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This deliverable describes the initial general requirements for CPN

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Executive Summary

This deliverable describes the basic set of user requirements for the CPN project. Explaining the process step by step, the document contains all measures undertaken by the consortium to evaluate, assess and define the requirements for a personalised news offer from an end-user perspective as well as from the producers' side. The document explains in a concise way how the user vision was formulated through a workshop with all user partners. It details the process on how the personas from all three media partners were used to create a set for the project. It elaborates on the user involvement in workshops and interviews with media producers as well as on a large user survey with possible target audiences.

Finally, it describes how all this input was brought together to create a complete set of basic specifications for the CPN project. The deliverable concludes with an outlook on how these requirements will now be put to use to create the CPN application.

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ABBREVIATIONS

API Application Programming Interface

CMS Content Management System

CRM Customer Relationship Management

DW Deutsche Welle

FOMO Fear of missing out

GDPR General Data Protection Regulation (EU)

SaaS Software as a Service

SEO Search Engine Optimization

VRT Vlaamse Radio- en Televisieomroep

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1. Introduction

This deliverable describes the process of how the user requirements were developed in several steps. It gives details on all the different steps undertaken by the consortium and its media partners. The steps described range from the first user vision meeting to define the process and create a first vision, to the creation of a unified set of personas, to interview sessions, workshops and user surveys with end-users and media producers. The document then lists all the basic requirements derived from these steps, including a description of how these were extracted from the process before. It is important to understand that the requirements listed here are covering both ends of the spectrum, the end user/consumer side as well as the producer side.

The deliverable is structured into six chapters, describing different steps and results of the requirements process.

Chapter 2 gives an overview of the methodology followed by the CPN partners to define the requirements. It also contains detailed descriptions of the results coming from each step in the process such as the User Vision meeting, the expert interview sessions and the DW online survey.

Chapter 3 describes our the conceptional research activities we undertook after with the target group after the initial reseach in chapter 2.

Chapter 4 is set up in two sections. The first section bridges all the steps of the methodology from the previous chapter to the actual requirements by describing how the user partners derived the requirements from the respective results. The second section then lists the actual requirements for the project separated into the different parts of the envisioned application.

Chapter 5 takes a closer look at the user scenarios that the project will be following. First the process of getting to the scenarios is described by linking it to the actions from chapter 2. Then the actual scenarios are listed in detail, giving an overview over all three setups.

Chapter 6 is a conclusion of the steps above, summarising once more the efforts undertaken so far to map an initial set of system requirements for the CPN platform .

2. Methodology and the Initial research Process

This chapter explains the different steps of the initial research methodology undertaken to create an overview of the existing news and media personalisation applications.

To get started, the CPN user partners began with in-depth research on what is currently done in the area of content personalisation, taking a closer look at the development of the different technologies and their ways of working, research initiative and ongoing projects.

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The result was a detailed market analysis that revealed many interesting aspects of personalisation, innovative heights and shortcomings of current methodologies. The following chapter gives an overview of how personalisation works and how it's already being applied in different fields. The initial research was discussed by the content partners in a user vision workshop, the analysis of existing personas available for the project and the creation of further suitable personas. The initial research phase was then finalised through unstructured interviews with media professionals.

2.1 Personalisation Overview

Today the personalisation of news and media offerings is omnipresent and already expected by readers. The downsides that such offerings can bring, like intensive data collections by companies, addiction effects, and real or perceived information bubbles are no secret and people are willing to accept them to a certain extent. Content personalisation is also seen as the only strategy against information overload[1], attention loss[2] and the reluctance of the readers to either pay for content or to be exposed to advertising[3], which is a growing concern for media publishers. While traditional publishers have not applied personalisation to the same extent as media start-ups, social media networks and the advertising industry, there is an apparent increase in personalised offers even by traditional publishers and a keen interest to develop personalised products in the future. The advancement of personalisation systems has been evolving since the mid-nineties with the introduction of the first recommendation engine tapestry.

2.1.1 General Concepts

Looking at the technological development, there are three main approaches to content personalisation on the market:

1. Item-to-item collaborative filtering
2. Content-based filtering
3. Hybrid methods, using additional data for support

Item-to-Item Collaborative Filtering was pioneered by Amazon for online retail. It assumes that two users who have bought similar products in the past will have similar preferences in the future and it forms a recommendation based on that history. Item-to-Item Collaborative

[1] Toffler:1970

[2] http://www.medicaldaily.com/human-attention-span-shortens-8-seconds-due-digital-technology-3-ways-stay-focused-333474

[3] http://reutersinstitute.politics.ox.ac.uk/sites/default/files/2017-09/KM%20RISJ%20Paying%20for%20online%20news%20-%20report%20230817_0.pdf

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Filtering requires a user history and can't handle new content by itself. But this type of filtering can be applied to various types of recommendation including media items and news articles. Content-based filtering depends on metadata, which is needed to further analyse and later correlate the content. Such metadata can be keyword tags (like names or places) or other parameters (like topic categories, or time slots). Metadata that enables content labeling can be generated in two ways: manually (by editors, who provide those content tags) or automatically using various technologies like semantic analysis or image processing. One example of a machine-assisted tagging workflow is the usage of the so-called *"Term-Frequency - Inverse Document Frequency"*: a text analysis algorithm used to categorise documents by keywords. The algorithm classifies documents into categories by comparing the frequency of usage of a certain term inside an individual text article contra to the entire collection of documents. Advanced semantic analysis can also analyse other properties of text like style, grammar and tone. Nowadays, most recommendation engines use a hybrid approach that combines item-to-item collaborative filtering with content filtering and add further data to achieve better personalisation. Examples of a hybrid-approach to personalisation are the recommendation engines used by Spotify and Netflix, as both use a mix of item-to-item collaboration and content analysis to create machine-generated micro-genres that correspond to individual users and aim to provide fine-grained personalisation.

The much needed data behind a valuable personalization can be gathered in three different ways:

1. Explicitly via user self-disclosure (the user willingly hands over his data)

2. Implicitly via tracking of click behavior, time spent on a content item, location and overall browsing history

3. By a combination of self-disclosed and monitored data (This is the case for data gathered through social media and social bookmarking sites)

By now, users are accustomed to the sign-up procedure and "primed" about the data disclosure[4]. They often understand that various third-party providers use their data, but still engage with the applications, even if it occasionally causes backlash and anxiety. Regarding data protection and privacy concerns, we must stress that while on the one hand privacy concerns remain at the forefront of the debate around personalised content and the role of tech corporations, on the other hand, the market growth of data-intensive applications and services implicate that, when it comes to real-world behaviour, consumers tend to give their data away for relatively little incentives. This instance has been described as the Privacy Paradox Phenomenon by, among others, Kokolakis 2017; Brown, 2001 and Norberg et al., 2007[5].

[4] http://time.com/4673602/terms-service-privacy-security/

[5] https://qz.com/1058674/facebook-news-feed-design-and-dark-ux-are-turning-us-into-sleep-deprived-internet-addicts/

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2.1.2 State of the art personalisation

The developments and market standards for content personalisation are dominated by the big tech companies like Google, Amazon, Netflix, Spotify and Facebook. They all created their business models around providing on-demand content that caters to the preferences and interests of the individual users. Facebook, as probably the biggest example, is considered to be a forerunner in personalisation. With its news feed it created a popular content format that provides an (almost) infinite stream of content, making it both "easy" and necessary to contextualise and personalise the different content. Facebook is known for continuously updating the algorithm behind this feed to continue to keep people engaged with (and even addicted to) the platform. A key aspect of the Facebook approach is to generate new usage through real or perceived relevance of the news feed, combined with a strong motivation to make companies pay for access via advertising. One of the downsides to this approach has been already described by Christian Sandvig as *corrupt personalization*[6]. Corrupt personalisation refers to a relevance perception bias that occurs when the real interests of media consumers and social network users do not correspond with those of the platform providers and hence are not represented in the content provided by the algorithms of those platforms. The sheer availability of the content embedded in occasional status updates and content shared by family and friends of users may create a perception of a personalised and relevant offer. Besides this, the addictive nature of the feed has been linked to various negative implications to the user's emotional state and health. Nonetheless, the idea of the infinite content feed has been adopted by other popular social media networks.

An essential step in the development of recommendation and hence personalisation engines was the adoption of predictive machine learning algorithms. Some of the most popular ones are *bayesian algorithms*, decision trees, matrix factorisation and increasingly deep neural networks.

While usually, personalisation algorithms require input and output test data in order to work, companies with advanced AI capabilities like Google use unsupervised machine learning to create personalised recommendations. These kind of unsupervised machine learning algorithms can analyse a much greater number of parameters simultaneously. This allows them to come up with recommendation patterns that are larger than any human editor would be able to achieve. YouTube, as part of Google, has implemented such an approach to recommendations and the success of the platform is well known. Further developments in content personalisation and recommendation engines will hence most likely depend on technological advances in machine learning and AI.

2.1.3 Personalisation in the media

While the leading players in personalisation have been social networks, the advertising industry or media start-ups, there is a clear increase in personalised offers among traditional media outlets as well. One of the first advanced recommendation engines used in media was

[6] https://socialmediacollective.org/2014/06/26/corrupt-personalization/

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implemented by The Washington Post after its purchase by Jeff Bezos (who owns Amazon, another powerful recommendation player). The Washington Post currently deploys a whole array of automated editing and personalisation applications, as part of its SaaS publishing platform The Arc[7].

With the advance in natural language processing and other technologies needed for real-time personalisation, content publishers and advertisers could ultimately proceed towards an automated, real-time modification of article features like tone and wording to suit to different demographics.

Further developments will eventually lead to real-time personalisation. Real-time personalisation relies on various aspects of user behavior that have to be monitored constantly like site- or app-wide behaviour, including the total number of site visits or logins, time spent, the number of articles read as well as deep-behaviour[8]. In the future, a single front page for all readers may become obsolete. At the moment, media companies already experiment with placing different pieces of content on prominent positions on their web pages to target different demographics and even to suit to the preferences of individual users based on implicit user behaviour data which can be tracked online. While this approach is still mostly used for advertising, some media publishers like The New York Times[9] already experiment with customized front page layouts. In the future, APIs could automate this process.

A popular format for news related, personalised content is a news aggregator (like Flipboard or Apple News) that delivers news based on broad categories, specific keywords or keyword combinations. News aggregators can rely on algorithms, human editors or a combination of both. Users subscribe to news aggregators via apps or in the form of a newsletter. The newsletter is a common format for personalised news content, but represents a limited piece of content in contrast to limitless news feeds. News aggregators usually rely on self-disclosed user interests or imported data from social networks as mentioned above. The output for personalised offers can exist in the form of applications for smartphones, smart TVs, wearables, browser extensions and increasingly also voice-based digital assistants. Activity-based recommendations provide content fitted for the current activity of the user, like in-car content for commuters who drive, or short, muted, subway-friendly, offline content for commuters who use public transport. A common practice for content personalisation is the usage of self-disclosed or tracked location data. By using geolocation as a filtering category, news publishers can provide regional news, display certain content items at a prominent position or provide articles to users based on regional interests or from a different angle.

[7] https://www.arcpublishing.com

[8] Wirth, Sweet (2017)

[9] http://www.niemanlab.org/2017/09/all-the-news-thats-fit-for-you-the-new-york-times-is-experimenting-with-personalization-to-find-new-ways-to-expose-readers-to-stories/

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Besides personalisation based on the semantic representations of the users' interests and location, some media companies also experiment with other categories for personalisation like time of the day, weather and climate information and current user activity and moods. Examples would be Spotify's ClimaTune[10] and mood-based music collections[11] as well as news aggregators that only provide positive news aimed to be motivating and uplifting, in-car content or news apps designed for commuters, like the Guardian's LabRdr App[12].

Besides the technological aspect of media personalization, the result of those, and the Privacy Paradox described above, there are several important phenomena that dominate the discourse in media-sociology. Among these phenomena are increasing feelings of *information overload* and *fear of missing out*, as well as the fear of real or perceived ideological fragmentation of societies through digital media, social networks and algorithmic content filtration also known as the *filter bubble*.

While the information overload theory is not new and was in fact first mentioned by Toffler in 1970, its effects are estimated to drastically increase with the advancement of digital media. In recent years, several studies have been conducted to analyse the effects of information overload in general and specifically in context with media and news[13].

Some researchers and media experts even attribute the increasing success of populist and misleading news content, infamously known as *fake news*, to an increasing information overload that leaves news consumers unable to distinguish between legitimate and illegitimate news sources. But also a decrease in general productivity and mental well being are associated with information overload.

Another important concept in regards to digital news consumption is the often polemical discussed *fear of missing out*. While it is usually associated with young people spending a significant part of their pastime on social media and comparing their lives and status updates to others, the *fear of missing out* phenomenon can also be discussed in the context of news consumption and especially in the context of news personalisation. In general the term fear of missing out describes the uncomfortable feeling that others might be having rewarding experiences from which one is absent, which may even lead to a compulsion to stay online continuously connected to media and social networks[14].

Finally a one of the most significant phenomena associated with news personalisation Real and perceived ideological fragmentation accelerated by digital news, social media and and algorithmic filtration

[10] https://www.accuweather.com/en/weather-news/accuweather-spotify-launch-climatune-to-produce-playlists-customized-to-weather/70000786

[11] https://open.spotify.com/view/mood-page

[12] https://itunes.apple.com/us/app/labrdr/id1290501681?mt=8

[13] Schmitt, Debbel, Schneider (2017)

[14] Przybylski, et al (2013).

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Since the US elections of 2016 and the rise of populist, anti-immigration and anti-EU movements, there has been a growing concern that algorithmic filtration, also known as filter bubbles, is responsible for or accelerates ideological echo chambers. The term filter bubble was first coined by the media activist Eli Pariser in his book „What he internet hides from you"[15]. This profoundly negative aspect of news personalisation increased the number of applications and research initiatives to mitigate possible adverse effects. While the filter bubble theory and its role in the political discourse of societies are still contested[16], these initiatives can be highly beneficial. It's important to note that most of these initiatives are aimed at the American audience and in general only take into account the political dichotomy between liberal and conservative narratives. Corresponding concepts for the European audience would be even more challenging to come by. So far, popular initiatives aim at making political bias more visible and providing news articles with contrasting and complementing views.

2.2 User Vision Workshop

In order to get a better understanding of the project's aims and to form a common vision, the media partners VRT, DIAS and DW met for a joint meeting in Bonn in early October 2017. The one-day meeting consisted of several parts described in more details in the following sub-chapters. The introduction was followed by the presentation of the market and state of the art analysis as described in chapter 2.1, pointing out the different methodologies currently in use by well known tech giants and other media corporations. On the basis of this, the group discussed highlights and downsides of these known methodologies, already forming first ideas of what could be useful for a CPN system. The last part of this session was a joint presentation and discussion on restrictions, chances and opportunities of the GDPR. As a mandatory set of guidelines for handling personal data within the EU, it is clear that the project has to adhere to these regulations. But the discussion showed that these regulations could also serve as a benefit for CPN. The idea that was discussed, was based on the fact that users have to be able to download their personal data from any network operating in the EU. This would allow a user to reuse their (like-, share-, click-) data from one social network to another. This could be a way to create a starting profile for any user accessing a CPN solution, avoiding the lengthy entry-adjustment process, if a technological solution can be found for this. Based on the input from the presentation and discussion round, the partners discussed their general expectations on personalisation. The basis for this discussion was a simple schematic, taking into account the different aspects of a personalisation offer (see Figure 1.).

[15] Pariser (2012)

[16] http://www.slate.com/articles/technology/technology/2017/04/filter_bubbles_revisited_the_internet_may_not_be_driving_political_polarization.html

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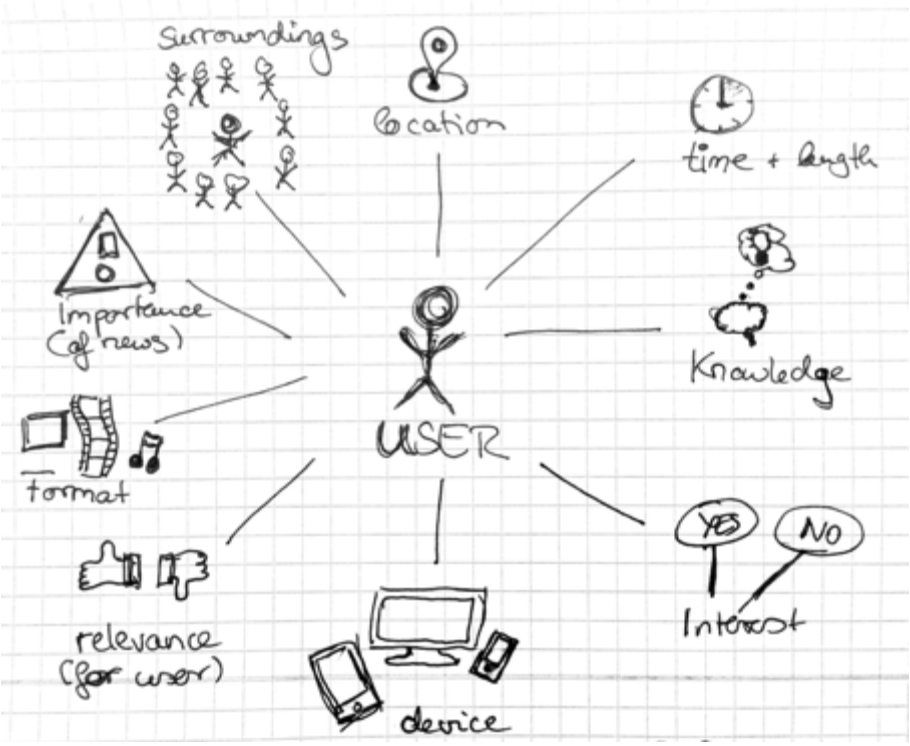

Figure 1: Schematic on personalisation aspects

Starting from the center, the group discussed the core questions concerning the potential users CPN wants to address: both the audience and the producers. Further questions were focused on the numbers of users for the pilot phases, how to best organise the users/producers and how to involve them in the different steps of the process (e.g. workshops, surveys, interviews, evaluation sessions).

