Grant Agreement No.: 761802

D4.2: Piloting Activities and Evaluations

This deliverable presents how we translated the earlier defined user scenarios to 5 pilots. We defined a general methodological approach to evaluate these pilots in a quantitative or qualitative way, depending on the research question and type of user. The design of these pilots are then discussed, after which we present the outcome of the evaluations. Lastly, we present how we tackled the ethical aspects of the design of the pilots from a legal point of view.

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EXECUTIVE SUMMARY

This document describes the pilots derived from the earlier defined user scenarios. The evaluation of the MARCONI solutions cannot be isolated from the end-user's perspective because the undertaken pilots revolve around real-life events involving end-users with a variety of interests and perspectives.

Within the undermentioned pilots, quantitative as well as qualitative methods are being used. Quantitative research methods can help to detect patterns of use. Qualitative methods provide a deeper insight into their user experience.
In total 7 pilots were conducted in this first phase.

- Audio-to-go pilot app

The Audio-to-go pilot app is an application that allows the user to listen to a daily personalized podcast of information radio items based on their interests. The goal of this pilot is to find out if the user category (in the 35-55 age range) will be tempted to switch to the personal audio app instead of resorting to other news channels (e.g., podcasts or commercial broadcasters) and whether this will increase the amount of time spent listening to radio content.

- Chatbot - NPO Radio 5

The chatbot built for the radio channel NPO 5 will automatically answer frequently asked questions (FAQ), and have a poll & profile functionality. We want to involve listeners in the program and engage them. On the other hand we want to reduce the editor's work through automatically answered questions by the chatbot and to get new stories (input) for the show. The goal is to investigate whether users are going to use this chat functionality and how we can build profiles and use these profiles in such a way it will engage listeners more to the show. It will also learn us how to improve the chatbot's automatically generated answers as well as the overall quality of the chatbot-mediated conversations.

- App the Studio

The chatbot experiments will be elaborated with the development of the 'App the Studio' Application. This application (mobile and web) makes it possible for listeners to contact the studio or DJ in an easy way by sending messages (like Whatsapp) with text and pictures. The much used 'App the studio' feature will be extensively rebuild. We need to include instant feedback for users, easier and in part automatic ways to answer users by DJ's and producers, and ways to trigger users to keep returning to the app. This application will support 5 different forms of interaction: What's playing/about the station/talk to the DJ, small talk, topics like events or trending news, polls and webcare. We expect to learn more about if and how users use the 'app the studio' functionality.

- Interactive Storytelling via Radio for Elections

In this pilot, we want to bundle different radio stations with the news department by providing them with a tool to capture what's on the minds of the Flemish people concerning politics. This tool will allow people in Flanders to share content about issues politicians can do something about. The goal is to give people a voice into the elections via a conversational interface, in order to enrich and feed the stories VRT will tell via its channels. We want to learn whether and how the radio makers use the submitted content.

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- Search tool

Currently, all of VRT's radio stations have an editorial app that shows incoming messages that are send by listeners via the stations' app. Using this editorial app, the radio team can also answer messages, send out push notifications and manually create groups of people. It often happens that an editor wants to find something that was sent in before (text and/or photos), along with who sent it (e.g., to call him/her on air). In this pilot, we want to make these messages searchable (text and in a later stadium photos and videos) in a simple Google-like interface. Moreover, we want to add quick actions to a selection of messages, such as 'Send message to users of selection'. The pilot's success depends on the added value for the radio team. Are they able to find content faster than they did before?

- Chatbots for Answering Common Questions

For a charity event organised by Studio Brussel people can sign up to host an event for collecting money for the good cause, i.e. the 'campaigners'. Often, these campaigners have a lot of questions. The radio team, on the other side, also has a lot of questions for the campaigners. Answering all these questions manually would take a lot of work, and in most cases, a bot would be an ideal solution to reduce this manual labour. The pilot will be a success if the amount of manual work (time spent by the editors) on conversations decreases, while still maintaining the same level of service quality.

- Lively environment

At the Studio Brussels' charity event they air from a remote studio. Surrounding this studio, there is a larger visitor area for the campaigners to bring the money they raised or to request a song. This area is equipped with screens which showcase photos sent in by campaigners. Beacons were installed on the surrounding area to know which campaigners were present at a certain time, and their content was shown more than other. As this is our first large-scaled experiment to track passing users via sensors in a physical location, we have focused mainly on the technological aspects. We also explored the potential of the learnings of this data, together with radio team members. In a second iteration, we would evaluate how this affects the experience of the listener.

We conclude this deliverable with an overview of the legal aspects of each piloting activity and present recommendations for which a comprehensive overview is provided.

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ABBREVIATIONS

IP	Internet Protocol
TCP	Transmission Control Protocol

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GDPR	General Data Protection Regulation
MARCONI	Multimedia and Augmented Radio Creation: Online, iNteractive, Individual

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1 From Scenario to Pilot

The piloting phase of the MARCONI project sets out to evaluate the initial implementation of the MARCONI concepts and services. We expect to validate that these concepts and services are aligned with our main objective, which is to enable fully interactive and personalized radio experiences to our end-users – both listeners and radio makers.

At the onset of this project, we conducted studies with potential end-users using design thinking as a research approach. These exploratory studies defined the core concepts and services required to achieve our objective, which were crystallized in the form of six scenarios and a list of use cases (see D1.2). Subsequently, these scenarios and use cases formed the basis for drafting exploratory mock-ups. These mock-ups were iteratively designed and evaluated with end-users (see D4.1) and guided the implementation of functional prototypes. Following a user-centred design process, we used the resulting functional prototypes for assessing whether the MARCONI solutions are in line with the user expectations. Furthermore, we used these prototypes to identify challenges and opportunities for subsequent iterations of our solutions.

In this first section, we present how we approached the translation process from the scenarios as described in D1.2 to actual pilots that are developed to be evaluated in-the-wild, in the working of real-life radio stations.

1.1Intra-Consortium Workshop

We organized an intra-consortium workshop to reflect on the pilots, where each media partner (VRT, NPO, and SFilter) delineated the timeframes for guiding their piloting activities. Additionally, this workshop served to strengthen collaboration and to delegate responsibilities among the consortium partners, as well as to discuss the technical and methodological aspects of the pilots.

The workshop was divided in two parts. The first part involved three *discussion rounds* in small groups with the objective of collaboratively creating a timeline to guide each media partner's pilots. The second part was to disseminate to all consortium members the timelines and other artefacts created during the first part. The full workshop had a duration of around 1.5 hours, including the participation of 14 members of the MARCONI consortium. The session was facilitated by a team member of Hasselt University.

Part 1: Discussion Rounds

The goal of the first part of the workshop was to discuss the piloting plans in collaboration with other partners. This part consisted of three discussion rounds. The first round lasted around 30 minutes, while the second and third round lasted around 15 minutes each. Participants were divided in three small groups of around 3 - 4 participants. During each round, each small group gathered to discuss about a specific pilot(s) with the guidance of a facilitator. The appointed facilitators were team members of VRT, NPO, and SFilter. After the time

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assigned for each round was over, the small groups had to move along and talk with a different facilitator. For instance, Team member X and his small team talked about Pilot A during Round 1, about Pilot B during Round 2, and about Pilot C during Round 3. The configuration of the small teams for each discussion round is detailed in Table 1. This configuration was carefully planned in consideration of the expertise of each team member.

Table 1. Configuration of small teams for each discussion round. Each of the three small group is highlighted with a colour.

Facilitator	**VRT**	**NPO**	**SFilter**
Round 1	IN2, JRS, NPO	VRT, Faktion, Plux, UNIVIE	VRT, UNIVIE, Plux, Faktion
Round 2	VRT, UNIVIE, Plux, Faktion	IN2, JRS, NPO	VRT, Faktion, Plux, UNIVIE
Round 3	VRT, Faktion, Plux, UNIVIE	VRT, UNIVIE, Plux, Faktion	IN2, JRS, NPO

The facilitators of each team had a critical role during the discussion rounds. The facilitators were instructed to focus on making decisions, delegating responsibilities, and defining the next steps to follow for their piloting activities. Additionally, they were asked to detect possible gaps in their planning. Figure 1 depicts Round 3 of discussion.

Figure 1. Round 3 of discussion, indicating the facilitator of each small team.

As supporting material for this activity, the facilitators were given sketching material together with a template with a blank timeline, as well as a template inspired by the "business model canvas[1]" with a few questions for reflecting on the different aspects of their piloting activities (e.g. stakeholders involved, technologies required, etc.). These two formats are depicted in Figure 2, together with illustrative content of a (fictitious) pilot.

[1] BMC was invented by Alex Osterwalder and serves as a template to document new or existing business models It is a visual chart with elements describing value proposition, customer relationships and segments, finances like cost and revenue, key partners and resources. This template makes it quite easy to structure the different elements in a clear and visual way.

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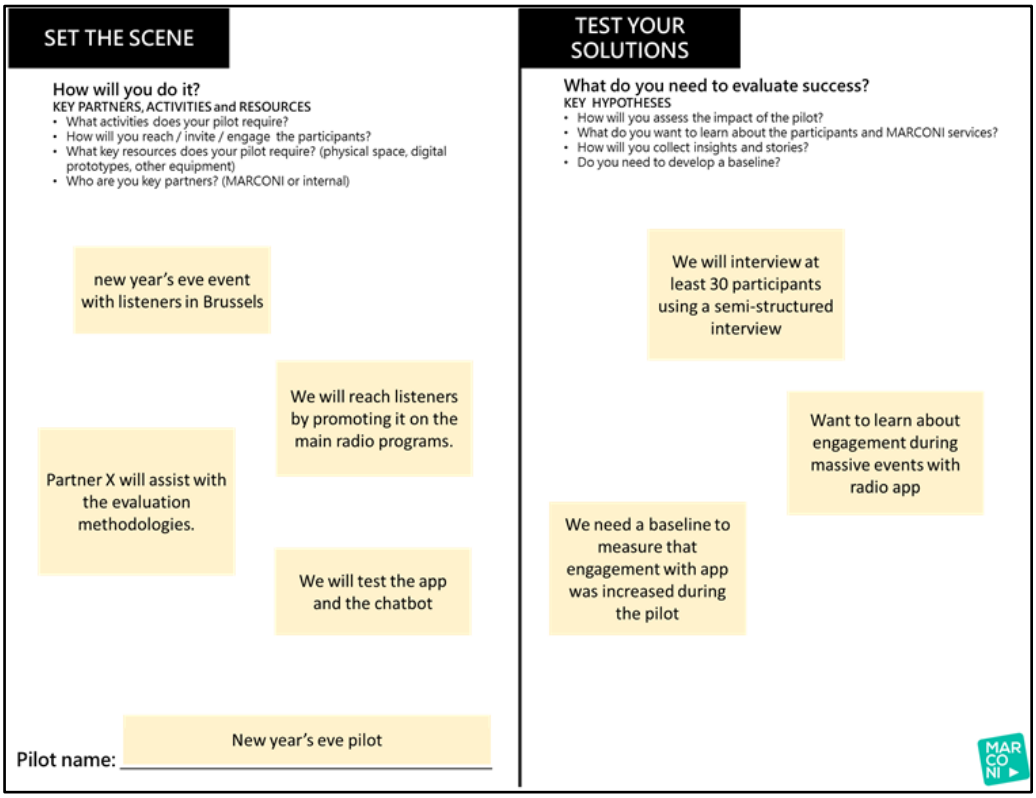
(a)



(b)

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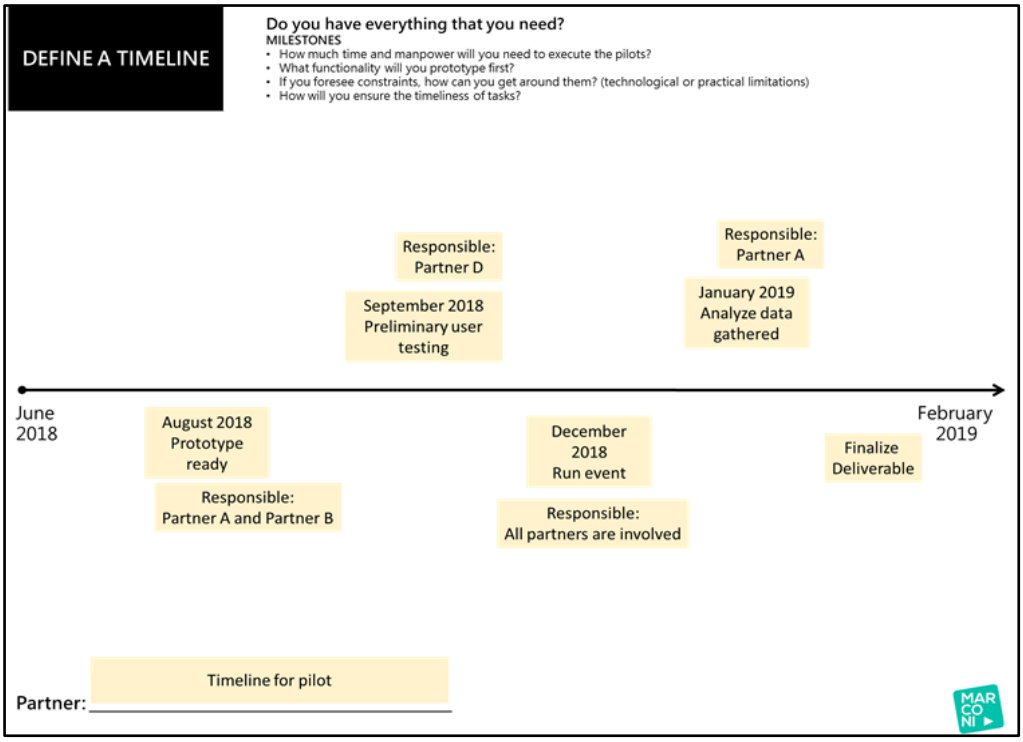

Figure 2. (a) format of canvas to reflect on the piloting activities and (b) format of timeline. Both formats include fictitious content to exemplify the expected output.

The outcome of part 1 of the workshop were three timelines depicting the tentative time frame of activities and responsibilities for the pilots of each media partner (VRT, NPO, and SFilter). The value of the applied workshop method was for the MARCONI consortium to frame and elaborate on the details of the piloting events. Additionally, the discussion rounds encouraged the inclusion of different points of view and alternatives, and ensured that all attendees were aware of the details of all the planned piloting events.

Part 2: Plenary presentation

The second part of the workshop consisted of a plenary presentation of the timelines and sketches generated by each team. The objective of this activity was to communicate the outputs of the activity, and to discuss at a consortium-wide level possible challenges and opportunities. This phase lasted around 20 minutes.

Outcomes of the workshop

The concrete outcome of the workshop were three timelines, one for each media partner. These timelines represented an initial estimate of time, activities, and technologies required to execute the pilots, as illustrated in Figure 3. Furthermore, these activities served for all consortium partners to gain awareness of the pilots, identify alternative new ways to collaborate, and highlight potential challenges. The final timelines and other artefacts created during the workshop were shared among the consortium by creating a living document. This living document was used to keep track of the pilot descriptions throughout the planning, execution, and reporting phases.

(a) SFilter

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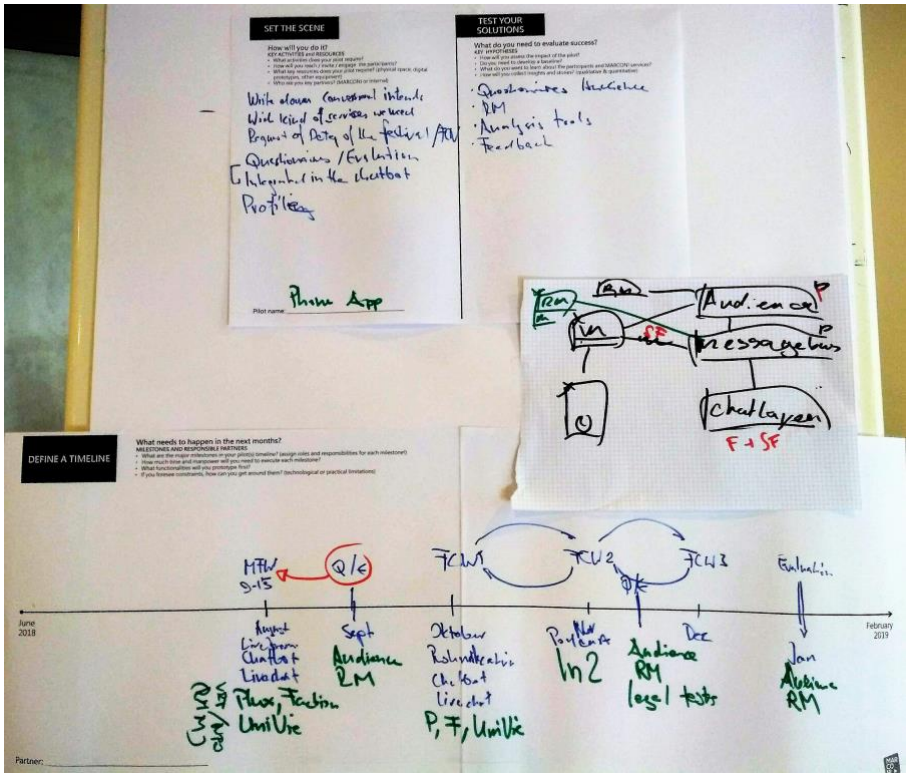
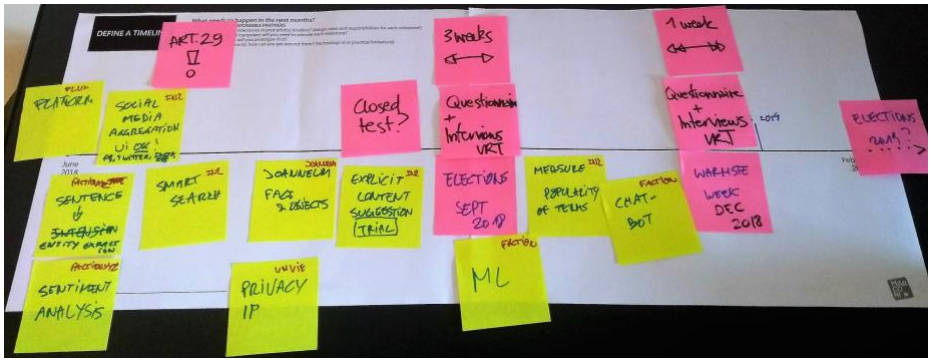


(b) VRT



(c) NPO

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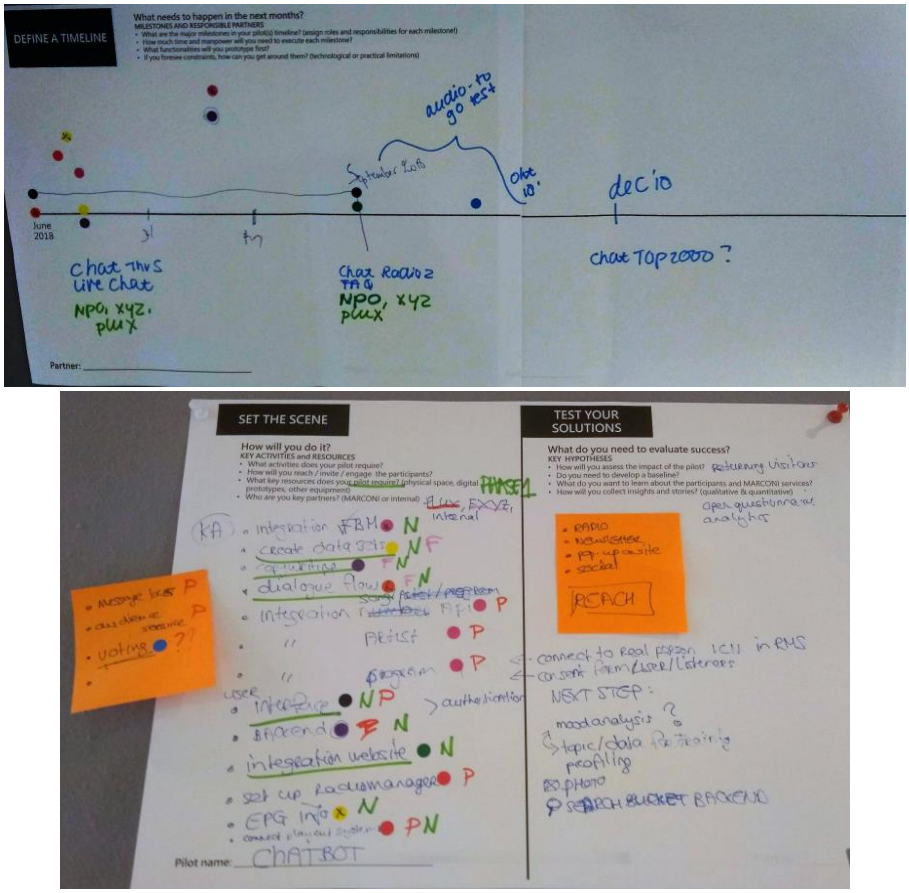

Figure 3. Finalized artefacts (canvas and/or timeline) created during the WP4 workshop: (a) SFilter, (b) VRT, (c) NPO.

