



Regional Policy and Regulatory Webinar Series on 5G Engagement and Experience



បច្ចេកវិទ្យាព័ត៌មាន និង ទំនាក់ទំនង
ICT



ទំនាក់ទំនង
TELECOMMUNICATIONS



ឌីជីថល
DIGITAL



ប៊ុយស៊ីន
POST



ឃ្លាត-ឃ្លាត
DOMAINS

Toward 5G: Progress and Development in Cambodia

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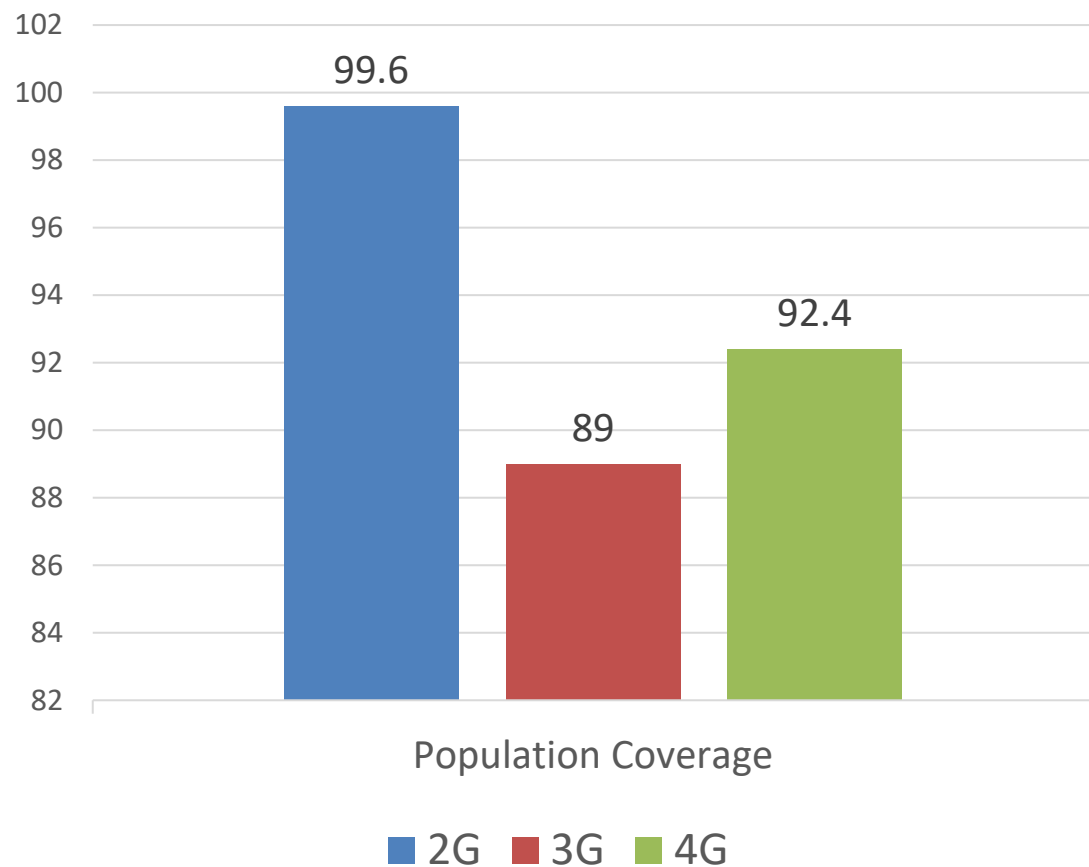


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| 02 | 5G- Challenges and Opportunities |
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1. Current status of Telecommunication in Cambodia