After the basic setup and process were cleared, the group went on to discuss all attributes surrounding the potential users. Possible end devices were defined (mobile, web and TV), content (both hard and soft news) and formats (mainly text, audio, images) and sources

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(VRT, DIAS, DW as main sources, possibly others) listed as well as languages favoured (Dutch/Greek/English).

The ongoing discussion clearly showed that the attributes of location, time & length as well as surroundings would prove to be very important for a usable personalisation. Participants imagined news to be fit to a user's location, bringing both relevant news to as well as about the location, with an extra challenge in users switching locations for travel purposes. While this brought up the idea of including everyday news (on weather or traffic) it also led to a serious discussion on how to best obtain the necessary information on changing locations without becoming too intrusive. Some of the ideas we discussed included the concept of geo-fencing, an automated approach to changing modes and providing content triggered by a change in location of the user. Taking a closer look at the time & length attribute brought up the issue of whether users would want news tailored to their daily rhythm, which might differ throughout the week and between users. Besides the usage patterns and devices mentioned above, we also aim to include a dynamic approach to the user's interests based on relevance and knowledge. The objective here would consist of not only the topics the user is interested in and familiar with, but also the topics the user would like to learn and understand in the future as well as interests based on changing life-circumstances. Here we look for a dynamic approach to news/content recommendations that takes into account what the user already knows and understands, to build a content pipeline favourable to the development of broad and specific knowledge and avoid repetitive content and narrative exposure. We also discussed the concept of relevance and importance of news in general, to provide a dynamic and personalised conceptualisation of breaking news and individual relevance. Another major area of our discourse was a strategy to identify and avoid filter bubbles, a supposedly negative effect of ideological fragmentation, that might occur and/or be perceived stronger through personalised news and information consumption filtered by search engines, social networks and other forms of algorithmic filtration.

While taking these risks into consideration, we are at the same time aware that the whole concept of digitalisation of media and algorithmic filtration as an accelerator of ideological fragmentation might be overestimated and flawed.

A more far-ranging approach to personalization is how the use of "news" is actually changing how and when it is perceived as helpful. Our assumption is that people "filter" news based

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on several categories: they will be interested in economic/business news if they are looking for a job or are in training for a certain profession. They will consider security alerts much stronger if there is a proximity of the events close to where they live. Ideally, such news would not only add "a guess", but should be based on relevant statistics, probability of an event for the users and other data to become more relevant over time. It should be noted that this is not only a question of sorting, filtering and delivery method, but the key quality of news items provided for an audience.

What needs to be considered here are known psychological patterns, such as "cognitive bias" and "cognitive dissonance". The latter describes the effect that we tend to not accept new information if it is notably different from our observations and believes. If a stereotype is challenged, one possible reaction is to avoid accepting this information. The discussion showed the potential in personalisation offers, just as well as it made clear that a strong user involvement would be necessary to obtain tangible requirements of what to include.

2.3 CPN Personas

To create a starting point for the user research, the media partners decided to resort to a standard method used in software development: the creation of personas. Personas are descriptions of typical users for an envisioned product, that are created on the basis of real user data. Typically a set of several personas is designed to represent the typical group of main users from an audience to always keep in mind whom a system is built for and what needs the new system should address. The following chapters describe the process of how the CPN personas came to be.

2.3.1 Analysis of the existing personas

Since the core audience for CPN is based on its media partners' audiences, and in order to save time and effort, the media partners took a look at the personas already existing in their companies. At DW the existing personas have been created by the Market and Media Research department in the wake of its digital transformation process, based on extensive in-country research activities conducted in several countries, primarily in the Global South, with either an already active DW audience or high-potential for expansion. There is a total of 7 personas reflecting the demographic features, motivations, values, media consumption patterns of DW's diverse international audience. The seven personas differ from each other mostly in their cultural and educational background, as well as their media consumption and technological settings. All DW personas have certain aspects in common. They have above average education which usually includes university-level education, an active role in civil society or the wish to achieve such a role and a strong interest in regional as well as international news. DW audience members actively seek exposure to news content that offers a different perspective and additional information to the news content provided by local, regional and national news broadcasts of their respective countries. As a considerable part of DW's current and targeted audience resides in less-developed areas of the world, our task will also include the conceptualisation of applications for low-data-traffic usage. In order to streamline the process, a shortlist was created by combining characteristics where an overlap was clear, bringing the number of personas down to three.

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At VRT the personas were based on a study by Van Damme (2017) about news media repertoires in Flanders, Belgium's Dutch-speaking region. In this study an integrated mixed method approach was adopted, combining an in-depth qualitative analysis of 36 in-situ interviews with a guiding Q-methodological analysis. Therefore, this study provided an excellent starting point for the VRT personas because it was set in Flanders, Belgium. The outcome of the study were seven types of news users. VRT translated these news users to personas that were most easily translated to the VRT NWS audience. For example, the 'sports lover' persona from the study by Van Damme (2017) was not included in our personas because VRT has a specific sports site that is different from the VRT NWS website. VRT ended up with four personas: News Junkie, Digital Native, Traditional News Consumer and the Online Media Hopper.

At DIAS the personas have been created by the Marketing department from 6 digital media brands (Sigmalive, City, I Love Style, Magazine, Time Out, Capital), based on data provided by Google Analytics in 2017. According to data collected, there are four personas reflecting demographic characteristics, interests, content consumption trends and motivations. This data has been compared with radio and TV audience ratings, in order to make safer assumptions regarding media consumption habits in Cyprus.

2.3.2 Creating new CPN personas

Starting from the input of personas of VRT, DIAS and Deutsche Welle, personas were created that would suit the purpose of the co-creation workshops: to enable participants to think outside of their own news consumption. The goal of this task was to define a limited set of personas that have their own characteristics and specific interests when it comes to news. Although limited, the personas also had to be diverse enough so that a variety of scenarios would follow from them in the co-creation sessions.

Following these instructions, the first step of reworking the personas was to highlight similarities and differences in the personas obtained from each of the partners. In the next step, similar personas in terms of news usage, goals and frustrations were merged to one persona, with minimal rewriting. Finally, missing information from some personas was added to complete the profiles and to obtain consistency across personas. In table 1 we provide an overview of the 8 final personas, linked to the original personas from each partner. A detailed description of each persona can be found in the Annex.

Persona used in co-creation session	**Original personas from each partner**
News junkie Dirk	News & Politics News Junkies (DIAS) The News Junkie (VRT) Persona 2 (DW)

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	Persona 3 (DW)
The traditional news consumer Jeanine	The traditional news consumer (VRT)
The Sports/soccer fan Frank	The Sports/soccer fan (DIAS)
The digital native Mats	The digital native (VRT)
The online media hopper Sofie	The online media hopper (VRT)
The entertainment & celebrity enthusiast Anne	The entertainment & celebrity enthusiast (DIAS)
The alternative news consumer Jonathan	Shutterbug (DIAS)
The committed citizen Andreas	Persona 1 (DW)

Table 1: Existing Personas from the CPN Consortium Partners

2.4 Initial Interviews with Media Professionals

In order to receive input from media professionals we scheduled several interviews with journalists, editors and technical staff from our own organisations and beyond.

2.4.1 Initial Interviews with media professionals at DW

Deutsche Welle conducted unstructured interviews with DW executives involved in product development and content distribution partnerships to understand the current state of content personalisation at DW, possible developments in the near future, as well as existing requirements affecting the production side of news personalisation. DW also conducted an unstructured interview with journalists from several news departments of DW to understand their workflow and conceptualize a possible role for news personalisation applications, which take into account the media professional's double role as content producers and power consumers of news-related content.

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From the interviews with DW executives involved in product development and content distribution partnerships, we could get a clear insight into the current state of content personalisation and the specific challenges of a major European public broadcaster. While DW has not conducted concrete personalisation strategies in the past, the idea of personalised offerings is met with optimism and plays a part in long-term digitalisation strategy. The requirements for personalisation on the production side consists of, on the one hand sophisticated gathering of user data and on the other hand a systemised approach to content clustering and keyword tagging. At the moment DW provides a detailed framework for keyword tagging of articles which is performed by the editors and content producers. This process is applied for SEO optimisation to highlight DW content online, but can also be used for personalised offerings. In the near future, more initiatives for keyword tagging and clustering of DW content are foreseen. As a public broadcaster, DW has so far abstained from large-scale user data monitoring. However, DW's content is also distributed to users of various mobile applications and social networks that apply extensive personalisation, like Flipboard, News 360, Facebook and others with which DW currently has distribution cooperating in place. The cooperations with these application providers tend to be very successful, even if (organic) reach varies significantly by application, country and targeted demographic. It drives high-volume traffic which further proves that content personalisation can be beneficial for public broadcasters.

A problematic aspect of the outsourcing of content personalisation to third-party providers is uncertainty and the lack of opportunities to understand and influence the algorithms applied by those providers. A good example is the current change in Facebook's algorithm, which is aimed to downgrade the reach of publishers and broadcasters in favour of content generated or shared by the users. This circumstance highlights once again the need for a transparent personalisation platform. Through our interview with journalists and editors, we could get an insight to the journalists' perspective. While our interviewed journalists in general have a strong interest in understanding the audience's interests and information needs, they do not want this information to influence the workflow and topic priorities when writing stories, as editorial selection and judgement should remain the absolute priority. The primary motivation to use a content personalisation application is to streamline their own high-volume content and information consumption. This goal can be achieved through precise customisation that also allows to include a high number of news sources and filter according to broad, but also very specific categories and regions and activate customised alerts.

2.4.2 Initial Interviews with Media Experts at WAN-IFRA's Media Lab days

During WAN-IFRA's Media Labs days in Munich from 1 to 3 February 2018, CPN was able to set up a workshop with several media experts from the Association's network to discuss more closely the advantages and requirements of personalisation from a production point of view. Hans Dreesen from VRT and Stephen Fozard from WAN-IFRA, both representing CPN, started the session with a presentation of CPN and the first results obtained from the co-creation workshops and the feedback from the users over the first 5 months of the project. On the media professionals' side, the participants comprised a varied selection of profiles from the media ecosystem as a whole, including the Head of the World Association of News Publishers, the Chairman of NxtMedia Norway and former Editor of Adresseavisen, the Head

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of the Medialab of Agence France Presse, the Bayern Media Lab, researchers and professors from the engineering school in Lausanne (EPFL) and the Technical University in Trondheim (NTNU) and a representative from one of the most important CMS systems in use in the News media industry today. After the presentation of the results, the participants were asked what their views on personalisation of news were. The discussion was moderated by Hans and Stephen.

It seems that for publishers in general there could be 3 important issues: Privacy, Filter Bubbles and Content tagging.

- **Privacy**

What do media companies know about the user? It seems this is not as big a concern for the general public as experts fear. Most of the audience has gotten used to their data being tracked. That threshold has been lowered in recent years. They would rather want the media to do the job of delivering the right news through implicit personalisation. Although to remain trustworthy, it is very important to be fully transparent about it. Also, users should be able to take active control of their preferences when they desire. When discussing GDPR, it became clear that some publishers will be lost when having to deal with it in May. If CPN provided an integrated solution that uses data and at the same time complies with GDPR, that would be a very strong selling point for the publishers.

- **Filter bubbles**

Publishers have not solved this problem yet. CPN should be engineered in such a way that filter bubbles and echo chambers are avoided at all cost. Not only by serving opposing views, but also by enabling serendipity. CPN should provide the tools for monitoring and neutralizing ideological echo-chambers for (human) editors and provide built-in algorithmic solutions. Publishers are convinced that uncritical use of common recommendation techniques can be problematic. Their concern matches the concern of news consumers, brought to attention through the user survey on personalisation. CPN's algorithms must provide users with content that they didn't know they were interested in. More than just alternative or polarising views it is worth investigating using "presets" for discovery of other news and to increase serendipity. Following the news through the lens of someone else could bring you into contact with news items you might otherwise miss. This could be the personalised news offer of a celebrity, a generic persona (e.g. *teenager*) or even a random offer.

- **Categorizing content**

Today content is either tagged manually, which is costly, prone to errors and therefore shunned by publishers, or by automatic systems that might not be advanced enough for CPN's next level personalisation. It is a challenge to do this more dynamically, so that words and expressions are updated constantly. The most advanced method is called *topic modelling*. Such a solution would add enormous value to CPN as a tool. This input by the publishers corresponds with our own research that highlights the importance of an accurate automated tagging system, which builds the groundwork for large scale content-personalization.

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Further suggestions from our pool of experts:

"Moods" It is worth investigating novel ways of personalisation based on moods, weather, physical surroundings and other external conditions. These criteria could shape an offer that's even better suited to individual needs than today's demographic and usage data.

Should "one size fit for all"?

The problem no one is tackling, according to one of the experts, is how to adapt content for several audiences at once, and preferably automatically. Indeed, content is often published in a *one-size-fits-all* fashion. No two versions of the same news item exist, catered to audiences with different skills, backgrounds, intelligence levels, age, etc. At least not coming from the same publisher or brand.

It would help publishers tremendously to see a prediction of what kind of audience will most likely consume their content. Ideally even *while* creating it. CPN could assist them in creating different versions for different audiences and hence, reaching more people for a fraction of the effort.

3. Conceptual research activities for CPN; Co-Creation Sessions & DW Online Survey

To gather more direct input from users on user requirements, and since VRT and DIAS have their main audiences in close reach, 5 co-creation sessions were set up. This qualitative research approach allowed us to gain in-depth insights in user expectations, preferences and needs concerning news personalisation. The co-creation sessions combined focus-group techniques and a co-creation exercise to generate deep understanding of the user context (Sleeswijk, Visser et. al. 2005:124). These structured workshops took place with both end-users and professionals, across countries (Belgium, Germany and Cyprus).

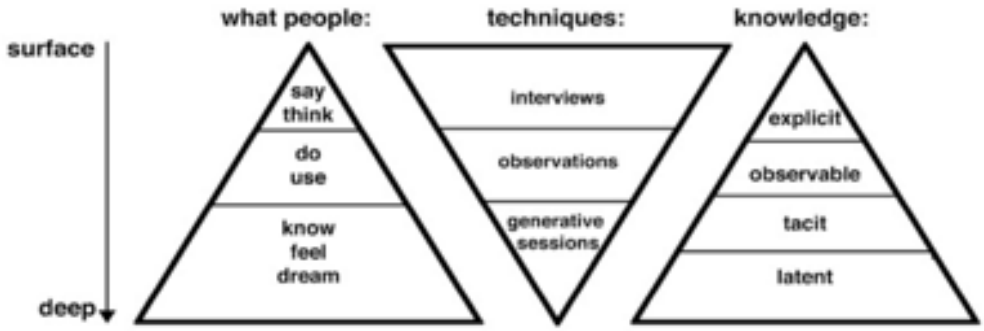

Figure 2: Different levels of knowledge about experience are accessed by different techniques

Content of the sessions

The sessions were structured around three main parts. In the first part, the group discussed two main topics. On the one hand the participants were asked to describe their own news

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consumption habits and expectations of news. On the other hand, the discussion addressed their experiences with personalisation in general and with news personalisation specifically. In the second part, the focus was on creation. Respondents were asked to work in small groups and create a personalised news service. These services were described in scenarios that explained what the main advantage of the service was, without restrictions in technological possibilities. To help participants think outside of their own experiences and preferences, we created a diversity of personas to help the participants to envision different use-case scenarios further discussed in chapter 5. The assignment for participants was then to develop at least 2 scenarios for 2 of the personas. All groups were also allowed a 'wild card': to work out an idea for a service that didn't necessarily address one of the personas' news habits and frustrations, but instead highlighted one of their own ideas.