1.2 Executed piloting events

Larger-scale and longer-term pilots and field trials were organized as part of MARCONI task T4.3 to verify the usability of the MARCONI concept as a whole under (semi-)controlled usage scenarios. To this end, the consortium partners have leveraged their professional network to set up pilots involving either a specific broadcast radio show, a radio network that is willing to test the MARCONI concept in parallel in multiple of its shows, or a live real-world event. The pilots ran for prolonged periods of time (e.g., in the range of weeks or months rather than hours or days) so that evaluating the longer-term effect of adopting the MARCONI concept became feasible.

An overview of the piloting event(s) executed by each media partner is presented in Table 2.

Table 2. Pilots executed by each media partner (NPO, VRT, and SFilter).

Event	Organizer	Date	Description
Audio-to-Go App	NPO	Oct 2018 - March 2019	Large scale pilot with 1000 end-users to test the audio-to-go pilot app. Main goal is investigate if there

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			is a need for a personalized app like this.
Chatbot NPO Radio 5	NPO	July 2018 - Feb 2019	Poll, Profiling and FAQ by means of a webchat
App the Studio	NPO	Jan-May 2019	Integrate chat & app the studio, filtering for editors, poll-option, webcarewizard, FAQ automatically answered, preset answers for DJ's
Mobile app with Chatbot	SFilter	Sept 2018	FAQ Specific answers
Interactive storytelling via radio for elections	VRT	June - Sept 2018	How a radio maker can use user-generated input to generate their stories.
Smart search	VRT	October 2018 - February 2019	Allowing radio makers to easily search chat messages
Lively environment	VRT	Dec 2018	Live interaction with listeners through video
Chatbot to assist radiomakers	VRT	Sept - Dec 2018	Automatic suggestions for radio makers to answer repetitive questions by listeners

2 Pilots

2.1 Methodological framework

The undertaken pilots revolve around real-life events, involving end-users (both listeners and radio makers) with a variety of interests and perspectives and within different countries and settings. Consequently, the evaluation of the MARCONI solutions cannot be isolated from the end-user perspective. The evaluation criteria to determine the impact of the MARCONI solutions during the piloting events is related to their *usability* and perceived *User Experience (UX)*. On the one hand, usability is related to the "extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use". On the other hand, User Experience deals with the

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end-user's "perceptions and responses resulting from the use and/or anticipated use of a product, system or service"[2].

In the scope of the MARCONI piloting events, we use a variety of approaches for evaluating the usability and user experience of the end-users. Controlled studies allow us to manipulate the variables in order to explore a research question in a precise manner, but the setting could be too rigid for anticipating real-life situations. In-the-wild studies provide us with rich insights into how the MARCONI solutions can be fitted into real-life situations but provide little to no control over certain variables. Consequently, we conducted both controlled and in-the-wild studies in order to gather relevant data from different settings and contexts of use.

Within these studies, we use different research methods for recollecting the expectations and experiences of end-users. Quantitative research methods such as questionnaires and usage metrics (e.g., time spent using the chatbot) provide objective measurements before, during, or after interacting with the MARCONI platform. These measurements can help to detect patterns of use. Qualitative methods, such as interviews and observations, explore the emotions, perceptions, and preferences of end-users, providing a deeper insight into their user experience.
Table 3 presents an overview of the different research methods applied, participants, and the evaluation rationale of each pilot.

Table 3. Overview of methods applied for each piloting event

Pilot event	Participants	Method(s) applied
Chatbot NPO Radio 5	Listeners of the channel/visitors of the website/messenger	* Number of visitors of webpage. * Number of webpage visitors that use the chat window. * Statistics about conversation from Faction: -Total messages -Total users -Total sessions -Total not understood dialogue states
Audio to Go	Pilot group of 1000 users	Statistics app Online survey
App de studio	Users of the app	Interviews, observations, quantitative research.
Interactive Storytelling via radio for elections	- Users - Editorial teams (radio and tv)	Quantity of usage Interviews

[2] International Organization for Standardization. 2010. Ergonomics of human-system interaction -- Human-centred design for interactive systems (ISO 9241-210:2010). Retrieved from https://www.iso.org/standard/52075.html

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Search tool	Radio teams	Observations combined with informal interviews
Chatbots for answering common questions	- Radio team (event) - Listeners that had set up a campaign for a charity cause	Interviews, data collection
Lively environment	event visitors	Data collections

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2.2 NPO

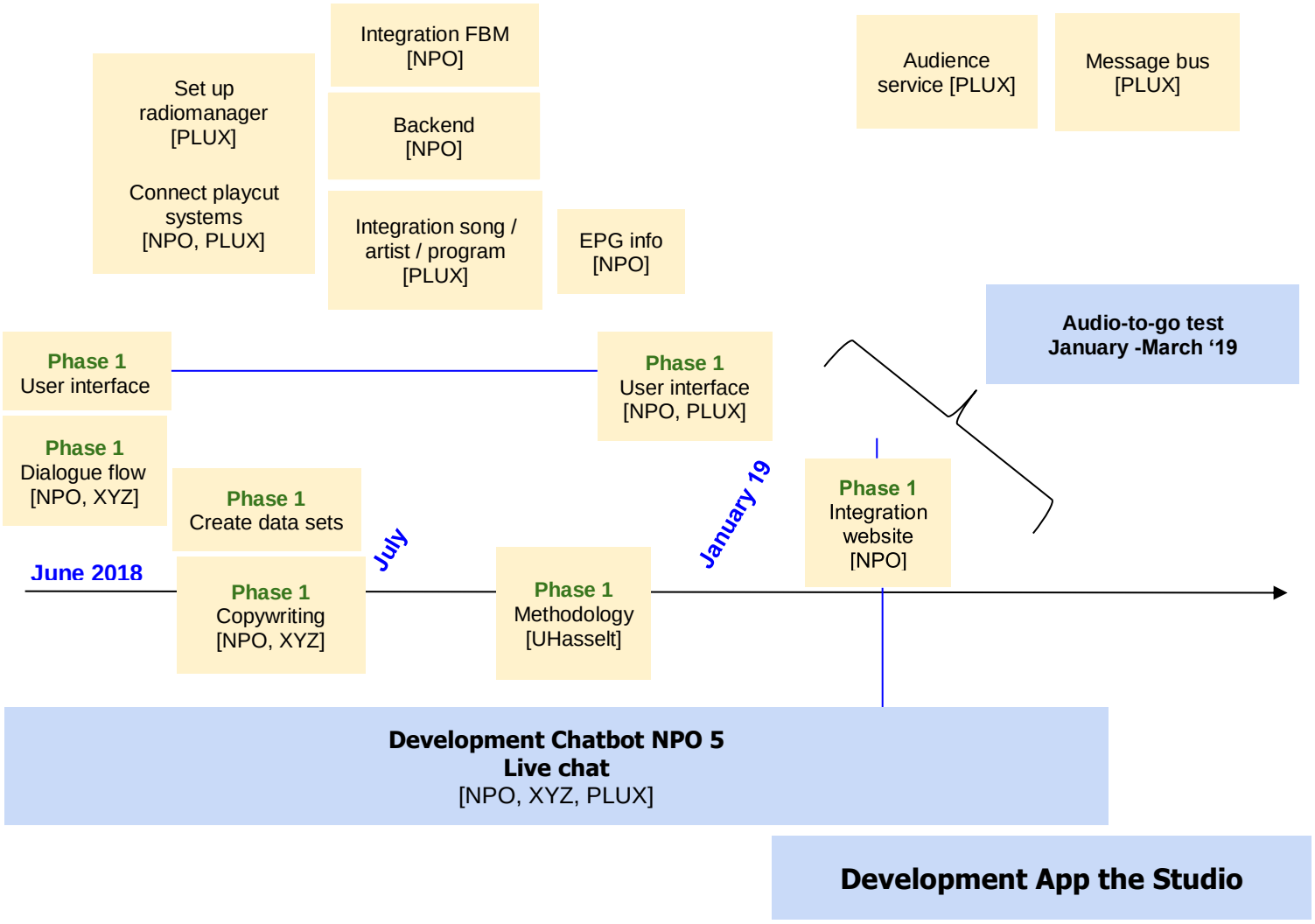

Figure 4. NPO piloting timeline - as defined in the Winterthur plenary meeting (WP4 workshop)

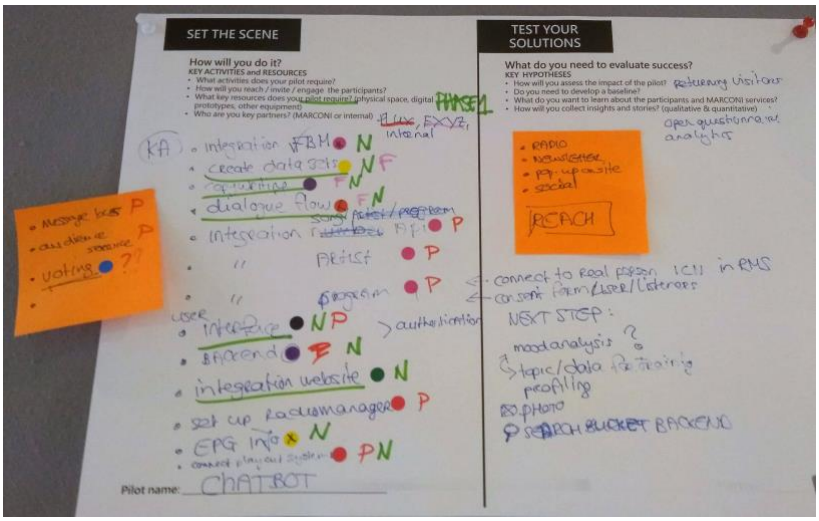

Figure 5. NPO piloting ideas and sketches - as defined in the Winterthur plenary meeting (WP4 workshop)

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2.2.1 Audio-to-go pilot app

Description of pilot

NPO will develop a test app with an elaborated version of the audio-to-go concepts that have previously been explored and evaluated using mock-ups (see D4.1). This pilot app aims to investigate both organizational and listener-related aspects:

Organization:

- Is there enough content available to fuel an app that will give listeners 30 minutes worth of news content daily, or is new content (like podcasts) needed?
- How many editors would be needed to make this content ready for use in the app (audio editing and data entry)?

Listeners:

- What are the most popular subjects users choose for personalization (latest news, culture, science etc.)?
- What is the average amount of time users want to spend on listening to a personalized audio stream?
- What percentage of users will use the app daily/weekly/monthly?

The target audience will primarily be the younger end of the spectrum of the listeners of our news channel NPO Radio 1 (i.e. 35-55 age range), who own a smartphone and are already registered users of the NPO radio app. We want to study if and how this user category is tempted to switch to our personal audio app instead of resorting to other news channels (e.g., podcasts or commercial broadcasters) and whether this will increase the amount of time spent listening to NPO content.

Location and stakeholders

The envisioned functional prototype will be distributed to 1.000 users and their in-app behavior will be monitored for 4-6 weeks. We will recruit the test-users among the listeners of NPO Radio 1 and ask them via the show (on air) if they are willing to participate. They can sign up via the website or app (send an 'appje').

The end goal is to accumulate sufficient (quantitative) insights to launch a personalized audio app for NPO in 2019. The radio team of NPO will be involved in the development of the app. The research team will be involved in the execution of the test and the design of an online questionnaire.

Apparatus

The Audio-to-Go pilot app will be a stand-alone iOS app, only available for the test group of 1000 end-users. A team of NPO Radio existing of a developer, a designer and an UX employee will work together to develop the test app.

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The following items (related to D.1.2) will be part of this test app and evaluated:

- Explicit personalisation with filters chosen by user
- Automatically generate a personalised stream with on demand content
- Starting with the most relevant content (latest news bulletin)
- Providing a screen filling player for easy use in car with skipping, 30s playback and like options

Evaluation framework

We will do quantitative research by means of online questionnaires; at the same time, the behavior of the testers will be monitored during the test period of 4-6 weeks via an analytics program.

We have a few criteria to measure success:

- App use: will app use increase during the test phase, stay steady of decline? Steady or increased use would be a success factor
- User satisfaction: how will the test users evaluate the app? A positive experience for users, where the app would add to their NPO content use, would be a success factor.
- Personalisation: Do users appreciate a unique personal experience using NPO audio content, a mixed offer of podcasts and radio items? If so this would be a success factor too.
- Are users going to listen to archived content? If so we get the most out of our already made content.

Expected results

We want to find out if the user category (in the 35-55 age range) will be tempted to switch to our personal audio app instead of resorting to other news channels (e.g., podcasts or commercial broadcasters) and whether this will increase the amount of time spent listening to NPO content.

Main learnings should consist of the following:

- Is the concept valid enough? Do people use the app, how often and for how long?
- What do users appreciate? And what they don't? How can we improve it?
- Learning about what personalisation can do to keep users interacting with you radio channels for longer

Work in progress

There were several development sprints for the Audio to go app between September and December 2018. The back-end for the editorial side (naming and tagging items, giving items a 'best before' date, filtering on item length, only items less than 15 mins are usable in the app) was delivered end of November 2018. The first version of the iOS test app was delivered first week of December, with the full version expected end of December. We are planning to launch the application in a pilot group end of January 2019.

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2.2.2 Chatbot - NPO Radio 5

NPO will implement a chatbot for the radio channel NPO 5 with automatically answered frequently asked questions (FAQ), and a poll & profile functionality. The poll will be implemented for a particular program named 'Theater van Sentiment', which is broadcasted on Saturday and Sunday between 16:00-18:00 pm. We will ask users to vote in the chat (top 5 of the day) and ask them for more input on certain subjects. We also want to seduce them to create an account and specify their interests, so we can use their content in the show, and we can start building profiles.

Goal of the use of the chatbot is to involve the listeners in the program and engage them more through better service with more personal information and updates by building profiles.

On the other hand, we want to reduce the editor's work through automatically answered questions by the chatbot and to get new stories (input) for the show.

We want to investigate whether users are going to use this chat functionality and how we can build profiles and use these profiles in such a way it will engage listeners more to the show. It will also teach us how to improve the chatbot's automatically generated answers as well as the overall quality of the chatbot-mediated conversations.

Location and stakeholders

We strive to start the pilot in July 2018 (design, technical development, copy and expressions) and launch the chat January 2019 for the public. With the learnings of the first implementation, we will improve and elaborate the chat as it evolves towards its public deployment.

The editors and presenter of the show 'Theater van het Sentiment' will be involved, as well as the listeners of NPO Radio 5, who we will encourage to use the chatbot. We will promote the chatbot on air during the show.

Apparatus

The chatbot will contain the chat layer of Faktion and will be connected to the radio manager system of Pluxbox. The chatbot will be integrated on the website of NPO Radio 5 and will be available through Facebook Messenger.

Faktion will be involved to help with the set-up of the chat layer and the editorial team of Radio 5 will be involved for monitoring the questions, providing the right information etc. A designer of NPO will create the chatbot interface.

The following items (related to D.1.2) will be part of this test app and evaluated:

- Text analysis and question answering services
- Conversation interface to chat with users (text and media)

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- Editing/consulting listener information
- Edit preferences and account information
- Service for asking opinions | input on current (discussion) topics
- Service for asking data and permissions that go along with this data to listeners
- Associate text messages with program item
- Keyword extraction from text messages
- Chatbot training

Evaluation framework

NPO will monitor the usage of the webchat. How many people are visiting the website and how many of them are using the chat functionality?
How many people vote on the regular poll on the website and how many vote in the chat?
Do people actually use the chatbot and do they provide input for the show?
Are people willing to leave personal information and set preferences?
How is the quality of the answers of the chatbot?

Besides that we can enter a link in the chat that refers to a short online questionnaire users can fill in.

Expected results

NPO will learn if users actually use the chatbot and how they interact. When and how does the chatbot provide additional value to users and will it engage them more to the program? The show 'Theater van het Sentiment' has an older target group (55+). Do these people understand the chat, how do they react? What does it yield for the editors of the program?

