Brought to you by Informa Tech

Critical communications in emerging markets: Local CSPs bridge the gap toward technology evolution

Publication date:
19 Sep 2024
Author(s):
Ildefonso de la Cruz Morales, Principal Analyst, Critical Communications

Omdia view

Summary

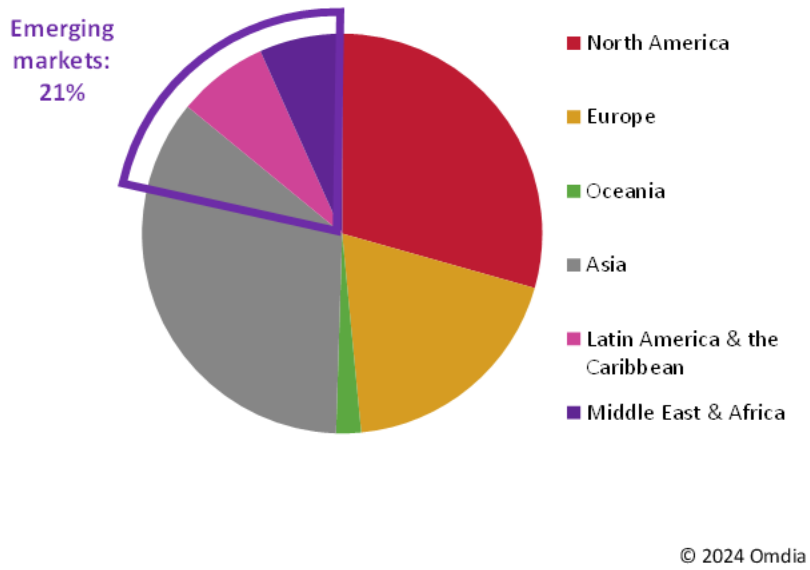
Critical communications play an essential role in the development of emerging markets, enabling a reliable lifeline in emergency situations and providing a secure foundation for critical operations. As these markets evolve from analog to digital narrowband systems, the voice needs of end users are addressed, but complexities and collaboration limitations remain. 3GPP critical broadband aims to answer the critical users' demands for multimedia and data-centric applications as well as enable flexibility and collaboration opportunities. However, this evolution toward broadband nationwide critical communication networks will be achieved following different models.

Critical communications serve both as a catalyst for growth and a stabilizing force for governments in emerging markets

Critical communications refer to a wide range of technology systems that ensure a secure and reliable flow of information, especially in high-stakes environments. These critical solutions and protocols typically encompass everything—from emergency response communications for public protection and disaster relief to the support of critical operations that act as the backbone of a stable society. Nowhere is this more evident than in emerging markets, where the need for robust and effective communications systems is not a token but a necessity.

Commissioned Research

Figure 1: Global installed base of active LMR radios by region – 2023



Source: Omdia

As the governments of countries in emerging markets undergo rapid transformations, they must also face challenges such as unique geographical traits, political climates, and infrastructural disparities. This is the reason why the role of critical communications becomes increasingly vital to serve both as a catalyst for growth and to help their governments as a stabilizing foundation in times of crisis. For instance, reliable and effective communications systems facilitate a timely response during natural disasters, which are a common occurrence in many emerging markets, and enable the coordination of first responders' operations and timely communication with the public.

Omdia forecasts
4.1% CAGR
growth (2023–28) for the emerging LMR market

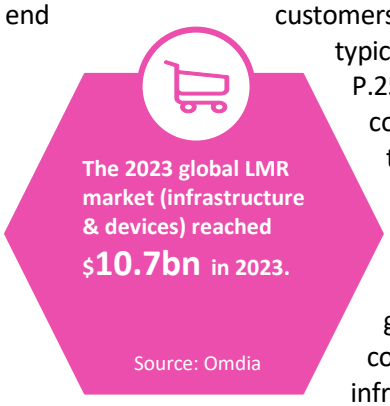
Source: Omdia

Current critical communications in emerging markets form a complex technological mix that complicates collaboration

Critical communications have traditionally focused on the ability to deliver voice communication even under circumstances where conventional networks cannot meet the required demands. Land mobile radio (LMR) systems have supported critical communication users and provided a reliable voice communication lifeline for decades in these challenging landscapes.

In emerging markets, the lack of harmonization in decision-making has led to a complex and uneven tapestry of technologies with legacy analog systems, especially in rural areas, coexisting with digital LMR

systems. The digitalization path choices available have also created big strategic differences between high-end customers and more budget-conscious customers. High-end customers have typically shown preferences for LMR digital technologies such as TETRA and P.25 for their law enforcement and military users, while budget-conscious countries have moved toward critical communication digitalization driven by the appealing cost of technologies such as DMR and PDT.



Unlike developed regions that have completed their digitalization journeys, the replacement of worn-out equipment in developing regions remains relatively slow owing to conservative decisions from governments with limited budgets. However, as the demand for reliable communication grows, so too does the need to evolve and modernize the infrastructure to support it. Consequently, emerging markets remain a very interesting opportunity for digital migration thanks to the availability of multi-tiered cost-optimized digital solutions.

