# TFI Conference 2024

# Wireless Industry Panel

Implications for Tax & Valuation

THURSDAY, JANUARY 25, 2024

**Presented at 2024 TFI Technology Conference**

# TFI Conference 2024 Wireless Industry Panel

Panelists

**Ruben Miranda (Moderator)**

Managing Director
Kroll LLC

**Steven Ingram**

Director - Tax
AT&T Inc.

**Stephen Yergeau**

Sr Director, Property Tax
T-Mobile

**Iain Gillott**

President and Founder
iGR (iGillottResearch, Inc.)

# TFI Conference 2024 Wireless Industry Panel

Wireless Financials (source: S&P Global Market Intelligence)

## Total US carrier revenue ($M)

| | Q3 2022 | Q4 2022 | Q1 2023 | Q2 2023 | Q3 2023 | Q2 2023 –Q3 2023 change | Q3 2022 –Q3 2023 change |
|---|---|---|---|---|---|---|---|
| Verizon Wireless (consumer + business) | 27,300 | 28,280 | 26,160 | 25,876 | 26,650 | -1% | -3% |
| AT&T Mobility | 20,278 | 21,500 | 20,580 | 20,845 | 20,692 | 1% | 5% |
| UScellular | 1,083 | 1,048 | 1,070 | 957 | 963 | -11% | -7% |
| T-Mobile US | 19,477 | 20,273 | 19,632 | 19,196 | 19,252 | 0% | -1% |
| DISH 5G network | 21 | 8 | 19 | 20 | 29 | 47% | 40% |
| DISH Boost Mobile (retail wireless) | 1,007 | 900 | 974 | 928 | 890 | -4% | -12% |
| **Total** | **69,166** | **72,009** | **68,435** | **67,822** | **68,477** | 1% | -1% |

Data compiled November 2023.
Total revenue is wireless service revenue + equipment revenue + other wireless revenue.
Sources: Industry data; Kagan estimates.
Kagan, a part of S&P Global Market Intelligence.

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Wireless Financials (source: S&P Global Market Intelligence)

## Wireless adjusted EBITDA ($M)

| | Q3 2022 | Q4 2022 | Q1 2023 | Q2 2023 | Q3 2023 | Q2 2023 –Q3 2023 change | Q3 2022 –Q3 2023 change |
|---|---|---|---|---|---|---|---|
| AT&T Mobility | 8,461 | 8,124 | 8,369 | 8,736 | 8,897 | 2% | 5% |
| T-Mobile US | 7,039 | 6,828 | 7,199 | 7,405 | 7,600 | 3% | 8% |
| Verizon Wireless (consumer only 2019+)* | 10,581 | 10,139 | 10,313 | 10,577 | 10,819 | 2% | 2% |
| UScellular | 162 | 152 | 196 | 195 | 216 | 11% | 33% |
| DISH Boost Mobile OIBDA | 35 | -68 | 35 | -59 | -106 | NA | NA |
| DISH Network (5G network deployment) OIBDA | -177 | -210 | -236 | -278 | -299 | NA | NA |
| **Total** | **26,101** | **24,965** | **25,876** | **26,575** | **27,127** | 2% | 4% |

Data compiled November 2023.
* Verizon figures include consumer only and includes some Fios and wireline operations.
NA = not available; OIBDA = operating income before depreciation and amortization.
Sources: Industry data; Kagan estimates.
Kagan, a part of S&P Global Market Intelligence.

