

# Transform Problem Statements into Goals

## *A brief Workshop*

Johann Sell

January 2020

## 1 Introduction

The subsequently presented workshop is designed to support the non-governmental organization Viva con Agua de St. Pauli e.V. (<https://www.vivaconagua.org/home>) in addressing socio-technical challenges. Since the organization has introduced the technical tool *Pool* in 2011, the number of getting involved volunteers has massively increased (from a few thousand to around 20.000 people). Thus, the recently socio-technical organization [3, p. 82] has to face new technical requirements that are often unknown and are under constantly change since social system are autopoietic.

The workshop presented here supports the organization in enabling their involved volunteers to express needs and transform them into goals that can be addressed to introduce change for the socio-technical organization.

Section 2 describes the organization Viva con Agua more detailed and with focus to important facts regarding this workshop. Afterwards, section 3 describes the workshop and the participants, while section 4 shows the moderation cards and other data that has been created through the workshop proceeding.

## 2 Case Study

AS described in section 1, Viva con Agua de St. Pauli e.V. (<https://www.vivaconagua.org/home>) is a socio-technical organization. Additionally, it is an evolutionary-teal organization [4], that follows three core principles: (1) self-management, (2) wholeness, and (3) evolutionary purpose.

The volunteers of Viva con Agua are organized in loosely coupled and decentralized teams that are called *crews* that are self-managed. The volunteers are getting involved during their free time and plan activities that they can perform by themselves without additional support by professionals.

The tool *Pool* has been introduced in 2011. It mainly organizes the volunteers in participating the different events and activities. Since it is very simple to use and meets the core needs of the volunteers, the number of volunteers increases up to 10.000 volunteers in 2015 and about 20.000 in 2019.

The organization evolves into a socio-technical organization in the sense of Kunau [3, p. 82] and thus, it faces the challenges of joint optimization and organizational choice. The social system of Viva con Agua is under constantly change. Therefore, the volunteers will have problems that are requiring constantly new technical solutions. In consequence of the self-management of the crews, will the new technical solutions differ regarding the particular crew that is using it. Additionally, wholeness and evolutionary purpose force to adapt participatory design methods [1, 6].

Section 3 describes the prepared participatory design method that has been performed and used to collect the gathered data. The concept of the workshop bases on the differentiation between (1) WASH volunteers and (2) Pool volunteers: The former (1) describes all volunteers of Viva con Agua that are involved in events of the organization, while the latter (2) covers software developers that are interested in voluntary implementing the Pool system.

## 3 Workshop Concept

The present workshop is designed to investigate a time-limited version of the workshop designs performed by the *AC\_WASH\_UI* and *PoolWASHCollab* studies that have to be published. Additionally, the workshop will be conducted with another group of participants. While *AC\_WASH\_UI* has been conducted with WASH volunteers and the *PoolWASHCollab* with a mixed group of WASH and Pool volunteers, this workshop is



conducted with employees of VcA that are involved in the software development of the Pool<sup>2</sup> architecture and the main microservices.

Preliminary results of the *WASHMotivation* study allow to formulate the hypotheses that *WASH volunteers are motivated to participate methods to design the technical support system, if the methods are time-limited to few hours*. Since the workshops performed by *AC\_WASH\_UI* and *PoolWASHCollab* studies are conducted around four and a half hours, we focused to conduct a similar design in less than two hours.

### 3.1 Workshop Agenda

The researches have developed for the *AC\_WASH\_UI* study the concept of *Problem statements* (PS) to survey problems of the participants. The previous workshops used *How might we questions* [2, p. 85] to prepare sessions to identify solutions for the generated PSs. Due to timing issues, *How might we questions* are not generated during this workshop.

After the PSs have been presented to the other workshop participants and clustered, the cluster have been rated with dots. Every participant got two dots that can be divided through all clusters. Painting a dot at a cluster means that the cluster is important for the participant. It is permitted to paint both dots at one cluster. This method has been designed as an adaption of the "Top Five" method [2, p. 79].

The both highest rated clusters have been focused during the subsequent workshop. The participants had to choose the cluster they want to focus during the next step of the workshop. Two groups have evolved, led by the interests of the participants. The groups performed a simple brainstorming to generate goals [2, 5, p. 95]. These goals should solve the problems, if they could reached.

