
Miscellaneous

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Building the future of European Public Service Media: innovation priorities, key points and optimization areas in PSM

Abstract

The platformization and entry into the international television market of large video-on-demand (VoD) service providers has had an impact on all agents in the sector, as well as on operating rules, consumption habits, and financing, production and distribution models. In the case of public media, innovation is conceived as a strategic driver and the only sustainable alternative for their survival, repositioning and renewal in order to be relevant for citizens. This research analyzes 15 European public broadcasting corporations from Germany (ARD), Austria (ORF), Belgium (VRT and RTBF), Denmark (DR), Spain (RTVE), Finland (Yle), France (France TV), Great Britain (BBC), the Netherlands (NPO), Ireland (RTÉ), Italy (RAI), Portugal (RTP), Sweden (SVT) and Switzerland (RTS). A total of 18 interviews were conducted with senior managers of these corporations and one EBU member to shed light on innovation priorities, key points and areas of optimization, which allows identifying the conceptual, strategic and operational lines that these media will follow in the next stage. It is concluded that these broadcasters focus their efforts on the transversal implementation of high technology, particularly AI, for the improvement of their production and distribution operational routines; on the settlement and improvement of their VOD platforms; on digital positioning and cybersecurity; on the creation of stable communities; on the optimization of the user experience (UX) and the attraction and search for relevance for a young audience (16–25) often distant from their performances.

Keywords

Innovation, journalism, public service media, strategy, user experience, artificial intelligence, metaverse, television.

1. Introduction

Innovation is articulated as the strategic engine or conceptual line of action that permeates all the sections, actions and ideas implemented in the media to build a better version of

themselves, projected into the future, but focused on today's agenda and needs. This process of renewal, optimization and repositioning is linked in the case of public service media (PSM) to its public value, characterized by factors such as commitment to citizenship, guarantee of credibility or regional economic promotion, being this value distinctive with respect to the purpose of commercial operators (Cañedo, Rodríguez-Castro & López-Cepeda, 2022).

It is a reality that the arrival of Netflix and the predominant VOD platforms to the media ecosystem has energized the rest of the players in the sector. The "legacy" broadcasters that already existed before the internet are the ones most affected by these developments (Raats & Jensen, 2020), and in the case of PSM, their growth and repositioning strategies depend directly on their respective national contexts, the degree of government support, their political and regulatory priorities, the role and status of PSM in each country, cultural factors and the size of the market, among other factors (D'Arma, Raats & Steemers, 2021).

PSM have a fundamental role to play in this public sphere transformed by the digitizing process (Habermas, 2021), for which they need, at the very least, to maintain budgetary levels due to increasing competition from commercial operators (Donders, 2019). This digital turn presents important theoretical, political and strategic challenges for the creation of the future version of the PSM, in a context in which there is still citizen support, although this varies considerably between countries and regions (Donders, 2021).

For PSM to be meaningful to citizens, it is crucial that it works with a focus on the concept of contribution to society, but this value is useless if it is conceived as a mere marketing or corporate communication tool to justify the existence of these means, rather than to ensure an operational improvement so that PSM serves the public interest and represents a contribution worth paying for (Puppis & Ali, 2023).

The main objective of this research project is to identify the key points, priorities, and central areas of innovation of the main public media in Europe to build their future version, understanding that, knowing the concepts and trends that are beginning to be integrated in their strategic planning will allow to anticipate the operation, behaviors and paths that PSM will follow in its next stage. It is also intended to determine what is the usual procedure in these corporations for the development and implementation of ideas, to know their concerns and progress forecasts, as well as to extract common notions and trends applicable to the sector as a whole. In this way, 15 public broadcasting corporations are analyzed through 18 interviews to senior management professionals of their structure. For this purpose, the following research questions are posed:

- RQ1. What are the main areas, concepts, or technologies that Europe's public media plan to focus on in the coming years to build their future version?
- RQ2. How are innovation flows and the implementation of innovative projects managed in the internal structures of these media?
- RQ3. What are the innovation priorities that make up the strategic line of action of these media?
- RQ4. What are the forecasts of progress and future challenges that these broadcasters foresee in the short and medium term in order to renew themselves and maintain relevance for their audiences?

In the case of public service media in Europe, no research has been identified prior to this study that delves transversally into the different concepts, technologies or innovation prisms that are a priority for the sector and are expected to be relevant for its evolution in the short and medium term, so this project offers a complete overview of this subject that is of interest to both the academic community and media professionals, as it allows us to intuit the direction that public broadcasters will take in their next stage.

2. Perspectives, strategies and plans for innovation in European Public Service Media

Innovation is one of the public service commitments that PSM make to society, further defined in the General Assembly of the European Broadcasting Union as one of the six main values that define why public broadcasters are indispensable in truly democratic societies (EBU, 2012).

