Grant Agreement No.: 761488

D5.2: First dissemination and exploitation strategy

Projectcpn.eu

This deliverable consists of two main parts. Part 1 provides an overview of the communication and dissemination activities in the first year of the project and a status update on the foreseen KPIs. Part 2 provides a first exploitation strategy for CPN.

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EXECUTIVE SUMMARY

This deliverable is a follow-up deliverable for D5.1, which described a detailed communication and evaluation plan for the CPN project. The current D5.2 provides an overview of the communication and dissemination actions that took place in the first year of the CPN project.

The first part of the deliverable comprises a communication and dissemination overview: a status update will be provided on the foreseen communication KPI's in D5.1. We will discuss each KPI's current status and the activities that have been undertaken to achieve these KPI's.

As a second part, this deliverable includes the market analysis. The market analysis describes the market for news personalisation products and provides a set of recommendations as input for the use cases, pilots and the exploitation and innovation transfer activities in T.5.2. We explain the market from a macro level perspective by performing an initial market analysis of the current and expected future market for personalised news products, focusing on market actors that include a high-level market analysis. This high-level analysis of competitors' business models together with the analysis of market trends, lead to intermediate business recommendations regarding CPN's activities. This feedback was used to develop the initial exploitation pathways. The third and final part of the deliverable presents the initial exploitation pathways and exploitation strategy for CPN.

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ABBREVIATIONS

CEO	Chief Executive Officer
CPN	Content personalisation network
DOA	Delivery of Actions
GAMI	Global Alliance for Media Innovation
KPIs	Key Performance Indicators
USP	Unique Selling Point
WP	Work Package

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1 FIRST REPORT ON DISSEMINATION AND COMMUNICATION ACTIVITIES

The detailed dissemination and communication strategy was outlined in D5.1. Communication and dissemination plan. The aim of that plan is "to guarantee wide visibility of the CPN results to relevant stakeholders all around Europe in order to attract a critical mass of potential customers" (CPN Grant Agreement, part B, p. 7).

In this deliverable (D5.2), we will report on specific dissemination and communication activities and its specific outcomes that have taken place between September 2017 and October 2018. Our activities are aimed at different target groups: news media companies, journalists, end-users, academics.

Table 1 below provides an overview of the KPIs presented in D5.1 and the DOA and a current status on each of these targets. Targets in green have been achieved, targets indicated in yellow are on track to be achieved by the foreseen deadline and targets indicated in orange need some additional attention in the next project period.

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Table 1: Current status of communication activities

Activity	Expected outcome	Current status
N° of visitors and visits to the website	20.000 by the end of the project (this KPI is interpreted as 'visits' and thus not 'unique visitors')	2,075 unique visitors 2020 visits
N° of Twitter followers	300 by the end of the project	148
N° of interactions with blog posts	1000/year	622 RSS subscription (cumulated September 2017-October 2018)
N° of international conferences attended with specific activities for CPN	Min. 3 per year	9 events during the first year
Hackathons	Min. 2 throughout the project, over 50 attendees, 7 pilot outcomes (see KPI 6.3 in DOA)	Ongoing. 2 Hackathons are planned in February and June 2019
Workshops	Min. 3 throughout the project, no more than 80 attendees	• 5 co-creation sessions with professionals and end-users in Cyprus and Belgium • 1 workshop with professionals and experts in Germany
Project events to engage the community of media companies and technology providers	2 throughout the project (see KPI 6.4 in DOA)	• 1 Engagement event concluding the project - Aligned with the third pilot cycle (Feb 2020) • 2nd event planned during VRT MMF 2019 • DW also organised two thematic events with in-house media professionals that contained a detailed presentation of the project in its current stage as of October and November 2018 and a discussion with the audience about news personalisation in general and the meaning of news personalisation for public media companies. These events have been organized as part of the reoccurring event format Minds Exchange in Bonn and Berlin. It draws an audience of approximately 20 media professionals from various departments.
Recommendations for the platform	100 (see KPI 6.1 in DOA)	Forthcoming (starting pilot phase 2)
Publications, presentations and demonstrations	Min. 20 throughout the project (see KPI 6.2 in DOA)	8 blog posts 1 newsletter 6 event presentations

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In the following sections, the different channels are described and discussed in detail, namely: the CPN website and its content plan (section 1.1), the blog posts and newsletter (section 1.2), social media (section 1.3), publications (section 1.4) and international conferences, workshops and summits (section 1.5).

1.1 CPN WEBSITE

The official website of the CPN project is https://www.projectcpn.eu/. The lay-out of the website changed in August 2018, to make the website more attractive for new visitors.

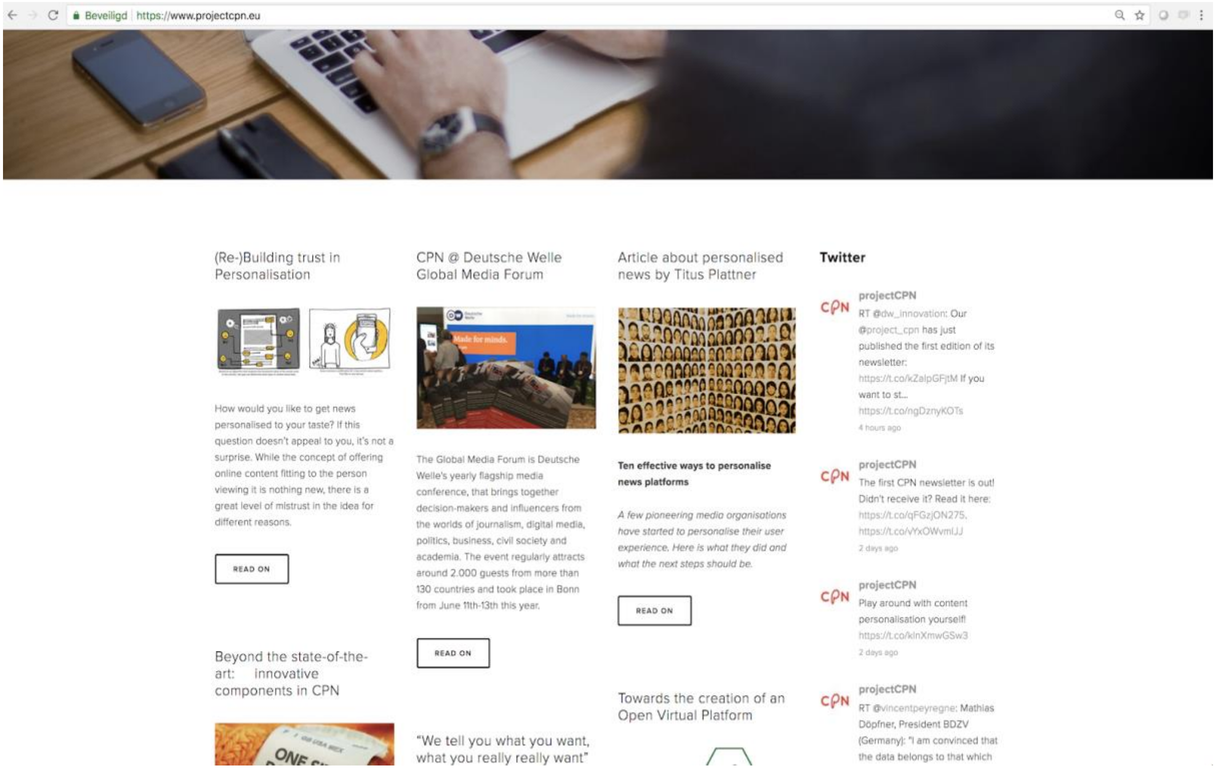

Figure 1: Screenshot of the project website

D5.1 gave an overview of the website content plan, namely its categories and content that would be provided on the website. A few changes have been made during the project, to make the website more approachable and clear for visitors. The table below shows these changes:

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Table 2: Overview of changes to project website

	Initial division (D5.1)	Changes/additions made during the project (D5.2)
News	This category will contain all news about the project, including activities, presentations at events, newsletters and blog posts containing updates on work packages and project progress by partners, specific challenges within tasks, interesting links and articles on current items related to the project's topic, etc.	The news category still contains news about the project, mainly in an overview of the blog posts and newsletters that were published.
		The CPN twitter feed was added on the right side of the page.
About the project	*Vision:* description of the project's vision and aims	*Vision:* description of the project's vision and aims
		Project video
	Work packages: description of the work packages	*Work packages:* description of the work packages
	Partners: logos and links of all project partners	*Partners:* logos and links of all project partners
		Call to action for external media organisations to become pilot partners
Publications	This section will include journal articles, conference publications, event publications, as well as project deliverables and press releases	Instead of only using the tab 'publications', a new one is made, namely 'Project outcomes' with different sub-tabs: work packages deliverables dissemination materials
Events	/	Events: new tab for upcoming events
Contact page	Provides contact information and a link for a subscription to the newsletter.	Provides contact information and a link for a subscription to the newsletter.
		Twitter feed with the latest tweets was added on the contact page.
Twitter feed	/	Twitter feed is added on the News tab and can be found on the right sight of the page

As mentioned above, a **new tab 'Events'** was created on the project website. During our consortium meeting in June, we decided to put more information on the project website. We also started writing a post about every CPN related event the project partners attended. Below (see section 1.6), a list of events we plan to attend in the future can be found. These events will also be posted on the project website after

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attending. When tapping the 'Project outcomes' section on the CPN website, under the section 'deliverables', all the submitted deliverables which are public, are posted. Currently, the website contains all finished deliverables, as listed in Table 3 below.

Table 3: Overview of deliverables published on the website

Deliverables	Title of deliverable
D1.1	User Requirements Model
D1.3	Innovative CPN components
D2.2	CPN Reference Architecture
D3.1	Initial Design and API's of Technology Bricks
D4.1	Initially available datasets and usage guidelines
D5.1	Communication and Dissemination Plan
D6.2	Data Management Plan
D3.2	Technology Bricks V1
D1.2	User Scenario Definition
D1.4	Technical requirements (platform and service requirements)

The dissemination materials can also be found under the 'Project outcomes' tab, which contains the flyer that was initially developed to explain the objectives of CPN. After pilot 1, we plan to update the flyer and make another project video, to increase dissemination on project results and outcomes.

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Figure 2: CPN project flyer

The table below gives an overview of the number of visits for the website per month, from September 2017 until October 2018:

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Table 4: Overview of website visitors and unique visitors per month

Month	Unique visitors
September 2017	7
October 2017	7
November 2017	25
December 2017	28
January 2018	150
February 2018	346
March 2018	197
April 2018	97
May 2018	124
June 2018	162
July 2018	201
August 2018	174
September 2018	245
October 2018[1]	251

From the start of the CPN project until the 24th of October 2018, the CPN website reached a total amount of 2050 visits:

[1] This number does not represent the traffic for the entire month of October. The amount of visits and unique visitors indicates the traffic between the 1st of October 2018 and the 24th of October 2018.

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Figure 3: Website visitors September 2017 - October 2018

For the website, a number of 20.000 visitors was foreseen as KPI (see Table 1). As we are still at the early stage of the CPN project, and Pilot 1 has started in September 2018, we expect a visitor increase during the project, once the first results will become available and will be actively communicated via blog posts, newsletters and at events. From previous experiences, we learned that peaks in website visits happen mainly during events, and as a result of publications about the project by external outlets (media, professional website, blogs, etc.). As soon as we have a working platform and some initial results from the first pilot phase, we plan to reach out to outlets like https://cordis.europa.eu/home_en.html and other relevant publications to increase the number of visitors on our project website.

1.2 BLOG POSTS AND NEWSLETTER

In the dissemination and communication plan (D5.1), 20 blog posts and 4 CPN newsletters are foreseen throughout the project. A blog post is public (visible for every website visitor) and related to a deliverable, an event we attended, articles we were mentioned in, etc. Since the beginning of the project 8 blog posts have been created. As specified in D5.1, blog posts are alternated with newsletters that are sent via MailChimp. The first newsletter was sent in September 2018 and can be read here. Currently, 36 people have subscribed to the newsletter. As indicated in D5.1, these blog posts contain a subscription link, which allows building an audience for the newsletter. The subscription link will also be inserted in the consortium partner's website and social media channels.

The table below shows an overview of the blog posts and newsletters published in the first year:

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Table 5: overview published blog posts and newsletters

Blog post number	Content	Title
Blog post 1	/	3… 2… 1… Project CPN has taken off!
Blog post 2	D2.1	CPN: towards the creation of an Open Virtual Platform
Blog post 3	D1.3	Beyond the state-of-the-art: innovative components in CPN
Blog post 4	D1.1	(Re-)building trust in personalisation
Blog post 5	CPN mentioned in an article	WAN-IFRA one of nine CPN partners
Blog post 6	CPN mentioned in an article	"We tell you what you want, what you really really want"
Blog post 7	CPN mentioned in an article	Article about personalised news by Titus Plattner
Blog post 8	Event	CPN @ Deutsche Welle Global Media Forum
Newsletter 1	Newsletter 1	Our newsletter is out

As Table 5 above shows, 8 blog posts and 1 newsletter are now online on the project website. There is a slight deviation from the planning foreseen in D5.1, as during the course of the project some of the topics were considered less relevant to translate to a broader audience or because of timing issues with deliverables. In these cases, we opted for alternative content, for example, referring to articles CPN has been mentioned in. However, we still aim to publish 20 blog posts and 4 newsletters over the duration of the project.

Table 6 gives an overview of the planning from November 2018 until February 2020:

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Table 6: Planning blog posts and newsletters 2018-2020

Timing		Item	Subject
2018	November	Blog post 9	1st prototype & pilot 1 activities
	December	Blog post 10	Results pilot phase 1 (elaborated)
2019	January	Newsletter 2	Results pilot phase 1 (short recap) + second version prototype & mini-pilots + call for participation pilot phase 2
	February	Blog post 11	Why DW is participating
	March	Blog post 12	Report Newsroom summit Oslo
	April	Blog post 13	Intermediate update: Minipilot results + reminder participation pilot phase 2
	May	Blog post 14	Announcement CPN Hackathon
	June	Blog post 15	Outcomes survey for participants pilot phase 2 + set-up of Pilot phase 2
	July	Blog post 16	External publication
	August	Blog post 17	Outcomes hackathons
	September	Newsletter 3	Outcomes hackathon (recap) + Outcomes pilot phase 2 (teaser) + call for participation pilot phase 3
	October	Blog post 18	Results pilot phase 2 (elaborated) + call for participation pilot phase 3
	November	Blog post 19	Results survey participants pilot phase 3
	December	/	/
2020	January	Newsletter 4	End of project + results + path forward
	February	Blog post 20	Roadmap + Project outcomes

We aim to update the blog post overview regularly and to systematically identify subjects that might be interesting to address throughout the course of the project.

The KPI indicated we strive for 1000 interactions with blog posts per year. Unfortunately, the website analytics do not allow us to specify what blog posts were read and how many reads each blog post has achieved. This will also be discussed during the stand-up call in November and will need to be remedied. We found out 'interactions' would mean the number of likes, comments and shares of the posts on

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our website. Unfortunately, this cannot be measured by the website. To give an alternative overview, below we picture the RSS subscriptions for the news page:

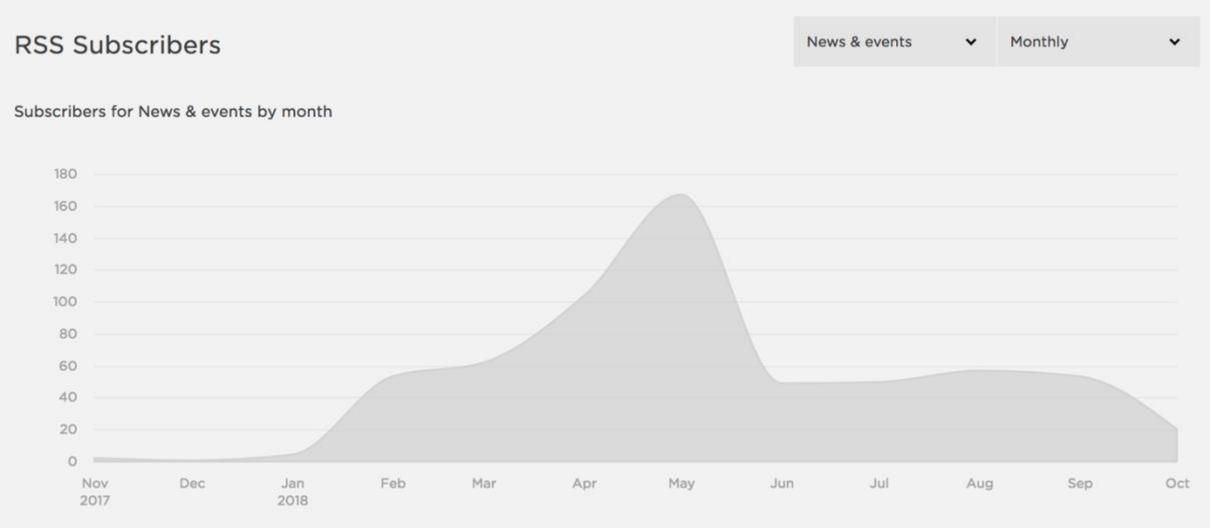

Figure 4: Number of RSS Subscribers per month

1.3 SOCIAL MEDIA

CPN has a Twitter account, which is: @project_CPN. Here, we post interesting articles, related to personalisation. In addition, pictures of attended events, announcements of new blog posts, and calls for participation in the pilot are also disseminated via Twitter.