Work in progress

We have been working on the diagram flow, dialogue states and expressions for the different programs belonging to NPO Radio 5 (around 40). We created a persona, set goals and defined our target group. We created a flow for the poll and profile set-up and we have tuned this process with the University of Vienna and Pluxbox (PriVaults system) for the right privacy handling and use of purposes and consents.

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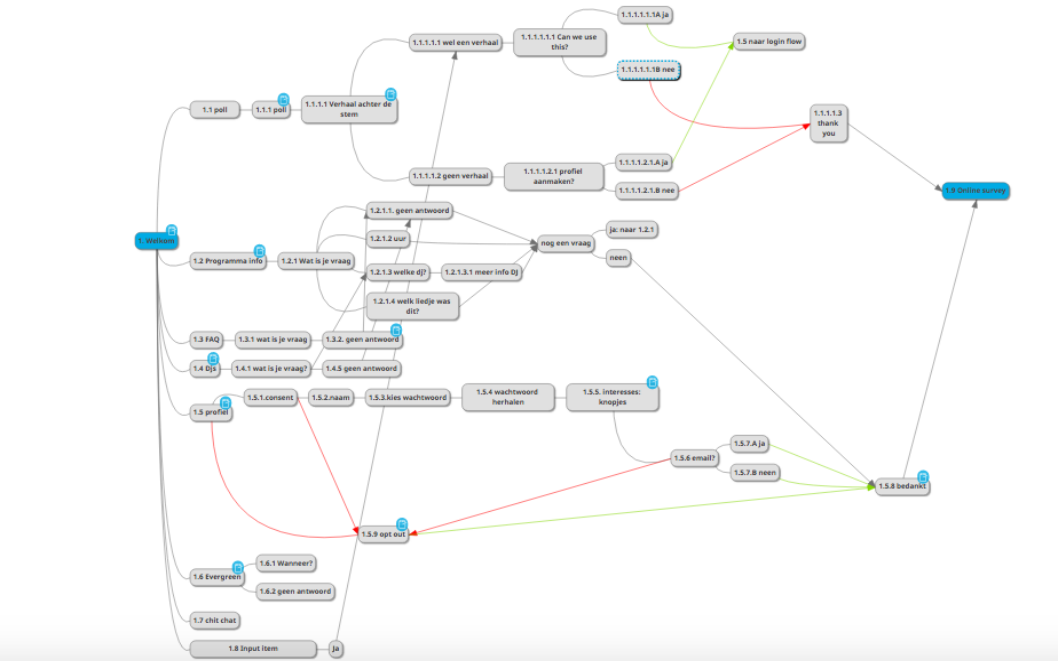

Figure 6. Diagram Flow Conversations 'Chatbot NPO Radio 5'

We created around 50 intents and between 50 and 100 expressions for each intent. And we wrote the copy to answer all these intents. This was quite complex and time demanding work, which took longer than we expected.

Besides the editorial work we started with the technical implementation, UX and design. Faktion and Pluxbox realised the integration with radiomanager for the song API and automatic replies about programs and DJ's like time schedules and bios of the DJ's. NPO designed the chatbot in the corporate identity of NPO radio 5. Together with UHasselt we created an online survey (see Appendix A), which we will offer as a message in the chatbot if a conversation ends. We are planning to launch the chatbot end of January 2019 to a large public.

2.2.3 App the studio

NPO will elaborate on the chatbot experiments with the development of the 'App the Studio' Application. A series of brainstorms with editorial teams of all NPO radio stations, initially only about the new radio apps, generated the idea to extensively rebuild the much used 'App the studio' feature. Ideas were instant feedback for users, easier and in part automatic ways to answer users for DJ's and producers, and ways to trigger users to keep returning to the app. This application will support 5 different forms of interaction:

1. What's playing/About the station/talk to the DJ
2. Small Talk
3. Topics like events (Top 2000) or trending news
4. Polls

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5. Webcare

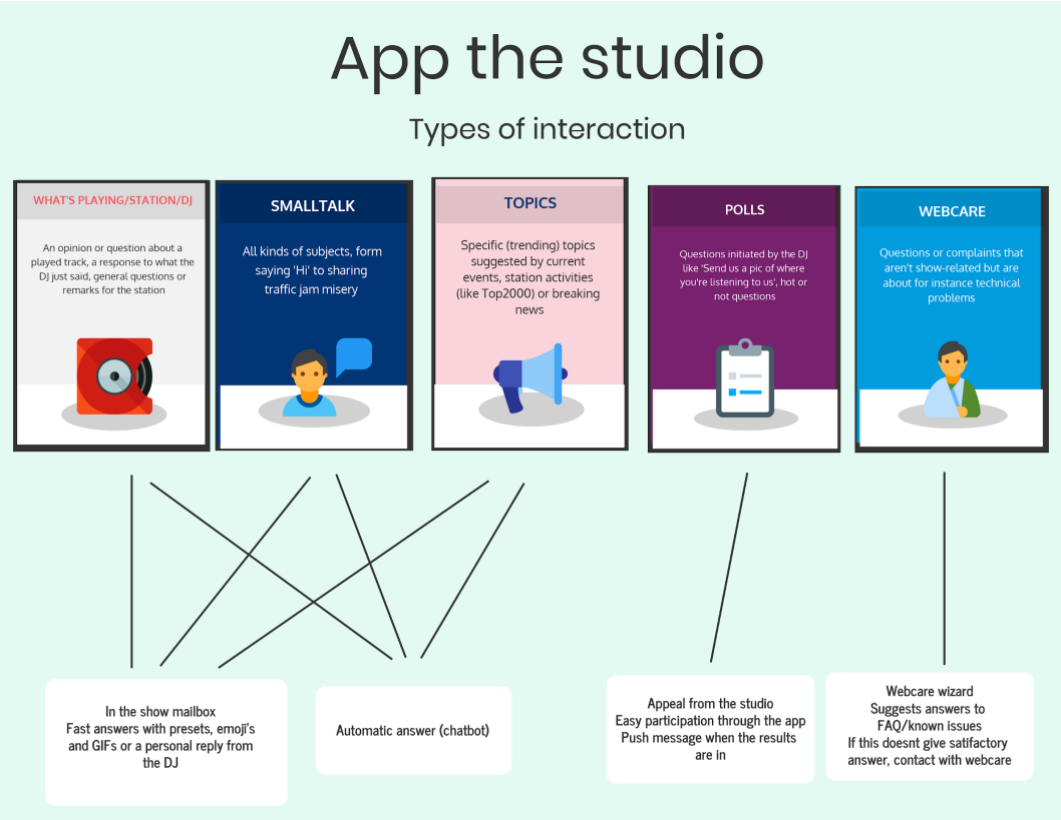

Figure 7. Visual App the studio: types of interaction

Automatic Answers

Automatic answers of FAQ, small talk and topics.

- To detect that a question or item is a frequently asked item or question.
- If possible combine with mood detection
- Connect to existing info and use for feedback
- Multiple ways of answering possible (f.i. 5 different ways to answer a now playing question) in station tone of voice

Webcare

Quickly respond to incoming messages, questions or complaints, that belong to customer service, without too much effort of the DJ/editor/webcare team.

- To detect it's webcare
- Automatically connect to general or specific help pages
- Maybe a Step-by-step plan/Wizard
- End the conversation with the question: 'Did this answer your question?'
- If not: provide contact details of the webcare of the radio station.

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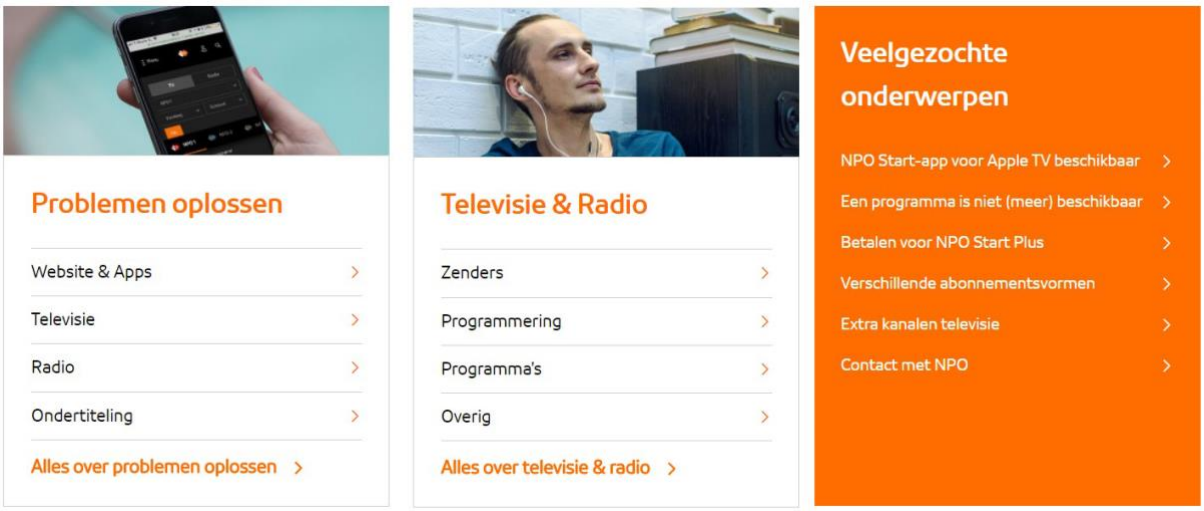

Figure 8. Visual Webcare

Views & Lanes

To organise incoming messages, we will create different lanes within the editorial back-end.

Views are visual dashboards for the DJs, producers and webcare with a set of chosen lanes (columns) and per subject filtered messages. This could be a different set-up for each radio station. Messages are placed partially automatically and partially by hand in the right lane so the DJ/producer has an easy overview and can pick what to use on air and which messages to answer. For example, for NPO Radio 2:

Webcare	Smalltalk	Requests	#top2000
User name Maecenas at arcu diam. In odio nunc, fermentum non malesuada tristique, aliquam eget ipsum.	**User name** Bla bla bla	**User name** Can you play Africa by Toto please?	**User name** Have been listening all day, love it! #top2000
User name Maecenas at arcu diam. In odio nunc, fermentum non malesuada tristique, aliquam eget ipsum.	**User name** Bla bla bla	**User name** I want to hear I'm so excited from the Pointer Sisters!	**User name** Can't wait for the number 1 #top2000
User name Maecenas at arcu diam. In odio nunc, fermentum non malesuada tristique, aliquam eget ipsum.		**User name** plz play Celebration by Kool & The Gang cause it's my birthday :)	**User name** Hate this list, why isnt it over already #top2000
User name Maecenas at arcu diam. In odio nunc, fermentum non malesuada tristique, aliquam eget ipsum.			

Figure 9. Overview for NPO Radio 2

Location and stakeholders

With the learnings of the chatbot we will create a first version of the 'App the Studio' application.
The radio team will be involved with a developer, UX-er and the coordinator of the team and we will invite radio stations to participate, test and give feedback on sprints.

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Apparatus

This application will be part of the Radio app, that's available for all the radio stations of NPO (6 stations to be specific, including NPO Radio 1, 2, 3FM, 4, 5 and FunX). We have to cooperate with Faction, Plux and IN2 for the different services and connections.

The following items (related to D.1.2) will be part of this test app and evaluated:

- Text analysis and question answering services
- Approving/Selecting/Replying incoming messages integrated in the radio workflow
- Conversation interface to chat with users (text and media)
- Editing/consulting listener information
- Text Sentiment Analysis
- Service for asking opinions | input on current (discussion) topics
- Service for asking data and permissions that go along with this data to listeners
- Associate text messages with program items
- Extract location from geotag or estimate from content
- Filter text and multimedia messages based on extracted metadata
- Keyword extraction from text messages
- Chatbot training

Evaluation framework

NPO will monitor the usage of the 'app the studio' application. Do people actually use it and how often? What kind of questions do they ask? How is the quality of the answers? Does it really reduce the work of the editorial team? Does the connection with radio manager work well and does it provide the right information and answers?

We can measure app statistics and do some observations and interviews.

Expected results

Learnings about if and how users use the 'app the studio' functionality. How do users interact? Do they feel more involved with the show or station after using the app? Does this lead to more recurring visits to the NPO apps? Which questions are users asking? Can the chatbot give the right answers and can we improve the quality of its answers over time? What is easy to manage and what is hard to change? Does the app the studio feature provide added value for the user? For the editorial team?

Work in progress

We have a test version for the producer/DJ interface with lanes, bulk messages and personal profiles. The App the studio/Studiomessenger is already operational in the NPO Radio apps & sites and has a messenger functionality with options to send text, photo and audio for users with direct 'Message sent' feedback and possibility to see the entire conversation with the station. Producers and DJ's can respond as an individual or from the station's account using text, photo, GIFs and links. There is also the possibility to send a bulk message to the whole environment/all users of a particular station. As of December 1st, 2018, there are about

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50.000 users of the Studiomessenge. During the TOP2000 in December there was an average of 2.100 messages per hour, on the busiest day even 35.000 messages in total. The amount fluctuates per station, it is most popular with the youth channels. It varies between 200 and 15000 messages a day on average. More data about their usage of the Studiomessenger is still being collected. The new producer/DJ interface with lanes, poll function and automatic replies/suggested replies will be developed in the first half of 2019.

2.3 VRT

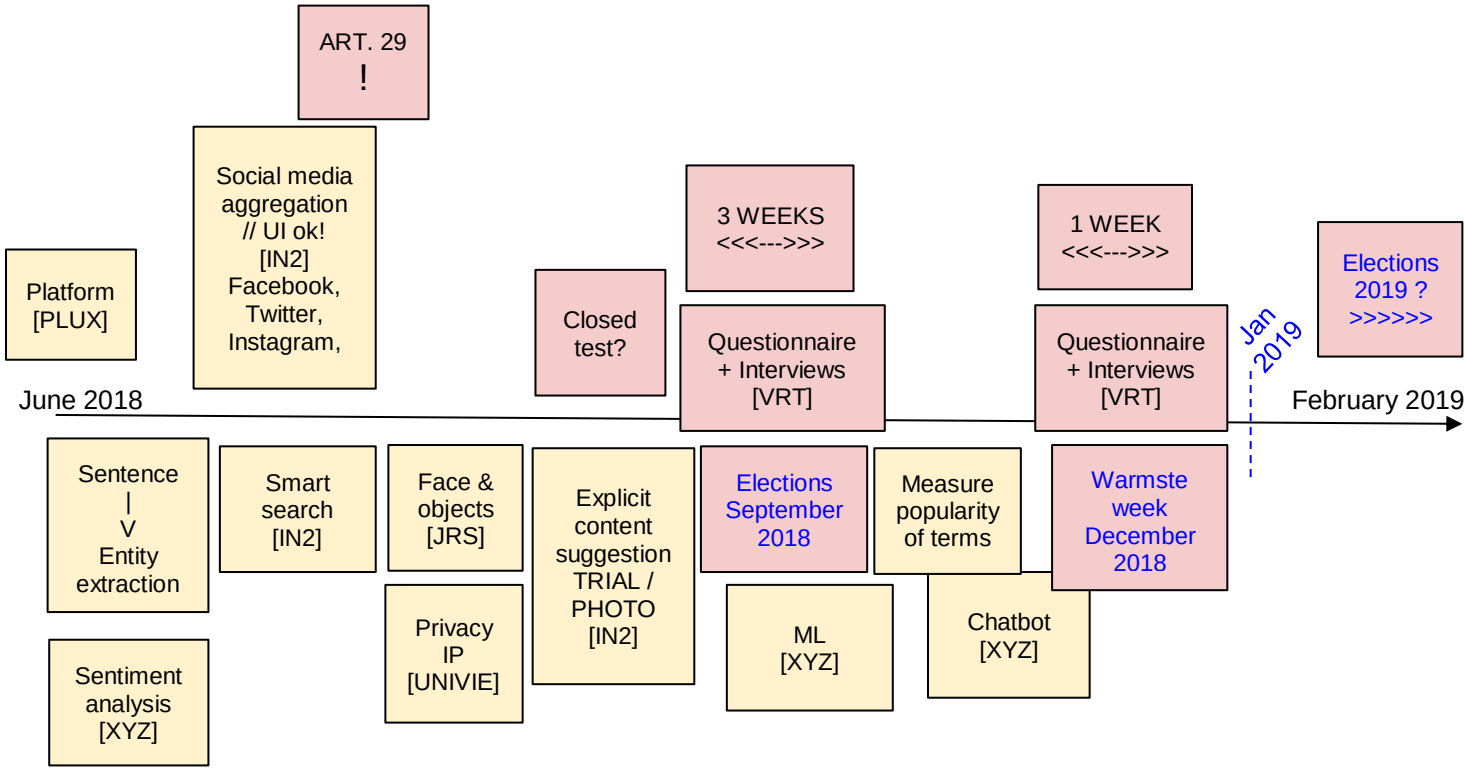

Figure 10. VRT piloting timeline - as defined in the Winterthur plenary meeting (WP4 workshop)

2.3.1 Interactive Storytelling via Radio for Elections

Description of pilot

In October 2018, elections have taken place in Belgium. As VRT, we reach a broad Flemish audience - in many layers of society - through our different channels (i.e. TV, radio and online). Currently, we have five radio stations, each with their own audience and unique content for that audience. In this pilot, we want to bundle these radio stations with the news department by providing them with a tool to capture what's on the minds of the Flemish

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people concerning politics. This tool will allow people in Flanders to share content about issues politicians can do something about. This tool was developed together with the MOS2S project.[3] MOS2S focuses on the citizen journalism while MARCONI looks into how a radio maker can use this user-generated input to generate their stories. The ultimate goal is to give people a voice into the elections in order to enrich and feed the stories VRT will tell on via its channels.

