



57th EPRA meeting

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Thematic session one: the future of content delivery

Background paper (final post meeting version)¹

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1. Introduction

One of two focus themes in the EPRA Work Programme for 2023 is *the future of content delivery and implications for NRAs*.² The topic combines at least four of EPRA's strategic priorities (future-oriented technology, understanding media ecosystems, NRAs and legal/regulatory issues) and builds on aspects of the 2022 work plan, which considered whether the traditional regulatory approaches,

¹ **Disclaimer:** this document has been produced for an internal meeting by EPRA, an informal network of 56 regulatory authorities in the field of audiovisual media services. It is not a fully comprehensive overview of the issues, nor does it represent the views or the official position of EPRA or of any member within the EPRA network.

² <https://www.epra.org/attachments/epra-s-work-programme-for-2023>

methodologies and internal work processes of NRAs are fit for purpose in the online environment. The topic also complements the second theme of the 57th meeting in Oslo, *media and information for the public good*, and therefore lends itself well to encouraging cross-referencing and cross-fertilisation.

The context for this session is the development in recent years of new modes of content delivery through Over-the-Top (OTT) and Internet Protocol TV (IPTV), which we refer to in this paper as internet-delivered services, unless otherwise stated. The adoption of these technologies has occurred across Europe to greater and lesser degrees, as indicated in our survey analysis in the Annex. Recognising the different ways that consumers are engaging with, and content creators, distributors and advertisers are exploiting the potential of internet-delivered services, there is a renewed need to consider how far the regulatory toolbox is equipped to respond.

Here we should draw a distinction between moves away from traditional methods of linear TV distribution - DTT, cable, satellite - to newer internet-based methods of linear consumption on the one hand; and from linear to on-demand distribution on the other. Both are relevant to the discussion; both pose challenges for regulation now, and both have implications for regulation in the future. For example, audiences might give little thought to how their linear services are received, but there is still a need to ensure their interests are protected in any planned move away from traditional linear distribution to linear IPTV, and particularly so for poorer and less tech-savvy demographics. Another issue is network capacities, namely ensuring they can match any increased demand for internet-delivered services whether linear and/or on-demand, and that consumers can rely on a suitable connection, especially during peak times.

To understand aspects of what the rise of internet-delivered television means in practice, we can look to **Portugal** as a case study, as was featured in the European Audiovisual Observatory (EAO) 2023/23 Yearbook. There, IPTV has, since 2020, played a pivotal role in how the country's audiovisual market has achieved significant growth in comparison to the rest of the European Union. This is largely due to a rise in the take up of pay-television, with a penetration rate of 83%, compared to the European average of 63%. Notably two of Portugal's leading Pay-TV distributors are telecoms companies which also have a major interest in the technology that enables IPTV delivery.³ In Estonia we see a different scene, but still with a major telecoms company presence. Data from 2021/22 points to 30% of households using IPTV through a service provided by one of the country's two major distributors, Telia Eesti, itself a subsidiary of the Swedish telco TeliaSonera.⁴

Zooming out to consider the picture across Europe as a whole, and again citing the EAO 2022/23 Yearbook, we find that IPTV drove 61% of the increase in Pay-TV revenues across all distribution networks. **France** and **Germany** together contributed 50% of those incremental revenues on IPTV.

From these selected observations there can be little doubt about the significant impact of IPTV on market trends. But what does this evolution towards the IP model of content delivery, as opposed to broadcast TV, cable TV or satellite signals, mean for the role of NRAs?

³ Yearbook 2022/2023 Key Trends, European Audiovisual Observatory, Strasbourg, 2023. Available online via <https://rm.coe.int/yearbook-key-trends-2022-2023-en/1680aa9f02>

⁴ European Audiovisual Observatory, Yearbook Key Trends, 2021/22. Available online via <https://rm.coe.int/yearbook-key-trends-2021-2022-en/1680a5d46b>

Several areas for enquiry arise, many around perennial policy concerns, such as:

- Universality
 - Which protections do we need to ensure public interest media remains universally available to citizens, especially those who cannot access or afford to pay for an internet service as a prerequisite for IPTV?
- Distribution
 - How will TV and radio content be distributed in the future so all citizens, rural or urban, can access internet-delivered services?
- Prominence
 - Which protections might be needed to ensure public interest content can be easily discovered and accessed through IPTV and its hardware?
- Accessibility
 - How can we ensure that audiences with physical, mental or social vulnerabilities are able to access internet-delivered services?
- Environmental sustainability
 - Currently content delivery via DTT consumes substantially less energy compared to IPTV, which is largely driven by the operating demands of in-home devices, such as modems and set-top boxes.⁵ On that basis, what does their increased use mean for the climate emergency?

Our focus on this topic will, we hope, introduce the key issues and provoke lively and practically oriented exchanges between members and industry stakeholders.

2. Setting the scene part one: a diverse regulatory landscape

EPRA provides a platform to consider the shared interests of the NRAs within its network *as well as* the diversity of the regulatory approaches followed by its members. In many ways, the topic of future content delivery illustrates this in more contrast than perhaps any other, especially when viewed in the context of television regulation.

Research and analysis, including that of the survey responses shared by members in the Annex to this paper, shows that individual country approaches to regulation are inextricably linked to how they have adapted and responded to technological evolution. This shows us how regulation keeps up with technology and, crucially, how it might try do so in the future.

In one of the only major pieces of research that has attempted to capture the sheer scale and variety of the licensing patchwork that has developed across Europe,⁶ the authors noted that an absence of EU harmonisation on the rules of access to the audiovisual market has made it “impossible to even detect significant similarities between countries that in principle share geography, language or history. The diversity in the rules is also reflected in the variety of institutional solutions, where ministries and media regulators appear in different constellations, with different sets of tasks and responsibilities”.

⁵ Carnstone, Quantitative study of the GHG emissions of delivering TV content, 2021. Available online via https://thelocatproject.org/wp-content/uploads/2021/11/LoCaT-Final_Report-v1.2-Annex-B.pdf

⁶ Mapping of licensing systems for audiovisual media services in EU-28, European Audiovisual Observatory, Strasbourg, 2018. Available online via <https://rm.coe.int/licensing-mapping-final-report/16808d3c6f>

In addition, when looking in detail at the various licensing and/or notification systems in operation: “each national system is unique and is the result of specific domestic (cultural and/or technological) circumstances which shaped the legal framework through successive layers of legislative modifications and cumulative (and sometimes conflicting) laws and bylaws, without any common trends or approaches between countries and without obvious rationality.”

As a general point, it should be noted that any formal licensing regime involves heavier obligations than a notification system. With the former, a judgement will be made, by an NRA or in some cases a government agency, based on a set of criteria covering, for example, content programming, financing and ownership. Licensing application processes come in several guises across Europe, such as spectrum auctions, beauty contests, tender processes or individual applications. Notification systems, by their nature, tend simply to require that information is provided to a competent authority in a standard format, and that some basic formal criteria are met such as country of establishment and legal status. In addition, it should be noted that in some countries obligations imposed on TV providers are independent from the licensing regime.