The table below shows the evolution from March 2018, June 2018 and beginning of October 2018.

Table 7: Evolution of the CPN Twitter account

	March 2018	June 2018	October 2018
number of tweets	*9 tweets*	*29 tweets*	*107 tweets*
number of followers	*35 followers*	*42 followers*	*147 followers*

The KPI specifies the CPN project will attract 300 followers. Although there is an increase, there is still a little work to do. To reach the KPI, we decided during the consortium meeting in June to post on a more regular basis.

Indeed, before September, we only posted one tweet per week, but since then we have been tweeting every couple of days. In parallel with the number of website visitors, we expect the number of Twitter followers to increase over the next period as a result of events and publications in external outlets. Updates about the project, related and interesting articles, attended events are tweeted on our Twitter channel.

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1.4 PUBLICATIONS

In this section, we address the publications that have been published in the first year of the project. In the DOA, KPI 6.2 specifically mentions at least 20 publications, including scientific publications, popular publications such as blog posts, demonstrations and presentations. Several of these were already addressed in the previous chapters: 8 presentations were held at different events (see 1.5.1 International Conferences), and 8 blog posts and 1 newsletter were published during the first year of the project (see Table 5). Below, we address scientific publications and additional publications not covered in the previous sections.

1.4.1 Scientific publications

So far, there have not been specific scientific publications within the CPN project. This can be justified as project outcomes are considered an important aspect that will help us in the scientific publication process. In that respect, a few academic publications are currently in the pipeline, related to the pilot 1 activities. These publications will start from the most interesting findings from pilot phase 1 and will address some of the research questions and technical issues that were central to this first pilot such as the cold-start problem, Fear-Of-Missing-Out issues, etc. Below, the following topics have been identified by the consortium as relevant for academic publications:

- Pilot 1 evaluation (imec will take the lead)
- 'Frame-based slot filling' technology brick (Livetech will take the lead)
- User perspective on recommendations (VRT and imec will take the lead)

The leads identified for each publication will start by drafting an abstract and outline for the publication and an indication of which venues (conferences or journals) would be suited for publication.

Furthermore, future topics and publication leads will be specified as the project evolves towards pilot phase 2 and 3. In these upcoming pilot phases, topics relevant for scientific publication will also be based on the research activities and will take into account the relevant research questions. Research partners in the project will focus on suited academic conferences and workshops to present the project findings.

1.4.2 Popularising publications

As described in D5.1, one of the goals of CPN is to reach out to a broad audience throughout the duration of the project. To do so, the strategy underlines popularised publications such as blog posts, a project flyer, the project website. Above the current status of each of these publications has already been described. As the project progresses, each of these communication channels and publications will be updated (see also Section 2: Next steps in communication and dissemination).

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An additional publication, which had not been foreseen in the planning in D5.1, is the creation of a project video. This 7-minute project video discusses the aim of the CPN project and can be used during events (e.g., CPN booth representation) to explain what the project is about. The link to the project video can be found here.

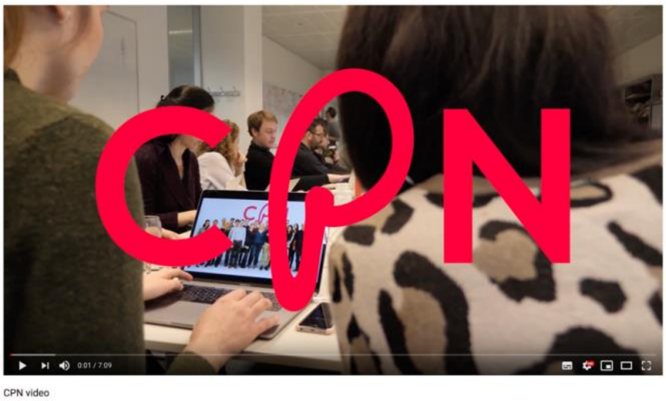

Figure 5: CPN project video (screenshot)

1.4.2.1 Media mentions

During the first year of the project, we got mentioned in 4 articles and at one summit:

- CPN: An Innovative Approach to Content Personalization, DW blog[2]
- CPN: Content Personalisation Network, WAN-IFRA blog[3]
- Ten effective ways to personalise news platforms, Medium.com[4]
- Personalisation: a key topic at the Newsroom Summit, GAMI WAN-IFRA[5]

As mentioned above (see Table 6), in the upcoming years we will proactively reach out to other platforms to publish content such as a blog post to increase our reach for the project communication channels.

[2] see: http://blogs.dw.com/innovation/cpn-an-innovative-approach-to-content-personalization/

[3] see: https://blog.wan-ifra.org/2017/09/23/cpn-content-personalisation-network

[4] see : https://medium.com/jsk-class-of-2018/ten-effective-ways-to-personalize-news-platform-c0e39890170e

[5] see: https://media-innovation.news/29-30-november-2018-newsroom-summit-in-oslo-norway/

1.5 INTERNATIONAL CONFERENCES, EVENTS, WORKSHOPS AND SUMMITS

1.5.1 International conferences

During the CPN project, consortium members attended several international conferences, participating actively, through one or several of the following actions:

- Presentation of the project on the main conference programme,
- Exhibition booth or tabletop,
- Discussions, networking, with relevant audiences.

A list of events we attended during the first year of the project are listed in Table 8 below:

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Table 8: Events attended during the first year

Event	Date	Organizer	CPN activity	Attending Partners
Investor Meeting for Media Innovator	05/10/2017	i3 H2020 CSA project	presentation	ATC
EC media cluster concentration meeting	16-17/10/2017	European Commission	presentation	ATC
News Impact	02-03/11/2017	European Journalism Centre & Google News Lab	Attendance + networking	Digital Catapult
Multi-stakeholder Conference on Fake news	13-14/11/2017	European Federation of Journalists (EFJ)	presentation	ATC
EBDVF2017	21-23/11/2017	Big Data Value Association	presentation	VRT, DIAS, ATC
2nd Media Lab Days	1-3/02/2018	WAN-IFRA	presentation	VRT
DNIengage - use of machine learning or personalisation and recommendations in publishing	15/05/2018	Styria Media Group	presentation	VRT
Are we data? Identity, journalism, democracy in the age of big data	22/05/2018	Technological University Cyprus	presentation	DIAS
World Publishing Expo	11/10/2018	WAN-IFRA	presentation & booth table top	ATC, IMEC, WAN-IFRA

In the upcoming months, several interesting events have been identified, as listed in Table 9.

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Table 9: Upcoming events in 2018

Event	Date	Organizer	Planned activity
Newsroom Summit 2018	29-30/10/2018	WAN-IFRA	30 minutes session on main stage + table top
Digital Media Asia	07/11/2018	WAN-IFRA	Presentation in plenary session, demo, banner and flyers in ATC booth
ICT 2018	04-06/12/2018	European Commission	CPN booth

As before, interesting events are discussed during project calls, and specifics are gathered in a collaborative document on google drive. This way, we ensure attendance for important events and allow consortium members to collaborate and prepare attendances, presentations and demos. For the upcoming years, we expect this collaboration to further successfully build our presence at events and extend the CPN network.

1.5.2 Workshops

CPN already organised dedicated workshops as part of its user-centred design approach. The aim of these workshops was to iteratively gather feedback on the different developed concepts from both end-users and professional users. These workshops were organised as part of specific tasks within the project.

Table 10: Overview of workshops

Workshop	Participant profiles	Organiser(s)
Co-creation session, 29.11.2017	12 professionals	VRT, Belgium
Co-creation session, 22.01.2018	5 end-users	VRT, Belgium
2 Co-creation sessions, 12 & 19.01.2018	17 end-users	DIAS, Cyprus
Co-creation session, 05.01.2018	8 professionals	DIAS, Cyprus
1 'beyond the consortium' workshop 01-03.02.2018	7 professionals and media experts	DW, WAN-IFRA

The co-creation sessions with end-users and professionals resulted in a deepened understanding of the news-consumption habits of these users on the one hand, and inside information on the daily practices of news professionals on the other. In addition, the personas created by the consortium partners and the participants' own frustrations were used by the participants to develop solutions (in short user stories). These user stories ultimately allowed the consortium to specify user requirements.

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The ‘beyond the consortium’ workshop was conducted at WAN-IFRA’s Media Lab Days with a varied selection of profiles across the media-ecosystem (see D1.1). During that workshop, 3 important issues were identified from an expert perspective: privacy, filter bubble and content tagging. These issues have been translated into technical challenges and research questions to be tackled in the pilots of the project (see D4.1).

In the upcoming months, more workshops are organised as part WP4, for both media professionals, integrated into the pilot phases as well as in between pilot phases (see D4.1 and D4.2 (upcoming)). In addition, WP5 will also use business clinics (which are specific workshops) to develop CPN business models and exploitation plans.

1.5.3 Hackathons

As mentioned in the project KPIs (see D5.1), two hackathons will be organised. The objective of the hackathons is to attract at least 50 attendees and to generate in total 7 pilots from external organisations. These two hackathon activities are scheduled for year 2 of the programme. The responsibility is shared between Digital Catapult and WAN-IFRA. The hackathons will run as two related events:

- The first event, named ‘COLLABORATE’, will focus on matching solution providers from small businesses, academia and start-ups to media partners. It will take place in London in February 2019 at Digital Catapult offices.
- The second ‘SHOWCASE’ event will focus on showcasing the prototypes designed during the process for critique from a broad industry audience. It will be organised alongside WAN-IFRA’s World News Media Congress in Glasgow in June 2019.

A detailed timeline of the hackathon planning is shown in Figure 6, below.

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Figure 6: Hackathons planning and timeline

The time between the two activities will encourage the development of a personalisation solution between a news media organisation and an SME or academic organisation. The open call for participation has already been drafted and will be finalised later this year.

The Hackathons scheduled for 2019 will leverage contacts with news media organisations and potential users and buyers of the CPN platform. Deepening our relationship with an expert field of media organisations external to the consortium will be essential to ensure the success of both the Hackathons and the exploitation of the CPN platform. The ambition of the Hackathons is to partner news media organisations with solution developers to develop functionality which will enhance the CPN offering as well as provide value to the news media organisations taking part. We will see 7 or more mini-pilots developed as a result of the Hackathons. We see opportunities to gain feedback on technical elements (such as the personalisation engine) and our route to market strategy. This feedback will be collected during telephone interviews prior to the Hackathons and during the face-to-face workshops at the Hackathon events.
We also plan an end of development showcase and event to bring contributors together to learn more about how the CPN platform can be used to deliver success for news media organisations and to encourage broader adoption of the platform.

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2 NEXT STEPS IN COMMUNICATION AND DISSEMINATION

As Table 1 above indicates, 2 KPIs were met during the first year of the project with the representation of CPN at 9 international conferences and the organisation of 3 workshops for both professionals and end-users. Most other communication activities have started and are well on their way to meet the KPIs that were set.

The next steps regarding the communication and evaluation plan are:

- To share our first results from the first pilot phase on our different communication channels:
    - By January, the first results of Pilot 1 will be shared in a new **flyer**.
    - A new project **video** will be made as well, focusing on the outcome of Pilot 1.
    - As mentioned, we will communicate in detail with a **blog post** and **newsletter** about the outcomes of this first pilot phase and to engage users and media companies in following the project, triggering possible collaborations in a later stage. Detailed planning of the topics for the blog posts and newsletters will be made at the end of this year and will also be shared amongst the communication partners.
    - Different **scientific publications** are in the pipeline that will allow the consortium to reach an academic, expert audience.
- To prepare and organise 2 major project events:
    - One engagement event will be organised, in alignment with Pilot phase 3.
    - Media Fast Forward is a yearly networking and inspiration event organised by VRT. The event takes place in Bozar, Brussels, and brings together media professionals, entrepreneurs, researchers and many more about the future of media. Aside from the conference, there is a large exhibition where the CPN prototype will also be showcased.
- To work out a strategy to gain 100 platform recommendations. For this, imec can implement different engagement tools to involve the media companies that take part in pilot phase 2 and 3 as ambassadors for the project.

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3 MARKET ANALYSIS

3.1. OVERVIEW

The primary challenge CPN is tasked with is to find and develop a method that will connect millions of users to millions of content items in an advanced and innovative way while preserving European media diversity. This challenge forms the core of the motivation for creating the CPN project, with a threefold objective that can be grouped under (i) diversity, (ii) the right content at the right time, and (iii) addressing the "filter bubble".

(i) Diversity

- Diversity is one of the strengths of the European media industry. Europe is scattered with media companies, large and small, representing a great cultural diversity. This is certainly also true for the European news production and publishing industry, a subset of the European media sector. Millions of content items have to find their way to millions of users.

(ii) The right content at the right time

- Many consumers are overwhelmed by an explosion of content which they have access to, clearly motivating the need for assistance in finding the right content at the right time. Moreover, news stories are sometimes told on a too high and global level in a 'one size all' fashion. Due to this, news publishers miss the opportunity of explaining the relevance for the individual news consumer in his local context and are neglecting a user's knowledge level on certain topics.

- Media companies (including news publishers) on the other hand increasingly struggle to get the right content in an effective way to the right consumer, and especially small media companies do not have the resources nor the right scale to put in place effective content personalisation systems.

(ii) Addressing the "filter bubble

- Due to the changing news consumption channels (e.g., through online systems and social media channels), media consumers tend to get stuck in the so-called "filter bubble", where consumers increasingly get biased towards only one side of the story, creating un-nuanced views on important topics illustrating a clear societal challenge as well.

With the aforementioned challenges in mind, the objective of CPN is to:

1. Reach the next level of personalised and context-aware recommendation services for news content, by significantly increasing the congruence between user, context, content and business/societal goals as a result of more advanced modelling and social engineering,

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2. Provide media stakeholders with media-centred cross-platform distribution channels, including powerful services to gain actionable insights about their audience, consumption patterns and business goals, allowing them to define and push actions such as adjusting their content strategy,

3. Improve the user experience, providing the media consumer with a personalised news offering contextualised to their particular situation (preferences, time of the day, type of platforms, location, etc.). CPN will work towards this while especially taking care not to push the media consumer in a filter bubble.

The envisioned output of the CPN project is, therefore, the development of a toolkit for media professionals in order to "enable better delivery of news, insights and information in the right format at the right time, and better contextualised to the media consumer. In short, the core of CPN is to create an innovation in the way in which content creators can structure content production, distribution and in-depth interaction with audiences".

3.2. INTRODUCTION

3.1.1 Market analysis in the context of CPN

3.1.2 WP5 and T5.4

The overall exploitation objective of WP5 is to ensure that project results – to be understood as the creation of an end-to-end system for innovative content personalisation and its components – have a determining impact on the media sector.

To reach this objective, this section of WP5 will:
1. Provide a preliminary market overview, shedding light on the current market trends;
2. Provide the initial exploitation pathways.

3.1.3 Objective

The market analysis is a first step towards defining a sustainable business model for the CPN framework. The knowledge obtained during the market analysis is one part of a bigger framework to validate or reject assumptions made about potential users of the product and services developed by CPN. The objective of the market analysis contained in the deliverable is, therefore, not to provide a detailed analysis of all actors within the value network, but to provide the consortium partners with a common frame of reference in current market trends that are relevant to CPN.

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3.1.4 Overview of the deliverable

This second iteration of the deliverable describes the market for news personalisation products and provides a set of recommendations as input for the use cases, pilots and the exploitation and innovation transfer activities in T.5.2.

The deliverable will explain the market from a macro level perspective by performing an initial market analysis of the current and expected future market for personalised news products, focusing on market actors that include a high-level market analysis. This high-level analysis of competitors' business models together with the analysis of market trends, lead to intermediate business recommendations regarding CPN's activities. This feedback was used to develop the initial exploitation pathways.

Figure 7 below shows the timeline and activities that will be further elaborated on in this deliverable.