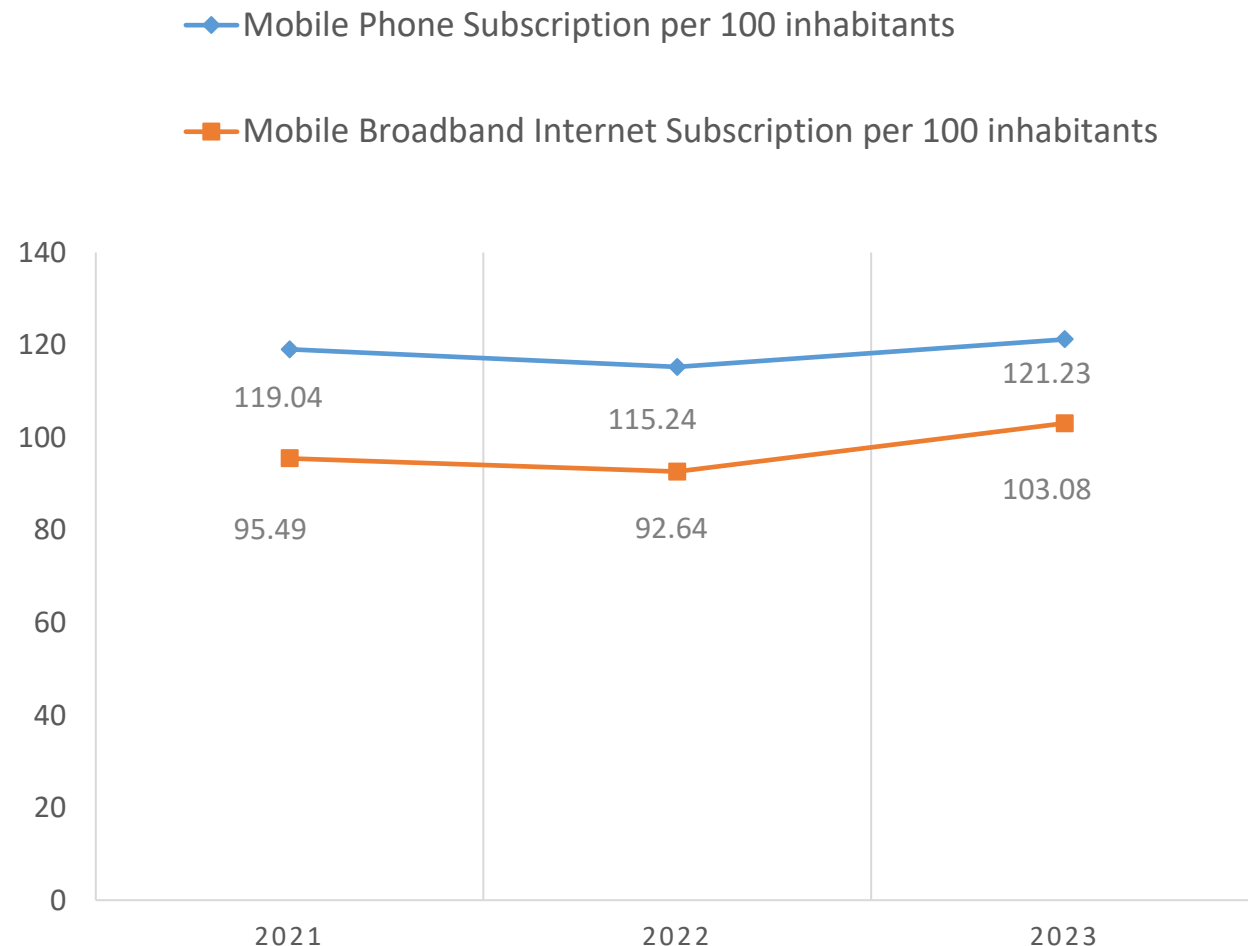