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Wireless Financials (source: S&P Global Market Intelligence)

## Wireless-only capex ($M)

| | Q3 2022 | Q4 2022 | Q1 2023 | Q2 2023 | Q3 2023 | Q2 2023 –Q3 2023 change | Q3 2022 –Q3 2023 change |
|---|---|---|---|---|---|---|---|
| DISH Boost Mobile | 517 | 850 | 672 | 1,184 | 686 | -42.1% | 32.7% |
| UScellular | 136 | 176 | 208 | 143 | 111 | -22.4% | -18.4% |
| AT&T Mobility* | 3,197 | 2,320 | 2,340 | 2,263 | 2,463 | 8.8% | -23.0% |
| Verizon Wireless (consumer + business)* | 3,032 | 4,147 | 3,396 | 2,261 | 2,252 | -0.4% | -25.7% |
| T-Mobile US | 3,634 | 3,383 | 3,001 | 2,789 | 2,424 | -13.1% | -33.3% |
| **Total** | **10,516** | **10,876** | **9,617** | **8,640** | **7,936** | -8.2% | -24.5% |

Data compiled November 2023.
* Estimates.
Wireless-only capex includes tower construction and other durable goods equipment for network maintenance and expans
Sources: Industry data; Kagan estimates.
Kagan, a part of S&P Global Market Intelligence.

# TFI Conference 2024 Wireless Industry Panel

Wireless Financials (source: S&P Global Market Intelligence)

## Total wireless subscribers (million)

| | Q3 2022 | Q4 2022 | Q1 2023 | Q2 2023 | Q3 2023 | Q2 2023 –Q3 2023 change | Q3 2022 –Q3 2023 change | Market share |
|---|---|---|---|---|---|---|---|---|
| Verizon Wireless (consumer + business) | 143.14 | 143.25 | 143.34 | 143.23 | 143.58 | 0% | 0% | 28% |
| AT&T Mobility | 210.68 | 217.40 | 222.84 | 229.03 | 235.59 | 3% | 12% | 46% |
| T-Mobile US | 111.76 | 113.60 | 114.92 | 116.60 | 117.91 | 1% | 6% | 23% |
| UScellular | 4.76 | 4.74 | 4.69 | 4.66 | 4.62 | -1% | -3% | 1% |
| DISH Boost Mobile | 8.01 | 7.98 | 7.91 | 7.73 | 7.50 | -3% | -6% | 1% |
| **Total** | **478.34** | **486.97** | **493.71** | **501.24** | **509.19** | 2% | 6% | 100% |

Data compiled November 2023.
Total w ireless subscribers includes all subscriptions including postpaid, prepaid, w holesale/mobile virtual netw ork operator and connected device/machine-to-machine.
Sources: Industry data; Kagan estimates.
Kagan, a part of S&P Global Market Intelligence.

# TFI Conference 2024 Wireless Industry Panel

Wireless Financials (source: S&P Global Market Intelligence)

## Total ARPU ($)

| | Q3 2022 | Q4 2022 | Q1 2023 | Q2 2023 | Q3 2023 | Q2 2023 –Q3 2023 change | Q3 2022 –Q3 2023 change |
|---|---|---|---|---|---|---|---|
| UScellular | 62.37 | 54.33 | 54.21 | 54.19 | 54.76 | 1.1% | -12.2% |
| T-Mobile US | 46.64 | 46.65 | 45.99 | 45.91 | 45.82 | -0.2% | -1.8% |
| AT&T Mobility * | 24.69 | 23.66 | 23.16 | 22.92 | 22.51 | -1.8% | -8.8% |
| Verizon Wireless (consumer + business) | 42.94 | 43.74 | 43.73 | 43.96 | 44.37 | 0.9% | 3.3% |
| **Weighted average** | **35.80** | **35.34** | **34.82** | **34.60** | **34.36** | -0.7% | -4.0% |

Data compiled November 2023.
Calculated: Service revenue/average total subscribers/3.
Sources: Industry data; Kagan estimates.
Kagan, a part of S&P Global Market Intelligence.


