U.S. 5G Revenues, 2019 – 2029: How much and where will mobile consumers spend?

Market Study Fourth Quarter, 2019





U.S. 5G Revenues, 2019 – 2029: How much and where will mobile consumers spend?

A Market Study

Published Fourth Quarter, 2019 Version 1.0 Report Number: 4Q2019-07

iGR 12400 W. Hwy 71 Suite 350 PMB 341 Austin TX 78738

Table of Contents

Abstract	1
Executive Summary	3
U.S. 5G Revenue Model	
5G Mobile Service	3
5G IoT	4
5G Fixed Wireless Access	4
5G Advertising	
5G Entertainment	5
5G Gaming	
Total Revenue	
Table A-1: Total Annual 5G Revenue (\$M), 2019-2024	
Table A-2: Total Annual 5G Revenue (\$M), 2025-2029	
Figure A: Total Annual 5G Revenue (\$M), 2019-2029	
What This Means	7
Methodology	8
Terminology	
Connections and Subscribers	
503	40
What is 5G?	
5G Use Cases	
Figure 1: 5G fundamental capabilities	
URLLC Massive IoT	
5G Services and Use Cases	
Figure 2: 5G main applications and services	
Challenges Along the Road to 5G	
What do the first 5G networks look like?	
Current status of 3GPP 5G standards	
Figure 3: Timeline of 3GPP Releases	17
U.S. Mobile Operators' 5G Initiatives	19
Spectrum	
АТ&Т	
5G Deployment and Plans	
loT	20
Verizon Wireless	20
5G Deployment and Plans	20
Spectrum	20
loT	21
T-Mobile US	21
5G Deployment and Plans	21

Quoting information from an *iG*illottResearch publication: external — any *iG*illottResearch information that is to be used in press releases, sales presentations, marketing materials, advertising, or promotional materials requires prior written approval from *iG*illottResearch reserves the right to deny approval of external usage for any reason. Internal-quoting individual sentences and paragraphs for use in your company's internal communications activities does not require permission from *iG*illottResearch. The use of large portions or the reproduction of any *iG*illottResearch document in its entirety does require prior written approval and may have some financial implications.

Spectrum	21
loT	21
Sprint	22
5G Deployment and Plans	22
loT	22
US Cellular	22
5G Deployment Plans	22
Spectrum	22
5G Revenue Sources	23
Figure 4: Revenue Sources in the 5G Ecosystem	
5G Mobile Service	
Table 1: What U.S. Consumers are Willing to Pay for 5G	
Figure 5: What U.S. Consumers are Willing to Pay for 5G	
5G loT	
5G Fixed Wireless Access	
5G Advertising	
5G Entertainment	
5G Gaming	
Network slicing	29
5G Revenue Model Assumptions	31
Overall Assumptions	
Mobile Service Revenue Assumptions	
IoT Revenue Assumptions	
Fixed Wireless Revenue Assumptions	
Advertising Revenue Assumptions	
Entertainment Revenue Assumptions	
Gaming Revenue Assumptions	
-	
U.S. 5G Revenue Model	
5G Connections and Subscribers	
Table 2: U.S. 5G Connections and Subscribers, 2019-2024	
Table 3: U.S. 5G Connections and Subscribers, 2025-2029	
Figure 6: U.S. 5G Connections and Subscribers, 2019-2029	
Revenue from 5G Mobile Broadband Services	
Table 4: ARPU and Revenue(\$M) from 5G Mobile Services, 2019-2024	
Table 5: ARPU and Revenue(\$M) from 5G Mobile Services, 2025-2029	
Figure 7: Revenue (\$M) from 5G Mobile Services, 2019-2029	
Revenue from 5G IoT	
Table 6: 5G IoT Connections, 2019-2024	
Table 7: 5G IoT Connections, 2025-2029	
Figure 8: 5G IoT Connections, 2019-2029	
Table 8: ARPU and Revenue(\$M) from 5G IoT, 2019-2024	
Table 9: ARPU and Revenue(\$M) from 5G IoT, 2025-2029	
Figure 9: Revenue(\$M) from 5G IoT, 2019-2029	
Revenue from 5G Fixed Wireless Access	40

Quoting information from an *iG*illottResearch publication: external — any *iG*illottResearch information that is to be used in press releases, sales presentations, marketing materials, advertising, or promotional materials requires prior written approval from *iG*illottResearch. *iG*illottResearch reserves the right to deny approval of external usage for any reason. Internal-quoting individual sentences and paragraphs for use in your company's internal communications activities does not require permission from *iG*illottResearch. The use of large portions or the reproduction of any *iG*illottResearch document in its entirety does require prior written approval and may have some financial implications.

