The Telecom Safari
Navigating the digital wilderness
Executive summary

1. Average revenue growth decelerated from 7.3% to 5.3%, a slower expansion for the industry.

2. EBITDA margins remain largely stable, incremental gains in operational performance.

3. Telcos leverage AI, cloud, security, 5G to drive enterprise segment to ~23% revenue share in 2023.

4. Telcos diversification to beyond connectivity services contributes to ~27% of total revenue in 2023.

5. Successful merger of Indosat sets a precedent, paving the way for others to drive profit growth through scalability.
Executive summary

6. Industry grapples with the challenge of 5G monetization, despite robust subscriber growth

7. SK Telecom revolutionizing AI in telecoms and pioneering personal AI assistants

8. Surge in data center demand fueled by anticipation of AI led growth; telcos seek partnerships to raise capital

9. Cybersecurity & resiliency continues to dominate board room discussions

10. Telco’s pursuing strategic partnership for launching satellite services
A global AI revolution is reshaping the world around us. Jio Platforms wants to lead in developing India-specific AI models and AI-powered solutions across domains, thereby delivering benefit of AI to Indians, businesses and govt.

Mukesh Ambani, CEO, Reliance Industries

Industry leading revenue and EBITDA growth
Industry revenue grew at 5.3% in 9M 2023 YoY

- Industry growth has decelerated, shifting from a 6-8% YoY range in Q1 2022 to Q1 2023 to a more modest 4.1-4.5% YoY in the latest two quarters.

- In the first nine months of 2023, telcos reported revenues of USD 437 billion, up from USD 415.2 billion in 2022 and USD 386.8 billion in 2021, indicating a consistent growth trend, although at a slower pace in 2023.

- 2023 witnessed completion of mergers, higher 5G roll outs and subscriber growth but stable ARPU levels and slower top line growth

- Notably, Telcos in India and China experienced growth in revenue during 9M 2023, while Japanese, South Korean, and Australian counterparts witnessed low growth rates.

* Based on reported financials of 39 APAC telcos; Average of the constant currency conversion rate of 9M 2023 has been applied to revenue of all the quarters

Source: Industry reporting; Twimbit Analysis
Telcos in emerging markets lead the revenue growth charge

- Average 9M 2023 revenue growth is ~5.3%
- ~90% of telcos recorded revenue growth in 9M 2023 YoY
- Nearly 13% of telcos recorded a double-digit growth rate
- Robi Axiata witnessed the highest revenue growth of 17.4% YoY, revenue exceeding USD 692 million in 9M 2023
- China Mobile added the highest net revenue of USD 7.4 billion in 9M 2023, growing at 7.2% YoY and total revenue reaching USD 110 billion

* Based on reported financials of 39 APAC telcos
Source: Industry reporting; Twimbit Analysis
Continuous investment in network development is driving customer confidence in Robi, as evidenced by the addition of 1.2 million new customers this quarter. With a solid financial foundation, significant investments in the 4G network, and innovative services, we are moving forward in the right direction as a company.

Rajeev Sethi, MD & CEO

Highest revenue growth in APAC 9M 2023
ARPU level stabilizes for operators across APAC

- Average ARPU demonstrated a marginal increase, rising from USD 10.1 in Q1-2022 to USD 10.5 in Q3-2023, with notable improvements in geographies such as India, Japan, Philippines, and Indonesia.

- Competitive pricing for customer acquisition and challenges in fully monetizing 5G capabilities have impacted the overall ARPU growth in the industry.

- Indian telcos experienced ARPU growth following pricing corrections, resulting in incremental ARPU gains.

- Japanese telcos witnessed ARPU increases in the first three quarters of 2023, suggesting that the impact of regulatory interventions and tariff reductions is diminishing.

- Philippines and Indonesian telcos saw slight ARPU growth, strategically positioning themselves as integrated service providers to enhance operating efficiencies and capitalize on growth opportunities.

- Conversely, Taiwan telcos experienced a decline in average ARPU

* Average ARPU Based on reported financials of 29 APAC telcos; Average of the constant currency conversion rate has been applied to revenue of all the quarters, Others includes Sri Lanka, Thailand, Malaysia, Nepal, Myanmar

Source: Industry reporting; Twimbit Analysis
Merger paves the way for scale and EBITDA growth

Embodying the spirit of unity and growth! Our merger journey is a manifestation of the power of trust, collaboration, and a shared vision. We faced challenges, built bridges, and witnessed good results. Let's inspire each other to overcome obstacles, foster trust, and create a brighter future together for Indonesia.

Vikram Sinha, CEO

Highest % growth in EBITDA in 9M 2023 YoY
EBITDA margin is stable

- EBITDA for APAC telcos has consistently hovered in the range of 31-34% over the past few years, reflecting a stable financial performance.

- IOH stands out with the highest EBITDA growth, experiencing a remarkable 22.3% YoY increase, reaching USD 1.16 billion in 9M 2023.

