



5G

**5G Wedlock
with OTT:
The Journey Begins**



Abstract

In this white paper, GlobalLogic takes a look at how 5G brings with it a host of new possibilities and will expand the scope of growth and revenue generation, especially for the media and entertainment industry. In just a decade, 5G is estimated to grow by 79%, making video consumption, augmented reality, and virtual reality more efficient. With 5G, the world of gaming will be more competent and collaborative whilst opening up newer avenues for advertisement. This paper also takes a closer look at the impact of 5G and its five important pillars that will enable immersive media for a mass-market.



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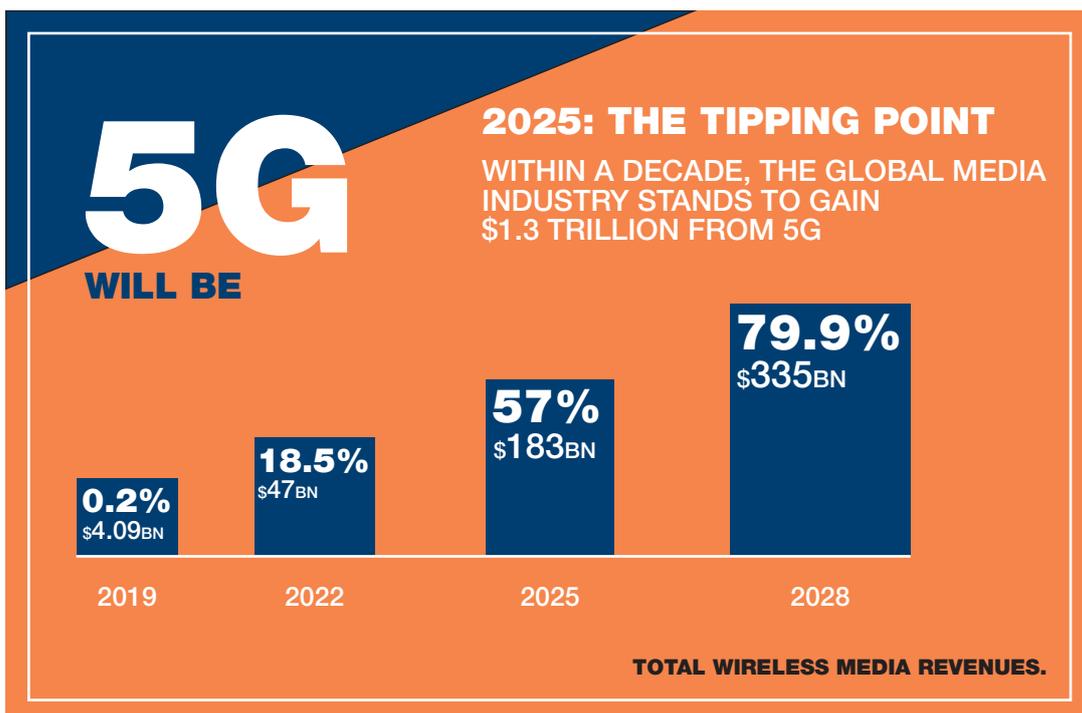
Introduction



The rollout of 5G services in key cities is underway along with the plans to expand its coverage dramatically, over the next few years. With 5G, the opportunities will be manifold and the industry will take a quantum leap. While 5G holds potential to impact and revolutionize the entire value chain profoundly, it is OTT video consumption, live streaming and gaming that will reap immediate gains. One of the main attractions of 5G, to broadcasters and OTT service providers, is that the next generation of networks will enjoy greater capacity, where the systems will be able to cope more efficiently with running several high-demand applications concurrently. From VR/AR experiences to

streaming HD videos simultaneously, 5G can enable high level use cases at the same time.

According to the newly released “5G Economics of Entertainment Report” commissioned by Intel and conducted by Ovum, it is forecast that over the next decade (2019-2028), media and entertainment companies including OTT services will be competing to win a share of a near \$3 trillion cumulative wireless revenue opportunity. Experiences enabled by 5G networks will account for nearly half of this revenue opportunity (close to \$1.3 trillion).