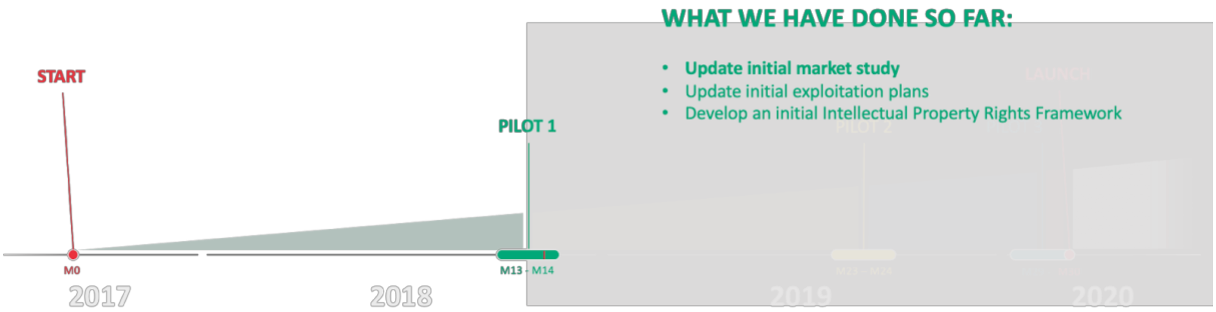

Figure 7: WP5 timeline and T5.4 progress

3.2 OUR PROCESS

As mentioned earlier, T5.4 consists of three interconnected activities, determining the optimal conditions for the exploitation of CPN results on a macro, meso and micro level:

Market analysis (macro level):

During this activity, an analysis of the current and expected future market for personalised news products is done by (1) shedding light on changing behaviours and associated expectations in news consumption, (2) assessing the market potential of the solutions developed within CPN ,both in terms of enhancing existing formats and in creating new types of content, and (3) identifying technological trends, potentially competing platforms and solutions as well as complementary stakeholders. This analysis will lead to a set of recommendations which will steer both the use cases to be prioritised by the project as well as the exploitation and innovation transfer activities developed further in WP5; for example, the hackathons scheduled for 2019.

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Definition and evaluation of business models (meso level):

Following the results of the market analysis (regarding market needs, potential competitors etc.) as well as the scenarios and user requirements developed in WP1 and the first integration of technical components in WP2, this activity will evaluate different ways in which the solutions can and should be transformed into viable products. This requires reflections on the value proposition offered (which formats? what user experience? what tools?), the precise functional set-up of the solution (what is the optimal configuration of tools? which use cases do they enable? for which target clients are these use cases and formats interesting?), the value network required (which stakeholders are necessary to realise the value proposition? what is the optimal relationship between them?) and the financial model.

Business clinics (micro level):

This activity will set up direct one-on-one workshops with the project partners, led by business experts, in order to determine how they can maximally exploit their contributions to the project, either by creating or responding to market demand or, in the case of research institutions and public service broadcasters, by contributing to their public service remit. Based on established business modelling and business consulting methodologies, these sessions will identify the various options that stakeholders have in valorising their inputs, the requirements that need to be met to realise the potential, and to set up an individual strategy and roadmap for these partners.

Figure 8 below shows how the three interconnected activities fit into the overall framework of T5.4.

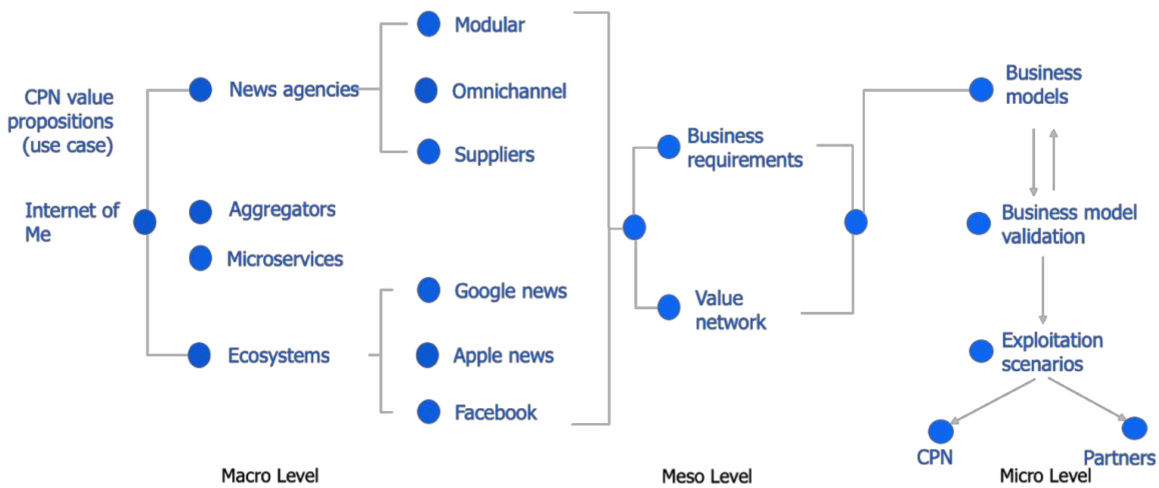

Figure 8: imec-SMIT approach for T5.4- Market Analysis, Business Models and Business Clinics

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3.3 MARKET OVERVIEW

To kick off the market analysis, the current international leaders of online media provide good examples of companies using innovative recommendation systems to successfully develop their activities both in terms of users and in terms of revenues.

For example, Netflix added 6.9 million new subscribers in the third quarter of 2018. By doing this, Netflix managed to beat Wall Street expectations as well as its own forecast of July 2018, bringing the total number of global subscribers to an estimated 137 million. The growth in new subscribers translated into a 43% year-over-year jump in streaming revenue, the best in its history.

During the same period, Facebook obtained a news feed filter bubble patent in July 2018, in a move to become your primary news source. The new patent with the title "Selecting and Presentation of News Stories Identifying External Content to Social Networking Systems Users" aims to use a variety of user data and interactions to personalise news feeds.
In 2017, Spotify has streamed 47 billion hours of music vs 20 billion in 2015. The company saw revenue growth of just under 40% in 2017. It has an estimated 180 million active users of which 83 million are paying members.

To avoid becoming extinct, traditional media are fully engaged on the move from conventional to digital consumption. For example, the Financial Times' growth is driven by digital subscriptions. In mid-2015, total circulation of the Financial Times across print and online has reached an all-time high at 737,000, amounting to a rise of 9% year-on-year, with digital subscriptions rising 14% to almost 520,000. In 2017, the Financial Times (FT) had an average daily readership of 2.2 million people worldwide. FT.com has 4.5 million registered users and over 714,000 digital subscribers, as well as 910,000 paying users.

BBC announced 250 million TV requests for programmes on BBC iPlayer in January 2016 generated by an average of 15.6M unique browsers per week. On-demand programmes amounted to 92% of those requests. In July 2018, the BBC iPlayer saw 281 million requests, a rise of 13% compared to June, and a 19% increase compared to the previous year.

CPN aims to be the reference point in Europe for media companies in climbing the ladder of productivity, to more efficiently exploit the opportunities that specific recommendation brings to the table, now and especially in the future. CPN will help media companies meet technology challenges and accelerate digital transformation by making "creating a culture of innovation" a top strategic priority, with the intention of moving away from the media's old model where creative departments dictated what audiences passively consumed to what now is continuous, enterprise-wide customer-centric innovation.

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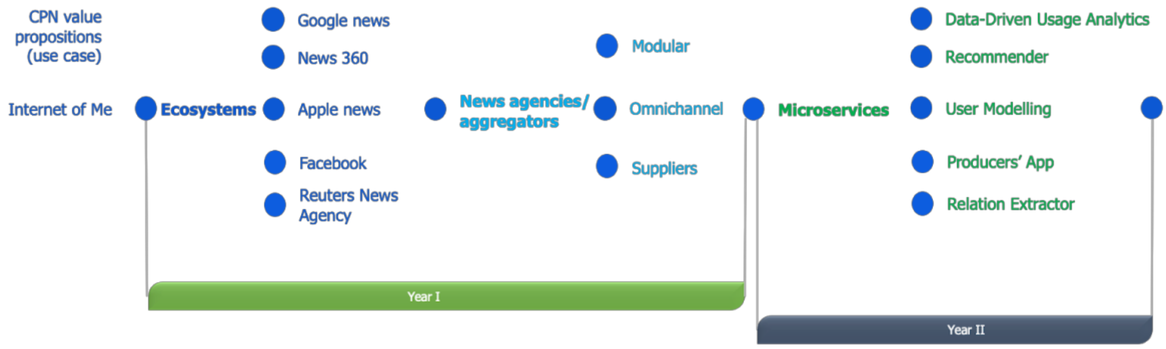

Figure 9: Delineation of work for year 1 and year 2

3.4 MARKET STUDY

A new era of personalised news products began, in earnest, as a reaction to horrific global news.

Eryn Carlson

On September 11, 2001, after hijackers crashed two commercial jets into the World Trade Center, as well as a third plane into the Pentagon and another into a field near Shanksville, Pennsylvania, Internet users turned to the search engine for information. Again and again, they typed in terms like "New York Twin Towers," but found nothing about what had happened that morning. Google's web crawlers hadn't indexed "Twin Towers" since the month before, which meant every result that Google returned was, given the context, totally and painfully irrelevant.[6]

In the aftermath of the events of September 11, 2001, Google quickly set up a special page for "News and information about attacks in the U.S.," with links to the websites of about four dozen newspapers and news networks, along with links to relief funds, resources, and phone numbers for airlines and hospitals. A link to this makeshift news page stayed there for weeks, just below the search bar on Google's minimalist homepage. Within a year, Google had incorporated a news filter into its search algorithm so that timely headlines appeared atop a list of search results for relevant keywords[7].
Today, a Google search for news runs through the same algorithmic filtration system as any other Google search: Your individual search history, geographic location, and additional demographic information affects what Google shows you[8].
With the proliferation of the Internet as the place to go for news, the online space has become a host for traditional and "born on the web" news outlets. This growth has

[6] http://www.niemanlab.org/2017/10/from-nieman-reports-the-powers-and-perils-of-news-personalization/
[7] http://www.niemanlab.org/2017/10/from-nieman-reports-the-powers-and-perils-of-news-personalization/
[8] http://www.niemanlab.org/2017/10/from-nieman-reports-the-powers-and-perils-of-news-personalization/

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attracted the attention of advertisers, and digital advertising revenue continues to grow, drawing on its part new entrance into the market in the form of tech companies. The purpose of the deliverable is not to provide the reader with a detailed analysis of each of the multitude of different actors active to some degree in the digital news landscape, but to instead provide insights into market characteristics, business models and market trends to help shape the development of products and services developed within the CPN project.

The past few years have seen a dramatic and unexpected change to the foundations of traditional industries; fuelled by a series of unlikely industry disruptors that share a common DNA. Uber, AirBnB, Buzzfeed, Twitter and Netflix, to name only a few, overran and dominated their respective markets in just a few months without physical assets or any of the traditional resources that were previously deemed essential for starting and growing within the market. The media industry was not spared from this phenomenon and has seen its share of disruptors and upstarts challenging and in some cases, dominating the sector in what most describe as a "winner takes all" strategy. For this deliverable, ecosystems and platforms are clustered. This is not to say they are the same, but rather to highlight the similarities of characteristics between the two and how that will translate to CPN.

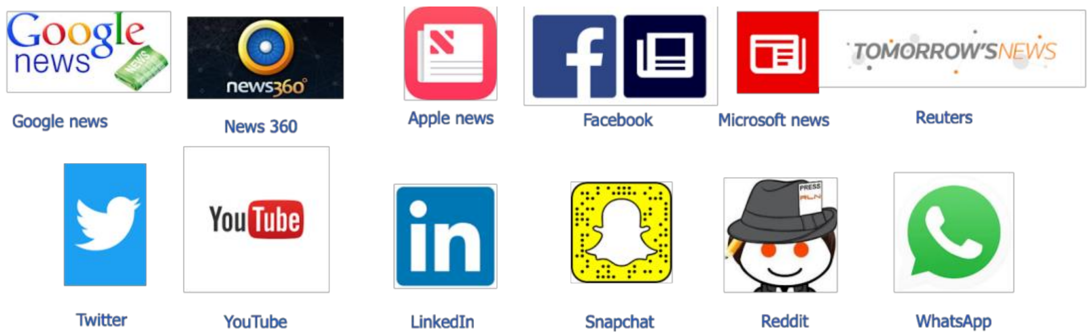

Figure 10: Examples of platforms

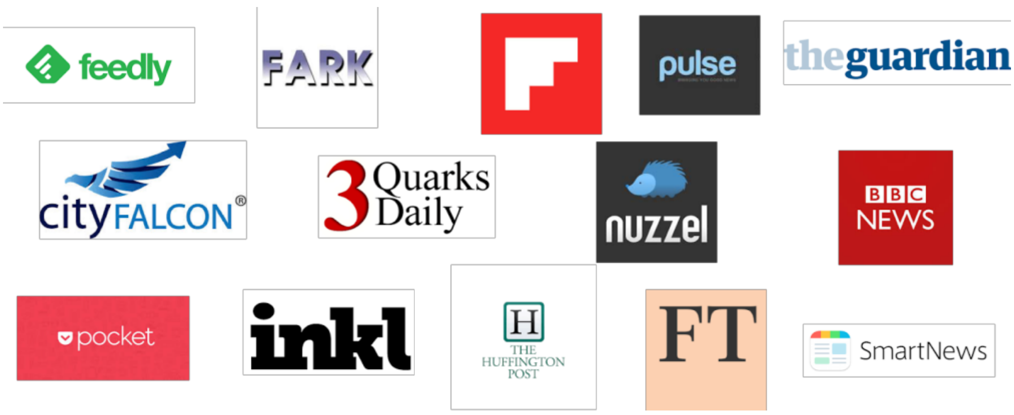

Figure 11: Examples of news agencies and news aggregators

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Misinformation, disinformation, news literacy, the power of platforms, the declining trend of using social media as news source and the importance of utilising gateways to news are only some of the topics that captivated the attention of the media publishing industry in 2018. This section of the deliverable will provide a summation of some of the important trends derived from a variety of different sources.

3.4.1 Market trends - Consumer behaviour

The first part of this section will report on the market trends relating to consumer behaviour and how they interact with platforms to access news. The second part of the section will take the viewpoint of publishers and report on their behaviour and interactions with platforms.

After four years of steady growth in using social media as a source of news (Figure 12 below), a change in the trend can be seen from 2017. It is however too early to say if this is a short-term trend or only a readjustment due to the events of 2016 and 2017.

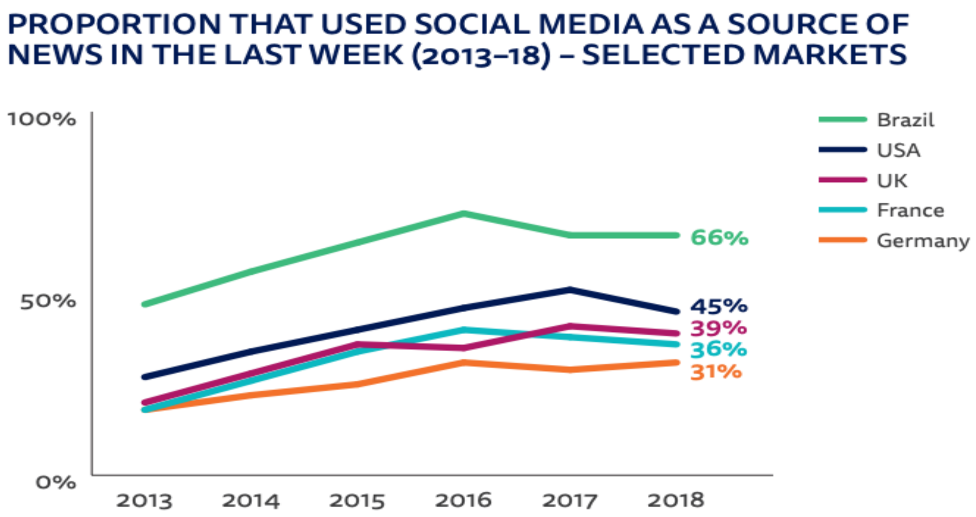

Figure 12: Proportion of responders that used social media as a source of news in the last week (2013-2018)
Source: DCN report 2017

In general, the overall trend for the use of social media to assess news has declined. This decline was mostly due to the changes in the use of Facebook. The reason for the decline is uncertain, but could be due to a fall in user engagement or a reduction in exposure to the news by the Facebook algorithm, as the company prioritises interaction with family and friends while at the same time trying to limit the impact of "fake news[9,10]". The decline of Facebook as a news source can be seen in Figure 13. The

[9] https://ec.europa.eu/digital-single-market/en/fake-news-disinformation

[10] https://www.wired.com/story/exclusive-facebook-opens-up-about-false-news/

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Digital News Report[11] proposes two possible reasons for the decline in use of Facebook as a news source. According to the report, there are both push and pull reasons for the decline. Consumers are being put off by toxic debates and unreliable news, but they are also finding that alternative networks offer more convenience, greater privacy, and less opportunity to be misunderstood. One common theory, according to the report, is that people's Facebook networks have got so big over time that they no longer feel comfortable sharing content openly. As a result, they are moving discussions to messaging apps where they can be sure that they are talking to 'real friends'. Alternative platforms are filling this gap that's left by Facebook. For example, the use of WhatsApp (also owned by Facebook) as a news source is increasing. However, summing the share of Facebook portfolio of social media companies (Facebook 36%, WhatsApp 15%, Facebook messenger 8% and Instagram 6%) indicates that Facebook still has a dominant position with a market share of 65%.