- Nearly 19% of telcos achieved double-digit growth in EBITDA for the first nine months of 2023,

- Grameenphone recorded the highest EBITDA margin, reaching an impressive 62% in 9M 2023

* Based on reported financials of 37 APAC telcos; Average of the constant currency conversion rate of 9M 2023 has been applied to revenue of all the quarters
Source: Industry reporting; Twimbit Analysis
75% of the telcos record positive change in EBITDA in 9M 2023

<table>
<thead>
<tr>
<th>Telco</th>
<th>EBITDA % change, 9M 2023, YoY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indosat Ooredoo Hutchison</td>
<td>22.3%</td>
</tr>
<tr>
<td>Robi Axiata</td>
<td>18.6%</td>
</tr>
<tr>
<td>Bharti Airtel</td>
<td>14.7%</td>
</tr>
<tr>
<td>Reliance Jio</td>
<td>13.3%</td>
</tr>
<tr>
<td>XL Axiata</td>
<td>13.3%</td>
</tr>
<tr>
<td>Ooredoo Maldives</td>
<td>10.3%</td>
</tr>
<tr>
<td>Dhiraagu</td>
<td>9.6%</td>
</tr>
<tr>
<td>PLDT</td>
<td>7.5%</td>
</tr>
<tr>
<td>Dialog Axiata</td>
<td>6.8%</td>
</tr>
<tr>
<td>China Mobile</td>
<td>6.2%</td>
</tr>
<tr>
<td>Grameenphone</td>
<td>5.2%</td>
</tr>
<tr>
<td>Telstra</td>
<td>4.5%</td>
</tr>
<tr>
<td>China Telecom</td>
<td>4.2%</td>
</tr>
<tr>
<td>Far Eastone</td>
<td>3.6%</td>
</tr>
<tr>
<td>AIS</td>
<td>2.8%</td>
</tr>
<tr>
<td>CelcomDigi</td>
<td>2.7%</td>
</tr>
<tr>
<td>Smartfren</td>
<td>2.7%</td>
</tr>
<tr>
<td>NTT Docomo</td>
<td>2.7%</td>
</tr>
<tr>
<td>China Unicom</td>
<td>2.5%</td>
</tr>
<tr>
<td>LG U+</td>
<td>2.5%</td>
</tr>
<tr>
<td>Taiwan Mobile</td>
<td>2.1%</td>
</tr>
<tr>
<td>SK Telecom</td>
<td>2.0%</td>
</tr>
<tr>
<td>KDDI Corp</td>
<td>1.4%</td>
</tr>
<tr>
<td>StarHub</td>
<td>0.6%</td>
</tr>
<tr>
<td>Globe</td>
<td>0.5%</td>
</tr>
<tr>
<td>Telekom Malaysia</td>
<td>0.3%</td>
</tr>
<tr>
<td>Chunghwa</td>
<td>0.1%</td>
</tr>
<tr>
<td>Ooredoo Myanmar</td>
<td>-0.7%</td>
</tr>
<tr>
<td>Maxis</td>
<td>-1.5%</td>
</tr>
<tr>
<td>SingTel</td>
<td>-1.5%</td>
</tr>
<tr>
<td>SoftBank</td>
<td>-1.6%</td>
</tr>
<tr>
<td>KT Corp</td>
<td>-2.0%</td>
</tr>
<tr>
<td>True Corp</td>
<td>-2.7%</td>
</tr>
<tr>
<td>Vodafone Idea</td>
<td>-3.2%</td>
</tr>
<tr>
<td>Ncell</td>
<td>-4.7%</td>
</tr>
<tr>
<td>Sri Lanka Telecom</td>
<td>-16.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Telco</th>
<th>EBITDA margin for 9M 2023, in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indosat Ooredoo Hutchison</td>
<td>46.6%</td>
</tr>
<tr>
<td>Robi Axiata</td>
<td>44.5%</td>
</tr>
<tr>
<td>Bharti Airtel</td>
<td>53.6%</td>
</tr>
<tr>
<td>Reliance Jio</td>
<td>50.2%</td>
</tr>
<tr>
<td>XL Axiata</td>
<td>49.2%</td>
</tr>
<tr>
<td>Ooredoo Maldives</td>
<td>52.3%</td>
</tr>
<tr>
<td>Dhiraagu</td>
<td>48.6%</td>
</tr>
<tr>
<td>PLDT</td>
<td>30.8%</td>
</tr>
<tr>
<td>Dialog Axiata</td>
<td>34.6%</td>
</tr>
<tr>
<td>China Mobile</td>
<td>61.2%</td>
</tr>
<tr>
<td>Grameenphone</td>
<td>34.5%</td>
</tr>
<tr>
<td>Telstra</td>
<td>35.6%</td>
</tr>
<tr>
<td>China Telecom</td>
<td>50.6%</td>
</tr>
<tr>
<td>Far Eastone</td>
<td>48.4%</td>
</tr>
<tr>
<td>AIS</td>
<td>44.1%</td>
</tr>
<tr>
<td>CelcomDigi</td>
<td>28.9%</td>
</tr>
<tr>
<td>Smartfren</td>
<td>28.0%</td>
</tr>
<tr>
<td>NTT Docomo</td>
<td>25.5%</td>
</tr>
<tr>
<td>China Unicom</td>
<td>20.3%</td>
</tr>
<tr>
<td>LG U+</td>
<td>32.6%</td>
</tr>
<tr>
<td>Taiwan Mobile</td>
<td>31.0%</td>
</tr>
<tr>
<td>SK Telecom</td>
<td>19.9%</td>
</tr>
<tr>
<td>KDDI Corp</td>
<td>45.4%</td>
</tr>
<tr>
<td>StarHub</td>
<td>41.3%</td>
</tr>
<tr>
<td>Globe</td>
<td>40.7%</td>
</tr>
<tr>
<td>Telekom Malaysia</td>
<td>38.5%</td>
</tr>
<tr>
<td>Chunghwa</td>
<td>53.1%</td>
</tr>
<tr>
<td>Ooredoo Myanmar</td>
<td>39.0%</td>
</tr>
<tr>
<td>Maxis</td>
<td>25.1%</td>
</tr>
<tr>
<td>SingTel</td>
<td>26.5%</td>
</tr>
<tr>
<td>SoftBank</td>
<td>21.2%</td>
</tr>
<tr>
<td>KT Corp</td>
<td>41.4%</td>
</tr>
<tr>
<td>True Corp</td>
<td>39.7%</td>
</tr>
<tr>
<td>Vodafone Idea</td>
<td>39.7%</td>
</tr>
<tr>
<td>Ncell</td>
<td>53.5%</td>
</tr>
<tr>
<td>Sri Lanka Telecom</td>
<td>29.9%</td>
</tr>
</tbody>
</table>