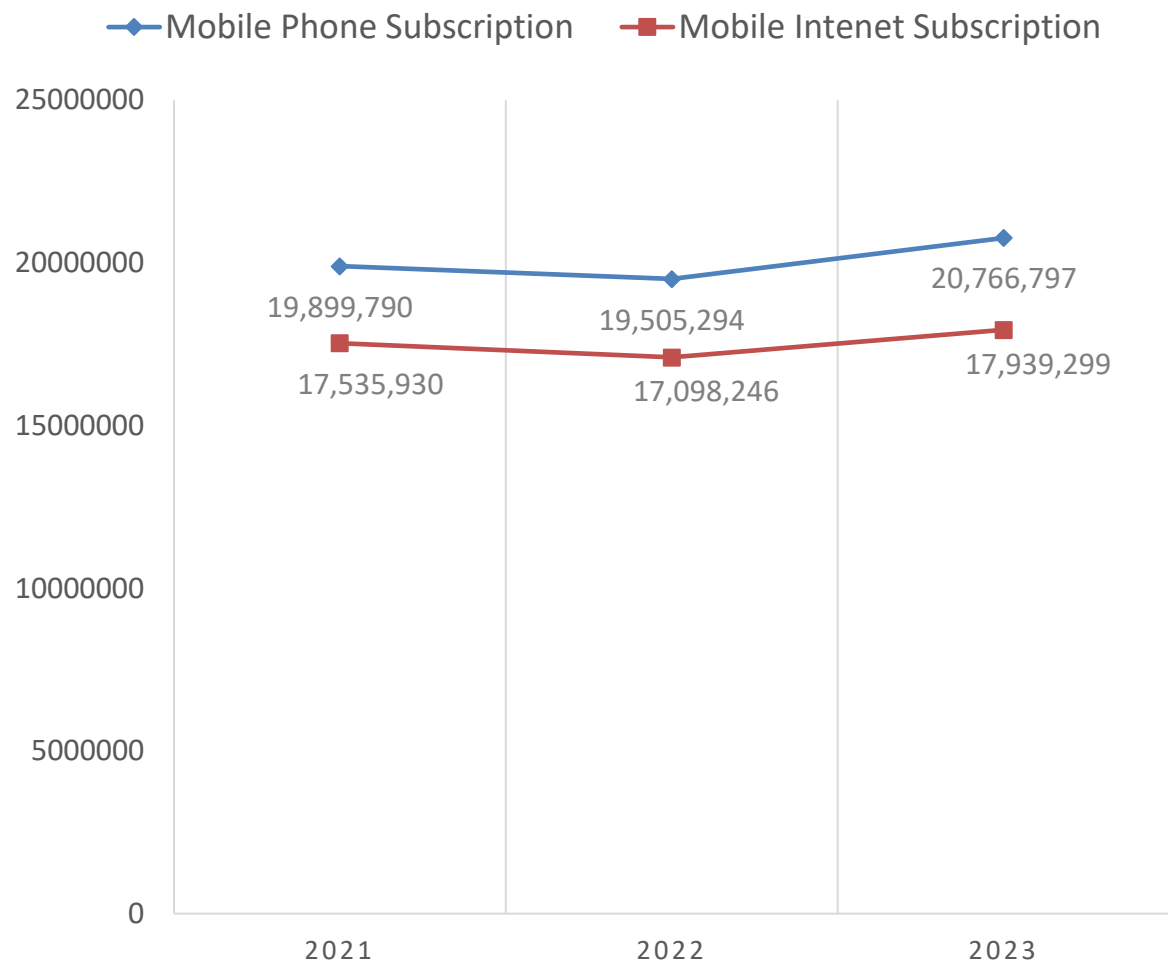