The Audiovisual Media Services Directive (AVMSD), as the most significant piece of European media law, does not, nor has ever sought to, deliver a harmonisation of approach when it comes to distribution.⁷ That aim has been instead to ensure basic standards for European audiences in how they are protected when viewing content, no matter the model of delivery. At the national level, therefore, governments and regulators have taken a wide variety of approaches to ensuring compliance with the Directive, all of them challenged in different ways by the explosion of diverse digital distribution technologies including, but not limited to, the move from linear to on-demand.

In presenting the EAO preliminary findings to the 46th EPRA meeting on 12 October 2017 in Vienna, Maja Cappello, Head of the Department for Legal Information at the EAO, noted some areas of concern that remain relevant to how regulation responds to the challenges of increasingly pervasive distribution of internet-delivered services.⁸ For example, Cappello highlighted how several EU member States had introduced licensing systems for non-linear services, a practice that went against Recital 20 of the AVMSD, which states that “No provision of this Directive should require or encourage Member States to impose new systems of licensing or administrative authorisation on any type of audiovisual media service”.

Cappello also suggested that the practice went against Article 4 of the e-Commerce Directive on freedom of establishment (requiring that information society service providers may not be made subject to prior authorisation or any other equivalent requirement) and that, in some cases, the legal provisions seem hardly applicable.⁹ By contrast, an open system had prevailed in several countries where there was no system in place at all to establish an inventory of existing services. The risk there being that players are operating in a market without the regulator’s knowledge and, as a consequence, there being, arguably, no effective oversight (e.g., recourse to heavy-weight sanctions) in case of a violation.

Even beyond the problems of services operating without the regulators’ knowledge, or a lack of meaningful deterrent, new modes of distribution can also start to test the limits of a regulator’s remit. This is where the **UK** finds itself, as a result of the most recent evolution of its licensing regime.

⁷ [EUR-Lex - am0005 - EN - EUR-Lex \(europa.eu\)](#)

⁸ Minutes of the Vienna meeting as endorsed by the Assembly of members at the 47th EPRA Meeting in Luxembourg on 23-25 May 2018. Available online via [46th EPRA meeting Vienna \(members’ only\)](#)

⁹ [EUR-Lex - 32000L0031 - EN - EUR-Lex \(europa.eu\)](#)

Following the UK's departure from the EU, the rules changed around which services need to hold a licence. In summary, linear services delivered over the internet mainly do not need to, meaning they are in effect unregulated, and their viewers are not protected by the bedrock of Ofcom's licensing framework, the Broadcasting Code.¹⁰ Other countries face similar issues to a greater or lesser degree and each in their own specific contexts, as we can see through our survey analysis in the Annex to this paper.

Suggested discussion questions

Would an attempt at harmonisation of licensing and notification schemes help regulators to carry out their work more effectively?

- Would this allow us to better respond to technical innovations?

Are technology-based licensing and notification models at risk of becoming out-of-date?

- Should regulators be looking instead at a new licensing framework specifically for internet-delivered services, and if so, what should its principles be?

How else could the licensing/notification regimes be future-proofed to respond to changing technology?

¹⁰ [The Ofcom Broadcasting Code \(with the Cross-promotion Code and the On Demand Programme Service Rules\) - Ofcom](#)

3. Setting the scene part two: the shift to online distribution

The media landscape is always in a state of flux; in some ways, change is the only constant that regulators can rely on. In just the space of a generation, Video on Demand – easily the most impactful of all internet-delivered technologies affecting our work – has led to the creation of massive new international subscription-based companies like Netflix and Disney+, and a transformation in how consumers access content, what they expect from it, and how they expect it to be regulated.

This paradigm shift has been rippling across the broadcasting industry for over a decade. The Director-General of the **UK**'s public service broadcaster, the BBC, Tim Davie is envisaging a digital-first future for his organisation. This will, he believes, allow it to harness the possibilities of internet delivery to better meet the needs of its diverse audiences and stimulate the media market. The problems in achieving this, however, are complex.

Universality is perhaps the biggest challenge, as Davie highlighted when he cautioned against doing things in “a bad way [...] Where access to content is no longer universal. Or is unaffordable for too many. Where the gateway to content is owned by well capitalised overseas companies.”¹¹ Universality would of course require accessibility for all. But in the UK alone, forecasts suggest that some 2 million homes will still not be using fixed-line broadband by 2030, and many places, particularly rural areas, are not covered by 5G or 4G. These infrastructure issues will not be unique to the UK, and fixing them is of course, chiefly a job for government, not regulation.

While Davie understandably highlights universality as a key concern for public service broadcasters, the challenges for regulation are more numerous. Content standards, including protecting children and audiences in general, need to be considered alongside maintaining rules on advertising and product placement, to name but a few. And if we return to the list of issues highlighted in the introduction, covering accessibility, distribution and prominence, then the potential burden of oversight is significant.

Only a bold regulator would guess at what the future of internet-delivered services will look like, but doubtless more actors will want to enter and exploit new distribution technologies, not least advertisers. This is already being seen in the steady growth in Europe of Free Ad-Supported Television (FAST), which enables services to offer free-to-view linear channels. These channels can be built using existing catalogues of on-demand content and are usually reorganised as content playlists or programming grids.

Projections in a recent Television Business International industry report expect Europe's FAST advertising revenues to grow from US \$500m in 2023, to \$800m by 2025, and \$1.1bn in 2027. Much of this growth will come from select markets, with **UK** revenue expected to quadruple over the next four years to hit \$506m by 2027, and **German** revenue also expected to exceed \$200m within five years.

Pay-TV companies, already adept at monetising content, are making moves to retain their influence. Earlier this year, **German** streamer Joyn launched 16 new FAST channels, including specialised offerings in true crime and action movies. In **Spain**, Rakuten TV and Orange TV partnered with Canal+ Group's Thema to launch a Turkish drama channel. In **France**, TF1, a leading commercial broadcaster,

¹¹ BBC Director-General, Tim Davie's speech to the Royal Television Society, 07/12/2022. Available online via [Leading the UK into digital, speech by BBC Director-General Tim Davie | Royal Television Society \(rts.org.uk\)](https://www.rts.org.uk/leading-the-uk-into-digital-speech-by-bbc-director-general-tim-davie)

launched a dedicated section in its MyTF1 app where viewers can find 44 FAST channels that are genre-led (e.g., anime, thriller, romance) or title led, with audiences able to endlessly watch repeats of shows such as *Danse avec les stars*.

