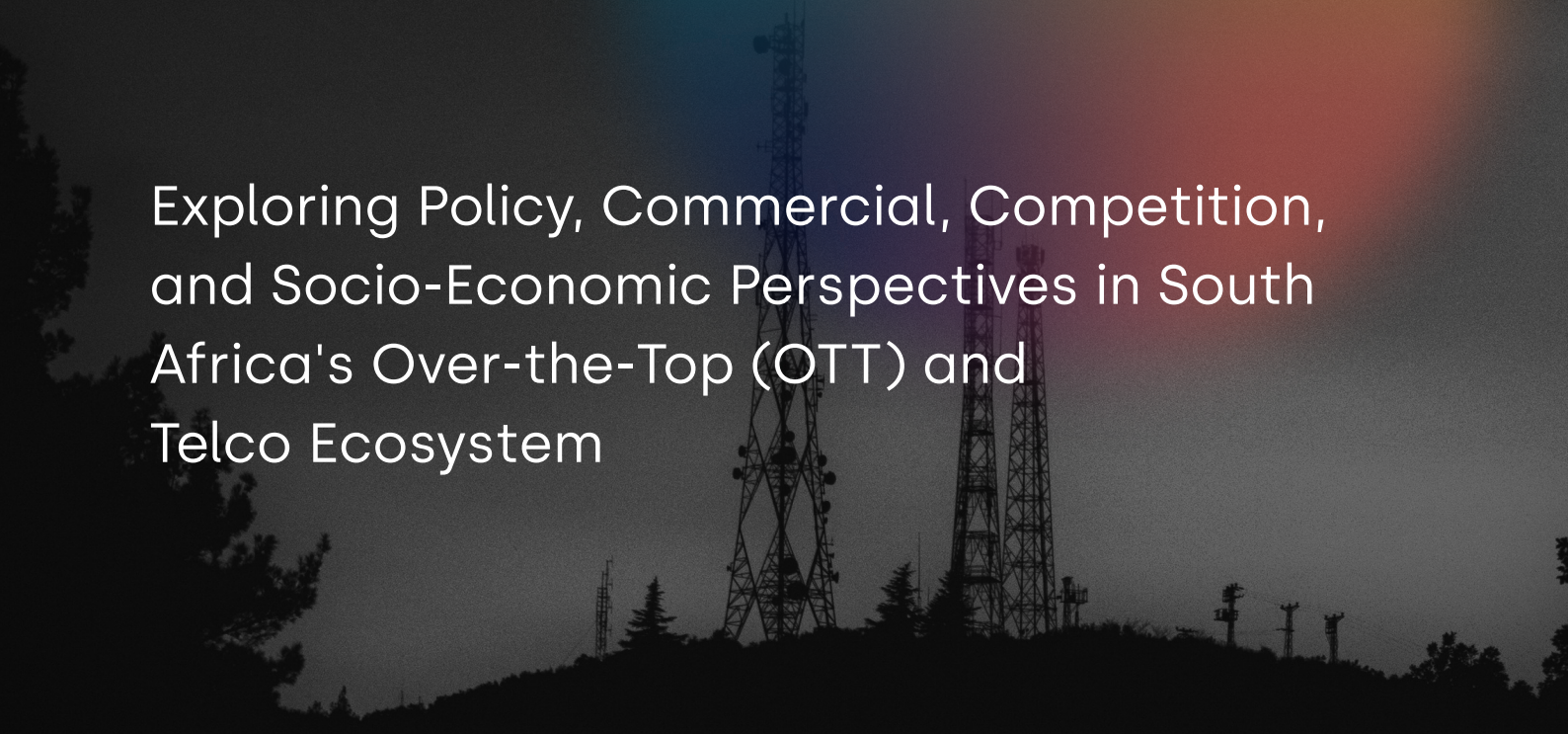
Association of
Comms & Technology

Promoting Equitable Participation and Sustainable Growth:

Exploring Policy, Commercial, Competition, and Socio-Economic Perspectives in South Africa's Over-the-Top (OTT) and Telco Ecosystem



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About ACT

The Association of Comms and Technology NPC (ACT) is a registered organisation with the Companies and Intellectual Property Commission in South Africa, bearing the registration number 2021/967827/08. At ACT, our primary focus revolves around ecosystem matters that are crucial for the broader Information, Communication, and Technology (ICT) sector. Through our efforts, we aim to provide a unified voice for this significant sector within the South African economy.

Our mission is to collaborate with stakeholders across the ICT ecosystem, advocating for a thriving communications and telecommunications sector in South Africa. To achieve this, we conduct leading practice research and analysis, which informs the development of a conducive strategic, policy, and regulatory environment within the country.

Key elements of our strategic objectives include:

Actively advocating for an environment that encourages growth, innovation, and fair competition within the ICT sector. By working closely with policymakers and regulators, we strive to create a framework that fosters progress and investment in the industry. We are committed to contributing to the growth and socio-economic development of South Africa's telecommunication network ecosystem. By supporting sustainable practices and initiatives, we seek to enhance the sector's positive impact on the country's overall development.

ACT fosters a culture of collaboration, education, research, development, innovation, and technology advancement. We encourage stakeholders to work together, exchange knowledge, and promote innovation to drive progress and excellence within the ICT domain. ACT plays a pivotal role in enabling the industry's transformation to be inclusive, diverse, and well-prepared for the challenges and opportunities of the 4IR.

ACT takes on a strategic leadership role in South Africa's telecommunication network ecosystem. By fostering cooperation and alignment among industry players, we aim to drive positive change and growth for the benefit of all stakeholders.

As the Association of Comms and Technology, we are dedicated to making a lasting impact on the ICT sector in South Africa. By working collaboratively and staying committed to our strategic objectives, we strive to create a flourishing and forward-looking communication and telecommunications industry that contributes significantly to the nation's prosperity.

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Abbreviations

ACT	Association of Comms and Technology
AR	Augmented Reality
ARPU	Average Revenue Per User
BEREC	Body of European Regulators for Electronic Communications
CAP	Content Application Provider
CDNs	Content Delivery Networks
DRM	Digital Rights Management
DST	Digital Services Tax
DTR	Download to Rent
ECA	Electronic Communications Act No. 36 of 2005
ECS	Electronic Communications Sector
EECC	European Electronic Communications Code
EST	Electronic Sell Through
HD	High Definition
ICASA	Independent Communications Authority of South Africa
ICT	Information, Communication and Technology
IoT	Internet of Things
LDC	Long distance Calls
MNO	Mobile Network Operator
NO	Network Operator
NRAs	National Regulatory Authorities
OTT	Over-the-Top
PSTN	Public Switched Telephone Network
QoS	Quality of Service
SD	Standard Definition
SMS	Short Message Service
SVOD	Subscription Video on Demand
UC&C	Unified Communications and Collaboration
UHD	Ultra-High Definition
VoIP	Voice over Internet Protocol
VR	Virtual Reality

Definitions

- **Content Applications Providers (CAPs)** refer to entities that develop and provide applications or software platforms for the creation, distribution, and consumption of digital content. These providers play a crucial role in the OTT industry, enabling content creators, distributors, and consumers to engage with various types of digital media.
- **Content Delivery Network (CDN):** CDN providers are companies that specialise in delivering digital content, such as videos, images, web pages, and other media, to end-users efficiently and reliably. CDN providers operate a network of servers distributed across various geographical locations. These servers store and cache content from content providers, including OTT services, websites, and other digital platforms.
- **Fair share,** in the context of the OTT industry, refers to the idea that OTT providers should contribute their fair portion to the costs associated with the network infrastructure and maintenance. It aims to address the perceived imbalance between the resources used by OTT providers and the network operators who facilitate the delivery of their services.
- **Network Operators (NOs),** also known as telecommunications or service providers, are companies that build, maintain, and operate the physical infrastructure required for communication networks. They provide services like broadband internet, mobile connectivity, and other telecommunications services.
- **OTT (Over-The-Top)** refers to platforms or services that deliver digital content, such as video, audio, and messaging, directly to consumers over the internet. These services are "over-the-top" because they bypass traditional distribution channels like cable or satellite TV providers.
- **PSTN (Public Switched Telephone Network)** refers to the traditional telephone system used for voice-oriented communications. It consists of multiple interconnected carriers to reliably connect people through standard phone numbers.
- **Streaming** refers to the process of transmitting digital content, such as audio or video, over the internet in real time. It allows users to access and consume content on demand without the need to download it fully beforehand. Streaming occurs through various platforms or applications, such as OTT services, social media platforms, or dedicated streaming platforms like Netflix, YouTube, or Spotify.

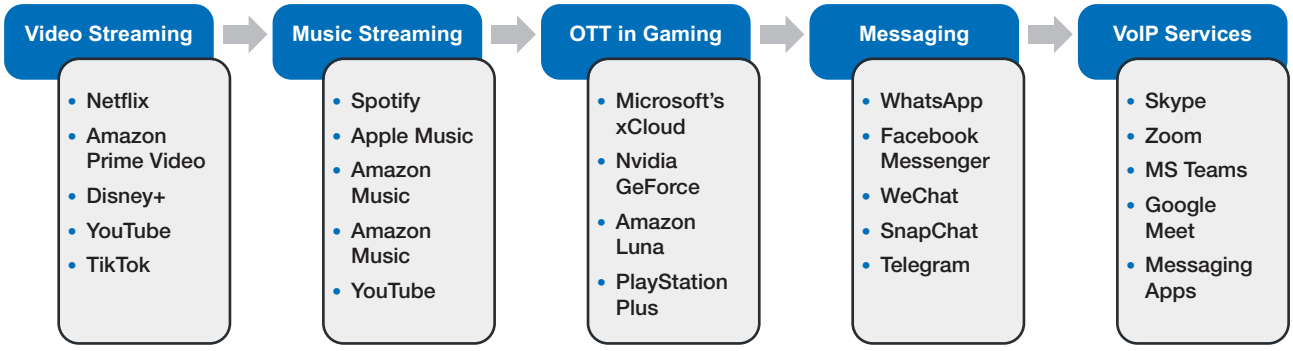
1 Executive Summary

Today's broadband networks facilitate access to a host of services, through the convergence of traditional postal, communications and broadcasting services into a world of consumption of Gigabytes. This convergence has stimulated the emergence of a new force in the digital media landscape, the Over the Top ("OTT") service providers, who are revolutionising the way voice, messaging and content is distributed and consumed.

OTT services and their dependence on broadband networks

OTT service providers deliver services directly to end-users over the public Internet, bypassing and challenging traditional distribution channels and legislative and regulatory frameworks and offering end-users more control and freedom in their content consumption.

Figure 1: A plethora of Over the Top services



Source: (Amended from Tamplin 2023).

The continued success of the OTT service model is dependent on the availability of high quality, reliable and efficient network infrastructure. The exponential growth of connected devices and OTT applications has created an unprecedented demand for data bandwidth and network capacity. As the volume of video consumption is forecast to increase, Network Operators face the daunting future continuous upgrading and expanding of their network infrastructure.

The commercial implications of the challenges in the OTT and telecommunications sector are complex and require careful consideration to ensure that regulations and frameworks align with the realities of the digital landscape. This is not a problem unique to this sector; many economic industries face similar challenges as they adapt to the ever-changing digital technological landscape. To navigate these effectively, evidence-based decision-making is crucial. Understanding the investment made by telcos in maintaining network infrastructure

must be balanced against content generation costs, subscription fees, and advertising revenue to arrive at a fair and equitable outcome that avoids unjustified enrichment for any party involved.

