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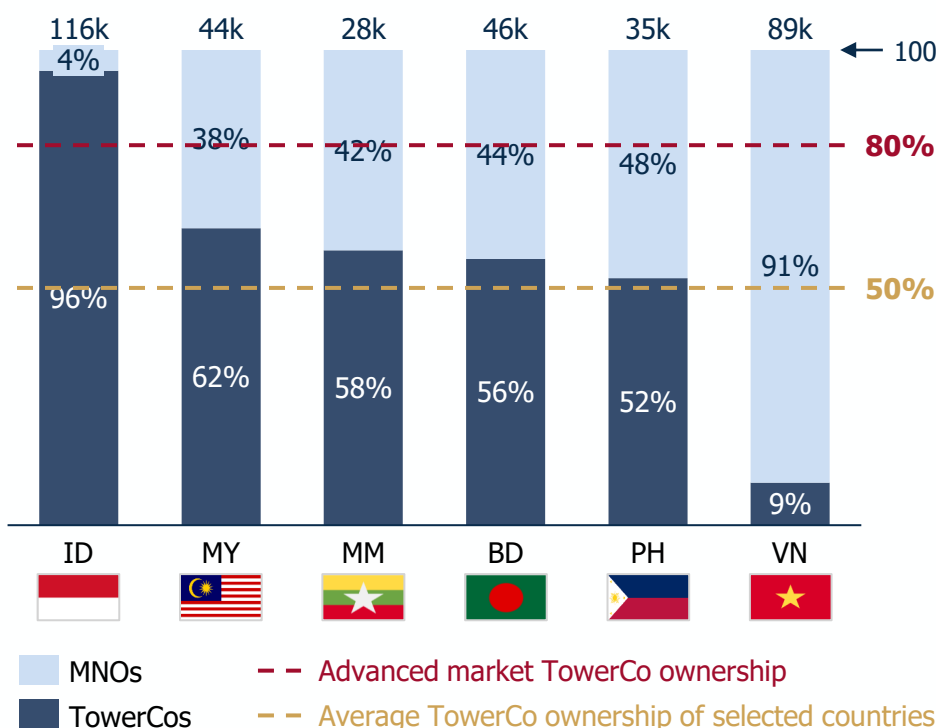
Telecom Towers Market in Emerging Asia



The Emerging Asia tower market has experienced significant development over the past few years

Half of the telecom towers in Emerging Asia are still owned by Mobile Network Operators (MNOs), but this ownership structure is expected to change rapidly in the future

SEA tower ownership, Q1'2024



Comments

- At the end of Q1 2024, only **50%** of the towers in the SEA region were **owned by TowerCos¹**, compared to 80% TowerCo ownership in advanced markets.
- This is expected to **shift towards greater TowerCo ownership** through a mix of **Sale & Leaseback** and **Built-To-Suit initiatives**. Several factors contribute to this trend:
 - MNOs are under **great pressure as average revenue per users (ARPU) has been decreasing** despite increasing costs and CAPEX.
 - The industry will require **heavy investment** to adapt with the **global deployment of 5G network**.
 - Regulatory pressure to **optimize nationwide network deployment** and government encouragement of **network-sharing initiatives**.
- This creates opportunities for TowerCos as it has been proven in other markets that the **TowerCo model offers significant benefits** from optimization of infrastructure, improved cost, and higher efficiencies.

Note: 1. TowerCo refers to a company that builds and maintains telecommunication infrastructures and leases such infrastructures to MNOs to install their broadcast equipment.
Source: TowerXchange; Arthur D. Little

There have been increased M&A activity within the sector to increase TowerCos' scale and efficiency, especially in the Philippines and Indonesia

Exits from MNOs to TowerCos

Year	Country	Seller	Buyer	No. of towers
2024	Bangladesh	banglalink	Summit Towers Limited	2,012
2023	Philippines	Globe	Unity Digital Infrastructure	447
2023	Philippines	Smart	FRONTIER TOWERS	1,012
2023	Indonesia	indosat OOREDOO HUTCHISON	Mitratel	997
2022	Philippines	Smart	Unity Digital Infrastructure	650
2022	Philippines	Globe	PHILTOWER CONSORTIUM INC.	1,350
2022	Indonesia	Telkomsel	Mitratel	6,000
2022	Philippines	Globe	FRONTIER TOWERS	3,539
2022	Philippines	Globe	MIDC	2,180
2022	Philippines	Smart	EDOTCO	2,973
2022	Philippines	Smart	edgepoint	2,934
2022	Indonesia	XL axiata	EDOTCO	1,021