**Total Number of Base Transceiver
station: 12,551**

Source: TRC ,updated on June 2023



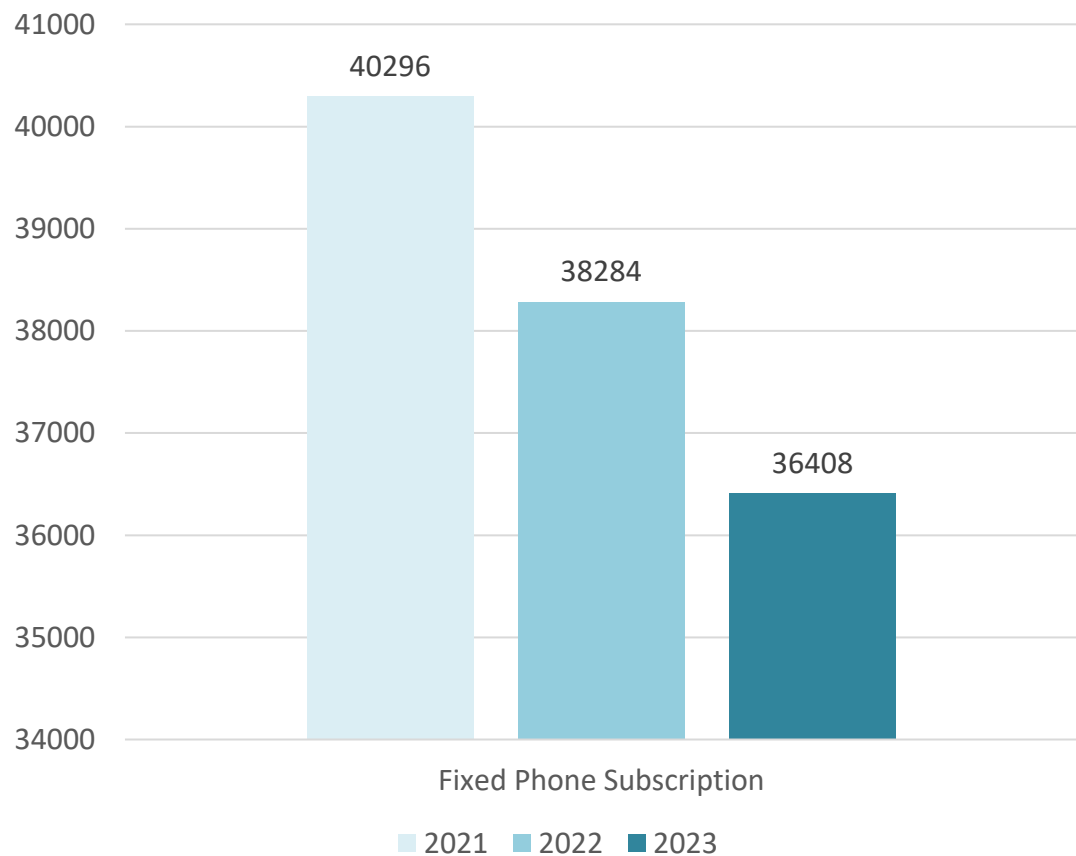
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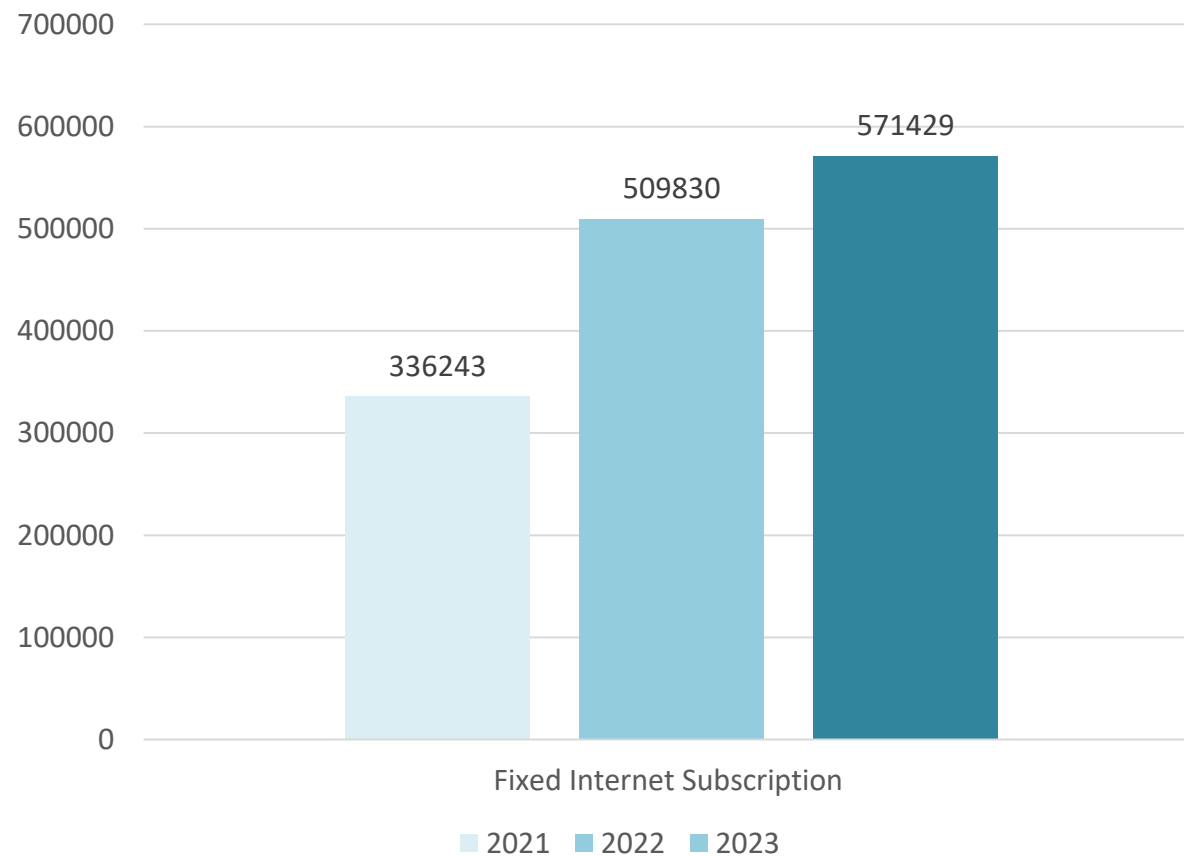