Table 10: 5G Fixed Wireless Access Connections, 2019-2024	41
Table 11: 5G Fixed Wireless Access Connections, 2025-2029	
Figure 10: 5G Fixed Wireless Access Connections, 2019-2029	41
Table 12: ARPU and Revenue(\$M) from Fixed Wireless Access, 2019-2024	42
Table 13: ARPU and Revenue(\$M) from Fixed Wireless Access, 2025-2029	42
Figure 11: Annual Revenue (\$M) from 5G Fixed Wireless Access Services, 2019-2029	42
Revenue from Advertising	42
Table 14: CPM Amount and Annual Revenue from 5G Advertising, 2019-2024	43
Table 15: CPM Amount and Annual Revenue from 5G Advertising, 2025-2029	43
Figure 12: Annual Revenue (\$M) from 5G Advertising, 2019-2029	44
Revenue from 5G Entertainment Services	44
Table 16: ARPU, Penetration and Annual Revenue from 5G Entertainment Services, 20)19-
2024	45
Table 17: ARPU, Penetration and Annual Revenue from 5G Entertainment Services, 20)25-
2029	45
Figure 13: Annual Revenue from 5G Tier 1 and Tier 2 Entertainment Services, 2019-20	29.46
Figure 14: Annual Revenue from 5G Entertainment Services, 2019-2029	46
Revenue from 5G Gaming	47
Table 18: Monthly Spend, Penetration and Annual Revenue from 5G Gaming, 2019-20)24.47
Table 19: Monthly Spend, Penetration and Annual Revenue from 5G Gaming, 2025-20)29.48
Figure 15: Annual Revenue from Subscription and Pay-per-game 5G Gaming, 2019-20	2948
Figure 16: Annual Revenue from 5G Gaming, 2019-2029	48
Total 5G Revenue	49
Table 20: Total Annual 5G Revenue (\$M) by Service, 2019-2024	49
Table 21: Total Annual 5G Revenue (\$M) by Service, 2025-2029	
Figure 17: Total Annual 5G Revenue (\$M) by Service, 2019-2029	50
Figure 18: Total Annual 5G Revenue (\$M), 2019-2029	
Table 22: Total Annual 5G Revenue by Service (Percent), 2019-2024	
Table 23: Total Annual 5G Revenue by Service (Percent), 2025-2029	
Figure 19: Total Annual 5G Revenue by Service (Percent), 2019-2029	
Table 24: Blended ARPU for all 5G Services, 2019-2024	
Table 25: Blended ARPU for all 5G Services, 2025-2029	53
Figure 20: Blended ARPU for all 5G Services, 2019-2029	53
Definitions	54
Definitions Table	
About CD	72
About <i>iG</i> R	/Z

Disclaimer72

Abstract

5G has arrived in the U.S. The four major U.S. mobile operators have all launched a 5G network, even if in only a few metropolitan areas, and several Android mobile phones that support 5G are readily available. The industry is looking forward to using 5G's capabilities to provide faster speeds to consumers and to support many use cases.

A significant amount has been invested to make 5G a reality in the U.S. Now is the time to look at the revenues that can be generated with the new technology.

In this market study, *iG*R presents a model for potential 5G revenues in the U.S. from now until 2029. It is important to note that although the mobile operators have been the investors in the 5G network, the revenue generated from the 5G ecosystem will be spread among many additional entities such as content providers, cloud providers, gaming developers, and advertisers. This model does not include revenues from 5G devices or applications.

Included in the model are six major sources of revenue provided by the 5G ecosystem. These include:

- 5G Mobile Service
- 5G IoT
- 5G Fixed Wireless Access
- 5G Advertising
- 5G Entertainment Services
- 5G Gaming.

The business model for the seventh potential source of revenue, network slicing, is still too undefined to be included in the model.

This market study provides a 10-year forecast for potential 5G revenue. The potential revenues provided by mobile, IoT, fixed wireless access, advertising, entertainment and gaming services are presented separately. This market study also provides information on the requirements of 5G and the timeline of its continued deployment, as well as the recent 5G initiatives of the major U.S. mobile operators.

Key questions addressed in this market study include:

What is 5G and how is it defined? What is the timeline of its continued deployment?

- What are the expected use cases for 5G?
- How many 5G connections can be expected in the U.S. from 2019 to 2029?
- What are potential sources of revenue for 5G networks?
- What will the 5G mobile subscription service model look like and how much revenue will be generated?
- What is the business model for 5G IoT and how much revenue will be generated?
- What is 5G fixed wireless access and how much revenue can be generated by the service?
- How will 5G advertising generate revenue and how much can be expected?
- What is the model for 5G-based entertainment services? How much revenue will it provide?
- What is the model for 5G-based gaming? How much revenue will it provide?
- How does each source of 5G revenue compare? Which is the most significant?
- What are the total revenues expected from the 5G ecosystem from 2019-2029?

Who should read this market study?

- Mobile operators
- Mobile device OEMs
- Mobile service and application developers
- IoT vendors and solutions providers
- Infrastructure OEMs
- Financial analysts and investors.

FOR INFORMATION PLEASE CONTACT IAIN GILLOTT (512) 263-5682.