* Includes M2M; phone-only ARPU is below (source: AT&T 4Q Earnings Report)

**Communications**
Mobility Operating Volumes and Statistics
Volumes in thousands

| Unaudited | 9/30/22 | 12/31/22 | 3/31/23 | 6/30/23 | 9/30/23 | **12/31/23** |
|---|---|---|---|---|---|---|
| **ARPU[9]** | | | | | | |
| Postpaid Phone-Only ARPU | 55.67 | $ 55.43 | $ 55.05 | $ 55.63 | $ 55.99 | **$ 56.23** |
| Postpaid ARPU | 50.12 | 49.95 | 49.46 | 49.94 | 50.16 | **50.39** |
| Prepaid ARPU | 34.07 | 34.02 | 33.81 | 33.78 | 34.05 | **34.15** |

# TFI Conference 2024 Wireless Industry Panel

Wireless Financials (source: S&P Global Market Intelligence)

## Cable MVNO wireless lines (000)

| | Q3 2022 | Q4 2022 | Q1 2023 | Q2 2023 | Q3 2023 | Q2 2023 –Q3 2023 change | Q3 2022 –Q3 2023 change |
|---|---|---|---|---|---|---|---|
| **Wireless lines** | | | | | | | |
| Altice USA | 236 | 240 | 248 | 264 | 288 | 9.1% | 22.1% |
| Charter (Spectrum Mobile) | 4,677 | 5,292 | 5,978 | 6,626 | 7,220 | 9.0% | 54.4% |
| Comcast (Xfinity Mobile) | 4,948 | 5,313 | 5,668 | 5,984 | 6,278 | 4.9% | 26.9% |
| **Total** | **9,861** | **10,845** | **11,894** | **12,874** | **13,786** | 7.1% | 39.8% |

Data compiled November 2023.
Sources: Industry data; Kagan estimates.
Kagan, a part of S&P Global Market Intelligence.

# Satellite and Low Earth Orbit (LEO)

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Satellite and Low Earth Orbit (LEO) Announcements & Developments

## Verizon

- Amazon Kuiper (2021)

## AT&T

- OneWeb (2021)
- AST SpaceMobile (2022)

## T-Mobile

- SpaceX / StarLink (2022)
- Falcon 9 (Jan 2024) – 1st direct to cell sat launch
- A Global Story – reciprocal roaming: KDDI (Japan), Optus (Australia), One NZ (New Zeeland), Rogers (Canada), and Salt (Switzerland)

## DISH

- EchoStar (??) – could be a funding play

## Apple

- Globalstar (Emergency SOS)

# AST SpaceMobile

- AST Partners
  - AT&T
  - Google
  - Vodafone

- AT&T & Vodafone plan to offer the commercial service.
- Google is collaborating on product development, testing and implementation for SpaceMobile's network connectivity.

- Benefits
  - Customer in remote rural areas, on land or out at sea, will be able to benefit from fast and reliable 5G broadband without the need for specialist equipment.
  - Assist in providing connectivity for FirstNet in use for emergencies.
- Progress
  - Sept 2023 – "first ever" 5G connection between an unmodified smartphone and a satellite in space.
    - Galaxy S22 phone
    - Call from a dead zone in Maui, HI to Madrid, Spain
    - Utilized low orbit test satellite (Blue Walker 3) and AT&T's 5G spectrum.
  - AST plans to launch 5 commercial satellites in Q1 2024.

Sources: *AST SpaceMobile Secures Strategic Investment from AT&T, Google & Vodafone*, www.businesswire.com, January 18, 2024.
*AT&T helped connect the first satellite 5G phone call*, www.theverge.com, September 19, 2023.
*AT&T CEO says company is ahead in satellite-to-cellular connectivity*, www.fiercewireless.com, October 6, 2022.

# Future of Wireless Architecture

# Future of Wireless Architecture

Topics

- Antenna standardization
- OpenRAN
- Voice over New Radio (“VoNR”)
- Carrier Aggregation
- Spectrum

# Open RAN

AT&T collaborates with Ericsson

- 5 Year contract w/ Ericsson to upgrade network infrastructure
  - Roughly $15B in spend over the term
- AT&T's Open RAN plan is for 70% of its wireless network traffic to flow across open-capable platforms by late 2026
- What to expect?
  - 2024 – fully integrated Open RAN sites operating in coordination with Ericsson & Fujitsu
  - 2025 – scale the Open RAN environment with multiple suppliers such as Corning, Dell, Ericsson, Fujitsu and Intel

Source: AT&T Press Release, https://investors.att.com, December 4, 2023.

