



# On the threshold of a revolution – New opportunities for telcos in the converging media and telco ecosystem

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For once, the hype may be justified. In the era of 5G, the consumer entertainment experience is about to be revolutionized. Imagine if you are a sports fan able to watch your favorite stadium event live at home and pause it in



real time to choose from a variety of viewing positions around the stadium while your fantasy sports team updates simultaneously. Or what if you could read an AR-enabled book to your child in which animations jump off the page at exactly the right moment? What would it feel like to be Spiderman swinging virtually through New York skyscrapers with perfect rendition and timing?

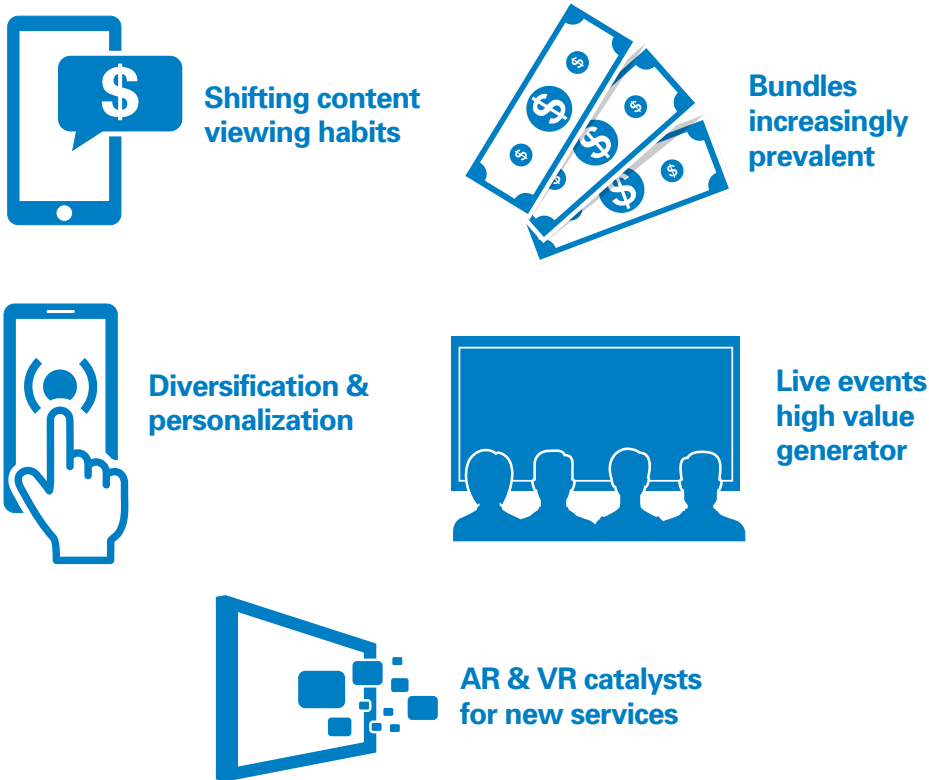
All these things are possible due to the technical progress brought by 5G, such as latency (i.e., the time needed for data transfer), which is low enough to enable true real-time simulations. This opens up a plethora of new opportunities to provide new forms of entertainment, new content, and enhanced and personalized consumer experiences. In a post-COVID-19 world, such virtual experiences are likely to play an even bigger part in everyday life than anyone might have envisaged just a few years ago.

For players in the telecoms and media space, the potential opportunities are certainly very exciting, but understanding how best to position themselves for success is challenging. The new technological opportunities and expectations from consumers are transforming established industry structures,

5G promises to transform customer entertainment, enabling completely new, immersive, real-time experiences. How can companies harness 5G to meet changing consumer demands? The authors explain key trends and opportunities and, in particular, how telcos can use their 5G strengths to build leadership positions in next-generation entertainment, based on creating partnerships with innovators in their ecosystems.

with new partner ecosystems forming; these involve a wide range of players across telcos, consumer electronics manufacturers, broadcasters, rights owners, start-ups and many others. New alliances are being formed. Disney and Verizon, for example, have announced a 5G-related strategic partnership, while BT is partnering with the VR start-up Condense Reality. The competitive landscape has become increasingly intense as convergence across technologies and sectors progresses.