Balancing the need for modernisation with the sustainability of cost recovery models presents a complex challenge. Ensuring fair compensation for the increased traffic, while also maintaining affordable access for end-users, requires a delicate equilibrium be struck. Collaboration among stakeholders and innovative solutions will be essential to address this problem effectively and ensure sustainable growth and connectivity in the digital era.

Creating a fair playing field between network operators and OTTs

As the nexus between OTTs and traditional, regulated, services continues to morph into new services, it is critical to ensure that legislative and regulatory developments capture the overall impact of OTTs and other new business models on the provision of services in the Digital Society. Proposed amendments to the Electronic Communications Act No. 36 of 2005 (ECA) signal an opportunity for a comprehensive and holistic assessment of the OTT landscape, ensuring that any proposed legislation and regulations are future-proof and adaptable to the evolving needs of the digital ecosystem. Striking a balance between collaboration and competition with OTTs can pave the way for a more vibrant and sustainable digital ecosystem in which both OTT providers and network operators can thrive.

ACT believes that a proactive and inclusive stance in the OTT space is crucial to advancing digital technologies in South Africa. By engaging in conversations with various stakeholders, including government bodies, regulators, research institutions, and other industry associations, we seek to foster an enabling environment for innovation and investment. Emphasising the importance of equitable collaboration, we aim to strike a balance that not only supports the growth of OTT services but also ensures sustainable and continued availability of broadband networks.

Financing the broadband networks of the future

Fair share arrangements have become one of the most discussed concepts in the context of OTTs. Regulated service providers argue that the revenues generated by OTT platforms are intrinsically tied to the network usage they drive and that OTT services compete directly against regulated service providers without any regulatory obligations. There are three telling reasons why OTT providers could be expected to make a proportional contribution towards infrastructure costs:

- Ensuring efficient resource utilisation: OTT providers heavily rely on the network infrastructure provided by network operators to deliver their services. Fair share arrangements ensure that OTT providers contribute their fair portion to the costs of building, maintaining, and upgrading the infrastructure that supports their business. This helps balance the utilisation of resources and prevents network operators from shouldering the burden alone. The question of developing a balance between larger and smaller network operators would have to be addressed as part of developing the regulatory framework for OTT services.
- Commitment to a sustainable Ecosystem: Fair share arrangements promote a sustainable and balanced ecosystem within the OTT industry. By contributing to infrastructure costs, OTT providers help ensure that network operators can continue to invest in network expansion, capacity upgrades, and quality of service improvements. This benefits all stakeholders and fosters a healthier marketplace. Suggestions on a way forward include the creation of a shared fund that serves its purpose outside of the commercial competitive dynamics of all network operators, which suggestion requires serious consideration.
- Investment Incentive: Fair share arrangements create an incentive for network operators to invest in network infrastructure. If network operators perceive that OTT providers are not contributing their fair share, it may discourage them from investing in the necessary infrastructure to support the growing demands of the OTT services. Fair compensation encourages continued investments in network development, leading to enhanced connectivity and better services for users (Ross & Erasmus, 2013).

Ideally this contribution should be determined through mutual agreements on usage charges. However, calculating how fair share should be achieved is a complex task, and to ensure fairness, any fair share arrangement should be grounded in law, commercial fairness, and a consideration of the industry dynamics.

As the South African digital market aims to close the Digital Divide and bring network infrastructure and digital services to everyone, it is critical for the cost of this new network deployment to be fairly distributed across all who benefit to bring network infrastructure and services.

The future regulatory regime must deliver for the end-user

There is still significant scope for improvement in access to broadband in South Africa, but it is critical for the industry as a whole to take a first step and recognise that both network operators' and OTT providers have a shared responsibility to provide high-quality services to end-users.

Ultimately, to benefit consumers, South Africa needs a flexible, non-disruptive, and coordinated approach to building an information society. This includes clear regulations, innovative solutions, and close collaboration between policymakers, regulators, OTTs, and network operators to foster a thriving and competitive ICT sector in South Africa.

As the ACT, we recommend that South Africa policy and regulatory authorities engage with both electronic communications services network operators and OTT service providers to gather data-driven evidence on the impact that OTTs have on both regulated and unregulated services to ensure fair and effective competition, innovation, and consumer welfare.

2 Problem statement

The telecommunications industry is finding it difficult to keep up with the growth of new technologies and associated services. The barriers to entry to the telecommunications market have been lowered due to the widespread adoption of smartphones as well as mobile broadband. This enabled OTTs to start shifting users away from traditional services offered by NOs towards OTT services. While network operators battle to churn those users back, OTT providers are steadily growing their customer bases and revenues.

The shift towards OTTs is causing a decline in traditional services offered in and across various services such as domestic voice calls, text messages and long-distance calls. Whilst this decline occurs, network operators are having to continuously invest in increasing network capacity to accommodate the dramatic increase in data traffic caused by OTT services.

While this increased traffic holds great potential for innovation and connectivity (Awwad, 2021), it poses significant challenges to broadband cost recovery and infrastructure restructuring (Strand Consult, 2023). The widespread use of smartphones and data-based applications and the consequent significant increase in mobile networks' data traffic require constant network expansion to maintain service quality (GSMA, 2021). Despite the growing number of subscribers and data usage, the revenue growth rates per subscriber is declining making it difficult for them to get a return on their investments (Wooden, 2022).

The issue of broadband cost recovery becomes paramount in this context, as network operators must make substantial investments to upgrade their infrastructure to meet the burgeoning data demands. Balancing the need for modernisation with the sustainability of cost recovery models presents a complex challenge. Ensuring fair compensation for the increased traffic, while also maintaining affordable access for end-users, requires a delicate equilibrium be struck.

IoT and OTT services, and their rapid and continued growth, consume ever increasing capacity of networks that were not designed for this kind of use. The change in the way end-users use and consume the services of broadband networks necessitates a re-evaluation and restructuring of funding models for network infrastructure maintenance and upgrading costs.

The challenge lies in striking a balance between investment and cost recovery while ensuring a seamless transition to a more connected and data-driven future. Collaboration among stakeholders and innovative solutions will be essential to address this problem effectively and ensure sustainable growth and connectivity in the digital era.

3 Deep dive into the challenges and imbalances in the current ecosystem

"Telecom operators are investing to get more users connected and to improve user experience, however, they are facing various challenges. Decrease of main revenue streams of voice calls, SMS (Short Message Service) and LDC (Long distance calls) with a significant increase in data traffic. In contrary, with free cost, OTT (Over the top) providers such as WhatsApp and Facebook communication services rendered over networks that built and owned by MNOs (Mobile network operators). Recently, OTT services gradually substituting the traditional MNOs' services and became ubiquitous with the help of the underlying data services provided by MNOs. The OTTs' services massive penetration into telecom industry is driving the MNOs to reconsider their strategies and revenue sources."

Ahmed Awwad
Faculty of Science and Engineering
Anglia Ruskin University, Cambridge Campus
(Awwad, 2021).

3.1 Summary

OTT platforms have gained significant popularity in recent years, offering convenient and flexible access to content on a wide range of devices. In the same breath, OTT services have also presented specific challenges for network operators, namely (Stocker, et al., 2023):

- **Network Congestion:** *"Mobile users' numbers are increasing significantly day by day and generating tremendous increase in network's load and traffic"* (Han et al.). The exponential growth of OTT services has put strain on network infrastructure. Streaming high-quality video, for example, requires significant bandwidth, leading to network congestion, especially during peak hours. Users may experience buffering, poor video quality, or even complete service outages during peak usage periods. Related to this challenge, is frequent connection reestablishments, in which case OTT services that send or receive small amounts of data often lead to a heavy signal load (Han et al., 2014). As an example, a 10-minute conference call with six plus participants audio only uses roughly 10 MB of data. A 10-minute conference call with 6+ participants all on video would use 230 MB of data (Wire, 2024).

  In terms of the overall impact of the higher data consumption on the network, precise and reliable information is not yet widely available. However, it is instructive to consider information available from a study in Korea, which indicates that Google and Netflix's

Table 1: Data consumption between traditional, OTT Voice Calls & Video Calls

Traditional voice call	OTT Voice Call	Video Call
Typical uncompressed PSTN 64 kbps of network capacity for the duration of the call	**Bit Rate:** Typically ranges from 6 kbps (kilobits per second) to 64 kbps for standard quality. **Data Demand:** For a one-minute call, the data usage can be between 45 KB to 540 KB, depending on the compression and quality.	**Bit Rate:** Can vary widely depending on resolution and quality settings. For example: **Standard Definition (SD):** Around 200 Kbps to 2 Mbps. **High Definition (HD):** Around 1.5 Mbps to 4 Mbps. **Full High Definition (Full HD):** 3 Mbps to 6 Mbps. **Ultra-High Definition (UHD or 4K):** 15 Mbps to 30 Mbps or higher. **Data Demand:** For a one-minute call, the data usage can range from approximately 1.5 MB to 150 MB, depending on resolution and quality.

Source: (Wire, 2024).

mobile video streaming services alone accounted for 27.1% and 7.2% respectively of the total mobile network traffic. This indicates a substantial portion of data usage is dedicated to OTT services (Jang & Kim, 2024). Moreover, based on the Ericsson Mobility Report for 2024, mobile data traffic in 2029 is forecast to be almost 7 times greater than 2023, with video making up 80% of this (Ericson, 2024).

- **Revenue Loss:** As consumers switch to OTT platforms, traditional network operators may experience revenue loss due to declining subscriptions to their services, such as voice and SMS, as OTTs offer similar services at a lower cost. OTT platforms also have a similar impact on content providers (Meffert and Mohr, 2017). The result is lower profits, which may lead to lower profits and potentially less/slower investment in network expansion and improvement catering to those services.
- **Regulation:** Network operators need to ensure a high-quality user experience for their customers. OTT services, which rely heavily on network connectivity, can be affected by issues like latency, buffering, and service disruptions. Network operators face the challenge of maintaining optimal network performance to meet consumer expectations

while also attending to other regulatory obligations introduced by regulators. The discrepancy in regulatory burden impacts the competitive landscape, operational costs, innovation capabilities and ultimately the strategies that network operators can employ to remain competitive (CTO, 2016).

To address network capacity and quality considerations, some of the biggest OTT operators are deploying private dedicated capacity inside Internet Service Provider networks to distribute services closer to the consumer(Martin, 2023). These OTT operators engage in adaptive bitrate management and other strategies, such as content-aware encoding and advanced video codecs, to reduce bandwidth usage. Network operators are also using various approaches to maximise throughput for minimal additional investment in core networks by engaging in open caching and starting to work more as infrastructure providers with IaaS (Infrastructure as a Service) offerings (Fautier, 2023). It is worth noting that OTT players can engage in various strategies to reduce bandwidth usage without regulatory consequence, while the strategies available to network operators are restricted to those that meet minimum regulatory standards.

Interestingly, according to BMIT's SA Voice Services and Unified Communications and Collaboration (UC&C) Report (BMIT, 2023), it is expected that there will be a "continuing steep decline in call volumes and revenues across both the fixed and mobile voice services market", as OTT services often offer superior voice quality during loadshedding (TechCentral, 2023). More generally, the introduction of OTT services, which rely on network operators' infrastructure, has exposed a significant regulatory gap between OTTs and network operators, where OTT operators provide end-user services, but the burden and responsibility of maintaining these services and ensuring seamless connectivity lies primarily with network operators (Awwad, 2021).

The substantial increase in data traffic on networks, primarily generated by OTT services, can at times hinder network operators' ability to service markets, particularly in rural and lower-income urban areas. These challenges revolve around bandwidth consumption,[1] return on infrastructure investment[1], and regulatory hurdles.

