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RESEARCH ARTICLE

Public Service Media laboratories as communities of practice: implementing innovation at BBC News Labs and RTVE Lab

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ABSTRACT

European Public Service Media (PSM) have implemented innovation departments or labs that seem to be useful for experimenting and developing innovative ideas regarding technologies, content, audiences and other areas. We have identified 17 PSM labs. We analyse these units through the lens of the Model of Coordinated Action developed by Lee and Paine (2015) and the concept of "Community of Practice" that describes how a group communicates, learns, participates and transforms their practice, drawing from Wenger's theory (1998). This study addresses how innovative PSM labs are managed, focusing on the cases of BBC News Labs and RTVE Lab. The methodology is based on participant observation in their workplaces, as well as semi-structured interviews with a purposive sample of 23 managers and employees. The results highlight that both teams manage innovation in their functional organization through learning processes among their professionals and transfer their innovations to other areas of their respective corporations. PSM labs encourage their team members to innovate through a collaborative culture that makes it possible to identify them as Communities of Practice that foster coordinated action and learning in their work. Their organizational culture relies on a strategy that seeks to increase their public service function.

Introduction

Public Service Media (PSM) are undergoing a transformation compelled by technological changes, audience fragmentation, the increase in the supply of content and the need to differentiate themselves from competitors (Glowacki and Jackson 2013). The PSM crisis also affects their social legitimacy and their ability to adapt to the digital ecosystem (Campos-Freire, Rodríguez-Castro, and Blasco-Blasco 2020, 671). In this context, the sustainability of PSM requires the implementation of management models of organizational change (Nissen 2013, 82) by means of value creation strategies that allow PSM to be repositioned, considering their loss of relevance in the digital ecosystem (Fernández-Quijada et al. 2015; Virta and Lowe 2016, 246). The Covid-19 pandemic has accelerated the need of

European PSM to provide public service and to fight misinformation (Túñez-López, Vaz-Álvarez, and Fieiras-Ceide 2020).

Despite structural, financial, and political difficulties, PSM are trying to respond to market challenges through initiatives that promote innovation, offering quality news content that provide added value to users and differentiate them from commercial competitors (Lowe and Steemers 2012). Several PSM have been catalysts in the development of digitization and technological innovation (Meier, Bracker, and Verhovnik 2017), placing innovation at the heart of their strategy (Jakubowicz 2010; Cunningham 2015), which is developed at different paces. Although the European Union lays down a set of guidelines for common implementation and the European Broadcasting Union promotes innovation among its members (Arriaza-Ibarra 2012), some PSM have demonstrated their inability to adapt to change due to a lack of initiative and strategy (Glowacki and Jackson 2013).

Digital transformation has accelerated the pace of change in the media ecosystem, so it is relevant to delve into the organizational restructuring of PSM, their professional culture and their ability to innovate (Virta and Lowe 2016). One of the characteristic factors of PSM is the creation of media labs, specific innovation departments that provide knowledge and tools for journalists to develop innovations in the production, organization, and distribution of content (Nunes and Mills 2021). There are around forty media labs around the world; in the last decade, several media labs have been launched by European PSM to experiment with emerging technologies, develop new formats and connect with audiences on different social platforms (López-García, Silva-Rodríguez, and Negreira-Rey 2019, 149).

This research addresses the way the PSM labs that focus on innovative projects are managed. The two cases of study, BBC News Labs and RTVE Lab, operate in different national cultures and media systems, the United Kingdom being a liberal model and Spain a polarized pluralist system (Hallin and Mancini 2004). Drawing from the literature (García-Avilés 2021a), journalism innovation could be defined as "the ability of media professionals to creatively solve the needs of their audiences, conditioned by the professionals' talent and predisposition and by the available resources to test and create new journalistic processes, products and services, thus providing value to their news organization and its audience". Our analysis incorporates the perspective of the Model of Coordinated Action (Lee and Paine 2015) and the concept of "community of practice" (CoP) which describes how a group communicates, learns, participates, and changes as their practice evolves (Wenger 1998). The CoP approach "allows understanding how knowledge and learning are intertwined and how this occurs naturally within a social group, in this case the news organization and its journalists" (Schmitz Weiss and Domingo 2010, 1165).

Because media labs are exceptional cases, a research gap concerning these novel types of units persists. We attempt to contribute to fill in this gap through the critical examination of media labs' organization, work processes, and innovation, engaging in theory building on this area of journalism research. The study has two objectives: (a) To explore how innovation is managed, implemented, and transferred in both laboratories, and (b) To analyse the functioning of the labs' multidisciplinary teams as CoP. Our starting hypothesis is that PSM labs, understood as CoP, manage innovation in their functional

organization through collaborative learning processes and transfer their knowledge to other areas.

The following research questions are posed:

RQ1: What are the main indicators of both RTVE and BBC labs as communities of practice?

RQ2: How are the different levels of collaboration and learning implemented?

RQ3: How is innovation defined, implemented, and transferred?

Laboratories as Channels for Intra-company Innovation in PSM

As Belair-Gagnon and Holton (2018, 70) argue, new players are "working through innovative technologies and challenging the authority of news organizations and journalists alike while also opening new pathways for journalism's relevance and sustainability". "Hacker journalists" with a programming background are using code and open-source tools as a storytelling device, while hackathon events and laboratories provide newsrooms an opportunity to experiment with prototypes and computational approaches (Boyles 2020). Media labs, created in the 1990s to develop open-source tools and participatory platforms, could also be considered agents of change from outside of journalism that contribute to reshaping the identity of the journalistic profession.