Both methods PS and brainstorming are chosen, since they are simple to understand and possibly known to the participants and thus, they require only less or no time to introduce the methods. Additionally, we made good experiences during the last workshops *AC\_WASH\_UI* and *PoolWASHCollab*. The planned agenda for the workshop is described by table 1. The investigation aims to conduct the workshop in 1 hour and 45 minutes.

Start time	End time	Performance
11:00 am	11:05 am	Find roles – Task: "Please write down all tasks, that you have performed during the development of the Pool!"
11:05 am	11:15 am	Task: "Pin the tasks to the whiteboard and explain the them fast to the others!"
11:15 am	11:20 am	The moderator explains PS and shows an example.
11:20 am	11:30 am	Find PS – Task: Please formulate PS focusing the development of the Pool!"
11:30 am	11:45 am	Task: "Present the PS to the othe participants!"
11:45 am	12:00 pm	Moderator clusters the generated PS; the participants agree to the clusters.
12:00 pm	12:05 pm	Task: "Rate the clusters regarding its importance using dots!"
12:05 pm	12:10 pm	The participants build groups regarding the highest ranked PS.
12:10 pm	12:30 pm	Task for the groups: "Perform a brainstorming regarding possible goals, that can be strived to solve the problems!"
12:30 pm	12:45 pm	Presentation of the identified goals to the other group.

Table 1: The agenda of the workshop consists of two main steps: Generation of PS and Brainstorming to identify goals addressing the PS.

### 3.2 Participants

The workshop has been conducted in collaboration with the development team of VcA. Thus, two software developers, one project leader, one experienced project owner and one employee that will act as a product owner during the next months. Additionally, two students writing their master theses regarding the Pool system and



one student currently searching for a master topic have participated the workshop. Also the moderator has participated in every step.

In total, nine participants attended to the workshop including the moderator. Six participants have technical expertise, while the three other participants are domain experts. The three students that participated during the workshop can be described as Pool volunteers.

An additional characterization of the workshop participants can be performed by an analyzes of the collected tasks (see section 4.1).

## 4 Collected data

During the workshop several data has been created. First, the concrete results that have been written onto post-its. Secondly, the investigator has made some notes as an observer. This section describes the data that has been created during the different workshop phases.

The workshop has started around 11:30 am and finished at 1 pm. Thus, 1,5 hours were required for this workshop. The closing circle of all participants at the end of the meeting day (the workshop has been only one part of the day) showed that all participants were very satisfied with the workshop agenda and the results.

### 4.1 Tasks

As a first step during the workshop, the participants had to write down all tasks they already had performed during the Pool project. Table 2 shows all moderation cards.

The tasks have been placed at a whiteboard by the participants, while they explained the identified tasks to the other participants. Note that the tasks are neither ordered or clustered.

Table 2: Tasks of the Pool project the participants had performed.

German	English
Task 1  regelmäßige Sprints	Task 1  regular sprints
Task 2  Test-Läufe	Task 2  test runs
Task 3  neue Funktionen kommunizieren	Task 3  communication of new functions

German	English
<p>Task 4</p> <p>Kolleginnen abholen</p>	<p>Task 4</p> <p>inform colleagues</p>
<p>Task 5</p> <p>Bug-Protokoll-Verwaltung</p>	<p>Task 5</p> <p>Managment of bug protocols</p>
<p>Task 6</p> <p>Match IT-Entwickl. + Satzung checken</p>	<p>Task 6</p> <p>Check if IT development matches constitution</p>
<p>Task 7</p> <p>Umsetzung auf Netzwerk ausrichten</p>	<p>Task 7</p> <p>orienting the implementation onto the network</p>
<p>Task 8</p> <p>Match IT-Entwicklung &amp; VcA Kultur checken</p>	<p>Task 8</p> <p>Check if the IT development matches VcA culture</p>

German	English
<p>Task 9</p> <p>Anforderungen definieren</p>	<p>Task 9</p> <p>Requirements elicitation</p>
<p>Task 10</p> <p>Interviews</p>	<p>Task 10</p> <p>Interviews</p>
<p>Task 11</p> <p>Mockups</p>	<p>Task 11</p> <p>Mockups</p>
<p>Task 12</p> <p>Analyse des akt. tech. systems</p>	<p>Task 12</p> <p>Analyze the present technical system</p>
<p>Task 13</p> <p>front-end framework gesucht</p>	<p>Task 13</p> <p>searching for a front-end framework</p>