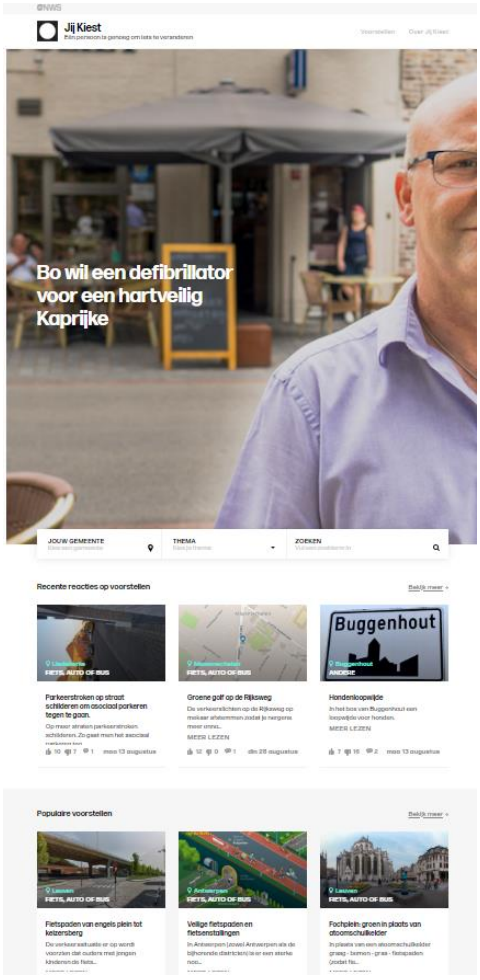

Figure 11. Screenshot Pilot interactive storytelling e.g 'Jij Kiest'

Location and stakeholders

The pilot kicked off in June 2018 with a dedicated editorial team. At the end of the summer, all editorial teams of the VRT radio stations joined in and created content across all radio and TV stations of VRT.

Apparatus

A platform to collect and organize proposals was built by a cross-department team of VRT (including VRT Innovation) for the MOS2S project. Moreover, the editorial team of VRT NWS joined the development and provided direct feedback to the developers. Analysis services from

[3] https://www.mos2s.eu/

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MARCONI (including the Word Cloud service by Faktion) were integrated to give insights into collected data.

Figure 12. Screenshot Word Cloud

Evaluation framework

The test is successful if we are able to collect sufficient (but, more importantly relevant) stories, and if those stories are able to make the content we broadcast better and spark conversations between people in Flanders and politicians, and politicians mutually.

Expected results

We expect to learn if and how the radio maker can tell stories out of user-generated proposals.

Results

The tool reached 21 514 users and 8 169 proposals were submitted. Within VRT 4 radio stations used Jij Kiest to make content for their broadcasts and online articles.
The input was for example used as discussion material for programs such as 'De Ochtend' on Radio 1.

A first step to get insight on whether and how they used the stories of Flemish citizens as inspiration for their stories was executed by a personal interview with an editor.
Interviewee: 'We used the proposals as a basis for the content. We didn't use all of the proposals because that would take us to far. But we started with making news items of striking and much-submitted proposals for 8 weeks during summertime.'

It's a first step on how storytelling could be done with the help of user-generated content. It's still an open question on how to continue with Jij Kiest.

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2.3.2 Search tool

Description of pilot

Currently, all of VRT's radio stations have an editorial app that shows incoming messages that are send by listeners via the stations' app. Using this editorial app, the radio team can also answer messages, send out push notifications and manually create groups of people. During the preparation of a radio show, it often happens that an editor wants to find something that was sent in before (text and/or photos), along with who sent it (e.g., to call him/her on air).

In this pilot, we want to make these messages searchable (text and in a later stage photos and videos) in a simple Google-like interface. Moreover, we want to add quick actions to a selection of messages, such as 'Send message to users of selection'. The design of the interface is based on paper prototyping sessions with editors and digital strategists of 2 VRT radio stations, i.e. Studio Brussels and MNM, which were organised in April and May 2018 and described in D4.1.

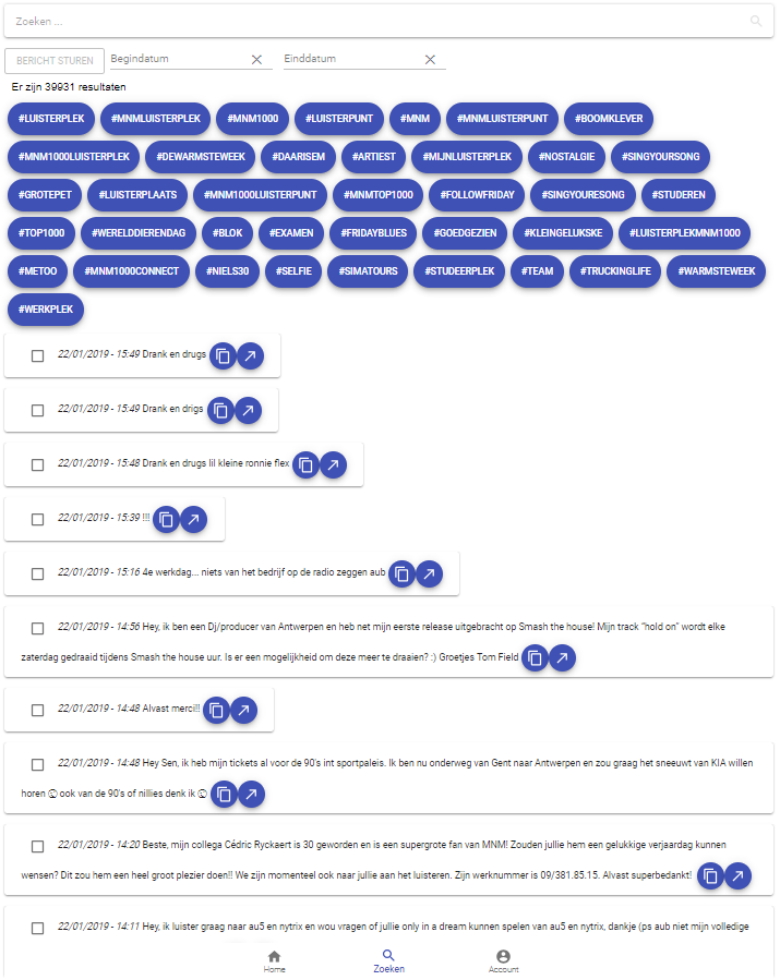

Figure 13. Screenshot Pilot search tool MNM

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Location and stakeholders

The pilot will take place during October - December 2018, both Studio Brussel and MNM will be involved as radio station. They will test out the new functionality during the elections pilot as well. We conducted the pilot as described here and since the feedback was positive but not the whole radio team was involved it continued with MNM even after December.

Apparatus

The indexing/search service provided by consortium partner IN2, along with the analysis services by Joanneum Research will be used. The core system for collecting and managing data will be developed by Pluxbox (PriVaults).

Evaluation framework

The data used in this pilot consists of conversations between the editorial team and the radio station's listeners. VRT also organised two observation sessions, at Studio Brussel and MNM. Observations were combined with informal interviews with the radio team, i.e. editors, DJ's and digital strategists.

The pilot's success depends on the added value for the radio team. Are they able to find content (quicker) than they did before (e.g., by scrolling back in time through the messages)? Does this make the content they create better? Are they able to curate content quick enough?

Expected results

Radio by definition is very live-focused, mainly because it is live 24/7 all the time. Archived content is prominently used by radio programmes fuelled by debate (e.g., by our Radio 1 station). Currently, they use tools available on the market (such as Google and Twitter). If they're able to use their own app, however, they have much more hold on sent-in content and the listeners who send it in. To make using their own app evenly efficient, content needs to be very structured and logically searchable, and they will need the tools to do this.

Results

VRT organised two observation sessions, during the morning show from 7am to 9am of Studio Brussel and night show from 4pm to 6pm at MNM. The observations were combined with informal interviews with the radio team, i.e. editors, DJ's and digital strategists.
The first observation took place at Studio Brussel, the morning show. During this show there were a lot of calls to which listeners could respond via the app. The interview took place in the editor room aside from the actual radio studio, which allowed us to see everything that was going on. We saw Linde presenting the live show. We did an interview with a female editor (participant 1). There were 2 other male editors present in the room who did not participate in the interview. However, they mentioned in an informal way that they were happy with the existence of Switchtool and a good search function would be helpful. The next observation took place at radio station MNM. The interview happened in the editorial

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room with a female editor (participant 2) during live broadcast. It was a separate room, she was the only one in the room and we were looking at the presenter, Dorianne.

The first thing that came up with both participants is the fact that this tool is currently a separate tab that stands next to the existing editorial app (as it is still in prototype phase). This is the main reason they didn't use it during broadcast. The radio team feels already overwhelmed by many tabs that are open on their screens. Participant 1 said they mainly used this tool only during the preparations for the show. Although she would like to use the tool during broadcast. She gave some situations when it would be interesting using the tool.
Participant 1: "For example when I saw that Axel send something interesting at 6h and I want to use it in the show at 8 I don't have to scroll all the way back."
Participant 1: "There was a competition to win tickets for Metallica. This contest took place over a whole day. People could send in messages with pictures. In this case it would be very useful to see only the messages with Metallica to choose the winner."
Therefore, we aim to integrate this tool within the existing editorial app.
Both, participant 1 and 2 emphasized the tool can't be too complex. Participant 1 said she prefers a simple search box in the existing Switchboard-tool.
Participant 1 showed that editors already use a search tool for incoming SMS messages and explains they don't use it either during broadcast, because it is a separate website.

While testing the search tool during broadcast, participant 2 pointed out that she also wants to be able to search on the name of the sender. These are not listed, so you can't search by name. However, this is not yet included in the prototype because we feared we might do something wrong in terms of data privacy. Currently we are investigating the GDPR with help from the university of Vienna and we will look at how we will implement this in the next prototype.

The participants talked about the Search tool's positive facts. Participant 2 emphasizes the fact that you can set a certain period of time is very important. The radio team uses a lot of hashtags, so the search function with hashtags might be helpful.

We will continue evaluating the tool with radio station MNM to be able to optimize the Search tool.

2.3.3 Chatbots for Answering Common Questions

Description of pilot

In the weeks leading up to the charity event 'Music for Life' [4]organised by radio station Studio Brussel, people can sign up to host an event for collecting money for the good cause. Often, these campaigners have a lot of questions about how they should host the event,

[4] Info charity event Music For Life: https://stubru.be/musicforlife https://dewarmsteweek.stubru.be/

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where they should go with the collected money, if they can be on live radio to tell about what they're doing, and so on. The radio team, on the other side, also have a lot of questions for the campaigners: how their event is going, if they have footage to share, what the current financial balance of their campaign is, etc. Answering these questions manually would take a lot of work, and in most cases, a chatbot would be an ideal solution to reduce this manual labour.

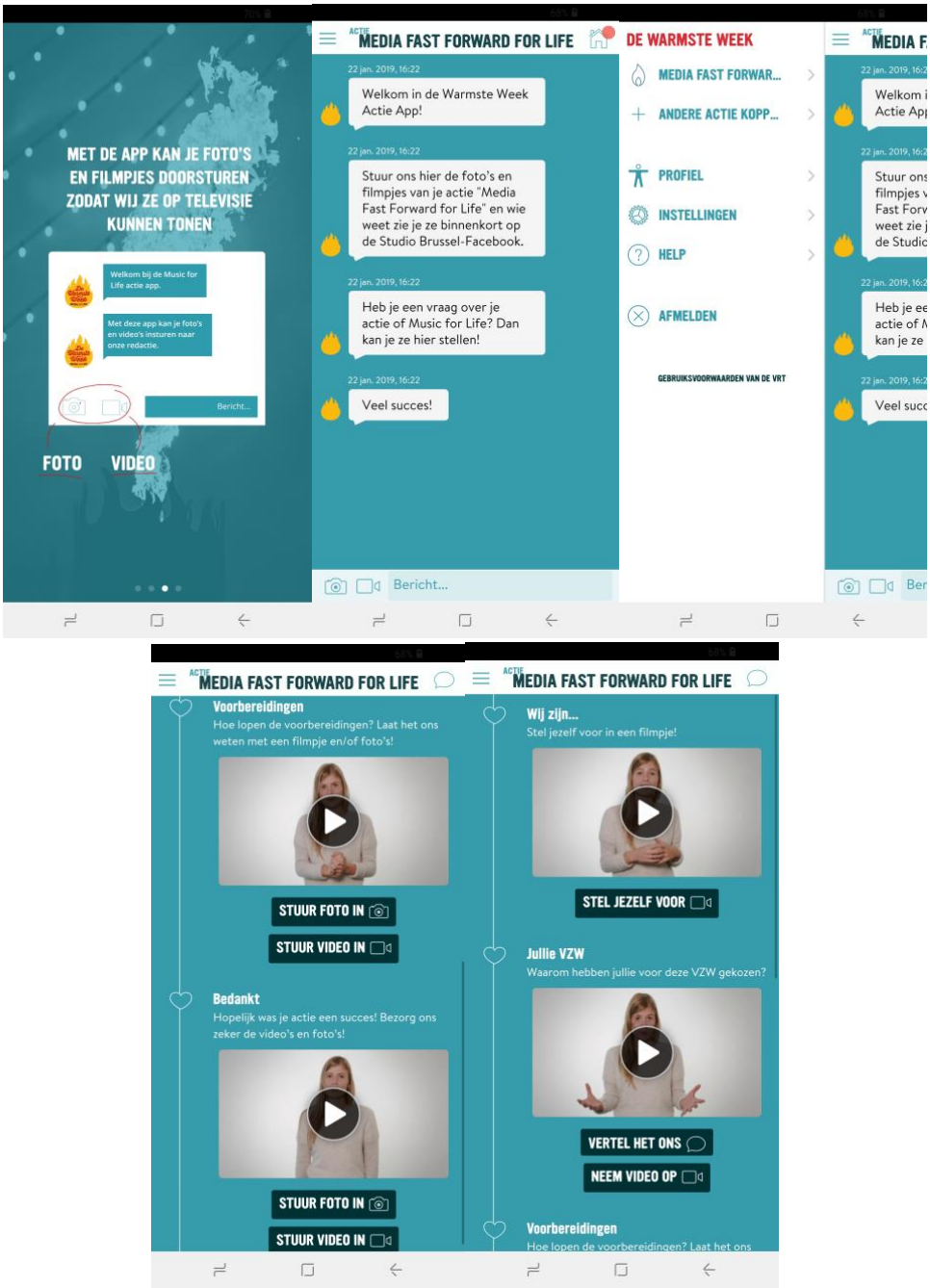

Figure 14. Screenshots of Pilot Music For Life app

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Location and stakeholders

The pilot will run from September 2018 through December 2018. This enables us to make adjustments along the way where needed. Studio Brussel will be the main stakeholder, along with the radio team of the charity event.

Apparatus

The bot service and interface by Faktion will be used for this pilot.

Evaluation framework

The data collected will be the conversations (including text, photos and videos) between the campaigners and the radio team. The pilot will be a success if the amount of manual work (time spent by the editors) on conversations decreases, while still maintaining the same level of service quality.
We will also organise a video interview with the conversation manager of the Music For Life charity event to evaluate whether the amount of work on conversations decreases in his/her perception.

Expected results

We expect a comprehensive conversational interface, which can overtime be used by radio stations in their day-to-day conversations with listeners as well.

Results

The conversation manager reported how the chatbot helped to relieve their work. To stress the more human dimensions of the chatbot, they gave it a name, i.e. Flamie, which means little flame. A flame was already the symbol of the charity event, and the name of the visitor area of the event.

"*Flamie, our chatbot was a huge help during this event. It relieved a lot of work pressure from the conversation team. There are many questions that Flamie can answer so we have more time to answer other questions via email etc. We are very grateful and happy that the chatbot exists and functions so well.*"

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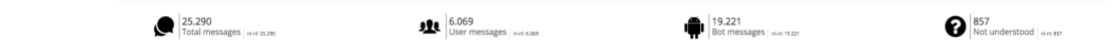
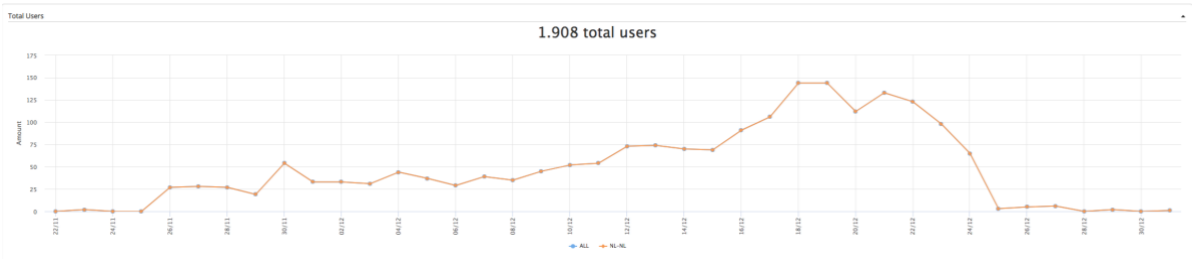
Figure 15. Still interview conversation Manager 'Music For Life'

The service maintained the same quality. The bot had 1908 users who sent a total of 6069 messages. Only 9% of those messages were not understood by the bot and were forwarded to conversation team who handled them personally. Most of the messages that were not understood were simple updates on the actions organised by the users, such as "we already raised XXX euro" or comments on videos and pictures they sent in, and did not require any answer.



(a)



(b)

(c)

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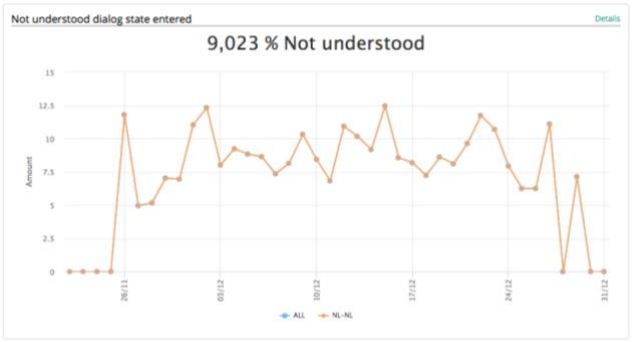

Figure 16. (a) total amount of users per day (b) total amount of user messages per day (c) number of messages the chatbot didn't understand

2.3.4 Lively Environment

Description of pilot

A radio station studio mostly is very static (aside from the DJ, that is). Mostly, a banner is placed in the background, and we see a lot of screens facing the DJ. It is interesting to listen to via a radio device, but it is not very interesting to watch. We want to use context-aware content (including user-generated content) to make this environment very lively and thus more interesting to watch. At the end of the year, Studio Brussel organises a charity event and airs from a remote studio. Surrounding this studio, there is a larger visitor area where listeners that had set up a campaign for a charity cause, i.e. the 'campaigners', visit to bring the money they raised or to request a song. Because this is a temporary studio, built from the ground up for this occasion, it serves as an ideal testbed for studies with the studio arrangement. Also, this studio is equipped with screens in any case, because it is broadcasted live on television.

Specifically, a screen in the radio studio which showcased photos sent in by campaigners. Beacons[5] were installed on the surrounding area to know which campaigners were present at a certain time, and their content was shown more than other.

Location and stakeholders

The pilot will take place in December 2018; VRT radio station Studio Brussel will be involved.

Apparatus

Sensors on the event terrain detect the campaigners who are present, have the app and share their location. This data is used to decide which content is showcased more prominently on the screens in the studio. Smart analysis services to review user-generated content will be used.