1 High data consumption can lead to network congestion, particularly in areas where the network infrastructure is not sufficiently developed to handle such high volumes of data traffic. For instance, as more people use OTT services, the data traffic increases, putting an overall strain on the network. This strain is most acutely felt in rural and lower-income urban areas where the existing network infrastructure may not be robust enough to handle such high levels of data traffic efficiently.

2 In rural and lower-income urban areas, the cost of upgrading infrastructure to handle increased data traffic can be prohibitively high. This is compounded by the fact that these areas represent a limited or negative return on investment, when compared to urban areas.

In conclusion, it is paramount to acknowledge the distinct ecosystems and dependencies that OTTs have on network operators and to consider the impact that the absence of shared responsibilities may have on the development of the market going forward.

3.2 What is the value chain of the OTT environment and who should be responsible for what?

In the OTT industry, multiple stakeholders play different roles in the value chain. Here is an overview of the key participants and their ideal responsibilities:

- **OTT Providers:** OTT providers are responsible for offering the same staple services of voice, messaging and video calls as electronic communication providers, or for creating and delivering digital content directly to consumers but doing this over the internet.
- **Content Application Providers:** CAPs are often grouped with OTTs but offer a range of services and solutions that empower content creators and distributors to manage, monetise, and deliver their content effectively. They often provide comprehensive platforms or software tools that facilitate content creation, management, metadata tagging, content protection, analytics, and distribution. CAPs enable content providers to reach their target audiences through multiple channels, such as websites, mobile apps, smart TVs, and connected devices. Examples of content application providers include Yahoo, Google, Wikipedia, YouTube and News Outlets.

  The services and features offered by CAPs may include:

  - **Content Management Systems (CMS):** CAPs provide CMS platforms that allow content creators to organise, store, and manage their digital content efficiently. CMS's often include features such as content ingestion, metadata management, version control, and content workflow management.
  - **Content Delivery Networks:** CAPs may offer CDN services to ensure efficient content delivery by caching and distributing content across a network of servers. CDNs help reduce latency, improve scalability, and enhance the user experience by delivering content from servers geographically closer to the end-users.
  - **Monetisation and Advertising Solutions:** CAPs provide solutions for content monetisation, including advertising management, subscription management, pay-per-view options, and transactional capabilities. These solutions help content providers generate revenue from their content through various monetisation models.

- **Analytics and Insights:** CAPs often offer analytics tools to track and analyse user behaviour, content performance, audience engagement, and other key metrics. These insights help content providers make data-driven decisions and optimize their content strategies.
- **Content Protection and Digital Rights Management (DRM):** CAPs may provide solutions for content protection, including DRM technologies. These technologies safeguard content against unauthorised access, piracy, and copyright infringement, ensuring the secure distribution of valuable digital assets.
- **Personalisation and Recommendation Engines:** CAPs leverage algorithms and machine learning techniques to offer personalised content recommendations to users based on their preferences, viewing history, and behavioural patterns. This enhances the user experience and drives engagement with the content.

CAPs play a critical role in the OTT industry by providing the core technology infrastructure, tools, and services that enable content creators and distributors to reach their target audiences effectively. Their platforms and solutions contribute to the seamless delivery, management, monetisation, and personalisation of digital content, ultimately enhancing the overall user experience.

CAPs should be responsible for, and are currently bridging the gap between content creators and consumers, ensuring a seamless and enriching content experience for all parties involved.

- **Content Delivery Networks:** CDNs, operating independently of CAPs, play a crucial role in optimising content delivery by caching and distributing content across their servers locally as well as globally. CDNs are groups of geographically distributed servers that work together to speed up the delivery of web content by bringing it closer to where users are located (examples include Amazon CloudFront, Akamai, and SuperLumin). Data centres are an integral part of CDNs (Sujata et al., 2015).
- **Data centres** provide secure spaces with controlled environments to host servers that store and deliver content to users (Abecassis et al., 2018). OTT platforms like Netflix rent space on these servers instead of building their own infrastructure in different countries. By using geographically distributed data centres, OTT platforms can efficiently store and distribute large amounts of content to users around the world. As volumes of content and demand for computing power grow exponentially, data centre providers have stepped up their investments in building data centres, leasing colocation space, and installing and upgrading servers and other equipment (Abecassis et al.,

2018:15). It is expected that they should be responsible for optimising content delivery, and reducing the strain on network infrastructure by caching and distributing content closer to end-users (Abecassis et al., 2018).

- **Network Operators:** Network operators, own and operate the physical infrastructure required for communication networks such as cables and cell towers as well as the software and services that run on the network. They are responsible for building, maintaining, and upgrading the network infrastructure to provide high-speed internet connectivity to end-users. Network operators bear the costs associated with infrastructure development, capacity upgrades, and ensuring quality of service. In a fair share environment, they may seek fair compensation or cooperation from OTT providers to support the infrastructure costs.
- **Regulatory Bodies:** Regulatory bodies, such as government agencies or industry associations, may establish guidelines, policies, or regulations that may govern arrangements between OTT providers and network operators, as well as protecting consumers. These entities could define frameworks to ensure fair compensation, promote competition, and maintain a level playing field within the industry.

  It is expected that they should be responsible for: establishing guidelines or regulations to promote fairness and balance between OTT providers and network operators and regulate illegal content.

Ultimately, the goal is to ensure a sustainable and cooperative ecosystem, where all stakeholders contribute and benefit proportionally, supporting the growth and development of the OTT industry.

3.3 Who are the OTT players?

OTTs encompass a diverse range of digital platforms and applications that offer various services to consumers over the internet. Defining what OTT services are is the first step to consider any regulatory framework. BEREC, in its 2016 Report on OTT services (BEREC, 2020), recognises that OTT is a term frequently used but often not clearly defined. It defines OTT as *"content, a service or an application that is provided to the end user over the public internet"*. Therefore, the term OTT does not refer to a particular type of service but rather to a method of service provision, namely over the public internet.

The BEREC report distinguishes between three types of OTT services, based on assessment of the similarity of use of OTT services to existing regulated Electronic Communications Services, presented in the table below:

Table 2: Overview of clusters of infrastructure investment

OTT Type	Definition	Function	Example
OTT 0	OTT 0 services refer to OTT services that qualify as ECS, which are services that consist wholly or mainly in the conveyance of signals. An OTT-0 service arguably is thus a substitute with other competing ECS services such as PSTN voice to PSTN voice or mobile to mobile. OTT-0 are subject to ex ante regulation (ITU Study Group, 2019).	VoIP services and messaging apps that use the internet to provide communication services. However, unlike traditional communications methods, these services do not face any form of regulation.	Skype calls that terminates on a mobile or fixed network are potentially subject to ex-ante regulations like termination and roaming ones.
OTT 1	OTT 1 services are not seen as ECS services but potentially compete with ECS. These services include voice and video communication platforms, often referred to as Over-The-Top voice and video services. As they leverage network operators'	Messaging Apps: Messaging OTTs enable real-time communication through text, voice, and video messaging. These apps allow users to communicate with friends, family, and colleagues across borders.	Popular examples include WhatsApp, Telegram, WeChat, Facebook Messenger, and Signal.

Table 2: Overview of clusters of infrastructure investment continued

OTT Type	Definition	Function	Example
OTT 1	infrastructure to deliver their services, OTT 1 providers pose challenges to traditional telecom operators in revenue generation, as they offer comparable services at lower costs or for free, eroding traditional voice and messaging revenue. OTT 1 services may arguably not be seen as competing with traditional voice calls, or less so – and hence subject to lighter controls or wholesale regulation – if any. OTT-1 may or may not be subject to ex ante telecoms regulations.	Video Conferencing and Communication Services: Video conferencing OTTs facilitate remote communication and collaboration. These platforms have gained significant traction for remote work, online meetings, and virtual events. However, unlike traditional communications methods, these services do not face any form of regulation.	Notable examples include Microsoft Teams, Zoom, Google Meet, and Cisco Webex.
OTT 2	OTT 2 services represent a category of Over-The-Top applications that extend beyond traditional communication and messaging functions, providing value-added services to end-users. These services often include media streaming platforms, on-demand content providers, and other digital entertainment offerings. Unlike OTT 1 services that may compete with network operators' core services, OTT 2 services usually complement and enhance the overall user experience by delivering diverse and captivating content.	Video and Audio Streaming Services: Video and audio streaming OTTs provide on-demand access to a wide range of audio and video content. These platforms offer users the ability to stream movies, TV shows, music, and podcasts on various devices.	Examples include Netflix, Amazon Prime Video, Hulu, Disney+, Spotify, Apple Music, and YouTube, among others.
		Virtual Reality (VR) and Augmented Reality (AR) Experiences: VR and AR OTTs offer immersive experiences through virtual and augmented reality technologies.	Examples include Oculus (owned by Facebook), Microsoft HoloLens, and Google ARCore

Table 2: Overview of clusters of infrastructure investment continued

OTT Type	Definition	Function	Example
OTT 2	For network operators, OTT 2 providers can be seen as potential partners rather than direct competitors. Collaborating with OTT 2 services can present unique opportunities to offer bundled packages or data plans that include premium content, appealing to a broader customer base and increasing revenue streams. OTT 2 services clearly do not compete with traditional ECS services and *would not be subject to* ex-ante regulations. OTT-2s may be subject, though, to ex-ante broadcasting rules.	Gaming Platforms: Gaming OTTs provide access to a vast array of video games, both single-player and multiplayer. These platforms offer a range of games, from casual mobile games to sophisticated console and PC games.	Examples include Steam, PlayStation Network, Xbox Live, and Google Stadia.
		Cloud Computing and Storage: Cloud OTTs provide cloud computing and storage services, allowing users and businesses to store, access, and manage data and applications remotely.	Examples include Amazon Web Services, Microsoft Azure, Google Cloud, and Dropbox.
		Online or Web-Based Streaming: This category includes OTTs that offer live streaming services for various events, sports, news, and other real-time content.	Examples include Twitch (for live streaming gaming content), YouTube Live, and Facebook Live.
		Social Media Platforms: Social media OTTs are digital platforms that facilitate social inter-actions and networking among users. These platforms allow users to connect, share content, and engage with others globally (Kiran, 2022).	Facebook, X (formally Twitter), Instagram, LinkedIn, and Snapchat, among others.

The table above clearly indicates that certain OTT services operate in the same market-place as regulated Electronic Communications Services. This implies that a fair understanding of the impact of OTTs on the competitive dynamics of regulated services is a critical next step to the development of the regulatory agenda.

3.4 Exploring the perspectives of Network Operators and OTT Providers

3.4.1 Network Operators

The Capacity Issue

While network coverage is a critical factor, a more pressing issue for network operators in the context of OTT services is capacity.

The rapid growth of OTT services has resulted in an exponential increase in data consumption and network traffic. The impact on capacity can be assessed in various ways as highlighted in the Sandvine (2023) Global Internet Phenomena Report. This report shows that video usage grew 24% in 2022, equating to 65% of all internet traffic, with TikTok, Disney+, and Hulu identified as among the top-10 players generating the most traffic volume. The report also shows that global internet traffic volume increased 23% from 2021 to 2022%, due in a large part to surging streaming video usage and continued growth in traffic across app categories, including gaming, cloud, VPNs, marketplaces, and conferencing. A quarter of all video traffic is consumed on phones and tablets, and this share is set to rise to 37% by 2025 which means access requirements at any time and any place with specific demand on mobile networks will continuously increase.

> *As different OTT platforms expand their services and raise expectations, they can simply raise prices to fund service improvements, but the telcos that build and maintain the networks, on top of which these services ride, cannot do the same. It's to be expected that operators would seek regulatory relief, and the data in this report illustrates why."*
>
> **Sandvine CTO Alexander Haväng**
> (Sandvine, 2023).