However, the fact that innovation in PSM is a commitment does not mean that they have to innovate simply by imperative, but rather, as some authors have described, Public Service Media are also those most legitimized and best contextually positioned to do so. In particular, Donders, Raats and Tintel (2020) have argued that PSM are legitimate and capable of taking on these challenges for 4 main reasons:

1. PSM have a history of innovation, backed by the principle of universality, which is one of their core activities. This principle has traditionally entrusted them with the distribution of services to all audiences, which often requires major technological developments and investments.
2. Innovation is highly contextual. PSM, deeply rooted in the historical, political, economic, social and cultural fabrics of nation states, are better positioned than international conglomerates to lead innovation (Donders *et al.*, 2012).
3. Public corporations have relatively stable budgets, which allows them to face specific risks associated with investment in innovation.
4. Since public broadcasters are obliged to prioritize public interest over market development, financial performance or efficiency, they are best suited to take into account factors such as quality, diversity and access in the development of technological innovations (Donders, Raats & Tintel, 2020).

In recent times, our notion of innovation in the media ecosystem has been fundamentally supported by technological development, driven in the first instance by what we know as 'hi-tech' journalism (López-García & Vizoso, 2021) where drones and virtual reality began to be used, and more recently by the emergence of really significant advances in areas such as Artificial Intelligence, and particularly in generative AI such as ChatGPT, Bard and a growing list of new tools.

While it is true that the irruption of generative AI in the audiovisual landscape had the effect of redirecting a large part of the traditional journalistic tasks linked to the different phases of news making, causing the media to implement strategic approaches to reconversion and recruitment of new qualified professionals, this phenomenon has not yet had a direct effect on the recruitment of professionals with specific skills in Artificial Intelligence (Fieiras, Ufarte & Vaz, 2023), probably due to the difficulty in finding these profiles in the market. The current circumstances invite to think that the capacity and agility of integration of these new professional profiles adapted to the imminent technological advances in the sector will be one of the biggest challenges in innovation in the coming years in the European PSM.

Parallel to the integration of these new profiles is the development of innovation roadmaps, as we mentioned above, very marked by technology and in particular the apex between public service values and Artificial Intelligence, particularly discussed in academia in recent years (Fieiras, Vaz & Túñez, 2022; Sørensen & Hutchinson, 2018; Sørensen & van den Bulck, 2018; van den Bulck & Moe, 2018). In the case of technological development strategies, in addition to generative AI, the discussion on the deployment of algorithmic recommender systems, the management of personal audience data or the automated distribution of certain kinds of content is approached in different ways among leading European PSM.

For example, there are differences in establishing or acquiring algorithm-based recommender systems. Entities such as YLE, VRT, RTBF, NPO and SVT choose to develop their own technologies and concepts (in order to have greater control over them and have them

cater to the particular needs of their own audience), although they often combine them with tools from external providers to optimize their performance. YLE, for example, carefully selects its eventual collaborations, looking for companies that understand its mission and values, just as one would choose an employee. On the other hand, the BBC is evaluating and working on the transition from external systems to in-house solutions, seeking greater “control, understanding and transparency.” In contrast, RAI opted for vendor solutions that require only customization, avoiding investing in in-house development due to the immediate need for technology and the desire not to spend human resources, time or money on development. For their part, the RD indicates that many of their counterparts in the Public Service Media (PSM) sector believe that solutions purchased from companies are neither effective nor easy to manage, although they themselves have had positive experiences with them (Fieiras, Vaz & Túnnez, 2023).

In this sense, it is necessary to mention that, although more and more European PSM are beginning to integrate these technologies, the truth is that, for the moment, it is still the corporations with the largest budgets the ones leading the most relevant advances (Fieiras, Vaz & Túnnez, 2022), so we can understand that the effective application of these technologies depends to a large extent on the economic muscle of corporations to allocate resources to the development of these systems and their maintenance.

Taking into account the imminence of the integration of these technologies, and taking note of those described in some reports such as the latest *Reuters report on Journalism, Media and Technology Trends and Predictions* (Newman, 2024) where it is highlighted that the ‘vast majority’ of online content will be synthetically created by the year 2026, European PSM have to establish and adapt methodological models that allow them to predict and apply innovation with the greatest possible agility. An example of such methodologies, already applied by the Yle in Finland and the NPO in the Netherlands, is the 3 horizons of growth (Baghay, Coley & White, 1999), which consists of the creation of 3 (simultaneous) activity scenarios that enable spaces for innovation and prepare teams for future developments. These three horizons are defined as follows:

Horizon 1 (H1): This horizon focuses on the core business and aims to improve the performance of current products/services to generate consistent and incremental revenue. These are usually low-risk initiatives that focus on improving and expanding the existing business model.

Horizon 2 (H2): This horizon involves emerging opportunities that have potential for substantial growth. These initiatives are usually in a pilot or early stage of development and require considerable investment. They should be aligned with the corporation’s strategic objectives but represent new areas of potential growth.

Horizon 3 (H3): This horizon consists of ideas for future growth, such as radically new business models or technologies. These are long-term initiatives with a high degree of uncertainty, but also with high potential for future growth. They require significant investment in research and development.