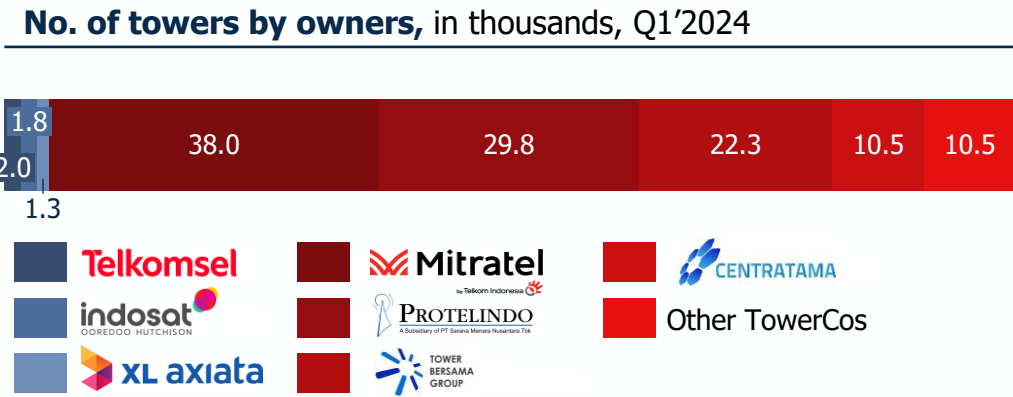
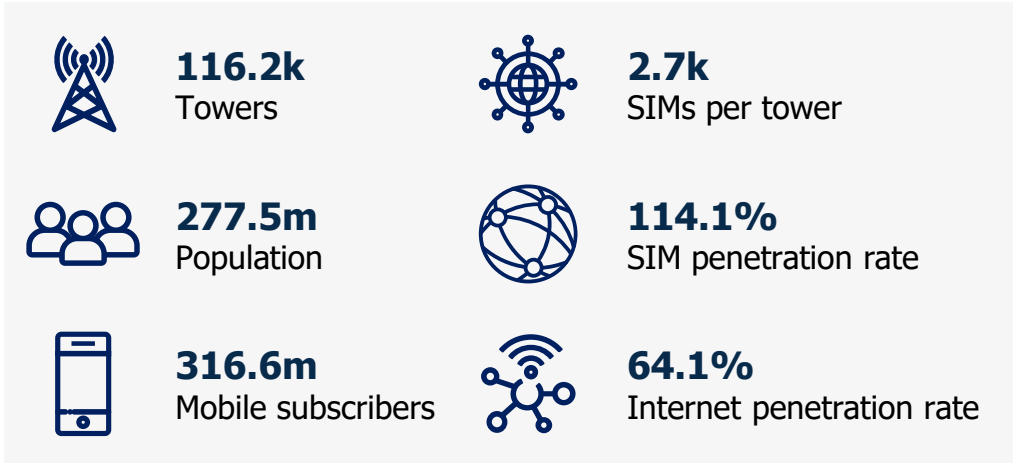
Consolidation between TowerCos

Year	Country	Seller	Buyer	No. of towers
2024	Philippines ¹	PHILTOWER CONSORTIUM INC.	MIDC	n.a.
2023	Indonesia	GAMETRACO	Mitratel	803
2022	Philippines	ALLIANCE TOWERS	BERSAMA DIGITAL DATA CENTRES	n.a.
2021	Malaysia	TOUCH MINDSCAPE	EDOTCO	1,000
2021	Indonesia	STP	PROTELINDO	6,700
2021	Malaysia	ASIAPACE	edgepoint	178
2021	Indonesia	CENTRATAMA GROUP	edgepoint	3,800