[5] https://kontakt.io/blog/infographic-beacons/

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Evaluation framework

As this is our first large-scaled experiment to track passing users via sensors in a physical location, we have focused mainly on the technological aspects, such as stability and processing time. We will explore how to exploit the learnings of this data together with radio team members in preparation of the next iteration.

Expected results

We expect listeners to send in photos when they notice those photos are displayed in the area. In a second iteration, we would evaluate how this affects the experience of the listener. Is the lively studio environment interesting to watch for our audience? Or, in other words, is there an increase in the number of views/the length of views of this livestream? Does this lead to increased engagement: do people contribute more content?

Results

As mentioned above, results are still limited. More than 75 000 people spread over a week visited the charity event. The sensors detected the present campaigners. During 6 days of the event 278 campaigners were detected and thus participated in this pilot.

Figure 17 shows a flow chart of how 69 campaigners move through the terrain on one particular day (i.e. December 23, 2018), which we will use as the basis for placing screens to communicate user generated content to visiting listeners. We will use this data to map future experiences for this and other radio-related events as the technology set up worked as expected.

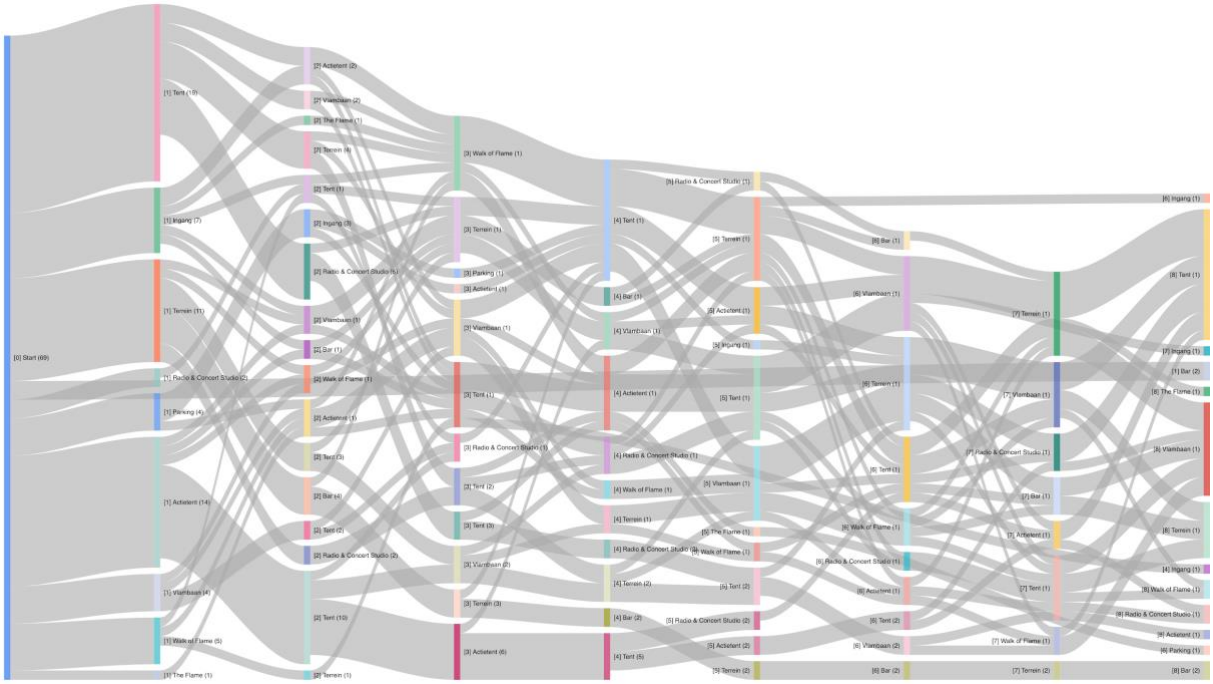

Figure 17. Flow chart of the path that listeners took on December 23, 2018 when visiting the area of the charity event.

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2.4 Radio Stadtfilter

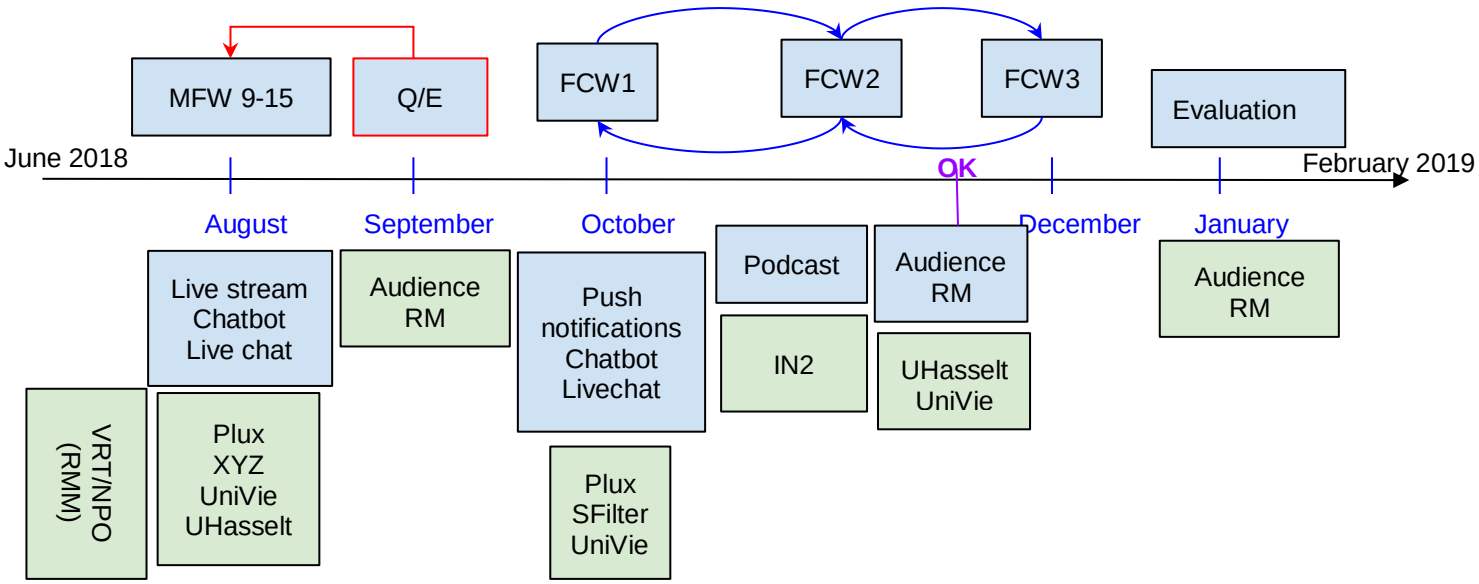

Figure 18. SFilter piloting timeline - as defined in the Winterthur plenary meeting (WP4 workshop)

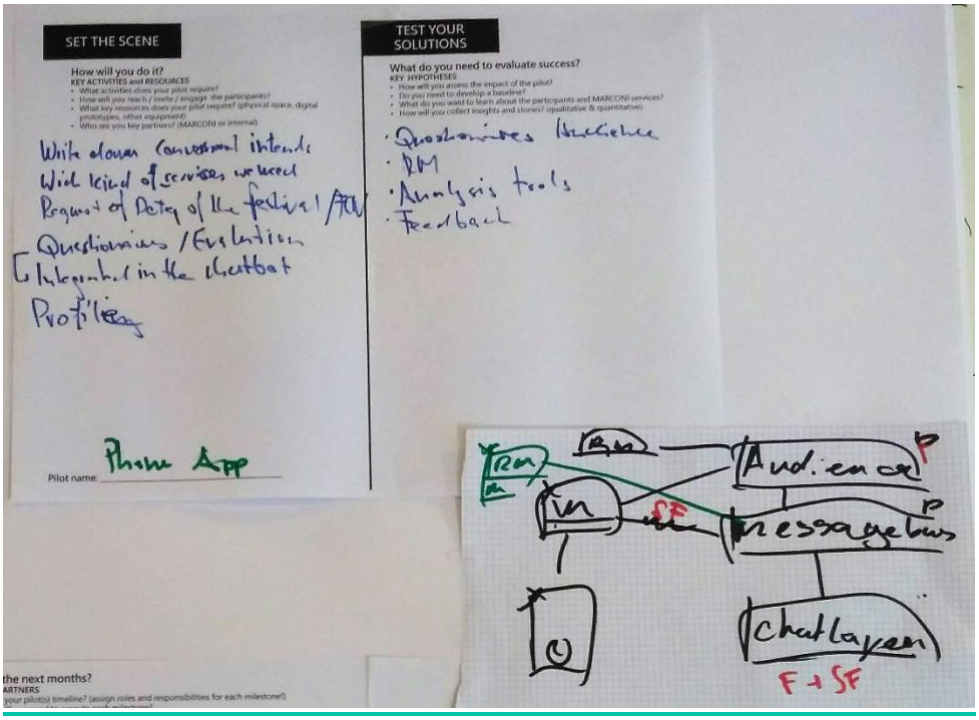

Figure 19. SFilter piloting ideas and sketches - as defined in the Winterthur plenary meeting (WP4 workshop)

Stadtfilter left the project in September 2018 and the pilot plans as illustrated in Figures above were not executed.

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3 Evaluation of PriVaults, a database system for GDPR compliance by default and piloting activities

3.1 Introduction

Below, we provide an analysis of the PriVaults system since it is a core component of the MARCONI platform and all MARCONI services must indeed go through the PriVaults component (see deliverable D3.2 for details). We end this chapter with a legal overview of each piloting activity and conclude with our recommendations.

3.2 Contract System and Database Structure

PriVaults provides a database which allows developers to comply in a seamless way with the current data protection framework and related data protection principles such as data minimisation, accuracy, fairness and transparency as well as purpose limitation. This is being achieved by setting up a self-governing body that uses consent agreements and generic purposes, allowing an application read permission for the exact amount and categories of data the digital service needs and/or the user agreed to.

3.2.1 Structure

Concerning the database structure, special attention should be paid to processing purposes so as to comply with the data minimisation principle. Also, notions of consent shall be tailored to suit the demands of the application ensuring that no excessive processing of personal data is being conducted by the developer. To further prevent misuse, the DPO of an organization

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using PriVaults will be responsible to control the compliance with data protection principles through analysis of permissions granted to an application and comparison of agreements presented to the data subject. This workflow is further supported by extensive log data documenting application permissions and data containers.

The related structure for the privacy system is designed as a hierarchy. While the user of an application is being presented with the necessary information according to Article 13 GDPR, he will specifically be shown purposes. For special provisions on consent and transparency please refer to the main paper and Chapter 1.2. Complying with informational provisions also means to communicate with the data subject in an easily accessible form. Considering that the user will be unfamiliar with a privacy management system, special attention should be paid to providing information to the data subject on a level that allows him to exercise his rights.[6] Therefore, it shall be imperative to provide information on a top level before presenting application specific agreements and special purposes. This can happen in a short and precise outline without revealing structure and applied algorithms as commented upon regarding Art 22 GDPR.[7]

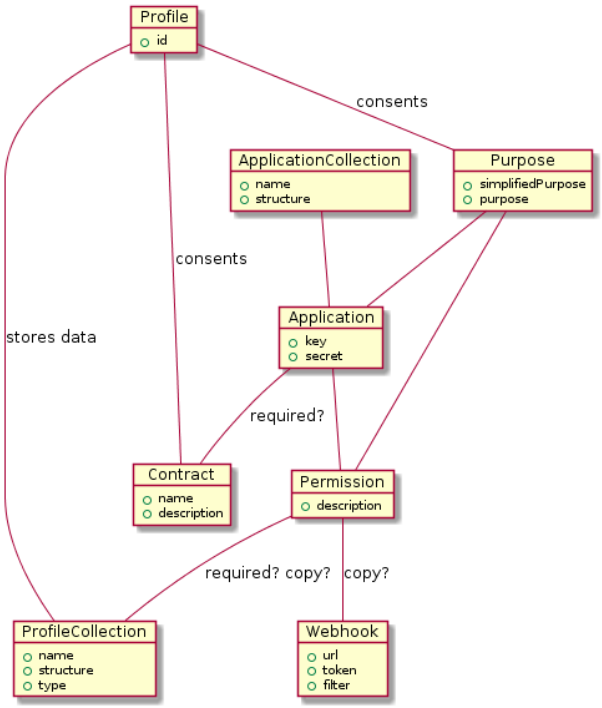

Figure 20. Privacy Database Structure

[6] *Voigt/von dem Bussche*, The EU General Data Protection Regulation (GDPR) (2017), 143; Rec. 59 GDPR.

[7] *Martini* in *Paal/Pauly*, DSGVO[2] (2018), Art 22 point 36; *Schmidt-Wudy* in BeckOK DatenschutzR[24] Art. 15 point 99.

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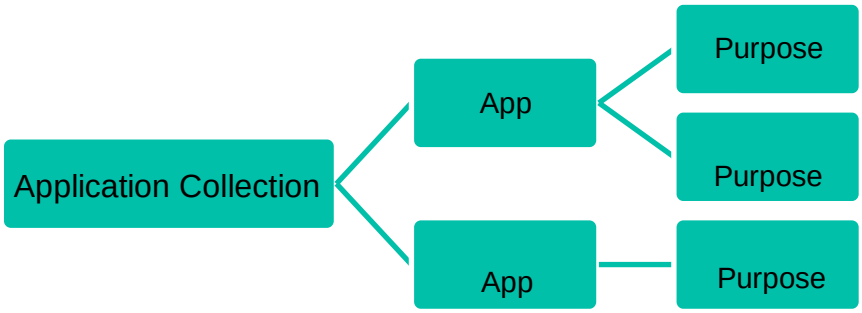

Figure 21. Hierarchy

Therefore, the part "Purposes" and "Contract" should comprise of the necessary information to be provided to the data subject in regard to Article 13 GDPR.

This encompasses not only the general notice of types of data being collected and its relative purpose but also, yet to be implemented, the lawful basis upon which the data is being processed.[8] Dependent on whether all information provisions should be complied with by the system, the data storage duration shall also be communicated.[9] In the case of MARCONI, data will be shared between consortium members designated as joint controllers, depending on their activity.[10] Therefore, such entities shall be named according to Article 4 (11) GDPR ("informed").[11] Processors, as mentioned in Art. 13 (1) (e) GDPR, may be included in the privacy policy statement which shall be referenced by the system provided that the sharing activity has been conceivable at the time of initial processing.[12]

Terminology

Terms such as "purpose", "agreement" and "permission" are ambiguous as they depend on the context, they are being used in. Technical purposes for example may deviate from purposes of data processing concerning privacy. The term "agreement" suggests civil law whereas PriVaults tries to only cover aspects of data protection in this section whereas civil law will be covered in "Contracts". Therefore, alternatives shall be considered.

[8] Art. 13 (2) (c), (e) GDPR.
[9] Art. 13 (2) (a) GDPR.
[10] Art. 26 GDPR; Chapter 4.3 of the main paper; *Fritz* in *Schweighofer/Kummer/Saarenpää/Schafer* (Eds.) Data Protection/LegalTech, Proceedings of the 21st International Legal Informatics Symposium - IRIS 2018 (2018) Abgrenzungsschwierigkeiten bei der datenschutzrechtlichen Rollenverteilung nach der DS-GVO, 21.
[11] See also: wp259, 13; *Buchner/Kühling* in *Kühling/Buchner*, DS-GVO[2] (2018), Art. 7 point 59;
specific: *Ernst*, Die Einwilligung nach der Datenschutzgrundverordnung, ZD 2017, 110 (113); *Ernst* in *Paal/Pauly*, DS-GVO[2] (2018), Art 4 point 83.
[12] *Bäcker* in *Kühling/Buchner*, DS-GVO[2] (2018), Art. 13 point 28-30; See also Art. 46 GDPR for adequacy decisions regarding third countries.

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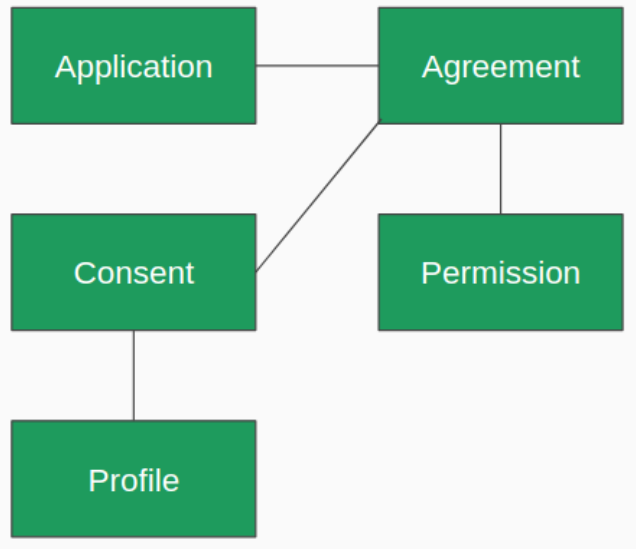

Figure 22. Legal overview

These depend on the legal basis in use. Should PriVaults find application in a processing environment which relies not solely on consent agreements more general terminology shall be used while still remaining intelligible as stated in the data processing principles.[13] In addition, "[w]*hen seeking consent, controllers should ensure that they use clear and plain language in all cases*."[14] As the principle of transparency prescribes, the data subject should not face the need for interpretation of terms used.[15] The question of how "user friendly" terminology shall become until the data subject suffers from indistinguishable expressions should be answered in regards to how standardised informational provisions shall be. Concerning the legal basis of Art. 6 (1) (a) GDPR only the term "consent" should be used as other terms might conflict with the transparency principle.[16] UNIVIE, for the purposes of MARCONI, therefore proposes the terms "Consent Agreement" or "Processing Approval", "Processing Authorization", "Processing Permit". However, for a universal platform, "Privacy Options", "Privacy Settings", "Privacy Information", "Privacy Preferences", "Privacy Rights", "Privacy", "Privacy Selection" or "Privacy Control"[17]could be used.

For the term "Consent" in Figure 3, "Privacy Access Control" should be used as it fits the technical terminology of a Privacy Management System.[18]

UNIVIE and PLUX have therefore decided to rename "Agreements" to "Purposes".

