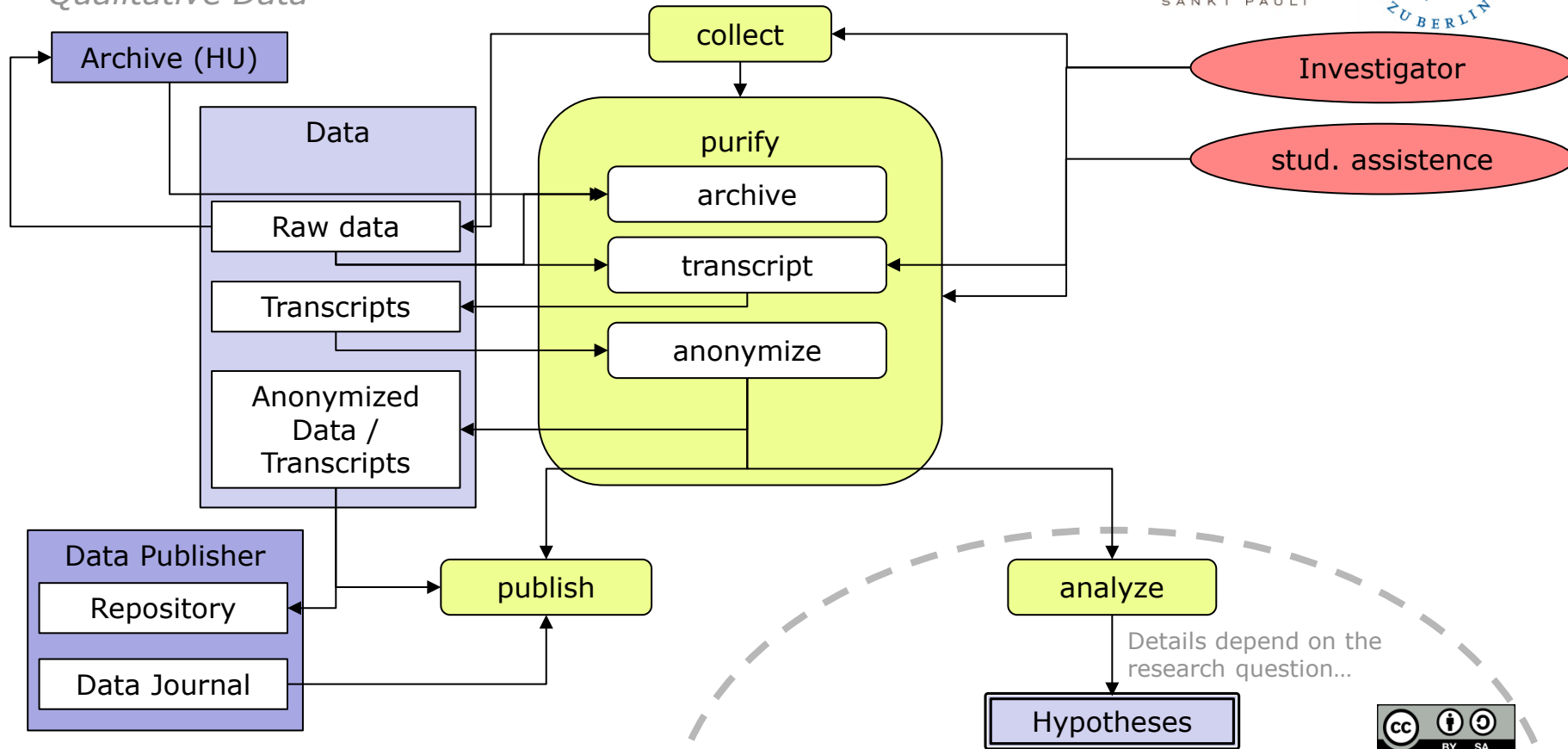


...to be continued...