"Media lab" is a broad concept because it has become a generic term to refer to spaces considered as collaborative research and development environments which cover various fields of knowledge -such as computing, communications, information technologies, social sciences, business, or art- and are described as "incubators of ideas" for public and private institutions. Media labs usually focus on communication and new technologies to devise, research, experiment and innovate technologically and socially through the collaboration of various disciplines (Tanaka, 2011).

The different denominations and variants of media labs depend on the locus where they develop (media companies, non-profit institutions, start-ups, universities …), their approach, structure, and objectives (Nunes and Mills 2021). Several types of media labs can be found worldwide, ranging from the pioneer MIT Media Lab founded in 1985 to innovation hubs such as Bayern Media Lab, educational media labs, and in-house labs at legacy media. The concept of "lab" is multifaceted and ubiquitous, as it comprises R&D units within academia or industry, collaborative settings for company innovators to engage with each other or a loose network of informal organizations brought together to solve a problem or to experiment (Mills and Wagemans 2021, 1469). As such, the in-house R&D unit with a core mission of technological development working with wider innovation ecosystems has served as a standard for other labs across several industry sectors, also developing novel directions such as multidisciplinary hackathons or academic R&D labs (Mills and Wagemans 2021, 1467). After decades of existence, media labs have entered a phase of redefinition and soul searching (Capoano and Ranieri 2016).

These laboratories are "R&D&I units driven by the media in order to innovate in technologies and editorial formats which deal with researching, experimenting, developing and implementing technological and editorial innovations in their organizations" (Salaverría 2015, 398). These units can adopt various structures, such as separate departments integrated into the organization, a team selected to carry out innovation tasks, an

agreement between a news company and a research centre to collaborate in the development of projects, or a combination of all these (García-Avilés 2018; Zaragoza-Fuster and García-Avilés 2020). Labs share a business philosophy that seeks to mitigate the effects of the crisis, make technology profitable and commits to Research & Development (Pozo-Montes and Larrondo-Ureta 2020, 195), thanks to the active role of professionals who become agents of innovation (Spyridou et al. 2013).

Media labs might perform diverse functions through multidisciplinary teamwork, such as the development of digital applications and the experimentation with visual narratives, multimedia formats and data journalism, testing business projects and providing professional training (Salaverría 2015, 200). Thus, labs might be revitalizing agents of the media ecosystem, responding to users' needs and experimenting through the introduction of new practices, structures, and production models (García-Avilés 2018).

The PSM's commitment to innovation is reflected in the creation of laboratories that collaborate with the rest of the organization (Lombao, Valencia-Bermúdez, and Campos 2016, 495). European PSM have implemented their own laboratories since 2010, so it is relevant to investigate the aspects that define their production, organization, and contributions to the strategic objectives of public corporations in terms of innovation (López-García, Silva-Rodríguez, and Negreira-Rey 2019). Although innovation may not be a necessary condition, these units might be useful for experimenting and developing innovative ideas regarding content, audiences or technologies (García-Avilés 2020; Hogh-Janovsky and Meier 2021). However, they can also become "silos" isolated from other departments, thus preventing knowledge and innovative practices from being transferred to the rest of the organization (Boyles 2015). From a business point of view, laboratories are cases of *intrapreneurship*, since they foster a collaborative culture, using a user-centred model focused on journalistic narratives, such as Data Journalism, Immersive Journalism, Ubiquitous Journalism and Bots (López-García, Silva-Rodríguez, and Negreira-Rey 2019).

We have identified 17 PSM media labs founded between 2006 and 2020 (see Table 1): RTVE Lab (Spain), BBC News Lab (United Kingdom), ZDF TV Lab, SWR X Lab, WDR Innovation Hub and DW Lab (Germany), WebCréation de Radio Télévision Belge de la Communauté Française and VRT Start-Up (Belgium), NRK Beta and SR Innovation (Norway), SRF Data (Switzerland), Yle News Labs (Finland), VPRO Medialab (The Netherlands), France TV Lab (Francia), Czech Radio Creative Hub (Czech Republic), RAI Centre for Research, Technological Innovation and Experimentation(Italy) and RTP Lab (Portugal).

Zaragoza-Fuster and García-Avilés (2020) consider that laboratories are one of the main sources of innovation within PSM and can become catalysts for the change required by public corporations. PSM are implementing management and visibility strategies for immersive contents and 360° video on their own websites and YouTube channels (Pérez-Seijo, Melle-Goyanes, and Paniagua-Rojano 2018). Experimentation is beneficial since "journalism is in the laboratory and that there is also a sort of laboratory journalism" (López-García, Silva-Rodríguez, and Negreira-Rey 2019, 158).

The European Broadcasting Union (EBU) launched a Storytelling Labs network in June 2015 which consisted of a series of encounters between the group members (EBU 2017). EBU Digital Storytelling Labs' members work together to foster innovation in the fields of digital storytelling (Pérez-Seijo, Melle-Goyanes, and Paniagua-Rojano 2018). In this way, PSM laboratories can incorporate quality into journalistic production, becoming a

Table 1. Public Service Media labs in Europe.