Globally, the Big 6 (Facebook, Amazon, Google, Apple, Netflix, and Microsoft) arguably generate almost half of all internet traffic, with Google and Netflix responsible for the largest volumes (Sandvine, 2023).

The BMI SA Voice Services and UC&C Report (BMIT, 2023) identifies some of the same capacity market drivers in South Africa, which include the increasing adoption of cloud-hosted PABX and collaboration platforms like Microsoft Teams, which offer enhanced communication capabilities. This results in a shift from traditional voice calling to more versatile and integrated communications solutions. A challenge particular to South Africa is that loadshedding negatively affects traditional services, but has less of an effect on OTT solutions because these can continue providing services using back-up power solutions, often at a better QoS.

Consistent capacity challenges could frustrate end-users and generate high levels of churn for all service providers regardless of mode of service delivery. Solving the network capacity concern is of significant interest to both network operators and OTT providers.

Potential solutions that could be adopted to address capacity issues can vary based on the relevant regulatory environment, technological capabilities of respective parties, and the level of cooperation between network operators and OTT players. Some of these include:

- **Spectrum and related Network Upgrades:** Network operators may need to invest in upgrading their infrastructure, including increasing network capacity and bandwidth. Sufficient availability of Radio Frequency Spectrum plays a vital role in creating more network bandwidth by determining the capacity, reach, and latency of communication systems (Kochnar, 2023). The bandwidth that an operator can offer is directly tied to the frequency range and amount of spectrum assigned by the national regulator, as more spectrum naturally provides a larger bandwidth. Effective spectrum allocation, assignment and management are essential to maximize the benefits of available frequencies and support the growing demand for high-speed, reliable wireless communication. Both MNOs and OTT providers can benefit from investments in network infrastructure that enhance capacity and service quality. Additionally, implementing network slicing within 5G architectures allows MNOs to provide customized network capabilities tailored to the specific needs of OTT services, ensuring efficient resource utilization and optimal service delivery (Martin, 2023).
- **Traffic Management:** Implementing effective traffic management techniques, such as QoS policies, can help prioritise OTT traffic and ensure a consistent user experience during peak usage periods (Aouedi et al., 2022). As an example, giving priority to time-sensitive services (e.g. voice and video calls) over less time-sensitive activities such as file downloads. NOs can implement data caching and local hosting solutions to reduce the data load on inter-network links and decrease latency by serving content from a

geographically closer source (Swiss Networking Solutions, 2023) has highlighted earlier in this report, OTTs can introduce adaptive bitrate management and other strategies such as content-aware encoding and advanced video codecs.

- **Content Delivery Networks:** Collaborating with CDNs can optimise content delivery by distributing content closer to end-users, reducing the strain on the core network and improving streaming performance. This means, for example, distributing content across multiple servers strategically placed in different locations. This reduces the load on a single server and optimises data delivery, resulting in improved performance and reduced network congestion.
- **Partnership and Revenue-Sharing Models:** Network operators can explore partnerships with OTT providers, through which they can leverage their infrastructure to offer value-added services or negotiate revenue-sharing agreements. This helps generate additional revenue streams to support infrastructure investments. They can potentially also collaborate to optimise content delivery through, for example, adjusting video streaming quality based on network conditions or by providing guidelines for content optimisation (A3Logics, 2023).
- **Peering Agreements:** Direct peering agreements can be established with popular OTT providers to allow for a more direct and efficient exchange of traffic between the network and the OTT provider's servers, reducing the load on transit networks.

  By focusing on capacity enhancements and addressing the associated challenges, as well as collaborating with OTT players, network operators can better cater to the increasing demands of OTT services, mitigate network congestion, and provide users with a superior experience.

Regulatory Burden

Network operators are subject to several regulatory requirements, while being in competition with OTT providers which do not, currently, face the same. These differences create a regulatory asymmetry between the two, impacting their operational and competitive landscapes.

In most countries globally, including South Africa, network operators have to obtain licenses to operate their services which come with regulatory conditions and licence fees. These conditions include among others minimum quality of service obligations, mandatory interconnection and network access obligations, access to emergency services, and universal service obligations (CTO, 2016). Roll-out obligations are particularly onerous, requiring the roll out of network coverage to underserved or unprofitable areas, ensuring universal service.

Investment in infrastructure is costly and the financial strain is compounded by the need to maintain and upgrade this infrastructure to keep pace with technological advancements and consumer expectations. OTT providers have none of these obligations and are able to offer their services to a broad audience with minimal investment in physical infrastructure (Masemola 2019).

While both network operators and OTT providers must adhere to general data protection and privacy laws, MNOs often face stricter regulatory scrutiny in how they handle customer data. This includes more stringent requirements for data security, data retention, and lawful interception. OTT providers, while still subject to data protection laws, generally face less rigorous regulatory enforcement in these areas (Shanapinda 2019). This is discussed in further detail in Chapter 4.

3.4.2 Over-The-Top service providers

From the OTT perspective, the argument often centres around clarifying the specific problem being addressed between the cost to communicate and infrastructure investment. OTTs assert that the cost to communicate should fall within the ordinary scope of business for network operators, as they are primarily in the business of providing communication services. In this regard, OTTs highlight that their role is to offer innovative and value-added services to consumers, leveraging the network infrastructure set up by the operators to facilitate communication (Telecom Review Africa, 2024).

OTTs may argue that the burden on network infrastructure results from the increased demand for data and connectivity driven by their services. While they acknowledge the importance of network investment and maintenance, they contend that this burden should be recognised as a natural consequence of the digital evolution and the expanding application economy. In their view, network operators should be well-equipped to handle these increasing demands, considering that they are already established as providers of communication services. In fact it is contended by some OTT providers that they should receive revenue share from the revenue they generate for the telecommunication network operators (Sarkar, 2023).

OTT providers also state that they have no role in planning network infrastructure. Accordingly they believe that they cannot be expected to "post facto pay for the infrastructure which is designed, owned, deployed and controlled/managed by telcos" as stated by BIF President TV Ramachandra (Ink 42, 2023).

Survey results by Schneider and Hildebrandt (2017) indicate that "MNOs are likely to profit from the OTTs uprising trend as they are resulting into an increase of consumers' willingness-to-pay for MNOs mobile access". In fact some OTTs claim they represent a considerable opportunity for MNOs which has already resulted in an obvious upsurge of mobile users, smartphones and data traffic, and increased the MNOs` revenues from the induced data revenues generated by OTT usage. This revenue increase compensated for the inherent decreases in the traditional voice calls and SMS revenues. Esselaar and Stork (2018) attributed the declining revenues of the MNOs to either insufficient network coverage of 3G and 4G mobile networks or that it could be explained by obsolete operating conditions or outdated voice and SMS products as the only business models (Awwad, 2021).

Based on their findings, Schneider and Hildebrandt (2017) cautioned policymakers and regulators not to employ strict regulatory rules on OTTs (as is applied to network operators) as OTT services have different functionalities and warned about possible negative consequences that might arise and impact consumers.

However, from the network operators' perspective, as stated before, the challenge lies in the extraordinary and unprecedented scale of data traffic generated by OTT services. While communication services have been at the core of the network operator business model, the explosion of data creation, consumption, processing and storage brought about by the rise of OTTs present a new level of strain on network infrastructure. The additional investment required for infrastructure maintenance and upgrades becomes essential to ensure reliable and seamless connectivity for all users, including those benefiting from OTT services.

Moreover, without insight into OTT traffic patterns, it becomes difficult for network operators to accurately forecast capacity requirements and make informed investments in network upgrades. A simple first step, such as collaboration on data consumption patterns, could provide operators with valuable data to optimise their infrastructure planning. A partnership could furthermore allow operators to implement measures like traffic prioritisation or guaranteed QoS for OTT services, benefiting both parties and end-users (Chmieliauskas & Paulikas, 2021).

The revenue issue stemming from the impact of OTTs on network operators remains a crucial point of discussion. As mentioned earlier, network operators are not averse to the organic change and expansion of the ICT ecosystem, but believe the added and unscalable pressure on the networks arising from certain OTTs warrant regulatory attention. There are views, that regulators can develop a framework that ensures fair competition, encourage innovation,

and safeguard the interests of all stakeholders in the evolving digital landscape. This process will be further unpacked under the competitive landscape in greater detail in Chapter 5.

It is worth noting that some OTTs are actively investing in infrastructure, including cables and data centres in some of the countries where they operate. The extensive network of more than 500 undersea cables that transport around 97% of internet traffic around the world and connect continents has seen significant investment by Big Tech (White, 2021). This demonstrates a commitment to the local market and contributes to the development of a robust and reliable network infrastructure, which benefits both consumers and network operators.

As an example, Google has invested in at least 15 subsea cable projects around the globe. Facebook has invested in approximately a dozen, and Amazon.com Inc. and Microsoft Inc are also investing in subsea infrastructure. South Africa has experienced this investment through the arrival of the Equiano cable as well as various investments in data centres.

> *Tech already do their "fair share" by spending around "€22 billion per year on internet infrastructure for Europe" via subsea cables, content-delivery networks and data centres, Telecom operators and other internet service providers in Europe actually save €1 billion annually thanks to tech's infrastructure investments."*
>
> **Head of Big Tech lobby group CCIA Europe** (Pollet, 2023).

As stated in the ITU paper on Economic impact of OTTs on national telecommunication/ICT markets (ITU Study Group, 2019), OTTs and network operators need each other to thrive in today's communications marketplace. It is not a "zero-sum game" but rather a mutualistic symbiotic relationship. Direct commercial partnerships between operators and OTTs have vast potential and research suggests such partnering could increase telco free cash-flow by a massive 50% (ITU Study Group, 2019).

It Is crucial for OTTs and network operators to adopt a collaborative attitude, understanding the shared responsibility in ensuring a sustainable and thriving digital ecosystem. By OTTs and telcos engaging in constructive dialogue with each other as well as regulatory bodies, they can play a pivotal role in shaping context-specific policies that promote innovation, investment, and ultimately benefit consumers and the industry as a whole.

Ultimately, the discussion between OTTs and network operators/telcos must revolve around defining the problem statement and acknowledge the respective roles and responsibilities

of each party. While OTTs bring innovation and value to end-users, network operators bear the responsibility of ensuring the robustness and scalability of infrastructure to meet the demands of the digital age. Collaborative dialogue and mutual understanding between network operators and OTTs is essential to finding solutions that strike a balance between the cost to communicate and infrastructure investment, leading to a sustainable and inclusive digital future for all stakeholders.

4 Understanding the policy and regulatory framework

4.1 Introduction to understating the impact of OTTs on competition

As a starting point, it is apt to quote the founder of the World Wide Web:

> *"The web is for everyone, and collectively we hold the power to change it. It won't be easy. But if we dream a little and work a lot, we can get the web we want."*
>
> **Sir Tim Berners-Lee,**
> **Creator of the World Wide Web.**

The quote above clearly states that all parties have a role to play, and that there is a need for coordinated rather than fragmented effort. This Chapter explores the various types of OTTs and considers their scope and regulatory significance as well the competitive framework in which they operate.

Understanding the different categories of OTTs holds significant importance from a regulatory perspective. Categorising OTTs makes it possible to differentiate between the types of services they offer and their level of impact on traditional broadcasting and tele-communications operators.

4.2 Relationship between OTTs and electronic communications service providers in digital markets

The term "digital markets" refers to all business activities that use digital technology, either existing business ventures or to grow new ones. Digitalisation has reshaped competitive dynamics in the economy, creating new markets and transforming existing ones.