Manufacturers are also looking to blend FAST channels into their interfaces to deliver seamless experiences for their customers.¹² In a study taken in October 2022, FAST channel providers such as LG, Samsung, Pluto TV or Rakuten TV were offering between 45 and 140 FAST channels each in **France**, the **UK**, **Germany**, **Italy** and **Spain**.¹³ The consumption habits of young people in particular, much prized by service providers of all kinds, may work in favour of FAST, according to the European Media Industry Outlook published on 18 May 2023.¹⁴

Looking toward another part of the audiovisual ecosystem, it is also worth noting the issue of net neutrality in this discussion. For if, as expected, the demand for internet-delivered TV services continues to grow, then so too will the demands on network providers. For example, if viewers choose to watch linear streams over IP, rather than DTT or Cable, broadcasters will need to engage with network providers to ensure that there is sufficient capacity to deliver a reliable viewer experience. That will come with costs for the network providers, due to the fact that linear TV events, such as major sports contests, are among the biggest drivers of network traffic peaks. The question, then is, should broadcasters pay a share?

As a final observation, it is worth noting that news media are also entering the FAST market. *The Guardian* in the **UK** and *Le Figaro* in **France** have been early adopters, responding to an opportunity to exploit their online video libraries to attract new audiences who prefer consuming news in video rather than in textual formats.¹⁵ The implications for NRAs could be significant if these moves mean that, in some circumstances, ‘traditional’ news media might enter the sphere of audiovisual regulatory compliance.

Suggested discussion questions

How are commercial stakeholders in your jurisdiction preparing for or responding to the growth of FAST channels?

- What are the potential implications of these channels on your regulatory regime?
- How might regulation need to adapt to cover traditional news media outlets setting up FAST channels to reach new audiences and diversify their business models?

What issues might arise in your jurisdictions of a move to a ‘digital first’ distribution?

On the issue of net neutrality, how might regulation need to prepare for the issue of network operators seeking cost recovery from broadcasters in a future where network demands are more intensive as a result of increased use of internet-delivered services?

¹² Move FAST or get left behind: Sizing the free ad-supported streaming TV opportunity globally, TBI Television Business International, 2023

¹³ <https://variety.com/vip/the-state-of-european-fast-1235466464/>

¹⁴ European Media Industry Outlook 2023, European Commission, p.19. Available online via <https://digital-strategy.ec.europa.eu/en/library/european-media-industry-outlook>

¹⁵ <https://variety.com/vip/the-state-of-european-fast-1235466464/>

4. Summary of the session

The audiovisual context and the ways content are delivered show that we are not living in a simple ‘push and pull’ world anymore. Regulated linear services cohabit with nonlinear and unregulated services. In this blurred environment, do we need a new way to understand the very concept of ‘broadcasting’?

While the AVMS Directive takes a ‘technology neutral’ approach, the diversification and multiplication of the means of delivery raises challenges in all audiovisual landscapes and for every regulator, as reflected in the session’s preparatory [survey conducted by Ofcom](#) on the EPRA website.

The responses to the survey¹⁶ have revealed a wide diversity of approaches, raising key concerns such as: protecting public service media, dealing with the future of distribution spectrum management, ensuring prominence, findability and diversity, applying national quotas, preserving competition, environment and sustainability.

❖ **A picture of what is now and what is coming:** “[A river runs through it](#)” by **Christian Knaebel**, *Global Media Consult*¹⁷

- **How does streaming challenge television?**



Source: Global Media Consult

¹⁶ 24 replies: AT, AZ, BA, BE (CSA), CH (OFCOM), CZ, DE, ES (CNMC & CAC), FI (Traficom), FR, IE, LU, LV, MK, NL, NO, PT, RO, SE (MPRT), SI, SK, UK.

¹⁷ Christian Knaebel, due to personal reasons, was not able to participate in the meeting but his slides were presented by Maria Donde, Rowena Burke and Jordan Ogg from Ofcom (UK).

Television is difficult to define because of its huge diversity and the fragmentation of services. New ways to monetise content emerge constantly and, just as water flows, content always finds a way to be released.

The newer technologies, such as streaming, have transformed the market into an ecosystem built on consumers' data, giving opportunities to new entrants while allowing major companies to consolidate their dominant position. Television is now a world full of uncertainty where consumers' data (*name, age, history, shopping...*) are key assets that can be monetised. These new ways of providing audiovisual content (*streaming via OTT and connected TV*) raise or exacerbate many challenges:

- **Extreme commercialisation:** TV has become a retail outlet: (*e.g.: Amazon Prime with the shoppable TV with a QR code on the screen – successful experience in the US*).

- **The ultimate gatekeeper model:** the same player owns every step of the value chain (*e.g.: YouTube and Google TV with its plan to move to content aggregation*).

- **Echo chamber risk:** the FAST channels, a model that has seen major growth in the USA is starting to be popular in Europe, a trend that is expected to rise, especially among young people (*e.g.: Pluto TV which provides a list of thematic channels with free content streamed and supported by ads*).

FAST channels are easy to launch as they are not editorially scheduled/curated but are based on an automated process. The customer just watches what it is on when they are clicking on the channel (≠ on-demand). Users can access the thematic channel they want at any time, as the service is constantly broadcasting similar thematic content). As the concept of scheduling is central to editorial control, this is challenging for regulation.

- **Major companies as gateway:** major players own the technical ecosystem (*e.g.: Samsung TV Plus, a FAST TV service provided by a device manufacturer*).

It is worth highlighting that these new technologies also increase risks on data privacy, content diversity and market concentration (monopsony and oligopoly).

- **How to regulate such systems?**

According to Christian Knaebel, the aim is to safeguard the streaming ecosystem by designing a **regulation framework that ensures enough protection while allowing new opportunities to thrive**. It is thus important not to overregulate and to focus instead on priorities (e.g. access and encouraging creation of content). → For more details, see [Christian Knaebel's presentation](#)

❖ **Adapting to the future of content delivery from the industry's perspective:** "[Impact and role of internet-delivered services](#)" by **Ali Law**, Director of Policy at Sky

Sky's approach: innovation for a better customers' experience:

Launched in 1989 as UK's first satellite broadcaster, Sky kept adapting its services to the new available technologies. From four channels in the 1980's, the number of services has exponentially expanded, leading to a redefinition of what constitutes content and how to deliver it.

- **The impact of IPTV on Sky's business:** launch of Sky Glass (2021) and Sky Stream (June 2023).

Brief presentation of the product: a single Sky environment to access all content

Sky glass is a smart TV offering linear, apps and on-demand in one place and built on an App-centric user experience (simple access to the various audiovisual media services providers).

Sky improved the product with the Sky Stream box that allows customer to access directly over Wi-Fi any available TV or on-demand content (*over 150 channels and several on-demand services providers included*) on any device, without any dish or installation required. The objective of Sky is to meet all customer needs by providing flexibility and affordability.

Sky and prominence: There is the “a posteriori” curation made on preferences (*based on likes, history viewing...*) and there is the “a priori” curation with the contracts negotiated with the content services providers. Sky’s policy is to respond to customers’ expectations to make sure that they get the service they are paying for.