3. Methodology

This study analyzes the innovation strategies, key points, and priority areas for optimization of 15 public broadcasters in Europe and details the forecasts and future challenges that these broadcasters foresee for the media sector in the coming years. The main objectives of this project are as follows:

- O1. To identify the main areas of innovation on which public broadcasters in Europe focus their efforts, as well as to learn how these corporations manage and execute the implementation of innovative ideas and processes.
- O2. To determine the specific innovation priorities of each of these corporations in order to extract common trends for the sector.

O3. To specify their forecasts for the future and the challenges they foresee for the public media sector in the next five years.

To meet these objectives, this research is approached as an exploratory, descriptive project with a blind hypothesis. Qualitative methods are used, such as semi-structured personal interviews, conducted with the directors of innovation, strategy and artificial intelligence of Public Service Media in Germany (ARD), Austria (ORF), Belgium (VRT and RTBF), Denmark (DR), Spain (RTVE), Finland (Yle), France (France TV), Great Britain (BBC), Netherlands (NPO), Ireland (RTÉ), Italy (RAI), Portugal (RTP), Sweden (SVT) and Switzerland (RTS) as well as the EBU Data and AI coordinator; using the Delphi technique and in two separate rounds.

To make a relevant selection of the professionals in the study, and to fulfill the set purposes with valuable contributions regarding the strategic lines of each respective corporation, a first round of consultation was carried out with the broadcasters to identify the different figures in charge of managing the innovation processes within their structure. Even though the usual response is directed to senior management positions within the organizations, nuances are distinguished in their training and final occupations, which vary between profiles with a greater technological, strategic, digital, managerial or R&D component, which enriches the sample and the results obtained.

In this way, an intentional convenience sample was selected and expanded by snowball sampling based on the contributions of the interviewees, and a second consultation was carried out to clarify the details of the information collected. We worked with a semi-structured questionnaire that never exceeded 9 questions and included specific queries tailored for each corporation. However, the common questions asked to all professionals were the following:

- Question 1. What are your main innovation priorities in the short term?
- Question 2. What issues do you think will be the focus of public media innovation strategies in the coming years?
- Question 3. How is innovation managed in your corporation and in which sub-areas is it divided in?
- Question 4. What are the channels or channels through which innovation is applied in your corporation?
- Question 5. What are your most striking and impactful innovative projects?
- Question 6. How do you think the public media sector will progress in the next five years in terms of innovation? Where do you foresee the greatest progress? What challenges do you think public broadcasters will face in the coming years in relation to innovation?

The main thematic blocks in all meetings were: key points of the strategy and innovation of these media; impact of new technologies on their professional routines; digitalization, content recommenders and VOD platforms; co-creation and relationship with their audience; and diagnosis and strategy.

Thirty-five contacts were made and finally a convenience sample was validated, composed of 18 professionals from 15 public broadcasting corporations, who participated representing PSM corporations from the three media models (polarized-pluralist, liberal and democratic-corporatist) described by Hallin and Mancini (2004). In this way, we reviewed whether there were any similarities in the innovation strategies of corporations within the same system, and whether the paradigm works in this case, or whether it would be necessary to redefine new multidisciplinary comparative models to analyze innovation in the PSM. Table 1 below presents the final panel of 18 professionals.

Table 1. Purposive convenience sample of European public broadcasters.

Abbreviation	Name	Corporation	Cargo
(GA/RAI)	Gino Alberico	RAI	<i>R&D Director</i>
(BT/BBC)	Bill Thompson	BBC	<i>Head of Research and Development</i>
(GM/RTP)	Gonzalo Madail	RTP	<i>Director of Innovation for RTP and the Memory Channel</i>
(UG/RTVE)	Urbano Garcia	RTVE	<i>Innovation and Digital Director</i>
(DC/RTVE)	David Corral	RTVE	<i>Innovation Manager</i>
(DB/VRT)	Dieter Boen	VRT	<i>Innovation Director</i>
(EV/NPO)	Egón Verharen	NPO	<i>Innovation leader</i>
(EB/RTS)	Eric Borgo	RTS	<i>Head of Innovation at RTS</i>
(JF/RD)	Jacob Faarvang	DR	<i>Digital Product Manager</i>
(JP/BBC)	Judy Parnal	BBC	<i>Head of Standards and Industry</i>
(JL/SVT)	Johan Linden	SVT	<i>Strategy Director</i>
(JS/ARD)	Jonas Schlatterbeck	ARD	<i>Content Director at ARD Online</i>
(KP/ORF)	Karl Petermichl	ORF	<i>Head of Governance, Strategy and Innovation</i>
(KB/FranceTV)	Kati Bremme	France TV	<i>Innovation Director</i>
(LG/UER)	Lalya Gaye	EBU	<i>AI and Data Initiatives Coordinator</i>
(LV/RTBF)	Loïc de Visscher	RTBF	<i>Innovation Director</i>
(RW/RTÉ)	Richard Waghorn	RTÉ	<i>Director of Operations, Technology and Transformation</i>
(JK/Yle)	Jarno Koponen	Yle	<i>Head of Artificial Intelligence and Personalization, Yle News Lab</i>

Source: Own elaboration.