A starting point for understanding digital markets, and assessing whether existing competition policy frameworks are still fit-for-purpose, is identifying some key features of digital markets. These features, which shape competitive dynamics, can include (OECD, 2024):

- Multisided markets: – where digital products act as a platform, bringing different groups of consumers together it is seen as a multisided market, i.e. content creators, viewers, advertisers;
- Strong network effects – where the value of the product increases as the number of users grows;

- Substantial economies of scale and scope – due to many digital markets exhibiting high, initial, fixed costs and low or zero variable costs, firms can rapidly scale up and expand geographic coverage across national borders or potentially use their assets in one market to enter another;[3]
- Reliance on large amounts of user data – many digital services rely on access and use of large amounts of user data, which is expensive to acquire, replicate and analyse;
- Switching costs – users may have invested time and effort to create a profile on a social network or a reputation as a provider on an exchange platform, which may be lost if they switch. There has been a breakdown of switching barriers in the mobile sector since OTT services are platform agnostic, which means that consumers are able to easily switch away from and between mobile providers without losing access to their communication services;
- Low or zero prices – traditional business models, on which NOs operate, typically are based on generating revenue directly from end-users for the consumption of services. However, the new digital market includes services that generate revenue from the collection of consumer data, sale of advertising or the use of customer relationships to sell "premium" or other paid products (Seven of the 10 largest global companies provide zero price products and services in digital markets);
- Disruptive innovations – that dramatically reduce transaction and intermediary costs and may be offered outside of regulatory frameworks that limit competition by incumbents, examples of this are cryptocurrency and blockchain;
- Vertically-integrated and conglomerate business models – digital platforms may act as "gatekeepers" between downstream firms and their customers, which may raise competition concerns as they provide advantages to their own downstream operations. Further, firms may seek to leverage their market power from one market into another, for example bundling and tying strategies that foreclose competition for a digital "ecosystem" of products (OECD, 2022).

The market features of digital markets means that it is often complicated to characterise the relationship between OTTs and electronic communications services. However, using traditional competition terminology, the relationship can be both horizonal and vertical. Horizontal relationships involve competitors or potential competitors, while vertical relationships involve firms in a buyer-seller relationship. As discussed in Section 3.3, OTTs

3 Traditionally licenced network operators are bound to the geographic boundaries of the country in which they hold a licence. OTT providers, however, operate in a (generally) borderless world, where the scale of the potential market is equivalent of all Internet users in the world.

provide products that directly compete with traditional communications services, although they also rely on the networks of traditional communications service providers to deliver their services to end uses.

4.3 Regulatory Framework for OTTs – Current Landscape and Challenges

OTT services are not regulated in a globally harmonised or uniform manner and different countries have their own regulations and policies for OTTs. These regulations have evolved over time and there are ongoing efforts to find the right balance between regulation and innovation. Regulatory interventions by various countries include licensing, content regulation, anti-trust enforcement, data usage rules and protection of personal information as well as taxation measures.

Bilbil (2018) has outlined the regulatory framework between traditional NOs and OTT service providers to indicate the difference in regulatory requirements between the two, in many cases, competing services. Key discrepancies in approach, to name but a few, include obligations on NOs to be licensed, meet mandated quality of service standards, to comply with stringent interception and surveillance laws, and to pay regulated fees as well as taxes. These requirements are not equally applicable to OTT service providers (See Annexure 2 for the complete comparison).

Many regulators are extending the traditional broadcasting content regulation into the OTT services environment, for example by requiring content providers to register as well as introduce age and content related warnings. Although Regulators have experience in this form of regulation, the technical aspects of this regulation are challenged by work-arounds such as Virtual Private Networks.

However, those policy-makers/regulators aiming to extract revenues from the use of OTT services face significant challenges. Firstly, end-users would have to pay for the use of a service that has been ostensibly "free" for years, and secondly, the same technical aspects that affect content regulation, also apply to taxation. A number of countries have used diverse approaches in regulating OTT services or are considering the regulation of OTT services, the countries considered in this paper include Australia, Benin, China, the European Union, India, Kenya, Uganda, the United Kingdom and the United States. A table of the various approaches are provided as Annexure 3.

"The technical, and social challenges in how OTT technologies and services impact society disrupt the traditional rulemaking frameworks and competition. This paragraph should read as follows: "The OECD states that without appropriate regulatory and competition policies, the potential benefits of digital transformation could be overshadowed by undesirable side effects (OECD, 2023)."

The table below outlines seven key areas that should be considered when considering the development of a framework of regulation that incorporates both OTT service providers and existing regulated entities:

- Security of the service: OTT service providers may be required to ensure the security of their services to protect users' data and privacy (Tamplin, 2023).
- Cooperation with public security authorities: OTT players may be required collaborate with public security authorities to speak to security concerns and potential threats.
- Customer protection: Regulations aim to shield customers by ensuring transparency, fair practices, and adequate consumer rights when using OTT services, as well as ensuring fair advertising practices (Marg, 2015).
- Data: OTT service providers must comply with data protection regulations, such as the General Data Protection Regulation, to protect user data and privacy (OECD, 2023).
- Illegal Content: Regulators are concerned about the spread of illegal content on OTT platforms, such as hate speech, terrorist propaganda, and child pornography. Some countries have proposed making OTT providers liable for illegal content and imposing fines or other penalties (Panday, 2017).
- Taxation: Some regulators have proposed taxing OTT providers for transactions by local merchants or bringing them under an operating license framework. This is because OTT providers may not be subject to the same tax regulations as traditional media companies (Bilbi, 2018).
- Competition: Increasing concentration in digital markets could result in a decline in competitive pressures (OECD, 2023).

In conclusion, understanding the impact of OTT services on society, digital markets and existing regulated services involves examining the ecosystem as a whole. As the technology landscape evolves rapidly, regulatory frameworks must be adaptable and equitable to support both the growth of OTTs and the sustainability of network operators. Striking a balance between promoting innovation and ensuring fair competition will be key in fostering a dynamic and thriving digital ecosystem.

4.4 Regulatory Plasticity and the use of Regulatory Sandboxes to promote an innovative industry

The challenges associated with understanding, and if necessary, regulating a new and rapidly evolving environment presents new challenges and opportunities. Rules and regulations made today must be future-proof to ensure the provision of safe and secure services to end-users and long-term financial feasibility of service providers. As the technological environment continues to advance at a rapid pace, static and rigid regulations may quickly become outdated or create barriers to innovation. Policy makers and regulators need to consider agile laws and frameworks that can respond swiftly to emerging trends and developments while maintaining a stable and predictable regulatory environment. By fostering agility in the regulatory framework, it is possible to ensure that the rules governing the OTT and telecommunications sector remain relevant, effective, and conducive to sustainable growth, promoting a dynamic and inclusive digital economy for the benefit of all stakeholders (Kaiser & Olszynski, 2021).

> *Under such a performance- or outcome-based rule (also referred to as flex regs), those being regulated have the ability to be innovative in how they want to comply."*
>
> **Canadian Economist Mark Jaccard**
> (Kaiser & Olszynski, 2021).

Deloitte Insights (2018) provides a set of five principles to guide the future of regulation:

- Adaptive regulation: Shift from "regulate and forget" to a responsive, iterative approach.
- Regulatory sandboxes: Prototype and test new approaches by creating sandboxes and accelerators.
- Outcome-based regulation: Focus on results and performance rather than form.
- Risk-weighted regulation: Move from one-size-fits-all regulation to a data-driven segmented approach.
- Collaborative regulation: Align regulation nationally and internationally by engaging a broader set of players across the ecosystem.

These principles underscore a flexible approach towards regulation, that can help ensure that regulations keep pace with the fast-moving and constantly evolving digital economy while also promoting innovation, competition and growth. They recognises that regulation should be used only where required, while creating an environment in which the industry is allowed to self-regulate. A self-regulated environment allows sector participants to respond swiftly

and flexibly to emerging issues, while consumers may simultaneously benefit from such an approach (OECD, 2015).

The digital economy is putting all industries and sectors to the test – there is no panacea for the regulatory treatment of new digital trends and players. Technology regulation is a complicated and sensitive subject that needs special consideration and foresight (Tokat, 2023). An important and practical consideration is the value in harmonising regulatory approaches when this makes sense. This would reduce compliance costs on OTTs, make cross-border collaboration for law enforcement purposes easier and also foster innovation and stimulate competition, thereby benefitting regulators and the industry alike (Said, 2017).

By adopting a multi stakeholder approach and engaging in international cooperation, regulators can develop agile and flexible regulations that balance the need to promote innovation and competition with the need to protect consumers and ensure fair competition.

Figure 2: Two worlds of perception: Digital Markets versus Digital Regulation

Digital Market

- Free economy
- Boundless communication
- Full transparency
- Business opportunities
- High rewards
- Freedom of ideas
- Money
- Open society
- Open economy
- Open government
- New ideas
- New ways of working
- Flexibility
- Connectivity
- Global village
- Innovation
- Entrepreneurship

Regulators

- Security
- Rules
- Law
- Risk management
- Cyber-war
- Cyber-crime
- Protection of assets
- Protection of society
- Protection of privacy
- Protection of traditional market players
- Labor protection
- Syndicates
- Control
- Enablement of international digital spaces
- National technologies Norms
- Consumer protection
- Enablement of a digital single market

Source: (BearingPoint, 2015).

The Independent Communications Authority of South Africa (ICASA) and the South African Competition Commission play a crucial role in ensuring fair competition and protecting consumers' interests in the telecommunications and OTT industry. The Online Intermediation Platforms Market Inquiry published a findings report that identified features of the market that adversely affect competition and included remedies as well as recommendations to the Department of Trade, Industry and Competition (Competition Commission, 2023). While the Commission's recommendations from market inquiries have become more enforceable following recent legislative changes, they are not automatically binding. Affected parties can contest these findings and recommendations in the Competition Tribunal, and the exact scope of the Commission's power to implement its recommendations remains subject to legal interpretation and potential challenges.

There are clearly challenges and limitations as to how far a regulator can go in regulating this complex and rapidly evolving space. Some of the challenges that regulators face are:

- **Market Complexity:** The OTT and telecommunications market is highly dynamic and constantly evolving with new services and technologies. The diversity of players and business models makes it challenging for regulators to keep up with every aspect of the market.
- **Lack of Direct Competition:** In some cases, OTTs and traditional network operators may not be regarded as direct competition. OTTs often leverage existing network infrastructure without directly providing similar services.
- **Balancing Innovation and Regulation:** Overregulation can stifle innovation and deter investments in the sector. Regulators need to strike a delicate balance between promoting innovation, investment, and competition while ensuring consumer protection and a level playing field.
- **Cross-Border Nature:** Many OTTs operate across borders, which may require international cooperation and harmonisation of regulations. This can be complex and time-consuming for regulators to navigate.
- **Data Privacy and Security:** OTTs handle vast amounts of user data, and ensuring data privacy and security is a critical concern. Regulators must address these issues while promoting innovation and competition.
- **Regulatory Parity:** To avoid regulatory arbitrage, regulators need to ensure that both OTTs and traditional network operators are subject to appropriate regulations to create a level playing field.

- **Economic and Social Implications:** Overregulation may have unintended economic and social consequences, such as hindering job creation, increasing costs for consumers, or stifling technological advancements.

Ultimately, to benefit consumers, South Africa needs a flexible, non-disruptive, and coordinated approach to building an information society. This includes clear regulations, innovative solutions, and close collaboration between policymakers, regulators, OTTs, and network operators to foster a thriving and competitive ICT sector in South Africa.