German	English
<p>Task 14</p> <p>Evaluation</p>	<p>Task 14</p> <p>Evaluation</p>
<p>Task 15</p> <p>Projekt managen</p>	<p>Task 15</p> <p>project management</p>
<p>Task 16</p> <p>Projektmanagement getätigt</p>	<p>Task 16</p> <p>project management</p>
<p>Task 17</p> <p>interviews gegeben</p>	<p>Task 17</p> <p>participated as interviewee</p>
<p>Task 18</p> <p>Supporter interviewen</p>	<p>Task 18</p> <p>to interview a supporter</p>

German	English
<p>Task 19</p> <p>Pool<sup>2</sup> vorstellen</p>	<p>Task 19</p> <p>present Pool<sup>2</sup></p>
<p>Task 20</p> <p>NATS für Waves aufsetzen</p>	<p>Task 20</p> <p>Setup NATS<sup>a</sup> for waves</p> <p><sup>a</sup><a href="https://nats.io/">https://nats.io/</a></p>
<p>Task 21</p> <p>Requirements elicitation</p>	<p>Task 21</p> <p>requirements elicitation</p>
<p>Task 22</p> <p>Datenbank Modelle entwickeln</p>	<p>Task 22</p> <p>Development of database models</p>
<p>Task 23</p> <p>Software entwickeln</p>	<p>Task 23</p> <p>software development</p>

German	English
<p>Task 24</p> <p>Software Entwicklung</p>	<p>Task 24</p> <p>software development</p>
<p>Task 25</p> <p>Software entwickeln</p>	<p>Task 25</p> <p>software development</p>
<p>Task 26</p> <p>Microservice Entwicklung als PO begleitet</p>	<p>Task 26</p> <p>Support of microservice development as PO</p>
<p>Task 27</p> <p>Anbindung von Services via API 3t Party</p>	<p>Task 27</p> <p>Connect services using API 3th party</p>
<p>Task 28</p> <p>Testen</p>	<p>Task 28</p> <p>tests</p>

German	English
<p>Task 29</p> <p>Microservices getestet</p>	<p>Task 29</p> <p>test of microservices</p>
<p>Task 30</p> <p>Message Broker</p>	<p>Task 30</p> <p>message broker</p>
<p>Task 31</p> <p>Deployment</p>	<p>Task 31</p> <p>deployment</p>
<p>Task 32</p> <p>workshop-moderator</p>	<p>Task 32</p> <p>workshop moderator</p>
<p>Task 33</p> <p>workshop-teilnehmer</p>	<p>Task 33</p> <p>workshop participant</p>

German	English
<p>Task 34</p> <p>Anforderungen formuliert</p>	<p>Task 34</p> <p>formulation of requirements</p>
<p>Task 35</p> <p>Interviews gegeben</p>	<p>Task 35</p> <p>Participated as interviewee</p>
<p>Task 36</p> <p>Architektur entwerfen</p>	<p>Task 36</p> <p>Conceptualize the architecture</p>
<p>Task 37</p> <p>WS Teilnahme + Organisation</p>	<p>Task 37</p> <p>participation and organisation of workshops</p>
<p>Task 38</p> <p>Frontend entwickelt</p>	<p>Task 38</p> <p>front-end development</p>

---

<b>German</b>	<b>English</b>
<p>Task 39</p> <p>Backend Entwicklung</p>	<p>Task 39</p> <p>back-end development</p>
<p>Task 40</p> <p>Datenbank Controller (Filter...)</p>	<p>Task 40</p> <p>database controller (filter...)</p>

---

---

## 4.2 Problem statements

Subsequently, the moderator has introduced the concept of problem statements (PS) (TODO: Add reference!) and explained them as followed: A problem statement consists of a role, like software developer, an ideal aspired state, a problem that occurs and an emotion. The problem is the reason, why the ideal state can not be reached. Afterwards, the moderator has visualized an example at the whiteboard: *Ich als Supporter möchte mein Material schnell aus dem Lager, aber Lager ist unaufgeräumt, daher fühle... schlecht vorbereitet.* (in English: Me as a supporter wants to get my material fast from the storage room, but the storage room is untidy, therefore I feel bad prepared.)