In relation to Hallin and Mancini's media models, the sample of corporations is divided as follows:

Table 2. Distribution of the sample of public broadcasters according to the Halin and Mancini (2004) model.

Pluralistic polarized	Democratic corporatist	Liberal
France TV (France) RAI (Italy) RTP (Portugal) RTVE (Spain)	ARD (Germany) DR (Denmark) NPO (Netherlands) ORF (Austria) RTBF (Belgium) RTS (Switzerland) SVT (Sweden) VRT (Belgium) Yle (Finland)	BBC (Great Britain) RTÉ (Ireland)

Source: Own elaboration.

Meetings were conducted via video-conference through Microsoft Teams, Skype or Google Meet between January 20, 2022 and April 30, 2023, with an average duration of 40 minutes. The meetings were recorded and transcribed for content analysis and in-depth interpretation of the data in relation to the central objective of the research. The assistance of Atlas.ti software, version 9.1.7 for Windows, has been fundamental in carrying out this content analysis, which was performed in 4 phases: 1) Capture of the information from the transcriptions; 2) Data coding; 3) Thematic identification of the collected information related to each of the aspects linked to the objectives; and 4) Conclusion with the interpretation of results. It is important to mention that explicit permission was obtained from the sources to disclose their statements in a non-anonymous manner.

For the elaboration of case-specific questionnaires for each corporation, and the selection of topics, a bibliographic review of scientific literature on key sections of innovation in the media was carried out. These sections included structure, strategy, production, distribution and technology. This review was complemented with a product analysis and digital platforms of the agents comprising the sample.

4. Results

4.1. Innovation pillars and strategies in the PSM: progressive digitization with a focus on disruption

All 15 European public broadcasters coincide in orienting their key innovative actions towards a progressive digitalization of their structures, associated platforms and work routines. They implement high technology through specific solutions that allow them to make a qualitative leap, explore new disruptive scenarios and keep pace with the revolutionary potential of private companies.

The main innovative initiatives of these corporations are related to the digitization of their archives to increase their interoperability; the optimization of production routines; the development of an AI strategy and its transversal implementation (particularly of generative AI in creation and personalization of algorithms in distribution); the updating and renewal of their VOD platforms; the increase of their presence in impactful social networks and the creation of stable communities; proposals for co-creation and participation of their audiences; cybersecurity; optimization of the user experience (UX); and the application of high technology for reinforcing its main services and renewing its offer, such as the use of extended reality (virtual reality [VR], augmented reality [AR] and mixed reality [MR]), or the implementation of the metaverse, although this is only the case for France TV, VRT and the Finnish corporation Yle, which are recurrently working with this concept in Europe, while RTVE, NPO and Rai complete the list of corporations making their first approaches in this new environment.

At the strategic level, their development plans are divided into incremental actions: improving their current structures and products; both operational and functional development; and exploratory actions, in which they try to anticipate trends using new technological and creative frameworks. In terms of organizational systems for the implementing of innovation, some corporations advocate for an holocratic or horizontal management, while others organize their actions vertically, both top-down (requests from top management to journalists) and bottom-up (proposals from journalists to top management).

The difference in resources between corporations is a palpable reality that highlights the ambition of each corporation's roadmap. Some PSM aim to stay ahead of the curve and experiment with new technologies, while others limit themselves to being "smart followers," as RTÉ points out, to take advantage of their peers' discoveries, and try to adapt them to their own structure. In the case of SVT, the corporation explains that they have an active collaborative system with companies and commercial media to outline joint innovation and narrow the competitive gap with large international companies, which differs from most countries where public-private contributions are less frequent.

One of the priorities of PSM corporations is to improve and renew the user experience with their content proposal, so that it is usable, relevant and personalized to each consumer. They try to differentiate themselves from commercial media services, putting the values associated with quality public journalism before any kind of risky experimentation. Attracting a young audience (16-25) that is traditionally not interested in their core content offer is another of their strategic pillars, for which they are increasingly present in new third-party platforms such as Twitch or TikTok, and have boosted their thematic offer in these spaces with youth content and new interactive formats with an active position by the user.

Regarding VOD platforms, European PSM are working to upgrade and implement increasingly more accurate recommender systems in compliance with the GDPR (General Data Protection Regulation). Still, these media corporations have historically had problems generating metadata associated with their content, so they are first solving this problem by integrating automated technologies to create a deep and sufficient data architecture for personalization.

Co-creation is another theme that is on the rise, although the interviews identified that PSM corporations had different interpretations and concepts of what it actually is. Most of the corporations studied, with the exception of Rai, ORF and RTVE, claim to be experimenting with including the user at the center of the content production process. Even so, the practices expressed by European public broadcasters are different and come from different origins.