Lab Name	PSM/country	Founding year	Number of employees	Website
RTVE Lab	RTVE/Spain	2011	13	https://www.rtve.es/lab/
BBC News Labs	BBC/United Kingdom	2012	20	https://bbcnewslabs.co.uk/
Ida	ZDF/Germany	2020	22	https://www.ida.me/
SWR X Lab	SWR/Germany	2020	8	https://www.swr.de/unternehmen/xlab-100.html
WDR Innovation Hub	WDR/Germany	2020	6	https://zukunft.wdr.de/
DW Lab	Deutsche Welle/Germany	2017	25	https://innovation.dw.com/hello-dw-lab/
France TV Lab	France TV/France	2016	12	https://www.francetvlab.fr/
WebCréation	RTBF/Belgium	2014	9	https://www.rtbf.be/webcreation/
VRT Start-Up	VRT/Belgium	2018	34	https://innovatie.vrt.be/en
NRK Beta	NRK/Norway	2006	7	https://nrkbeta.no/
SR Innovation	Sveriges Radio/Norway	2015	8	NA
SRF Data	SRF/ Switzerland	2014	6	https://www.srf.ch/news/srf-data
Yle News Labs	Yle/Finland	2018	24	https://newslab.yle.fi/
VPRO Medialab	VPRO/ The Netherlands	2015	12	https://www.vpro.nl/medialab.html
Czech Radio Creative Hub	CZ/Czech Republic	2016	6	NA
RAI Centre for Research, Technological Innovation and Experimentation	RAI/Italy	1999	NA	http://www.crit.rai.it/CritPortal/?page_id=8
RTP Lab	RTP/Portugal	2018	NA	https://media.rtp.pt/rtplab

Source: Authors' own research based on data from the labs.

"place to try out formulas that could potentially add value and improve existing models" (López-García, Silva-Rodríguez, and Negreira-Rey 2019, 157).

The Model of Coordinated Action and the Community of Practice Framework

Scholars have devised theoretical frameworks to understand the process of coordination that integrates a collective set of interdependent tasks in organizations. An integrative framework developed by Okhuysen and Bechky (2009), after reviewing research on work in organizations, considers the ways staff members interact with one another and how their outcomes are shaped by organizational structures. Individuals and groups in organizations must constantly recreate the conditions of coordination to jointly execute their work, using mechanisms such as routines, meetings, plans, and schedules. This framework emphasizes three integrative conditions for coordinated activity among staff members: accountability, predictability, and common understanding (Okhuysen and Bechky 2009, 481–484).

The Computer-Supported Cooperative Work (CSCW) community has long used taxonomies of cooperative systems to design protocols for people working together. Media labs could be interpreted through the lens of the Model of Coordinated Action (MoCA) developed by Lee and Paine (2015). MoCA consists of seven dimensions of coordinated

action: synchronicity, physical distribution, scale (number of participants), number of communities of practice, nascence (coming to being), planned permanence, and turn-over. These dimensions provide a framework for understanding the more diffuse coordinated actions in CSCW.

This conceptual mapping of collaborative work enables a theoretical construct of a laboratory as a "collaborative space for innovators from within and beyond companies to engage with each other or be a loose network of communities of practice within a specific geographic cluster, brought together to solve a problem, experiment or play" (Mills and Wagemans 2021, 1469). The notion of interdisciplinarity in teams and groups is increasingly a source of conflict. Difficulties emerge when collaborators come together to work from different disciplines -science, design, computing, or another background-.

The MoCA framework intends to go beyond narrow idealized notions of goal-directedness, which suggest that goals are clear and well-defined and that people working in concert necessarily have the exact same goals. The shift also lies in opening a conceptual roadmap to include the notion that very loosely knit ways of doing things together, whether it be for work, leisure or enrichment.

Wenger's Community of Practice (CoP) builds a theory of learning whereby newcomers are exposed to experienced members of a community, and over time, newcomers learn and adopt the values, norms, practices, and artefacts (e.g., tools) of the experts. Individuals must have repeated and enduring exposure to each other to form a CoP and to teach and learn from each other. A CoP provides a useful context to explore new insights of leading-edge learning, which requires a strong bond of communal competence along with a deep respect for the particularity of experience (Wenger 1998). Within these communities, "individuals interact with one another to solve problems, test new ideas, learn about new developments in their field and build a sense of affiliation with others in similar circumstances" (Lesser and Fontaine 2004, 15).

From an instrumental perspective, CoP can be viewed as learning partnerships where the learning capability is anchored in mutual recognition by its members. Thus, CoP display the elements of systems such as an emergent structure, complex relationships, self-organization, dynamic boundaries, ongoing negotiation of identity and cultural meaning (Wenger 2012). Wenger (1998, 125–126) outlines a series of characteristics of CoP that are relevant to this study:

- Sustained mutual relationships—harmonious or conflictual.
- Shared ways of engaging in doing things together.
- The rapid flow of information and propagation of innovation.
- Very quick setup of a problem to be discussed.
- Knowing what others know, what they can do, and how they can contribute to an enterprise.
- Mutually defining identities.
- The ability to assess the appropriateness of actions and products.
- Specific tools, representations, and other artefacts.
- Local lore, shared stories, inside jokes, knowing laughter.
- Jargon and shortcuts to communication as well as the ease of producing new ones.
- A shared discourse reflecting a certain perspective on the world.

The implication that CoP may be quite exceptional shifts in Wenger's proposal away from more mundane work to "innovative" or problem-solving settings (1998, 130). Increasingly, such communities are necessarily virtual if the object is to connect individuals from across a large multinational organization, who are geographically dispersed, so that the choice of technology, issues of scale and the balance between face-to-face and virtual meetings are important (Wenger, McDermott, and Snyder 2002).