The participants were urged to write down problem statements onto post-its for themselves. Afterwards, they presented their statements to the rest of the group. Table 3 shows all generated problem statements.

Table 3: Problem statements formulated by the participants.

German	English
<p>PS 1</p> <p>Als wiss. Betreuer möchte ich wissen welche Features wann fertig sind, um die Machbarkeit von Theses abzuschätzen, habe aber keine Übersicht, fühle mich unsicher</p> <p>– Number of used Post-Its: 2 –</p>	<p>PS 1</p> <p>As scientific supervisor I want to know which features are done at which date to decide if a theses is feasible. But I have no overview, I feel unsure.</p> <p>– Number of used Post-Its: 2 –</p>
<p>PS 2</p> <p>Ich als PO möchte wissen was von mir erwartet wird, was ich wissen muss, habe aber keinen Plan, fühle mich unprofessionell + [illegible]</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 2</p> <p>Me as PO wants to know what is expected of me, what I have to know, but I have no idea, feel unprofessional + [illegible]</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 3</p> <p>Als Projektleiter möchte ich VcA sagen können, wann ein Feature abgeschlossen ist, habe aber keine Ahnung was der Stand ist. Gefühl: unprofessionell</p> <p>– Number of used Post-Its: 2 –</p>	<p>PS 3</p> <p>As project leader I want to tell VcA, when a feature is done, but I don't no the progress. Emotion: unprofessional</p> <p>– Number of used Post-Its: 2 –</p>
<p>PS 4</p> <p>Ich als PL möchte sinnvoll priorisieren können, mir fehlt aber techn. know How und Info zu Timing, um das zu können, → machtlos</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 4</p> <p>Me as project leader wants to prioritize reasonably, but I have not enough techn. know how and information regarding timing → powerless</p> <p>– Number of used Post-Its: 1 –</p>

German	English
<p>PS 5</p> <p>I. als PL. möchte laufend einen Überblick über den gesamten Entw.stand haben, aber die Boards werden nicht gepflegt, daher fühle ich mich uninformiert.</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 5</p> <p>Me as project leader wants to have an constantly overview about the whole development status, but the boards are not well-kept, thus I feel uninformed.</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 6</p> <p>Ich brauche ein Model aus dem Backend, bekomme aber die falsche Infos. belustigt</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 6</p> <p>I need a model from the back-end, but get the wrong information. amused</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 7</p> <p>als Entwickler*in möchte ich überschauliche, in sprints geteilte Aufgaben übernehmen um besseres Zeitmanagement zu haben</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 7</p> <p>As software developer I want to assign to manageable tasks separated in sprints, to apply a better time management.</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 8</p> <p>als Entwickler*in möchte ich möglichst keinen First-Level-Support leisten. der FRUSTRIERT</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 8</p> <p>As software developer I do not want to be assigned to frustrating first level support.</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 9</p> <p>als Entwickler*in möchte ich besseres Time-keeping damit resourcen nicht überkrass ausgelastet werden – gefühl müde</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 9</p> <p>As software developer I want to get a better time-keeping, in order that resources are not overburden – feeling: tired</p> <p>– Number of used Post-Its: 1 –</p>

German	English
<p>PS 10</p> <p>Ich als Entwickler möchte meinen Microservice lokal als ganzes tech. System testen, aber mir ist nicht klar wie, deshalb bin ich verärgert</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 10</p> <p>Me as software developer wants to test my microservice as a whole technical system locally, but I do not know hoe, thus I am angry.</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 11</p> <p>...Entwickler möchte schnell anfangen zu implementieren → pool aufsetzen nicht trivial</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 11</p> <p>Me as developer wants to start implementing fast, but the setup of the Pool is not trivial.</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 12</p> <p>I.a.S. möchte an Waves arbeiten habe aber andauernd Probleme es zu starten → verzweifelt</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 12</p> <p>Me as supporter wants to work at Waves<sup>a</sup>, but I got continuously problems running it → desperate</p> <p><small><sup>a</sup> Waves is the working title for one of the microservices.</small></p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 13</p> <p>Ich als Entwickler möchte schnellen Support geben, habe aber keine Doku / Beispiele, Peinlich</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 13</p> <p>Me as developer wants to give fast support, but I have no documentation / examples, awkward</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 14</p> <p>I.a.S. möchte Widgets implementieren brauche aber lange um herauszufinden wie</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 14</p> <p>Me as supporter wants to implement widgets, but need a long time to figure out how.</p> <p>– Number of used Post-Its: 1 –</p>