5 Creating an equal playing field and ensuring financial sustainability

5.1 Summary

South Africa, similar to countries globally, faces challenges with connectivity, coverage, fibre, and 5G deployment, while OTTs rely heavily on the upgrading of this infrastructure to thrive. Artificial Intelligence and OTTs pose new challenges in the competitive landscape, and the lack of a blueprint on how to handle these fast developing technologies may lead to missed opportunities.

There are a number of possible solutions to consider in addressing these challenges, such as removing barriers to entry into the ICT sector, implementing codes of conduct, regular auditing, monitoring, and evaluation of the overall digital market, including OTTs, which can help in understanding the market better to foster fair competition.

A coordinated approach involving all stakeholders in the market is essential to clarify roles and responsibilities, especially in the context of digital taxes, so as not to burden consumers.

5.2 Ensuring a fair playing field for all

The market drivers in the OTT industry include access to smart phones and high speed internet. The United Nations Sustainability Goals of ensuring universal access to broadband mean that even those countries with relatively low broadband penetration, low penetration of smartphones, and large populations with low incomes represent future new markets for OTT service providers. With more than a billion middle-class customers expected to enter the telecom market by 2025 due to digital expansion, previously under-served markets, particularly in Africa, are poised for a massive uptake in OTT services.

However, herein lies the challenge: network operators are expected to expend significant capital and resources to expand their networks and introduce broadband connectivity, all whilst facing regulatory pressure to keep prices low. Whilst this is a natural regulatory expectation, the existing regulatory frameworks do not recognise the market power that OTT players have over the network operators in service markets. This market dynamic represents a risk to the long-term sustainability of broadband connectivity.

Regulated service providers argue that the revenues generated by OTT platforms are intrinsically tied to the network usage they drive. The creation and maintenance of digital

telecom infrastructure encompassing data centres, undersea cables, content hosting centres, and content delivery networks necessitates substantial investments. This viewpoint prompts the proposal that OTT platforms makes a proportional contribution towards infrastructure costs, which aligns with the broader concept of equitable partnership. Ideally this contribution should be determined through mutual agreements on usage charges (Rana & Co, 2023).

The inconsistency in OTT regulation is based on the disparity between one-sided infrastructure and two-sided content markets. Whilst the telco industry embraces the one-sided business model for offering internet service, many OTT service providers, such as Facebook, Google Search, eBay and YouTube, support the two-sided business model, and are therefore becoming a separate technological business faction. Clearly understanding the market is definitely one of the difficulties that regulators face in regulating OTT markets appropriately. Moreover, regulation is seen to be imperative to ensure OTT platforms are subject to lawful interception and monitoring by law enforcement agencies, and are accountable for illegal content or activities to maintain a safe digital environment. OTT platforms are also not obligated to contribute to the universal service funds to support the extension of electronic communications services to underserviced areas.

The relative lack of regulation on OTT players represents a potentially unfair competitive advantage over traditionally regulated network operators.

Ensuring fair regulation of all participants requires careful consideration to ensure that regulations and frameworks align with the realities of the digital landscape. To navigate these effectively, evidence-based decision-making is crucial. Understanding the investment made by telcos in maintaining network infrastructure must be balanced against content generation costs, subscription fees, and advertising revenue to arrive at a fair and equitable outcome that avoids unjustified enrichment for any party involved.

5.3 Fair Share Arrangements: a mechanism to ensure long term sustainability of broadband networks

5.3.1 Definition and purpose of fair share arrangements

Fair share agreements are vertical commercial transactions that establish a fair and equitable distribution of benefits and responsibilities between different entities operating within the same industry or sector. In the context of OTT services and network operators, fair share agreements seek to address the challenges arising from the increased usage of OTT services

over network infrastructures, as well as the need for increased expansion of network infrastructure to serve the underserved.

Clear differentiation of responsibilities is critical for any fair share arrangement to function optimally. In this situation, OTTs provide content, applications, and services over the internet whilst network operators build, maintain, and provide the infrastructure that facilitates data transmission and connectivity.

Fair share agreements in this context may cover various aspects, including revenue sharing, cost allocation, investment in infrastructure, and access to and control over customer data. These agreements aim to strike a balance between the interests of both OTTs and network operators while ensuring a level playing field at the services layer and fostering healthy competition within the digital ecosystem.

The purpose of fair share arrangements is to ensure that the costs associated with providing the necessary network capacity and infrastructure to support OTT services are shared in an equitable manner (Pollet, 2023). By establishing fair share arrangements, the goal is to promote a sustainable and balanced ecosystem where network operators and OTT providers both contribute to the infrastructure needed to deliver content to end-users.
Fair share agreements may outline cost allocation frameworks, which help distribute the costs associated with network maintenance and upgrade among relevant stakeholders. This approach prevents undue burden on any one party and promotes a collaborative effort to meet the demands of growing digital services.

Fair share arrangements therefore serve several purposes:

- **Infrastructure Investment:** Fair share arrangements help incentivise network operators to invest in expanding and upgrading their infrastructure to meet the growing demands of OTT services. They recognise that the increased traffic generated by OTT providers places a burden on network capacity and requires continuous investments to maintain a high-quality user experience.
- **Cost Allocation:** Fair share arrangements ensure that the costs associated with infrastructure development, maintenance, and capacity upgrades are shared appropriately between network operators and OTT providers. This can be achieved through various mechanisms, such as revenue-sharing agreements, interconnection fees, or direct contributions towards infrastructure expenses.
- **Level Playing Field:** Fair share arrangements aim to create a level playing field between network operators and OTT providers. By establishing fair contributions to infrastructure

costs, they helps prevent potential unfair advantages or free-riding situations, where OTT providers benefit from the network infrastructure investments made by network operators without sharing the associated costs. To date the fair share debate has centred around only being applicable to the largest traffic generators, which are capable of handling the financial implications of fair share without jeopardising their operations (ETTelecom, 2023). This exemption for smaller entities is seen as a way to maintain a healthy digital ecosystem that supports innovation and diversity without imposing undue financial stress on emerging companies.

- **Collaboration and Cooperation:** Fair share arrangements encourage collaboration and cooperation between network operators and OTT providers. By establishing transparent and mutually beneficial agreements, they fosters partnerships and encourage dialogue to address the challenges and opportunities presented by the evolving OTT landscape.

Implementing fair share arrangements can foster a more sustainable and cooperative ecosystem between OTT providers and network operators. It helps address the challenges faced by network operators and ensures that the growth of the OTT industry is not solely reliant on the resources of network operators.

This contribution can help ensure that network operators can continue to invest in upgrading their networks to meet the increasing demands of OTT services. Fair share arrangements can take various forms, such as direct payments, revenue-sharing models, or partnerships that involve mutual benefits.

In a rapidly evolving digital landscape, fair share agreements are a positive step towards fostering cooperation and creating a sustainable ecosystem that benefits all stakeholders, including end-users. By approaching the distribution of benefits and responsibilities in a fair and transparent manner, horizontal commercial transactions, in the form of fair share agreements, promote trust and collaboration among OTTs and network operators, ultimately driving the growth and innovation of the digital economy.

Calculating how fair share should be achieved is a complex task. Telecom operators propose to calculate the costs borne by OTT players primarily based on the actual traffic generated by these OTT services on the telecom networks. The basis for the calculation of any charge to OTT player could be calculated using two methods:

- Actual Traffic Measurement: The charges can be calculated based on the actual traffic carried by the OTT players on existing networks. This method ensures that the costs are

directly linked to the amount of network resources utilised by the OTT services and has been proposed in India (Grover, 2023). The idea is that OTT players, especially those classified as Large Traffic Generators, should contribute towards the network deployment and operational costs in proportion to the traffic they generate. This approach aims to distribute the financial burden equitably between the telecom operators and the OTT providers.

- Incremental Cost Approach: Another method discussed involves identifying the incremental costs that are sensitive to traffic. This means determining the additional costs incurred by the network specifically due to the traffic from OTT services. These costs could include additional bandwidth requirements, network upgrades, and maintenance costs directly associated with handling increased data traffic from OTTs (Frontier Economics, 2022).

The concept of "fair share" is critical for the OTT industry. It refers to the notion that OTT providers should contribute their fair portion to the costs of network infrastructure and maintenance, considering the heavy reliance on network operators' resources to deliver their services. This concept has gained prominence due to debates surrounding net neutrality and the perceived imbalance between OTT providers and network operators.

5.3.2 Arguments for Fair Share

There are three key arguments for the implementation of Fair Share agreements:

- **Resource Utilisation:** OTT providers heavily rely on the network infrastructure provided by network operators to deliver their services. Fair share arrangements ensure that OTT providers contribute their fair portion to the costs of building, maintaining, and upgrading the infrastructure that supports their business. This helps balance the utilisation of resources and prevents network operators from shouldering the burden alone. The question of resource utilisation of smaller network operator infrastructure remains a challenge as dominant operators will always receive an absolute larger amount than the smaller network operators, and would have to be thrashed out in due course as a matter of priority.
- **Sustainable Ecosystem:** Fair share arrangements promote a sustainable and balanced ecosystem within the OTT industry. By contributing to infrastructure costs, OTT providers help ensure that network operators can continue to invest in network expansion, capacity upgrades, and quality of service improvements. This benefits all stakeholders and fosters a healthier marketplace. Suggestions on a way forward include

the creation of a shared fund that serves its purpose outside of the commercial competitive dynamics of all network operators, which suggestion requires serious consideration.

- **Investment Incentive:** Fair share arrangements create an incentive for network operators to invest in network infrastructure. If network operators perceive that OTT providers are not contributing their fair share, it may discourage them from investing in the necessary infrastructure to support the growing demands of the OTT services. Fair compensation encourages continued investments in network development, leading to enhanced connectivity and better services for users.

Assessing the impact of these three principles in an OTT regulatory framework would require significant study into the functioning of OTT services as well as how the use of OTT services impacts on the cost structure of NOs. Such initial estimates have been conducted in the EU (Frontier Economics, 2022), but at this stage, South Africa does not have any of the requisite data to do so.

5.3.3 Arguments against Fair Share

Arguments against fair share arrangements may arise from different perspectives, including legal reasoning and commercial considerations. Some examples of arguments against the adoption of Fair Share arrangements include:

- **Ensuring the market is open to Innovation and market entry:** Critics argue that fair share arrangements could create barriers to entry for smaller or emerging OTT providers. Financial contributions or obligations may disproportionately affect smaller players/ potential new entrants that may struggle to bear additional costs (Chattaraj, 2023);
- **Negotiation Complexity:** Determining the fair share contribution can be complex and subjective. Defining a fair and reasonable amount that adequately reflects the resources utilised by OTT providers can be challenging. Disputes over fair share arrangements may arise, leading to prolonged negotiations or legal battles, all whilst reducing the level of innovation and Quality of Service offered to the end-user (Julien, 2023); and
- **Entrenchment of dominant network operators:** the proposed fair share agreement solutions indicate that dominant network operators are expected to receive a larger amount of fair share contributions than their smaller rivals. This unequal distribution of benefits to the larger operators will maintain rather than enhance competition in infrastructure and service markets (Innoword, 2023).

To ensure fairness, any fair share arrangement should be based on sound legal reasoning, commercial fairness, consideration of the industry dynamics. It is essential to strike a balance that encourages innovation, protects the interests of network operators, OTT providers and consumers and that ultimately promotes a sustainable and thriving OTT ecosystem.

The only way to assess to strike a balance between protection of the rights of the infrastructure owner, protection of the rights of (any) service provider and new market entrants as well as the end user is to overcome the information deficit that exists between regulators, network operators and the OTT service providers. It is critical that any forward-looking mechanism is based on detailed empirical data to ensure that any intervention does not artificially assign any benefits to any one party to the detriment of another.