→ *It is all about data, but in the end, content remains king and prominence is dictated by customers.*

- **The advantages of IPTV:** a better user’s experience

- easy to install and update
- available to households without satellite
- easy-to-find content
- uninterrupted user experience from linear to VOD and back, using a single interface
- possibility to personalise the customer’s experience

- **The disadvantages of IPTV:** costly and lack of universality

- Availability: lack of Wi-Fi coverage and some unavoidable resistance from users who are not comfortable with newer technologies
- Scalability means important financial costs for operators
- Increased complexity of the system

→ In his view, **mixed models** are very likely to endure, even though a greater emphasis on IP is to be expected.

- **Key words for policy makers:** audience – protection – value chains – jurisdiction – simplification.

For Ali Law, regulation should **focus on the most impactful harms** and allow a **level of flexibility**. Prominence obligations will not force users to watch the services neither solve the issue of the audience’s fragmentation. Focusing on national content might however boost national interest.

Question raised from the floor:

→ New technologies and accessibility?

Making content accessible for all requires resources and depends on the capacity of the media providers. New technologies (AI for automated subtitles for instance) and regulators could help improve the availability of content.

❖ The future of content delivery from the regulator's perspective

- **The UK's perspective:** an overview of Ofcom's licensing and regulatory framework.
[Presentation](#) by **Rowena Burke**, Ofcom (UK):

The market context:

- New ways to deliver content: internet-delivered services (*open networks - such as OTT - and closed network - such as IPTV*).
- New type of formats: new internet-delivered channels (FAST) created every week.
- There is more choice for viewers and more opportunities for service providers.

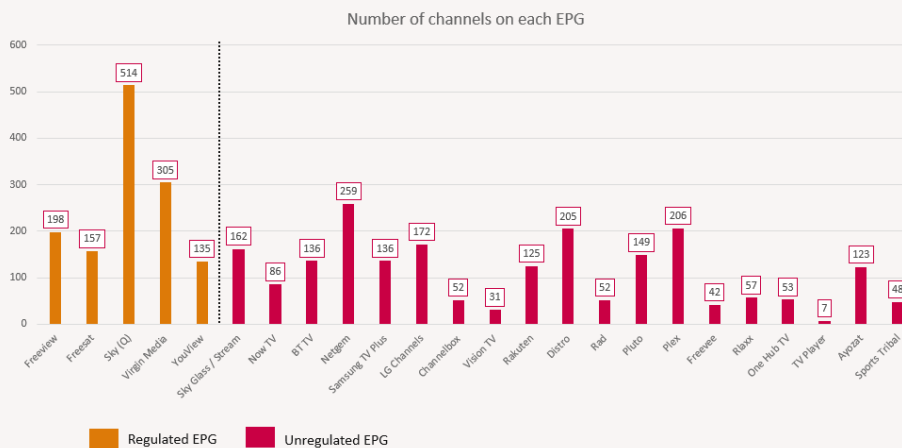
The UK regulatory framework:

- Licensing regime for linear TV services delivered through satellite, cable or DTT.
- Impact of EU Exit: for internet-delivered TV services, only services appearing under a "UK Regulated Episode Programme Guide"¹⁸ (EPG - *just a few, designated by the Government*) need a licence. Obligations set out in the licence for EPG providers include:
 - providing access only to licensed or authorised services.
 - appropriate prominence to public service channels.
 - accessibility of content.
 - fair, reasonable and non-discriminatory conditions applied to service providers.

→ As a consequence, there is an increase of unregulated service providers.

Classification: CONFIDENTIAL

Internet delivered channels available in the UK



making communications work for everyone

Source: Ofcom, May 2023.

NB: channels can be duplicated across multiple EPGs

¹⁸ As defined by Ofcom, a service that consists of the listing or promotion of programmes or programme services and provides access to them.

- **Potential impact on regulation** (focus on linear television):
 - On viewers: unregulated services may not be identified as such by customers (design and user's experience similar to regulated ones) and requirements related to advertising or accessibility, for instance, do not apply.
 - On public service media and public policy goals: rules related to prominence or European works do not apply.
 - On universality: parts of the population have no access to Internet.
 - On distribution: the current limited availability of high-speed broadband (e.g.: full fibre).
 - On capacity: is the network resilient enough to allow mass viewing of major live events? Who should cover the higher costs of maintaining the network, otherwise known as the net neutrality issue?
 - On competition: new content gatekeepers are emerging.
 - On the environment: OTT services use more energy¹⁹.
- **Potential opportunities raised by internet-delivered services**:
 - New entrances and entrants.
 - Cheaper and easier to quickly respond to customer's feedback.
 - Room for innovation.
 - More personalised experiences.
 - Increase of content aligned on policy goals (e.g.: local content).
 - More choice for viewers.

Conclusion: Ofcom does not advocate for a licence for each service but intends to highlight the potential for harm and impact on public policy goals to help the UK Government set up an **updated regulatory framework for Internet-delivered services**.

→ For more details, see [Rowena's presentation](#).

- **The French perspective:** an overview of Arcom's licensing and regulatory framework [Presentation](#) by **Frédéric Bokobza** from Arcom (FR)

The context in France:

- Internet-delivered services are on the rise: increasing consumption of on-demand services and audio streaming and an overwhelming majority of connected TV in households.
- DTT is in decline but remains strong (DTT channels capture 89.3% of the total audience while for 19% of households, DTT is the sole mean of TV reception²⁰).
- Deployment of very high-speed internet (fibre, 5G) and very high penetration of smartphones.
- 20% of the population do not use internet.

The French regulatory framework: A tier-based licensing/notification regime²¹

¹⁹ See Ofcom's report on [carbon emissions of OTT and DTT](#) (see also [EPRA news](#)). Ofcom intends to conduct further studies on the environmental impact of internet delivery.

²⁰ Data for the first half of 2022.

²¹ [Law of 30 September 1986 on Freedom of Communication](#)

- DTT private services are subject to a beauty contest (priority for PSM) and the selected services sign an agreement with Arcom (*similar procedure for private radio services on FM/DAB+*).
- TV services delivered by other networks (cable, satellite, IPTV, OTT) need a signed agreement if their annual turnover is more than €150 000 otherwise only a declaration is required (*similar procedure for web radios, with a threshold of €75 000*).
- For services not established in France: no licensing/declaration requirement.

Main challenges identified:

The French system, strongly relying on DTT and FM services' predominance, faces the challenges of changing content delivery mode and saturation of the FM spectrum.

Other challenging issues include:

- Prominence of content of general interest
- Protection of minors
- Impact on competition and concentration rules
- Economic sustainability of ecosystem (*pluralism, funding and access to EU/independent content*)
- Environmental sustainability (*increasing energy consumption of fixed/mobile networks*).

Despite the strong prominence of DTT, in the longer term, there **might be a need for a new licensing/notification regime**.

Focus on Arcom's initiatives to address some of these challenges:

Various initiatives have been launched by stakeholders²², Arcom²³ and the legislator²⁴ to address the challenges of the evolving audiovisual distribution market.