German	English
<p>PS 15</p> <p>I.a.S. möchte mit meinem Microservice an andere Funktionen anknüpfen, habe aber nur ne schwammige Vorstellung wie die aussehen und was sie tun</p> <p>- Number of used Post-Its: 1 -</p>	<p>PS 15</p> <p>Me as supporter wants to connect my microservice to others, but have only a fuzzy idea how to do this and what the others are doing.</p> <p>- Number of used Post-Its: 1 -</p>
<p>PS 16</p> <p>als Entwickler*in möchte ich eine Dokumentation haben. wenig vorhanden, Einarbeitung laaang</p> <p>- Number of used Post-Its: 1 -</p>	<p>PS 16</p> <p>As developer I want to have a documentation. It exists only few and the induction needs a lot of time.</p> <p>- Number of used Post-Its: 1 -</p>
<p>PS 17</p> <p>Als Entwickler möchte ich wissen wie ich anfangen kann, ich finde aber keinen Einstiegspunkt, daher bin ich unmotiviert.</p> <p>- Number of used Post-Its: 1 -</p>	<p>PS 17</p> <p>As developer I want to know how to start, but I find no entry point, thus I am unmotivated.</p> <p>- Number of used Post-Its: 1 -</p>
<p>PS 18</p> <p>Ich als Entwickler möchte eine Authentifizierung in meinem Microservice, aber der Weg hierfür ist nicht ersichtlich, daher fühle ich mich verzweifelt</p> <p>- Number of used Post-Its: 1 -</p>	<p>PS 18</p> <p>Me as developer wants to implement an authentication for my microservice, but there is no obviously way to do it, thus I feel desperate.</p> <p>- Number of used Post-Its: 1 -</p>
<p>PS 19</p> <p>als Micro Service Ent. brauche ich ne doku für [illegible] Micro →→ Doku ist nicht aktuell</p> <p>- Number of used Post-Its: 1 -</p>	<p>PS 19</p> <p>As micro service developer, I need a documentation for [illegible] micro →→ documentation is not up to date</p> <p>- Number of used Post-Its: 1 -</p>

German	English
<p>PS 20</p> <p>Ich als Supp. möchte die Access-Control für Events / Applications regeln, weiß aber weder welche Rollen zugriff haben noch welche Rollen es gibt</p> <p>- Number of used Post-Its: 1 -</p>	<p>PS 20</p> <p>Me as software developer wants to manage the access control of events / applications, but I do not know for which roles access is permitted and which roles exist.</p> <p>- Number of used Post-Its: 1 -</p>
<p>PS 21</p> <p>Ich als Crewkoordinatorin möchte Lösungen finden, die Standard-Prozesse abbilden, aber häufig werden wir mit Individual-Problemen konfrontiert, daher fühle ich mich oft als "Bremse".</p> <p>- Number of used Post-Its: 2 -</p>	<p>PS 21</p> <p>Me as crew coordinator wants to find solutions that can be described using standard processes, but often we are facing individual problems, thus I feel as I am a "brake".</p> <p>- Number of used Post-Its: 2 -</p>
<p>PS 22</p> <p>Ich als Nutzerin vieler Tools im Pool möchte wissen ab wann ich mit neuen Tools arbeiten kann, aber in der Entwicklung sind Zeitpläne schwierig, daher fühle ich mich schnell genervt.</p> <p>- Number of used Post-Its: 2 -</p>	<p>PS 22</p> <p>Me as user of many tools of the pool I want to know when I can work with new tools, but time table are complicated to create in software development, thus I am quickly annoyed.</p> <p>- Number of used Post-Its: 2 -</p>
<p>PS 23</p> <p>Ich möchte mich an der Pool-Entwicklung beteiligen, aber verstehe den IT-Schnack nicht und habe keine Ahnung wo ich ansetzen kann, daher fühle ich mich demotiviert und mutlos</p> <p>- Number of used Post-Its: 2 -</p>	<p>PS 23</p> <p>I want to participate the pool development, but I know not enough terminology and have no idea what I can do, thus I feel demotivated and discouraged</p> <p>- Number of used Post-Its: 2 -</p>
<p>PS 24</p> <p>Ich als Nutzerin und Produkt-Ownerin möchte Zeit in die Neuentwicklung stecken, die auf die Zeit für die Prozessumsetzung drauf summiert wird, deshalb fühle ich mich schnell gestresst und werde ungeduldig.</p> <p>- Number of used Post-Its: 2 -</p>	<p>PS 24</p> <p>Me as user and product owner wants to invest time for the redevelopment, which has to be added to the amount of time process implementation, thus I feel quickly stressed and I become impatient.</p> <p>- Number of used Post-Its: 2 -</p>