3GPP-based broadband technologies like 4G and 5G trigger the next step in the critical communications evolution

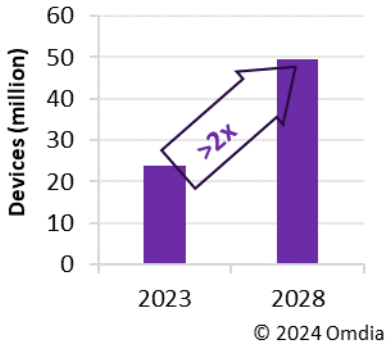
This diverse technological environment in emerging markets creates challenges and opportunities alike. On the one hand, it highlights the need for technology systems that can bridge the existing gaps and enable collaboration and coordination between agencies and across borders. On the other hand, it emphasizes the importance of convergence in technological innovation to guarantee that the needs for optimized critical communications are met.

It is here where 3GPP-based critical broadband (4G & 5G) technologies come into play. The adoption of critical broadband networks is currently driven by the end-user need for data-centric applications (video, location, real-time analytics, etc.) to enhance existing LMR critical voice networks. Additionally, and even more relevant in emerging market environments, critical broadband represents a future-proof technology path that will bridge the needs of different end-user groups and be able to coexist with narrowband voice systems in the foreseeable future.

The adoption of critical broadband technology, while still in its infancy in many emerging markets, holds significant potential to transform the way public safety agencies, including police, fire, and emergency medical services, have been working, enhancing their voice capability with data and video. It will also enable critical infrastructure industries to monitor and control their systems more efficiently, thereby reducing downtime and improving reliability.

In developing markets, as an initial step and a direct consequence of the public subscription growth of 4G and 5G globally, as well as the critical enhancements from 3GPP, over-the-top PTT technologies leveraging broadband are becoming increasingly popular. Multiple user groups are attracted to the advantages of PTT offerings and the possibility of being connected by radio over long distances without additional dedicated infrastructure.

Figure 2: Critical broadband installed base



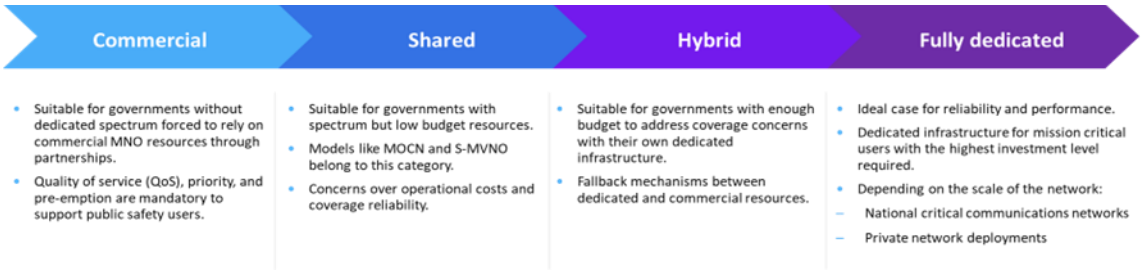
Source: Omdia

Local service providers are the key that unlocks the adoption of critical broadband in emerging markets

Broadband has captured the attention of governments and critical communications users with its promises to address their demands for flexibility and higher speeds. This aids the evolution of traditional voice-centric communications and hastens the adoption of disruptive multimedia features such as prioritized video sharing, real-time data analysis, and location-based services—all under an augmented focus on reliability, capacity, security, and cost efficiency.

Nationwide adoption of critical communications requires ubiquitous connectivity. Several governments worldwide have made the necessary investments to dedicate spectrum resources and roll out dedicated infrastructure for their critical communication users. Omdia forecasts the infrastructure investment to experience double-digit growth of 17% CAGR (2023–28).

However, this adoption approach is complex, costly and not practical for many governments in emerging markets. To add, this evolution path does not follow a one-for-all recipe that can be applied in every market. Omdia has identified that effective broadband adoption will follow dynamic models that will likely evolve over time. The different models are as follows:



Source: Omdia

Omdia believes that, especially in developing markets, communication service providers (CSPs) are key to making the vision of nationwide critical broadband networks a reality. CSPs have decades of experience in providing high-quality connectivity services. In addition, they have already made the investments necessary to deploy nationwide infrastructure rollouts. Public-private partnerships, for instance, can be the recipe for emerging markets to effectively encourage innovation, build the necessary infrastructure, and ensure ubiquitous broadband coverage for critical communications.

In addition, critical broadband adoption represents a profitable opportunity for CSPs to seize a large portion of the government contracts for public safety broadband communications. Omdia expects upcoming government programs in emerging markets to rely on business agreements that leverage existing CSP infrastructure to facilitate broadband adoption with cost-efficient ownership models.

Appendix

Further reading

Critical Communications Broadband Adoption – Heatmap – 2024 (April 2024)

Critical Communications Broadband Report – 2023 Analysis (December 2023)

Author

Ildefonso de la Cruz Morales, Principal Analyst, Critical Communications

askananalyst@omdia.com

Omdia Commissioned Research
This piece of research was commissioned by Huawei.

Citation policy
Request external citation and usage of Omdia research and data via citations@omdia.com.

Omdia consulting
We hope that this analysis will help you make informed and imaginative business decisions. If you have further requirements, Omdia's consulting team may be able to help you. For more information about Omdia's consulting capabilities, please contact us directly at consulting@omdia.com.

CONTACT US
omdia.com

customersuccess@omdia.com