- On prominence: the [law transposing the AVMSD 2018](#) imposes prominence rules to operators²⁵ who determine the methods of presentation of services on user interfaces. Arcom is currently working on the implementation of these rules on the basis of a consultation (*e.g.: the designation of public interest services which should benefit from the prominence requirements*).

- On the environmental sustainability²⁶:

1. **Encouraging players to be more responsible:** promotion of codes of conduct (a "[climate-contract](#)" with advertising players).
2. **Getting more informed:** study due early 2024 on the environmental impact of audiovisual usage with Arcep and ADEME²⁷.

²² Creation of French Radioplayer.

²³ A [White Paper on the future of Radio](#) (on-going); launch of an observatory of podcasts; work on findability of General interest content.

²⁴ On-going bill on "the reform of public broadcasting and audiovisual sovereignty".

²⁵ According to the [decree of 7 December 2022](#), only for operators with at least 3 million unique visitors per month in France or 150 000 user interfaces sold/rent/provided in France yearly.

²⁶ [Law of 22 August 2021](#) on combating climate change & [Law of 15 November 2021](#) on the environmental footprint of digital media in France

²⁷ Arcep is the French agency in charge of regulating telecommunications, postal services and print media distribution while ADEME is the French agency for ecological transition.

3. **Empowering users:** Recommendation drafted with Arcep and ADEME to encourage the provision of data to consumers regarding the environmental impact of the use of services delivered through Internet (to be released soon).

→ This is just the beginning of a key challenge that we all face.

→ For more details, see [Frédéric's presentation](#).

→ **Debate:**

Focus on the harmonisation of the TV licensing regimes: is it a solution?

For Frédéric Bokobza, what is needed is a solid set of legislative measures to ensure the **protection of the audience and the prominence of services of general interest**. Pursuing harmonisation might freeze the exchanges and suspend dialogue between governments. **Cooperation and more consistency** are needed but harmonisation might not the way to achieve it. However, harmonisation could be needed for the prominence of services of general interest, to strengthen their visibility in Europe.

For Rowena Burke, harmonisation would also raise political concerns in the UK. The key question to ask is **what public policy outcomes should be achieved**. The objectives need to be clear in order to design an accurate regulatory framework. **The current licensing regime in the UK is not set up for that.**

Annex 1: Survey analysis

To inform this session, EPRA members were invited to complete a survey to gather their experiences and priorities in relation to content over IP. There were 24 responses in total from the NRAs listed below²⁸.

- Agency for Audio and Audiovisual Media Services, North Macedonia (MK)
- Agency for Communication Networks and Services of the Republic of Slovenia (SI)
- Arcom, France (FR)
- Audiovisual Council of the Republic of Azerbaijan (AZ)
- Autorité Luxembourgeoise Indépendante de l'Audiovisuel, Luxembourg (LU)
- Catalan Audiovisual Council, Spain (CAC)
- Coimisiún na Meán, Ireland (IE)
- Commissariaat voor de Media, Netherlands (NL)
- Communication Regulatory Agency, Bosnia and Herzegovina (BA)
- Conseil supérieur de l'audiovisuel, Belgium (BE)
- Council for Radio and TV Broadcasting, Czech Republic (CZ)
- Council for Media Services, Slovakia (SK)
- Directors Conference of the Media Authorities, Germany (DE)
- Federal Office of Communications, Switzerland (CH)

²⁸ The overview of the responses is available at this link (requires prior log-in):
<https://www.epra.org/surveys/the-future-of-content-delivery/results>

- Kommunikationsbehörde Austria (AT)
- National Audiovisual Council, Romania (RO)
- National Authority for Markets and Competition, Spain (CNMC)
- National Electronic Mass Media Council, Latvia (LV)
- Norwegian Media Authority (NO)
- Ofcom, United Kingdom (GB)
- Radio and Television Board, Denmark (DK)
- Regulatory Authority for the Media, Portugal (PT)
- Swedish Press and Broadcasting Authority (SE)
- The Finnish Transport and Communications Agency, Finland (FI)

Their responses to the survey questions can be broadly grouped into the following themes.

Existing regimes and how they handle IPTV

EPRA members' survey responses show us that transmission platforms such as Digital Terrestrial Television (DTT) are most likely to be subject to formal licensing requirements. The use of spectrum by this platform is often cited as the means and justification for existing licensing regimes. In all cases, DTT services require licences from the national regulator, and it is often the case that these licences also deliver a degree of public service mission, which is a stipulation for certain channels in many jurisdictions.

Generally, there is a looser regime of licensing for non-DTT services, including satellite and cable. In some cases (**Norway**), providers of these services are required to register with the national regulator. Some regulators (**CNMC, Spain**) indicated that "internet broadcasting, VoD services" are subject to notification; others (**Azerbaijan**) have a more comprehensive licensing regime where VoD providers too are required to apply for a licence.

In **Austria**, TV and radio (analogue and digital) services are licensed but cable and "Web TV" are not. Although the latter services are required to notify the broadcaster prior to commencing activities. This tiered approach to licensing/regulation is common across most of EPRA members represented in the survey.

Slovakia is one exception. Following legislation that came into force in August 2022, no distinction is made between traditional and new modes of transmission. Instead, they are handled under the same authorisation regime. Some of the debate that saw this change take place was focused on simplifying processes, future proofing and increasing of the transparency of the media ownership.

In the **UK**, any TV services that do not appear on a regulated Electronic Programme Guide (EPG), do not need to be licensed. The UK regulator Ofcom noted the increasing availability of internet delivered services through EPGs and apps that are not classed as 'Regulated EPGs'. The example provided being EPGs pre-installed on connected Samsung and LG TV sets. None of these are required to be licensed and are therefore unregulated in the UK.

Delivery platforms

There is significant variation in the popularity of different delivery platforms for linear TV. For example, cable is the dominant platform in **Switzerland, Romania, North Macedonia** and **Norway** among others.

Whereas the digital terrestrial TV platform is dominant in **Spain**, – and popular in **France** and the **UK**. Meanwhile, satellite is the dominant platform in **Azerbaijan** and **Slovakia**. Satellite and cable are both popular platforms in **Germany** and **Finland**.

Some countries, including the **UK** and **Sweden**, have a significant variety of platforms where no one platform is dominant. In these jurisdictions, there is good take-up of cable, DTT, satellite (free and paid-for) as well as IPTV.

Take-up of IPTV varies significantly, with very low penetration in many countries. However, there is also a significant number of countries where IPTV has high take-up and reach, such as **Portugal** as highlighted earlier.

In **Bosnia and Herzegovina** the majority of subscribers (43%) use an IPTV platform, followed by cable (38%) and satellite (19%). There is similarly high penetration of IPTV in **Slovenia** (60%), **Sweden** (33%) and **Finland** (19%). More than 60% of homes in **France** can receive television over the internet, and 88% of households in **Denmark** had a connected TV device (according to data from 2020).