Advantages of the approach

Group discussions allow researchers to access a variety of opinions on a specific topic in an efficient and timely manner. When conducted correctly, the interaction between respondents can yield additional insights into users' motivations and preferences. As respondents can build on each other's arguments, they can be triggered to talk about aspects they might find evident but would not have addressed or thought of themselves when interviewed separately. For the purposes of this project, it allows us to find deeper meaning and nuance when it comes to defining user requirements.

The scenario creation for specific personas allowed respondents to reflect on personalisation of news in a variety of contexts, taking into account for example different news consumption habits, social contexts and devices to access news.

Disadvantages of the approach

The results of these group discussions are not representative and therefore results cannot be generalized (Stewart & Shamdasani, 1990). This means it was important to conduct multiple workshops in different countries and with different types of news consumers, in order to understand cultural differences and nuances in user preferences. In Belgium, we conducted 1 workshop with professionals and 1 with news consumers with various news consumption habits. In Cyprus, 3 workshops were organised: 1 for professionals, 1 for heavy news consumers and 1 for light news consumers. As mentioned in chapter 2.5, there were no co-creation sessions conducted in Germany, as DW's audience is spread across the globe.

Profiles of the participants: professionals

The professional users for the workshops were recruited within VRT and DIAS via mail and included both journalists and technical staff.

The professionals in the workshop at VRT were active in technical, production and marketing-oriented fields: CRM, video content editing, audience engagement and analytics, digital strategy, digital news production, digital Sporza (sports news website of VRT), VRT innovation, VRT architecture and VRT Radio 2.

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The workshop with professionals at DIAS included individuals from several departments such as digital news production, multimedia, digital marketing, digital strategy, digital sports and Information Technology.

Profiles of the participants: end-users

The end users or news consumers were selected through different channels. The call for participation for the workshops at VRT (Belgium) was sent through the personal Facebook profiles of the researchers, the VRT Proeftuin panel and imec's Digimeter panel. Participants were asked to register and fill out a brief questionnaire on their news consumption habits. Registered participants then received a confirmation email specifying the location of the workshop. Once the workshop started, participants were asked to sign an informed consent form that explained the purpose of the workshop and the purpose of audio and video recordings made during the workshop. After the workshop, participants received a VRT goodie bag and were asked to sign a receipt.

9 participants registered for the user workshop at VRT, but unfortunately only 5 participated. The table below gives an (anonymised) overview of the profiles of the participants.

Alias	Age	News consumption
Dana	27	Daily: online newspaper, social media Weekly television, radio, other Monthly: paper newspaper
Kris	31	More than once a day: online newspaper Daily: television, radio, other Seldomly: paper newspaper, social media
Tanja	30	Daily: radio, online newspaper; social media Weekly: paper newspaper I don't have: television
Karl	26	Daily: radio, social media Weekly: television, online newspaper

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		Seldomly: paper newspaper
		More than once a day: television, radio, online newspaper, social media Weekly: paper newspaper
Tom	34	Monthly: other

Table 2: profiles of participants in the VRT user co-creation workshop.

At DIAS, the call for participation was combined with a registration to become part of the panel that will be addressed in the pilot phase of the project. This was added to the website. Registered members were asked to fill out a questionnaire on their news consumption behavior. Then, depending on the quantity of news consumption daily, they have been divided in two groups. The users participated in the workshop without an incentive, and they have signed an informed consent regarding the use of data.

Analysis of the co-creation sessions

During the co-creation sessions, the discussions were not only recorded but also briefly summarized. These summaries contain the key discussion points, the aspects of personalisation and news personalisation that participants find important and what would be the requirements for a successful news personalisation service. The summaries are used to add to and confirm elements in the overview of requirements (see section 3 below).

Video and audio recordings are used to analyse the discussions in depth, making sure nothing is missed or misinterpreted and to obtain quotes from respondents that illustrate our interpretation of them. The workshop participants developed specific scenarios for news personalisation related to the frustrations of one of the personas. These scenarios (see section 4) were then further developed by DIAS and VRT, based on the input of the users and professionals that created them. Below, we first discuss the general outcomes of the co-creation sessions in short summaries. The next section (3. User requirements) contains the concrete user requirements that were deducted also from the outcomes of these workshops.

Outcomes of the co-creation sessions

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The goal of this section is to underscore the link between the discussions in the workshops with professionals and end-users, and the following list of user requirements (see section 3 Requirements). The following summaries do not entail all items discussed during the workshop, nor provide an in-depth analysis of the discussions during these workshops. Our aim is rather to provide a brief summary of the main discussion points during each part of the workshop, before going into user requirements and the user scenarios.

3.1 Sessions at VRT

As mentioned above, VRT conducted co-creaton sessions with media professionals and a targeted user group.

3.1.1 Co-Creation Sessions VRT (Media Proffessionals)

VRT professionals were first asked to discuss their opinions and thoughts on 'personalisation' in general. Hence, what does personalisation mean for them. Below are excerpts of the aspects of personalisation that were discussed the most:

- There is too much information on the internet that reaches us and the audience. Personalisation is there to make you see and read 'useful' content, and not be bothered with content that is not of interest to you.
- Personalisation provides the ability to consume the most content as possible in the shortest time frame.
- Personalisation will improve the relation of consumers (readers, listeners with VRT) with the company.
- Personalisation should be complementary to what exist on the website now.
- Personalisation will move news consumption to the next level: at the right moment, at the right place, etc.

In the second round, the discussion revolved more around personalisation of news media. Although the purpose of the first round was to discover what professionals thought of personalisation in general, most professionals, being in their professional context, already were discussing personalisation in news media from the start. However, below are several interesting aspects that came out of the discussion:

- Several professionals agreed that the starting point of VRT NWS should be to show readers in a quick overview what they have already read and what is new on the website for the reader. An example that came up was that, on the homepage, some articles could have a different color background showing the reader whether he/she had read this article.

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- Personalisation should not be about content, but about serving the customer (reader, listener)
- Irrelevancy should be excluded
- We should increase the value of our video content
- Regional news from Radio 2 should be more targeted
- Personalisation should be able to help us, the news makers
- We should not send a push notification about everything to everyone, but about some items to the right audience
- There should be a balance between objectivity and personalisation

In the third discussion round, the professionals discussed possible frustrations of news media users. The most heard frustrations were that there is an overload of info which leads to drop out, that there is too much attention for one topic and not enough (or no) attention for other topics, and that there are too many irrelevant push notifications.

Next, another part of the session initiated. The group was divided into three subgroups to brainstorm about user stories. The participants received copies of the personas to start from. The participants could choose which persona they would focus on and therefore which frustration of the user they would try to solve. They were given 30 minutes to do this task, moderators were able to provide input on questions. Following the 30 minutes the three groups explained their user stories to the whole group. The co-creation session concluded by letting individuals vote on their favorite user journey. Below is an overview of the two user journeys with the most votes.

Persona: Anne entertainment & celebrity enthusiast

- Anne has the VRT NWS app
- She receives a notification “SP.A also involved in real estate fiasco in Antwerp”, she is not very happy with this notification because she does not find this interesting at all
- We, the app, observe her behavior, i.e. whether she clicks through on certain content or not
- Continuously the app has data about the words that are in the title and in the whole article (example, emotional words, positive or negative emotion, anger, sadness, etc.)
- We learned that Anne is more interested in lightweight news content. We even learned that emotional words in the news articles trigger her.

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- Now there is a breaking news article about politics —> she does not receive a notification
- However, other political news is about a crying politician: “Bart De Wever (a Belgian politician) cries about real estate fiasco”
- Now she *does* receive a notification, because the article involved a lot of emotional words like ‘crying’!
- Anne will receive more personalized content, not based on topics but more personalized on the basis of emotional content in the news.

This user journey was further developed and refined by an interaction designer as seen in Figure 3 below.

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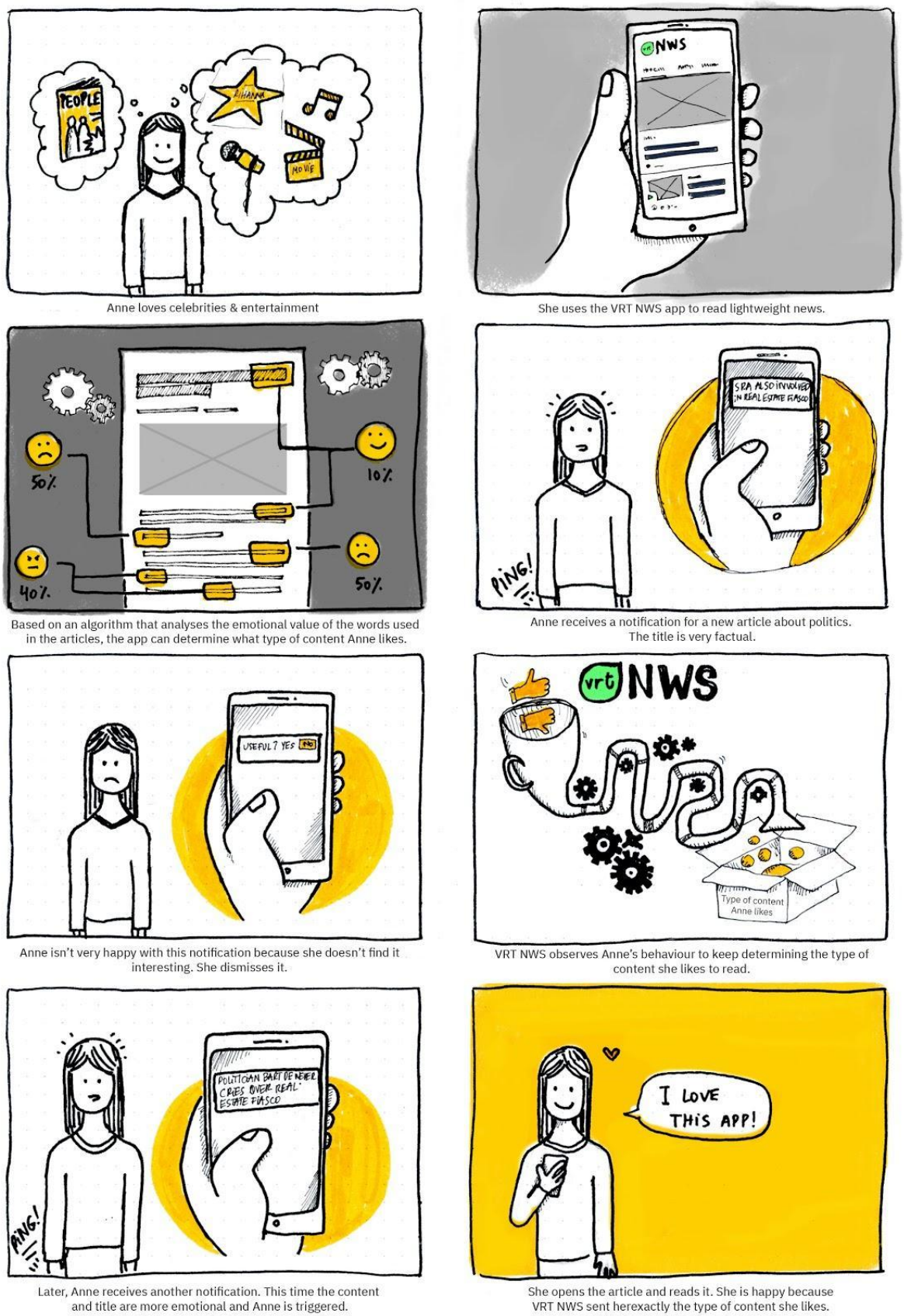

Figure 3. A schematic and illustrative overview of the User Journey of persona Anne.

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Persona: the sports fan

- Frank is a sports fan
- He is angry at Sporza: he is a big fan of soccer club 'Den Beerschot' but he feels that Sporza only writes about another club, Anderlecht. He uses the nickname 'Mauve Sporza' (Anderlecht's outfit is mauve/purple)
- We know this because he has selected 'Beerschot' as his favorite team in the Sporza app
- Therefore Sporza now has a new feature, 'Everyone Editor'
- First of all, Frank can choose what the Sporza app looks like. He can select the colors himself and even an emblem of his team can be shown.
- Secondly, posts about Beerschot will automatically be on top of his screen, be featured.
- By time, an overall feed of Beerschot news will appear in his app.
- He can send news about his beloved club to Sporza
- When his news is interesting and good enough, he's invited to come and explain it in Extra Time Live, Sporza's late night tv show about soccer.

This user journey was further developed and refined by an interaction designer as seen in figure 4 below.

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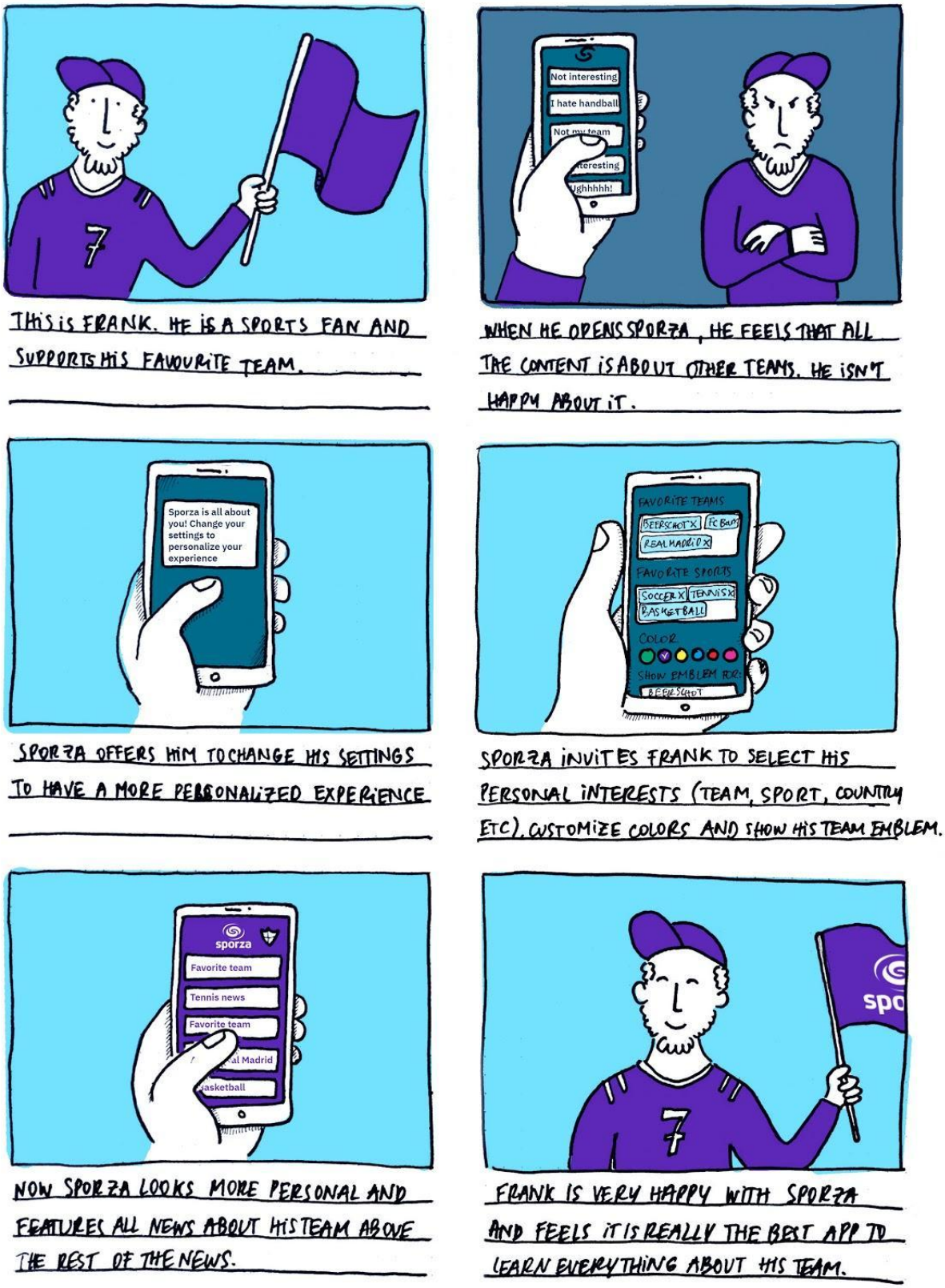

Figure 4. A schematic and illustrative overview of the User Journey of persona Frank.

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In the discussion about the reasons to choose for the above user journeys, these were most prominent.

For persona Anne, the celebrity enthusiast:

- Runs over the course of multiple days instead of one moment
- We like the 'emotion' categorization, that is something we miss now

For persona Frank, the sports fan:

- This user story ends with an offline experience
- The incentive is interesting for the user
- There is an increased involvement of the user

3.1.2 Co-Creation Sessions VRT (Media Users)

During the first part of the end-user workshop at VRT, the participants discussed their own news consumption and news personalisation. Concerning their current news consumption, it seems noteworthy that most participants did not read paper newspapers anymore. For their online news consumption, they accessed both traditional news providers, international, digital news providers and, occasionally, social media. For news provided through news apps, a frustration that was mentioned by different participants was the presence of push notifications, which were considered annoying. A similar frustration surfaced with news updates via mail, where respondents mentioned that breaking news is often not really considered breaking by the respondents.