Purposes

The GDPR requires a developer to designate the required legal basis to relating purposes in advance.[19] Concerning consent agreements these, in standard situations, cannot be covered

[13] Art. 5 (1) GDPR; *Ernst*, Die Einwilligung nach der Datenschutzgrundverordnung, ZD 2017, 110 (113).
[14] wp259, 19.
[15] *Ernst*, Die Einwilligung nach der Datenschutzgrundverordnung, ZD 2017, 110 (113).
[16] Art. 4 (11) GDPR: „any freely given, specific, informed and unambiguous indication of the data subject's wishes by which he or she, by a statement or by a clear affirmative action, signifies **agreement to the processing** of personal data relating to him or her."
[17] Last expression: Google, https://privacy.google.com/index.html.
[18] *Loomans/Matz/Wiedemann*, Praxisleitfaden zur Implementierung eines Datenschutzmanagementsystems (2014), Springer Verlag, 45.
[19] wp259, 10; wp203, 15.

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by other legal basis as they will lie outside of the scope of what is "*strictly necessary*".[20] This implies that a purpose coupled with consent, and therefore purposes in general, must be as granular as possible, depending on the service provided, as outlined by the WP29.[21]

"*[T]he degree of detail in which a purpose should be specified depends on the particular context in which the data are collected and the personal data involved.*"[22]

Authentication

The GDPR limits the effort for privacy by design to industry standards (Article 24 (1), 32 (1) GDPR).[23] In the case of authentication, data minimisation shall be an important measure in order to safeguard rights of the data subjects.[24] The generally available methods proposed as examples by PLUXBOX encompass password based authentication, Email recovery, oAuth, U2F/UAF/Webauthn, password managers as well as 2FA. PLUXBOX referred to Email tokens as preferred authentication method.

As either the user's email address or his telephone number is being stored and is necessary for the user of the MARCONI service, there is no further issue of data minimisation to be tackled. Therefore, authentication via an email token may also be considered the most viable solution with the proposed services such as profile generation borne in mind.

Furthermore, ENISA states in Annex A of its Handbook on Security of Data Processing that 2FA will only be required in "high risk scenarios".[25] This will be considered in future scenarios proposed within the MARCONI project by PLUXBOX. In scenarios of a lower measure category, password policy should be defined with a certain level of complexity, paired with the local storage of passwords in hashed form.[26]

Information containers

As stated in Recital 28, 78 as well as in Article 25 and 32 GDPR, personal data shall be pseudonymised in order to safeguard rights of the data subject and aid the controller in meeting data protection obligations. Being a standard measure, the legislator did not mean for pseudonymisation to preclude other measures of data protection.[27]

As stated in Recital 77 and Article 32 (3) GDPR the necessary measures to be conducted by the controller shall be undertaken according to the input of a DPO, internal procedures or approved certifications pursuant to Article 42(5) GDPR. However, as of August 2018, no private certification bodies have yet been accredited.[28] Even the European Privacy Seal which has been set up by the EC in 2007 under leadership of ULD Schleswig-Holstein still "*has not been*

[20] wp259, 9.
[21] wp203, 15.
[22] wp 203, 16.
[23] *Ulrich Baumgartner/Tina Gausling,* Datenschutz durch Technikgestaltung und datenschutzfreundliche Voreinstellungen
Was Unternehmen jetzt nach der DS-GVO beachten müssen, ZD 2017, 308 (310).
[24] Ibidem; *Martini* in *Paal/Pauly*, DSGVO[2], Art. 25 point 45, 45a.
[25] ENISA, Handbook on Security of Personal Data Processing (2017), 65.
[26] Ibidem, 61.
[27] Rec. 28 GDPR.
[28] EDPS, Guidelines 1/2018 on certification and identifying certification criteria in accordance with Articles 42 and 43 of the Regulation 2016/679 (2018), 9; https://www.stiftungdatenschutz.org/zertifizierung/zertifikate-uebersicht/ (30.8.2018).

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accredited […] *yet."*[29] However, agencies such as ENISA and the EDPB have released recommendations.

Furthermore, the adherence to approved certification mechanisms is a factor supervisory authority must consider as an aggravating or mitigating factor when deciding to impose an administrative fine and when deciding on the amount of the fine as stated in Article 83 (2) (j) GDPR.

As the EDPB recognizes the proper reflection of requirements for the protection of natural persons laid down in the GDPR and general contributions to its consistent application as certification criteria,[30] it is best to adhere to Union's Agency for Network and Information Security (ENISA) which provides guidance on practical solutions on the security of personal data processing.[31] ENISA further notes that, in the absence of accredited entities and certification bodies, there is a substantial gap between practical advice and the actual fulfilment of requirements.[32]

Examples and use cases for privacy by design strategies have been adopted especially for mobile applications:[33]

- **Minimise:**
  According to the principle of data minimisation, tactics such as opt out procedures may be employed.
- **Separate:**
  Pseudonymisation and related partitioning of personal data helps in separating the processing logically. Only partial processing of personal data in an independent manner and different access requirements.
- **Abstract:**
  Summarisation of data and usage of methods such as k-anonymity and differential privacy to perturb values (e.g. approximate age of the data subject).
- **Hide:**
  Encryption and obfuscation as well as dissociation of and between user data.

As discussed further, PriVaults will achieve these goals via logging of permission usage. In determining, through statistical analysis, if an application is overusing the consent agreement and may issue a warning to the DPO if, e.g. an application writes outstandingly often to containers with usually static information. The logs, as seen in PriVaults section "Logs", do not resemble personal data according to Article 4 (1) GDPR as they only include a timestamp linked with the application as well as the type of data container, and therefore are technical data.[34]

[29] „EuroPriSe's criteria catalogue v201701 has not been approved pursuant to Article 42(5) GDPR and EuroPriSe GmbH has not been accredited as a certification body pursuant to Article 43 GDPR yet.", EuroPriSe, https://www.european-privacy-seal.eu/EPS-en/Criteria (30.8.2018).
[30] EDPB, Guidelines 1/2018 on certification and identifying certification criteria in accordance with Articles 42 and 43 of the Regulation 2016/679 (2018), 10.
[31] ENISA, Handbook on Security of Personal Data Processing (2017).
[32] ENISA, Privacy and data protection in mobile applications: A study on the app development ecosystem and the technical implementation of GDPR (2017), 5.
[33] ENISA, Privacy and data protection in mobile applications: A study on the app development ecosystem and the technical implementation of GDPR (2017), 51 and seq.
[34] *Schild* in BeckOK, DS-GVO[25] (2018), Art. 4 point 22-24.

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3.2.2 Consent

As a viable as well as user friendly legal basis of processing "consent" is to be considered a valid and, concerning the legal point of view, simple approach. For more information on related issues please refer to D1.3. In order to determine when a notion of consent shall be considered it is important to make a distinction between what is necessary for service performance and what shall be processed as an extra in order to comply with Article 7 (4) GDPR. Especially concerning the requirement of consent being specific and granular as well as information provisions and the necessity of an express confirmation of intent the main paper sets out the guidelines.[35]

However, one of the requirements of PriVaults is that if an organisation has multiple applications, and if a user accepted a contract on one of the applications, it is accepted overall.

As elaborated in D1.3 a single consent agreement should not be applied to different applications, and thus separate purposes, but for software frameworks which will be used by more than one application simultaneously such as a mailing service.

This former approach raises further questions as to the criterion of being specific and could therefore prove to be problematic.[36] It is also interdependent on how well information provisions are catered to, rendering the possibility of consent agreements accepted in blank dependent on the range of services.[37] Consent agreements may therefore not be "recycled" as proposed, because "global consent agreements" lack specific purposes.[38] However, there is no such constraint concerning general purposes, as for example the interaction between the data subject and the organisation itself such as direct advertising, once a contract has been performed.[39] See Chapter 1.1.2 for parallels to purpose limitation as well as D1.3.

If only services within an application are concerned, the WP29 outlines that purposes are to be treated and specified according to service complexity.[40] In the case of MARCONI, its layered services, will be described sufficiently by this model as long as the controlling parties are labelled correctly.[41] See also the chapter below for elaboration on information to be provided.

Concerning consent agreements with an entire organization such as a radio broadcaster further issues such as branding and reasonable expectations of the data subject shall be taken into account.[42] Broadcasting corporations are structured in a fragmented manner as their programs and substations are, not only for marketing reasons, separated but controlled by a central administration. A data subject may get confused and mistake radio channels as separate legal entities which is not the case concerning the project partners VRT and NPO. For example (physically) separated departments for film and radio stations. Such central administration may

35 *Buchner/Kühling* in *Kühling /Buchner*, DS-GVO[2] (2018), Art. 7 point 26.
36 *Roßnagel/Nebel/Richter*, Was bleibt vom Europäischen Datenschutzrecht? Überlegungen zum Ratsentwurf der DS-GVO, ZD 2015, 455 (458); *Stemmer* in BeckOK DS-GVO[24] (2018), Art. 7 point 76.
37 *Kugelmann*, Datenfinanzierte Internetangebote: Regelungs- und Schutzmechanismen der DSGVO, DuD 2016, 566 (568); *Stemmer* in BeckOK DS-GVO[24] (2018), Art. 7 point 75.
38 Wolff in Schantz/Wolff, Das neue Datenschutzrecht (2017), p 167 point 517; Frenzel in Paal/Pauly, DS-GVO2 (2018), Art. 7 point 8.
39 Stemmer in BeckOK DS-GVO24 (2018), Art. 7 point 75.
40 wp 203, 16.
41 Art 13 (1) (a), Art 26 GDPR.
42 Rec. 47 GDPR.

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consist out of a financial department, a governing board and HR as well as marketing (see Fig. 23).

For the latter approach of multiple applications of the organization being able to use one purpose no further issues arise as the derived context (the purpose) stays the same and the criterion of being "specific" is not violated.[43]

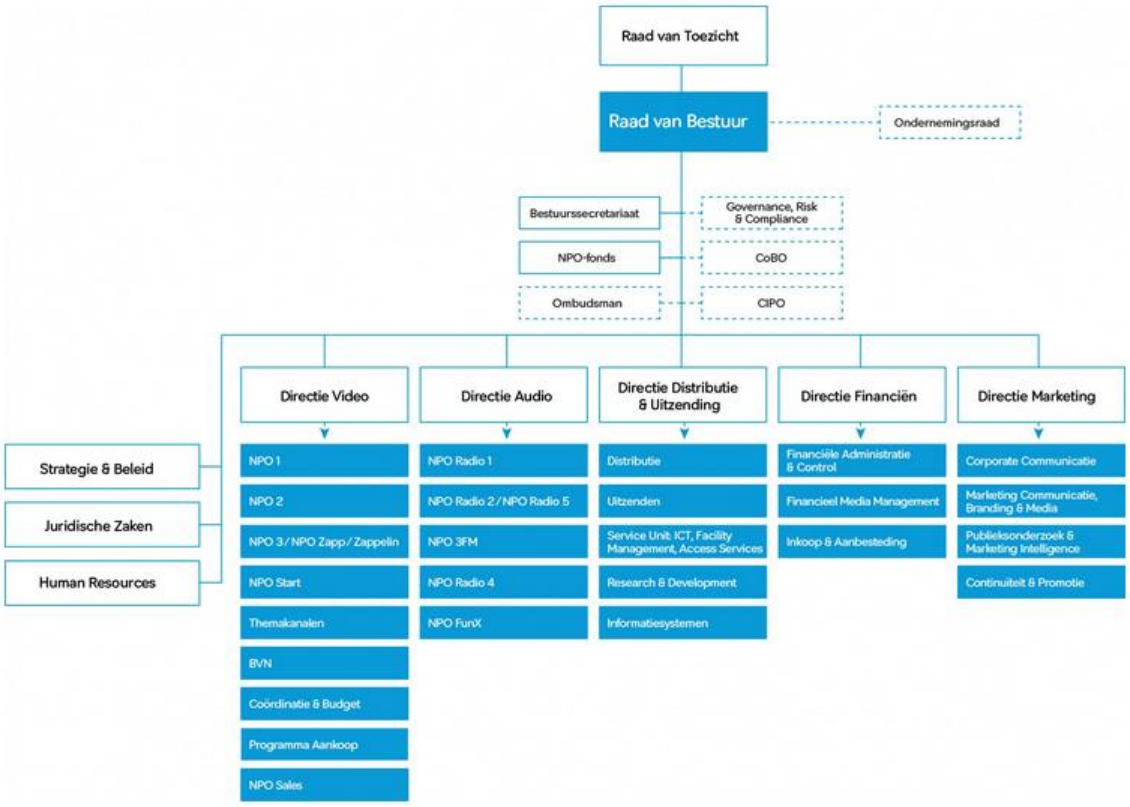

Figure 23. Organigram of NPO[44]

In Recital 48 GDPR it is being remarked that controllers who are entities affiliated to a central body might bear a legitimate interest concerning administrative purposes "*including the processing of clients' or employees' personal data*."[45] However, the GDPR knows no intra-group exemption or for that matter, an intra group privilege. For such operations, Article 6 (1) (f) GDPR therefore is a viable legal basis for sharing activities ("*pursued by the controller or by a third party*").[46] Therefore, sharing necessary data, e.g. for statistical purposes or direct advertisement,[47] causes no violation concerning Article 5 (1) (b) GDPR (purpose limitation). In an *argumentum a maiore ad minus,* this applies to single corporations such as NPO (Fig. 4). *A* further exception to purpose limitation, provided that the transparency principles are complied

43 Ernst in Paal/Pauly, DSGVO2 (2018), Art 4 point 78; Rec. 32 GDPR, sentences 3-4.
44 https://over.npo.nl/organisatie/wie-zijn-wij/organogram#content, 29.9.2018.
45 Rec. 48 GDPR.
46 Voigt/von dem Bussche, The EU General Data Protection Regulation (GDPR) (2017), 137; Art. 6 (1) (f) GDPR.
47 Also: Rec. 47 GDPR, Article 5 (1) (b) GDPR. As statistical data is specifically mentioned under the scope of the GDPR (no anonymous data) said statistics should at the very least be pseudonymised (Rec. 28, 156 GDPR; Article 25 GDPR).

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with, imposes the consent of the user as the data subject may now expect the further use. [48] This includes the clear explanation of purposes of processing and their limitations.[49]

Therefore, UNIVIE advises, as legitimate interest covers the processing needs and data sharing between departments and central bodies of a corporation as Art. 5 (1) (b) and Art. 6 (1) (f) GDPR are not violated, that consent is a viable alternative as it imposes an exception to purpose limitation provided that it complies with aforementioned data processing principles.

Information Provisions for Consent Agreements

If PLUXBOX should choose to incorporate the entirety of information provisions according to Article 13 GDPR the term "Privacy Policy" may be used. However, this issue has to be further elaborated on as "agreements" only encompasses a few of the necessary points and might be considered incompatible with the transparency principle.[50] See Chapter 1.1.1 for more information.

UNIVIE remarks that there has not yet been a canon established between the information being provided in the notion of consent or by the requirements of Article 13, 14 GDPR in a "Privacy Policy Statement" while these informational provisions should be used as a reference to Article 4 (11) GDPR ("informed"). A violation of Articles 13 or 14 GDPR also do not automatically result in an invalid consent.[51] However, they must be clearly separated or at least be highlighted when presented together.[52]

Therefore, concerning the minimum consent requirements, several opinions exist.[53] The main paper outlined in page 64 the WP29 guidelines on consent which has been partially adopted by legal commentaries.[54] However, these are also being criticized by the literature. For example, the exclusion of information regarding storage limitation in the agreement itself.[55] Some even represent the idea of only including processing purposes as well as notice if and with whom personal data might be shared.[56]

Concerning the use case of MARCONI, UNIVIE recommends, as a notion of consent shall not be considered void for the reason of not providing the necessary information according to Article 13 GDPR, to take economic aspects into account. A viable configuration shall therefore be the minimum information such as

- Personal Data,
- Processing Purpose,
- Controller or Joint Controller,

48 Schantz in BeckOK DatenschutzR25 (2018), Art. 5 point 22.
49 Frenzel in Paal/Pauly, DS-GVO2 (2018), Art. 5 point 28.
50 See above.
51 *Wolff* in *Schantz/Wolff*, Neues Datenschutzrecht, point 523.
52 *Gola* in *Gola*, DS-GVO, Art. 7 point 44.
53 Literature example of most to least information to be provided: wp259, 19; *Ernst*, Die Einwilligung nach der Datenschutzgrundverordnung, ZD 2017, 110 (113); *Voigt/von dem Bussche*, The EU General Data Protection Regulation (GDPR) (2017), 96.
54 *Ernst* in *Paal/Pauly*, DS-GVO^2 (2018), Art 4 point 83; *Ernst*, Die Einwilligung nach der Datenschutzgrundverordnung, ZD 2017, 110 (113).
55 *Buchner/Kühling* in *Kühling/Buchner*, DS-GVO^2, Art 7 point 59.
56 *Schild* in BeckOK DatenschutzR^{25} (2018), Art 4 point 129; *Voigt/von dem Bussche*, The EU General Data Protection Regulation (GDPR) (2017), 96.

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to be provided in addition to the information to be provided according to Article 7 (3) GDPR (right to withdraw consent) with a general referral to the respective privacy policy in form of a(n) (embedded) link as also the WP29 mentions ("*integrated approach*").[57] It should be taken into account that information regarding the entity of the controller in most cases will be clear before the user is even able to provide a notion of consent. For example from terms and conditions or on welcome screens.

Concerning storage limitation, the consent agreement does not impose a particular threat to the fundamental rights of the data subject as his right to revoke the processing activity does not depend on how long personal data is saved by the controller. As such, the WP29 as well as several other commentaries do not include the necessity for including the storage limitation in the consent agreement. A link to the data protection statement shall therefore suffice.

The MARCONI system will be able to track data sent to third party systems. This will not only help in addressing the data subject with the necessary information, but in informing third parties about deletion requests according to Article 17 (2) GDPR. This is not to say that the third party, being a controller himself, does not have a legitimate basis to process said personal data. Therefore, only a "best effort" to inform is required.[58] In the case of joint controllers, according to Article 26 (1) third sentence GDPR, a contact point for data subjects may be designated.[59]

Processors may be excluded from the consent agreement.

In brevi, the data subject shall, according to Recital 42 and Article 4 (11) GDPR, be informed at least about the person of the controller and the purposes for which his personal data is being processed.[60] Recital 43 GDPR is referencing Directive 93/13/EEC[61]. Austrian rulings on such consumer contracts has been interpreting "factual knowledge in a specific case" quite "strictly" in rulings of the Austrian supreme court.[62] Therefore, just informing about "third parties" in general is not sufficient.[63]

Issues Regarding the Interaction between Consent and other Lawful Grounds

The WP29 sets out that a notion of consent should not be substituted by another legal basis once it has been revoked by the data subject.[64] However, Article 17 GDPR explicitly states that, once a processing operation has been revoked by the data subject, the processing shall either stop or be restricted and based on another legal basis which should take its place.