As a framework for knowledge sharing, CoP are most often applied to the areas of business management, communication studies, and education. Scholars have also used this concept when analysing news organizations (Meltzer and Martik 2017; García-Avilés 2021b). Weiss and Domingo (2010, 1166) describe online newsrooms as CoP through their innovation practices, while Matsaganis and Katz (2013) also look at ethnic media producers as CoP. In a study of how Spanish newsrooms faced disruption during Covid-19, García-Avilés (2021b) found that media houses became CoP where management implemented strategies to control the building of trust and cooperation, the implementation of news practices and the power dynamics. Meltzer and Martik (2017) argue that different types of news professionals, such as data journalists, news designers or video reporters might form a CoP in journalism. Thus, "understanding journalists as communities of practice helps us reconcile these characteristics that are seemingly at odds and gives them a recognizable, comprehensible shape and form" (Meltzer and Martik 2017, 219). Communities of journalists that collaborate on problem solving and acknowledge each other's work might become more organized over the time in which they interact over their practices (Meltzer and Martik 2017, 220).

Methodology

Our subject of study focuses on how innovation is managed in a purposive sample of two PSM labs: BBC News Labs (United Kingdom) and RTVE Lab (Spain). We have selected these case studies because most labs in Europe are implemented by PSM (Salaverría 2015). Both laboratories, with over a decade of experience, are among PSM's pioneers and have obtained international recognition, although they have different corporate cultures. BBC News Labs was created in 2012 as part of the Research & Development department with the aim of driving innovation through its tools and projects. It serves the leadership of the BBC and reflects its mission. RTVE Lab was founded in 2011 as a unit within the digital newsroom to produce online innovative pieces as well as transmedia content. The lab evolves from the commitment to innovation of a specific section as it operates independently from RTVE's Innovation Department.

The case study methodology is a useful research tool designed to gather information about an organization and its context, since it allows the analysis of its structures and management processes (Gerring 2006). Data collection is based on participant observation in both laboratories, which included attendance at team meetings, informal conversations, and examination of their production processes and resources for periods of five days in March 2017 (RTVE Lab), June 2018 (BBC News Labs) and December 2019 (RTVE Lab). During the visits, individual semi-structured interviews of about 50 min each were conducted with a sample of managers and employees of the laboratories, as well as executives from the Innovation Departments of both PSM. Subsequently, other

interviews were carried out via video calls. The interviews were transcribed and analysed using a code sheet that made it possible to identify recurring themes and compare relevant content.

The list of the 23 interviewees and their positions is shown in Appendix 1. All levels of hierarchy or informal groups from both labs were included in the sample. Interviewees from RTVE Lab ($N = 5$) represent 43% of the staff. Interviewees from BBC News Lab ($N = 5$) represent 25% of the staff. All interviewees agreed to an informed consent and were offered anonymity. Two workers from BBC News labs and one from RTVE Lab requested anonymity. Additionally, we agreed that the interviewees could talk off the record during the interview, expressing opinions or information that we could use in the text without attribution, to ensure they could freely talk about aspects that were sensitive to their organizations.

Semi-structured interviews are a valid method to collect information about a reality and make inferences from the results obtained (Charmaz and Belgrave 2012). The interview questionnaire and the coding sheet included factors that shape journalistic innovation identified by Paulussen, Geens, and Vandenbrande (2011), related to the newsroom's structure, human resources (job profiles, salary and reward systems), work organization, allocation of time and resources, workflows, the professionals' attitudes towards innovation as well as its strategic objectives.

Results

Public Service Media Labs as Communities of Practice

The analysis of the information collected from the respondents reveals that both labs share a series of characteristics that correspond to those defined by Wenger (1998) as typical of the CoPs:

(a) Sustained mutual relationships. Lab members maintain a harmonious relationship during the production process of projects, with a supportive and mutually beneficial attitude. As they work in a coordinated way, the role of each member is conditioned by the others. RTVE Lab employees admit facing internal conflicts when professionals differ on how to develop a project. In the case of BBC News Labs, conflicts might arise when starting a project and different points of view collide. In both cases, teams are small and can be absorbing. However, according to some interviewees, these conflicts are not relevant since each member knows what their role is and there is apparently no competition between them, but collaboration to achieve the same goal. Moreover, these conflicts might be fruitful for the team because it forces members to discuss their decisions and learn throughout the process. Learning from trial and error was emphasized, so that failures are important to innovate. RTVE Lab's Hernanz (2017) says that there are no egos in the unit, since members are aware, from day one, that all opinions are valid and solutions are found after making mistakes.

(b) Shared ways of engaging in doing things together. Both laboratories are organized into teams in which each member develops a complementary role to the rest. In RTVE Lab all the members are integrated into the same team, while in BBC News

Labs they are organized into 3 or 4 "stream teams" of 3–5 people, according to the type of project.

(c) Fast diffusion of innovation. In both laboratories, constant interaction allows to quickly exchange a flow of information that, at the same time, serves to transfer innovation among team members and to other areas of the organization. They share the business objective of transferring innovative tools and formats, use technology to streamline production tasks and offer quality products to users. "Our goal is to make everyone's life a little better and easier with little things, for example, before, dragging a photo from the BBC library to a page or article would lose all the metadata and we have fixed that" (McKenzie, 2018).

(d) Very quick setup of a problem to be discussed. Teams react quickly, through agile processes, to the challenges proposed by managers after generating ideas. For example, BBC News Labs is characterized by developing fast production processes to meet the organization's needs.