In the second part of the introduction, the discussion on news personalisation highlighted several important aspects for the participants. In general, personalisation was associated with the specification of topics according to the taste of the user, but also according to their personal schedule (timing of notifications and content). On a technical level, participants referred to 'something smart, an algorithm that knows what I want'. The main downside of personalisation mentioned here was the repetitiveness of seeing things that you have already seen, followed or are already in the know of. One of the requirements mentioned for personalisation in general and news personalisation in particular, was **being able to control** the selection of content or news topics as a user.

The filter bubble was also discussed, as participants wondered who decides what personalised content they see on platforms such as Facebook. Here, the requirement of **transparency** already surfaced (cfr. infra). Social media platforms' selection of personalised content was distrusted by most participants, but a distinction was made by several participants between social media platforms and news websites from traditional news providers. One participant endorsed the distinction as a difference in core business and accountability, pointing at the idea that journalists and news companies can be held

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accountable for providing false information, contrary to social media platforms such as Facebook. For other participants, the arguments revolved around **clarity in the framing** of content and news articles, **intentions of the source** of information (also related to **trustworthiness** of the source and advertising) and transparency in the articles itself on **why some information is labeled relevant** for them.

Specifically for news personalisation then, respondents reiterated the request for **being in control** of what themes and categories of news they would like to be notified of, with the exception of certain aspects of the filter bubble:

- News is defined as a broad take on what's happening in the world and what's new (**informing the general public**), which was identified within the workshop as sometimes contradictory to personalisation goals (receiving what interests me personally).
- **Representation of different perspectives** is wanted by participants of the workshop. Even when being able to decide which topics are relevant for me, respondents indicated that contradictory opinions to their own were also relevant and desirable.

During the second and third part of the workshop, the following user journeys were developed and evaluated via dot-voting by the participants. These two journeys won:

User journey 1: Automatically Adapted Newsfeed

Persona: Digital native Mats

Journey: Mats is frustrated because he feels there's too much information that is not relevant enough. He's interested in keeping up with his friends. Mats can make use of a service that automatically profiles him based on his activities: what he shares and discusses with his friends. He doesn't have to invest time in building or managing a profile, an algorithm takes care of that. He receives news that is personalised to his interests and is not bothered by excess information.

User journey 2: My Personal Profile

Persona: Celebrity & entertainment enthusiast Anne

Journey: Anne is annoyed with hard news updates as she is more interested in lifestyle content and feels news should be entertaining rather than informative. Anne can make a CPN account in which she can select her interests herself. She has control over the account and what type of content she receives. In a very user-friendly manner she can simply tick the boxes of the type of content she is interested in. If she has read an article, she also has the option to give feedback on whether the article was interesting or not. This way the system learns and Anne will only receive the news she prefers.

In the evaluation of these two user journeys, the respondents underlined the complementarity of both scenarios, suggesting that both could be part of the same service. Here they suggested that the choice of whether you like to tweak your own profile or not is

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best left to the user. It is also mentioned that in Anne's case ("My Personal Profile") the focus would be more on what type of news would be filtered out rather than in. In addition, participants mentioned the importance of transparency and privacy in relation to both scenarios:

"*We assume that there is consent to gather and use data. Transparency is important, I need to know what my data is used for to trust it. If my data is sold for advertising purposes, it's not ok.*" (Dana, 27 y.o.)

In second place was the user journey for Alternative News Consumer Jonathan:

User journey 3: Trustworthy News

Persona: Alternative News Consumer Jonathan

Jonathan doesn't trust journalists and thinks media are corrupt. His sharp opinion is often rejected by mainstream media. But the CPN service allows Jonathan to gain insights into the process of information gathering. It makes sources explicit and shows Jonathan where the information in the article comes from. It also allows him to check the original source and compare the content of this source to what's written in the article. Jonathan now feels he can trust what is written in mainstream media.

As researchers, we can question whether this scenario really involves personalisation or a general adaptation of the way articles are written and news is presented. This was also stressed in the discussion by the participants themselves as they stated that the scenario works for any persona. However, the popularity of the scenario stems from an interest in the sources used for news reporting and resonated their own personal frustrations. As mentioned in the introductory discussion, the respondents themselves reflected on the lack of trust and transparency in traditional news reporting. Also, one of the respondents indicated that this scenario would be more feasible, suggesting he evaluated the scenarios not just as a user/news consumer, but also as a developer. The last two user journeys both ranked in third place.

User Journey 4: Hyperlocal Personalised News

Persona: News Junkie Dirk

For news junkie Dirk, news is a necessity. He wants to know a lot about everything. However, he feels he gets a lot of similar content. Often, the news items he reads or views are not specific enough for his taste. Dirk lives in Zaventem and, for example, when there was a terrorist attack on the airport nearby, he felt all news media gave him the same generic information on the airport, leaving Dirk in the dark about what was going on in his town and whether it was safe to go outside. Since he uses CPN, he has a central platform that combines news from different sources. Dirk gets just one overview of breaking news that combines the general articles and specific information on what this means for him or how this affects his neighbourhood. He gets this overview exactly at the time he needs it.

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The argument for this scenario was that the data that is used for personalisation purposes here (mainly location) is in many cases already available to news producers. However, the scenario was questioned by some of the participants. On the one hand, questions rose on the feasibility of the scenario:

"*If a journalist isn't in this street, how should he know? You can't report on what you don't know.*" (Karl, 27 y.o.)

On the other hand, the role of newspapers and journalists in providing safety information to civilians was questioned, suggesting this to be a central task of the government in order to avoid panic.

User journey 5: Simplified and Personalised New Content

Persona: Traditional News Consumer Jeanine

For Jeanine, news is an important part of her day. She mainly reads traditional newspapers and fills out the crossword puzzles. Throughout the day she is kept up to date with the most recent news via radio and television. Jeanine sees news as a broad concept, lifestyle and feel-good stories are also important news for her. But Jeanine doesn't understand all articles. Mainly technology-related updates are often too complicated for her. She also gets frustrated that so much news is repeated and would like to receive newer updates but doesn't want to feel the rush of breaking news updates.

Jeanine's CPN-enabled app knows which articles she finds more difficult and simplifies the content of these articles so Jeanine can understand them. It adds news throughout the day so Jeanine doesn't receive the same news all day. Preferred content such as crossword puzzles is added. The app also has an easy to use interface that reminds her of her printed newspaper and operates via big buttons.

In the discussion, this scenario was evaluated positively as a solution that would work for a broad audience. Both elderly people who don't like hasty news updates such as Jeanine as well as disinterested adolescents like Mats could benefit from this service. Not getting the same news twice is regarded as an important asset. The feature of simplifying articles is regarded as having the biggest potential:

"*Yes, I would like this because I'm a true millennial, I don't like reading long pieces.*" (Tanja, 30 y.o.)

"*Even just the basic form, just an adaptation in length could be interesting. If you could then tap to open certain sections to read more if you're interested… But in first instance you just see the summary of the highlights.*" (Karl, 27 y.o.)

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3.2 Co-Creation Sessions Dias

Dias conducted co-creation session workshops with media professionals, power news consumers and light news consumers.

3.2.1 Co-creation Sessions Dias (Media Professionals)

Participants:

1	Louis	Brand Manager
2	Konstantinos	Director of Operations
3	Xanthi	IT Manager
4	Andria	Sports Journalist
5	Froso	Journalist
6	Antonis	Chief Journalist
7	Constantinos	Chief Journalist
8	Savvas	Video Producer

Table 3: List of Participants (Dias) Media Professionals

The co-creation workshop with the professionals was divided into three parts.
During the first part the moderator introduced the basic concepts. He explained the usage of content personalization, the filter bubble and the fear of missing out. Then the professionals were asked to answer various questions related to content personalization such as:

1. What do you believe about content personalization?
2. What does it mean to you?
3. Did you ever experience content personalization?

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4. How will content personalization be able to assist editors in content creation?
5. What do you think will motivate users to use content personalization?
6. What do you think frustrates users about content personalization?
7. What do you think are the challenges?

Based on opinions expressed during the first part of the workshop, they designed a possible scenario that they believed will satisfy the needs of the users. At the third part they did a free discussion regarding the solution and they expressed their final comments.

First Part

During the first part of the workshop, content creators said that we should not change the way they create the content. The technology should find a way to match their content with the proper user.

They also discussed the importance of the mood of the user as a parameter. They agreed that a personalized service should take the mood of the user into consideration in order to deliver the appropriate content. The mood of the user has been described as an important element that affects the way a user consumes or even interacts with the news content. This parameter could be short term (day) or long-term (week) and it might be measured through a psychological quiz based on the emotional profile of the user. Also the weather could be an element closely connected with the mood of the user. An automated report of the weather followed by the quiz could be a way to collect information regarding the mood of the user.
Most of the professionals have expressed their consideration regarding data collection. They said that the user will not opt-in for a procedure to share personal data with the publisher.

One of the most frustrating things for the users is the time they spend to find an article or a news story. In addition, they do not have the time to search for the news they should know. For that, they proposed the creation of a video that will present the top stories in seconds and each one will have an indication, e.g. a hashtag. Then the user will send this hashtag to a bot and it will reply with the full story.

During the scenario creation, all agreed that the mobile is the most appropriate device but different opinions have been expressed regarding the communication channel. Some said that this service could be a bot that will use Facebook Messenger as a channel. Others said that the service (maybe a bot) must be included into the app of the publisher and that all the personalized experiences should be included into the environment of the brand. Some others expressed the view that personalization should be functional into a web mobile environment as most users prefer web mobile while browsing for news content.

In order to solve the fear of missing out (FOMO) issue, it was proposed that the system would, instead of filtering the content, prioritise it based on the user's preferences. The user, by scrolling down (with the use of infinite scrolling technology), should get more and more stories with the most important at the top and the least important at the bottom.

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The first functionality that has to be personalized is push notifications. Currently push notifications are using categories to personalize the content regarding the interests of the user. In any case, breaking news should override any kind of personalization in order to beat the filter bubble.

Second Part

During the second part of the workshop based on the above, they designed a scenario that might serve the need of the users for content personalization.

They discussed a tool that at the beginning will only ask users to prioritize basic categories or opt-out from specific categories. Then it will bring a feed (list) of news based on the preferences of the user.

When you select a story to read, the tags or text of the story will tell more about news that you find interesting. By reading stories gradually, the feed will personalize according to your selections, tags, and categories. It is important that there must be a reset button when you feel that filtering puts you in a bubble. This feed may get better by using demographics from Facebook. If this environment is inside an app, then in the background and before launching the content personalization feature, it can collect browsing history of the user and story selections to feed machine learning. Then when we launch the content personalisation platform it will not need any input from the user as it will already have enough details about her preferences. In order to beat the Filter Bubble and Fear of Missing Out, there should be an option to disable personalised settings and enable an editor's choice. An other option would be a visualisation of the personalisation applied, shown as a percentage bar that could be balanced out with the initial non-personalised "Editors" selections. By sharing news into social media the system should have a way through an API to create correlations between users and stories. e.g. if user 1 shares something on Facebook and user 2 (which is a friend of user 1) clicks on it, then it will create an interest correlation between these two users – friends.

Third part

During the third part of the workshop, participants recognised that this scenario could only work for users interested in hard news. Sport fans or users with more broad interests will feel like they are getting trapped inside irrelevant content. These users will also have a more fear of missing out (FOMO) as their interests cannot be easily categorised.

In addition, all agreed that there is a need for a (emotional) mood parameter but they have not agreed on a feasible solution as the psychological profile of a user is very hard to explore, even harder to measure.

3.2.2 Co-creation Sessions Dias (Media User7)

DIAS Co-Creation Workshop with Users (Light consumers)

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Participants:

Alias	Age Group	News Consumption	Status
Neofytos	45-54	1 - 15 /daily	cancelled last minute
Christos	25-34	1 - 15 /daily	
Aggeliki	35-44	1 - 15 /daily	cancelled last minute
Kostas	35-44	1 - 15 /daily	
Helias	45-54	1 - 15 /daily	
Michalis	35-44	1 - 15 /daily	cancelled last minute
Spyros	25-34	1 - 15 /daily	cancelled last minute
Nikos	25-34	1 - 15 /daily	
Petros	45-54	1 - 15 /daily	
Stella	25-34	1 - 15 /daily	cancelled last minute
Stavroula	35-44	1 - 15 /daily	

Table 4: List of Participants (Dias) Light Consumers

The second co-creation workshop consisted of users that are not consuming more than 15 news articles on a daily basis. This workshop was also divided into three parts with the same structure as the first one.

First Part

During the first part the moderator asked the participants questions about how they consume news content, their habits, their perception about personalization, what motivates them and what frustrates them. The moderator also introduced the concept of content

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personalization and the other important concepts such as Fear of Missing Out and the Filter Bubble.

The participants were asked about the ways they consume news, with questions such as:

1. How many news stories do you read daily? Usually at what time?

2. What are the subjects that you find interesting and at what time do you want them delivered?

3. Do you follow the news in the weekends, or only the weekdays?

4. What devices do you use? What are your favorite messaging app?

5. How do you feel about push notifications?

6. What do you believe about content personalization? Do you find the service useful?

7. What information about yourself you feel ready to share in order to have personalized content?

8. Do you feel excited that soon you will be able to use a content personalization service? Is there something about it that frustrates you?

Although this group of users are quite different in the amount of news they consume on a daily basis, their habits seem to be similar. They prefer to read the news early in the morning, before 08:00 or late at night. However, if they do not have time or there are no important stories to read about, they do not read the news in the morning, but they spend some more time in the evening.

Most of the participants are interested in hard news but only if there are important stories to read about. They are also interested into lifestyle, sports, or feature-stories that attract their attention while scanning their timeline, or a home page.

They follow the news on a daily basis and less during the weekend. The device they mostly use is the mobile, however participants also expressed the view that as they switch often from mobile to laptop or desktop, participants would welcome a holistic personalisation system that is integrated with all devices.

Users said that they are not happy with the way apps are using push notifications. Most of them are sending so many and irrelevant notifications that it drives them to either turn off the notification functionality or uninstall the app.

All the users expressed the view that content personalization is a useful service and they are not concerned about the information they have to share in order the tool to provide a better service.

During the demonstration of other solutions such as News360 and Drop (BBC), users were skeptical regarding selection of categories procedure. Someone said *"is like browsing into a*

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website and selecting a category such as business" and the others agreed. Likely, the user does not understand that the service should have an initial selection, and then build on that. It seems that the perception of the user leads him to think that by selecting categories in the beginning, the service will guide him into a filter bubble, so they have a Fear of Missing Out.

Another user was troubled about the fact that the solutions are built only for mobiles. She expressed the view that even if this is first applied on mobiles, it should then be transferred on other devices such as laptops and desktops. Also, they expressed their consideration regarding the use of social media because the participants use different social media for different purposes and linking the social media with a news solution might lead to very confusing results.

Most of the users think that the demonstrated solutions are outdated. A new content personalization service must not ask about categories of news that you want to receive. Instead, it should have the ability to create a profile of each user and categorize him in a group of users with similar attributes, maybe by asking some more interesting questions at the beginning instead of categories, e.g. "Do you have a pet?", "Do you think that it is more important to be happy, than rich?" With these profiling questions the service should able to better understand the views of the user with a more interesting and engaging way. The objective should be to record and analyze the psychological and behavioral characteristics of the user in order to identify in which category he or she belongs and predict the most suitable content.

Another user shared his experience with Quora: when he created his account on Quora, although he went through a time consuming procedure, at the end he entered to a whole new world. He felt excited by the experience because all questions and answers were very personalized. However, soon he found out that Quora was filtering out everything else. He felt trapped and disappointed.

Second Part

During the second part, the moderator asked the users to design a scenario of content personalization that will satisfy their needs in the best possible way.

Although most users believe that the most personalized device is their mobile, they also agree that other devices are important. Someone expressed the view that the kind of news they read changes almost daily and that her mood is strongly related to her selections. The other users agreed with that statement and the moderator asked them if a content personalization service should take into consideration their psychological disposition. They all had a positive reaction regarding a service that could detect their mood although everybody agreed that this is very difficult to measure.

As most of the users are willing to share personal information with the service, they said that some basic demographic information can be retrieved by logging in with a social media account. Then the system should make a profile of the user in order to classify him in a group of users with same characteristics, as it was described above. This can be done with an interesting questionnaire or any other way that will correlate the specific user with other profiles. In order to beat the filter bubble they mentioned Academia as an example.

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Although it makes assumptions based on your profile, it often gives you options to step out of that.

The moderator asked more information on the ways that this scenario can beat the filter bubble. The users described a service that will map the profiles of people and that will serve news regarding their profile category, but also from people that belong to neighbouring categories.