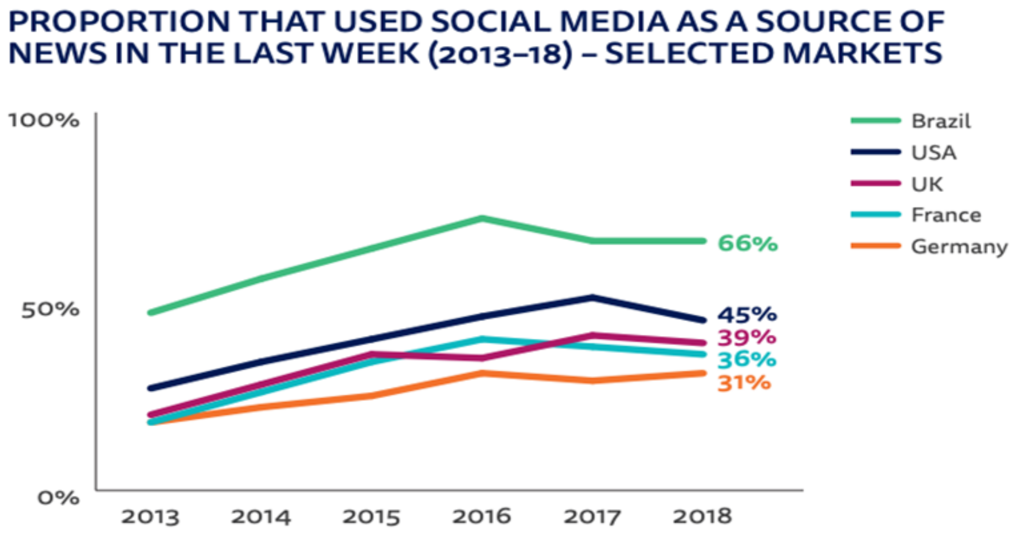

Figure 13: Proportion that used each social network for news in the last week (2014-2018)
Source: DCN report 2017

Figure 14 below highlights the differences between countries regarding their use of social media to access news. From a business model perspective, these trends are essential in ensuring we have the correct country-specific entry strategy. For CPN the shift away from Facebook as a source of news is positive, and the potential impact CPN could have will be bigger in countries where organisations like Facebook dominate less.

[11] http://www.digitalnewsreport.org/survey/2018/overview-key-findings-2018/

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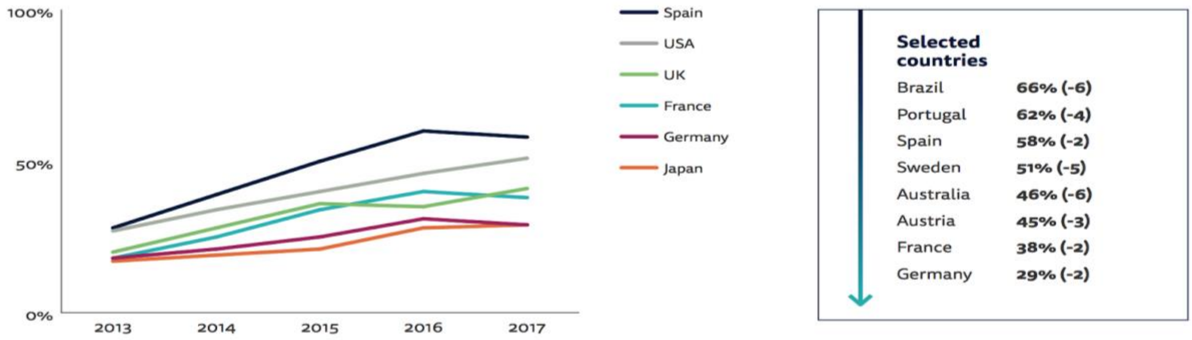

Figure 14: Social media as a source of news per country (2013-2017)
Source: DCN report 2017

3.4.2 Market trends - Media publishers

Moving from a news consumer perspective to a publisher perspective, we see that the relationship between publishers and platforms seems to be a complicated one. On the one hand, platforms are seen as a disruptive force that redirects readers and revenue away from media organisations. This side of the aisle mostly consists of publishers and view aggregators as substitutes for traditional news consumption. On the other hand, platforms can reach consumers that are traditionally not part of the media organisations' key demographic, increasing the number of eyeballs and potential customers.

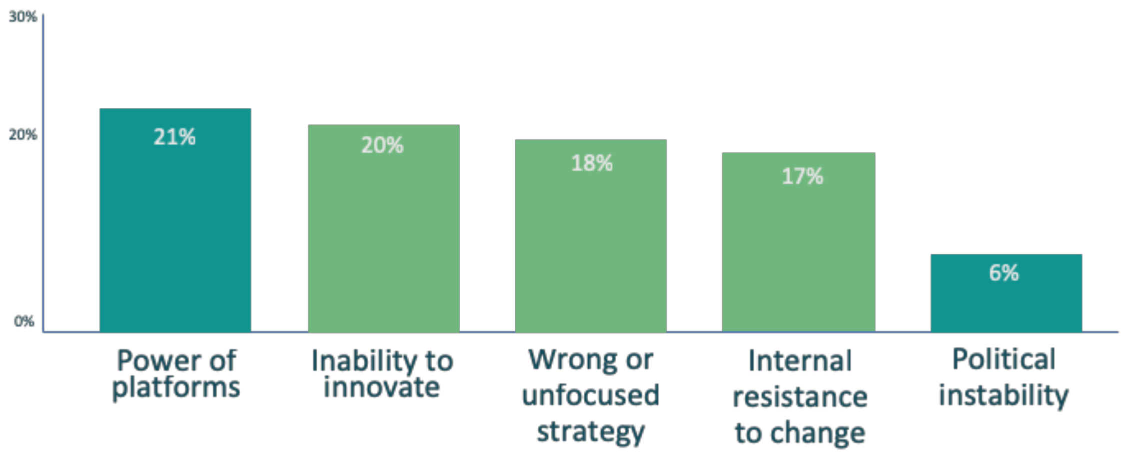

Figure 15: What do you see as the single greatest risk to success in the year ahead?
Source: RISJ Digital Leaders Survey 2018

Figure 15 above shows that one of the main concerns of publishers is the power platforms have. Yet not all platforms are feared equally, as shown by Figure 16 below (RISJ Digital Leaders Survey 2018). Publishers have a positive view of Google, Twitter and Amazon. Apple, Snapchat and Facebook don't seem to share in the same sentiment. This, however, is not very surprising when looking at the business models employed by each of the aforementioned platforms and the perceived role of Facebook in promoting fake news, the lack of promised revenue for video, and the drop in Facebook referrals to many news websites.

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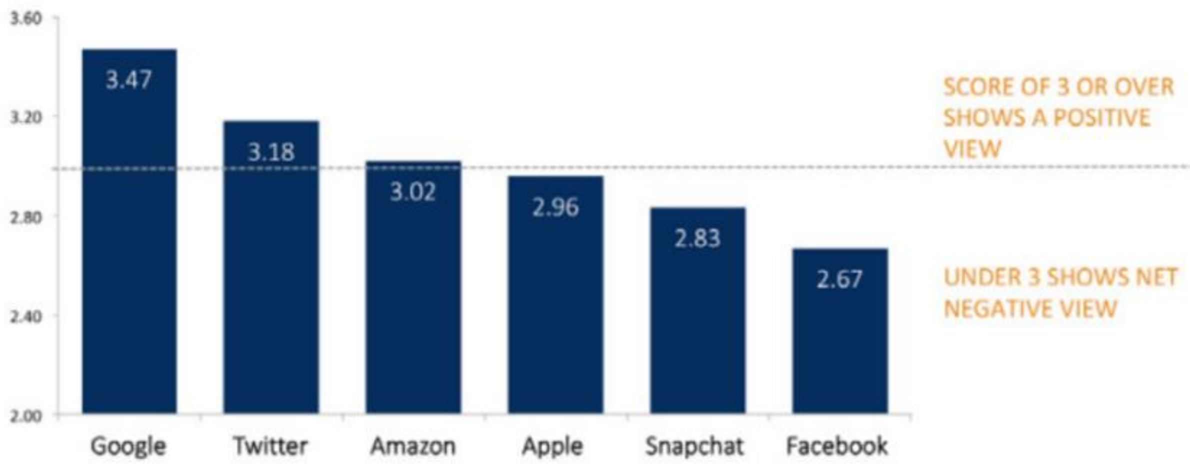

Figure 16: Publishers views of platforms
Source: RISJ Digital Leaders Survey 2018 [12]

Publishers' fears seem to be grounded in the notion that there is an apparent disparity between the effort to create content and the revenue obtained from the content. Most platforms like Google News and Apple News are aggregators of content, and very few, if any, create their own content. Yet, these platforms control the interaction between publishers and news consumers, which allows them to acquire more fine-grained user knowledge and insight. This in turns enables the platform to provide the user with a more tailored experience that includes targeted advertising. Figure 17 below visualise the relationship between publishers and platforms.

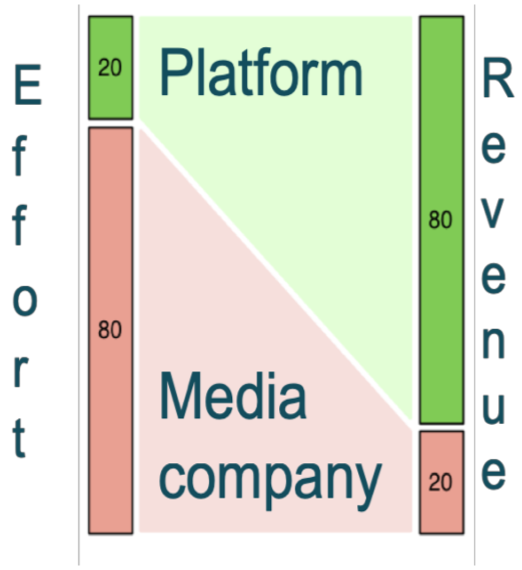

Figure 17: Relationship between publishers and platforms

Google and Facebook are the biggest tech companies regarding advertising and most significant traffic sources for publishers, but they still only account for less than 5% of publishers' digital revenue according to a recent report from publisher trade group Digital Content Next, Figure 18. The report further details that Facebook contributed only 7% to the average digital income of news publishers that took part in the study. Of the publisher that took part in the survey, 44% reported that they are more worried about the share of the advertising market the big platforms have and the lack of alternatives from media companies.

[12] https://agency.reuters.com/content/dam/openweb/documents/pdf/news-agency/report/journalism-media-technology-trends-and-predictions-2018.pdf

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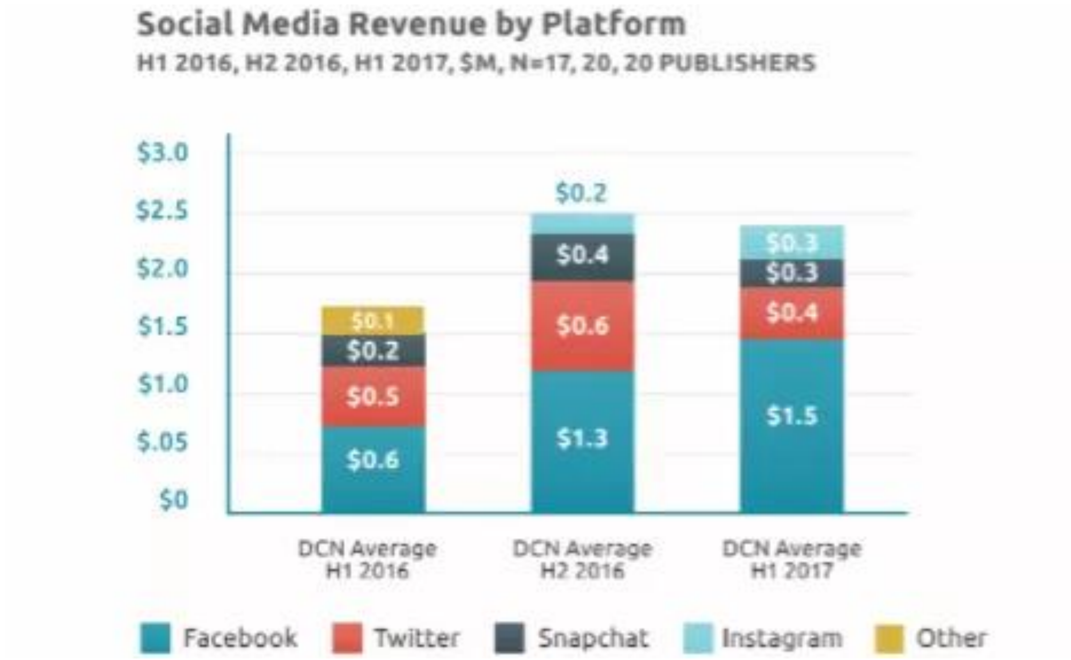

Figure 18: Social media Revenue by platform
Source DCN report 2017

The traffic people get from Facebook is going to go down dramatically, which is probably the most important thing. If you get 40% of your traffic from Facebook and if that gets cut in half, your business is crushed.-

Jason Kint (CEO Digital Content Next)

Platforms such as Google and Facebook are always on the lookout for new innovative methods and opportunities to innovate their current business model, in order to increase their utility. Facebook is increasingly trying to maximise the time a user spends on its platform and apps. The more time the user spends on their site, the more opportunity there is to push advertising. In this scenario, the publisher's role is reduced to that of a pure content supplier, while the bulk of the advertising revenue is allocated to the platform. Figure 19 below shows how the change in business models implemented by Facebook and Google affect the referral rate to news publishers. In January 2018, a Facebook algorithm change de-prioritises "less meaningful" news content.

It's clear that news publishers need to find a long-term strategic response to the digital disruption that platforms bring to their industry. The solution needs to be long-term; one cannot change strategy whenever Facebook, Google or Twitter tweaks their algorithm.

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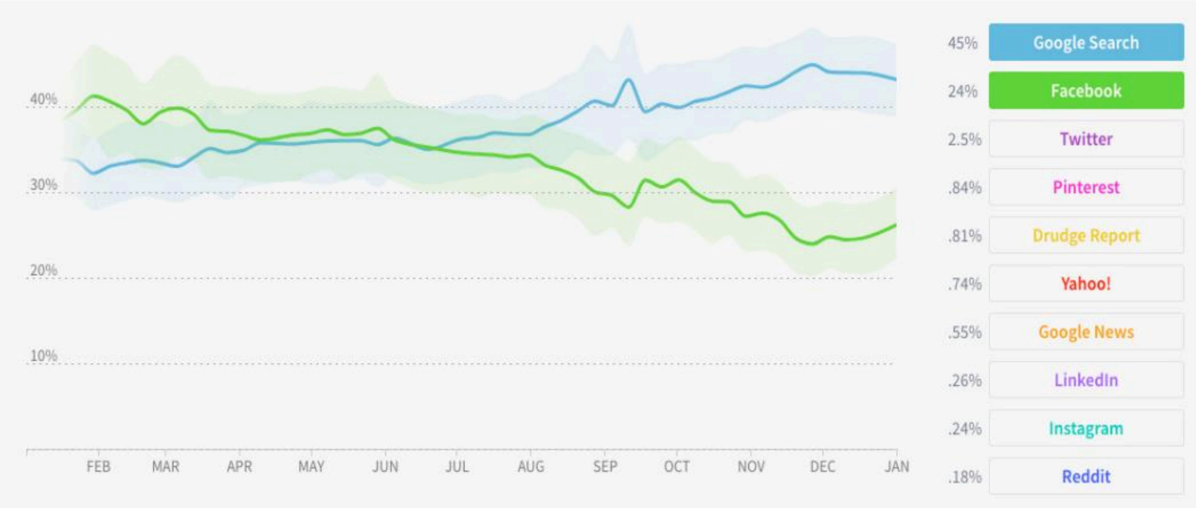

Figure 19: Referrals to News Publishers from Google and Facebook (Jan-Dec 2017)
Source: Parse.ly

News aggregators provide links to news stories published by news outlets, which are usually complemented with excerpts and images depending on the aggregator you use. Their utility lies in the ability to bring a wealth of sources together in one space. They are quite useful from a consumers' perspective, by saving considerable time and effort in finding news. As mentioned earlier, despite the apparent appeal of aggregators, the more traditional news publishers have not been very welcoming or open to their introduction, because they are concerned about the potential effects on their audiences and the consumers' browser activity. The table below provides a summary of the different types of aggregation sites, their characteristics and examples of the type.

Publishers aren't building strong businesses on Facebook, and they shouldn't try to. To monetise engagement with Facebook and other platforms, news publishers need to build sound business outside of those platforms rather than outsourcing their future to them.