(e) Knowing what others know, what they can do, and how they can contribute to an enterprise. BBC News Labs and RTVE Lab comprise multidisciplinary teams whose tasks complement each other. This collaboration and exchange of knowledge allows them to achieve expertise and learning for their members. Teamwork enriches them individually and jointly. There is a great variety of professional profiles, but precisely BBC News Labs ensures "that the joints are not noticeable, that everything is uniform, so people are multitasking, and we try not to pigeonhole anyone", according to Rob Mckenzie (2018), BBC News Labs' managing editor.

(f) Mutually defining identities. Lab members share the mission of their organization during the implementation of the projects. They carry out their tasks bearing in mind their public service function. Both executive managers David Caswell (2020) and Miriam Hernanz (2019) agree that the labs' have a wider impact on society.

(g) The ability to assess the appropriateness of actions and products. The production process in both labs includes constant evaluation, as they test prototypes during their development. They apply the Design Sprint in the creation of prototypes and they test them through the Lean Start-up methodology, based on the fast development of a product to obtain feedback throughout the process. They use the Agile methodology that involves short work cycles to evaluate progress. This model is based on trial and error, which facilitates the flexibility of teams and the ability to solve problems.

(h) Specific tools, representations, and other artefacts. The labs use their own technological tools as well as external tools to coordinate members during the production process and the implementation of projects. In addition, online tools allow members to telework in a coordinated way during the Covid-19 lockdown period.

(i) Local lore, shared stories, inside jokes. The members of the laboratories maintain emotional ties and consider themselves to be "a family", as one interviewee put it. They help each other with their tasks and support each other to achieve the common goal of carrying out a successful project. During the pandemic lockdown, members of both laboratories held video calls to combat isolation, be supportive of each other and strengthen their ties beyond the workplace.

(j) Jargon and shortcuts to communication as well as the ease of producing new ones. They use their own jargon appropriate to their professional field and create new

concepts adapted to their work style. For example, "you have to see it", a phrase popularized among the members of RTVE Lab because of the constant search for innovative products, led to a section on the website.

(k) A shared discourse reflecting a certain perspective on the world. The labs share the mission and values of PSM with the purpose of applying innovation to improve public service. Managers stated that lab members have a responsibility to preserve ethical standards such as truthfulness, accuracy, fairness, and public accountability. McKenzie (2018) expects to "generate new ways of collecting news, processing news, telling the stories and connecting with our audience". The lab's objectives are to take advantage of the talent of the BBC to generate story-based journalism, support the transfer of innovation to production, collaborate with other media and increase the innovative value of BBC News. According to McKenzie (2018), the BBC's strategic priorities "have a commitment to improvement". RTVE Lab offers an innovative approach on how technology can enrich stories and improve audience participation, according to Hernanz (2017).

Different Levels of Collaboration and Learning

Both laboratories have a multidisciplinary staff with professionals of different profiles and training which, according to the interviewees, is the key to their operational success. The combination of journalists and engineers allows them to decide which formats and tools they should choose to experiment with each type of content. According to McKenzie (2018), "if you want to be at the forefront you have to have this type of team of people, because if not, the engineer will go his way and do something great and extra-ordinary, the journalist will go and do something even better, but they do not combine and all the work of both will have been in vain". At BBC News Labs, managers Rob McKenzie and Miles Bernie, a journalist, and an engineer respectively, share decisions on projects. At RTVE Lab, developers advise journalists on the selection of the type of technology to be used for each project.

The specialized technological profile predominates among BBC News Labs staff. Most of the 20 members are software engineers, experts in natural language, robots, and Artificial Intelligence; it also has some journalists with technical experience, designers, and a social media manager. The RTVE Lab team is made up of 12 professionals: four journalists and a camera operator who are RTVE employees, and three designers and four developers who belong to an external company.

Constant communication and interaction among the professionals, both spontaneously and through regular meetings, as well as the discussion of ideas, allow them to share expertise and enjoy a continuous learning environment. Several interns are trained at the laboratories and are then hired in other departments, thus transferring the acquired knowledge. McKenzie (2018) and Hernanz (2019) agree that trainees bring freshness to the lab and generate new ideas. All individual contributions are respected, as they come from different backgrounds and professional experiences.

Both laboratories grant their employees work autonomy and flexibility. In the case of the British laboratory, each team chooses its organization system, working methods and tools. The start of each project is a professional challenge with different tools and

functions, without settling on their tasks, according to BBC News Labs software engineer Remi Oduyemi (2020). Managers at BBC News Labs change teams on each project, forcing professionals to step out of their comfort zone. In the case of the Spanish lab, the professionals start from scratch in each project and adapt the tools and formats according to the type of content.

There are also collaboration strategies with other departments. BBC News Labs works closely with BBC News, Research & Development and BBC News Products and Systems, especially with the Voice and Artificial Intelligence team, the Data Lab, and the Apps team (McKenzie, 2018). Since BBC News Labs is part of Research & Development, the laboratory is supported by its sections, distributed in the South Lab and Central Lab in London and the North Lab in Salford (Manchester). The teams meet each other every six weeks and keep in regular contact.

RTVE Lab collaborates with fellow colleagues in the broadcast newsroom, the web, and different programmes. According to Hernanz (2019), "the goal is that ideas come out of collaboration and not as watertight departments. It seems something very simple but people from different media departments rarely work together from the beginning to the end of a project, and that makes them even richer". Collaboration among team members and with professionals from other sections, enhances continuous learning in their training.