A stable licensing regime

The existing licensing/regulatory regime appears to be settled and not likely to change anytime soon in most countries. In these jurisdictions, the existing regimes are generally seen as being fit for purpose. However, this is not the case everywhere.

In the **UK**, the regulator Ofcom is advising the Government on the Government's plans to legislate to bring internet delivered services and currently unregulated EPGs into regulation. The UK Government can designate additional EPGs as 'Regulated EPGs' and, if carried out, this would have the effect of those EPGs needing to hold an Ofcom licence, and the internet delivered services they give access to would also need to hold an Ofcom licence.

Some other countries are also looking at amending their existing regulatory regimes to take into account content delivered over the internet. In **North Macedonia** consideration is being given to bringing linear TV and radio services broadcast over the internet into the licensing regime. Another respondent (**CNMC, Spain**) noted that obligations imposed on providers regarding content (protection of minors etc) are independent from the licensing regime. This is not the same in all jurisdictions, such as the **UK** where content regulation is tied to licensing.

With the convergence of audio-visual services, several countries (**Ireland, Bosnia and Herzegovina** and the **UK** among them) are planning changes to ensure prominence of domestic and local content.

One respondent (**Sweden**) said work had started there on updating the public service broadcasting (PSB) remit, which is from an "analogue age". This work will include, among other things, proposing technology-neutral regulation of PSB.

Public policy goals

Some respondents indicated there was a desire to retain the existing licensing regime and extend the same legal provisions onto services provided over the internet, especially with regard to the protection of minors. With the move to digital, it was noted by one respondent (**Norway**) that there is no longer a shortage of capacity or frequencies. For radio, this has led to less content regulation. Licensing requirements for DTT services have also loosened in that jurisdiction.

Another respondent (**Bosnia and Herzegovina**) noted that there is strong support for a licensing regime of some sort in light of growing evidence that broadcast content is being increasingly delivered through open networks (OTT), which are completely unregulated.

Change is already being enacted in some jurisdictions, such as **Ireland**. After a recent comprehensive review of the sector, the Irish Government published a report that sets out 49 separate actions relating to the regulation, funding and licensing.

Other countries are also having a debate on the issue. It was noted that in **Luxembourg**, TV and radio that is exclusively delivered over the internet are bound by lighter rules than traditional media and that there is an interest in focusing on content regulation rather than that based around the technical means of delivering media.

Another respondent (**Sweden**) noted that the debate there presently is mainly about the global tech giants and how to regulate them.

Government plans

In some jurisdictions, work is taking place to prepare regulatory authorities for the changing media landscape. In **Ireland**, a new regulator, Coimisiún na Meán, was formed to regulate online as well as traditional broadcast media. In **Sweden** too there are plans to form a new NRA in 2024, with the merger of the SPBA and the Swedish Media Council.

Other jurisdictions are also thinking about how legislation may need to evolve. Recently, ALIA (**Luxembourg**) organized a conference bringing together politicians, media representatives and concerned parties to discuss the need of rewriting Luxembourg's law on electronic media and related issues.

In the **UK**, Ofcom is carrying out research on audience expectations of video-on-demand content as well as looking at the competition conditions around the content providers' access to online platforms such as connected TVs and smart speakers. Ofcom is also advising the UK Government on its plans to secure access to radio via voice assistants.

Meanwhile, in the **Netherlands** there is some concern about the increase in international on-demand content, which could mean that Dutch cultural media will be "drowned out". The Dutch government is considering a new policy that will obligate audiovisual media platforms to invest in Dutch cultural media.

Radio

Respondents were asked whether there were any plans to amend the regulatory regime in response to radio services being delivered over the internet, either related to broadcast radio content (AM/FM or digital radio), or as exclusively online content.

The spread of responses underlined that licensing of radio has changed very little since its inception and is still largely linked to the availability of spectrum.

Some respondents noted a loosening of regulation through the move to digital and the extra capacity this provides.

There is extremely limited regulation of online radio services. Some jurisdictions have a requirement for providers to notify the national regulator. In **Romania**, for example, internet-only radio stations must apply for an audiovisual licence.

In the majority of countries, there are no plans to change the existing licensing / regulatory regimes regarding radio. However, some jurisdictions are doing work in this area.

The regulator in **Ireland** indicated that its Online Safety and Media Regulation Act (2022) may require podcasting or other radio services delivered over the internet needing to be registered as a “audiovisual on-demand media service”.

Arcom (**France**) noted that in the absence of a European framework for the provision of radio services, the effectiveness of the regulation of radio services provided mainly or exclusively internet could be limited by the territorial reach of NRAs.

Ofcom in the **UK** noted the UK Government’s recently published draft Media Bill had recognised the rapid growth of online listening and internet-connected audio devices, and the government’s intention to change broadcasting legislation to remove regulatory burdens on AM/FM commercial radio services, and ensure that UK radio stations are carried on voice-activated connected audio devices (e.g. smart speakers).

Annex 2: Case Study on the carbon emissions of streaming and digital terrestrial television

One of the debates in this space that we have not yet touched on is in relation to climate change. As one of the greatest challenges facing society, it is at the forefront of the agenda for companies, policy makers, and wider society. In recent years there have been a range of claims that different technologies for TV distribution are more or less energy efficient. In order to better understand the dynamics, Ofcom commissioned a report from Carnstone on the energy consumption of two technologies: DTT and over-the-top streaming services (OTT) served by fixed access networks.

This report takes a snapshot of energy consumption of viewing on both platforms at a set period, rather than judging which has the potential to be more energy efficient in the future. The goal was to develop an understanding of what factors are most significant in driving the energy consumption of the respective platforms. The main findings of the report are summarised below and the full version is available on the Ofcom website.²⁹

Methodology

- The report takes a snapshot of energy consumption of viewing on both platforms in 2021 and aims to understand which factors are most significant in driving energy consumption.
- It employs an attributional approach – allocating the energy consumption of shared infrastructure on a usage basis. This approach was taken as it is widely accepted to be the best method to obtain a snapshot of energy consumption.

Key Takeaways

- DTT as a distribution method is currently more efficient than IP-delivered content.
- Networks have become more efficient overall, not by reducing absolute energy consumption, but by serving more data traffic with a similar amount of energy.
- For both OTT and DTT services, and across the UK viewing population, most of the energy consumption is within the home rather than in the distribution system – TV sets, viewing devices, and in-home networks account for 90% of the energy used.
- Some devices used within the home, such as Wi-Fi networks and set-top boxes, are usually always-on and consuming power (albeit apparently low) – adding up to a significant proportion of this figure.
- Outside of the home, energy use in network transmission drives some differences between DTT and OTT. The network transmission uses six times more energy for OTT based on today's volume of viewing, noting that for both technologies it is not a very large driver of overall energy use.
- TV viewing is a relatively low source of emissions overall:
 - One hour of viewing TV via terrestrial networks has an energy consumption of 9.1Wh whilst for streaming, this is 54Wh. In other words, viewing TV for an hour is approximately the same as boiling water for around 3-4 cups of tea.