In this article we explore some of the main areas of new opportunity and consider what these might mean for companies that need to carve out new roles in the changing media ecosystem.



**Figure 1: Key trends in media and entertainment**

Source: Arthur D. Little analysis

## **Trends shaping the new media landscape**

Multiple trends are shaping the environment for telcos and media players today, of which we would like to describe five. (See Figure 1.)

### **A shift of viewing habits towards streaming**

Although linear television still accounts for a sizable share of TV-viewing time (e.g., 63 percent in the US in 2019), there is a major shift in viewing habits towards streaming, with long-term online video viewing stimulated by the growth of over-the-top (OTT) services and collaborations among traditional players. Given all the services available, there is also a move away from focusing on original and exclusive content towards an emphasis on the customer experience.

### **Diversification and personalization**

Users are diversifying their consumption habits and seeking increasing personalization, enabled by the emergence of a wide range of non-linear video services (e.g., Netflix, Amazon, YouTube, Disney+), which provide an abundance of content and interactivity. This interactivity is resulting in the development of a new ecosystem of players and technologies, such as AI-powered recommendation engines, targeted advertising and many others.

### **Bundles are increasingly prevalent**

Bundles of OTT services are continuing their upward trend and, beyond content bundles, offering niche features, including 5G mobile cloud gaming (e.g., the Vodafone and Hatch partnership). This is spurring innovative collaborations and leading to the emergence of new and converging ecosystems.

### **Live events are high value generators**

Live events, including sports and entertainment, will continue to play a central role, with 100 to 150 events per year, and audience shares that could exceed 60 percent of households in a country. Even though the number of hours per year is limited, the value generated by these events is extremely high in terms of advertising and subscription fees; therefore, quality and reliability of the media service is of utmost importance.

### **AR and VR are catalysts for new services**

Additional types of services will emerge as augmented reality (AR) and virtual reality (VR) technologies reach maturity. Several broadcasters, including the BBC, Sky and NBC, have begun to explore how they can leverage these to enhance their current offerings and expand the services they make available to their audiences. Importantly, technological advancements can help market players to remain competitive, though the use of new technology needs to be coupled with quality content to generate the desired positive effects. Additionally, immersive content is still at an early stage and the technical feasibility of large-scale distribution for such formats is yet to be demonstrated.

### **New media opportunities enabled by emerging technologies**

As is clear from these trends, consumers globally are seeking new forms of entertainment, additional content, new user experiences, and cutting-edge technologies. User experience is key and can range from simple features for making life easier to immersive experiences or emotional connectivity. High user experience is particularly important in the gaming and e-sports industry. Simplification of use and personalized experiences are important for companies to be able to differentiate. Combining new media devices such as body wearables, VR handsets and AR glasses with quality content can create an even greater experience for consumers.

Some of the main opportunities enabled by emerging technologies include the following (see also Box 1 for examples):

- **New consumer experiences:** Developments include interactivity and immersive viewing experiences around, for example, sports events, hologram-style video, low-latency live experiences via the 5G network, and embedding 5G into wearables such as VR/AR glasses.
- **New consumer engagement opportunities:** AI technologies are being developed to analyze consumption habits, reduce churn, and offer new possibilities to provide differentiated content.
- **New media production opportunities:** Innovative solutions are being developed to enhance media production, for example, to create alternative versions of content based on analytics, predict commercial success, and reduce production costs.

### **Box 1: Examples of new media opportunities through emerging technologies**

#### **New consumer experiences through AR and XR**

- For the Tour de France, Danish TV created an **interactive table** that combined AR with real-time data visualization, touch screens and live virtual set graphics.
- British Telecom's (BT's) 5G Edge-XR creates **augmented and virtual reality experiences** to complement the telco's sports-viewing services. The service will provide extended reality (XR) viewing of sporting events for an immersive experience, realizing the potential of BT's 5G network.