5.4 The overarching need for a balanced distribution of responsibilities and costs

A balanced distribution of responsibilities and costs is essential to ensure fairness, sustainability, and the continued development of a thriving digital ecosystem. A Fair Share environment should examine the economic viability and sustainability of the ecosystem and the distribution of costs and benefits. Below are some of the key takeaway points from the commercial perspective:

- **Financial Sustainability:** Fair share arrangements aim to ensure the financial sustainability of the OTT ecosystem. By requiring OTT providers to contribute their fair share to infrastructure costs, it helps network operators recover investments, maintain quality services, continue infrastructure development and expansion, and crucially, expand services to the under-served.
- **Revenue Streams:** Fair share arrangements may create additional revenue streams for network operators. By establishing partnerships or revenue-sharing agreements with OTT providers, network operators can diversify their income sources and offset some of the infrastructure costs, potentially leading to more stable and predictable financial outcomes. Any distribution of revenue streams must consider economies of scale and ensure that the larger/dominant network operators do not benefit to the detriment of their smaller rivals.

- **Cost Management:** Fair share arrangements help distribute the costs of infrastructure development and maintenance more equitably among stakeholders. Network operators can manage costs more efficiently by sharing the burden with OTT providers, ensuring that the costs of supporting increased data traffic are appropriately allocated.

It is essential to strike a balance between the competitive and commercial perspectives of fair share if it is decided that it is the best approach to level the playing field. This involves implementing fair and transparent mechanisms that foster competition, encourage innovation, and ensure the economic sustainability of all stakeholders in the digital ecosystem in a country.

In trying to understand OTTs, it is necessary to reconcile with the fact that they are borderless applications, and their presence affects network operators across the continent. The taxation argument, as opposed to fair share, has been explored in certain African countries, including Uganda and Benin, as a means to generate revenue from OTT services (Stork & Esselaar, 2019).

However, this approach has proven to be non-viable and impactful on consumers. Taxation on OTTs often leads to increased costs for consumers, as companies may pass on the tax burden to their users, resulting in higher prices for their services.

Uganda and Benin's experiences serve as a cautionary tale, highlighting the limitations of relying solely on taxation as a solution to regulate OTT services. Implementing taxation without addressing the fundamental challenges posed by OTTs can lead to policy and regulation playing catch-up with rapidly evolving business models. This reactive approach may result in missed opportunities to capitalise on the immense potential of OTTs and could lead to legislative misalignment with the dynamic digital landscape.

A shared responsibility regime is crucial for finding common ground between network operators and OTT providers. OTTs recognising the interdependence of their operations with network operators and actively advocating for collaboration rather than adversarial approaches can embody the true essence of working within the African context.

5.5 How to approach the development of a fair regulatory environment

Regulators face several significant challenges due to a lack of understanding of the OTT market and the limited authority to demand information from OTT providers. This impacts the effectiveness of regulatory frameworks and the ability to ensure fair competition and consumer protection in the digital market.

The first step is to establish the key regulatory principles applicable to the digital ecosystem. Stork & Esselaar (2019), in exploring the tax treatment of OTTs, recommend that regulators should see the ICT sector as an engine for economic growth and social inclusion and not as a source for revenue generation for the state. Accordingly, any taxes imposed in the sector should always be subject to a detailed economic impact assessment, as the unintended consequences created with regulatory interventions may be vast and socially disruptive.

Ofcom, in the United Kingdom, has the stated bias against intervention, but will intervene firmly, promptly and effectively where quantitative evidence supports such actions (Ofcom, 2005). In September 2022, Ofcom published its approach to digital markets in the communications sector and started collecting data to better understand online communications services (Ofcom, 2023). It states that: "The integration of digital markets in communications make them essential to delivering on Ofcom's purpose" (Ofcom, 2022). Ofcom has subsequently created a Digital Markets Unit in recognition of specific additional tools and plans required.

The Body of European Regulators for Electronic Communication has recognised that an effective approach to support regulators in the process of collecting information from OTT providers may be to harmonise information requests, in order to reduce costs of compliance (BEREC, 2021).

The actions taken by Ofcom and BEREC indicate that knowledge and understanding of how the digital ecosystem functions, including the interplay between network operators and OTT players, is critical in any efforts to introducing a regulatory regime that fairly recognises both existing regulated entities as well as OTT providers.

6 Recommendations & conclusions

It is essential to acknowledge that the solutions and recommendations proposed in this report are not isolated to the specific challenges OTTs and network operators face. Instead, they demonstrate the interconnectedness of the ICT landscape, where issues tend to cross-pollinate and find relevance in broader discussions across various sectors. The multifaceted nature of these challenges requires an inclusive and collaborative approach to ensure that all stakeholders work together towards sustainable growth, innovation, and equitable participation in our ever-evolving digital world.

Policymakers and regulators play a crucial role in addressing any regulatory imbalances that may exist between traditional telecom services and their internet-based counterparts, such as OTT services. As the technological landscape evolves and new services emerge, it is essential to ensure a level playing field and fair competition among all players in the industry. Here are some key considerations for policy makers and regulators:

- **Understanding the Market:** Without the required regulatory framework in place to enable the regulators to conduct the required market studies or socio and economic impact analysis it would not be possible to truly understand the OTT market and the impact it has on consumers and competition. As discussed in this report, there is an information deficit recognised by other regulatory bodies, and decisive steps are being taken to address the problem. It is proposed that the first and most critical step in the process would be to create an environment wherein an in-depth understanding of the OTT market is facilitated, such as the BEREC OTT market and technical data collection initiatives (BEREC, 2020).
- **Regulatory Parity:** Policymakers should strive for regulatory parity between traditional telecom services and OTT services. This means reviewing existing regulations and adapting them to accommodate the changing dynamics of the industry. The goal is to create an enabling regulatory framework that is technology-neutral, treats similar services in a consistent manner, and fosters fair competition.
- **Competition Policy:** Regulators should maintain robust competition policies to prevent anti-competitive behaviour and promote a competitive market environment. This includes reviewing fair market access for new entrants, and addressing any barriers to competition that may arise due to regulatory imbalances.
- **Striking a balance between commercial fairness and legal reasonin**g: Policymakers and regulators should carefully consider both commercial fairness and legal reasoning when formulating regulations related to fair share arrangements. They should assess the

economic impact on both network operators and OTT providers, while also ensuring compliance with existing competition laws and regulations.

- **Encouraging industry collaboration and self-regulation:** Policymakers and regulators can encourage industry collaboration and self-regulation within the OTT industry. They can facilitate dialogues and initiatives that bring network operators and OTT providers together to discuss fair share arrangements. Encouraging self-regulatory bodies or industry associations to establish guidelines and best practices can help ensure transparency, fairness, and accountability in the implementation of fair share arrangements.
- **Deregulation of network operators:** Deregulating certain aspects of the telecom industry can lead to increased flexibility for telcos to adapt to the evolving landscape of OTTs and digital technologies. By reducing burdensome regulatory requirements, telcos can have more freedom to explore partnerships, investment opportunities, and innovative service offerings. Deregulation could enable telcos to respond more effectively to market dynamics and consumer demands while promoting healthy competition.
- **Relaxation of Laws:** Relaxing certain laws that currently restrict the scope of telco operations may open up new possibilities for collaboration and business expansion. For instance, revisiting laws related to data sharing and access could encourage better cooperation between telcos and OTTs, leading to enhanced service offerings for consumers. Relaxing licensing requirements for certain telecom services may also encourage investment and innovation in the sector.
- **Regulatory Sandboxes:** Implementing regulatory sandboxes allows for controlled testing of new business models and technologies. This approach provides a safe space for network operators and OTTs to experiment with innovative services without being constrained by existing regulations. Through sandbox environments, stakeholders can collaborate and gather valuable insights that inform future policy and regulatory decisions. Sandboxes can facilitate a collaborative approach in addressing challenges while ensuring consumer protection and compliance with core regulations.
- **Stakeholder Engagement and Collaboration:** Policymakers and regulators should engage with each other as well as all stakeholders, which include network operators, OTT providers, consumer groups, and industry associations, to gather input and ensure that regulatory decisions consider a wide range of perspectives. Collaborative efforts can lead to better-informed policies that strike the right balance between innovation, consumer interests, and industry sustainability.

It is essential to strike a balance between deregulation and maintaining adequate oversight to protect consumers' interests, ensuring fair competition, and safeguarding the integrity of the telecommunications sector. Policymakers and regulators should carefully consider the specific needs and challenges in their country's digital ecosystem when designing a suitable regulatory framework. By proactively exploring innovative solutions, such as deregulation and regulatory sandboxes, stakeholders can pave the way for a more vibrant and sustainable digital landscape that benefits all parties involved.

By addressing any regulatory imbalance between traditional telecom services and internet-based services, policymakers and regulators can promote fair competition, protect consumer interests, and foster an environment that encourages investment, innovation, and the growth of the telecommunications industry as a whole.

Lastly, by implementing these recommendations, policymakers and regulators can establish a regulatory framework that supports fair and sustainable collaboration between network operators and OTT providers. This will encourage innovation, competition, and investment in network infrastructure, while potentially ensuring that the costs associated with supporting OTT services are shared equitably among stakeholders and ultimately benefit consumers.

In conclusion, addressing the challenges and maximizing the potential of the OTT and network operator relationship requires collaborative efforts, innovation, and proactive policymaking. As the Association of Comms and Technology, we remains committed to advocating for an environment that encourages growth, inclusivity, and sustainable development within the ICT sector in South Africa. By fostering dialogue, cooperation, and shared responsibility, we aim to shape a thriving and equitable OTT industry that benefits all stakeholders and contributes to the nation's prosperity.

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Annexure 1: Report on the 2023 Round Table

On July 17, 2023, The Association of Communications and Technology (ACT) hosted a roundtable on **Promoting Equitable Participation and Sustainable Growth: Exploring Policy, Commercial, Competition, and Socio-Economic Perspectives in South Africa's OTT and Telco Ecosystem.** The event aimed to foster meaningful dialogue among key stakeholders, including government bodies, regulatory authorities, research institutions, non-profit organisations, industry associations, and representatives from Over-The-Top services and network operators.

Objectives of the roundtable

The roundtable aimed to explore and address the multifaceted challenges and opportunities arising from the evolving relationship between OTT services and network operators in South Africa's ICT sector. The primary objectives of the event were as follows:

- Analyse the existing policy and regulatory landscape governing OTTs in South Africa, with a focus on the roles and responsibilities of key stakeholders such as the Department of Communications and Digital Technology, ICASA, the Film and Publications Board, and Information Regulator: identify challenges and explore potential solutions to create a fair and equitable environment for all participants.
- Evaluate the commercial implications of fair share in the context of OTTs, including revenue distribution models, business strategies, and market dynamics: identify best practices and innovative approaches to ensure fair competition and sustainable growth within the OTT industry.
- Engage in-depth discussions on the competition law considerations related to fair share in the OTT sector. Evaluate the impact of fair share on market dynamics, consumer choice, and overall industry competitiveness. Explore potential measures to promote a level playing field for all stakeholders.
- Delve into the social and economic implications of OTTs in South Africa, emphasising consumer protection, privacy rights, and data governance. Evaluate the impact of OTTs on bridging or exacerbating the digital divide and identify strategies to ensure equitable access to technology and digital rights for all individuals. Address concerns related to responsible digital citizenship, online safety for children, and accessibility for persons with disabilities.