Note: 1. This is a joint venture between PhilTower and MIDC
Sources: TowerXchange; MIDC Press release

Emerging Asia Tower Market Overview (1/3)

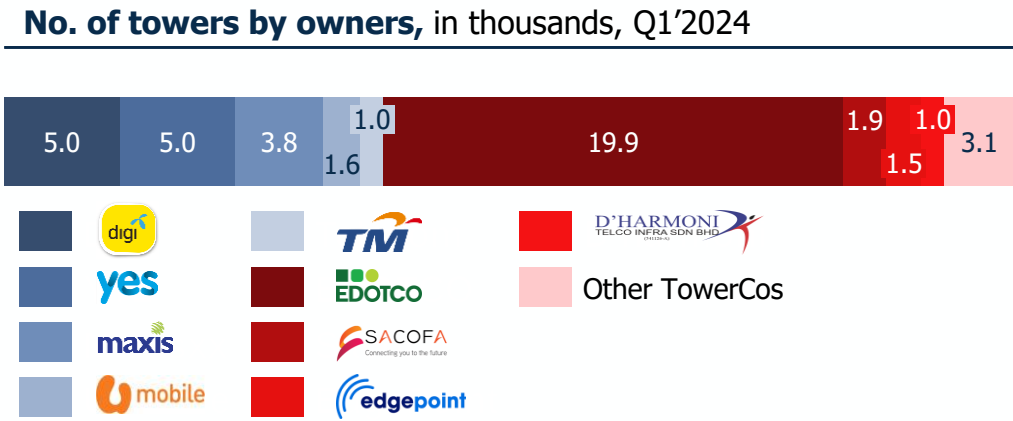
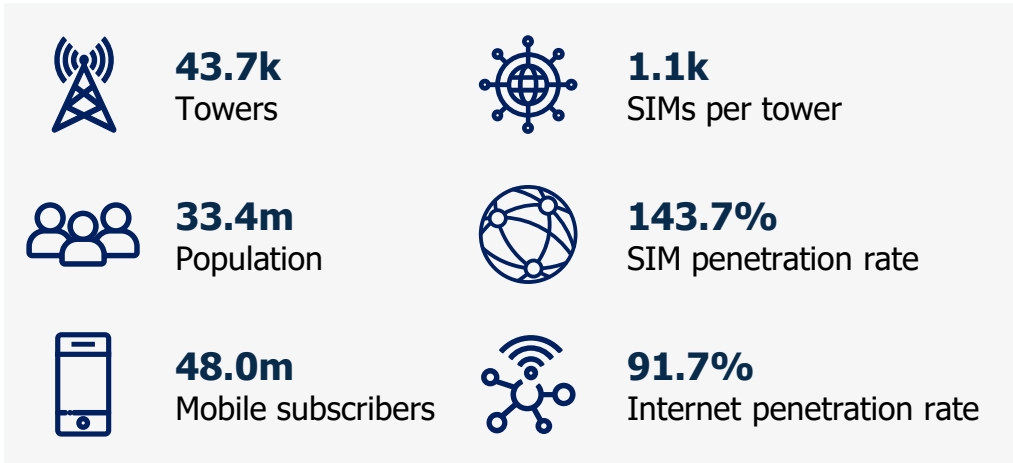
Indonesia: Leading TowerCo Market with Growth Opportunities in Underserved Regions



Sources: TowerXchange; Euromonitor; Herbert Smith Freehills; businessmarketinsights.com; Wellington Capital Advisory

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- Indonesia is one of the **most established TowerCo markets in the region with over 95% TowerCo penetration**, as MNOs have monetized their towers through **carveouts and sales** to TowerCos over the past decade.
 - In addition, the **Amended Omnibus Law** was passed in 2020, further **encouraging growth and consolidation in the tower market**. The amended law introduced policies to streamline tower permitting processes, encourage foreign investments, and promote infrastructure sharing among telecom operators.
 - The Indonesian tower market is estimated to grow at **27.1% p.a from 2018-2025**, capitalized on a few factors: (i) continued prospects for investment in rural area as Indonesia's **networks remain underserved**, mainly due to the country's **complex geography**, (ii) **continued escalation of mobile data payloads** (expected to increase 40% p.a); and (iii) the **accelerating roll-out of 5G networks** (80% by 2030).