Article 17 (1) (b) GDPR: "*The data subject shall have the right to obtain from the controller the erasure of personal data concerning him or her without undue delay and the controller shall have the obligation to erase personal data without undue delay where one of the following grounds applies:"*
"(b) the data subject withdraws consent on which the processing is based according to point

[57] wp259, 15.
[58] *Paal* in *Paal/Pauly*, DS-GVO[2] (2018), Art. 17 point 32.
[59] The Privacy Policy shall contain more information concerning the respective roles and relationships: Rec. 58 GDPR; *Spoerr* in BeckOK, DS-GVO[25] (2018), Article 26 point 35.
[60] *Kastelitz/Hötzendorfer/Tschohl* in *Knyrim,* DatKomm (2018), Art 6 point 28.
[61] Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts, OJ L 95, 21.4.1993, p. 29–34.
[62] RIS-JUSTIZ, RS 0115216.
[63] *Kastelitz/Hötzendorfer/Tschohl* in *Knyrim,* DatKomm (2018), Art 6 point 30.
[64] wp259, 22.

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(a) of Article 6(1), or point (a) of Article 9(2), and where there is no other legal ground for the processing".

However, Recital 43 GDPR states:
"[…] *Consent is presumed not to be freely given if it does not allow separate consent to be given to different personal data processing operations despite it being appropriate in the individual case, or if the performance of a contract, including the provision of a service, is dependent on the consent despite such consent not being necessary for such performance.*"

The GDPR therefore wishes to distinguish between the necessity of personal data for service performance and the necessity for consent as a legal basis itself.[65] However, the text hereby only concerns the prohibition of coupling. In the broader sense, the wp259 should be interpreted as recommendation that overlap between legal basis of Article 6 (1) GDPR is largely possible with constraint regarding consent:

"*In other words, the controller cannot swap from consent to other lawful bases. For example, it is not allowed to retrospectively utilise the legitimate interest basis in order to justify processing, where problems have been encountered with the validity of consent.*"[66]

Therefore, "*if a controller chooses to rely on consent for any part of the processing, they must be prepared to respect that choice and stop that part of the processing if an individual withdraws consent.*"[67]

The commentary literature is unanimous regarding the interaction of Article 6 (1) (a) GDPR and other legal basis in stating that "at least one" must be fulfilled, therefore enabling consent to be taken as a first choice regardless of other grounds of processing that might have taken its place.[68] Whereas *Buchner/Petri* argue that, concerning public institutions, an illusion of choice might be suggested to the data subject, the informational provisions of Articles 12 seq. GDPR still apply to the controller and suggest no detriment to the interests of the data subject; furthermore, the lawmaker did not intend a suspensory effect.[69]

As PriVaults and the MARCONI consortium aim to use consent as the primary legal basis, disregarding parallel grounds of processing which could have been employed where possible, the user data will, with the exception of anonymous statistics, be treated according to Article 17 (1) (b) GDPR.

Gaining Consent: The Burden of Proof

When MARCONI gathers consent according to Articles 6 (1) (a) or 9 (2) (a) GDPR it is necessary to fulfil the requirement of Article 7 (1) GDPR:

"Where processing is based on consent, the controller shall be able to ***demonstrate*** *that the data subject has consented to processing of his or her personal data."*

Recital 42 GDPR:

[65] *Feiler/Forgó*, EU- DSGVO, Art. 7 points 10, 11.
[66] wp259, 22.
[67] Ibidem.
[68] *Buchner/Petri* in *Kühling/Buchner*, DS-GVO[2], Art. 6 point 22; *Albers/Veit* in BeckOK DS-GVO[24] Art. 6 point 27.
[69] *Albers/Veit* in BeckOK DS-GVO[24] Art. 6 point 27; *Schulz* in *Gola*, DS-GVO (2017) Art. 6 point 11; Art. 17 (1) (b) GDPR.

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"Where processing is based on the data subject's consent, the controller should be able to demonstrate that the data subject has given consent to the processing operation."

In this section the GDPR incorporates an explicit *onus probandi* as an expression of Article 5 (2) GDPR which stipulates the general principle of accountability: [70]

"The controller shall be responsible for, and be able to demonstrate compliance with, paragraph 1 [of Article 5] *('accountability')."*

This framework guarantees a degree of transparency to the data subject and ensures that such voluntary act is being recorded properly, independent of the text of the notion of consent itself.[71] This implies that such demonstration should be sufficient to show that the intended legal basis indeed has been consent.[72]

The modality of such demonstration has not been specified by Article 7 GDPR. However, as the necessary documentation involved will without question incorporate personal data according to Article 4 (1) GDPR a legal basis will be required for processing. As implicit consent is possible within the framework of the GDPR[73] the literature argues, that such will be a valid basis[74] alongside Article 6 (1) (c) as processing to comply with a legal obligation.[75] This in understanding that according to Article 5 (1) (b) GDPR such a purpose is sufficiently specified.[76]

Fundamental questions arise as MARCONI will incorporate a system that will only collect an extremely limited amount of information rendering identification of data subjects hard and costly.

- What data will be required to comply with Article 7 (1) GDPR to sufficiently demonstrate the legal basis of consent?
- Will the data subject have to be identified?
- Is the processor in need of gathering more identifying data than needed for the performance of his service and his individual purposes?
- Which relationship does Article 7 (1) enter to with Article 11 GDPR?

To answer the first question concerning the threshold of being able to identify the data subject in recording and storing his notion of consent it is imperative to consider the operations of the controller and the context, the scope and the expectations of the data subject regarding the consent itself.[77] It is therefore recommended and be in the interest of businesses to establish standard practices to demonstrate consent.[78] This can be performed freely "*in a way that is*

[70] *Stemmer* in *BeckOK DatenschutzR*[24] DS-GVO Art. 7 point 86.
[71] *Frenzel* in *Paal/Pauly*[2], DS-GVO Art 7 point 6.
[72] *Frenzel* in *Paal/Pauly*[2], DS-GVO Art 7 point 7.
[73] *Stemmer* in *BeckOK DatenschutzR*[24] DS-GVO Art. 7 point 81-82.
[74] *Ingold* in *Sydow*, DS-GVO, Art 7 point 53.
[75] *Frenzel* in *Paal/Pauly*[2], DS-GVO Art 7 point 9.
[76] *Roßnagel/Nebel/Richter,* Was bleibt vom europäischen Datenschutzrecht? Überlegungen zum Ratsentwurf der DS-GVO, ZD 2015, 455 (458).
[77] Article 29 Working Party, WP259, 20.
[78] *Dienst* in *Rücker/Kugler*, New European General Data Protection Regulation (2018), 99.

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fitting in their daily operations."[79] The bare minimum of stored information should therefore consist of:

- The notion the subject consented to;
- An identifying object such as IP, Email or full name of the subject;
- An integer value as timestamp.

The literature suggests that, as the consent should be able to be proven by the controller as long as the respective legal basis lasts, only a mail address confirmed of being under control of the data subject should be used (**double-opt-in-procedure**).[80] However, in regards to question two, the principle of data minimisation as found in Article 5 (1) (c) states otherwise. Why should a controller process excessive amount of additional data not required for the service only to demonstrate that consent has been obtained, therefore possibly putting personal data at risk even more than the standard processing activities would? The WP29 argues, that showing only "a link" to the processing should be of sufficient nature[81] while the previously cited literature at least acknowledges that certain evidence of the identity of a data subject will be challenging to provide in online environments.[82] This wording allows the deduction that the data subject does not necessarily have to be identified to give consent for the reasons of mail addresses not necessarily stating a clear name, leaving the data subjected merely identifiable. Another point *pro* can be found in Article 12 (6) GDPR allowing the controller to request additional information of the data subject to confirm his identity.

Stemmer also remarks, that electronically checking a box before using a service as a technical precondition will not be sufficient to demonstrate consent.[83] He also notes that an "electronic protocol" is a viable option of documentation.[84]

Article 11 GDPR, systematically staying alone with no current or previously comparable norm, says that a controller should not be held responsible to collect additional data not required for the performance of his service only to comply with the GDPR itself as stated in (1). The *telos* can be elucidated in two points being that the controller should not be obliged to identify every subject using a potentially not identifying service therefore protecting the controller from undue cost of identification and protecting the basic human rights of the data subject.[85]

Should a controller be in need to collect more data about a subject just to demonstrate a compliant and therefore valid notion of consent, Article 11 (1) as well as Article 5 (1) (c) GDPR, the general principle of data minimisation, are violated.

This leads to the conclusion that a controller shall only be held responsible to demonstrate a notion of consent with data of a higher level of identification if he himself is in the process of collecting it. Web services analysing user behaviour and sharing tracking information with third parties should therefore not store a (dynamic) IP and a timestamp but the tracking ID itself as well as cookies and metadata from browser fingerprinting methods which require consent

[79] Article 29 Working Party, WP259, 20.
[80] *Frenzel* in *Paal/Pauly*, DS-GVO[2], Art 7 point 6; *Plath in Plath*, DS-GVO, Art 7 point 4; *Schulz* in *Gola*, DS-GVO, Art 7 point 63; *Dienst* in *Rücker/Kugler*, New European General Data Protection Regulation (2018), 99.
[81] Article 29 Working Party, WP259, 20.
[82] *Dienst* in *Rücker/Kugler*, New European General Data Protection Regulation (2018), 99.

[83] *Stemmer* in *BeckOK DatenschutzR*[24] DS-GVO Art. 7 point 88.
[84] Ibidem.
[85] *Wolff* in BeckOK DatenschutzR[24] DS-GVO Art. 11 point 8.

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according to Article 5 2002/58/EC.[86] The duplicate storage would prove to be more concise than an IP alone and would not violate the principle of Article 5 (1) (c) GDPR as it is being collected either way.

3.3 Example of Consent Agreements – Controller Consent Templates for PriVaults

These are to be drafts for the individual agreements to be found in PriVaults and are to be taken as examples and guidelines when drafting individual texts for each piloting activity. As outlined in D1.3 personal data may be saved as long as the user does not conclusively revoke his consent by uninstalling the app or deleting his profile. Concerning user inactivity, the main paper argues for a period of two years for data to be stored.[87]

Recital 32 GDPR states that "[w]*hen the processing has multiple purposes, consent should be given for all of them*". However, a button selecting all consent agreements called "Consent to Everything" may lead to the data subject never gaining the information itself.

All checkboxes must not be preselected in order for the data subject to opt in (privacy by default).[88] Concerning targeted advertising for the purposes of Art 6 (1) (f) GDPR according to Article 21 (2) GDPR, the concerned boxes may be preselected as long as the opt-out procedure for the data subject is possible. It would also be possible to refrain from presenting such texts and reduce information to the Privacy Policy as long as the data subject receives a separate chance to opt out.

Contact Data

We, the MARCONI consortium (MARCONI) process your identity data such as Full Name and Email address in order to register you as a new user and let you partake in chat experience. You may, at any time, revoke your consent.

For more information, please refer to our Privacy Policy.

Service Delivery

MARCONI will process the data (text, media files, metadata) you send to communicate with the radio station via chat to categorize it and deliver our service to you which consists of necessary authentication as well as automatic and customized replies. We will store your data for further assessment and usage for the radio program and individual assessment. This in order to get in contact with you or feature your communications with the radio station. We may ask you for additional permission to tell your story on air. You may, at any time, revoke

[86] *Wiebe*, Datenschutz in Zeit von Web 2.0 und BIG DATA – dem Untergang geweiht oder auf dem Weg zum Immaterialgüterrecht?, ZIR 2014, 35 (42); Article 5, Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications), OJ L 201, 31.7.2002, 37–47.
[87] Düsseldorfer Kreis, Anwendungshinweise der Datenschutzaufsichtsbehörden zur Erhebung, Verarbeitung und Nutzung von personenbezogenen Daten für werbliche Zwecke, Bavaria (2014), 7;
Reimer in *Sydow*, DS-GVO (2018), Art. 5 point 39.
[88] *Stemmer in* BeckOK, DS-GVO[25] (2018), Article 7 point 83.

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your consent or object to the usage of your data. You declare that you have permission to use media and personal data of others you upload.

For more information, please refer to our Privacy Policy and the Terms of Service.

Mailing List

Your Email address will be stored by MARCONI to send you emails periodically to update you on news and discounts. This might include other updates such as amendments to the Terms of Service or our Privacy Policy. You will not receive email more than once a day. You may, at any time, revoke your consent.

For more information, please refer to our Privacy Policy.

Location Matching

Send your location or the location of pictures and videos you send us to your story. You may, at any time, revoke your consent.

For more information, please refer to our Privacy Policy.

3.4 Piloting and Analytics

The following sections contain a brief outline on the use of tracking tools as well as implications for privacy compliance concerning processors overseas. While the question on analytics in general and the lawful basis for engaging in third party processing remains related to the general framework of the GDPR, the processing in countries that are not member states of the European Union will be answered separately. Besides, the general outline in the main paper is valid and should be applied, especially concerning processing agreements and role distribution, in a subsidiary manner.

3.4.1 Statistical Analysis

Using analytics tools such as Google Analytics or similar methods in order to gain insight into user engagement with a product such as a smartphone application shall be considered processing for statistical purposes. Gathering personal data for the means of statistics is also privileged for privately funded projects.[89] Opinion polling and attitude research shall be classified as research according to Article 89 GDPR as outlined in D1.3.[90] MARCONI is being co-funded by the European Union. The aforementioned privilege does not only include a looser purpose limitation, as outlined in D1.3, but also yields benefits concerning the processing of sensible data.[91] Concerning MARCONI, this shall be relevant especially for face recognition.

[89] *Martini* in *Paal/Pauly/Ernst*, Datenschutz-Grundverordnung, Bundesdatenschutzgesetz[2] (Beck'sche Kompakt-Kommentare 2018), Art. 21 point 58.

[90] *Schulz* in *Gola*, Datenschutz-Grundverordnung: VO (EU) 2016/679: Kommentar[2] (2018), Art. 6 point 91.

[91] Art. 9 (2) (j) GDPR; *Martini* in *Paal/Pauly/Ernst*, Datenschutz-Grundverordnung, Bundesdatenschutzgesetz[2] (Beck'sche Kompakt-Kommentare 2018), Art. 21 point 55.

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However, should MARCONI commercially use non-aggregated personal data for statistical purposes, it is important to note that the possible privileges in national law of:

- Right to Access,
- Right to Rectification,
- Right to Restriction and
- Right to Object

are no longer applicable, as the scientific purpose of processing operations shifts into a commercial one. Also a mixture of said purposes is excluded as it would "*infect*" the purpose of privileging.[92] However, the processing operations may be continued as long as they comply with the general framework without aforementioned privileges.

While under the usage of the PriVaults system the data subject may, at any time, object to certain processing activities, it is of importance to note an exception in Article 21 (6) GDPR. It states that a data subject may object to processing for statistical purposes unless data is needed for reason of public interest or is being aggregated anyways. This under the proposition that the data subject objects on grounds relating to his or her "particular situation". This may be for abstract reasons such as business secrets or familial circumstances.[93]

UNIVIE therefore advises to use the by the GDPR recommended safeguards such as pseudonymisation when processing data for statistical purposes. Personal data should, however, be aggregated as soon as possible. Only if no commercial interest is involved in statistical processing operations the data subject may be confined in his right to object by the law of a member state.

3.4.2 Transfer of data to a non-EU or EEA processor or controller

VRT uses third party analytics tools based in the US. When transferring personal data to "third countries", therefore not member states to the EU, the GDPR framework foresees three possible scenarios:

- An adequacy decision by the European Commission has been adopted
- No adequacy decision by the European Commission has been adopted, transfers require appropriate safeguards
- Neither the basis of an adequacy decision nor appropriate safeguards are fulfilled, requiring special exemptions

As discussed, and stated by the media partner VRT, Google Analytics Services are being used to gain insights concerning the usage of their applications. If the processing conducted via

[92] *Hense* in *Sydow/Bienemann*, Europäische Datenschutzgrundverordnung: Handkommentar[2] (2018), Art. 89 point 19.

[93] *Martini* in *Paal/Pauly/Ernst*, Datenschutz-Grundverordnung, Bundesdatenschutzgesetz[2] (Beck'sche Kompakt-Kommentare 2018), Art. 21 point 30.

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Google LLC or the sharing of data is being performed according to the framework of the GDPR shall be questioned in the following chapters.

In general, as stated above, the transfer of data can only be performed without an adequacy decision if special safeguards are guaranteed by the processing entity.[94] These incorporate approved codes of conduct, certifications, binding corporate rules as well as enforceability. In terms of the US, no such adequacy decision has been adopted. Instead, the commission has proclaimed that an adequacy decision shall apply on grounds of the EU-US Privacy Shield.[95] This has the implication that only companies that self-subjugated themselves under the framework are encompassed by such framework.

This is limited even further by the purposes of their data collection such as statistics or special analysis according to their self-certification statement.[96] Therefore, collaborating entities must pay utmost attention to such.

As the greatest hurdle however, the "Notice and Choice Principle"[97] dictates that every data subject bears the right to be informed and to opt-out from the data processing overseas.[98] Regardless of data being pseudonymised, these provisions still apply. Through anonymization of, e.g. IP addresses, such constraints will be limited, as data protection law will no longer apply. As VRT anonymizes IP addresses sent to the analytics tool, no personal data is being transferred outside the European Union.

3.5 Specific Recommendations regarding Piloting Activities

NPO as well as VRT are in the process of carrying out multiple piloting activities with partially large groups of data subjects. These are to be evaluated from a legal point of view and set into context to D1.3, which already provides a general outline. In combination with the specially discussed issues above, a comprehensive overview shall be provided. As Stadtfilter Radio left the consortium (see also 2.4), no extra section has been provided concerning its planned activities.

3.5.1 Audio to go

NPO tracks the number of unique visitors on their webpage, the number of users that interacted with the chat, the total messages, users, sessions and the total of not understood dialogue states. Such processing and collection shall be allowed under the legal basis of Article 6 (1) (f) GDPR. This for the reason that statistical analysis is privileged, as previously outlined,

[94] Art. 46 (2) GDPR; for a list of adequacy decisions refer to https://ec.europa.eu/info/law/law-topic/data-protection/data-transfers-outside-eu/adequacy-protection-personal-data-non-eu-countries_en#dataprotectionincountriesoutsidetheeu, accessed 19.11.2018.
[95] Commission Implementing Decision (EU) 2016/1250 of 12 July 2016 pursuant to Directive 95/46/EC of the European Parliament and of the Council on the adequacy of the protection provided by the EU-U.S. Privacy Shield, OJ L 2016/207, p. 1–112.
[96] *Knyrim* in *Knyrim,* DatKomm Art 45 DSGVO, point 26.
[97] Commission Implementing Decision (EU) 2016/1250 of 12 July 2016 pursuant to Directive 95/46/EC of the European Parliament and of the Council on the adequacy of the protection provided by the EU-U.S. Privacy Shield, OJ L 2016/207, p. 59.
[98] *Knyrim* in *Knyrim,* DatKomm Art 45 DSGVO, point 27.