- Facilitate meaningful dialogue and collaboration among all stakeholders, including policymakers, regulators, research institutions, non-profit organizations, peer industry associations, competition authorities, OTTs, and network operators: encourage the exchange of knowledge and insights to drive progress, innovation, and sustainable development within the ICT domain.
- Encourage the development of context-specific policies and regulatory frameworks that promote the growth of Africa's digital economy while considering the unique challenges faced by individual countries. Highlight the importance of agility in regulatory development to ensure policies withstand the test of time and keep pace with evolving technologies and business models.
- Promote an enabling environment that fosters innovation, investment, and fair competition within the ICT sector: emphasise the role of human capital development, skills training, and entrepreneurship in driving progress and excellence.

By addressing these objectives, the roundtable sought to contribute significantly to the advancement of the ICT sector in South Africa and the broader African continent, with a focus on sustainable network investment.

Feedback on the Roundtable

The roundtable featured four panels that delved into the following topics:

- Understanding the Policy and Regulatory Framework,
- Commercial Implications of Fair Share,
- Competition Law Considerations of Fair Share, and
- Socio-Economic Implications of OTT Platforms.

The keynote speaker, Dr Petrus Potgieter,[4] provided valuable insights into the global status of OTTs, industry trends, and emerging movements worldwide.

Throughout the discussions, key outcomes emerged, including a better understanding of the policy and regulatory landscape for OTTs in South Africa, identification of challenges and opportunities related to fair share and revenue distribution models in the OTT industry, and

4 Bio available at https://strandconsult.dk/team/petrus-potgieter.

strategies for sustainable growth within the broader ICT sector. In addition, participants engaged in an in-depth exploration of competition law considerations concerning fair share, underscoring the importance of fair competition in the industry.

User empowerment was another focal point, with discussions centred on ways to empower users to take greater control over their digital data, privacy settings, and interactions with OTT platforms. Participants recognised the need to strike a balance between commercial interests and protecting consumer rights in the Digital Era.

Moreover, the roundtable fostered strengthened collaboration and partnerships among all stakeholders. Participants acknowledged that addressing the challenges associated with OTTs and fair share requires collective efforts and constructive engagement from all parties involved.

As a follow-up action, ACT committed to compiling a comprehensive report capturing the key discussions, recommendations, and actionable steps proposed during the event and during the course of our broader enquiry. This report will serve as a valuable resource for guiding policy and regulatory initiatives that promote equitable participation and sustainable growth in South Africa's OTT and telco ecosystem.

The success of the roundtable sets a positive precedent for future engagements, emphasising the importance of collaborative approaches in shaping a vibrant and inclusive digital landscape for the benefit of all stakeholders.

Annexure 2: A comparison of telecommunications versus OTT services

A comparison of telecommunications versus OTT services

Regulation Area	Telco Industries	OTT services
Bank to government guarantee Fees	Yes	No
Fees	Customer fees support the financial costs to back the network.	Services offered without any relationship to the underlying cost of the network. In many cases, customers are not charged any direct usage fees.
Infrastructure/network	Investing in networks to deliver mandated QoS services to end user.	OTT services invest in infrastructure to improve the quality of their services (e.g. data centres), but do not face and QoS burden.
Interconnection	Yes, required as part of stipulated regulations.	No interconnection required.
Licensing	Yes, different licenses and their associated costs including licensing fees.	No licensing or related fees required.
Net neutrality	Must offer best effort in data transport without discrimination, and independent of source or nature of data.	No obligations (control over content and freedom of choice concerning customers).
Number portability	Obligation to offer number portability between providers.	OTT services are number independent.
Operating area	Only serves customers in licensed area.	Services any user globally.
Price changes	The approval of regulators is often needed in advance.	No need for authorisation.
Content and Privacy	Strict data protection and privacy requirements.	Practiced on a limited and generally voluntary basis.

A comparison of telecommunications versus OTT services cont

Regulation Area	Telco Industries	OTT services
Proper record keeping including methodology	Required.	Required through other acts, but not at the same level of detail.
Public safety services	Mandatory.	No obligations.
QoS	Licenses include requirements for service-level agreements.	No QoS guarantee; QoS issues blamed on network provider.
Space related charges	Needs to handle the costs.	No such costs.
Spectrum allotment and use	Needs to bear the cost burden and adhere to rules.	No such costs.
Spectrum related charges	Needs to handle the costs.	No such costs.
Taxes	Local and national taxes.	OTT service providers often locate in low-cost locations and/or low taxation countries yet offer services globally.

Annexure 3: Examples of existing OTT regulatory approaches

Country/Region	High Level OTT Regulation
Australia	Australia regulates OTTs through a mix of different regulatory approaches although it is still a work in progress. The Broadcasting Services Act of 1992 is the primary law governing the OTT sector in Australia, with different schedules governing content classification and regulation. Australia has also enacted the Enhancing Online Safety Act of 2021, which regulates social media sites under a two-tier system. Tier 1 requires social media sites to have a complaints system to address cyberbullying, while Tier 2 requires them to remove harmful content within 24 hours of receiving a notice from the eSafety Commissioner.
Benin	The Government of Benin introduced a new tax on over-the-top (OTT) services in 2018, for the purpose of protecting investment in network infrastructure and encouraging OTT providers to pay their fair share of regulatory fees and taxes. ARCEP the regulator understood a loss by operators of around 30 billion (CFA) turnover to be due to the invasion of OTTs. The government revoked the tax after protests by citizens and discussions with mobile operators. According to Stork and Esselaar (2019), the briefly introduced and withdrawn taxes by the Government of Benin would have resulted, based on a conservative estimate, in a forgone GDP growth of USD 260 million and forgone taxes of USD 40 million. Aside from the economic impact, the justification that the aim of the taxes was to rescue mobile network operators because their revenues had declined by 30% due to OTTs, appeared to be incorrect. It was rather due to market consolidation, regulatory uncertainty and a price war that led to a decline in revenues between 2016 and 2017.
China	China regulates OTT players through various measures, including licensing rules, antitrust regulations, and data violations. China's OTT market refers to the delivery of audio, video, and other media over the internet without the need for traditional cable or broadcast television systems. China is second largest in the globally OTT market and has been growing rapidly in recent years. Major players in the market include streaming platforms such as iQIYI, Tencent Video, and Youku, as well as social media platforms such as WeChat and Douyin (TikTok). As smartphone penetration increased, smartphones became the second most popular device for streaming OTT platforms. They are also inexpensive, allowing people of all income levels to use smartphones and streaming platforms.

Examples of existing OTT regulation cont

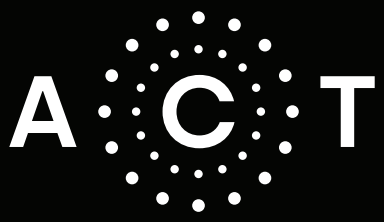
Country/Region	High Level OTT Regulation
European Union	The European Union (EU) introduced a structured approach in 2020 under the European Electronic Communications Code (EECC) in an attempt to level the playing field between OTT service providers and traditional telecommunication providers. Under this code OTT service providers. The EU has also implemented the Digital Services Act (Regulation (EU) 2022/2065), which focuses on online safety and illegal content, and the Digital Markets Act (Regulation 2022 (EU) 2022/1925), intended to stimulate competition in concentrated platform markets, which articulates a set of far reaching reforms.
Ghana	While there have been discussions about regulating OTT services in Ghana, there is currently no clear regulatory framework in place. Ghana is, however, looking to join the growing club of countries in Africa that have imposed taxes on OTTs.
India	Telecom operators in India have been pushing for OTT services to pay for the infrastructure costs of the telecom industry. In India's regulatory jargon, OTT platforms are called "publishers of online curated content". In summary, while there are no specific laws and regulations enacted to regulate the content available online on OTT platforms, there are regulations in place that require OTT platforms to display age-based content rating and content descriptor for each content, have a grievance redressal mechanism in place, comply with the Indian Penal Code and other relevant laws, remove prohibited content within 24 hours of receiving a complaint, and have a chief compliance officer, nodal contact person, and resident grievance officer appointed in India. Telco operators argue that OTT services use their infrastructure to provide their services and hence should contribute to the cost of building and maintaining it. The Cellular Operators Association of India suggests that usage charges should be mutually agreed between the OTT service providers and the telecoms operators. However, the Internet and Mobile Association of India has argued that a revenue share regime would be detrimental to the growth of the digital industry. The Broadband India Forum has opposed the idea of asking OTT services to pay for telecom infrastructure, stating that telecom companies should share their revenues with OTT platforms as they generate over 70% of traffic for them.

Examples of existing OTT regulation cont

Country/Region	High Level OTT Regulation
Kenya	The DST, which went into effect in January 2021, is applicable to: streaming and downloadable services of digital content; the provision of a digital marketplace service; website or other online applications that link buyers and sellers; subscription-based media including news, magazines and journals; electronic data management including website hosting; online data warehousing, file-sharing and cloud storage services; supply of search-engine and automated helpdesk services including supply of customised search engine services; tickets bought for live events, theatres, restaurants, etc. purchased through the internet; online distance teaching via pre-recorded medium or e-learning, including online courses; and any other service provided or delivered through an online digital or electronic platform excluding any service whose payment is subject to withholding tax under Section 35 of the Act. In August 2020, the Ministry of Information, Communication and The Digital Economy published a new policy requiring foreign companies to have 30% local shareholding, a move that has been seen as a major setback for long-term foreign investments into the ICT sector. The new law further states that all government ICT procurement processes will give preference to local ICT companies in the award of tenders, including sectors like defence and security. Further, where local businesses cannot fulfil tender requirements, foreign companies will now be required to transfer skills and personnel to local firms. Foreign companies had until August 2023 to adhere to this requirement. Moreover, the Communications Authority of Kenya is searching for a consultant to study OTT services and make appropriate regulatory recommendations on the treatment of OTTs.

Examples of existing OTT regulation cont

Country/Region	High Level OTT Regulation
Uganda	In July 2018, the Ugandan government imposed new taxes on the ICT sector in the form of excise duties on social media use and mobile money services. Two new excise duties were introduced: a mobile money tax of 1% on the transaction value of payments, transfers and withdrawals and a social media tax of USh200 per day. The excise duty on mobile money fees was also increased from 10% to 15%. The result was that the additional taxes have increased the cost of data consumption, and it is expected to lead to slower broadband and mobile money adoption. Immediately after the imposition of the taxes, data use and mobile money transaction values declined. On the 25 January 2019, the Uganda Communications Commission tweeted out the latest figures on the impact of the OTT taxes. The estimated number of Internet users dropped by nearly 30% between March and September 2018, indicating even more severe consequences of the OTT tax than anticipated. Uganda's social media tax suffers from myriad problems. First, it is difficult to implement because it can be bypassed by using Wi-Fi or a VPN, though these options are not easily available to everyone due to income reasons. Initial estimates show that users have been affected by recent taxation policies. In Uganda, for instance, it has been reported that its social media tax has reduced the number of Internet users by five million.
United Kingdom	The Office of Communications, commonly known as Ofcom, regulates some OTT services in the UK. According to Ofcom's website, Amazon Prime Video, Disney+, Paramount+, Discovery+, Hayu, ITVX, and other streaming services are covered by statutory rules enforced by Ofcom. Ofcom also regulates editorial content (programming) on UK video-on-demand services. In April 2023, the UK government passed a bill that gives Ofcom powers to draft and enforce a new code for OTT services.
United States	The Federal Communications Commission has previously proposed classifying OTT providers as Multichannel Video Programming Distributors, subjecting them to some rules that apply to cable and satellite providers. However, there has been little progress on this front, and action on this item is unlikely. The United States Innovation and Choice Online Act of 2023 aims to promote fair competition on the Internet by implementing new rules to prevent large tech companies from "abusing their market power to harm competition, online businesses, and consumers" (Klobucher, 2021).



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