Implications for regulators

- The study confirms the findings of similar studies such as DIMPACT's (an initiative of media and technology companies interested in measuring emissions of streaming) 2021 paper entitled the [Carbon Impacts of Video Streaming](#). Other studies include [BBC's White paper 372](#) which evaluated the impacts of distribution platforms and the [LoCAT Project](#) – a quantitative

²⁹ [Carbon emissions of streaming and digital terrestrial television - Ofcom](#)

study commissioned by a consortium of players in the European TV market to analyse the impacts and GHG emissions of OTT and DTT services.

- However, this study only looked at an attributional approach which allocates emissions for viewing in the past – this approach **cannot** be used to accurately speculate on future changes to energy and emissions.
 - Therefore, it remains unclear the energy implications of changing traffic volumes and peaks over time. **Standardised data from** operators would help in this regard.
- Households won't necessarily save energy by switching from streaming to DTT, unless they switch off their routers or use fewer or no wifi repeaters – this should be kept in mind for any possible consumer interventions.

Annex 3: Additional contributions by a selection of EPRA members on the future of content delivery

- The situation in Bosnia and Herzegovina by Maida Ćulahović, Communication Regulatory Agency (CRA)

In BiH, a very relevant topic currently is the approach to regulation of OTT distribution services. (Being a converged regulator, the CRA is also in charge of licencing distribution platforms and adopting relevant regulation that applies to this kind of service).

Content delivery via licenced telecommunications networks is subject to a full licencing regime and as such contains quite heavy formal obligations. In the recent years, there has been growing evidence that content is being increasingly delivered through the open / public Internet, a service which is currently completely unregulated.

This becomes even more important knowing that IPTV and cable distribution, and to a lesser extent satellite, are the predominant content delivery platforms in our country, with around 80% of households relying on these platforms to receive AV content. More than 40% of those use IPTV delivery provided by telecom companies.

At first, these OTT services have been sporadic, however, the number of identified OTT distributors is on the rise and is becoming quite significant in relation to the number of licenced distributors – according to our recent unofficial estimation, it is 1:2

ISSUES AT STAKE:

Faced with a growing competition, there is a strong support of the industry for a licencing system some sort for OTT services. Issues at stake include

- **FINANCIAL:** The concern is primarily linked to the viability of the DTT network due to its costs, on the side of both the operators and content providers, but ultimately it could have an impact on the survival of other distribution platforms as well.
- **NETWORK CAPACITY:** Grievances of network providers that make significant investments in network, huge capacities of which are being used by OTT providers completely free of charge
- **REGULATORY:** 1) how to ensure that local and public interest content, which in licenced networks, is protected under the must-carry and must-offer rules, is delivered to the audiences. 2) protection of minors 3) enforcement of copyrights in the online environment; 4) ensuring quality of service for consumers

The debate on how to tackle this issue are still at an early stage. No policy interventions have been undertaken or decided on yet, but we are rather taking a cautious approach, among others also through cooperation with the authorities from other countries of the region, having in mind similar levels of market development and, in some cases, the same market players that operate in the region.

As a converged regulator, we decided to extend this cooperation beyond the audiovisual regulators, so in late 2022, the CRA initiated and hosted a meeting of media and electronic communications regulatory authorities from the region on this topic in order to exchange experiences and explore possible approaches and find whether there is a common “regulatory logic” to this issue.

It was very interesting to observe that both types of regulators recognize similar challenges in relation to regulation of OTT services. Many parallels could be drawn, at least on principle basis, between completely different services such as provision of audiovisual content on the one hand and, for instance, messaging/voice applications on the other hand. On both sides, there is:

- the need to provide some sort of regulatory response
- limitations of traditional regulation models in that regard; the regulation of OTT services must take into account their complexity, since they often combine several types of services, and that the existing regulatory framework may not be applicable.
- Possible solutions should be evidence-based and proportionate, meet the necessary goals of regulation, without limiting development, competition and market growth.
- In terms of lessons that can be learned: a) The model of systemic regulation applied to digital platforms, was mentioned; b) The approach known from the telco “Fair contribution debate” which suggests that “all market actors” should make a “fair and proportionate contribution” to the cost of infrastructure.

The discussions and cooperation within an informal group of regulators will be continued. This experience showed us that cross-sectoral and cross-border cooperation can be very insightful.

- The situation in Luxembourg – by *Myriam Mossong*, **Autorité Luxembourgeoise Indépendante de l'Audiovisuel (ALIA)**

- **Rewriting of Luxembourg’s law on electronic media**

Luxembourg’s law of 27 July 1991 on electronic media is outdated and needs to be modernized in many respects. Its text is in principle drafted as a literal transposition of a European directive governing the audiovisual media sector (television), and the most significant changes made to it were again aimed at transposing the following related directives. The outcome of the not less than 13 successive modifications over the last years is a “patchwork” with numerous cross-references and inconsistencies in the text. The law is moreover segmented by means of communication (television, radio etc.) omitting at the same time the evolution of modern media types and current communication channels. Luxembourg’s electronic media law lacks coherence and an overall structure.

With this in mind, ALIA calls for a complete rewriting of Luxembourg’s law on electronic media going beyond purely technical considerations and broadening the discussion beyond a simple transposition of the AVMSD. There is the need for a coherent, future-oriented strategy and framework for the media sector that meets the requirements of the developments that have emerged since the adoption of the current law.

- Principle of technological neutrality

A rewrite should establish a single common regime applicable to all services, including a binding and effective regulation of the Internet. An essential aspect of this new law should be the principle of technological neutrality. In particular, this means abandoning the approach of a law that differentiates according to media format, i.e. between cable or satellite TV, radio or VOD. The focus should be on content regulation rather than on the regulation of the technical means of delivering media.

Furthermore, it should take into account the development of modern communication technologies and user behaviour. Vloggers, online advertising and disinformation are just some of the many aspects that modern media laws need to cover today.

➤ **Split of competences**

In Luxembourg, licences for broadcast services are generally granted by the Government, upon proposal of the Ministry for Communication and Media's Department of Media, Connectivity and Digital Policy (SMC). ALIA is consulted but is not the competent authority for granting licences, with the exception of local and regional radio services.

Against this background, ALIA advocates for the consolidation of competences into a single entity, from the granting of licences to the possibility of imposing sanctions in order to strengthen a contemporary, effective and independent regulation and achieve the greatest possible coherence.

- **ALIA's work in this regard: advisory opinions and conference**

ALIA has been consulted several times over the past years and drafted a number of advisory opinions on this matter reflecting the statements mentioned above.