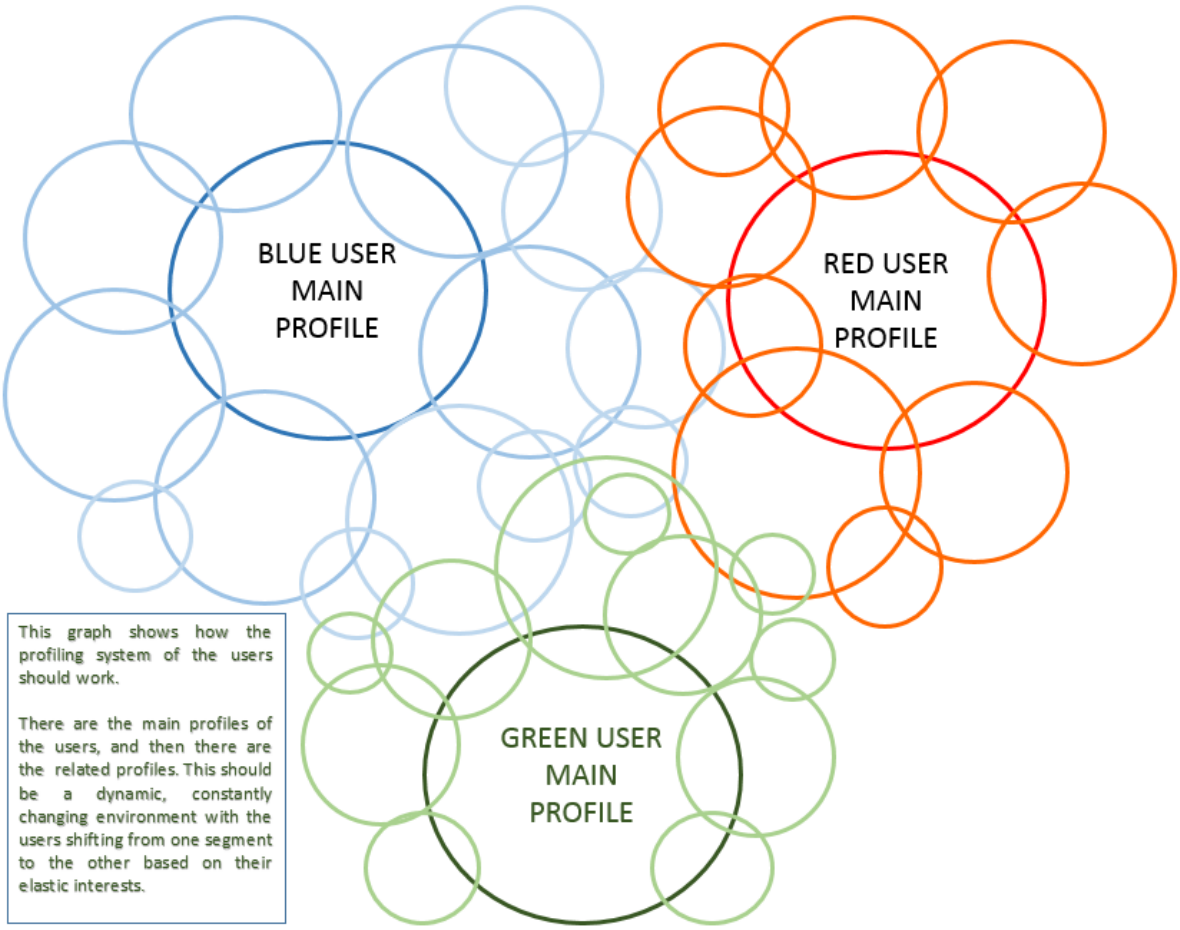

Figure 5: Schematic overview of user interdependence and an innovative approach to collaborative filtering.

This service should learn to take into consideration the "new clicks" that the user does, however they said that the relevant content should be served gradually, and then fade away gradually, because the user might have a temporary interest on something not relevant with her everyday news consumption.

The moderator asked more questions about the ways to beat the filter bubble and users agreed that the filter bubble is the most difficult challenge in content personalization. The users then designed a way to beat possible filter bubbles. The approach can be seen as a innovative way of **collaborative filtering**.

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They described a service that will create correlations between users which are stored in the database. These correlations might also take into consideration the social connection between the users, on Facebook for example, but this might be just one of the provided parameters. The users believe that algorithms are clever enough to spot points of parity, and points of difference between the browsing behaviors of two or more users. Thus, they will end up with groups of users with similar browsing behavior that will be different from the original created profile of the user, or chosen categories. They described it as a **self-acknowledgment mistake** because the user things that he is interested in "this" but while browsing ends up to be more interested on "that".

This service should be available in all platforms and all devices but currently can be tested in mobile devices. It should be functional in web mobile environment but it will be interesting to interact with messaging platforms. Some said that it is better to interact with messaging platforms that use mobile numbers to login, such as Viber and WhatsApp, instead of user names. They explained that these platforms better represent the connections-correlations of the user, because the contacts are provided directly from the agenda of your mobile device.

The moderator asked the participants about the way that the described service should inform the user about the news. The users said that the service should be able to use the push notifications, a bot on a messenger platform, or free browsing from the user. However, they noted that they should get push notifications only about breaking news, and the bot should serve news only upon request from the user.

As to defining what is "breaking news" for each user in a personalized service, they said that it can be defined based on the interests of the user and her continuous profiling procedure. However, the participants said that the service should not start sending push notifications, to discover what the user consider as "breaking news". This is frustrating and will make the user uninstall the app or stop using the personalization service.

Location of the user has also been described as critical in order to define "breaking news". The ideal scenario for them is that publishers should build a European or global syndication that will send "breaking news" based on location criteria and not the publisher but the user can select as a news provider. For example, if you are Cypriot and your preference for news is Sigmalive, when you travel to Germany "breaking news" from Deutsche Welle should be able to reach you through this syndication service. Although they expressed the view that language will be a strong barrier towards that direction, they said that a simple form of text less than 30 words will be easily translated by an automated service. The purpose of this is to raise awareness about a breaking story near the location of the user.

Some of the participants illustrated the need for the system to work as an aggregator instead of just one publisher's view of the news. **"The fact that the news is reported from just one source is already a filter bubble".** They described a service that will serve a story from a publisher, but you will have the option to see the same story from a different publisher.

Third Part

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During the third part of the workshop, the moderator introduced the professionals' scenario in order to record the views of the users.

The users agreed that the proposed solution is not far away from existing personalization services. However, they recognise the fact that existing technologies can give different results if they are used in different ways.

They also agreed that logging in with a social media account in order for the system to provide cross-platform personalisation is convenient. However, they noted that the service should not make assumptions based on the browsing experience or social interactions of the user on social media. The service should not depend on the algorithms of Facebook, but only use certain information from the profile and certain preferences.

The participants liked the reset function when they feel trapped in the filter bubble, but they said that this function may also indicate the vulnerability of the service. However, the presence of a reset button may help the user psychologically, just to know that they have the option to go back to a previous state when they feel trapped.

Different views were recorded regarding the rating system of the news. Some said that it is important for the user to have the opportunity to interact and rate how relevant is a specific story is. In contrast, others said that it is boring for the users to rate the articles.

All in all, the participants believe that the professionals' scenario is on the right direction, but it should reconsider the use of social media and the correlations which stem from its use.

3.3 DW Online Surveys

Since DW is an international broadcaster with a worldwide audience, it was difficult to set up co-creation sessions with real users at DW premises (or abroad). DW hence decided to reach out to its audiences via an online survey. The idea of the survey was to understand the needs and views of DW's target audiences on personalisation and media consumption in general. The survey mainly focused on existing usage patterns, motivations and possible frustrations of users when it comes to consuming news-related content online or/and using news-related smart-device applications. The survey consists of 5 sections that cover various aspects of digital news consumption, like frequency, devices, prefered content formats, motivation and social aspects of digital news consumption. Besides general usage patterns and preferences we intended to monitor the occurrence of four digital media-related phenomena to understand the users' perception of news consumption and possibly develop improvements through platform features for CPN. We also integrated questions aimed at understanding how the users perceive possible risks of news personalisation and the usage of data-rich digital applications and what kind of data transparency they prefer and demand. We understand that one of the most prominent challenges, when developing a content personalisation application is to assure the balance between user-friendly data input for functionality and privacy protection. Our goal was not only to understand how news consumption looks like in the mobile digital age but also how the user feels about consuming news online. We included these aspects because we are aware of the numerous publications

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dealing with negative effects of constant exposure to information and news in particular. Another element that we want to shed light on is the user's motivation for news consumption. By better understanding the user's motivation we hope to grasp what they consider helpful to either form an opinion - or as a notable extension - how news and information offerings can help to decide for daily life/family/friends/community. The survey was distributed to a fraction of DW's audience who in the past actively reached out to DW's customer service with questions, praise, suggestions or criticism. It included private individuals who reached out to the DW TV English, German and Spanish, whose main language is either English or Spanish and who wished for more contact. We decided to distribute the survey to this specific audience as they are active and interested news consumers. In the first round only those who reached out in English were contacted. In total 11,300 individuals received an invitation to participate and 682 completed the survey. In a second round, the survey was translated to Spanish and distributed to 32,000 individuals who reached out to DW in Spanish and filled out by 2052 respondents. It must be acknowledged that the initial participant's pool contained a notably higher percentage of men and fewer women than the general public and DW audience as well. This circumstance is also reflected in the survey results, as the percentage of male respondents is significantly higher. In the following section, the results of the survey are briefly summarised. For the complete results and questionnaire, please see the Annex.

The results constitute that, while the majority of the respondents see themselves as individuals who seek out new technologies to browse news (64,7%, 73%), they rather go to news websites than using news-specific applications. A clear majority uses digital devices to browse news (96,6,% 98%), with a clear preference for mobile phones (38,4%, 41,9%) followed by laptops and desktop computers (32,8%, 35%).

Users want data transparency (84,55%/ 81,7%), the ability to actively influence the recommendations (79%/60%) and also an understanding why certain recommendations are made for them (66,5%/71,5%), (with 60,1% percent prefer to get this information instantly) as well as whether the recommendations are based on an editor's selection or are algorithmic (62,4% 72,8%).

The respondents are also more willing to actively choose categories rather than passively provide data (55,3%/69,5%), either by behaviour tracking (28,9%/28,6%) or by importing data from third-party providers like Facebook (16,8%/14,6%). With the majority willing to interact once a day. To achieve personalisation, respondents are willing to interact with the app. However, the preferable frequency varies between once a month (6,1%/8,2%) to after every content item consumed (27,4%/32,3%), with once a day being the most popular option (31,2%/41,7%).

(64,4%, 55%) agree that they would benefit from the local news-related content. While only (16,7 %/14,3%) are willing to give their location data to an app.

In terms of the emotional constructs of digital news consumption, the majority of our respondents can at least sometimes relate to negative feelings associated with digital news consumption like information overload, complexity and confusion, lack of context and relevance, repetition but also insufficient information and the often stated fear of missing

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out. The responses to our survey questions can be attributed to the phenomena discussed in chapter 2 like informational overload, fear of missing out and the perception of filter bubbles. The affection by our respondents for these constructs have been monitored through direct and indirect questions.

Information Overload: Question 8: I feel overwhelmed by the sheer amount of news. Question 11: News Topics are complex and confusing. Question 13: News are often irrelevant for my life.

64.5%/62% feel sometimes overwhelmed by the news, and 15,7 %/30% have this feeling always. 62,6%/62,6% find news topics sometimes complex and confusing. And 65.9%/63.1% feel that news are sometimes not relevant to their life.

Fear of Missing Out: Question 3: How well informed do you feel after that time period? Question 9: I feel like missing out (on news). Question 14: I wish I could get more background information on news).Question 15: I wish I could get a summery when I miss out on news.

After that (typical news consuming time), how informed do you feel about the news you care about. Only 38% /30,7% feel well informed. 70,2%/77,&% feel that they sometimes miss out on something. 53,9%/47,6% wish to have more background information on the news sometimes while 38,6%/49,6% wish them always. 37%/59,9% wish always to get a summary of things they missed.

(Fear of) Filter Bubbles

An overwhelming part of the respondents is very concerned (45,3%/ 57,6%) or somewhat concerned (44%/22,5%) about the filter bubble. To mitigate possible effects of the filter bubble the participant put more trust on “human” editors than on algorithms (37,1 %, 36,6%) (17,6 %,) and exposure to in-depth articles (47,2/42,6%) as well as international news (57,3%/ 38,3%). Only less than a third (25,4 %/30,1%) and (30,8%/22,8%) respectively would see a solution to possible filter bubbles in monitoring their content or look actively for content that opposes to their opinions. This could also indicate that users see possible filter bubbles predominantly in the information consumption of others, as opposed to their own. We did not include a direct question as to whether users see their content exposure endangered by filter bubbles to the same extent as they believe that filter bubbles are a general social hazard. However, the majority (57,4%/67,5%) of participants also agree that their news consumption is at least sometimes or even always (10,6%/13,4%) one-sided or that news report on the same things.

Respondents also seem to put the most trust in recommendations from people they know in person but also highly regarded media professionals and experts, and want to know if their recommendations are algorithmic.

Regarding motivation, the majority of our respondents want to have an opinion on current topics (67,3%, 55%), but also want to broaden their knowledge (72,8%, 68%) and seek out specific information relevant to them (74,1%, 64%), which makes a strong case for personalisation.

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The findings from the survey will be further evaluated and concretised for future requirements and destination activities.

4. Requirements

This chapter lists all the basic user requirements gathered in the first six months of the project. It is completed with a brief description on how the requirements were extracted and gathered through the process detailed in the previous chapters.

4.1 Developing Requirements

As described in chapter 2, the user partners of CPN undertook a number of different steps to go from a first vision to a basic set of user requirements on a personalised news offer. All steps were connected and in some ways building on each other.

The Market Analysis (described in chapter 2.1) gave CPN members a good overview of what was already available in the market and how current solutions work. The analysis also revealed gaps and shortcomings of existing solutions as well as opportunities for a CPN solution. The User Vision Meeting (described in chapter 2.2) then brought these first raw ideas together, linking them and also bringing forward a more detailed view on what modules would be most important for a useful personalisation application. At the end of this phase a first draft of basic user requirements was created.

The following expert interviews (see chapter 2.3), the survey among the target audiences and the co-creation sessions then helped to dive deeper into specific ideas. Through the discussions and workshops, a detailed set of requirements based on the personas was mapped out.

But there is an imbalance in how far these requirements can be defined in the current state of the project.

While the user requirements are something that can easily be picked up through interviews and co-creation sessions, the production side's requirements are based on an initial projection of where new market trends might move in this space. Additional workshops focusing on the production side will be arranged in the future and a more detailed set of requirements produced.

4.2 User Profile

As the requirements process clearly showed, there is a need for a user profile. This user profile collects all data related to the user and his/her interests, mood or other attributes, that build the basis for the personalisation process on the user's end. There is also a clear need to empower user control over its data and increasing transparency on what it's collected and how it is used. The requirements here are split into nine different sections with several sub-levels.

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User Requirements - User Profile UR-UP	
ID	**Requirements**
UR-UP1 - Interests (Categories, Entities, Values): What topics is the user interested in?	
UR-UP1.1	The system must allow the user to manually choose their interests that later define the personalisation
UR-UP1.2	The system should create/refine interests based on the user's consumption habits
UR-UP1.3	The system should be able to offer personalised content on the basis of the users mood or values
UR-UP1.4	The system should refine the user's interests through frequent interaction with the user (talkback)
UR-UP1.5	The system should refine the interests based on the user's behaviour on social networks (through data upload or connection of the networks)
UR-UP1.6	The system should assign preferences (1-5) to categories based on the users behaviour
UR-UP1.7	The system should allow users to assign and change preferences (1-5) to categories themselves
UR-UP1.8	The system must allow users to completely turn off the personalisation algorithm and receive content as is and vice versa
UR-UP2 - Network: Making use of connections the user already has through social media	
UR-UP2.1	The system should allow for social media integration to recommend content based on what connections like, read and share
UR-UP2.2	The system should offer a recommendation of articles based on most liked/most shared numbers from a users network and beyond that. (Nuzzle-Feature)
UR-	The system should allow for social media integration to keep track of what the user

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UP2.3	has already seen elsewhere.
UR-UP2.4	The system should be able to analyse whom a user has been most interacting with on social media to prioritize the users for the personalisation
UR-UP2.5	The system should allow the user to down-/upload their network connections through user account.
UR-UP2.6	The system should allow users to search for other users on social media to build direct connections
UR-UP2.7	The system should allow users to share content from the CPN system to social networks
UR-UP3 - Time & Length: When does the user prefer to consume content and for how long?	
UR-UP3.1	The system must allow the user to choose a preferred time frame or frames to consume content
UR-UP3.2	The system should create/refine time frames based on the user's consumption habits
UR-UP3.3	The system should refine the user's time frames through frequent interaction with the user (talkback)
UR-UP3.4	The system should use the time frames in order to decide how many items of what length and of what format it offers to the user
UR-UP3.5	The system must allow the user to postpone a time frame for a chosen amount of time.
UR-UP3.6	The system must allow the user to ignore a time frame completely
UR-UP3.7	The system should learn from these user responses and adjust its offerings accordingly
UR-UP4 - Preferred Media: Which type of content does the user prefer?	