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in several sections of the GDPR, especially under Art. 6 (4) which constitutes that the subsequent change to a processing purpose and therefore a privilege to its limitation shall be lawful if the new purpose concerns scientific reasons.[99] It shall also be noted, that data is, according to common industry standards, immediately aggregated as the individual is not of interest when collecting statistics.[100] No profiling is being conducted, as the data subject may customize his own preferences. It therefore falls out of the scope of "profiling" laid out by the GDPR as personal aspects are not automatically derived from other datasets. The data subject in this case merely defines his own preferences. Therefore, in a weighing of interests, the interest of the controller shall prevail.

The "Audio to go" pilot app involves several analysis operations such as:

- Monitoring of data subject behaviour
- Gathering of statistics data

It therefore falls under the aforementioned criteria of quantitative statistical analysis. Personal data may be processed not only under the legal basis of consent, but under weighing of interests.

3.5.2 Chatbot - NPO Radio 5 – App the Studio

The NPO Radio 5 chatbot and all other MARCONI chatbots are composed so as to enable the user to choose his favourite platform. For example, the bot can also be accessed via Facebook messenger. Two processing operations might not be covered by the legal basis of "performance of a contract". Sentiment analysis, being one, could also require a data protection impact assessment if it is being used to classify a user via "evaluation or scoring", to conduct "automated decision making", "systematic monitoring" or if the processing activity itself is a "new technological […] solution[…]".[101] Sentiment analysis should be conducted only within the framework of Article 6 (1) (a) GDPR, as discussed above and in D1.3:

"There are several opinions regarding "new technologies" as stated in Art. 35 (1) GDPR. *Martini* states that typically risk-inclined processing methods such as facial recognition, learning algorithms as well as sentiment analysis would fit this description.[102] While this is the only opinion on specific technologies, according to *Hansen*[103] and *Sassenberg/Schwendemann*[104] this term shall only emphasize, as it is not further mentioned and specified within the GDPR, the general framework concerning "high risks". *Schmitz/von Dall'Armi* generally emphasize, that "cloud computing" and "smart application[s]" have been around since the early 2000s as well as the internet of things and should be therefore not considered as "new technologies".[105] As MARCONI is also not processing "big data"[106] in this phase, no DPIA shall be required."

[99] See also Art. 5 (1) (b) GDPR.
[100] *Hornung/Hofmann,* ZD-Beil, 2017, 1 (6).
[101] WP29, WP 248 Rev.01 (2017), p 9-10.
[102] *Martini* in Paal/Pauly[2], DS-GVO (2018) Art. 35 point 18.
[103] *Hansen* in *BeckOk*[23], DS-GVO (2018) Art. 35 point 5.
[104] *Sassenberg/Schwendemann* in *Sydow*, Europäische Datenschutzgrundverordnung (2017) Art. 35 point 10.
[105] *Schmitz/von Dall'Armi*, Datenschutz-Folgenabschätzung – verstehen und anwenden, ZD 2017, 57.
[106] *Ward/*Baker, Undefined by Data: A Survey of Big Data Definitions, University of St. Andrews (2013), p 2: "*Big data is a term describing the storage and analysis of large and or complex data sets using a series of techniques including, but not limited to: NoSQL, MapReduce and machine learning.*"

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This however only concerns a particular opinion in literature. This is under the presupposition that many planned processing activities are not yet being conducted in the initial piloting phase. According to the WP29 "data processed in a large scale", "matching and combining datasets" or "new technologies" will become a legal issue for MARCONI in the near future.[107] This concerning the analysis of biometric data (facial analysis) or, as already proposed for immediate use in "App the Studio": mood detection. Such could trigger the need for a DPIA should, according to Recital 91 GDPR, it be in "*accordance with the achieved state of technological knowledge."*

The main goals for this phase consist in quantitatively measuring user engagement by clicks, therefore the product consists of anonymous data.

On the other hand, it may not be inherent to the service to pinpoint the location of the user. This would therefore require his consent. However, only the very general position of the subject might be tracked. Recital 75 GDPR states that tracking the movement of a user and using such information for profiling might even warrant a DPIA as it is classified as a "risk to the rights and freedoms of natural persons". Considering that no exact geolocation, but only the scale of small cities might be tracked, the data in question could not identify a single data subject, therefore being at least pseudonymous in nature and consequently shift the balancing of interest in the favour of the controller.

Recommendations for Texts for Consent for the NPO Chatbot

NPO consulted UNIVIE in regard to the dialog flow of their chatbot for NPO Radio 5. In this section we briefly discuss the outcomes and specifically address data protection compliance.

Before the chatbot is launched there is no initial communication with the user. If the data subject has not yet agreed to terms and conditions, personal data may be processed under Art 6 (1) (b) GDPR for the purpose of entering into a contract with the natural person. However, all processing activities that are objectively useful are covered.[108] Such pre-contractual relations may, depending on which legal opinion one follows, also justify processing for quasi contractual relations as outlined in page 67 of D1.3.[109] Communication with the data subject is also a core functionality of the service. Therefore, his personal data, as outlined in the respective privacy policy, may be processed for the purpose of entering into a contract. While "contract" should be interpreted autonomously according to union law, if a contract, and therefore Article 6 (1) (b) GDPR as a legal basis, is valid according to the laws of the member state, also the respective legal basis can be extended to cover it.

Since one optional answer is "no", and the person will not enter into a contract with the radio station, "legitimate interests" shall form a justification. The borders between the currently and the above-mentioned legal basis are quite fluent since good faith is a central element in both[110]. While it was stated, that an anonymous usage of the chatbot will be considered we can assume that, for security purposes, some information such as IP addresses will be processed in order to avoid MITM or DDOS attacks. This is also covered by the legal basis of "legitimate interests" as the interests of the controller, by far, exceed the ones of the data subject.[111]

[107] wp248, 10.
[108] *Schulz* in *Gola*, DS-GVO[2] (2018), Art. 6 points 38-39.
[109] *Albers/Veit* in BeckOK[25] (2018), Art. 6 point 30.
[110] Schulz in Gola, DS-GVO2 (2018), Art. 6 point 29.
[111] Recital 49 GDPR; *Albers/Veit* in BeckOK[25] (2018), Art. 6 point 49.

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If, however, the data subject has downloaded the app, he must agree to the terms and conditions beforehand. However, as MARCONI cannot control what the data subject sends to the station, as outlined in D1.3, data according to Art. 9 GDPR may be processed "by accident". The legal basis of entering into a contract according to Art. 6 (1) (b) GDPR then cannot be used!

Profile generation is an important part of the service. Additionally, before the user shall appear in a broadcast, he or she needs to be known by the editorial team. If the user still has not accessed the general terms and conditions, the processing of his email address, which is necessary for identification, falls under the same framework that has been outlined above (pre-contractual). Depending on the information provided and the nature of the processing itself, the user will consent to be contacted. It shall be ensured that, in terms of consent, the necessary minimum of information such as

- Personal Data,
- Processing Purpose,
- Controller or Joint Controller,

should be provided together with the information, that consent may be revoked at any time.

The confirmation mail itself should not ask for additional consent as this would interrupt the conversation flow. There are no specific formal requirements for gaining consent.[112] However, the following might prove difficult:

"Where processing is based on consent, the controller shall be able to **demonstrate** that the data subject has consented to processing of his or her personal data." - Article 7 (1) GDPR.

The user might not only feel inclined to just click the highlighted link or read the code, but it is also more difficult to prove the consent of a user only by his conclusive actions. Therefore, it is not only a more uniform approach for the user to give all the notions of consent in the application itself, but also better if he types "Yes!". This statement could help enormously in demonstrating the unambiguous wish of the data subject.[113]

„Zouden we ook je telefoonnummer mogen hebben zodat we je kunnen bellen tijdens een uitzending? Lees meer"

If the user is asked to provide his phone number to call into the show the legitimate ground is consent. Therefore, it should be stated that the user can withdraw such at any time, accompanied by the above stated information provisions. The WP29 further elaborates, that an "integrated approach" (linking the privacy policy), is also possible.[114] The consent agreement is needed for the reason that getting contacted by phone is not an intrinsic function or necessarily a contractual performance of the chatbot application (see D1.3). However, for the needs of demonstrating legal claims, e.g. because of prank calls, the controller shall be able to process the number in question under another legal basis.

In this example, the other informational requirements are fulfilled, as the purpose, the personal data involved as well as the controller are apparent for the data subject.

[112] *Stemmer* in BeckOK[25] (2018), Art. 7 point 80.
[113] *Kastelitz* in *Knyrim,* DatKomm Art. 7 DSGVO point 13 (1.10.2018, rdb.at).
[114] wp259, 15.

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Data subjects may be presented a link to an external survey system without any additional requirements as long as it itself does not collect any personal information as it lies out of scope of data protection legislation. If the polling system is not related to NPO or MARCONI, it becomes a controller itself and must list, even when only collecting personal data on the basis of Article 6 (1) (f) GDPR, oblige to Article 13 and 14 GDPR in making available the necessary information to the data subject.[115]

If there will be some sort of qualitative controlling applied for who will be able to land on the survey page in order to prohibit individuals from voting twice, e.g. through a customized link, a legal basis may be again Article 6 (1) (f) GDPR.[116]

"Je naam, e-mailadres en telefoonnummer (optioneel) worden door de NPO opgeslagen met als doel je periodiek op de hoogte te houden m.b.t. nieuws en updates rondom NPO Radio 5."

The short agreement version encompasses, according to the WP29, only the most important parts: the data in question and the specified purposes in a concise way to mitigate "click fatigue" ("What does the service perform for me?"). In the longer version we allow ourselves to be more specific in declaring the controllers as well as the identity of the entity sending advertisement. In terms of data protection, this operation shall be viable. However, this not only to comply with the GDPR but also with Article 13 of Directive 2002/58/EC.[117] Please therefore refer to domestic legislation.

Summa summarum, the consent agreement shall encompass the data processed, the controller(s) and joint controllers, the purpose(s) but not necessarily mere processors. Therefore, we refer to the "Privacy Policy" of the respective company as it shall list the necessary information exhaustively. In order to comply with Art. 7 (3) GDPR we mention in the extended version that the consent may be revoked at any time."

The telephone number is optional as well, as it should be. Therefore, UNIVIE deems this consent agreement to be lawful. However, it should not be forgotten to link the terms of service and the privacy policy, as it shall yield the necessary information according to Article 13 GDPR, for example how long the telephone number will be retained.[118]

It should also be questioned on whether or not the data subject may be confronted with all purposes and processing operations at once in order for him to agree to all in one go. This could, as PriVaults could potentially offer such functionality, be conducted. However this approach, while seemingly being convenient for the user, has several downsides. One of it would be that the user agrees to several processing activities he is not even aware of if the list is very long. He might not even use certain parts of the system and while the data subject

[115] *Martini* in *Paal/Pauly*, DS-GVO[2] (2018), Art. 25 point 67 – 77.
[116] Recital 49 GDPR; *Albers/Veit* in BeckOK[25] (2018), Art. 6 point 49.
[117] „ 2. […] where a natural or legal person obtains from its customers their electronic contact details for electronic mail, in the context of the sale of a product or a service, in accordance with Directive 95/46/EC, the same natural or legal person may use these electronic contact details for direct marketing of its own similar products or services provided that customers clearly and distinctly are given the opportunity to object, free of charge and in an easy manner, to such use of electronic contact details when they are collected and on the occasion of each message in case the customer has not initially refused such use.
[118] Also, according to domestic legislation, the user should have the option to object directly from the mails he receives for the purposes of Directive 2002/58/EC.

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agreed nevertheless, the principle of data minimisation still applies also to processing based on a notion of consent.[119]

While the checkboxes will have to be ticked one by one, it is of utmost importance to still somehow comply with the requirements of Article 13 GDPR in providing the necessary information according to Article 4 (1) point 11 and Article 7 GDPR as well as linking to the privacy policy.

Checkboxes are a valid alternative to typing explicit answers. However, *Stemmer* also remarks, that electronically checking a box before using a service as a technical precondition will not be sufficient to demonstrate consent.[120] For such operation to be compliant to Article 7 GDPR, a profile must have already been generated for PriVaults to record proof of the subject consenting.

In conclusion, such conduct shall be deemed lawful if the necessary informational provisions are complied with and the notion of consent demonstrated accordingly.

3.5.3 Interactive Storytelling

In the context of (public) media, the Right to Freedom of Expression (as enshrined in Article 11 of the Charter) should be addressed. It is a fundamental freedom of the European Union, and as such, shall be considered when interpreting GDPR provisions. According to Art. 85 (1) GDPR: "*Member States shall by law reconcile the right to the protection of personal data pursuant to this Regulation with the right to freedom of expression and information, including processing for journalistic purposes and the purposes of academic, artistic or literary expression.*"Even without an explicit law of Member States the right to freedom of expression has to be taken into account when balancing interests since freedom of expression can amount to a legitimate interest pursued by the controller or a third party. In addition Recital 153 GDPR, which corresponds to Article 85 GDPR, states that "[i]*n order to take account of the importance of the right to freedom of expression in every democratic society, it is necessary to interpret notions relating to that freedom, such as journalism, broadly.*" When public data is used for the purpose of sharing it for journalistic purposes it is in general justified depending on the national implementation of Art. 85 GDPR.

Therefore radio broadcasters shall be allowed to skim public media for the purpose of journalistic tasks.

From the array of MARCONI services the Word Cloud service from Faktion had been integrated. As such, only statistical, aggregated data has been processed through MARCONI applications.

3.5.4 Search tool

VRT was concerned about indexing texts with associated names of data subjects. It was not possible for editors to search for the names of senders. This however, does not violate the original purpose of data collection, as indexing is a primary feature to the service provided. The principle of data minimisation shall also not be violated as the names of the senders are being collected anyways and editors will not be able to compile copies of a names list.

[119] *Frenzel* in *Paal/Pauly*, DS-GVO[2], Art 6 point 11.
[120] *Stemmer* in *BeckOK DatenschutzR*[24] DS-GVO Art. 7 point 88.

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Therefore is shall be possible for editors to at least search for first names of senders to work effectively. Data minimisation will be exercised as long as the editors may not export the names as a list for other purposes as the ones initially stated.

3.5.5 Chatbots for Answering Common Questions

This piloting activity corresponds in large parts to the previously outlined operations. From the viewpoint of data protection in addition to common profile creation as well as conversational services which have been already outlined above, only statistical data has been gathered under the legal basis of legitimate interest. The product of the pilot consists, as can be seen in Figure 16, of aggregated and therefore anonymous data as the individual is of no relevance.

3.5.6 Lively Environment

As the data in question has been obtained by VRT beforehand, it shall be questioned whether the data subjects have been aware of the purpose. However, as the data in question has already been published for the sake of reaching a preferably large audience a weighing of interest would fall into the favour of the controller, as he is also the holder of the intellectual property rights.

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4. Conclusion

We conclude that the current pilots already indicate how the prototypes are aligned with our main objective, which is to enable fully interactive and personalized radio experiences to our end-users – both listeners and radio makers.

By conducting the different pilots, we learned whether the technical functions worked, how much they were used, what the complications were and what people liked or disliked about them. The pilots helped us to evaluate the functionality of the prototypes and how to improve them towards the end-user, i.e. the listener or the radio maker. Furthermore, we used the evaluation of current versions of the pilots to identify new challenges and opportunities for subsequent iterations of our solutions. We finished with a legal overview about each piloting activity and recommendations of which a comprehensive overview is provided.

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Appendix A

A1: Survey for chatbot services

We welcome your feedback!

To help us improve the NPO chatbot please complete this short survey. It will only take you a few minutes. Please answer the following questions about your experience using the NPO chatbot. Your responses will be treated as anonymous and confidential.

Part 1: information about the listeners

What is your gender?

- ☐ Female
- ☐ Male
- ☐ I prefer not to say

What is your age group?

- ☐ 18 - 24 years old
- ☐ 25 - 34 years old
- ☐ 35 - 44 years old
- ☐ 45 - 54 years old
- ☐ 55 - 64 years old
- ☐ 65 - 74 years old
- ☐ 75 years or older
- ☐ I prefer not to say

In a given week, how many hours do you spend listening to [NPO radio]?

- ☐ Less than an hour
- ☐ 1 to 5 hours
- ☐ 6 to 10 hours
- ☐ 11 to 20 hours
- ☐ 21 to 40 hours
- ☐ 41+ hours

Part 2: general questions about the chatbot

Answers = strongly disagree / disagree / Neither agree nor disagree / agree / strongly agree

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It was easy to find what I was looking for with the NPO chatbot.

I found the information provided by the NPO chatbot helpful.

It was quicker to find information with the NPO chatbot than when browsing the website.

The NPO chatbot made me feel more connected to the radio station.

I feel that NPO chatbot has improved my experience as a listener.

I would like to use the NPO chatbot again.

Part 3: specific questions

Have you used chatbots before?

- ☐ Yes
- ☐ No
- ☐ I am not sure

How well did the [NPO chatbot] match your expectations?

- ☐ Much less than expected
- ☐ Less than expected
- ☐ As expected
- ☐ More than expected
- ☐ Much more than expected

Please elaborate your answer (optional) - *open question*

How likely are you to express your opinion by answering a poll using the NPO chatbot?

- ☐ Very unlikely
- ☐ Unlikely
- ☐ Neutral
- ☐ Likely
- ☐ Very likely

Please elaborate your answer (optional) - *open question*

How likely are you to create a user account to personalize your experience with the NPO chatbot?

- ☐ Very unlikely
- ☐ Unlikely
- ☐ Neutral
- ☐ Likely
- ☐ Very likely

Please elaborate your answer (optional) - *open question*

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How likely are you to share your personal stories with the radio show using the NPO chatbot?

- ☐ Very unlikely
- ☐ Unlikely
- ☐ Neutral
- ☐ Likely
- ☐ Very likely

Please elaborate your answer (optional) - *open question*

Part 4: Optional questions

Answers = open questions

What could make the NPO chatbot] more valuable to you?

Thanks for your valuable feedback!
Learn more about the Marconi project

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