According to the managers interviewed, the level of innovation in the labs depends on the mastery of technological tools, creativity, and the motivation of their members. For Woolard (2018), training is the key to achieving high professional expertise. Experimentation means that professionals can make mistakes and learn from them, as they face various problems and have multiple tools to solve them. According to Hernanz (2019) and Oduyemi (2020), prototypes are constantly tested during the production process. "Professionals are guided by their intuition and creativity; the team is super creative and their attitude allows progress in innovation", says Hernanz (2019).

The Influence of Physical Space and Telework

The staff in both laboratories physically work in the same space. The BBC News Labs team is in the Central Lab at Broadcasting House headquarters in London, which also allows them direct, physical contact with BBC News journalists. The Spanish Lab team is in Rtve.es newsroom, on the fourth floor of Torrespaña (Madrid), where the technical and content professionals work together, also with the website editors. The interviewees agree that having direct contact, both among the members of the lab and with other sections, encourages collaboration and allows the sharing of ideas that foster creativity. Oduyemi (2020) admits that innovation not only depends on the use of technologies but also on the interaction between professionals.

BBC News Labs began working remotely in March 2020 during Covid-19 lockdown until the time of editing this article in March 2022. RTVE Lab also began working remotely in March 2020, but their staff resumed physically working in the newsroom by September 2020, with the possibility of alternating with remote work if needed. Teleworking proved effective because, according to Hernanz (2020), the RTVE lab increased its production to respond to the need for news on the consequences of the pandemic, in addition to continuing with their planned project schedule. At the BBC, some of the

project cycles lasted two extra weeks (Caswell, 2021). Covid-19 quarantine measures reduced in-person interactions significantly and had a negative impact. In this sense, creativity suffered due to the saturation of work and the isolation of workers (Hernanz, 2021). Regarding the psychological stress generated by teleworking, only one worker of RTVE Lab said he felt isolated because he lives alone at home, but others did not mention any mental health problems. Some BBC workers showed psychological stress working from home; management organized informal video calls to maintain relaxed contact between colleagues and combat isolation.

The organization of remote work was affected because the projects required a lot of communication and coordination that was reinforced through videoconferences. Besides, professionals physically meet at specific moments to supervise design or production details. However, some interviewees remarked on the negative aspects of telework. A BBC News Labs professional said that "what is lost in remote working is not having face to face conversations in the newsroom with my colleagues. What is missing here is the "Aha moments", a kind of epiphany where ideas suddenly materialize". Another member agrees: "We are losing a lot even though videoconference technology seems to be solving all the problems. I used to spend a lot of time working with teams, attending meetings, and sitting next to a reporter. Things in person can be very self-evident, you have a more fluid exchange of ideas. I think we lose some of that".

Productivity issues also arise. According to a RTVE Lab journalist, "teleworking has improved some aspects of production, because we dedicate more time individually to each task and the work comes out faster". However, key metrics such as how effective the labs are in designing and launching products and the impact they have, take longer to measure. "Am I answering as many emails as before? Yes. Am I writing on the computer as much as before? Probably yes. But am I being as productive as before? What are we producing? If we are talking about producing innovation it is going to take a lot longer to answer that", argues one BBC Lab member.

Perception of the Innovation Strategy

The interviewees show different perceptions regarding the concept of innovation. Hernanz (2017) points out that "to innovate is not to invent, but to adapt what exists to solve a specific problem", since "innovation is to put creativity in order, to make that creativity understandable to the public. If the process were not chaotic and messy, we would always do the same and it would not be innovative". RTVE Lab editor Esther García (2017) maintains that "innovation starts from the idea that we have to be different, whatever happens. It is a method to improve and give values to the brand itself". Producer Marcos Martín (2017) considers that innovation consists in "doing things that others do not do, or in doing what others do, but in a radically different way".

The key to RTVE Lab's strategy is, as Hernanz (2017) points out, "to consume many innovative products from other media to keep up to date and experiment through the eyes of others". An outlet is innovative when it allocates a large part of its resources to experimentation, to testing and producing new narratives. According to Ignacio Gómez (2019), head of the RTVE's Digital area, "all innovation requires prior research, because innovating consists in creating the most advanced products and services that offer the best possible user experience".

McKenzie (2018) conceives innovation as a strategy for doing something new effectively to enrich people's lives. Woolard (2018) argues that innovation does not just mean creating something new, but making an idea scalable, which can be the result of long research. Katie Bird (2018), project manager at BBC Taster, claims that the innovation strategy responds to the commitment to offer quality products as a public service. Kofi Sekyere (2018), project manager of Future Experience Technologies, says that innovation is useful to solve problems and find new ways of developing projects. Laura Harrison (2018), senior product manager at Connected Studio, sees it as something that allows it to advance as a public service and benefits the user. Maxine Glancy (2018), from User Experience, describes innovation as "anything that is breaking ground and pushes the limits of technology to create new technology". According to Caswell (2020), the innovation strategy seeks to make their production more efficient to help journalists in their tasks.

Organizational Culture

In media companies, organizational culture is an important framework for the implementation of journalistic innovation (Steensen 2018). BBC and RTVE share collaborative cultures whose internal operating rules pursue the corporate mission, encourage experimentation and creativity, and seek to achieve the maximum transfer of their production. Both cultures create a comfortable environment for workers, since they are given autonomy when working and are allowed to participate in suggesting ideas to be developed, so they opt for an intrapreneurship strategy.