- Condense Reality is working with BT on XR services and has developed a system for streaming live events through a **hologram-style, three-dimensional volumetric video**, in parallel with regular broadcast television.
- 5G broadcasting is also gaining relevance, with SK Telecom achieving the first live TV broadcast based on a 5G network in 2019; the high-quality video streamed with **less than a second of latency**.
- Dimension's volumetric studios allow for the creation of next-generation XR content, virtual production, and digital humans, such as holograms. Dimension collaborated with SK Telekom and Nexus to create **realistic augmented reality content**. Efforts such as this B2B project have the potential to bring immersive content to life and eventually become a B2C product or service.
- Embedding 5G into wearables will lead to new opportunities for the use of **VR/AR glasses** such as optimized real-time facial recognition. Chip manufacturers are partnering with major telcos, smartphone OEMs and XR viewer manufacturers to create and commercialize XR viewers. Korea's LG Uplus has partnered with China's mixed-reality product developer and start-up, Nreal, to create the world's first 5G-enabled AR glasses.

### New consumer engagement opportunities

- Telcos can take advantage of specialized software (SaaS) developed for the video domain, such as Wicket Labs, which will allow them to **increase the audience lifetime value** while improving customer acquisition and service engagement and reducing churn.
- Sweden's Vionlabs has developed a series of innovative AI engines that use multi-layered, scene-

by-scene analysis and other data sources, such as a consumers' watch histories, which allows viewers to **spend 25 percent or more of screen time looking for something they want to watch**. Customer engagement is key to driving uptake and creating stickiness.

- There are multiple possibilities for **differentiating via content**. This can include having exclusive content (e.g., original entertainment programs) in your portfolio, providing new types of entertainment content (e.g., short videos), granting access to/aggregating third-party platforms, etc., which may be exclusively offered to customers on 5G plans. Verizon, for example, partnered with Disney+, Hulu, and ESPN and offered content to its 5G customers in either the "Disney Bundle" or the "Play More and Get More" bundle.

### **New media production opportunities through AI**

- Movie studios can use the **emotional-analytics solution** of Affectiva to create different versions of movie trailers based on the reactions of viewers.
- Warner Bros. is collaborating with start-up Cinelytic, which uses AI to **predict the commercial success** of films.
- AI helps content producers to significantly **reduce costs in production** by avoiding manual work, for example, in visual effects (VFX). Disney possesses a virtual production system, which allows for real-time visualization of the movie while it is being produced.



## The implications for distribution infrastructure

This evolution of ecosystems centered around customer preferences, such as on-demand and interactive media content, has strong implications for the required infrastructure and technology for content distribution. Future media distribution networks will need to meet, in particular, three key requirements: high capacity, low latency and IP-based connectivity. Terrestrial, satellite, fiber and especially 5G mobile need to be considered:

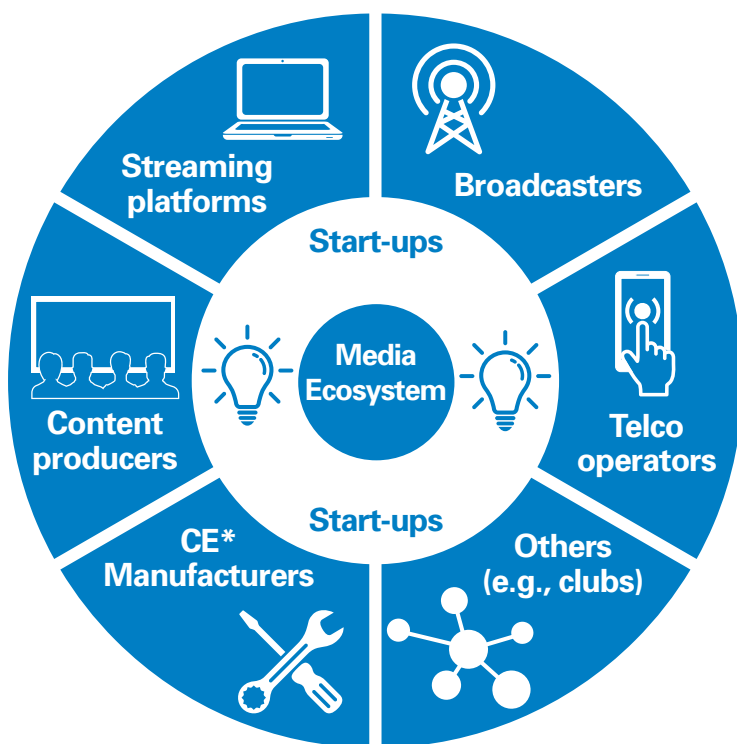
- **Digital terrestrial television (DTT)** is an effective means of distributing content to large audiences and benefits from a wide installed base. However, the increasing adoption of video on demand and interactive content poses some questions for the future of this technology. The frequency bands allocated to DTT are expected to expire in 2030 and the media ecosystem needs to define the future of this technology.
- **Satellite broadcasting** represents another way of delivering linear video services to large audiences, covering entire territories. However, traditional satellite broadcasting technologies are not adapted to deliver interactive services, and therefore being progressively substituted with alternative solutions. The recent development in the satellite sector, driven by the deployment of large-scale constellations and the development of new user terminal technologies, might enhance the satellite value proposition as media distribution infrastructure.
- **Fixed broadband (fiber)** is considered one of the most promising technologies to deliver linear and on-demand content due to its high bandwidth, low latency and unmatched interactivity. Fiber and 5G are assumed to be more future-proof given their comparatively higher capacity to deliver immersive experiences.