German	English
<p>PS 25</p> <p>Tester → tester → wohin mit Ergebnis [illegible]</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 25</p> <p>Tester → tester → where the result [illegible]</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 26</p> <p>Tester → testen → weiß nicht wo genervt</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 26</p> <p>Tester → testen → do not know where annoyed</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 27</p> <p>Als PL möchte, dass alle actechn Probleme effizient gelöst werden / umgangen werden, verstehe aber nicht alles und fühle mich ohnmächtig</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 27</p> <p>Me as project leader wants that all technical problems are solved efficiently / workaround efficiently, but I do not understand all and I feel powerless</p> <p>– Number of used Post-Its: 1 –</p>
<p>PS 28</p> <p>Ich als PL möchte verstehen welche techn. Herausf. aktuell bestehen, aber mir fehlt die Expertise, daher fühle ich mich uninformiert</p> <p>– Number of used Post-Its: 1 –</p>	<p>PS 28</p> <p>Me as project leader wants to understand the current technical challenges, but I missed the expertise, thus I feel uninformed</p> <p>– Number of used Post-Its: 1 –</p>

The created problem statements have been clustered by the moderator and the participants have agreed to the clusters. Also the participants marked the two most important cluster with dots. The identified clusters are described in table 4. PS 2 is unclustered, because it was added during the brainstorming session.

Transcript	ID	Dots	Problem statements
Doku	PS-Cluster DC	7	PS 13, PS 14, PS 15, PS 16, PS 17, PS 18, PS 19, PS 20
PM	PS-Cluster PM	4	PS 1, PS 3, PS 4, PS 5, PS 27, PS 28
PO	PS-Cluster PO	1	PS 22, PS 23, PS 24
Deploy	PS-Cluster DP	3	PS 10, PS 11, PS 12
Bug	PS-Cluster BG	0	PS 6
Arbeitsprozess	PS-Cluster WP	1	PS 7, PS 8, PS 9
Tester	PS-Cluster TT	0	PS 25, PS 26
Mitarbeiter	PS-Cluster EP	0	PS 21
Unclustered PS:			PS 2

Table 4: Identified clusters of PS consisting also the dots that indicated the importance of the cluster.

### 4.3 Goals

The generated problem statements (see section 4.2) have been used by the participants to generate goals that will address the problem statements, if the goals will be reached. The participants have been broken into two groups by asking everyone which of the two highest ranked cluster of PS is the most interesting. Thus, the cluster *PS-Cluster DC* and *PS-Cluster PM* have been used as a base for a brainstorming. The group focusing the *PS-Cluster DC* has consists of five participants, while three participants and the moderator have focused the PS of *PS-Cluster PM*.

Table 5: Tasks of the Pool project the participants had performed.

German	English
<p>Goal 1 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>Tabelle mit Rollen und Access von diesen</p>	<p>Goal 1 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>Table of all roles associated to its access.</p>
<p>Goal 2 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>Technische Umsetzung handshakes erklären (Endpoint)</p>	<p>Goal 2 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>Explain technical implementation handshakes (Endpoint)</p>

German	English
<p>Goal 3 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>How to start guide: Microservice Vorlage</p>	<p>Goal 3 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>How to start guide: Microservice template</p>
<p>Goal 4 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>Einstiegspunkt: Walkthrough Videos von Services</p>	<p>Goal 4 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>Entrypoint: Walkthrough videos of services</p>
<p>Goal 5 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>Einstiegspunkt: Übersicht Endpunkte andere Services</p>	<p>Goal 5 <span style="float: right;"><i>PS-Cluster DC</i></span></p> <p>Entrypoint: Overview endpoints other services</p>
<p>Goal 6 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Big Picture Übersicht</p>	<p>Goal 6 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Big Picture Overview</p>
<p>Goal 7 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Onboarding Scrum Master</p>	<p>Goal 7 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Onboarding Scrum Master</p>