As a result of organizational culture, the feeling of belonging to a community with a common strategic objective arises. The interviewees identify with the values of their corporation and feel recognized by their managers, since they are entrusted with the responsibility of applying innovative techniques and given the freedom to experiment. According to Hernanz (2017), they do not feel controlled by their superiors since they are only required to meet the deadlines for the submission of their projects. Work environment is flexible. When dealing with innovation, Hernanz (2017) claims that it is impossible to implement standardized protocols. "If we want to be innovative, we cannot impose protocols because if products are always tested in the same way, supervised by the same person and the same tools are used, we are not innovating". According to the interviewees, they use open internal communication systems, most of them horizontal. The collaborative profile stands out in its organization in teams, whose roles are at the same level, led by the deputy director in the case of RTVE Lab and by the management team at BBC News Labs.

Creativity is the result of collaborative culture, autonomy, and capacity for experimentation. The fact that each project represents a challenge for its members encourages them to be more creative and face a constant learning process. FXT project manager David Johnson (2018) acknowledges that "in a large organization like the BBC, it is quite easy to forget about the real world. Part of the job is keeping up with what's going on. Being good at my job means that I am constantly learning, and I think that is part of my role". According to development producer Nick Kid (2018), the BBC's corporate culture encourages employees to take an interest in sharing new things and then share it.

Leadership

BBC News Labs is headed by a management team made up of three heads: Miles Bernie, chief executive officer who manages workflows and the transfer of innovation to BBC News; Rob McKenzie, editorial manager, and David Caswell, executive product manager. "Miles and I take care to set priorities and projects, so that in each biweekly management meeting we can take something every time" (Mckenzie, 2018).

RTVE Lab is led by deputy director Miriam Hernanz, who organizes work schedules, assigns tasks and encourages the team. In both laboratories, managers propose ideas, coordinate the projects, supervise the tasks, keep contact with other sections and external organizations, and take responsibility for the strategic lines and the achievement of objectives. Likewise, management fosters team's creativity and gives them autonomy to be innovative.

While the deputy director maintains the dynamic role of the team at RTVE Lab, at BBC News Labs each work team is led by a senior, who plans tasks and assigns them to each member. Management at BBC News Labs guides seniors to carry out the initial research and checks if the proposed project is feasible, makes sure about its usability together with journalists and considers its implementation in other areas of the BBC. Woolard (2018) highlights that leadership involves "trusting in each team member and having a business strategy that allows knowing what users want and what systems or devices are going to change".

BBC News Labs is supported by a specific budget line from BBC News and R&D. Nevertheless, the BBC's internal bureaucracy can slow down innovation, according to some interviewees. There is no specific budget allocation for innovation in RTVE, but each area allocates the percentage assigned, according to Vila (2019). However, the main hindrance to innovation is the continuous change of directors of the corporation, according to Gómez (2019). In this sense, the political instability of the last two years in Spain has kept RTVE stagnated in terms of innovative challenges. Hernanz (2019) argues that the rhythm of production of the laboratory does not allow research in innovation because changes in management's priorities interrupt the lab processes. In both laboratories, managers are more positive when talking about the work environment, while workers are more realistic and recognize that there is a triumphalist attitude of management that requires the team to complete tasks and projects, when sometimes they cannot be finished in time.

Knowledge Transfer

The laboratories generate expertise that they intend to transfer to the rest of the staff. BBC News Labs has an internal website, the News Labs Toolkit, where prototypes used by BBC staff are displayed. At RTVE Lab, the team offers training workshops to the rest of the workforce. The interviewees agree that the transfer of knowledge and innovation to the rest of their organizations is slow because journalists follow their traditional work routines. Oduyemi (2020) admits that they have many innovative journalists who help them transfer and persuade the rest of their colleagues, who are more aseptic. However, each project poses a challenge when the time comes to transfer its results to other departments (Caswell, 2020).

Both labs share the challenge of being useful to the corporation and the audience. Another challenge is to spread their innovation to the rest of the community, extend

their achievements to the professional and academic environment, and maintain their leading position in the journalistic field of their countries. Their members participate in seminars and congresses, in addition to teaching at university. According to McKenzie (2018), part of his job "is to make the BBC attractive, to go to conferences and to say that we are a corporation at the forefront of the times". BBC Labs publishes their projects on their blogs, shares knowledge with universities and participates in events organized by Connected Studio. Both labs are part of the European Broadcasting Union and participate in meetings where they exchange knowledge with similar communities of practice. Hernanz (2019) acknowledges that they are inspired by projects from BBC News Labs and other European labs.

Woolard (2018) does not specify the transfer percentage and qualifies innovation as incremental in hardware, production processes and knowledge. Evans (2018) and Caswell (2020) coincide in calculating transfer around 50% of production. "I think a percentage is not the right way to look at it; I think it's harder to measure, it's more about impact, an automatically long-term impact" (Caswell, 2020). Woolard (2018) acknowledges that this percentage is below its objectives.

At RTVE Lab, knowledge transfer has been promoted since November 2018, when it increased its presence throughout the corporation. "Now the television newsroom and the laboratory work together, something that two years ago was unthinkable", points out Hernanz (2019), who assures that their level of transfer is about 80%. The RTVE Lab has been co-producing interactive documentaries with production companies since December 2016. However, a new RTVE president was appointed in March 2021 and some processes have been halted. The corporation's structure is being rebuilt and some content and technical areas have been redesigned.