Source: Industry reporting; Twimbit Analysis
CAPEX spending by telcos slowed in 2023

- CAPEX spending by telcos slowed in 2023 as the rollout of 4G and 5G networks matured in major markets.
- CAPEX is expected to stabilize or decrease in the upcoming years, as telcos shift their focus toward revenue monetization.
- Approximately 60% of telcos experienced a decrease in CAPEX from 9M 2022 to 9M 2023.
- Bharti Airtel observed the highest YoY CAPEX change, with a significant increase of 71.1% in 9M 2023, driven by its 5G rollout in India.
- Globe led in CAPEX intensity, recording the highest percentage of 40.5% in 9M 2023.

* Based on reported financials of 28 APAC telcos; Average of the constant currency conversion rate of 9M 2023 has been applied to revenue of all the quarters.

Source: Industry reporting; Twimbit Analysis
Industry CAPEX Intensity at 14.8% in 9M 2023 vs 15.8% in 9M 2022

CAPEX % change, 9M 2023, YoY

- Bharti Airtel: 37.4%
- Grameenphone: 71.1%
- KDDI Corp: 22.9%
- Telstra: 21.7%
- Ncell: 18.7%
- Indosat Ooredoo Hutchison: 11.0%
- LG U+: 7.1%
- AIS: 6.5%
- SoftBank: 3.9%
- NTT Docomo: 3.0%
- Telkom Indonesia: 1.8%
- RoBi Axiata: -0.8%
- SK Telecom: -3.7%
- Telekom Malaysia: -4.7%
- KT Corp: -5.6%
- Chunghwa: -6.6%
- China Telecom: -9.7%
- Taiwan Mobile: -15.1%
- PLDT: -17.8%
- Far Eastone: -20.0%
- CelcomDigi: -24.7%
- Maxis: -25.3%
- Globe: -27.4%
- Ooredoo Myanmar: -28.2%
- XL Axiata: -28.3%
- Dialog Axiata: -46.7%
- Rakuten: -50.4%
- Vodafone Idea: -53.1%

CAPEX intensity for 9M 2023, in %

- Vodafone Idea: 4.8%
- Rakuten: 4.5%
- Dialog Axiata: 4.5%
- Ooredoo Myanmar: 8.3%
- XL Axiata: 9.7%
- Globe: 6.9%
- Maxis: 5.1%
- Far Eastone: 35.4%
- Chunghwa: 40.4%
- CelcomDigi: 19.0%
- PLDT: 14.8%
- KDDI Corp: 14.9%
- SoftBank: 14.3%
- NTT Docomo: 13.7%
- Grameenphone: 13.7%
- KDDI Corp: 16.6%
- Telstra: 17.5%
- Ncell: 20.7%
- Indosat Ooredoo Hutchison: 16.2%
- LG U+: 17.7%
- AIS: 12.4%
- SoftBank: 11.3%
- NTT Docomo: 19.9%
- Vodafone Idea: 33.2%

Source: Industry reporting; Twimbit Analysis
China Telecom Cloud maintained leading market position, for ranking No. 1 in government public cloud infrastructure, No. 3 in PRC’s public cloud IaaS and public cloud IaaS + PaaS markets, No. 1 in PRC’s Desktop-as-a-Service, and the world’s largest telco cloud.