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UR-UP4.1	The system must allow the user to choose prefered types of content
UR-UP4.2	The system should set/refine prefered types of content based on the user's consumption habits and the timing
UR-UP4.3	The system should refine the user's prefered types of content through frequent interaction with the user (talkback)
UR-UP5 - Location & Surroundings: Where is the user and what's going on around him/her?	
UR-UP5.1	The system should make use of the location data of the user (permission of the user granted) to choose the right content for the user
UR-UP5.2	The system should allow the user to set a home/main interest location
UR-UP5.3	The system should make use of the location data of the user to determine the best point in time to offer content
UR-UP5.4	The system should try to determine the surroundings of the user based on either just location data or location data and direct interaction with the user (talkback)
UR-UP5.5	The system must give the user an easy option to agree to or withdraw from using location data for personalised offers
UR-UP6 - Knowledge (Management): What does the user already know?	
UR-UP6.1	The system must keep track of what content the user has already consumed on a piece and on a content basis within CPN and beyond
UR-UP6.2	The system must keep track of how much of each item users consume, where they stop, continue and what they skip
UR-UP6.3	The system should interact with the user in order to refine user interests in regards to why something was skipped or something was consumed completely
UR-UP6.4	The system should be able to offer insights and advice based on what it learn about what a user consumed in relation to a certain entity (e.g. a place)

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UR-UP6.5	The system should allow the user to delete part of the systems knowledge for specific time frames back in time from the moment of viewing
UR-UP7 - Devices: On what device is the user consuming content?	
UR-UP7.1	The system should check on what device the user is consuming the content
UR-UP7.2	The system should adjust its content offering based on the type of device the user is using
UR-UP7.3	The system should try to make smart use of device data to determine the surroundings of the user and adjust the content strategy accordingly
UR-UP8 - Importance for user: What is relevant for the user, outside their given interests?	
UR-UP8.1	The system should combine reading habits and knowledge about the user to provide smart updates on things the user could be interested in, even if this doesn't fit his/her set interests
UR-UP8.2	The system should always offer content that has a direct influence on the users (e.g. life-threatening), overruling other interest settings
UR-UP8.3	The system should be able to surprise the user with content, he/she would not have chosen themselves
UR-UP9 - User Profile Management: Giving the user transparency and control over their data	
UR-UP9.1	The system must provide transparent, simple and easy-to-understand information on what user data are collected, for what purpose and how they are stored
UR-UP9.2	The system should require informed and explicit consent for processing of personal user data, beyond those required for the provisioning of the agreed service
UR-UP9.3	The system must give the user a full overview of his/her data and allow them full control, including update and removal of data
UR-	The user must be able to change and overwrite settings in their profile

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UP9.4	
UR-UP9.5	The user must be able to download their profile data in CPN in a machine readable format and a user friendly format
UR-UP9.6	The system should allow the user to add external data to update their profile

Table 5: User Profile Management Requirements

4.3 Application Features

In order to deliver a new and innovative personalisation experience, the system needs to have additional features. These features are defining how the CPN application is going to work for each user, making it a new and unique way of consuming news.

User Requirements - Application Features UR-AF	
ID	**Requirements**
UR-AF1 - Bursting the Filter Bubble: How can CPN avoid filter bubbles and echo chambers?	
UR-AF1.1	The system should offer users an overview of other sources, covering the same topic
UR-AF1.2	The system should highlight differences between the perspectives of different sources on a similar topic
UR-AF1.3	The system should offer the user an easy overview of what content from which sources he has consumed over a certain period of time
UR-AF1.4	The system should make it easy for the user to see a bias of a content item or source
UR-AF1.5	The system should allow users to choose favourite sources

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UR-AF1.6	The system should offer the user a random news selection upon request based on cerain data and preferances of the users profile, which the user can choose
UR-AF2 - Avoiding FOMO: How to ensure people think they know everything there is to know?	
UR-AF2.1	The system should show users who else from their network has consumed the same content item.
UR-AF2.2	The system should show users what else their network has shown, if there are differences
UR-AF2.3	The system should be able to show users the content item from another user (anonymously)
UR-AF2.4	The system should show users only a limited number of items at once
UR-AF2.5	Once all articles proposed have been consumed, the system should should only offer more content upon request by the users
UR-AF3 - Content/Format: In which way do we have to prepare content for the user?	
UR-AF3.1	The system should offer content items in small, easy to consume and logical packages, allowing the user to consume them bit by bit
UR-AF3.2	The system should offer the user a short overview of all important headlines at a specific point in time with access to more details upon request
UR-AF3.3	The system should allow users to choose whether they prefer an overview or all content at once
UR-AF3.4	The system should be able to offer both news content and entertainment
UR-AF3.5	The system should be able to offer both locally and globally relevant content
UR-	The system should be able to put global news in a local relevance context for users

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AF3.6	
UR-AF3.7	The system should be able to give the user a timeline overview of events regarding a specific topic
UR-AF3.8	The system should allow users to filter content by language
UR-AF3.9	The system should allow users to filter content by complexity within a language
UR-AF4 - Sources: Where does the necessary content come from?	
UR-AF4.1	The system should be able to personalise news from/for the CPN media partners (VRT, DIAS, DW)
UR-AF4.2	The system should allow for additional content sources, outside the consortium
UR-AF5 - Transparency: Giving the user control & understanding over the content he sees.	
UR-AF5.1	The system must offer the user an easy to access and easy to understand overview of their profile
UR-AF5.2	The system must offer users easy access to their profile in order to change settings and data
UR-AF5.3	The system must make it transparent to the users why they are shown certain content, based on an item level
UR-AF6 - Archive: Making content available beyond the moment	
UR-AF6.1	The system must allow users to access content again that they have already opened before
UR-AF6.2	The system should allow users to consume content beyond their predefined time-frame after an interaction with the user (talkback)
UR-	The system should allow users to actively save articles for later consumption

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AF6.3	
UR-AF6.4	The system should be able to memorize where a user left off and restart at the same point
UR-AF7 - User Feedback: Asking users to help improve the system	
UR-AF7.1	The system should offer user feedback requests in a playful/entertaining way
UR-AF7.2	The system should include guided feedback for specific elements of the system, allowing users to (help) improve it
UR-AF7.3	The system should allow users to assign both existing or new attributes (categories, moods etc.) to a content item
UR-AF7.4	The system should be able to offer a feedback interaction to determine the ground level of personalisation based on mood, time and interest
UR-AF8 - Temporary Categories: Users can temporarily change the personalisation algorithm	
UR-AF8.1	The system should allow users to search for specific topics they are temporarily interested in
UR-AF8.2	The system should allow users to add this search as a temporary personalisation category
UR-AF8.3	The system should allow users to define a specific time frame for this temporary change
UR-AF9 - Mute topics: Exclude topics from the personalisation for a certain time	
UR-AF9.1	The system should allow users to define keywords and logical combinations of them to exclude content from their personalisation
UR-AF9.2	The system should allow users to define a time frame per keyword/logical combination

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UR-AF9.3	The system should be able to overwrite this exclusion for important breaking rules

Table 6: Requirements Application Features

4.4 Production Side

Below are the requirements for the production side.

User Requirements - Production Side UR-PS	
ID	**Requirements**
UR-PS1 - Detailed Analytics: Giving newsrooms a more detailed feedback on their audience	
UR-PS1.1	The system should show the access to items through users by numbers (who, when, how long)
UR-PS1.2	The system should show which parts (paragraphs, entities) of an item were most interesting to users
UR-PS1.3	The system should show which topics were most interesting to users
UR-PS1.4	The system should be able to show these numbers during the creation process of the content
UR-PS2 - Integration: How should CPN be connected to the production side?	
UR-PS2.1	The system should allow for an easy integration into the producers workflow
UR-PS2.2	The system should provide contract templates to allow freelancers to easily work together and with editors, to define and track the scope of individual contributions and expected revenues
UR-	The system should allow producers to transparently see how often their

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PS2.3	contributions are used and distributed to readers
UR-PS2.4	The system should allow producers to export the record of their publications through standardized and interoperable formats
UR-PS2.5	The system should allow for an easy contribution of content from different publishers through standardised interfaces
UR-PS2.6	The system should give feedback on what attributes are best used on content to improve the personalisation performance
UR-PS2.7	The system should allow editors to easily add missing attributes to articles manually

Table :7 Requirements Production Side

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5. User scenarios

In order to design a system that really functions for the envisioned target audiences and in order to keep this in mind, the project has come up with specific user stories. These scenarios give an overview of the situation the users are in and the issues they are trying to solve by using the CPN system. The versions of those scenarios shown here are based on the current situation of the news process and our initial ideas for CPN as well as the outcomes of the requirements process. They will be refined and changed throughout the next months of the project, when the shape of the prototype is becoming more clear.

5.1 Scenario 1: The Power News-Consumer

Initial CPN Scenarios

Margory Kreft, 29 years, working in business administration. She is an avid and regular user of news, in the morning, during the commute and in the evening.

"I am quite interested in news. I want updates, but I want to learn over time, not just waste time by checking and checking news sites. Before I started using CPN I often felt overwhelmed. Checking for relevant information often felt like a waste of time. What I really want and need is relevant information, local, national, global, with deep information regarding big topics. After setting up CPN and using it, it feels just right. The personalisation can be started quickly, firstly along broad categories. Secondly, I can control when I want to receive updates, at what time of the day, enabling me to focus on my work inbetween. As a third big benefit I can define in what form I prefer my updates. With very few

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steps my news experience has improved greatly. I now get a very brief spoken update like a short radio show in the morning before I leave for my commute. During my 30 minute train ride I mix learning content and general news, from a variety of sources. When I come home in the evening there's a video update for me, followed by a guide to the best films or shows I could watch in the evening. What I like most about CPN is that the platform does not limit me to one source. Instead it provides just the right feeds, from authoritative sources, which is great. It is easy to set up and easy to change. I think in a very short time people will have a hard time to imagine how life was without this CPN experience. I also like a lot the fact that I can clearly understand why something is recomended to me.

GDPR compliance and personal data sovereignty

Phil Schofield has been using the system for several months. "There has been a growing interest in the press about how much of my personal data is given up and how large companies have basically taken control of the data I gave them. I found it really interesting that I was able to categorically say to CPN how and what they could use from the info I gave them. The Personal Data Receipt I received when I subscribed to the CPN platform gives me a simple, concise and easy to understand summary of what personal data are used, how and where they are stored. I feel greater control over my data, as I can quickly control if third party sharing of my data happens, and with this receipt I always have a simple and accessible link to modify any access and use of my data. I can also easily ask to remove them and enforce my digital rights, such as the right to be forgotten, when I don't want to use these services anymore. It's a relief I don't have to understand this by reading wordy and complex privacy policies and spend time to find contact details of the service providers in case I need more information. The fact that these receipts are also stored on the blockchain and nobody can tamper with them, makes me more confident that my data are actually used the way I want. This transparency increases my trust for the news distributors using the CPN platform and I am happy to share more data with them, because I feel that I never lose control of my data. As a result, I've been getting much better recommendations and so I am happy that my data is used to improve these. However I feel really confident in the system knowing that this won't be given out elsewhere or used for other marketing purposes without my explicit consent; I'm really happy to say how much I like animals and get more stories related to this, but I don't want to get bombarded with adverts based on this by companies I don't know".

5.2 Scenario 2: The sometimes soft-news consumer

32-year old Annika Klein uses CPN to get short updates on topic collections like international breaking news, local news and events. Anika doesn't want to be concerned all the time, so she gets a bi-weekly summary on international news and daily updates on local news and light topics of her choice. Her friends can suggest interesting stories for Annika to read which appear in her feed when she has some spare time. The system remembers the articles she already read and so she is not given identical content. She likes the system especially because she can easily access and change the settings and add new keywords when she needs specific informations. Annika can choose how long the system gethers news articles about certain events or topics before showcasing a summery to her. "I don't feel overwhelmed by the news

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and still get updates on the most important things, I can use CPN for entertainment when I have some time to browse exciting content."

5.3 Scenario 3: The editor's view

Timothy Mallett Is a 28-year old freelance journalist whose work has been used as part of the CPN: "As my work is included in the CPN, it's me deciding how my content can be used by the editor I am working with. I can quickly chose among a set of existing licenses, easy to understand for me without assistance of legal experts, while agreement on that is transparently recorded by the platform. Because this info is stored in the blockchain, I can also be confident about any remittance owed to me by my content."

"CPN uses open platforms to allow content producers to agree conditions for use of their work", says Andrew Peters, Head of Compliance at Big Media Company. "By using this technology we are able to easily and automatically identify required content, according to their distribution licence. We can then see whom we need to credit in return for using their content within CPN. By using CPN, it particularly enables us to utilise news from freelance or citizen journalists far more quickly and easily than before."

5.4 Scenario 4: The freelancer's view

Mark Wall is a 29-year-old freelance journalist whose work has been used and distributed by editors that are using the CPN platform: "The transparent feedback that the platform gives me on how my articles are consumed, allows me to identify new trends on the content items and style of articles readers like to read. This might require me to include different media sources in my articles, including pictures, videos and infographics.

While it is great to know how I can improve my articles, it can sometimes be difficult for me to produce this additional material. Luckily the CPN platform allows me to easily work with all record of their publications."

6. Conclusion

The document has shown the lengthy and detailed process of the requirements analysis for a new and innovative personalisation system. We started with an analysis of the personalisation basics as well as market-dominating concepts and standards. From there we created our first common user vision and discussed the positive and negative aspects of current personalisation concepts. We examined the stage of personalisation in our respective organisation as well as the possible challenges and opportunities for public and private broadcasters. By incorporating the GDPR guidelines in our user vision, we intend to ensure that our project will uphold data protection and transparency by design from the

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beginning. We developed suitable personas for the project based on the existing information about our audience and the estimation of CPN's target audience.

We conducted extensive evaluation activities with the user target group and media professionals to make sure that our product conceptualisation develops following expectations and needs of end-users on both sides. As a result of the evaluation activities, we received a comprehensive picture of the needs, preferences and frustrations but also individual motivation for news consumption, perceptions of risks related to digital news consumption, and emotional constructs of our targeted user group. As a result of those activities, we received a fine-grained and corresponding picture of the ideal as well as the technically possible and feasible solution to news personalisation which highlights several aspects that we consider crucial for the development of our future CPN platform.

From the perspective of media professionals, personalisation is seen as an essential contemporary approach to digital media that has the potential to provide a solution to various challenges media companies face in the digital age. However, crucial aspects like a feasible and easily implemented methodology to content contextualization like tagging and topic modelling, but also the user data gathering and GDPR compliance. The findings of the DW survey show that while extensive behaviour tracking and data exchange between different applications and services might be the industry standard, it is not the ideal solution envisioned by the users. Our respondents prefer an active role in the selection of their content and may mistrust the conventional approach to user-data tracking of the leading media and tech companies. However, functionality and high frustration levels with applications that take an extensive amount of time and complexity to set up, as well as possible effects of the privacy paradox should also be taken into consideration. Here we need to provide innovative and user-friendly ways for data input that may include established and new methods and give full control to users.

Another interesting finding of our evaluation activities is the role of emotion and emotional constructs for media consumption. On the one hand, media professionals and media users are interested in news content that corresponds with the audience's temporal emotional state. On the other hand, through the DW online survey, we could confirm that emotional constructs like information overload and the fear of missing out as well as concerns about a possible social fragmentation as a result of digital media consumption influence the way of how users perceive their online media consumption. The infamous filter bubble, possibly produced by algorithmic filtration seems to be worrisome for media experts and users alike and needs to be addressed in any CPN development.

Overall, the process has shown that there is a request for personalisation from end users and production side. But that the existing systems are not perfect, but also that finding an ideal solution is quite difficult. For users, it is unclear what's happening with their data and how the systems work. But they are also quickly frustrated if the results do not fit their expectations. CPN will now use the information gathered and try to find an innovative solution to these points. This process will have to focus on how to overcome the long process of building a user profile without crawling users' data in an intransparent way. It will also have to find a way on how to best offer users a personalised experience that they are still interested in, even after the initial excitement or interest wears. Last but not least, CPN

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will have to find a way to deal with imperfect personalisation and how to improve it so users won't lose interest. This includes looking at production processes at the media companies' end and offer comprehensive solutions for how to overcome this issue. The next concrete steps will now be to take a closer look at the requirements and try to derive a User Interface and all necessary features from this. This step will be undertaken by all user partners, working with design sketches and many interactive sessions with the technical partners to find the best technical and user-friendly solutions. In order not to miss any user requirements, there will a close connection to users as well, getting feedback on first designs with quick iterations towards further development.