Conclusions

From the perspective of the Model of Coordinated Action (MoCA) developed by Lee and Paine (2015), we could conclude that both BBC and RTVE labs could be regarded as communities of practice, according to Wenger's (1998) conceptual framework. Both PSM laboratories encourage a collaborative culture in their organization, generate skills, methods and workflows to streamline routine processes, develop quality products as well as tools and projects that they intend to transfer to other departments. The role of media labs as collaborative settings, according to the Model of Coordinated Action (Lee and Paine 2015), suggests that post-industrial work requires assembling specialized knowledge in ways that we have not done before, while facing new task environments.

We have identified several indicators of the configuration of these labs as CoP. Their organizational structure and methodologies are geared to maximise teamwork and multidisciplinary professional profiles. The level of innovation of their projects depends on the talent and creativity of the members, thanks to the expertise they generate because of their continuous interaction and exchange of knowledge. Employees show solidarity with their colleagues and learn from each other. In addition, they acquire new skills in the development of the different projects. Teamwork requires constant communication which takes place spontaneously and formally, sometimes using digital tools. In fact, at BBC News Labs they work in collaboration with other Research & Development sections located in Salford and London, with whom they communicate online.

The demand from management can create stress in innovation processes (Meijer, Frings-Dresen, and Sluiter 2009). In both laboratories, managers tend to be more positive when talking about the work environment, while workers are more realistic and admit that there is a triumphalist attitude of management. Some RTVE and BBC employees mentioned the psychological stress generated by teleworking.

Another indicator is their transfer strategy. Their work affects the running of newsrooms and the corporate image of their corporations. They transfer knowledge and prototypes, as the members of the labs instruct the journalists regarding their application. The level of transfer is one of their main challenges, since they have internal obstacles such as the reluctance of journalists from other departments, or the lack of an innovative corporate strategy in the Spanish case. In addition, they share their results publicly and with external entities, such as universities and the media, through blog posts, participation in seminars and organization of events.

Employees share the commitment and values of the organization. They are aware of their public service function and the social impact of their projects, as well as their usefulness to both the rest of the staff and the audience. The collaborative environment facilitates the responsibility they accept in each project, since leaders trust their teams to work in a coordinated way but with the freedom and motivation that encourages them to be creative.

BBC News Labs and RTVE Lab foster innovation in their teams through a collaborative culture. Flexibility, autonomy, teamwork, constant experimentation, entrepreneurial attitude, and the predisposition of each member to learn and share their knowledge encourage innovation. These factors are the result of their corporate cultures and determine their operation as CoPs. Their organizational culture is key to generating their members' commitment to develop an innovative strategy to improve their public service function. Despite belonging to different organizational cultures and betting on different innovation strategies, both BBC News Labs and RTVE Lab share an identity as CoP focused on innovation.

This study examines the perceptions of professionals at BBC and RTVE media labs about how innovation is implemented in their teams and workflows. This research has some limitations. It should be noted that the sample of 2 PSM labs is too small ($N = 17$) is small so that results cannot be extrapolated. Because the sample size of interviewees from BBC News Labs is small, it will be difficult to find meaningful relationships and generalizations from the data. Besides, the study depends on having access to both PSM organizations and its members. The interviews conducted as self-reported data are limited by the fact that they seldom can be independently verified and they may contain several potential sources of bias, such as attributing positive events and results to the institution. Media labs would be a valuable line of research for future studies, including larger samples in different countries and work settings. Longitudinal studies could explain how journalistic practices and innovation evolve in these CoPs as the pandemic evolves, analysing other relevant issues such as productivity and the quality of content production.

Disclosure Statement

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Annex 1. Interviews.

(1) Aseraf, Madiana: Head of Business Development, EBU (October 2017)
(2) Bird, Katie: project manager, *BBC* R&D's Taster (June 2018)
(3) Bowler, Derek: head of Social Newsgathering, EBU (October 2018)
(4) Caswell, David: executive product manager, *BBC* R&D's BBC News Labs (May 2020, June 2021)
(5) Evans, Michael: designer of artificial intelligence, *BBC* R&D's FXT (June 2018)
(6) Frankel, Mark: social media editor, BBC News (October 2018)
(7) García, Esther: journalist, RTVE Lab (March 2017)
(8) Glancy, Maxine: senior research scientist, *BBC* R&D's User Experience (June 2018)
(9) Gómez, Ignacio: head of Digital & Research, RTVE (December 2019)
(10) Harrison, Laura: senior product manager, *BBC* R&D's Connected Studio (June 2018)
(11) Hernanz, Miriam: head, RTVE Lab (March 2017, December 2019, May 2020, June 2021)
(12) Johnson, David: project manager, *BBC* R&D's FXT (June 2018)
(13) Kid, Nick: development producer, *BBC* R&D's FXT (June 2018)
(14) Martín, Marcos: broadcast journalist, RTVE Lab (March 2017)
(15) McKenzie, Rob: editorial head, *BBC* R&D's BBC News Labs (June 2018)
(16) Oduyemi, Remi: software engineer, *BBC* R&D's BBC News Labs (May 2020)
(17) Peña, César: journalist, RTVE Lab (October 2018)
(18) Sekyere, Kofi: programme manager, *BBC R&D's FXT,* South Labs (June 2018)
(19) Vila, Pere: head of Digital Innovation, RTVE (December 2019)
(20) Woolard, Adrian: head, BBC's Research & Development North Lab (June 2018)
(21) Worker from BBC News Labs who wanted to remain anonymous (June 2020)
(22) Worker from BBC News Labs who wanted to remain anonymous (September 2020)
(23) Worker from RTVE Lab who wanted to remain anonymous (October 2018)