“Championing enterprise services emerging as a key growth driver,”

Ke Ruiwen, Chairman & CEO
Enterprise accounts for ~23% of total revenue in 9M 2023

- In 9M 2023, enterprise revenue constituted a substantial 22.7% of total revenues, compared to 21.5% in 9M 2022.
- Seven telcos had achieved enterprise revenue contributions, surpassing the 25% threshold.
- Leading this charge is Spark, with the highest contribution at 49.8%, followed by Singapore telcos M1 and StarHub.
- Enterprise segment revenue for telcos covered, reached USD 88.4 billion, showcasing remarkable growth of 10.7% YoY. This surpassed the overall business revenue growth rate of 5% YoY in 9M 2023.
- The telcos added USD 8.6 billion enterprise revenues in 9M 2023 over 9M 2022. China Mobile having the highest incremental revenue growth of ~USD 3 billion.
- Mobile One recorded the highest growth rate of ~30% YoY.

Source: Industry reporting; Twimbit Analysis
Chinese operators have the strongest suite of enterprise services

**Change in enterprise revenue in 9M 2023 YoY, in %**

- Mobile One: 29.4%
- China Telecom: 16.5%
- TPG Telecom: 15.1%
- China Mobile: 15.1%
- China Unicom: 13.8%
- Bharti Airtel: 13.2%
- KT Corp: 11.0%
- KDDI Corp: 9.4%
- Globe: 8.2%
- SK Telecom: 6.9%
- Telkom Indonesia: 6.5%
- NTT Docomo: 6.3%
- SoftBank: 5.3%
- Maxis: 5.1%
- AIS: 4.8%
- SingTel: 4.6%
- PLDT: 3.0%
- Spark: 2.5%
- Chunghwa: 51.5%
- LG U+: 1.6%
- StarHub: 1.1%
- Telstra: -3.3%
- PCCW: -7.8%
- True Corp: -9.5%
- Telekom Malaysia: -11.9%

**Change in enterprise revenue in 9M 2023 YoY, USD million**

- Mobile One: 55.3 USD million
- China Telecom: 2,183.0 USD million
- TPG Telecom: 55.4 USD million
- China Mobile: 933.2 USD million
- China Unicom: 275.3 USD million
- Bharti Airtel: 572.9 USD million
- KT Corp: 18.8 USD million
- KDDI Corp: 4308.9 USD million
- Globe: 62.5 USD million
- SK Telecom: 753.5 USD million
- Telkom Indonesia: 270.2 USD million
- NTT Docomo: 111.3 USD million
- SoftBank: 13.1 USD million
- Maxis: 21.8 USD million
- AIS: 14.3 USD million
- SingTel: 17.1 USD million
- PLDT: 37.4 USD million
- Spark: 30.3 USD million
- Chunghwa: 5.2 USD million
- LG U+: -76.5 USD million
- StarHub: -4.0 USD million
- Telstra: -72.5 USD million
- PCCW: 15.67 USD million
- True Corp: 0.0 USD million
- Telekom Malaysia: 0.0 USD million

Source: Industry reporting; Twimbit Analysis
Enterprise segment to account ~29% of total telco revenue by 2027

- Enterprise segment revenue for telcos estimated to grow from 23.15% in 2023 to reach 29.2% by 2027
- Beyond conventional core offerings, telcos offer services bundled with comprehensive solutions for enterprises
- Telcos focus on advanced technologies like Data analytics, AI/ML, Cloud to meet growing enterprise requirements
- Telcos are scaling their solutions by tailoring to specific needs of enterprises
- Security and data protection services are leading demand, growing number of telcos are diversifying their business offerings

Source: Industry reporting; Twimbit Analysis
Our transition from telco to tech-co will be more pronounced as we introduce more partnerships and game changing services in the future. Seen in our P&L is the increasing contribution, whether on the revenue line or in the equity earnings line of our non-telco ventures.

Ernest L. Cu, CEO
Beyond connectivity soars at ~27% of total revenue in 9M 2023

- The cumulative Beyond connectivity revenues of the 23 telcos analysed accounted for 26.9% of their cumulative total revenues in 9M 2023, up from 25% in 9M 2022.

- Seven telcos surpassed the 25% threshold in beyond connectivity revenue contribution.

- KT Corp led with an exceptional 61.6% of its revenues from beyond connectivity services, followed closely by Taiwan Mobile at 60.5%.

- Beyond connectivity revenues for APAC telcos witnessed a growth of 12.7% YoY in 9M 2023, reaching USD 104.1 billion. In contrast, the overall revenue growth for the 23 telcos stood at 5.0% YoY in 9M 2023, totaling USD 387.5 billion.

- The telcos added USD 11.8 billion beyond connectivity revenues in 9M 2023 over 9M 2022. China Mobile led the way with the highest incremental beyond connectivity revenue growth of USD 4.3 billion in 9M 2023 growing at 21.3% YoY.

- Globe led the way with the highest growth rate of 43.6% YoY.