-Grzegorz Piechota[13]

[13] Reuters Institute for the Study of Journalism, University of Oxford

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Table 11: Type, characteristics and Examples of aggregations sites

Type	Characteristics	Examples
News aggregation websites Provides and updates information from different sources in a systematised way	•aggregation is entirely (mostly) automatic, •use of algorithms which carry out contextual analysis and group similar stories together	Google News, Drudge Report, Huffington Post, Fark, Zero Hedge, Newslookup, Newsvine, World News (WN) Network and Daily Beast
Web-based feed readers Allow users to find a web feed on the internet and add it to their feed reader	•Planet aggregator •meant for personal use and are hosted on remote servers •silo aggregators (aggregate only posts in their own silo)	Bloglines, Feedly, Inoreader, Facebook News, Feed, Flipboard, Digg, News360, MyYahoo!, NewsBlur
Social news aggregators Collects the most popular stories on the Internet, selected and edited and proposed by a wide range of people	•users submit news items (referred to as "stories" •communicate with peers through direct messages and comments, and collaboratively select, and rate submitted stories	Reddit.com, ForensicFocus, Hacker News etc.
Personalised news aggregators Collect user browsing history and recommend articles that users could be interested in based on their profiles	•browser extensions •profile	NewsPrompt, CityFalcon, Apple news

3.4.3 Market trends - General findings

The following section is a combination of the 2018 Digital News Report of Reuters Institute for the study of journalism and feedback from user testing during the first pilot cycle of CPN (reported in D4.2). In this section, we combine the insights of both studies, which could be used to develop the service offering of CPN.

Smartphones and new devices

Results from both studies show the importance of smartphones as a way to follow the news. This dominance of the devices as a means to access news and our ever-increasing dependency on them are of importance to CPN. Smaller screens and the mobility element of the device will affect the type of news content created. In some cases, this is not a difficult task, since visually rich formats such as Snapchat, Instagram, and Google Accelerated Mobile Pages stories allow new possibilities for mobile storytelling. However, when it comes to pictures and video, the smaller screens and the different screen ratios provide more of a challenge. Pictures and videos need to be re-formatted using vertical aspect ratios and often annotated with text to work in a mobile context.

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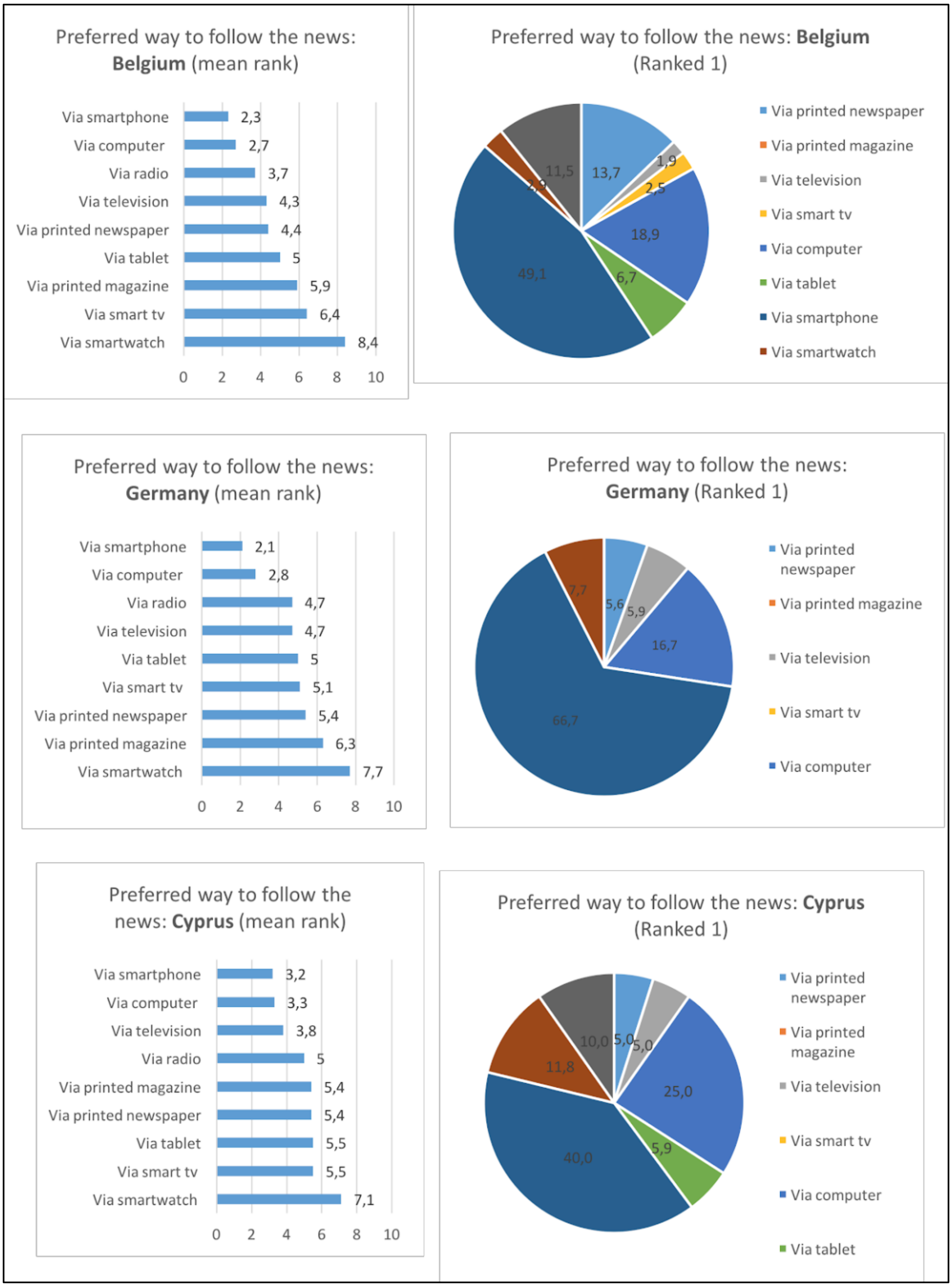

Figure 20: Users preferred way to follow the news: Belgium, Germany and Cyprus
Source CPND5.2 Cycle piloting report

Looking at the figures above of the first CPN pilot (Belgium N=56, Germany N=18, Cyprus N=20), some country-specific behaviour and preferences can be noticed in our sample. It is important to note that the results are from small non-representative samples in each country. However, the results seem to mirror results found in the broader market study. These initial insights are used to construct and fine-tune the

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business models. For both Belgium and Germany, access via a smartphone is essential. However, for the sample in Cyprus, the difference in preference between smartphone and computer is smaller. The difference between the countries can also be explained to a certain degree when looking at Figures 21-23. For both Belgium (Figure 21) and Germany (Figure 22), news apps and social media are important gateways. For Cyprus (Figure 23), social media, radio and national television are seen as more important gateways to the news.

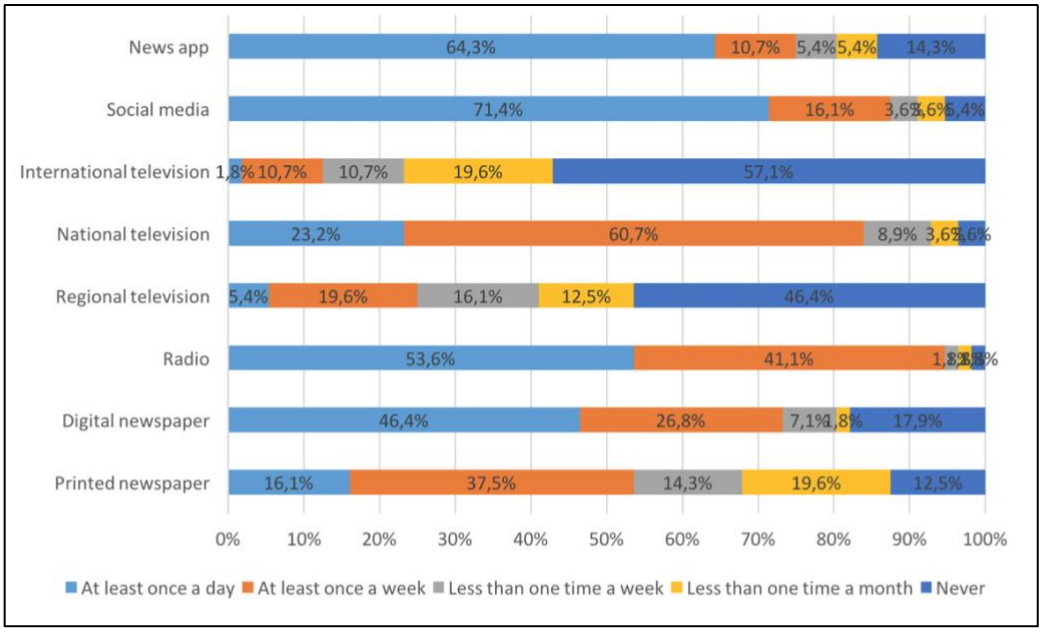

Figure 21: The use of different sources to access news: Belgium
Source CPND.4.2 Cycle piloting report

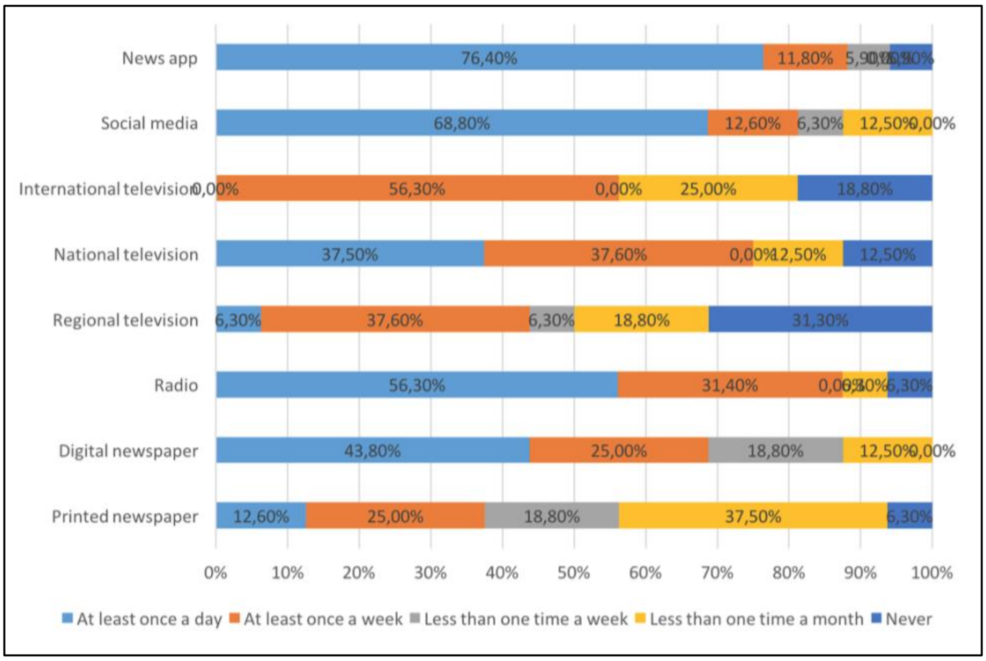

Figure 22: The use of different sources to access news: Germany
Source CPND4.2 Cycle piloting report

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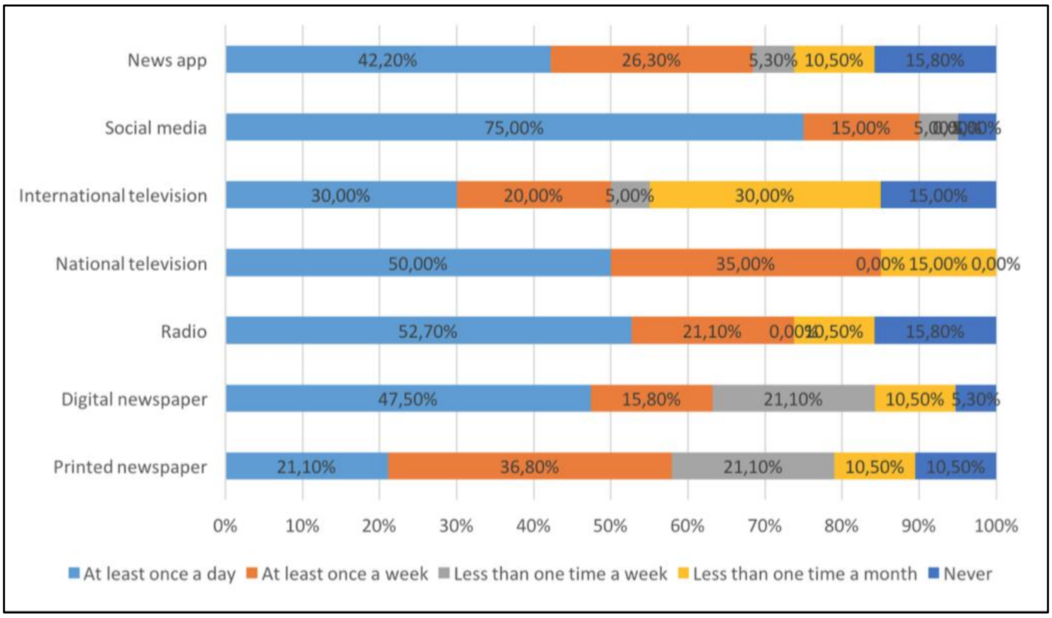

Figure 23: The use of different sources to access news: -Cyprus
Source CPND4.2 Cycle piloting report

It is still early in the CPN product development process, and more detailed results are needed to understand better why there is a difference between the pilot- countries. This will be further explored in Pilots 2 and 3. However, since the initial results of the study do not allow to identify a single dominant platform, it is clear that CPN should provide a multi-platform solution. This is in line with the findings of the Reuters Digital News Report. As we will discuss below, also in this study there is a clear tendency towards a multi-platform approach.

The survey has tracked the advance of distributed and algorithmic access over the last seven years, and their 2018 data suggest a pause at least. The figures are almost identical to those of a year ago. The main difference is that mobile alerts, which tend to be produced by human editors, edge up slightly.

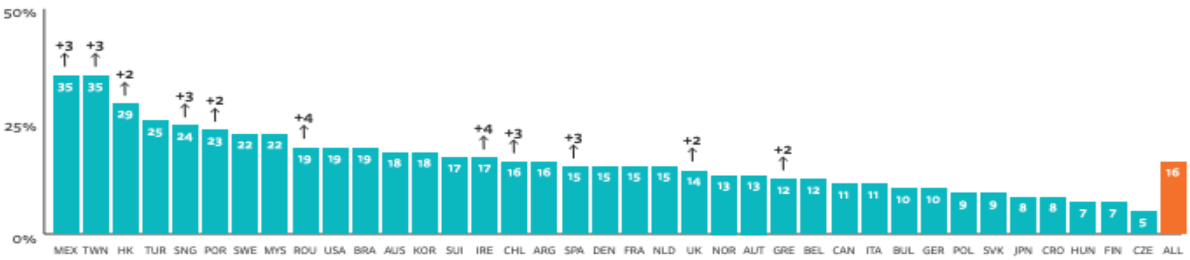

Figure 24: Proportion of respondents that received a mobile news alert in the last weeks-all markets
Source Digital News Report 2018

Notifications as a gateway are the fastest growing gateway to the news over the last three years. However, the fear of being flooded with notifications, and concerns about receiving the same alert multiple times is still seen as a barrier by many.

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Gateway to news - CPN Pilot Cycle 1

CPN also sees the added value notifications could have on user engagement and experience. However, initial user testing shows that it needs to be a well-balanced strategy and that not all countries are equally receptive to the idea. Figure 25 indicates that there is an almost 50/50 split between the number of users who are currently getting news notifications and ones that don't.

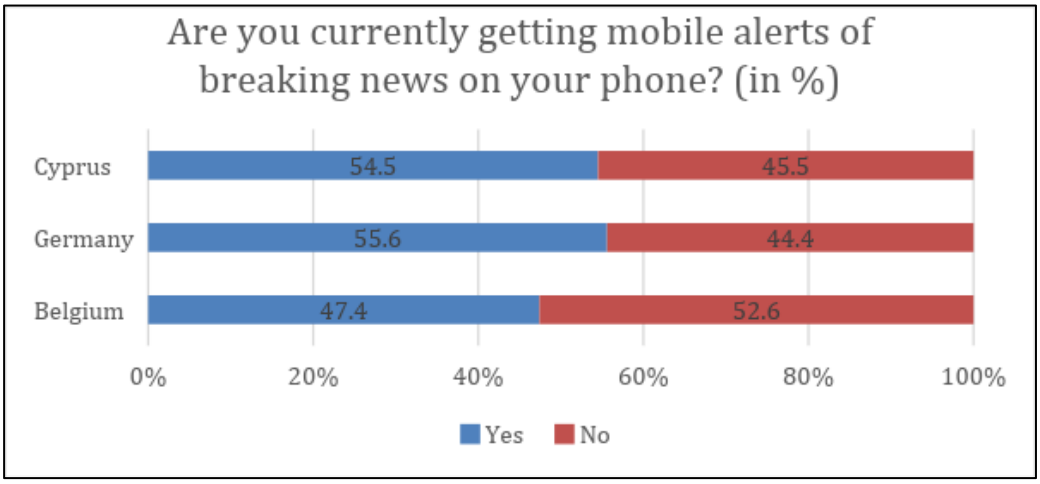

Figure 25: Mobile alerts
Source CPND4.2 Cycle piloting report

Figure 25 has interesting implications for using notification as a growth strategy in the sense that when combining Figure 25 and 26, Belgium has the biggest market potential for notifications and Germany the smallest.