In the case of RTP, it considers an example of co-creation some the focus groups it conducts with part of its audience to check the quality and success of its content. It also considers the votes cast by audiences to decide the outcome of a reality show or live program to be some level of co-creation. VRT, BBC and DR, among others, explain that their experiences are based on a relevant contribution of value by users, where they share and generate content. The scarce involvement and participation of viewers continues to be the main obstacle to the implementation of projects of this nature.

4.2. Specific priorities and innovative initiatives in the European PSM

Each public broadcaster analyzed expresses and cites different priorities and current concerns linked to its innovation strategy. Even so, the most prominent areas are common, and most of them are closely related to the digital renewal of all its sections, processes and applications; the use of high technology, especially the development of AI strategies and solutions; the optimization of the user experience (UX); and the establishment of an active, stable and loyal two-way conversation with its audiences.

The three tables in this section summarize the key areas that each corporation prioritizes in its current innovation strategy and with a view toward the short and medium term. The information shown comes from the responses of the professionals interviewed when asked about the innovation prisms on which they focus and to which they allocate most of their current efforts and funding. The corporations are grouped according to the model to which they belong according to Hallin and Mancini's paradigm (2004), despite the fact that no direct correlation of innovative tendencies has been identified among broadcasters in the same system, revealing that the paradigm may not be as pertinent to differentiate the innovation approaches among corporations, and that there could be grounds to establish new multi-disciplinary models that make it possible to distinguish similarities in innovation processes between the broadcasters.

Within the corporations of the polarized pluralist model, RTVE highlights an imminent breakthrough in 5G technologies and work in the cloud that allows them to have a permanent audiovisual connectivity and experiment with remote production. They are also working on a recurring basis on ultra-high definition (4k) and on the application of AI in all its sections, as well as on the mobile first approach for the adaptation of its content offer to new formats.

France TV divides its innovation priorities into two perspectives: an incremental one, to optimize its existing services, and an experimental, disruptive one, in which they test new technologies with AI as the protagonist. In RTP they give preference to actions that enhance their proposal of local content, native audio, and the update of the audiovisual language and the workforce towards profiles with a greater technological component; while in Rai they focus on achieving a significant level of digitization and on articulating professional routines and an effective personalized distribution around it. Table 3 below shows the innovation priorities of the corporations in the polarized pluralist model.

Table 3. Innovation priorities of corporations in the polarized pluralist model.

Corporation	Innovation priorities in television broadcasters polarized pluralist model
RAI	Digitization of tools, work routines and structures
	Automation, AI implementation
	Optimization of distribution through the recommendation system on the VOD platform
	Design and implementation of extended reality technologies
RTVE	Migration and renewal of your IT infrastructures (IT technology information)
	Three pillars of technological innovation: ultra-high definition (4K); stable and transversal implementation of 5G/Cloud technologies for permanent audiovisual connectivity and remote realization; application of AI
	Optimize user experience, innovate storytelling, <i>mobile first</i> approach
	Innovation in AI: simple automatic realization, file metadata, automatic text generation, closed captioning, user recognition and personalization of the conversation, automatic video production, video control disinformation, social network monitoring or verification.
France TV	Incremental innovation: improvement of existing products and tools, increasing internal productivity and external qualitative projection
	Experimental innovation: working on AI to integrate it transversally and optimize specific aspects of broadcasting (subtitling, translation, creation, distribution, realization, verification, etc.); implementation of high-tech, or extended reality technologies (VR/AR/MR); experimentation on new platforms, environments or concepts such as the Metaverse)
RTP	Enhanced local content, native audio, and video streaming
	Digitalization of its structure, tools, and production routines. Customer service optimization
	Development of algorithmic personalization (for the moment editorial) and automated content verification
	Consolidation of your innovation bubble team/department
	Renewal of the language of linear television broadcasts, renewal of work teams towards technological profiles and of TV presenters
	A strategic revolution with an active presence in social networks and new platforms (adaptation of content and formats)
	Attract and retain young audiences: Twitch broadcasts/gaming projects: 360° RTP Arena platform

Source: Own elaboration.

For liberal model broadcasters, the BBC believes that innovation in PSM will come in three different ways. The first step will be for corporations to move completely away from traditional broadcasting and move to IP-based broadcasting, where object-based media is gaining prominence. Object-based media (OBM) consists of moldable content that adapts to the circumstances, preferences and devices used by the user. These are systems that understand viewing habits and adapt to them, and are assembled in front of the consumer in format and duration.

As a second aspect, the BBC points out that the public value proposition made by corporations in relation to the processing and storage of personal data on the Internet will also be fundamental; as well as multimodal recommendations, in which systems will offer the user content in different formats depending on their available time, geographic situation and preferred format. The innovation priorities of the BBC and RTÉ, broadcasters belonging to the liberal model, are summarized in Table 4 below:

Table 4. Innovation priorities of liberal model corporations.

Corporation	Innovation priorities for liberal model broadcasters
BBC	Digitalization of its structure and transfer of its traditional public service value proposition to its online actions
	Multimodal recommendations
	Object-based media: content assembled in front of the user according to their own consumption conditions, preferences and devices
	Move away from traditional broadcasting to IP-based broadcasting or IP-based streaming services
RTÉ	Optimization of workflows, tools and systems
	Development of innovative digital products and applications

Source: Own elaboration.