Source: Industry reporting; Twimbit Analysis
### Significant growth in beyond connectivity for most telcos

<table>
<thead>
<tr>
<th>Company</th>
<th>Change in beyond connectivity revenue in 9M 2023 YoY, in %</th>
<th>Change in beyond connectivity revenue in 9M 2023 YoY, USD million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Globe</td>
<td>43.6%</td>
<td>4308.9</td>
</tr>
<tr>
<td>KDDI Corp</td>
<td>21.3%</td>
<td>2183.0</td>
</tr>
<tr>
<td>China Mobile</td>
<td>16.5%</td>
<td>1843.0</td>
</tr>
<tr>
<td>China Telecom</td>
<td>15.0%</td>
<td>1843.0</td>
</tr>
<tr>
<td>TPG Telecom</td>
<td>13.8%</td>
<td>1444.0</td>
</tr>
<tr>
<td>China Unicom</td>
<td>10.5%</td>
<td>1444.0</td>
</tr>
<tr>
<td>Spark</td>
<td>10.4%</td>
<td>1444.0</td>
</tr>
<tr>
<td>SoftBank</td>
<td>9.9%</td>
<td>1444.0</td>
</tr>
<tr>
<td>PCCW</td>
<td>8.3%</td>
<td>1444.0</td>
</tr>
<tr>
<td>SingTel</td>
<td>7.8%</td>
<td>1444.0</td>
</tr>
<tr>
<td>True Corp</td>
<td>7.5%</td>
<td>1444.0</td>
</tr>
<tr>
<td>NTT Docomo</td>
<td>6.8%</td>
<td>850.1</td>
</tr>
<tr>
<td>AIS</td>
<td>6.4%</td>
<td>167.8</td>
</tr>
<tr>
<td>Taiwan Mobile</td>
<td>6.2%</td>
<td>84.3</td>
</tr>
<tr>
<td>Dialog Axiata</td>
<td>5.4%</td>
<td>534.3</td>
</tr>
<tr>
<td>Telstra</td>
<td>5.2%</td>
<td>534.3</td>
</tr>
<tr>
<td>KT Corp</td>
<td>4.4%</td>
<td>534.3</td>
</tr>
<tr>
<td>StarHub</td>
<td>3.7%</td>
<td>534.3</td>
</tr>
<tr>
<td>LG U+</td>
<td>51.5%</td>
<td>19.3</td>
</tr>
<tr>
<td>Telkom Indonesia</td>
<td>2.4%</td>
<td>50.7</td>
</tr>
<tr>
<td>SK Telecom</td>
<td>-0.4%</td>
<td>34.1</td>
</tr>
<tr>
<td>Chunghwa</td>
<td>-0.5%</td>
<td>38.9</td>
</tr>
<tr>
<td>Bharti Airtel</td>
<td>-3.0%</td>
<td>-3.0</td>
</tr>
</tbody>
</table>

Source: Industry reporting; Twimbit Analysis
Beyond connectivity revenue contribution to reach 38 percent by 2027

- Telcos continue to diversify into adjacencies as they prove to be a strong growth contributors
- Beyond Connectivity revenue contribution to overall revenue estimated to reach 37.8% in 2027
- Telcos continue to foray into entertainment, finance, payments, insurance and healthcare.
- Focus on non-traditional areas like Cloud, Security and Digital transformation services are driving non-connectivity revenue
- Aggregating value-added services has proved to be an efficient strategy for telcos.

Source: Industry reporting; Twimbit Analysis
Content is king: KT Corp leading its way in entertainment services

- KT Corp records the highest contribution of beyond connectivity revenues to total in the region at 61.6% in 9M 2023, amounting to ~USD 10.7 billion in revenue. The beyond connectivity revenue grew 5.2% YoY in 9M 2023 (adding ~USD 534 million in incremental revenue).

- Among the 50 telcos we’ve analyzed in the Asia-Pacific region, KT Corp emerges as one of the most diversified telco in the region, having a strong business in e-commerce, cloud, financial payment services, AI, content and media and much more.

- KT Corp also leads with the highest revenue contribution from content and media.

- IPTV growth was fueled by a high ARPU subscriber base. Subsidiaries such as KT Studio Genie and Sky TV produced seven original dramas and five entertainment programs in the first half of the year, solidifying their presence in the media market.

Source: KT Corp; Twimbit Analysis
Learning from Globe’s digital eco-system

- In 9M 2023, Globe experienced an impressive 43.6% YoY growth in its beyond connectivity revenue, reaching ~USD 83.5 million. This segment now constitutes ~3.1% of their total revenues.

- One remarkable facet of Globe’s evolution is GCash, Globe’s financial services segment.

- GCash has emerged as the country’s dominant finance app with a vast user base, a network of 6 million merchants, and a comprehensive suite of digital financial services.

Source: Globe; Twimbit Analysis
We are happy with the progress made on overall business integration, and especially in delivering Malaysia’s widest and fastest network through solid delivery of our network integration and modernisation programme. Our focus on market execution and prudent cost management contributed to our solid performance this quarter, with subscriber growth from all segments and improvements in profitability margins.

Datuk Idham Nawawi, CEO

CelcomDigi posts jump in 3Q net profit to RM455.72mil
Major mergers in 2023

Multiple mergers in Taiwan

Two high profile mergers of Taiwan Mobile Co (with Taiwan Star Telecom) and Far East Tone (with Asia Pacific Telecom) to alter competition and market dynamics in Taiwan.