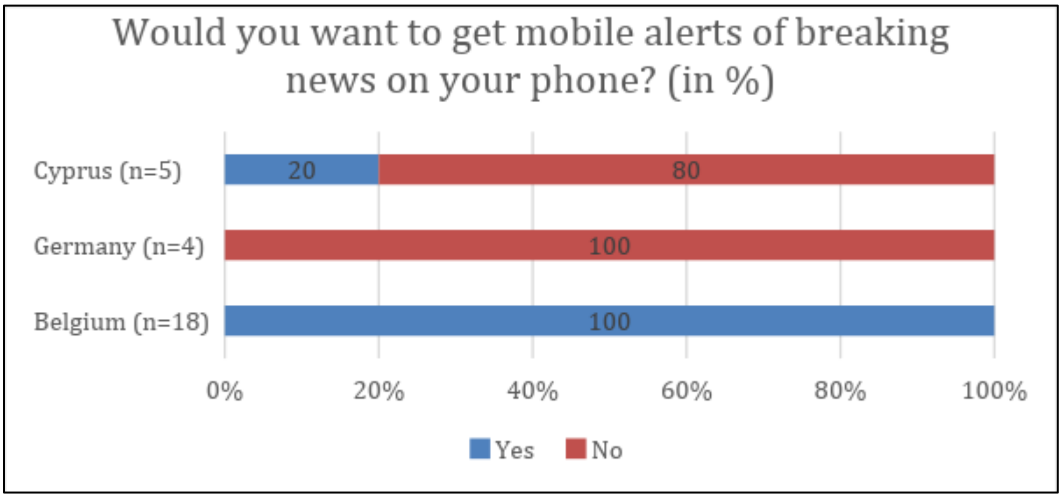

Figure 26: Willingness to receive mobile alerts of breaking news in the future
Source CPND4.2 Cycle piloting report

- In some countries, users are starting to complain that they are being flooded with too many messages.

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- This appears to be partly because of the growth of alerts from aggregators such as Apple News and Upday.

Figure 27 (taken from the digital news report) shows that CPN will need to work closely with news agencies and users to obtain a clear definition of what breaking news entails, thereby, ensuring the correct balance is obtained between too much, too little and just the right amount of notifications that are delivered.

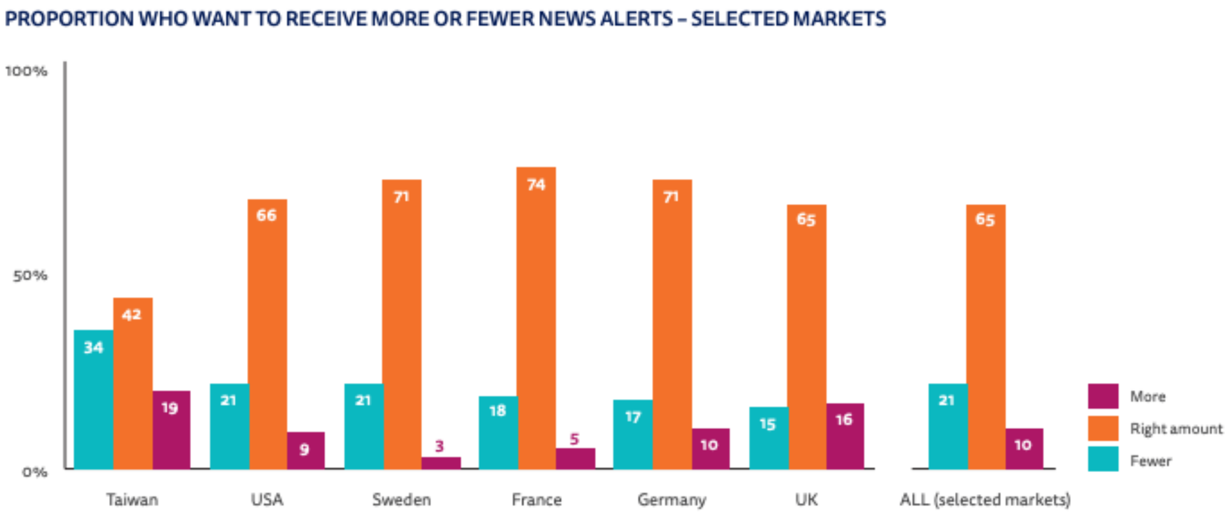

Figure 27: Proportion of respondents that want to receive more or fewer news alerts in the last weeks - selected markets
Source Digital News Report 2018

Paying for online news-Secondary sources

- As illustrated earlier, digital advertising is an important source of revenue for most publishers. This, however, is not enough to keep them afloat.
- There seems to be an increasing global trend in readers' willingness to pay for news content. Figure 28 below shows the proportion of the respondents of the survey that paid for news in the last year. It is interesting to note the differences between countries.
- The average number of people paying for online news has edged up in many countries, with significant increases coming mostly from the Scandinavian countries of Norway, Sweden, and Finland. All these countries have a small number of publishers, the majority of whom are relentlessly pursuing a variety of paywall strategies. But in more complex and fragmented markets, there are still many publishers who offer online news for free.
- Donations and donation-based memberships are emerging as a significant alternative strategy in Spain, and the UK. These payments are closely linked with political belief and come disproportionately from the young.

Figure 28 below indicates that very few of the respondents currently donate to a news organisation, yet they are far more willing to donate in the future.

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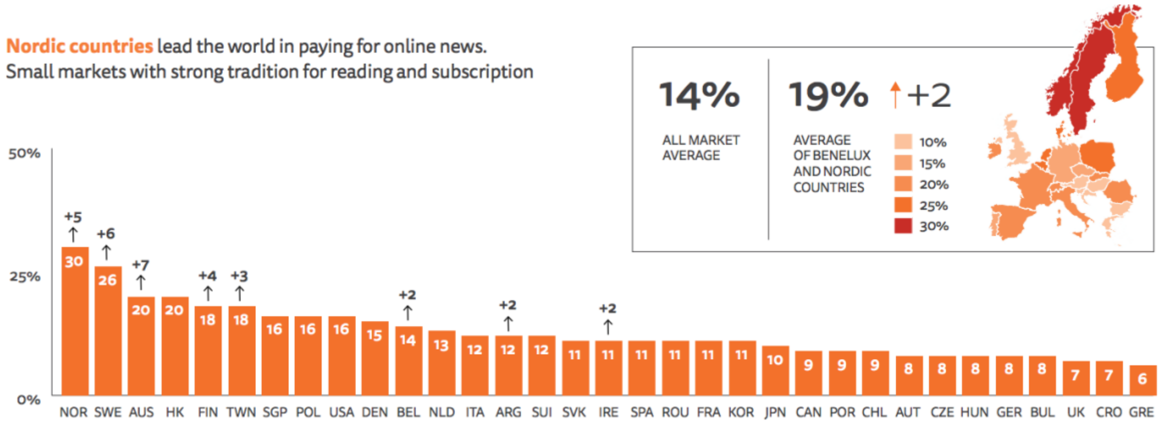

Figure 28: Proportion that have paid for online news in the last year-all markets 2018
Source Digital News Report 2018

Paying for online news - CPN Pilot Cycle 1

Initial results from the pilot activities closely mirror the findings of the Digital News Report regarding the attitudes toward paying for news. For example, Figures 28 and 29 shows Greece at the lower end in paying for online news. It was also very clear from the pilot results (see Figure29 below) from Greece that they are not interested in paying for online news. On the contrary, in the German pilot, the respondents reacted positively and indicated that there is a willingness to pay for online news. This again reflects the result of the digital news report.

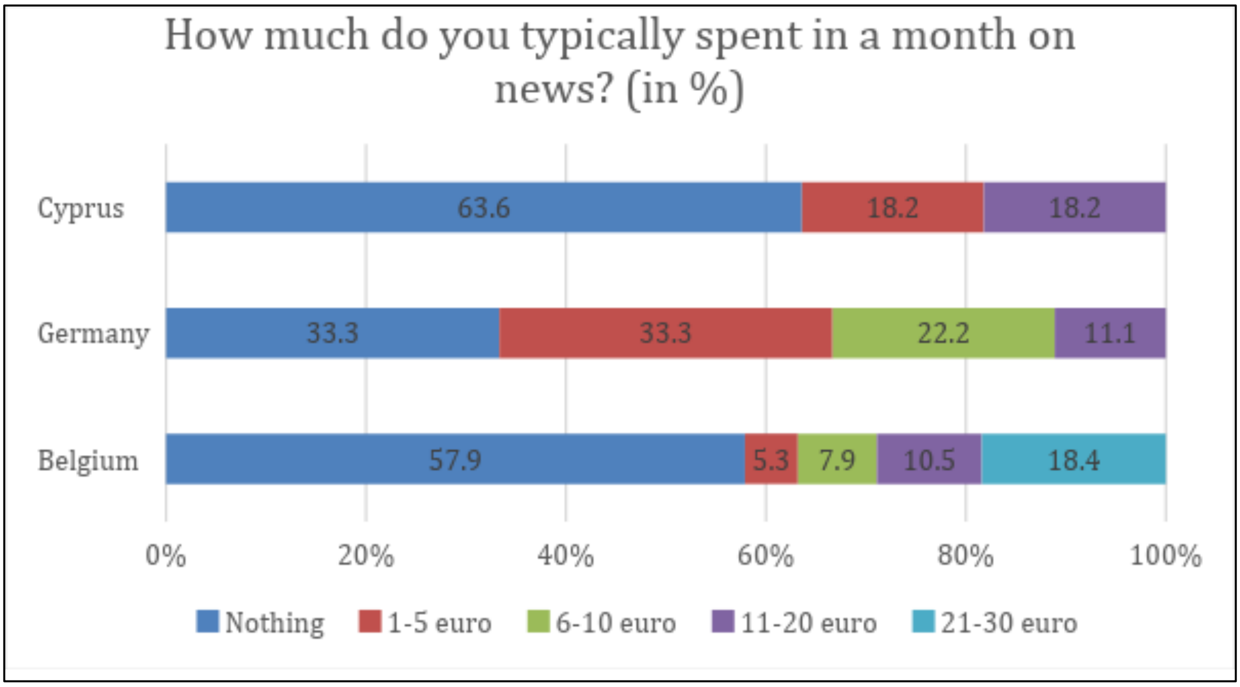

Figure 29: Amount typically spent in a month on news: Gyprys, Germany and Belgium
Source CPND4.2 Cycle piloting report

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From an exploitation point of view, it's clear that a one-size-fits-all model will not work and that CPN needs to work towards country-specific business models.

	TODAY	WOULD CONSIDER DONATING IN THE FUTURE?
US	3%	26%
Spain	2%	28%
UK	1%	18%

Figure 30: Proportion that made a donation to news organisations in the last year/would consider donating in the near future
Source Digital News Report 2018

For some, the shift from free online news to a willingness to pay for online news is not seen as a positive development. The push towards and the growth of subscription has raised concerns about a two-tier system, where high-quality news is reserved for those who can afford it.

This is why some news organisations prefer to keep access free but to ask for voluntary contributions (e.g.. the Guardian, crowdfunding). The sector is still in its early days, and it still needs to figure out the best way to monetise its services. 2018 was the first year in which subscription and donations outperformed ad-based revenue. Consumers have only recently been offered the opportunity to exchange their data in exchange for a free service (for example The Washington Post), thereby making the value of a news audience's data tangible[14]. Only time will tell if this is the start of a new trend were consumers may not be willing to pay for services via a fiat currency, but instead be willing to pay with personal data[15].

[14] http://nymag.com/intelligencer/2018/08/shiru-cafs-offer-students-free-coffee-for-harvested-data.html

[15] https://ernieapp.com/

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3.4.4 Common revenue models in the industry

"The big catch for publishers is that they have little leverage individually with the platforms and they still get a lot of audience exposure by being seen there, which makes pulling out unrealistic."

Jim Spanfeller

Given the amount of turmoil that digital disruption is causing, mastering this ever-changing digital landscape is no easy feat, with only a handful of companies belonging to this exclusive club (for example Apple, Samsung GE). Companies are slowly starting to become more active in evaluating both the opportunities and the treats that accompanies digitalisation. Digitalisation will bring a spectrum of new business opportunities in most if not all industries. According to a Sloan Management Review article (2015), "Thriving in an increasingly digital ecosystem", the authors propose that opportunities for companies in every industry are occurring on two critical dimensions: knowledge of the end-user and business design. When mapping current company offerings against the two dimensions, four digital business models can be used to generate digital revenue.

Figure 31 below maps the four business models against the two dimensions; knowledge of end consumer and business design.

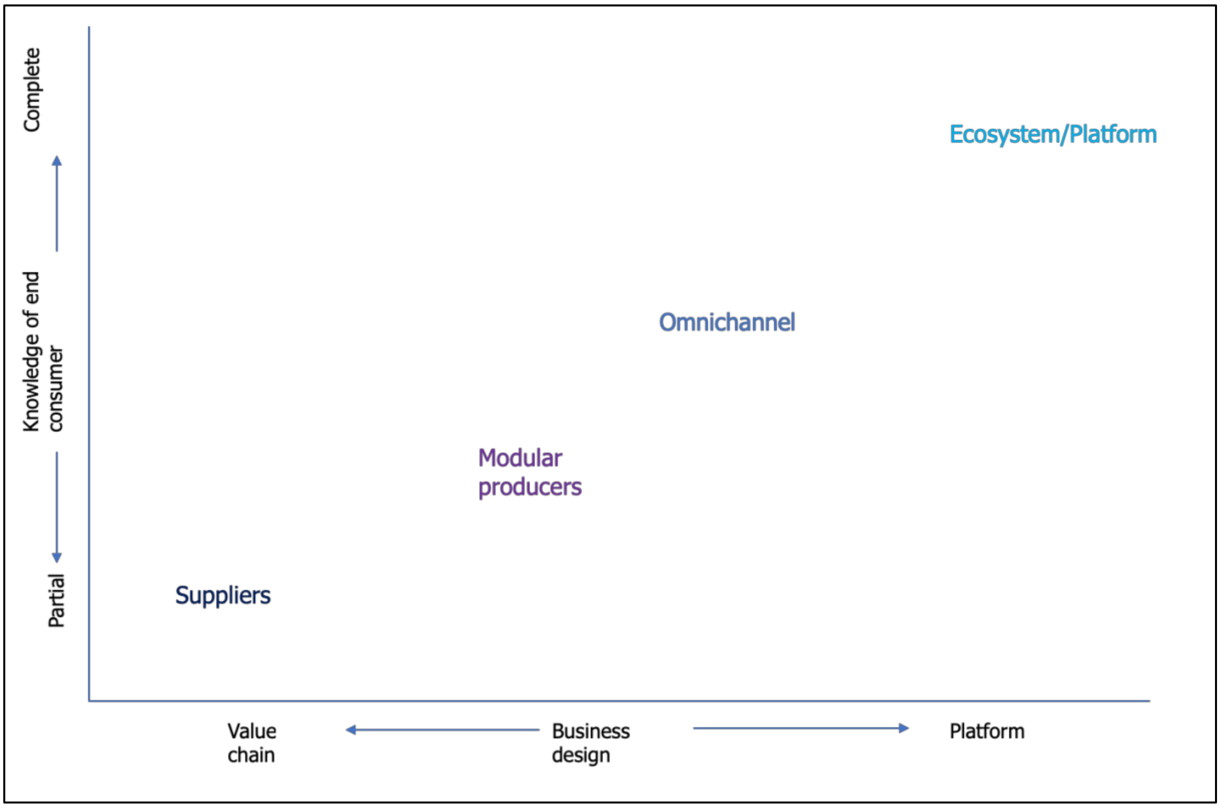

Figure 31: Common revenue models in the industry- knowledge of end customer and Business design Source: Adapted from Peter Weil and Stephanie L Woerner. "Thriving in an Increasingly Digital Ecosystem," Sloan Management Review, June 16, 2015.

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As one progresses from the lower left corner to the upper right corner, the level of business design complexity increases in relation to the knowledge gained of the end-consumer. Table 12 below provides an overview of the four digital business models.