Research Data Management

Qualitative Data



Results



Two-step publication:

- (1) Data (Data repositories / Journals) and
- (2) Interpretation / Analysis (Conferences and Journals)



Example data repository:
[Interview WASHMotivation \(HU Berlin\)](#)



Example paper:
[Paper Rambla \(Springer\)](#)





Knowledge



Overview [Anonymized]



| Study Acronym | Context | Methods | Expected Outcome |
|----------------|--------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| JointRev | [Anonymized] | Literature Review | <ul style="list-style-type: none">• Additional Open Questions |
| WASHPoolCollab | [Anonymized] | Qualitative analysis of workshop transcript and results. | <ul style="list-style-type: none">• Req. Collab Tool Estuary• Problem Statements• Aims |
| AC_WASH_UI | [Anonymized] | Qualitative analysis of workshop transcript and results. | <ul style="list-style-type: none">• Adaptable Workshop Methods• Req. Roles |
| WASHEthno | [Anonymized] | Qualitative analysis of workshop transcript, results itself and qualitative assessments of the results. | <ul style="list-style-type: none">• User Stories• Assessments of User Stories |
| WASHMotivation | [Anonymized] | Qualitative analysis of interviews transcripts and filled questionnaires. | <ul style="list-style-type: none">• Concepts fitting PD methods to volunteering |

Outlook (1 / 2) [Anonymized]

| Study Acronym | Context | Methods | Expected outcome |
|-----------------|--------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PoolEthno | [Anonymized] | Qualitative analysis of protocols and observations. | <ul style="list-style-type: none">• Concepts of guiding Devs regarding Pool² |
| ArchiUsa | [Anonymized] | Qualitative analysis of transcribed Think Alouds. | <ul style="list-style-type: none">• Challenges of the architecture |
| DeployConsole | [Anonymized] | Qualitative analysis of transcribed interviews and observations. | <ul style="list-style-type: none">• Concept for a Pool² deployment console and a prototypical implementation |
| RecSocialCollab | [Anonymized] | <i>Not defined yet...</i> | <ul style="list-style-type: none">• Challenges for the social system• Improvements for the recommendation system |
| NotifyMicros | [Anonymized] | <i>Not defined yet...</i> | <ul style="list-style-type: none">• Evaluation of the implementation of the notification widget• Improvements for the notification widget |
| RoleManage | [Anonymized] | <i>Not defined yet...</i> | <ul style="list-style-type: none">• Evaluation of the role mining support functions |
| ACSelf | [Anonymized] | <i>Not defined yet...</i> | <ul style="list-style-type: none">• Evaluation of the access control system |

Outlook (1 / 2) [Anonymized]



| Study Acronym | Context | Methods | Expected outcome |
|---------------|--------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| GameCollab | [Anonymized] | <i>Not defined yet...</i> | <ul style="list-style-type: none">Insights regarding the influence of gamification concerning the self-managed social system |
| DeReqEli | [Anonymized] | <i>Not defined yet...</i> | <ul style="list-style-type: none">Evaluation of the collaboration marketplace Estuary for the decentralized requirement elicitation |



Technische Artefakte

Notification Widget

[Anonymized]

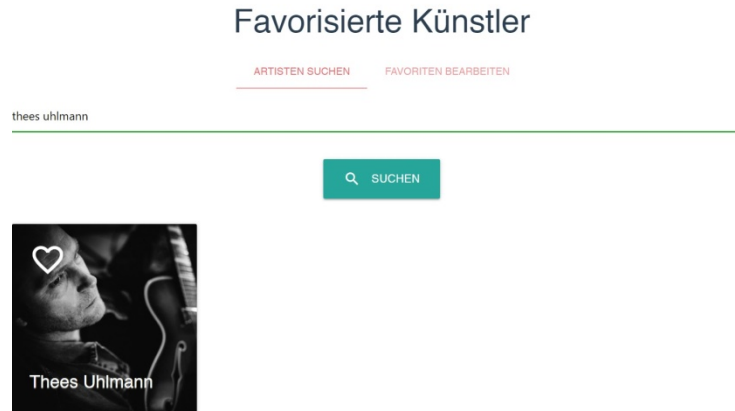
- First step awareness implementation
- Receives messages about system events using nats.
- Implements a prototype pipeline to filter the events for specific users.
- Uses widgets implemented by the other microservices to display the events.