In the corporations of the democratic corporatist model, innovation priorities are varied and start, as in the rest of the media systems, from a common origin focused on digitization. At VRT, they pay attention to increasing interaction and participation of audiences, and to establish valuable dialogues that allow to build a stable, loyal community in digital environments.

In the case of Yle, the Finnish broadcaster is a pioneering corporation in the personalization of content and digital experiences through AI, mainly through its intelligent assistant Voitto, which was the first chatbot in PSM to display news recommendations tailored to each user directly on the home screen of the mobile device.

The DR is continuously working on the optimization of services and programming of its digital platform DR TV, and both RTBF, SVT, NPO ORF and RTS stress the importance of incremental improvement of its current proposal and its technological applications, while ARD focuses on developing a common innovation strategy and network for all its regional television stations. The specific areas of innovation of each corporation of the democratic corporatist system are detailed in Table 5 below.

Table 5. Innovation priorities of corporations in the democratic corporatist model.

Corporation	Priorities for innovation in the corporatist democratic television model	
VRT	Increased interaction and conversation of value with their audiences and construction and loyalty of a stable community in digital environments	
	Co-creation of content	
	Development of content personalization/curation actions	
	Implementation of AI in a transversal, effective way, aimed at improving internal productivity and qualitative optimization of the content offer	
RTBF	Identification and creation of new types of value to maintain relevance to the audience	
	Development of a business model for the future	
SVT	External innovation: collaboration with local private media, technology startups and universities to study new AI solutions and tools	
	Internal innovation: incremental evolution of its structure, digital equipment, upgrades of its core software, tools and applications	
	Production, tagging and annotation of metadata for future customization	
DR	Development and optimization of digital products	
	Improvement of its content personalization system	
	Reinforcement of the DR TV streaming platform	
NPO	Incremental improvement of existing services and implementation of new services adapted to users' consumption patterns, interests and devices	
	Study of possible future business models	
	Introduction of new technologies, distribution and audience interaction processes and immersive content formats	
ORF	Innovation of a mainly technological nature, divided into two operational dynamics:	
	Internal interdepartmental work	Cooperation with external entities, universities, innovative companies, the EBU and startups
RTS	Innovation based on creativity and the development of internal ideas	
	Two pillars: strengthening the relationship and connection with the public and investing heavily in key technology areas, such as machine learning or AI	
	Gain presence in social networks relevant to young audiences (Tik Tok, or Twitch)	
	To deepen the idea of the public service algorithm	
	Approach to extended reality tools and the concept of metaverse	
	Develop a common ARD-wide innovation strategy and network	

ARD	Endow your production capabilities with greater flexibility and mobility
	Content distribution and orientation, accessibility
	Optimize the management of user communities and the established conversation
	Content tagging through effective metadata
Yle	Accurate and reliable personalization of digital content (i.e., Voitto Intelligent Assistant [no longer active])
	Transversal implementation of AI in all sections of the corporation and innovate around it
	Experimentation with extended reality (XR) and the Metaverse concept
	Optimization of the user experience based on technology

Source: Own elaboration.

The digitization of their structures, core applications and production routines is at the heart of European public broadcasters' innovation strategies. Before moving forward with the development of sophisticated prototypes, most of them are particularly focused on updating and digitizing their archives and associated metadata to improve their interoperability. They are also focused on working in the cloud, whether in the remote production or distribution areas. In this context, cybersecurity shielding is particularly important to prevent computer attacks that sabotage PSM systems.

(GA/RAI) There are several issues at a strategic level at the moment. One of the most important is the digitization of our entire structure. We have a very large video archive dating back to the 1950s and we need to bring all this material into an accessible digital format.

As for personalization systems, users have gradually become accustomed to the algorithms and operation of capture tools in private platforms. This is why public corporations are accelerating the development of proprietary systems that, in addition to advancing quantitatively in terms of metadata content, are expanding the catalog of programs produced specifically for their VOD platforms, recycling fewer and fewer pieces from linear broadcasts.

(JF/DR) We've done a lot of work on personalization and rebroadcasting, mainly since the relaunch of DR TV in 2022. Now there is a lot of our content that is only available there, it has been established as a main distribution channel.

The construction of a public service algorithm that manages to translate in its operation the main values of PSM, such as plurality or diversity, and avoids the isolation effect on users is another of the issues on which these media corporations are working. Some broadcasters, such as RTS and the BBC, believe that they are not so far from obtaining satisfactory results, which could be achieved by translating different qualitative characteristics into specific numerical values that are introduced as variables in the very creation of the system.

(EB/RTS): With the public service algorithm we must cater to other people's desires, but at the same time give them information that did not appeal to them in the first place. For us, it will be critical to differentiate ourselves from commercial media systems.