Table 12: Most common business models

Type	Business design	Knowledge of the end customer	Key takeaways	Examples
Ecosystem/ Platform	• Diverse methods • They try to extract rents from the transactions or the referrals happening in or coming from the platform • Expect fierce competition	• The platform where customers go to cover their needs of finding content • Superior knowledge of the customer that enables them to offer a tailored, thus more valuable, service	• Ecosystems outperform in terms of revenue and margins • Hard to set up and require wide adoption • Branded platform • Content from multiple (third party) sources • Act as the digital market where customers go for a service/experience	Google News, Twitter, News Republic, News360
Omnichannel businesses	• More revenue from digital sources than print newspapers, after a business model transformation	• Customer ownership and uses customer data for personalised products, advertising, etc • Tries to "meet life events"	• Multiple products in multiple channels • Offers job-search and "education-search" services; financial market services, etc • Could include Radio and TV	BBC, Financial Times
Modular producers	• They constantly evolve their business models or find ways to rethink the offering (e.g., exploring new channels) • They target a higher revenue share from growing the number of paid subscribers (more than just clicks)	• Less capable to use knowledge of the end customer or using their data • They cannot offer superior personalisation • Focus on content quantity and quality	• Provide content through direct and indirect channels (Youtube, Facebook and newspaper/app) • It is a tricky differentiation (being placed at two different quadrants) • NYT, Guardian and FT changed their business model to more digital, and target subscriptions, and they are multichannel, but the key is in customer ownership and a multiproduct service.	NZZ, The New York Times, The Guardian

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Suppliers	• They have innovated rather incrementally, e.g., evolving in the types of content or platforms used, rather than with structural redesigning's of their business models	• Less capable to use knowledge of the end customer or using their data • Limited personalisation potential • Focus on brand building	• Nowadays, where the digital format has become predominant, the majority of companies are forced to make their content available through ecosystem drivers • Most news sites have an account/channel in social media sites like Twitter, Youtube or Facebook, or their content can be accessed through Google News, News Republic and other ecosystem drivers	• Associated Press, Agence France Presse

To get a better understanding of the different business models used by actors within the digital domain a mapping exercise was done. The result of the exercise can be seen in Figure 32.

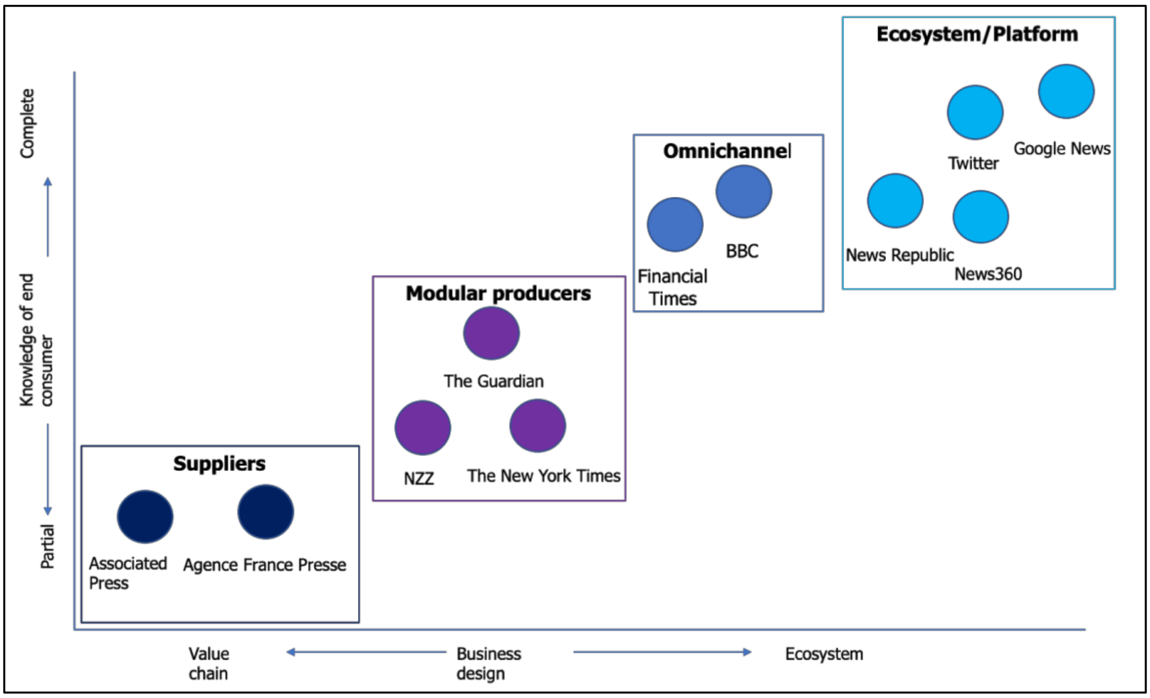

Figure 32: Common business models in the industry- mapping of potential competitors

Suppliers such as Associated Press, in the lower left corner, have very little direct knowledge of the end-user preferences due to them selling their content through ecosystem drivers. This is mostly because of the dominance of the digital format.

In contrast, ecosystems add value not only by being the platform where customers go to cover their needs of finding content but also by their superior knowledge of the customer, that enables them to offer a tailored, thus more valuable, service.

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Customers prefer just one (or few) platforms that aggregate content, where they can find all their needs in that place (they act as the digital market where customers go for a service/experience).

Earlier in this section, we showed that three of the biggest challenges identified by publishers are an inability to innovate, wrong or unfocused strategy and internal resistance. Transitioning from print to digital is complex, made even more difficult with the three internal hampering their transformation. It’s an important period in time with most companies trying to define what their role in the bigger ecosystem will be.

The five most common revenue models currently in use by actors are freemium/metered, subscription-based, ad-supported, revenue sharing and crowdsourced.

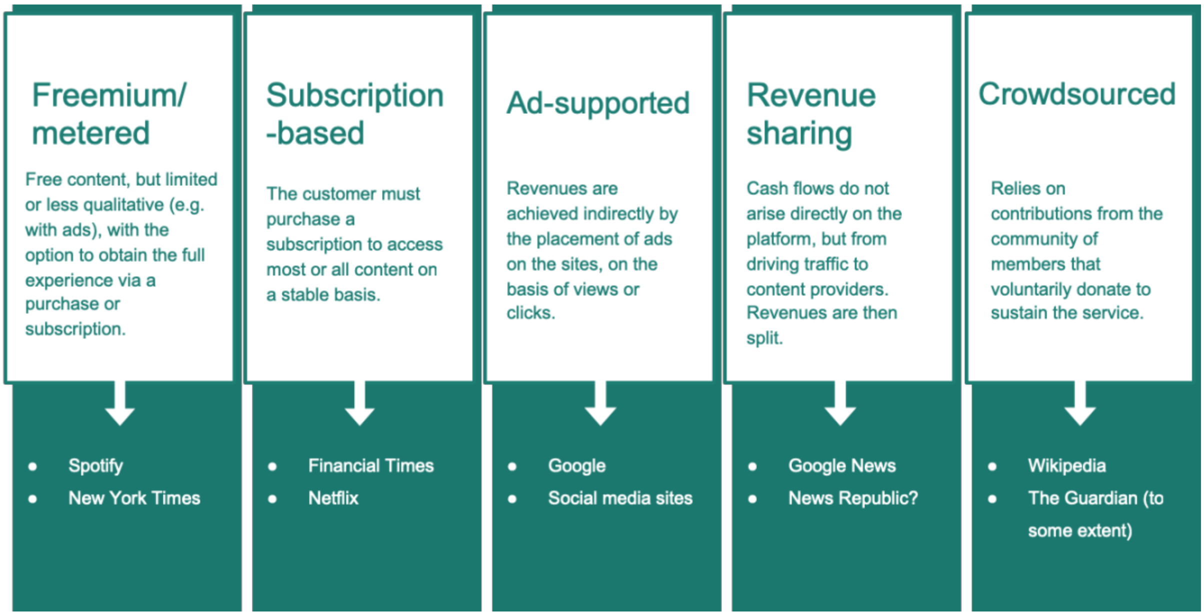

Figure 33: Common revenue models used

The Washington Post ranked 8th on the Fast Company's annual World's 50 Most Innovative Companies List, showing that media companies can take full advantage of the digitalisation happening in the industry.

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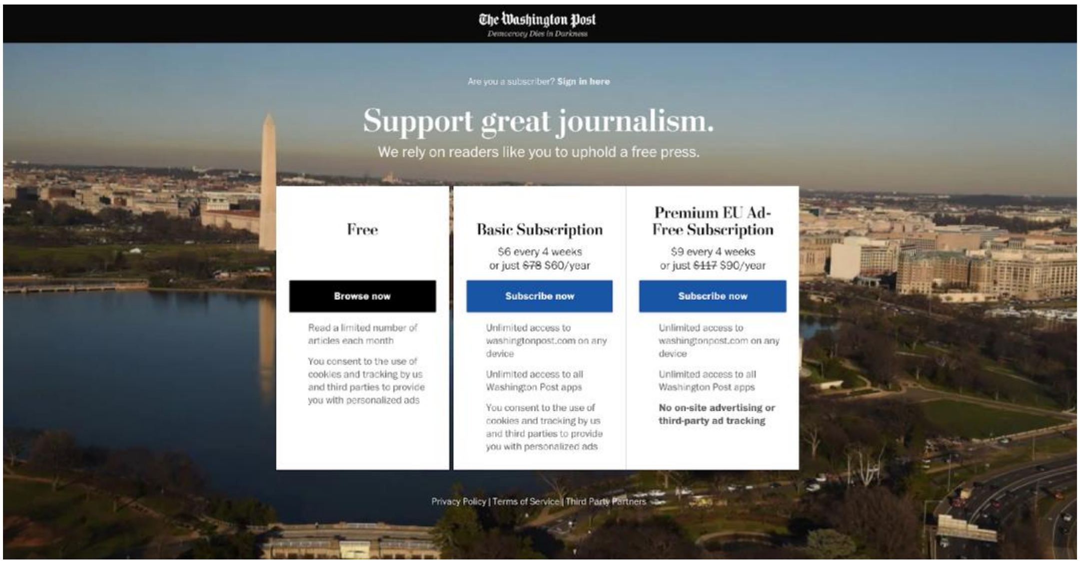

Figure 34: The Washington Post main page (screenshot)

The goal of The Washington Post is to use technology to know the reader better and to use that information to serve them better. From a technology perspective, The Washington Post functions more like a software company, with its own proprietary code powering its apps. This shift has led to new financial business models that until now were mostly out of reach of most media companies. Figure 34 shows the three-tier payment system offered by The Washington Post, the three options being a free, a basic and a premium subscription.

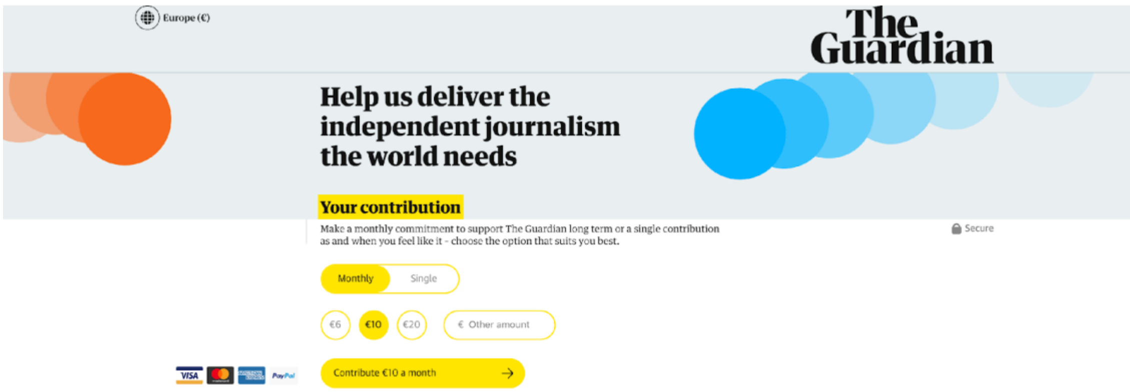

Figure 35: The home page of The Guardian (screenshot)

The Guardian, on the other hand, provides a free service to its readers. According to the Guardian, access to quality journalism should be free to all. Until recently, they relied mostly on targeted advertising to keep the boat afloat. It is only from 2018 onwards that donations as a source of revenue have taken over. This seems to be a new trend and one that's predicted to increase in the future.

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3.4.5 Competitive market review: Two companies, Two experiments

The following section provides an inside look at some of the current market offerings. The BBC and The Guardian were selected due to their respective positions in the market, their service offerings and their relevance to consortium partners.

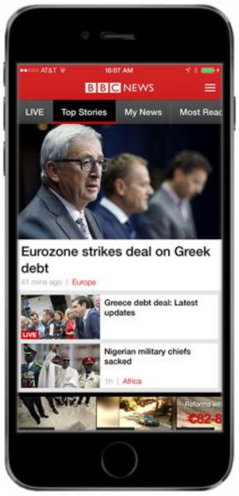

Table 13: Market offerings of BBC and The Guardian

	BBC	**The Guardian**
Key takeaways	• Downloaded 1.5 million times • Combining top stories and most-watched stories with a set of personally selected or recommended topics, chosen from a range of over 50,000 subject • The app can suggest topics based on stories you've recently viewed and what's in the news now • Settings to allow the app to automatically update in the background • Share stories to users social networks, or email/SMS to a friend • Free • Plenty of ad slots inserted into the stories • Support for Android wearables and the Apple Watch • Story summaries, glanceable headlines and breaking news	• Instead of having the traditional World, National, Business, Feature sections, the home page becomes fully customisable • Experimenting with its LabRdr news app, which delivers offline articles personalised for users during their commute time • It offers a kind of freemium service • Most content is available for free, supported by advertising revenues • It has subscription options for not-so-impacting enhanced services • Premium subscription £5.99/m • Play our daily crosswords, whenever, wherever

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	alerts delivered straight to your wrist	
Key Features	• Mobile-first video designed specifically for digital platforms • Live BBC World Service radio • Most-read and most-watched sections • Onward journeys to related articles and video • Both photo galleries and full-screen images	• The Guardian also lets you follow a particular reporter, and get an alert if she or he publishes a new piece • Users take control of their home page • Read time
Notes	If you choose to receive push notifications, a unique identifier relating to your device will be stored by ProcessOne on behalf of the BBC to provide you with the service. No other personal data relating to you (such as a username or email address) is processed. Google Play score of 4.4/5	Google Play score of 4.7/5

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LabRdr and the NZZ companion were selected due to their experimental nature, their service offerings and their relevance to CPN service offering.

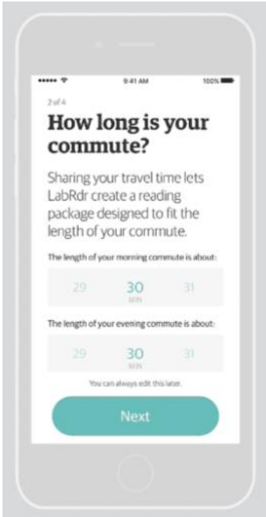

Table 14: Market offerings LabRdr and NZZ companion

	LabRdr	NZZ Companion
Key takeaways	• Created by The Guardian Mobile Innovation Lab • An Experimental Offline News App That Knows You • Tracks the categories you read, then uses your most frequently read topics to recommend articles for your next reading package • View your reading patterns in the Log: View your reading and commute patterns in the Log—the topics you often read as well as where you read.	• The value proposition of NZZ Companion is to find relevant news with less effort • Personalisation creates added value • People are creatures of habit: Users needed time to get accustomed to the companion stream and then develop a positive attitude and trust towards the algorithm over time • Improvements in the algorithms: The balance between editorially and personally relevant articles got better over time • The beta testers appreciated having access to older content that they may have missed in the curated stream
Key Features	• App gets to know your preferences • You'll get alerts for your reading packages twice a day, at times you specify, for your morning and evening commutes • Reading packages are accessible both on and offline • The length of each reading package is based on the duration of your commute • Transparent use of data	• It accompanies you throughout your day so you'll get a different newscast when you're commuting in the morning from when you're sitting at home on your sofa in the evening.

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Notes		The NZZ Companion Mobile Application for iOS and Android consisted of two main visual parts: the curated NZZ.ch-Stream on one side and a user's personalised stream called Companion on the other side. Additionally, a navigation element named 'Bibliothek' was introduced where more user-centred features such as personalised reading lists and bookmarks were foffered..

3.5 CONCLUSIONS AND RECOMMENDATIONS - MARKET ANALYSIS

From the market review and discussions with industry partners (both inside the consortium and outside), it is clear that news publishers cannot rely solely on monetisation programmes offered by digital platforms such as Google, Facebook, News360, etc. However, as stated earlier, publishers find themselves between a rock and a hard place. On the one hand, they want to become less dependent on platforms. Yet, on the other hand, very few publishers have the necessary skill set and in-house knowledge to offer a tailored, personalised service that could make them competitive within the digital ecosystem. Within traditional media, there is a growing gap between big brands that successfully manage the digital transition and the rest (that are struggling). Secondly, the importance of personalisation on readership cannot be ignored. A study conducted by Parse.ly[16] showed that search and social combined drive 50% of traffic to their networks, while the remaining half of traffic to articles comes from homepages, internal recirculation, email, direct messaging apps, and other sources account. Many of the more established brands are planning to actively experiment with artificial intelligence (AI) to support better content recommendations and to drive greater production efficiency. Yet, the smaller ones lack the skills to do so, and it is especially these that the CPN project aims to address: CPN envisions to fulfil their needs by either offering an end-to-end solution or by providing building blocks as individual microservices.