Requirement & Challenges

- **Omni - Channel Consumption** - Consumption of content over the different devices like tablets, connected TVs and any connected devices.
- **Always Available** - Ability to deliver live TV, VOD and games at busy hours without congestion, excessive latency & delay at a sustainable cost and without the need for excessive spectrum or other network resources.
- **Anywhere** - Ability to deliver and consume OTT services anywhere, independent of the user's location or movement with the best network connectivity.
- **Volume** - Ultra high volume of downlink and uplink data to support highest audio-visual standard, like Full HD or 4K UHD, with a growing on-demand consumption complementing linear TV and audio broadcasting in the user experience.
- **Best Quality of Service (QoS)** - Improved Quality of Service for OTT enjoyment, for moving or stationary devices, with minimum error rate, low latency for video and games. Seamless and optimal switch between sources (e.g. unicast/multicast, adaptive streaming, etc.), using appropriate business and network interfaces to allow dynamic resources allocation per network slice.
- **Security** - Protecting content-owners and associated content rights, including the ability to provide efficient access control is foremost requirement of content provider.
- **Interactive & Immersive Experience** - Allowing consumers to move beyond a passive content experience and find ways to feel the experience around them.

Role of 5G & 5G Pillars

5G is able to answer the above challenges through sufficient Quality of Experience. It can be provided by a controlled throughput, low latency, high QoS enforcement, distributed storage of media, close to consumers or broadcast and multicast, and turn them into opportunities for all stakeholders. With affordable smartphones and increasing uptake of digital products, Media and Entertainment industry is expected to be one of key sectors to be impacted by 5G.

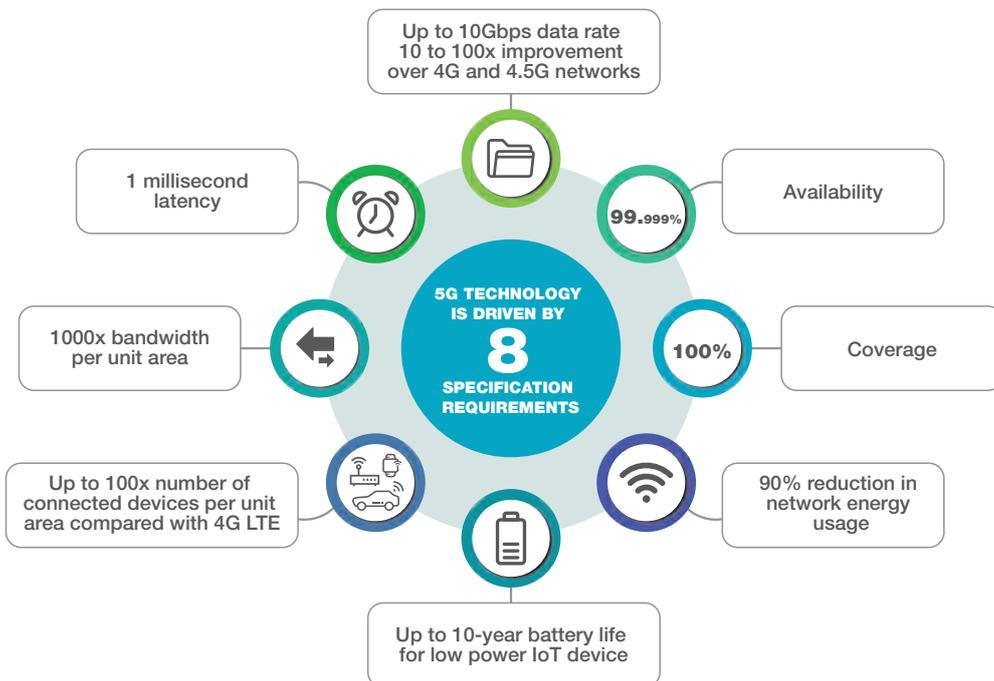
5G Pillars

1. Enhanced Mobile Broadband (eMBB) wireless data speeds to the order of 10 Gbps.

2. Massive Machine Type Communications (mMTC) to realize the potential of Internet of everything and machine to machine communication.

3. Ultra-reliable and Low Latency (URLLC) Communications to enable machines to reliably compute mission critical (potentially life-saving) decisions with latency of up to 1ms and reliability of 99.9999%.