- **5G mobile technology** is expected to bring video content distribution in mobility to the next level. Low latency and increased capacity compared to previous standards make it suitable not only for video streaming, but also for distribution of immersive video content based on AR and VR. In the longer term, autonomous cars might provide passengers with more time to consume media content, and 5G seems the most appropriate technology to provide connectivity while traveling.

When forming their strategies, media players should consider carefully how to combine multiple types of infrastructure and ecosystems to effectively deliver the broadening range of services to their end users.

### The new converging media and telco ecosystem

The new media opportunities enabled by 5G are giving rise to a new partner ecosystem, as shown in Figure 2.



\*CE: Consumer electronics

Figure 2: The media ecosystem landscape

Telcos are now a key part of the media ecosystem and in a prime position to explore new opportunities, especially given that 5G is able to deliver higher network performance than legacy technologies. Media companies need to be able to take advantage of deployment of 5G networks and new devices.

For many mobile-only telcos, the aggregator model, i.e., bundling access services, has become a viable option to enter the entertainment space at low risk, requiring a mainly OPEX-driven investment in Platform-as-a-Service (PaaS) or Software-as-a-Service (SaaS) platforms and content. For fixed-line telco operators, with legacy TV and video services under other regulatory regimes, managing an aggregator business is more complex.

Besides being the one-stop shop for entertainment, providing a seamless user interface across devices and the convenience of paying one bill, telcos also have the possibility of investing in individualization of the video offering. With a plethora of OTT services becoming available for consumers, telcos will need to adapt to meet the new media challenge.

### **Insights for the executive**

To meet emerging consumer expectations for new forms of entertainment, additional content, streamlined/new user experiences, and cutting-edge technologies, new partner ecosystems are forming. There are direct implications for the infrastructure needed to deliver the services.

The era of 5G offers opportunities for telcos to rethink how they can engage with consumers through entertainment offerings and monetize such services. Personalized services require more commercial flexibility from content partners, focus on technology enhancements, analytics, and strong emphasis on the customer experience. Start-ups are a driver for innovation and play an instrumental role within the ecosystem. There are great opportunities for multidimensional coinvestments and defining new partnership models and scale.

To move forward in delivery of more personalized and interactive services, telcos need to adopt a strategy that places open ecosystems and partnerships at its heart, leveraging the convergence of infrastructures. Three aspects are especially important:

- **Align strategies across media and technology:**  
Telcos need to align their views on technology with their media strategies. A coherent approach to 5G and media activities is needed to fully realize new commercial opportunities for media.
- **Leverage regional strengths and consumer insight:**  
Telcos benefit more from close relationships with consumers, which can be leveraged as a competitive advantage, than players with global platforms, for example, by creating content with local touchpoints. Focusing on use cases that create the most added value within each consumer market is key for success.
- **Prioritize ecosystem innovation:** Telcos should focus on forming their own distinctive partner ecosystems as the key platform for innovation. This will enable the creation of differentiated offers, which will provide unique value for the consumer that will stretch well beyond traditional media offerings.

In the era of 5G, telcos are becoming leading players in co-creating the next generation of tangible media experiences, increasingly building partnerships in media and entertainment. Telco operators must now rise to the innovation challenge.



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