In April 2023, ALIA organized a conference on the challenges of digitalization and the reform of the law on electronic media, bringing together politicians, media representatives and concerned parties to launch a discussion on the topical issues and raise the awareness of the urgency to reform Luxembourg's law on electronic media. During the panels, it has been unanimously agreed that an in-depth reform is needed and that a complete rewrite of the law is inevitable in this context.

As a result, Luxembourg's Ministry in charge of media has recently tackled the process of rewriting Luxembourg's law on electronic media whereby its progress and eventual adoption will largely depend on the results of the upcoming national parliamentary elections in Luxembourg. ALIA is consulted and is closely cooperating in the current process.

• The situation in Catalonia by Mònica Duran Ruiz, **Catalan Audiovisual Council (CAC)**

In Catalonia, there is a license regime for the audiovisual media services providers using the hertzian waves –that is DTT Television (and FM radio), while there is a prior communication procedure for those services disseminating their television/radio services via cable, satellite and the Internet.

The applying regulation –[Law 13/22, July 7](#), and, in the near future, [the draft Act revising the Catalan Audiovisual Act](#) of 2005, seek to establish the same level playing field for the different television services that compete in the sector for the same audience. These obligations will depend on the capacity of editorial control and the choice of content by the providers, not the dissemination technology they use.

At the CAC, we are of the opinion that this is a transitory period in which linear and non-linear services coexist. Being aware of the consumption shifts and trends, and besides its regular content monitoring work on linear services, the CAC would like to make aware the relevant institutions, stakeholders and the citizenship in general of the level of compliance with obligations by OTT services. In addition, the CAC would like to be a future proof relevant actor when the discussion on how TV and radio might be regulated when these services could be delivered mostly or exclusively over the internet.

Up to now, the CAC has conducted two reports regarding the presence of European Audiovisual works in the catalogues of the on-demand audiovisual media services and the presence of Catalan language contents on these services.

The first one was the CAC [report 82/2020](#) (CAT). The objectives of the report were to establish the presence of European works in the catalogue of programmes offered by Netflix in Spain, as well as to identify the level of prominence of European works in the Netflix catalogue. Additionally, the report analysed the possible influence of the content recommendation algorithm on the levels of prominence of European works, based on the study of 5 distinctive profiles, and identified other data connected with the production of European works: the country of origin, the original language, the type and the year of production.

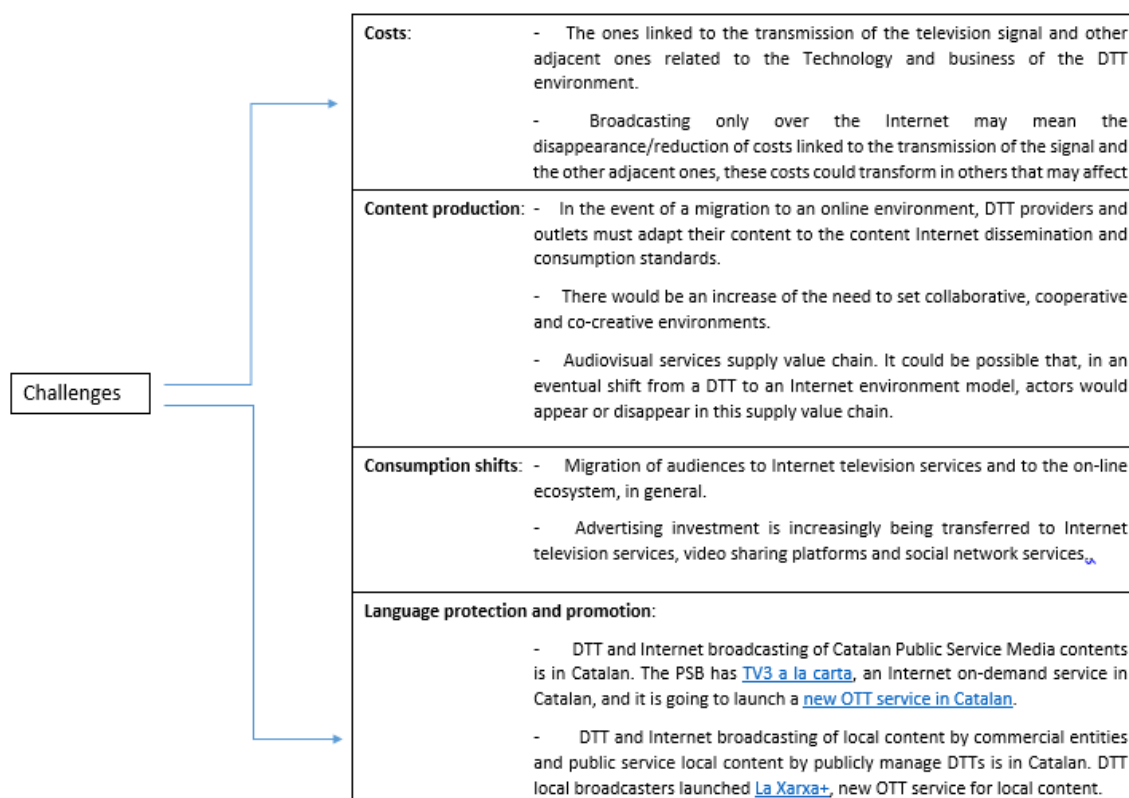
The CAC [report 72/2021](#) (EN) aimed to establish the presence of European works in the catalogue of programmes offered by the on-demand audiovisual media services Amazon Prime Video, Disney+, Filmin and HBO in Spain and to identify the level of prominence of European works in the catalogue of titles offered by these services. In that report was also monitored the presence of the Catalan language offered in the catalogues of these on-demand audiovisual media services.

The CAC is also observing how the media sector is evolving by means of periodic research analysis. In the [Newsletter on the Media Sector in Catalonia \(BIAC\) no. 23 of January 2023](#), it is represented the data regarding the audiovisual penetration in Catalonia by media, amongst the years 2018 and 2022, and also by age and sex (3rd sweep 2022), the DTT and FM audiences and also the subscription numbers to IPTV and to OTT platform services. In addition, in the [BIAC no. 25 of September 2023](#), there is, amongst others, the latest data regarding the consumption of audiovisual (in television or in the Internet) contents by type³⁰.

In addition, [chapter IV of the CAC annual report on the situation of the audiovisual sector in Catalonia](#) (CAT) gives data re. the audiovisual consumption and chapter V keeps an eye to the main audiovisual global trends. The last report published is from 2022.

³⁰ For more information, you can access to all the Newsletters on the Media Sector in Catalonia in English through our [webpage](#). The BIAC newsletters are published on a quarterly basis

Concerning the challenges of migration from a DTT model to an internet delivery, we would like to mention four of them³¹.



³¹ The links to the Language protection and promotion are the following: TV3 a la carta <https://www.ccma.cat/tv3/alacarta/>; New OTT service in Catalan <https://www.ccma.cat/tv3/la-ccma-tindra-una-nova-ott-de-continguts-en-catala/noticia/3217934/>; and la Xarxa + <https://www.laxarxames.cat/home>