The study presented in this Section 3.4.2 highlighted that, potentially some of the biggest barriers to success are not tech platforms but internal factors such as resistance to change and inability to innovate. Furthermore, subscriptions are seen as a very important source of current and future digital revenue – more so than digital display advertising and branded and sponsored content. This was confirmed by preliminary results of the first CPN Pilot cycle.

[16] https://blog.parse.ly/post/7637/homepages-traffic-social-media/

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Personalisation should be a way to enhance news decisions made by human editors, professionals committed to quality journalism, as a crucial component of an open society. The current news filtering algorithms made by tech companies that do not see themselves as media companies can harm the industry as they are not bound to the basic journalistic standards.
CPN is working on a service offering that aims to bring back control to media companies by providing news organisations with a set of tools and end-to-end business offerings to enable business model redesign within the sector, transforming the smaller actors from suppliers to active participants in the digital space.

3.5.1 CPN Exploitation Strategy

According to the above study, European media companies and content producers are faced with only a few options when deciding on a digital distribution strategy. With the exception of a select few, most media companies, due to the nature and balance of control within the ecosystem, are forced into a supplier of content role for news aggregators or platform players. Thereby these content aggregators and platforms are ensuring control over the value chain and by extension, the control over end users. The insights they produce stay with content aggregators and platforms (the gatekeepers), in a sense following a Pareto distribution where there is a discrepancy between efforts and financial results. This is a far too common reality for media content providers in Europe.

Furthermore, the market study showed that 21% of the publishing companies reported that the "power of platforms" was in their view the biggest risk to their success in the year ahead. This was closely followed with "inability to innovate", with 20%, and "changes in the business environment" at 19%. These three closely related current and future threats are at the core of CPN's envisioned solutions. To counteract the above three threats and at the same time contribute to the European DSM strategy a dualist exploitation approach is needed and followed by CPN.

The first objective of the exploitation strategy is to test and verify the feasibility of a European personalised news platform (CPN Open Virtual Platform), capable of enabling the connection of millions of articles to millions of users in a personalised and European-centric context. Grounded in the principles of privacy-by-design, transparency and fairness, ensuring the safeguarding of consumer privacy.
This would solve some of the industry concerns with regards to an imbalance of power within the ecosystem and would be seen as one of the potential exploitations pathways CPN could follow. Figure 36 provides a visual representation of the two strategies.

The second approach aimed at counteracting concerns relating to the inability to innovate (possibly due to lack of skills, lack of finances or company culture) and the changing business models could be addressed with offering news publishers one of two options.
The first solution to counteract the two threats mentioned above is to offer the CPN platform as a turn-key (white label) solution to news publishing companies. A single

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organisation can use the virtual platform as a white label solution, or multiple organisations can pool their resources together to form one platform.
The second solution will be a CPN offering revolving around a best practice/state-of-the-art toolkit made up of CPN platform components. This allows the creation of bespoke service offerings, tailored to the needs and capabilities of news content producers. For example, if an organisation is interested in offering personalisation service to their users, but does not have the resources to develop their own recommender system, the CPN recommender system module can be integrated into their system – thus reducing the cost and time typically needed to develop in-house recommendation engines.

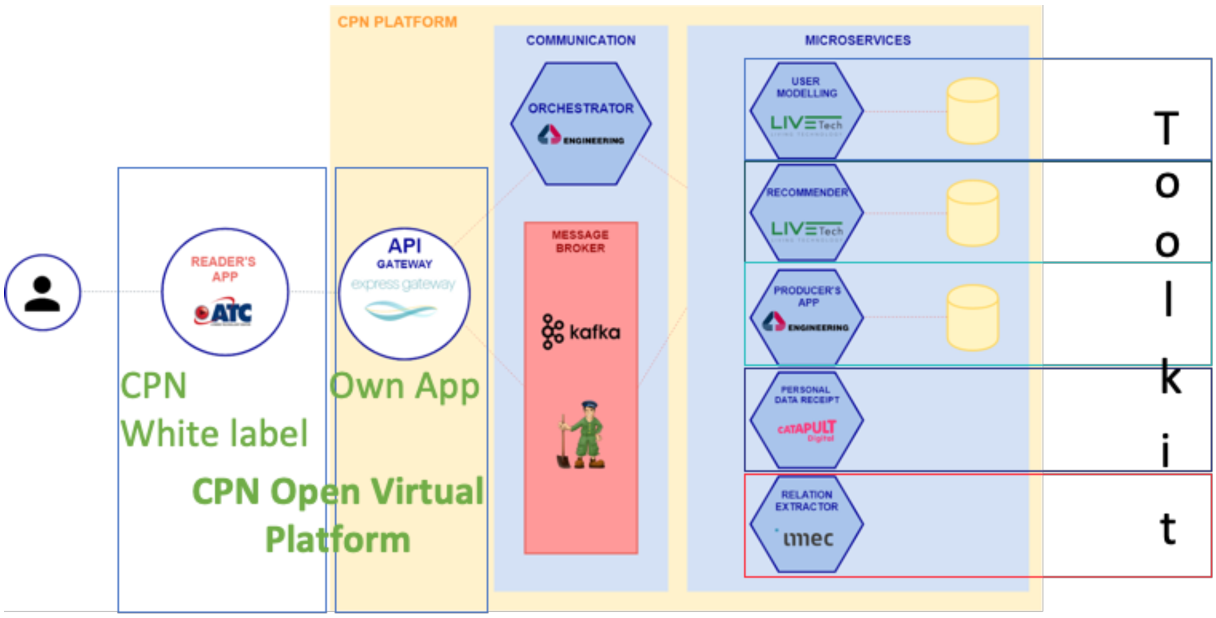

Figure 36: CPN Exploitation pathways

CPN's Unique Selling Point (USP) is the development of a toolkit for media professionals in order to "enable better delivery of news, insights and information in the right format at the right time, and better contextualised to the media consumer. In short, the core of CPN is to develop an offering for content creators to structure content production, distribution and in-depth interaction with audiences". The focus of the development will be managed by the Innovation Management Board in conjunction with the research conducted by IMEC and with user feedback. This will ensure that priorities are managed prior to development, thereby, ensuring functionality is prioritised in line with the most commercially viable product offerings. Pilot 1 demonstrated the early version of the White Label format with some of the components we expect will make up the microservices of the platform, for example, the personalisation feed and personal data receipts.

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CPN's exploitation plan (Figure 37) consists of three platform iterations, three prototype iterations and two MVP's (minimum viable product). The feedback obtained from the pilot's phases, mini pilots and experimentation are used to refine and improve the final output of the CPN project.

Table 15 below provides a description of the relevant exploitation components.

Table 15: Description of CPN exploitation components

	Wave 0 (m15)	**Hackathon**	**Wave 1 (m26)**	**Wave 2 (m29)**
Internal	Only Consortium partners experimenting with components within their own ecosystem		Consortium partners experimenting with components within their own ecosystem	Implementation of components by consortium members in their own ecosystem
External	No external exploitation	Use of CPN platform to develop products and services pre-identified external companies outside of the consortium	Open to pre-identified external partners outside of the consortium-experimentation-	Implementation of components by pre-identified external partners outside of the consortium
Platform	Platform v0.1	Platform v0.1	Platform v0.2	Platform v0.3
Prototype	Prototype v1		Prototype v2	Prototype v3
Pilot	Pilot 1		Pilot 2	Pilot 3

Figure 37 shows the exploitation plan for CPN and the build-up towards the launch of CPN service offerings.

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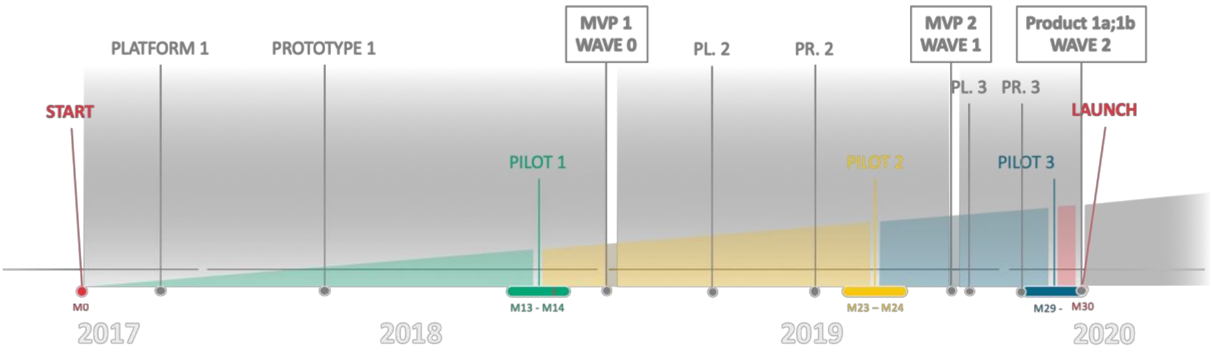

Figure 37: CPN Exploitation plan

CPN currently foresee **three different exploitation pathways:**

Wave 0
Wave 0 users are CPN consortium members only, and MVP1 is based on: Platform 1, Prototype 1 and, feedback obtained from the first Pilot cycle.

- Internal exploitation by consortium members.
- Use and experimentation of individual microservices by consortium partners.

Wave 1
Wave 1 users include CPN consortium members and external project partners. MVP2 is based on: Platform 2, Prototype 2 and, feedback obtained from the second Pilot cycle.

- Internal exploitation and experimentation of microservices by consortium members.
- Use and experimentation of individual microservices by external partners who showed interest in CPN for example developers taking part of in the hackathon.

Wave 2
Wave 2 users include CPN consortium members, external project partners, media companies, developers and, news consumers. Product 1a and 1b are based on: Platform 3, Prototype 3 and, feedback obtained from the third Pilot cycle.

- Use of individual microservices by consortium partners
- External exploitation-companies looking for SaaS, turn-key
- External software companies that will use the CPN platform to deliver their products or services.

1. Internal exploitation

Consortium partners have expressed interest in conducting internal experimentation with some of the modular components. This is in addition to the overall exploitation strategy of CPN. These smaller internal experimentations are important to test the components in an industrial environment and to gain visibility within organisations. Both would increase the buy-in needed at the end

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of the project to turn CPN from an R&D experiment to a value-adding component used by partners. To ensure this is possible, CPN has worked towards an MVP1. MVP1 is based on Platform 1 and Prototype 1. To make the case more concrete, one of the content partners teamed up with technical partners to set up an experimental personalisation news app. The motivation for the experiment was threefold. First, there was interest shown by the newsroom of the partner in news personalisation and the potential benefits of CPN. The partner thought it would be a good idea to have the experiment while the interest is high and not wait for the pilots to show the results. Secondly, it provided CPN with the opportunity to test and improve the CPN recommender in a broader (live/beta) setting. More data is needed to improve and shape the recommender. This beta app can hopefully attract enough users to provide that data. Lastly, the partner could apply and develop in-house expertise. The front end of the app is the same as the current operational one used by the partner. The back end used three endpoints (all developed as CPN microservices):

a. /v1/users/signup
b. /v1/users/login
c. /v1/recommend/{userId}

Following the CPN exploitation plan, the above experimental use of CPN microservices is seen as an MVP1 that's aimed at Wave0 customers.

2. Consortium exploitation

With many of the more established brands planning to actively experiment with artificial intelligence (AI) to support better content recommendations and to drive greater production efficiency, the smaller ones lack the skills to do so, given that they do not have internal R&D and very little knowledge about personalisation. For them, CPN microservices will be a way to bridge the gap between traditional and digital. It is an end-to-end solution that would bring them on par with the latest offering of lager online media companies.

CPN envisions fulfilling such needs by either offering CPN as an end-to-end solution in the form of a White Label or Turn-key solution or as a toolkit consisting of different microservices. Executed correctly, this will give such (typically smaller) organisations the opportunity to overcome internal innovation challenges and enabling them to provide their users with a tailored and engaging experience. Thus, CPN can enable bringing customer knowledge, insights and ownership back into the hands of the publishers.

The CPN consortium is still evaluating the feasibility of pursuing a platform strategy as one potential exploitation pathway.

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3. Individual partner exploitation

An important objective of EU-funded Innovation Actions such as CPN is that they should lead to the commercialisation and exploitation of the research outputs, or at least strive towards the most favourable conditions for doing so. For this reason, increased emphasis is placed on exploitation strategies in current EU-funded R&D projects. However, successful market exploitation of research outcomes is a complex and multifaceted process, and most consortium members are not able to benefit from their outputs.

For this reason, the third exploitation pathway is aimed at assisting individual consortium partners with exploiting their microservices as individual components. This could be in the form of a modular component or offering it as Software as a Service.

3.5.2 Next steps

The next steps with regards to exploitation include the following actions:

1. Stocktaking of developed IPR developed since the start of the project,
2. Update individual partner exploitation plans,
3. Market analysis of microservices,
4. Development of a technology three,
5. Business clinics.

Figure 38 below shows the next steps within the CPN timeline.

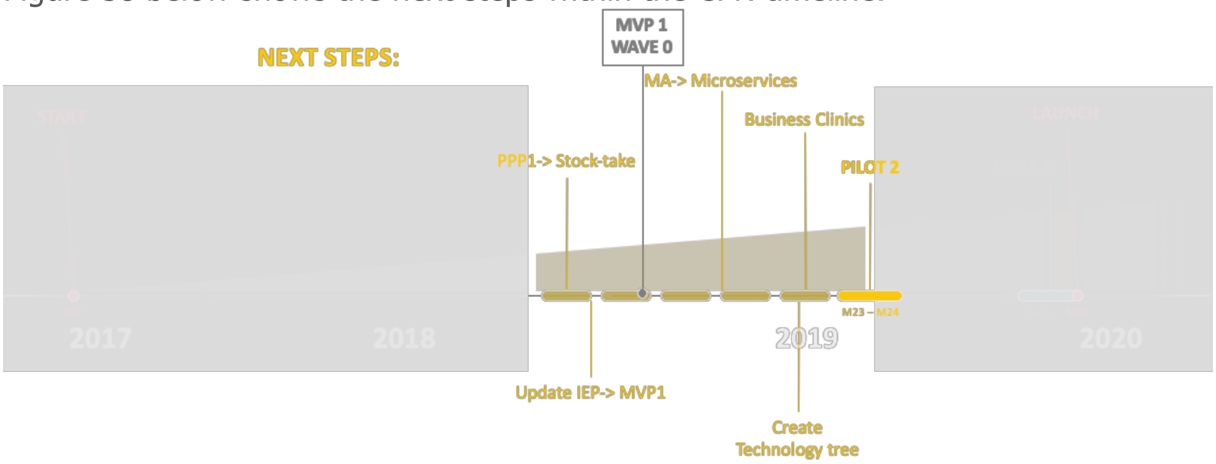

Figure 38: CPN Exploitation next steps

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3.6 CONCLUSIONS

News consumers are overwhelmed by an explosion of content which they have access to, clearly motivating the need for assistance in finding the right content at the right time. On the other hand media companies, including news publishers, struggle to get the right content in an effective way to the right consumers: they don't have the skills, resources nor the right scale to build and integrate effective content personalisation systems.

The objective of CPN is, therefore, to provide a platform delivering a set of services allowing both large and small media companies to target the delivery of news in the right format at the right time and better contextualised to the media consumer. However, the solution cannot come from industry alone. A collaborative design approach is required from a variety of different stakeholders. In short, if CPN is to master the fundamentals of news personalisation and develop new to market solutions, emerging technical advances and new ways of doing business, the involvement of end users, media companies, content producers and, application developers during key moments is important.
CPN foresees three pilot phases during the funded project period to test the prototype, collect feedback and implement the feedback in the next version of the prototype. These pilot phases thus allow for user requirements from both the media organisations side and the news consumers side to be integrated into the platform. The first pilot phase was just completed. During the first pilot phase, CPN content partners VRT, Deutsche Welle and DIAS test the first prototype of the platform with their newsrooms and their users. The second and third pilot phases will be open to content partners outside of the consortium. Hackathon style COLLABORATE, and SHOWCASE events will actively engage cutting-edge technical organisations with news media organisations to discuss the latest trends. We will enable the community to develop new functionality or adapt existing functionality to work with the CPN platform via these activities. This has been clearly articulated through the Open Call. By hosting them in conjunction with major media events (with Wan-ifra) we ensure we attract a willing and able set of media experts and this enhances the market appeal of the activities, allowing attendees to gain exposure at these events.

With technology developing each year rapidly, consumer trends come and go, new disruptive technologies appear on the horizon and markets adopt new ways of working and providing their services. The CPN consortium is aware that if we stick with the requirements defined at the start of the project, we risk missing the opportunity to incorporate new to market solutions, emerging technical advances and new ways of doing business developed during the project by other organisations (including competitors). To mitigate this, the user centred approach is essential while working with the wider news media businesses in the consortium as well as those in our collective networks will allow us to gain B2B feedback on our approach and methodology. We gain this B2B feedback via attendance at industry events. We also have initial thinking around potential business models, which although not yet in a presentable format (this will be developed in later phases) it allows us to conduct an open dialogue with industry experts.

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