Malaysia: Digital Transformation and Strategic Policies Drive Tower Market Growth

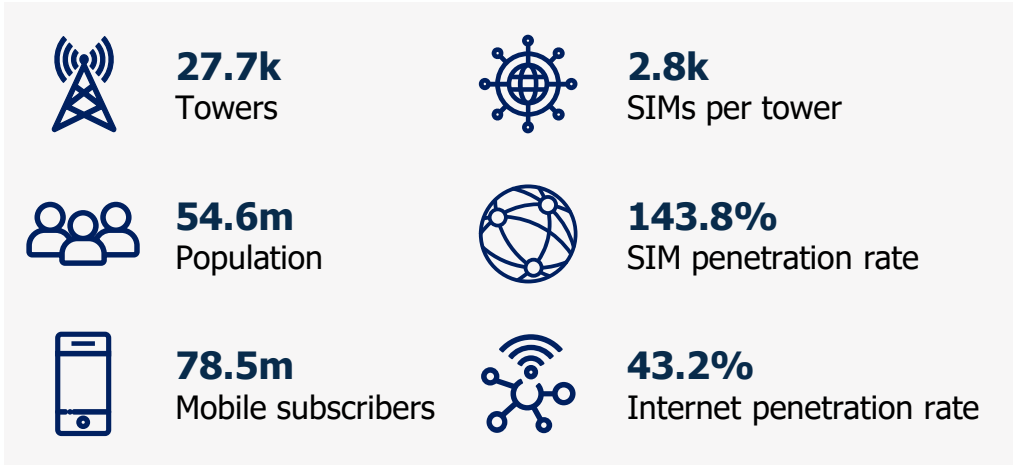


Sources: TowerXchange; Euromonitor; EDOTCO; Roland Berger; Astute Analytica; Free Malaysia Today

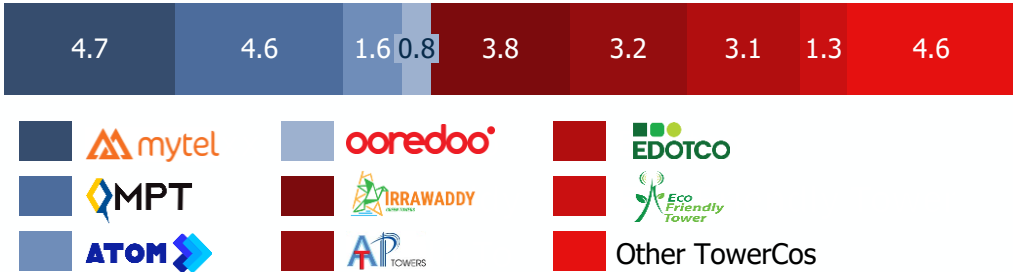
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- Malaysia's telecom tower infrastructure market is projected to grow at a **14.0% CAGR** from 2024 to 2029.
 - The Malaysian market includes regional and partly government-owned companies. Support of public funding in key players like **Edotco** and **Digital Nasional Berhad** highlight the government's proactive role in **digital transformation** and **connectivity enhancement**.
 - In 2020, the **JENDELA policy** was implemented to provide **wider coverage for rural areas**, with Phase 1 improving 4G coverage and Phase 2 targeting 100% 4G access and 5G preparation. Currently the **5G penetration rate** is quite high at **61%** and is **expected to reach 98%** by 2025.
 - Consolidations in the Malaysian tower market started around 2020** when Axiata-owned Edotco was separated from an MNO, and DigitalBridge-backed TowerCo EdgePoint Infrastructure started its operations in the country.