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8. Annex

DW Personas

VRTNews Personas

Dias Personas

VRT Informed Consent

VRT Questionnaire

Dias Workshop Questinnaire

Dias Informed Consent

DW Online Survey Questioonnaire

DW Online Survey Results English

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DW Online Survey Results Spanish

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DW Personas summarised

for CPN
02.11.2017

I use media to take part in discussions, I have some strong opinions on things but want to hear other perspectives. I know that some topics are tabooed and biased. I still want to learn about them. I watch TV, and Youtube Videos when I am home, I use media for entertainment too. I consume media content in the official language of my country, but I am fluent in English. I can compare multi-lingual media content and the discussions around some topics. I also want information that are relevant to my life and my family.

Mohammad Husseni
- 32 years
- has a Masters degree in Computer Science
- works full-time for an IT company
- is married
- has two children
- lives on the outskirts of a larger city
- drives to work every day
- is concerned about the economy
- likes sports

Motivation

To make sense of the political situtation, to understand how local and global happenings can influcense his life and the life of his familiy, to be able to take part in discussions.

Frustration

Too many similar opinions, too little opposing oppinions/ debates. Too much time spend searching for diffrent news sources. Not enough content focusing on local news/ perspectives.

I use media to be informed and to learn about specific things and topics relevant to my everyday life. I want to see role models form my cultural background. Some media outlets are trustful and have a good reputation, so I consume their content. I listen to the radio when I commute. My phone has a low-data capacity I don't want to install new apps or watch long videos. I prefer news in one of the national languages of my country, but I am comfortable researching media content in English.

Nsulubi Changeywo
- 37 years old
- has a Master degree in Education
- works for an international NGO
- is divorced and has two children
- likes to cook and read travel blogs
- is concerned about the education of her children

Motivation

To be informed and be able to take part in conversations regarding local and international topics. To get informations that could be useful for work, to be entertained.

Frustration

Apps and content formats that require to much data and storage space. Unclear context of content, lack of local perspective/ relevnce in intenational topics. To much information / content that must be consumed in a short time. Too little content in local/national language.

I use media to be informed, no single media source is objective so I want a mix of different sources. I also want to unwind and relax , I want some content related to my hobbies. I use my mobile phone a lot, I like to use Facebook. Sometimes I check my news aggregators and use push- up notifications on topics that are important to me. I like to consume media content in English. I watch videos and documentaries at home. I also like visualy enhanced content like infographics and bites and pieces I can share with freinds.

Maria Fernandez
- 26 years old
- Grade-student in Biochemistry
- works part- time in a research facility
- lives together with her mother and younger brother
- commutes by train
- likes to dance and to watch movies with her friends
- is concerned about the environment

Motivation

To be infomed about local and international topics, to get diffrent insides, to be entertained and find usefull information that she can use to achive personal goals.

Frustration

Lack of local context vs. onesided, biased information. Need to have too many applications/subscriptios, slow loading of content.

VRTNWS Persona’s

When creating new content, it is important to keep your target group in mind. Based on the user research we were able to distinguish 4 persona or sub-target groups for vrtnws.be.

The news junkie

Dirk (42), sales manager. Great fan, who likes to follow the news closely through all channels.

Dirk (42) is a real news junkie. He closely follows current events and looks for extra information. In order to be able to compare different perspectives, he follows different brands and channels. Online, he finds a lot of news on his tablet, smartphone and computer. He also uses other media to keep up to date: in the morning he reads the newspaper, during the day he listens to the radio at work and in the evening Dirk watches the news and other explanatory programs on television.

Motivation: Dirk wants to be able to formulate his own opinion on the news. This means that he likes to compare different sources and perspectives in order to get a complete picture and draw his own conclusions. He is very critical and wants enough transparency in news. He will also react quickly if something is wrong in the article.

Frustration: Every obstacle getting in touch with the news quickly is one too many. Dirk doesn't like to have to click through the site to see a video and is annoyed by the long loading time of articles.

“I like to see important events displayed in different ways. Even though I have the feeling that it is often copy-paste.

The train is an ideal place to check Facebook. I use it as a container to get news in, so I don't have to look at everything separately in the app.”

The traditional newsconsumer

Jeanine (61), part-time local supermarket employee. Occasionally on the website.

Jeanine (61) is less educated and has a more traditional way of following news: she reads the newspaper, listens to the radio news and watches the news on television. Occasionally she visits a news site (especially http://hln.be), but that is especially when something important has happened. For her, news is a broad concept, lifestyle and feel-good stories are also important news for her.

Motivation: Jeanine wants to be able to speak with others.

Frustration: Sometimes it all goes a bit too fast, the language or content is too complicated.

"The internet news is faster than the newspapers. I am disappointed there is nothing new in the newspaper in the morning. Still, I prefer to read the printed newspaper. I like to fill in the crossword puzzles. I follow the news on the radio, because it's on all day long. But I also receive flash messages via mail, in case of important events. In that case, I also look at the dedicated news broadcasts."

The online mediahopper

Sofie (24), social work student. Follows the vrtnws.be mainly using Facebook and Twitter.

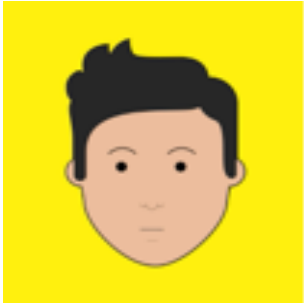
Sofie (24) has the feeling that she often misses news, because she is overwhelmed with information on social media. After all, she follows a lot of alternative news sites such as De Wereld morgen (The World tomorrow), De Correspondent, Charlie, blogs... She does this mainly for the opinions and blog pieces.

Motivation: Sofie does not want to miss anything and wants to be able to experience news in different ways, in different forms.

Frustration: So much to read, so little time.

"I don't use apps, I read everything on Facebook.
I'd rather get updates in one post than six different ones. The most important ones everyone wants to see, right?
Morning updates I get from De Morgen, De Standaard and De Correspondent. I usually scroll through it while I'm having breakfast. When I see something interesting, I often open it up in Safari, but then I don't read it immediately when I don't have the time.

The digital native



Mats (14), obliged by school to follow the news. Reads HLN.be and Ninjanews (https://mnm.be/ninjanieuws)

Mats (14) is a true digital native: he is almost constantly online and does so mainly on his smartphone. He uses apps like Facebook, Whatsapp and Snapchat, but rarely or never does so to consume news.

Motivation: If he does pick up news, it is inadvertently in his feed or because he is compulsorily looking for a school assignment.

Frustration: If he is looking for information about current events, he wants this to be presented quickly and easy to understand.

SIGMALIVE / DIAS Persona's

According to data collected so far this year we are able to distinguish four main segments in our audience which are described below.

Segment 1

Interests: News & Politics / News Junkies

Gender: Male

Age Group: 35-44

The person who belongs to this segment is located in Cyprus and follows the news closely. He is mostly interested into local news rather than international and he is also receiving Breaking news and Highlights from the push notification service of the app. He also follows the news in other media such as radio (06:00 – 13:00) and TV (11:30 – 14:45 or 20:00 – 21:30).

He wants to have a wide view of the covered stories. For that, he follows all major news sources (4-5) in Cyprus and he is constantly comparing the way each medium cover a story. He is strongly critical about the context of the stories and the views that are expressed and often expresses his opinion in social media (mostly Facebook).

Segment 2

Interests: Entertainment & Celebrity News Junkies

Gender: Female

Age Group: 25-44

She is the kind of person that follows the news but she is mostly interested in Lifestyle content. She enjoys consuming local content concerning their interests, and she is very active in social media (Facebook and Instagram). Facebook is, for her, the main source of news that are not related with her direct interests, such as politics or finance.

She enjoys listening to music, more Greek and less international. For that, she tunes into music radio stations mostly at work and in the car. She loves to watch TV, typically during prime time, and she is interested in reality and talent shows. She is a religious person, and she is strongly sensitive in stories about children, pets and poverty.

Segment 3

Interests: Lifestyles & Hobbies/Shutterbugs

Gender: Male

Age Group: 25-44

The person described in this segment is interested in another view of the current affairs. They find fascinating local, feature and human stories, inspired by everyday life. They are mostly interested in stories that unveil problems of equality, human rights, discrimination, and they are also attracted by news about culture (photography, music, dance etc).

This person has strong presence and opinion in social media, and is attracted by viral and funny content, that is making fun of serious news. They enjoy going out instead of staying home in front of TV, and they use internet (mostly mobile devices) as their main source of news.

Segment 4

Interests: Sports Fans/Soccer Fans

Gender: Male

Age Group: 18-34

This segment is consisted by males that are interested in sports. However, a vast percentage of them is only interested in football, and they are close connected with their favourite teams. They like to read content relevant with their team, and for that they follow more than three sport related sources of sport news.

The person that belongs to this segment also enjoys listening to sport related radio shows (after 13:00) and engage with other fans in social media, mostly Facebook.

Flow of the co-creation workshop @ VRT with professionals

1) Short 5 minute intro on CPN
   Some slides on CPN (See Bart)

2) Explain workshop flow

3) Around the table: Who's who and what is personalization for them?

Topic List and questions asked during the around the table:
What do you think about personalisation? How do you feel about personalisation?
What does personalisation mean to you? How would you define personalisation?
What is your experience with personalisation in general?
Do you have experience with personalised news media?
How would you describe your experience with personalised news media?
What do you think are the main frustrations of news consumers and users of news media?

→ *Moderators wrote what was said on the board/paper*

Informatiefiche en toestemming

Titel van het project
CPN (Content Personalisation Network)

Doel van het project
CPN beoogt een beter gepersonaliseerd nieuwsaanbod dat grote en kleine nieuwsuitgevers toelaat om economische impact te hebben.

Beschrijving van de workshop
U neemt als participant deel aan een workshop met duurtijd van ca. 2 uur. De workshop is Nederlandstalig. Er worden tijdens de workshop een audio en video opname gemaakt en enkele foto's getrokken om de verwerking van de gegevens achteraf vlotter te laten verlopen. De opnames en foto's zullen niet openbaar verspreid worden.

Incentive
Als aanmoediging voor deelname aan de workshop krijgt elke deelnemer een goodiebag van VRT ter waarde van 15 euro.

Privacy en anonimiteit
De persoonlijke informatie die wordt prijsgegeven in deze studie wordt vertrouwelijk behandeld. Alle gegevens die worden verzameld tijdens het onderzoek worden anoniem verwerkt en uitsluitend gebruikt binnen het kader van dit project. Alle deelnemers worden gecodeerd (bv. door pseudoniemen) in de verwerking en rapportage van de gegevens. Dit betekent dat jouw naam niet rechtstreeks geassocieerd kan en zal worden met de verzamelde informatie.

Toestemming
Ik, _____, stem in met de inhoud van dit document en stem toe deel te nemen aan deze studie.

Handtekening en datum:

Contact CPN

- Iris Jennes
- iris.jennes@vub.be

Onderzoeksproject
CPN (Content Personalisation Network)

Naam van de onderzoeksparticipant

Adres van de onderzoeksparticipant

Type van beloning
Goodiebag van VRT ter waarde van 15 euro

Ik, _____, verklaar hierbij dat ik de volgende beloning heb ontvangen: een goodiebag van VRT ter waarde van 15 euro ter compensatie voor mijn participatie in het onderzoeksproject.

Datum: **22 januari 2018**

Plaats: **Brussel**

Handtekening

1. **Questionnaire (DIAS Workshops)**

Σχεδιάστε μαζί μας το αύριο του διαδικτύου

Το πρώτο workshop θα ραγματοποιηθεί την Παρασκευή 12 Ιανουαρίου στις 18:00 ενώ το δεύτερο την Παρασκευή 19 Ιανουαρίου την ίδια ώρα στη Λευκωσία. Τα στοιχεία που θα συμπληρώσετε εδώ θα χρησιμοποιηθούν ΜΟΝΟ για την δημιουργία της ομάδας εργασίας για την εξατομίκευση περιεχομένου (content personalization) και τη συμμετοχή σας στο πιλοτικό πρόγραμμα που θα λειτουργήσει το 2018.

Οι ερωτήσεις με * είναι απαραίτητες.

Top of Form

Είστε: *

Άντρας

Γυναίκα

Ηλικία *

18-24

25-34

35-44

45-54

55-65

Τι είδους περιεχόμενο σας ενδιαφέρει περισσότερο; Επιλέξτε την πρώτη σας προτεραιότητα *

Ειδήσεις (Hard News) - Πολιτική, Οικονομία, Κόσμος

Lifestyle και Entertainment

Αθλητικές Ειδήσεις

Αφιερώματα, ανθρώπινες ιστορίες, πολιτισμός

Άλλο

Σας ενοχλεί όταν λαμβάνεται ειδοποιήσεις για ειδήσεις που δεν σας ενδιαφέρουν;

ΝΑΙ

ΟΧΙ

Για πόσες ειδήσεις του περιεχομένου που σας ενδιαφέρει ενημερώνεστε κάθε μέρα; *

Περίπου 1-15

Πάνω από 15

Επιθυμώ να συμμετέχω στην επίλεκτη ομάδα εργασίας για την εξατομίκευση περιεχομένου που θα συσταθεί στην Κύπρο *

ΝΑΙ

ΟΧΙ

Επιθυμώ να συμμετέχω και στο πιλοτικό πρόγραμμα επιλεγμένων χρηστών του διαδικτύου που θα λειτουργήσει το 2018 *

ΝΑΙ

ΟΧΙ

Ονοματεπώνυμο *

E-Mail *

Κινητό *
ΑΠΟΣΤΟΛΗ

B. Informed Consent Form

΄Εντυπο συναίνεσης συμμετοχής στο ερευνητικό εργαστήριο

Τίτλος Ερευνητικού Εργαστηρίου: Content Personalization Network – Workshop
Σας ευχαριστούμε που συμμετέχετε στο ερευνητικό εργαστήριο που διοργανώνει ο Εκδοτικός

Οίκος ΔΙΑΣ και το Sigmalive.

1. Σκοπός του ερευνητικού εργαστηρίου

Σκοπός του εργαστηρίου είναι η καταγραφή του τρόπου που οι χρήστες κατανοούν την εξατομίκευση του περιεχομένου στο διαδίκτυο. Τα αποτελέσματα των ερευνών θα καθοδηγήσουν τις τεχνικές εταιρείες που συμμετέχουν στο CPN να δημιουργήσουν ένα

πιλοτικό πρόγραμμα εξατομίκευσης περιεχομένου (Content Personalization).

2. Διαδικασία

Οι συμμετέχοντες θα ανταλλάξουν απόψεις για τον τρόπο που θέλουν να προσωποποιείτε το περιεχόμενο. Τι είναι αυτό που τους παρακινεί να χρησιμοποιήσουν μία τέτοια υπηρεσία και τι είναι αυτό που τους εκνευρίζει.

3. Βιντεογράφηση / Φωτογράφηση

Με τη συμμετοχή σας στο ερευνητικό εργαστήριο συμφωνείται στην βιντεογράφηση της διαδικασίας με μοναδικό σκοπό την απομαγνητοφώνηση και την καταγραφή των απόψεων που θα εκφραστούν από τους συμμετέχοντες. Το βίντεο μετά από αυτή την διαδικασία θα διατηρηθεί σε κρυπτογραφημένο αρχείο στον server του Εκδοτικού Οίκου ΔΙΑΣ. Μετά την ολοκλήρωση του project, θα καταστραφεί. Πριν, κατά τη διάρκεια ή μετά τη διαδικασία, θα ληφθούν αναμνηστικές φωτογραφίες της συνάντησης. Με τη συμμετοχή σας στη φωτογράφηση συναινείτε στη δημοσιοποίησή τους στα μέσα κοινωνικής δικτύωσης ή στα μέσα του Εκδοτικού Οίκου ΔΙΑΣ και το Sigmalive.

4. Παραχώρηση δεδομένων - αποτελεσμάτων

Η συμμετοχή σας στην έρευνα συνεπάγεται ότι συμφωνείτε με την μελλοντική παραχώρηση των αποτελεσμάτων της στην ομάδα εργασίας του Content Personalization Network, με την προϋπόθεση ότι οι πληροφορίες θα είναι ανώνυμες και δε θα αποκαλυφθούν τα

ονόματα των συμμετεχόντων. Τα δεδομένα που θα συγκεντρωθούν θα κωδικοποιηθούν με αριθμό, ώστε το όνομα σας να μην φαίνεται πουθενά.

5. Πληροφορίες

Μη διστάσετε να κάνετε ερωτήσεις γύρω από το σκοπό ή την διαδικασία του εργαστηρίου. Αν έχετε οποιαδήποτε αμφιβολία ή ερώτηση ζητήστε μας να σας δώσουμε διευκρινίσεις. Αν ερωτήσεις προκύψουν ακόμα και μετά το ερευνητικό εργαστήριο παρακαλώ επικοινωνήστε με τον Χρήστο Δανέζη στο τηλέφωνο 22580677

6. Ελευθερία συναίνεσης

Η συμμετοχή σας στην εργασία είναι εθελοντική. Είστε ελεύθερος-η να μην συναινέσετε ή να διακόψετε τη συμμετοχή σας όποτε το επιθυμείτε.