4. Mobile Edge Computing (MEC) in which the computing, storage and networking resources; potentially a virtualized app server is integrated with the base station to provide highly localized data analytics and compute.





5G-Enabled Services & Business Models

- **Enhanced Mobile media (video, music, and games) -** The 5G-supporting efficient network management, high speed transport capabilities and strategies will allow Ultra High Fidelity Media experience, by means of local and network caching of content and portable devices (e.g. smartphones, tablets, Virtual Reality devices)
- **Immersive media (AR, VR and cloud gaming) -** Augmented Reality, Virtual Reality, and cloud gaming are not new, but 5G offers the opportunity to unlock their use to a mass-market level. Low latency will make such content more interactive, which in turn could create a whole new category of media.
- **Interactive and Integrated Media -** Integrated video conferencing will simulate the face to face experience while working in a collaborative way even in the same company in order to be more efficient. Media will become immersive and highly interactive to provide ambient media consumption at home but also on the move, with content capable of following the users and adapt to his ambient for viewing (e.g. In the car, at home etc.)
- **Live Enriching Event Experience -** Large scale event sites, such as cinemas, stadiums and hall parks are being connected to enrich customer experience with options to replay, choose a specific camera, alter language, and augmented reality.
- **Collaborative Gaming -** Gaming will expand into a full immersive multi-sensorial environment, resulting in a more realistic experience and improved ability for users to collaborate within the game. Manifold increase in collaborative sharing of user generated content and IoT object in real time, for improving user experience and must in missing critical implementation like remote surgery etc.
- **Enhanced Mobile Advertising -** The ultra-high bandwidth will make videos banners, interactive in-game placement and other VR/AR formats possible in advertisement.
- **Ultra-High Fixed Wireless Access (FWA) -** 5G as the primary home internet connection bundled with a TV package.
- **Local Edge Content Delivery -** Multi-access edge computing will allow for local storage of content, bringing down the cost of transporting content and even making it easier for operators and content providers to efficiently provide targeted localized content.
- **Cooperative Media Production -** Content will be captured and shared immediately, utilizing 5G enabled cameras and microphone, from anywhere to anywhere with additional metadata automatically pre-attached and worked upon by different users in multiple locations simultaneously.
- **Guaranteed Performance -** Network slicing can allow operators to provide media companies with dedicated networks for media distribution. An operator could take a network slice and dedicate it to 4K video streaming or to the delivery of high-profile real-time events like a football match.

5G Network Requirements for Media Content



5G would be supporting enhanced mobile broadband, low bandwidth and high density of devices.

Use Case	Specific Scenario	URLLC (ms/%1)	eMBB (Mbps)	mMTC (Density)
High definition streaming	Multicasting image treatment	<20	100	Medium to high
	HD mobile video	<20	100	Medium to high
Augmented Reality & Virtual Reality (AR/VR)	Augmented reality services in real time	<20	100	Medium to high
	Immersive gaming and/or training	<20	100	Medium to high
	Advanced VR capabilities (haptic touch, 3D holographic display)	<20	100	Medium to high

Sources: Wireless X Labs, EU BEREC, Huawei



Conclusion

5G is acting as catalyst with its media-independent handover for fast switching, less latency as well as improved Quality of Service for the user when experiencing media events. 5G will enable media and entertainment where customers will increasingly prefer high-definition content,

immersive experience through AR/VR, and distributed content. As per Gartner, 5G will start to realize its full transformational potential from 2022 onwards with the adoption of AR/VR, and Immersive Media application.



Reference

- <https://newsroom.intel.com/news/intel-study-finds-5g-will-drive-1-3-trillion-new-revenues-media-entertainment-industry-2028/#gs.8ii2o5>

About GlobalLogic

GlobalLogic is a leader in digital product engineering. We help our clients design and build innovative products, platforms, and digital experiences for the modern world. By integrating strategic design, complex engineering, and vertical industry expertise—we help our clients imagine what's possible and accelerate their transition into tomorrow's digital businesses.

Headquartered in Silicon Valley, GlobalLogic operates design studios and engineering centers around the world, extending our deep expertise to customers in the communications, automotive, healthcare, technology, media and entertainment, manufacturing, and semiconductor industries.

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