Both the operators will inherit additional spectrum bandwidth as a result of the merger, enabling both operators to enhance customer experience, introduce new services, and compete more effectively with Chunghwa Telecom, the largest operator.

Taiwan Mobile also closed a merger with Taiwan Star on 1 December 2023, with Taiwan Mobile the surviving entity and Taiwan Star now dissolved.

Planned merger in Sri Lanka awaits regulatory approval

Dialog Axiata and Bharti Airtel Limited have formalized a binding term sheet to integrate the operations of Bharti Airtel Lanka (Private) Limited, a wholly-owned subsidiary of Airtel, with Dialog, a subsidiary of Axiata Group Berhad.

Market leadership through a successful merger in Thailand

True Corp and Telenor had successfully closed their merger in 2023, which was anticipated as the largest telecom merger in South-east Asia (by combined enterprise value).

With a combined enterprise value over $20 billion, the company estimates to serve over 55 million mobile customers in Thailand.

Source: Industry reporting; Twimbit Analysis
Singtel restructures for growth

Timeline of restructuring:

- **In 2021**, Singtel spun off its ICT arm NCS to accelerate its expansion into Asia Pacific as an autonomous business unit.
- **In July 2022**, Singtel further decentralised its organizational structure by transferring the management of Optus Enterprise to Australia, effectively giving Optus more operational autonomy and direct accountability.
- **On 27 April 2023**, it consolidated Singapore consumer and enterprise business into a singular operating company.
- Additionally, Singtel also created a standalone infrastructure unit called Digital InfraCo, encompassing regional data centres, subsea cable, satellite carrier businesses, and Paragon (Singtel’s platform for 5G MEC and cloud orchestration).

“**This consolidation of our consumer and enterprise units in Singapore is designed to empower our core business to optimize synergies and capabilities to drive growth. With a more unified approach, we would be more agile, competitive when bringing solutions in the market**”

Source: Singtel; Twimbit Analysis

Yuen Kuan Moon, Group CEO
Industry grapples with the challenge of 5G monetization, despite robust subscriber growth.

5G, which was being sold as an enabler of autonomous driving, unmanned aerial vehicles (UAM), extended reality (XR) and digital twins. Those applications were possible, but did not succeed due to a combination of device form factor constraints, immaturity of device and service technology, low or absent market demand, and policy/regulation issues.
5G subscribers across APAC

1.6+ Billion

5G mobile subscribers in APAC

5G mobile subscribers across countries in APAC (2023)

<table>
<thead>
<tr>
<th>Country</th>
<th>Subscribers</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Korea</td>
<td>30.2 million</td>
</tr>
<tr>
<td>Japan</td>
<td>69.8 million</td>
</tr>
<tr>
<td>Australia</td>
<td>6.90 million</td>
</tr>
<tr>
<td>Singapore</td>
<td>2.10 million</td>
</tr>
<tr>
<td>China</td>
<td>1.34 billion</td>
</tr>
<tr>
<td>Thailand</td>
<td>1.7 million</td>
</tr>
<tr>
<td>India</td>
<td>130 million</td>
</tr>
<tr>
<td>Indonesia</td>
<td>41.4 million</td>
</tr>
<tr>
<td>Rest of APAC</td>
<td>5.50 million</td>
</tr>
</tbody>
</table>

Rapid network expansion across countries, reduced average selling price of 5G smartphones drive the momentum for increased adoption.

China has constantly advanced the construction of its 5G network with the number of 5G base stations in the country exceeding 3.28 million, accounting for 29% of country’s total base stations.

5G subscriptions gained momentum in the Indian market, with approximately 130 million subscribers. With less than 16 months of commercial launch the country has achieved 11% penetration rate.

Capex stabilization across APAC as 60% of telcos analyzed reduced their spending on network infrastructure (4G and 5G) as compared to the previous year.

APAC to have one of the highest mobile data usage per smartphone, averaging around 20GB per month driven by 5G users subscribing to value added services and content.

Source: Industry reporting; Twimbit Analysis
5G subscribers: forecast

5G mobile subscribers APAC; 2019 – 2026F (in millions)

2027: 2,784
2026: 2,520
2025: 2,252
2024: 1,983
2023: 1,648

Note: 5G package subscribers considered for China

5G mobile subscriptions expected to grow at a CAGR of 14.1% from 2023-2027.

Developed markets like South Korea, China and Singapore to surpass 70% penetration by 2026

In 2024, there will be a significant increase in the number of mobile operators in developed countries switching to 5G-SA technology.

Source: Industry reporting; Twimbit Analysis
5G FWA gains momentum, subscribers to quadruple in the next 5 years

18+ operators across 9 countries in APAC have launched 5G FWA services.

APAC share of global FWA connections expected to surpass 45% by 2027.

Emerging markets like India to drive overall growth. Reliance Jio in the recent AGM committed to connect 100 million+ homes and SMEs with 5G FWA in the next several years.