Regarding the immersive possibilities offered by new virtual environments, particularly those who emulate viewer immersion in places where informative events take place, shared entertainment environments, or to spaces and experiences far away or with restricted or limited access, PSM have amplified their experimentation with extended reality technologies such as virtual reality (VR), augmented reality (AR) and mixed reality (MR) since the

coronavirus pandemic, and as of lately, with the metaverse as a concept. However, there is agreement among corporations that the current relevance of these solutions in people's lives is limited, so the investment and efforts allocated to these technologies will grow progressively and in parallel to the real interest of audiences.

Occasionally, some public corporations establish cooperation projects among themselves on specific matters, mainly on technological applications or tools, since this practice allows them to exploit synergies, reduce costs and optimize their performance in innovation. These relationships are also eventually established with the EBU as an international meeting point, and to a lesser extent, with academic research laboratories, universities, start-ups and/or specialized private companies, so that public-private collaboration is reduced despite an upward trend in project outsourcing in the last stage of PSM. In the Belgian context, RTBF and VRT work together, along with other European PSM and other private corporations in the SandboxHub, in which they explore innovative ways of working and developing tools.

Another of RTBF's projects is a financial partnership with France Tv and Radio France through which they create joint content and share the associated costs. ORF Austria reinforces the value of partnerships while emphasizing the importance of internal innovation, making it easier for employees who have good ideas to turn them into reality.

(KP/ORF) The fundamental pillar of our innovation is the internal part in our teams. We find that by enabling and facilitating internal innovation channels, we get very good results by leveraging the internal talent of our people, which also gives us independence.

4.3. Outlook and future challenges for the European PSM in the innovation area

European public broadcasters agree that in the coming years they will have to adapt, become more flexible and update their structures to the ever-changing digital landscape. It is assumed that they will have to make creative decisions based on solid data and the results derived from control tests performed on prototypes and projects. Among their list of future priorities are understanding and optimizing personalization, and implementing artificial intelligence in all the tasks in which their employees can benefit from less routine work; to position themselves and adapt to those spaces to which their audiences migrate and are relevant to them; to build and enhance a more solid and richer digital content offer; to create advanced multidisciplinary teams that combine journalists with other professionals with technological specializations; and to advance in the fight against disinformation, among other aspects.

Regarding the profiles that will be in demand in the communication sector in the coming years, all professionals interviewed agree on the need to recruit and train multitasking journalists with technological skills, who are able to adapt quickly to the new tools and systems that will emerge. This adaptability to change and interpersonal skills are the most sought-after skills, even above technical proficiency, and these changes in professional profiles, as Urbano García, director of innovation at RTVE describes, will be introduced "progressively and out of pure necessity for the corporations and the sector."

France TV stresses the importance of having "project management" skills so that communicators can work with other professional profiles, such as computer engineers. RTP believes that traditional journalists will lose a lot of value if they do not reinvent themselves and adapt to new environments. ORF in Austria does not believe that breakingly new roles or professional definitions will emerge in the short term, they argue that this is old thinking and that journalists will only need to delve deeper into new developments, technologies and systems, but most like lye without changing their key routines.

Different opinions were identified regarding the progressive replacement of linear services by streaming services. These differences are linked to the level of digitalization of the populations in each of the countries studied. RTVE assures that in the case of Spain, the population pyramid presents a huge digital divide, so the corporation cannot ask a part of the

audience to consume its contents in digital media, since some of the audience is still not close enough to this format.

In the case of RTP, the company understands that VOD platforms will coexist peacefully with traditional television. They say that in Portugal, after all, young people “have been watching TV as long as their parents or grandparents.” In this line, the company believes that there will be content that will remain in linear distribution and other content that will move to the digital sphere.

Other European public broadcasters are clear on the fact that migration to online services will be completed sooner or later. With the coronavirus crisis, corporations experienced a mirage in which they registered significant increases in their audience figures, which representatives of France TV explain was misleading, because as the situation stabilized, the previous trend returned.

The French public broadcaster argues it must change its production strategy to generate content specifically for its digital sites rather than recycling its products on them. The EBU points out that the transformation to VOD platforms is happening because it is something that will bring real value to the user and predicts that this process will continue.

The new type of relationship established between corporations and their public will be much more individualized and personalized thanks to the resources and tools of the digital environment. Even so, in order to cover all user requests, it will be necessary to develop new formulas to adapt this attention to each user. To this end, chatbots or intelligent assistants are emerging as a solution.

The EBU concludes that it will be necessary to identify whether these technologies “become a standard of service to people in all companies,” since in that case they will not be a differentiating element of public service. Linked to this question is the ethical dilemma of the systems through which corporations expect to work in the coming years to try to find correct production processes that respect international regulations as much as possible.

Public Service Media foresee different challenges for this new stage, mainly related to cultural, budgetary and technical barriers, or to gaining, maintaining and retaining the audience’s attention and trust. In terms of technology, European public broadcasters will undergo a readjustment and redefinition of their strategy. However, the biggest challenge facing public media corporations is the permanent struggle against budget cuts, a circumstance experienced by the most experienced employees since their entry into the public media environment. This situation is complex, since these corporations are required to generate the same content, and even improve and expand it, with fewer and fewer resources.