Emerging Asia Tower Market Overview (2/3)

Myanmar: Rapid Telecom Tower Market Expansion Stalls Amid Political Challenges



No. of towers by owners, in thousands, Q1'2024

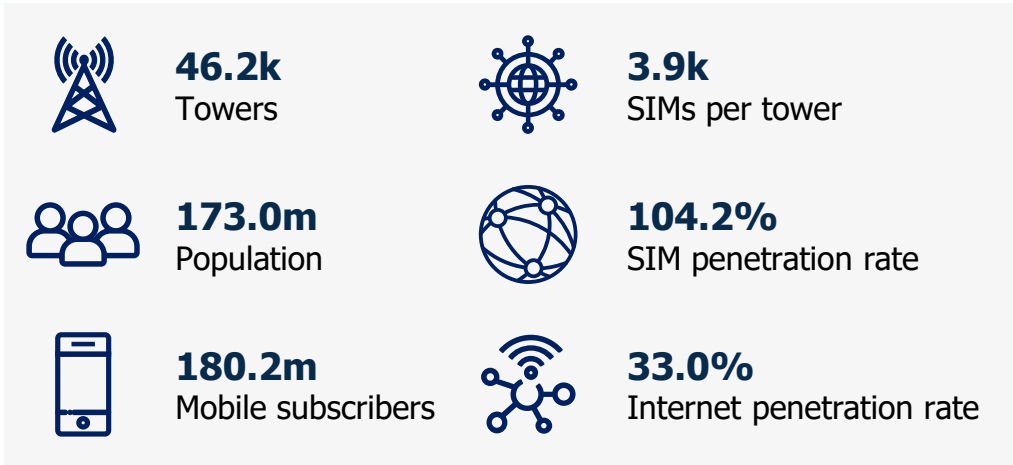


Note: 1. Myanmar Communications Regulatory Commission
Sources: TowerXchange; Euromonitor; Yahoo Finance; Capacity

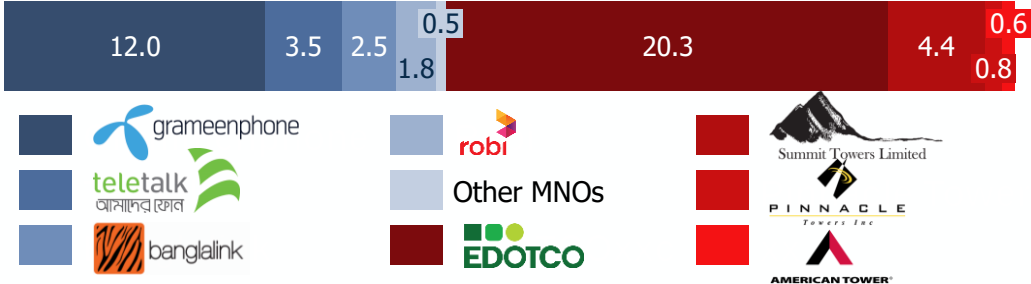


- More than a decade ago, Myanmar had **no TowerCos** and very limited **SIM cards**. As of 2013, there was one operator with **less than 7m mobile users**, and 7.6k km of fiber.
- The landscape changed rapidly after 2015 with the entry of **Telenor** and **Ooredoo** and the establishment of independent regulatory body **MCRC**¹. New operators and TowerCos **built over 10k towers in five years** from 2015 to 2020, with an average **tenancy ratio of 1.35x in 2020**.
- Challenges arose in 2021, including **political unrest**, **declining foreign investment**, and a **slowdown in infrastructure rollout**, affected the sector, resulting in a moderate expected growth **in** the telecom industry.
- In April 2024, Axiata announced that it will **sell its 87.5% stake in its Myanmar subsidiary Edotco** to a local investment group. This move underscores the **ongoing challenges** in the Myanmar telecom market.

Bangladesh: Strong Telecom Infrastructure Growth with 5G Trials and Expanding 4G Adoption



No. of towers by owners, in thousands, Q1'2024



Notes: 1. Bangladesh Telecommunication Regulatory Commission; 2. Service-Level Agreement
Sources: TowerXchange; Euromonitor; ResaerchAndMarkets.com; Capacity; Dgtl Infra



- Significant growth is expected in the telecom: 4G subscribers are projected to grow from **46% in 2022** to **73% by 2030** and **5G subscribers** are expected to **reach 22% by 2030**.
- In March 2020, the **BTRC**¹ finalized the **SLA**², providing guidelines and allowing licensed TowerCos to operate. Upon the granting of licenses to the four TowerCos, **MNOs can no longer build their own towers** and, after November 2023, **cannot share MNO-owned sites to other MNOs**. Post-deadline, **MNOs must sublease towers to TowerCos**, which then rent space to other operators. Additionally, **future tower builds by MNOs must be outsourced**.
- Up until 2020, Edotco was the only major TowerCo effectively operational in the country. With the issuance of the SLA, Bangladesh's TowerCo market started to expand rapidly with the entrance of Summit Towers Limited, Pinnacle Towers, and American Tower, accounting already for **56% of the tower ownership** in the country.