South-east Asian countries like Philippines, Thailand are taking a lead in deployment of FWA technology. Telkomsel partnered with Ericsson and Qualcomm to develop a roadmap for bringing FWA in Indonesia and enhancing the digital experience.

Source: Industry reporting, Twimbit Analysis
The AI gold rush has begun. SK Telecom is trying to run most aggressively into the AI revolution. Since telecom operators have no legacy, the AI revolution is a definite opportunity for us.
AI across the value chain

AI- powered application and services

- Network optimization and operations automation
- Smart customer interaction and experience
- Fraud detection and security
- Product and service development

Way forward

- AI Model Development and Training
- AI Model Deployment and Integration
- AI powered products and services (potential revenue streams)
- Ethical Considerations and Responsible AI

Source: Industry reporting; Twimbit Analysis
SK telecom strategy to become a global AI company

SKT plans to expand its presence in the global AI service market by launching personal AI assistant services simultaneously in many countries across the world by working closely with telcos for localization and advancement of these services.

**AI new potential revenue streams**
Expand the overall AI ecosystem by growing its new business areas such as urban air mobility (UAM) and AI-based healthcare services like (use of X-caliber, a vision AI based image diagnosis solution, for quick and accurate veterinary diagnosis)

**AI Model development and training**
The company is pursuing a multi-LLM strategy, advancing on its own LLM based on high-quality data accumulated over decades. SKT is also collaborating with a diverse range of partners, including:
- Anthropic- to develop LLM customized to telcos
- OpenAI- co-hosting of an AI hackathon in Korea
- Konan Technology- to enter the enterprise market with LLMs customized to corporate customers.

Source: SK Telecom; Twimbit Analysis
AI in action: How telcos enhance customer experience

**Ensuring satisfaction across 420 million ssers**

China Unicom tackled its contact center challenges—serving 420 million users and handling 100 million calls monthly—by implementing AI. Innovations like a unified dialect model and intent recognition technology improved customer satisfaction to 98% and operational efficiency. AI enhancements led to a more personalized user experience, reduced call times by 28 seconds, and saved USD 83.4 million (CNY 600 million).

**Smart customer interaction and experience**

Built an AI-based solution, in collaboration with NVIDIA which will improve the overall customer experience for all in-bound calls to its contact centre.

NVIDIA’s advanced software and Airtel’s deep learning-based automatic speech recognition (ASR) models allow Airtel to accurately interpret language and make practical changes to its operations to serve agents and consumers better, delivering output at 30% of the typical computing cost.

**Product and service development**

Telkomsel will use Azure AI machine learning algorithms to analyze data insight, natural language processing better to understand customer interactions and sentiment, and predictive analytics to anticipate future behaviors.

This technology will enable Telkomsel to create more personalized products and services tailored to each customer’s unique needs and preferences.

**Smart customer interaction and experience**

SK Telecom and Deutsche Telekom have partnered to develop a Large Language Model (LLM), especially for telcos too enhance CX. This LLM is the first product born from a global telco alliance (SK Telecom, Deutsche Telekom, e& and Singtel formed this alliance for collaboration and innovation in AI). This will enable telcos to provide more efficient, personalized and innovative services to customers.

Source: Industry reporting; Twimbit Analysis
With the fast-growing adoption of AI across various industries, we see an inflection point in the data centre industry for high power density, yet sustainable and hyper-connected AI DCs that are optimized to manage GPU clusters for AI workloads.

Bill Chang, CEO of Singtel's Digital InfraCo

New generation of AI data centers fit for an AI world.
Surge in data centre capex as hyperscalers ramp up expansion

- **Region-wide growth**: The landscape has evolved, spreading its wings far more across the region compared to five years ago.
- **Hyperscalers metamorphosis**: The appetite of hyperscalers has undergone a seismic shift, ballooning from 5MW to significantly more.
- **Chinese hyperscalers resurgence**: Chinese hyperscalers are making a comeback on a grander scale.
- **Deal velocity deceleration**: The pace of deals has perceptibly slackened in the past 12 months.
- **Cloud dominance**: Cloud dominance coupled with interest in AI promising big changes for data centres
- **AI’s future impact**: Anticipating AI demand, we brace for a need for distinct engineering capabilities and novel capital model.
- **Singapore-plus strategy**: A strategic approach adopted by numerous players, benefiting both Malaysia and Indonesia.

**10+ GW**
Operational capacity in Asia Pacific in 2023

**4+ GW**
Capacity under construction

Source: Industry reporting; Twimbit Analysis
Generative AI to create investment opportunities in the data centre market

3.7%

Worldwide data centre capex growth was approximately 3.7% in 2023, we estimate enterprise spent and increased power consumption due to generative AI, would lead to a double-digit growth in 2024.

Tier 1 markets in Asia Pacific have exceeded 1GW operational capacity in major cities and are now facing major challenges in terms of power availability, leading investors to seek opportunities in secondary markets.

SK telecom strategy to become an AI company:
With the growth of AI, shortages of data centres is intensifying, with the added issues of power consumption and emissions.