# Voice over New Radio ("VoNR")

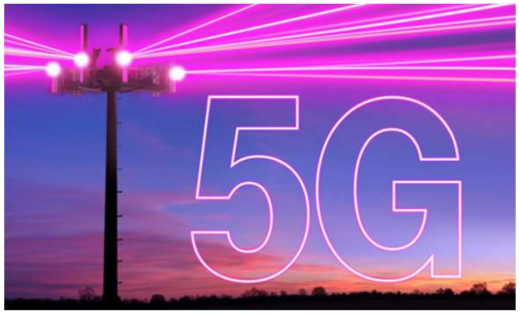
Carriers Seeking to Obsolete LTE

- VoNR is the 5G voice solution
  - VoLTE = 4G
- VoNR still being developed and deployed by carriers
  - T-Mobile leading the way: 6 markets covered as of March 2023, with plan to expand to over 100M in coming months
  - AT&T: lab testing May 2023
  - Verizon: trials completed Aug 2023
  - Dish: Denver launch Nov 2023
- Still being expanded and perfected
- What other barriers exist to obsolete LTE?

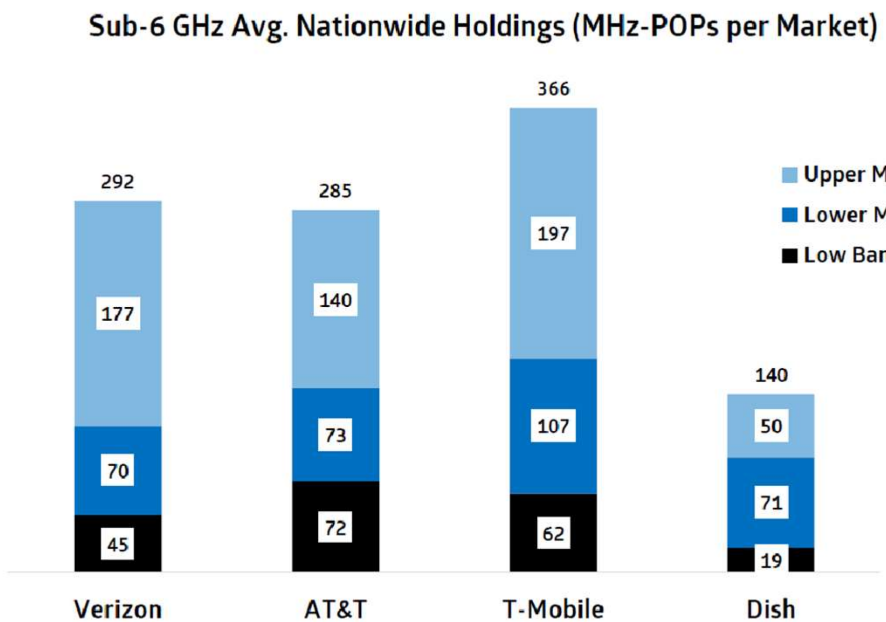
# Carrier Aggregation continues…2, 3, 4, 5, now 6 CA