To change the culture within organizations, RTBF says it is necessary to move away from the old culture of informing, educating and entertaining to a more digital one. The permutation lies in moving from a “push” culture to a “pull” culture, for which RTBF claims to have the knowledge and know-how to create the necessary content, in what format and the correct distribution, so they just need to renew their strategy and routines in parallel to the advancement of the industry and the needs of the audience.

The main objective of PSM corporations is to maintain the attention of the public, and they are working to offer services that differentiate themselves from the commercial media, thus gaining relevance for users in their respective countries. Distribution is an area on which European public broadcasters will place special emphasis, as they consider it essential to maintaining their own service at a time when media choice is becoming increasingly broad and misinformation caused by the multiplication of sources undermines the central role of journalism and the media.

5. Conclusions

The arrival of video-on-demand (SVoD) services in people's lives has profoundly altered national television industries, including both changes in viewing habits, in industry norms for financing and distribution, now led by subscription models, and in the intensified globalization of information and entertainment products, resulting in the introduction of new business systems and a constant challenge to national regulations (D'Arma, Raats & Steemers, 2021).

Innovation is no longer conceived in the context of public media as an option, but as a necessity or obligation to maintain the competitive pace with respect to these commercial services. The two classic innovation models are combined: the incremental model, which involves renewing and optimizing existing services, i.e., doing the same as always, but in a different way; and the disruptive model, which involves exploring new concepts, scenarios, and themes (**RQ3**).

The main objective of this research is to shed light on the innovation priorities, key points and areas of optimization on which the PSM is focusing its efforts to renew itself and build its future version. Understanding the most worked trends and concepts, and those that are beginning to be integrated into its strategic planning, allows us to identify the paths that the media will take in its next stage, as well as to intuit how it will operate in the years to come. It will be of interest to monitor the concepts and ideas that are beginning to establish themselves as key in the media in order to study their evolution and measure their progressive impact on the sector.

In order to meet the research objectives, 15 corporations belonging to the media systems described by Hallin and Mancini (2004) were analyzed, without finding significant coincidences in the innovation procedures or strategies in broadcasters of the same model, so it is concluded that this paradigm is not valid for comparing innovative trends among corporations and opens the way for future lines of research that propose new multidisciplinary models adapted to innovation routines, protocols and approaches.

Before advancing on the development of sophisticated prototypes or the establishment of complex processes, these corporations propose a progressive and complete digitization of their current structure and their historical archive, with an aim of metadating it to make it accessible, interoperable and thus integrate it into their operational routines. In parallel, and as a future proposal, they go deeper into priority areas and key points such as the optimization of production routines, the development of an AI strategy and its transversal implementation, the settlement and improvement of their VOD platforms, digital positioning and cybersecurity, the creation of stable communities, the application of high technology to optimize the user experience and the attraction and search for relevance for a young audience (16–25) usually distant from their services (**RQ1/RQ3**).

The innovation strategies outlined by public broadcasters in Europe coincide in their digitizing nature, but the disruptive component integrated in their plans varies depending on the size of the corporation, the knowledge and specialization of its staff and its level of leadership in the sector. Companies such as the BBC, France TV, Yle or ARD, among others, with strong technological strategies, have set the roadmap followed by the rest of the media, which adopt the profile of smart followers and take advantage of the advances and experiences of cutting-edge corporations. It will be relevant to follow closely in the coming years whether the traditional values of public television reach a point of confrontation with the operation of new tools, technologies, and systems, or whether there is a reinterpretation or adaptation, both of classic values to technology, and in the opposite direction, following the approach of Van den Bulck and Moe (2018) (**RQ2**).

In terms of production and distribution, corporations foresee the maintenance of their activity in linear channels, but gradually ceding the relative weight of this aspect in favor of

digital platforms. This trend will advance in parallel to the consumption habits of audiences, so this will be a process that will follow an uneven speed in different territories. In this sense, at the organizational level, for the implementation of ideas, both horizontal and vertical management flows are identified, where proposals move from senior management to other employees in the corporation and vice versa (RQ2).

In terms of the professional profiles that are already in demand in today's public media, the ability to work and co-create with high-tech professionals is becoming a prerequisite for the creation of mixed teams. Technical skills will be fundamental for the handling of specific tools, but competencies such as versatility and adaptability to change will be the most valued in a constantly evolving ecosystem with little room for reaction and learning (RQ2).

Cultural, technical, and budgetary barriers are the main hurdles that European PSM will have to overcome in the next stage in order to continue its repositioning, renovation, optimization and growth. This challenge, together with the search for credibility and relevance for their audiences and the conceptual distancing from commercial operators, prolongs a historical need and litmus of tests for public media, consisting of knowing and managing to transmit their value, and making sure that this represents a real contribution for the citizenry as a whole, and not a static manual of good practices without real transfer to the screen (RQ4).

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