Spotify Suggesty Widgets

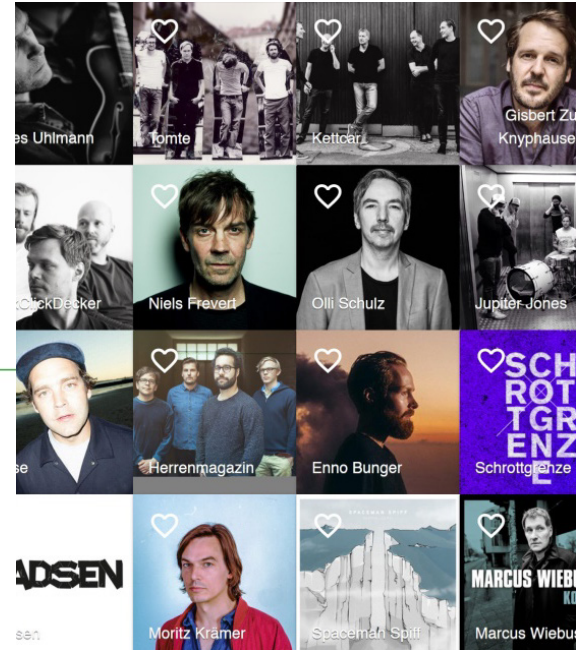
[Anonymized]

- Let supporter choose their favorite artists
- Saves a line-up for pool events
- Recommends pool events to supporter



<https://github.com/Viva-con-Agua/vca-widget-suggesty>

<https://github.com/Viva-con-Agua/suggesty-backend>

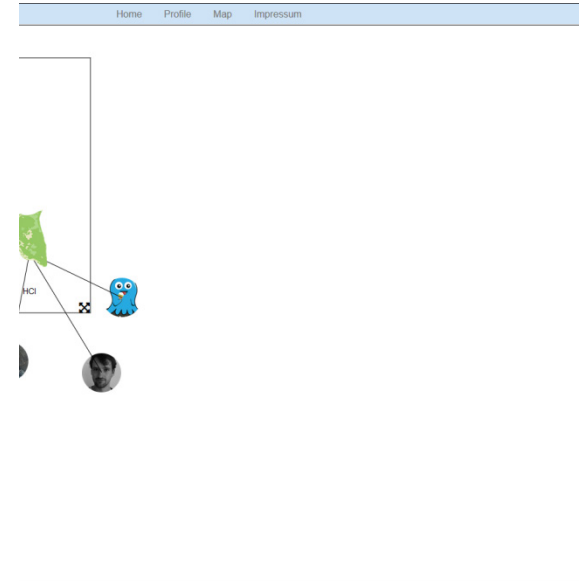


Potential Map

[Anonymized]

- Digital support tool for a workshop format with the same name
- Workshop aims to connect WASH volunteers with each other
- Connection bases on (not exclusively)
 - Profession
 - Interests
 - Personal goals
 - Relation to Viva con Agua

<https://scm.cms.hu-berlin.de/grebwilh/potential-map-prototype>



Badges

[Anonymized]

- Introduces gamification
- Could increase motivation of WASH volunteers
- Helps to make participation and engagement transparent
- Supports self-management by configurable badges and challenges



Give this badge



Give this badge



Give this badge



Give this badge



Give this badge



Give this badge



Give this badge



Give this badge



Give this badge



Give this badge



Give this badge



Give this badge



Give this badge



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Give this badge

Role management

[Anonymized]

- Implements functions to support CRUD and assignment of roles and tasks
- Natural support of currently lived self-management procedures
- Could support reliability of crews and wholeness of WASH volunteers



Crew:

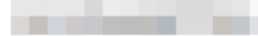
Berlin

ASSIGN VOLUNTEER MANAGER FINANCE

E-mail:



Mobile phone:



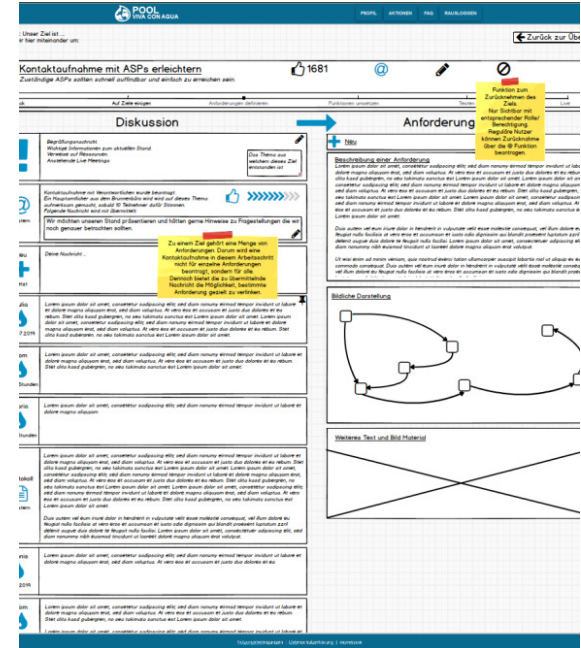
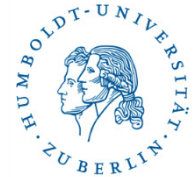
Place of residence:

Berlin

VcA Marketplace Estuary

[Anonymized]

- Supports collaboration between WASH and Pool volunteers
- Assists to transform „vague needs“ into technical requirements
- Transparent transformation
- Threaded discussions
- Visualizes different phases of the collaborative process



VcA MockUp Tool

[Anonymized]

- MockUp tool that contains VcA specific styled elements
- It also contains Widgets with full functionality
- Will be part of the collaborative process between WASH and Pool volunteers (introduced by Tom Bierschenk)



ie Aktion zu der die Spende gehört...

» hier einen Betreff ein (z.B. "Kuchenbasar")

ie Aktion stattgefunden? /

Run 4 WASH Stadtfeste / Märkte Sonstiges:

» / Tourneen Schule / Uni Karaoke / Slam / Quiz

/ Arenen Party Kickerturnier

enbetrag

en Supporter, von dem du die Spende erhalten hast...

du die Spende erhalten? /

| nt die Spende? | Summe | Bar | externe Überweisung |
|--------------------------|----------------------|-----------------------|-----------------------|
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spende: 0,00 €
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Pool² Console

[Anonymized]

- Starts the Pool² environment as a black box
- Imports data or generates some test data
- Differs between dev, test and live configuration
- Guides the Pool volunteers to setup their own development environment

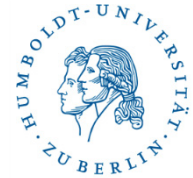


```
Pool> start system
Drops 1.2 online
Stream 3.1 online
.
.
.
Nginx configured
Nginx online
Pool started!
Pool> _
```

Internal e-learning tool

[Anonymized]

- Supports teaching of WASH and Viva con Agua using the universal languages of VcA
- Focuses WASH volunteers as students
- Also usable for classroom scenarios
- User should be able to create quizzes for mobile devices and desktop computer.





Change



Workshops Requirement Elicitation



- Workshop 1: Problem statements -> Goals
- Workshop 2: Goals -> User Stories

- Few-Pager enabling the WASH volunteers to conduct such a workshop by themselves
- Technical tool that allows to conserve the results



...to be continued...





Projektmanagment

Theses



[Overview has been anonymized]

References



(Laloux 2014)

F. Laloux, *Reinventing Organizations*, 1st ed., vol. 49, no. March. Brussels: Nelson Parker, 2014.

(Das Gupta 2019)

J. Das Gupta, "Sozio-technische Walkthroughs als kollaborativer Kreativprozess für evolutionäre Organisationen?," Humboldt-Universität zu Berlin, 2019.