T-Mobile

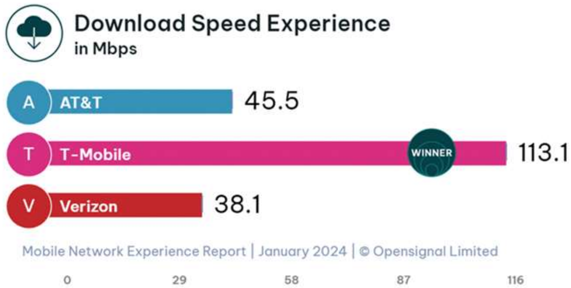
- January 4, 2024
- Barbie – HD Movie downloaded in less than 7 seconds!
- **6 Carrier Aggregation, 3.6 Gbps speeds using sub 6 GHz spectrum** ( worked with Ericsson and Qualcomm)
- On T-Mobile's live production 5G network.
- 245 MHz of aggregated 5G channels
  - 2 channels of 2.5 GHz Ultra Capacity
  - 2 channels of PCS spectrum
  - 2 channels of AWS spectrum

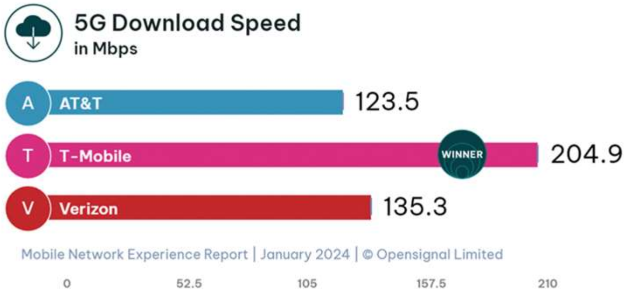



# Spectrum – Lifeblood of the Industry




Source: Allnet Insights, Cowen and Company estimates; Note: Does not include T-Mobile's Auction 108 and August 2018 600 MHz spectrum purchase



# Competition

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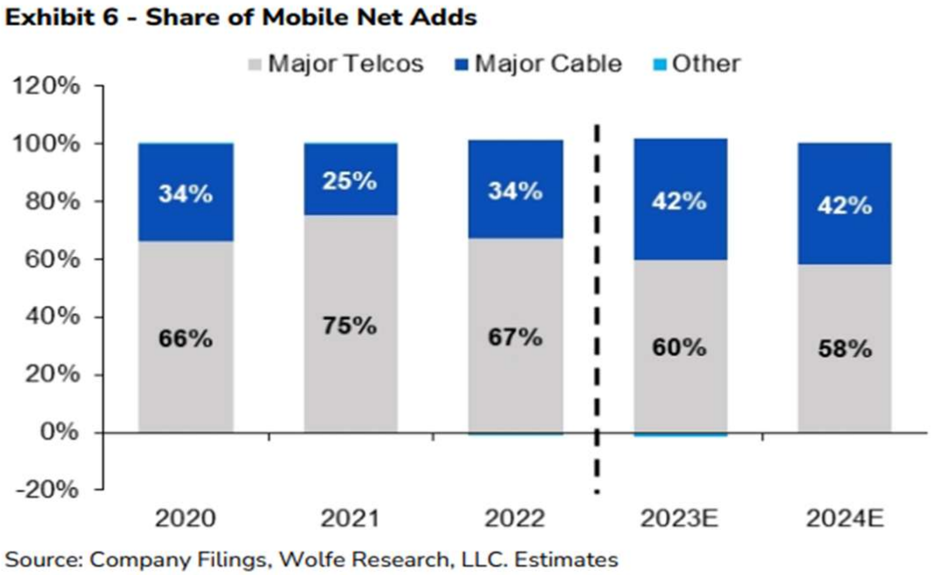
Competition

- A Competitively rational market
- Wireless / Cable Operators are nations leading ad spenders.
- Verizon 8K – (1/17 pre-release) 5.8B Goodwill impairment (business unit), 80% haircut, 1.7B remains.
- Cable is in wireless business (MVNOs)
- Wireless in the Broadband business (FWA)
  - Entner: satisfaction survey

# Competition in a Saturated Market

How does the King Cake get sliced?




- As Cable companies continue to penetrate the market, the shift of net adds is split by more players now.
- Forces carriers to compress pricing and ramp up promotional campaigns largely centered around phone upgrades.

# Thank You

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