German	English
<p>Goal 8 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">How To + Linklist</p>	<p>Goal 8 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">How To + Linklist</p>
<p>Goal 9 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">Auslastungsübersichten</p>	<p>Goal 9 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">Workload overview</p>
<p>Goal 10 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">Planungsräume für Entwickler</p>	<p>Goal 10 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">Developer get time frames for planing</p>
<p>Goal 11 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">Kollaboratives Priorisieren</p>	<p>Goal 11 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">Collaborative prioritizing</p>
<p>Goal 12 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">Expertenrollen schärfen</p>	<p>Goal 12 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p style="text-align: center;">Focus expert roles</p>

German	English
<p>Goal 13 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Abhängigkeiten visualisieren</p>	<p>Goal 13 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Visualize dependencies</p>
<p>Goal 14 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Probleme verständlich – Problemprotokoll – -Folgen -Betroffene -nötige Mittel -Größe</p>	<p>Goal 14 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Understandable problems – problem protocol – -consequences -affected persons -required invests -Size</p>
<p>Goal 15 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Schulung</p>	<p>Goal 15 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>courses</p>
<p>Goal 16 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Standards + Prozesse einhalten + visualisieren z.B. Timing erstellen</p>	<p>Goal 16 <span style="float: right;"><i>PS-Cluster PM</i></span></p> <p>Standards + comply to and visualize processes e.g. create timings</p>

Additionally, during the presentation of the goals, one group has clustered their goals. The participants have introduced an overall **Goal 6**. They have introduced two cluster subordinated to the overall goal, that they have not named. The first cluster of goals focuses the **PS 2** and consists of the goals: **Goal 7**, **Goal 8** and **Goal 16**. The second cluster addresses the problem statements that describe the role project leader: **Goal 9**, **Goal 10**, **Goal 11**, **Goal 12**, **Goal 13** and **Goal 14**. **Goal 15** is not part of any cluster, but has been consciously positioned between both clustered.

## References

- [1] Tone Bratteteig, Keld Bødker, Yvonne Dittrich, Preben Holst Mogensen, and Jesper Simonsen. Methods: organising principles and general guidelines for Participatory Design projects. In Jesper Simonsen and Toni Robertson, editors, *Routledge International Handbook of Participatory Design*, chapter 6, pages 137–164. Routledge, 10 2012.
- [2] IDEO.org. *The Field Guide to Human-Centered Design*. IDEO.org, 1 edition, 2015.



- [3] Gabriele Kunau. *Facilitating computer supported cooperative work with socio-technical self-descriptions*. PhD thesis, Technische Universität Dortmund, 2006.
- [4] Frédéric Laloux. *Reinventing Organizations*. Nelson Parker, Brussels, 1 edition, 2014.
- [5] Robert J Sternberg. *Handbook of creativity*, volume 1. 1999.
- [6] Maja van der Velden and Christina Mörtberg. Participatory design and design for values. In *Handbook of Ethics, Values, and Technological Design: Sources, Theory, Values and Application Domains*, chapter 1, pages 41–66. Springer, 2015.

## Abbreviations

**akt.** aktuell

**API** Application programming interface

**BG** Bug

**DC** Documentation

**Deploy** Deployment

**Doku** Dokumentation

**doku** Dokumentation

**DP** Deployment

**Ent.** Entwickler

**Entw.stand** Entwicklungsstand

**Entwickl.** Entwicklung

**EP** Employee

**Herausf.** Herausforderungen

**I.a.S.** Ich als Supporter

**I.** Ich

**Info** Information

**IT** Information Technology

**PL** Projektleiter

**PM** Project management

**PO** Product owner

**PS** Problem statement

**Supp.** Supporter

**tech.** technisch

**techn.** technisch

**TT** Tester

**VcA** Viva con Agua

**WASH** Water, Sanitation and Hygiene

**wiss.** wissenschaftlich

**WP** Working procedure

**WS** Workshop