Emerging Asia Tower Market Overview (3/3)

Philippines: Tower Market Set for Growth with Policy Reforms and Increased Competition



35.2k
Towers



4.7k
SIMs per tower



117.3m
Population



141.9%
SIM penetration rate

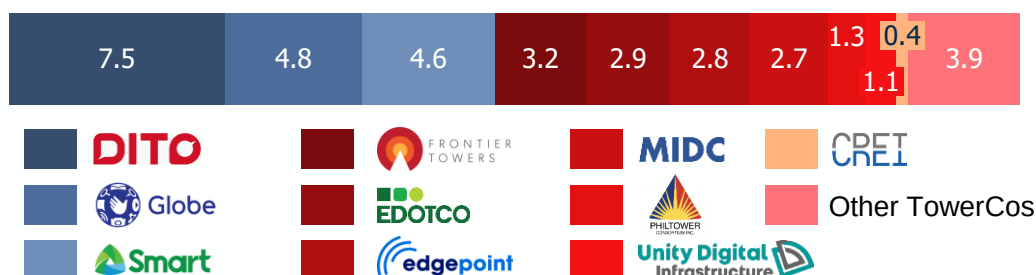


166.5m
Mobile subscribers



54.8%
Internet penetration rate

No. of towers by owners, in thousands, Q1'2024



Notes: 1. BTS are Built-to-Suit Towers designed for an MNO and leased to multiple MNOs.; 2. SLB are Sale-Leaseback Towers sold to an investor and leased back by the MNO.
Sources: TowerXchange; Euromonitor; Asian Development Bank



- Prior to 2020, MNOs dominated the tower market, focusing on high-density areas, **leading to limited coverage in rural areas**.
- The 2020 Common Tower Policy has **encouraged shared infrastructure use** to achieve connectivity and coverage targets, attracting the **entry of independent TowerCos**, both through **BTS¹ awards** and **SLB² transactions** with the MNOs.
- Despite developments, a **digital infrastructure gap remains**, requiring upfront investment. Experts estimate about **87k towers are needed by 2031 vs 35k towers as of today to meet coverage goals in underserved areas**. This presents significant **BTS and colocation opportunities** for the players in the market.
- The entry of **DITO**, a new and third major player, is a **key driver of future colocation growth**, enhancing competition and infrastructure sharing opportunities.

Vietnam: Independent TowerCo Presence Remains Limited Despite Growth Potential



89.0k
Towers



1.5k
SIMs per tower



98.9m
Population



137.8%
SIM penetration rate



136.2m
Mobile subscribers



75.0%
Internet penetration rate

No. of towers by owners, in thousands, Q1'2024



Sources: TowerXchange; Euromonitor; DFDL



- The leading MNOs including **Viettel, Vinaphone, and Mobiphone** control the vast majority of the towers which reduces infrastructure sharing opportunities, limiting the potential development of independent TowerCos, and lowering the tenancy ratio. TowerCos only own around **9% of the total number of towers** in the country.
- However, in Jan 2022, the Ministry of Information and Communications (MIC) updated Directive No.01/CT-BTTTT on the development strategy of the telecoms industry of which, **5G coverage is expected to reach 25% in 2025**. As a result, higher CAPEX requirement for 5G deployment shall encourage private investments in the sector.
- The Government issued a directive in 2019 to **encourage the shared use of telecom infrastructure** among MNOs. So far, there have been certain efforts from the MNOs to co-develop tower; yet the market for TowerCos is still at the early stage.
- The Government issued a **Revised Law on Telecommunications** in 2023, suggesting that tower infrastructure business is not defined as "telecommunication service", and hence shall be less regulated.

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