7. Δήλωση συναίνεσης

Διάβασα το έντυπο αυτό και κατανοώ τις διαδικασίες που θα ακολουθηθούν. Συναινώ να συμμετάσχω στο ερευνητικό εργαστήριο που διοργανώνει ο Εκδοτικός Οίκος ΔΙΑΣ και το Sigmalive.

Ημερομηνία: 12 / 01 / 2018

Ονοματε π ώνυμο και υ π ογραφή συμμετέχοντος		

Personalising your news-experience

CPN (Content Personalisation Network) is an EU-funded research project which aims to improve news-delivery based on personal preferences. We want to make it easier for you to be better informed while spending less time hunting for the right content, yet don't get the impression to be missing out on something important.

In order to get this right, we need your help. We want to understand your needs, expectations and motivations when searching for digital content from various news broadcasters and media companies. We want to learn more about your current news experience, preferences and frustrations through this questionnaire.

*Required

Let's start with a few questions regarding your news consumption. Ready?

Here we go!

1. **1. How often do you consume news-related content online?** *
Mark only one oval.

- Every free minute of the day
- Several times a day
- Once a day
- Less then once a day

2. **2. Overall, how much time do you normally spend each day consuming news?** *
Mark only one oval.

- Less than 10 minutes a day.
- Less than 30 minutes a day
- Less than 1 hour a day
- More than 1 hour a day
- Several hours
- Can't keep track of that

3. **3. After that time, how informed do you feel about the topics you care about?** *
Mark only one oval.

- Very well informed
- Informed, but I would need more time
- There is too much out there to ever feel fully informed

4. **4. How strongly do you agree with the following statement: I am seeking out new technologies, products and apps to help me stay informed while not using up all of my time.**

Mark only one oval.

	1	2	3	4	
Don't agree at all	◯	◯	◯	◯	Fully agree

Consuming news has become a very individual process in the digital age, due to the many options available. We would like to get a better understanding of your preferred pattern and habits regarding news.

5. **5. When do you use which device to get your news?** *

Please walk us through your typical day.
Mark only one oval per row.

	Go to a news website	Open a news app	Open my emails to read a newsletter	Listen to a podcast	Ask a voice assistant to read me the news	Open a news aggregator app (such as Apple News of Flipboard)	Open a read it later app (such as pocket)	Don't do any of these activities
Upon waking up I...	◯	◯	◯	◯	◯	◯	◯	◯
During morning commute I ...	◯	◯	◯	◯	◯	◯	◯	◯
When arriving at work I...	◯	◯	◯	◯	◯	◯	◯	◯
During lunch break I...	◯	◯	◯	◯	◯	◯	◯	◯
During my evening commute I...	◯	◯	◯	◯	◯	◯	◯	◯
In the evening I ...	◯	◯	◯	◯	◯	◯	◯	◯
Before going to bed I...	◯	◯	◯	◯	◯	◯	◯	◯
On the weekends I ...	◯	◯	◯	◯	◯	◯	◯	◯

6. **6. Which device do you most often use to consume news?**

Mark only one oval.

- ◯ My mobile phone
- ◯ My desktop PC/laptop
- ◯ My tablet
- ◯ My TV/SmartTV
- ◯ Other/Non-digital sources

In order to better understand your needs, we would like to learn about your motivation to consume news in the first place.

7. **7. I consume news mainly because...** *
(choose as many as you like)
Tick all that apply.

- [ ] I want information about specific topics, that are important to me
- [ ] I want to build an opinion about current topics
- [ ] I want to be able to take part in discussions with my peers
- [ ] I want to be able to convince my peers, when it comes to topics and opinions that are important to me
- [ ] I want to broaden my knowledge
- [ ] I want to check and complete information I get elsewhere
- [ ] I want to unwind and distract myself
- [ ] Other: _____

Influences on your news experience

How much can you relate to the following statements?

8. **8. I feel overwhelmed by the sheer amount of news-related content.** *
Mark only one oval.

- ( ) Always
- ( ) Sometimes
- ( ) Never

9. **9. I feel like I'm missing out on something.** *
Mark only one oval.

- ( ) Always
- ( ) Sometimes
- ( ) Never

10. **10. News outlets all report on the same things.** *
Mark only one oval.

- ( ) Always
- ( ) Somtimes
- ( ) Never

11. **11. News topics are complex and confusing.** *
Mark only one oval.

- ( ) Always
- ( ) Sometimes
- ( ) Never

12. **12. The language used in news articles is too complicated.** *

Mark only one oval.

- Always
- Sometimes
- Never

13. **13. News are often not relevant for my daily life.** *

Mark only one oval.

- Always
- Sometines
- Never

14. **14. I wish I could get more background information on news.** *

Mark only one oval.

- Always
- Sometimes
- Never

15. **15. I wish I could get a summary of news, when I miss out on something.** *

Mark only one oval.

- Always
- Sometimes
- Never

16. **16. I feel like my current media consumption is too one-sided.** *

Mark only one oval.

- Always
- Sometimes
- Never

Interacting with news apps and websites

Consuming news is seldom a lonely habit. Through networks like Facebook or Messenger Apps like Whatsapp we both share and consume content like articles, videos or memes with and from others.

17. **17. How often do you share content you like?** *

Mark only one oval.

	1	2	3	4	
Never					Always

18. **18. Which recommendations for news-related content to you do you value the most?** *

Please rank the following options from 1 (not valuable at all) to 7 (most valuable. Please note that for this question you can't use the same rank twice.
Mark only one oval per row.

	1	2	3	4	5	6	7
By real friends (people you know from real life)							
From peers and colleagues on my professional network							
By social network connections (e.g. Facebook or Twitter friends)							
By other users of the same media outlet							
By media experts, like highly respected journalists and editors							
By independent subject matter experts							
Made by an algorithm you can influence yourself							

19. **19. What would you be willing to do for a customised news offer fitting your personal preferences?** *

(Choose as many as you like)
Tick all that apply.

- [ ] Allow an application access to one or more of my social media accounts (e.g. Facebook, Twitter)
- [ ] Actively choose categories and interest fields
- [ ] Let the app evaluate my news consumption habits
- [ ] Give the application access to my location
- [ ] None of the above

20. **20. How often would you be willing to interact with an app, if it would noticeably improve the results?**

Mark only one oval.

- ( ) After every item I read (for example via a like/dislike button)
- ( ) Once a day
- ( ) Once a week
- ( ) Once a month
- ( ) Never

21. On a scale from 1 to 4, how strongly do you agree with the following statements?

21. **21.a If an online application needs to use my data, I want to know how and what for.** *

Mark only one oval.

	1	2	3	4	
Don't agree at all					Fully agree

22. **21.b It is important for me to understand why I get recommendations for certain content items and not for others.** *

Mark only one oval.

	1	2	3	4	
Don't agree at all	◯	◯	◯	◯	Fully agree

23. **21.c I would like to know instantly why a certain recommendation is made to me.** *

Mark only one oval.

	1	2	3	4	
Don't agree at all	◯	◯	◯	◯	Fully agree

24. **21.d It is important for me to know, if I get recommendations from a human editor or from an algorithm.** *

Mark only one oval.

	1	2	3	4	
Don't agree at all	◯	◯	◯	◯	Fully agree

25. **21.e It is important for me to be able to actively influence my recommendations.** *

Mark only one oval.

	1	2	3	4	
Don't agree at all	◯	◯	◯	◯	Fully agree

26. **21.f I am cautious about apps and technologies that use my personal data and track my behaviour.** *

Mark only one oval.

	1	2	3	4	
Don't agree at all	◯	◯	◯	◯	strongly agree

27. **21.g Would you benefit from news coming from or concerning your current location?**

Mark only one oval.

- ◯ Yes, that information would be very convenient.
- ◯ I don't see a value in this for me.

Filtered world view

The rising consumption of news through social networks has led to a theory called the "filter bubble". This term was first used by Internet activist Eli Pariser in his book, "The Filter Bubble: What the Internet Is Hiding from You" (2011).

The idea is that we only connect to people we like and share similar believes with in order to enjoy our time on social media. While we rely more and more on those connections and networks for news recommendations, we are narrowing our view on the world, as we are limiting the news and the perspectives we are getting.

In the worst case internet users encounter only information and opinions that confirm and reinforce their own beliefs. According to Pariser 'this personalisation of the web could gradually isolates individual users into their own filter bubbles'.

28.
22. Are you concerned about the filter bubble as described above?
Mark only one oval.

- I am very concerned
- I am somewhat concerned
- I am not concerned about any negative consequences on society
- The filter bubble doesn't exist

29.
23. Which strategies do you think are effective in limiting the filter bubble? *
Choose up to 3 options
Tick all that apply.

- [ ] Let algorithms select news
- [ ] Let human editors select news
- [ ] Actively look for content that opposes my opinion on certain topics
- [ ] Read more in-depth articles related to breaking news
- [ ] Use apps that provide articles with opposing opinions
- [ ] Use apps that highlight the ideological/political spectrum of content I read
- [ ] Monitor my own news consumption closely for possible bias
- [ ] Read more international news publications
- [ ] Read more local news publications
- [ ] None of the above strategies will be useful
- [ ] There is no need to address this issue

Basic User Information

You're almost done. All that is left are a few demographic questions, so we can better understand who participated.

30.
24. Gender
Mark only one oval.

- Male
- Female
- Prefer not to say

31.
25. What is your age-group?
Mark only one oval.

- Under 25
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65+

32. **26. What is your highest educational degree?**

Mark only one oval.

- Highschool Diploma
- Bachelors Degree or similar
- Associates Degree or similar
- Masters Degree or similar
- PhD
- Trade/Technical/Vocational Training
- Professional Degree
- No formal education completed
- Other: _____

33. **27. In which country do you live at the moment?**

Mark only one oval.

- Afghanistan
- Albania
- Algeria
- Andorra
- Angola
- Antigua and Barbuda
- Argentina
- Armenia
- Australia
- Austria
- Azerbaijan
- Bahamas
- Bahrain
- Bangladesh
- Barbados
- Belarus
- Belgium
- Belize
- Benin
- Bhutan
- Bolivia
- Bosnia and Herzegovina
- Botswana
- Brazil
- Brunei
- Bulgaria
- Burkina Faso
- Burundi
- Cabo Verde
- Cambodia
- Cameroon
- Canada
- Central African Republic (CAR)
- Chad
- Chile
- China
- Colombia
- Comoros
- Democratic Republic of the Congo
- Republic of the Congo
- Costa Rica

- Cote d'Ivoire
- Croatia
- Cuba
- Cyprus
- Czech Republic
- Denmark
- Djibouti
- Dominica
- Dominican Republic
- Ecuador
- Egypt
- El Salvador
- Equatorial Guinea
- Eritrea
- Estonia
- Ethiopia
- Fiji
- Finland
- France
- Gabon
- Gambia
- Georgia
- Germany
- Ghana
- Greece
- Grenada
- Guatemala
- Guinea
- Guinea-Bissau
- Guyana
- Haiti
- Honduras
- Hungary
- Iceland
- India
- Indonesia
- Iran
- Iraq
- Ireland
- Israel
- Italy
- Jamaica

- Japan
- Jordan
- Kazakhstan
- Kenya
- Kiribati
- Kosovo
- Kuwait
- Kyrgyzstan
- Laos
- Latvia
- Lebanon
- Lesotho
- Liberia
- Libya
- Liechtenstein
- Lithuania
- Luxembourg
- Macedonia (FYROM)
- Madagascar
- Malawi
- Malaysia
- Maldives
- Mali
- Malta
- Marshall Islands
- Mauritania
- Mauritius
- Mexico
- Micronesia
- Moldova
- Monaco
- Mongolia
- Montenegro
- Morocco
- Mozambique
- Myanmar (Burma)
- Namibia
- Nauru
- Nepal
- Netherlands
- New Zealand
- Nicaragua
- Niger

- Nigeria
- North Korea
- Norway
- Oman
- Pakistan
- Palau
- Palestine
- Panama
- Papua New Guinea
- Paraguay
- Peru
- Philippines
- Poland
- Portugal
- Qatar
- Romania
- Russia
- Rwanda
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Samoa
- San Marino
- Sao Tome and Principe
- Saudi Arabia
- Senegal
- Serbia
- Seychelles
- Sierra Leone
- Singapore
- Slovakia
- Slovenia
- Solomon Islands
- Somalia
- South Africa
- South Korea
- South Sudan
- Spain
- Sri Lanka
- Sudan
- Suriname
- Swaziland

- Sweden
- Switzerland
- Syria
- Taiwan
- Tajikistan
- Tanzania
- Thailand
- Timor-Leste
- Togo
- Tonga
- Trinidad and Tobago
- Tunisia
- Turkey
- Turkmenistan
- Tuvalu
- Uganda
- Ukraine
- United Arab Emirates (UAE)
- United Kingdom (UK)
- United States of America (USA)
- Uruguay
- Uzbekistan
- Vanuatu
- Vatican City (Holy See)
- Venezuela
- Vietnam
- Yemen
- Zambia
- Zimbabwe

34.

28. Are you a journalist or do you work in a media related field?

Mark only one oval.

- Yes, I am a journalist
- Yes, I work in a media related filed
- No

35.

29. Would you like to become part of the CPN user group to support our project? All we need is a valid e-mail address.

Your e-mail will only be used to contact you with updates and for regular evaluations.

Powered by
Google Forms

LFR Survey Español

Publicar

Cuestiones

Ajustes

Respuestas

1,000 respuestas

Resumen

Pregunta

Individual

Aceptando cookies de seguimiento para mejorar la experiencia de Google, ¿aceptas?

1. ¿Con qué frecuencia consumes contenido de noticias en Grupo Antena?

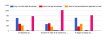
2.2 general, ¿cuánto tiempo pasas normalmente leyendo los contenidos noticiosos?

4. Después de esta lectura, ¿cómo de informado te sientes sobre los temas que te interesan?

5. ¿En qué medida estás de acuerdo con la siguiente afirmación? "Soy bastante curioso/a y me gusta estar informado/a"

Navegación de temas en la portada: no quiero que me obligue a ver todo lo que no me gusta, quiero que me ayude a encontrar lo que me interesa. Personalmente, me gusta poco o nada ahora mismo, pero también entiendo un negocio y las cosas

7. ¿Cuándo y qué dispositivo usa para buscar una noticia? Por favor, describa cómo lo hace.



9. ¿Qué dispositivo es con más frecuencia para consultar la actualidad?

¿Qué tipo de formatos más nos recomiendas, respuesta múltiple (también internacional)? ¿Cuando tu notas

Formatos noticias principalmente preferidos

Personalización de la experiencia con las noticias

9. ¿Cómo de relacionado se encuentra con las siguientes afirmaciones?

9. Diana que me estoy perdiendo algo.

10. Las agencias de noticias informan sobre las mismas cosas.

11. Las tertulias de las noticias son (ideológicas) sectarias.

12. El lenguaje empleado en las noticias de noticias es demasiado complicado.

14. Normalmente, las noticias no son relevantes para mi vida diaria.

15. Me gustaría poder obtener más información sobre las noticias.

16. Me gustaría poder obtener más información sobre las noticias cuando no puedo leer.

18. Creo que mi consumo actual de medios es demasiado unilateral.

Interactúa con aplicaciones de noticias y otros usos

19. ¿Con qué frecuencia consigues el contenido que te gusta?

18. ¿Qué recomendaciones de contenido de noticias con más frecuencia te ofrecen las aplicaciones de noticias? Por ejemplo, en "Descubrir" en Google Discover, Flipboard, Apple News, Feedly, Pocket, Twitter, Facebook, Instagram, Tik Tok, Reddit, Twitch, Pinterest, Tumblr, Snapchat, Mastodon, Bluesky, Threads, Mastodon, Bluesky, Threads, Mastodon, Bluesky, Threads

Questions | Responses 567 | Settings

567 responses

Summary | Individual

Accepting responses

Let's start with a few questions regarding your news consumption habits

1. How often do you consume news-related content online?

2. Overall, how much time do you normally spend each day consuming news?

3. After that time, how informed do you feel about the topics you care about?

4. How strongly do you agree with the following statement: I am seeking out more information and ways to help me stay informed while not letting it all of my time.

567 responses

Comparing news by brand is one individual product in the dark age. Even for news, people want to be able to get better consumer or product information certainly.

5. When do you use which device to get your news?

6. Which device do you most often use to consume news?

A week is better unbiased topic needs, we would like to hear about your motivation to consume news in the dark place.

7. I consume news mainly because...

567 responses

I want to be informed
I want to be entertained
I want to be educated
I want to be inspired
I want to be amused
I want to be shocked
I want to be moved
I want to be challenged
I want to be provoked
I want to be reassured
I want to be distracted
I want to be stimulated
I want to be relaxed
I want to be comforted
I want to be disturbed
I want to be enlightened