SKT aims to address this by implementing energy-efficient solutions, such as immersion cooling, hydrogen fuel cells with AI DCIM(Data Centre Infrastructure Management that uses AI to gather, monitor and analyze Data Centre information). With this strategy the company aims to double its data centre capacity to 200+MW00 by 2030.

Opportunity:

1. Co-location providers with the best sustainability credentials
2. Suppliers of advanced equipment (notably cooling solutions) to data centres that facilitate improved sustainability.
3. Co-location providers that offer GPU-as-a-service (GPUaaS) to capitalize on AI-based demand

Source: Industry reporting; Twimbit Analysis
Partnering with banks and financial institutions has greatly enhanced our fraud prevention, detection, and investigation efforts, leading to better customer protection. In the first half of the year, we have seen a dramatic 46% year-on-year decline in the volume of bank-related scam and spam messages blocked in our network, indicating that our efforts are making headway.

Irish Salandanan-Almeida, Globe Chief Privacy Officer
Cyber breaches and outages in 2023

**TM**
TM confirmed data breach in 2023 involving historical Unifi customers’ personal information that includes name, national identification/passport number, and contact details. No financial information was impacted.

**T-Mobile**
The operator confirmed two data breaches in 2023, reporting that personal information belonging to hundreds of account holders was exposed in an attack.

**BSNL**
Incident: BSNL, an operator in India, suffered a data breach, sensitive information of users was up for sale on dark web

The compromised data included email addresses, billing details, contact numbers, network details, completed orders, & customer information.

**OPTUS**

**Incident:** Major service outage in November 2023, leaving millions nationwide without phone or internet access.

**Impact:** Some 10 million Australians, 40% of the population, are Optus customers and could not use services for much of the day. This disrupted services across the country, affecting hospitals, payments, transportation, etc

**Reason:** It was caused by changes to routing information after a routine software upgrade

**Kelly Bayer Rosmarin, stepped down as Optus's CEO following the outage**

“I was also able to communicate Optus’s commitment to restore trust and continue to serve customers. Having now had time for some personal reflection, I have come to the decision that my resignation is in the best interest of Optus moving forward”
Telco’s partner to launch satellite services

Starlink agreement was part of Telstra’s T25 strategy commitment to launch a satellite product with the voice and broadband options being available to consumer and business customers. Telstra is always looking to invest in new and better connectivity options for our customers. We know that collaborating with the right partners is one of the best ways to help unlock a digital future.

Telstra announces agreement with Starlink in 2023

Vicki Brady, CEO
Satellite Broadband to bridge the digital divide across APAC

900,000+
Satellite broadband subscribers 2023

The satellite market has undergone a significant transformation due to recent technological advancements. This evolution presents a promising strategic opportunity for telecommunications operators aiming to counter declines in revenue from traditional voice and connectivity services. By diversifying their service portfolio, telecoms operators can capitalize on the greenfield potential of the satellite market.

Spark to launch satellite to mobile service
The New Zealand operator in partnership with satellite provider Lynk Global, plans to launch a trial by end of this year. The satellite service will enable Spark's mobile customers to use their phones in areas where traditional mobile coverage is limited once more satellites are launched and the service becomes widely available.

Southeast Asia Embraces Satellite for Digital Inclusion
Through its National Broadband Plan, the DICT aims to provide connectivity to 65% of the population that lacks Internet access. The Philippines' DICT taps satellite broadband to connect 438 remote areas as satellite communication emerges as the practical solution for Southeast Asian countries seeking to narrow their digital divide.

Telstra’s partnership with Starlink to deliver Low Earth Orbit (LEO) satellite connectivity for voice and fixed broadband services in remote and hard-to-reach places in Australia.

Source: Industry reporting; Twimbit Analysis
Strategic partnerships in India to grow the satellite broadband market

1.5 million +
subscribers of satellite broadband expected in India by end of 2025.

Growth drivers:

**Regulatory framework:**
The Government recently approved the Indian Space Policy 2023 which seeks to regulate and enhance private sector involvement in the space sector.

**Government interventions:**
State owned agency BBNL, in charge of implementing Bharat Net project. BBNL aims to connect 7,000-gram panchayats all over India through satellite internet.

**Initiatives by the operators:**
Launch of satellite-based gigabit broadband internet services by the leading operator in India. Jiospace fiber has already been tested at different remote locations in India and is planned to be available throughout India.

Airtel group’s OneWeb gets approval for satellite broadband services in India.

“We are pleased to note the Indian space regulator’s green light to launch Eutelsat OneWeb’s commercial satellite broadband services in India. This will be a critical step forward to meet India’s ambition of providing internet connectivity for all and will enable the Hon’ble Prime Minister’s vision of Digital India. Eutelsat OneWeb is ready to deploy as soon as it receives the final spectrum authorization to launch commercial services.”

Sunil Bharti Mittal
Chairperson of Bharti Enterprises

Source: Bharti Airtel; Twimbit Analysis
We help build and grow

**purpose-driven businesses**

reachus@twimbit.com

www.twimbit.com