1. Current status of Telecommunication in Cambodia

Fixed Phone Subscription



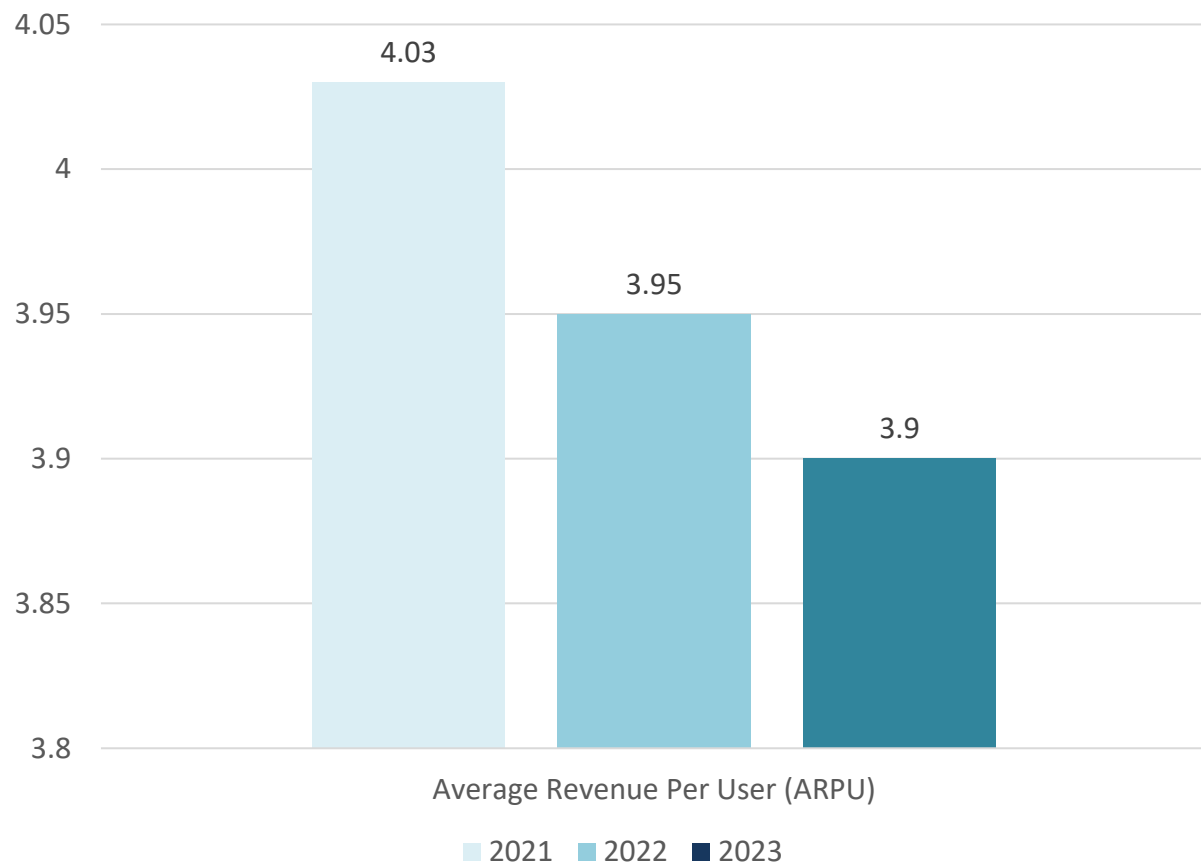
Fixed Internet Subscription



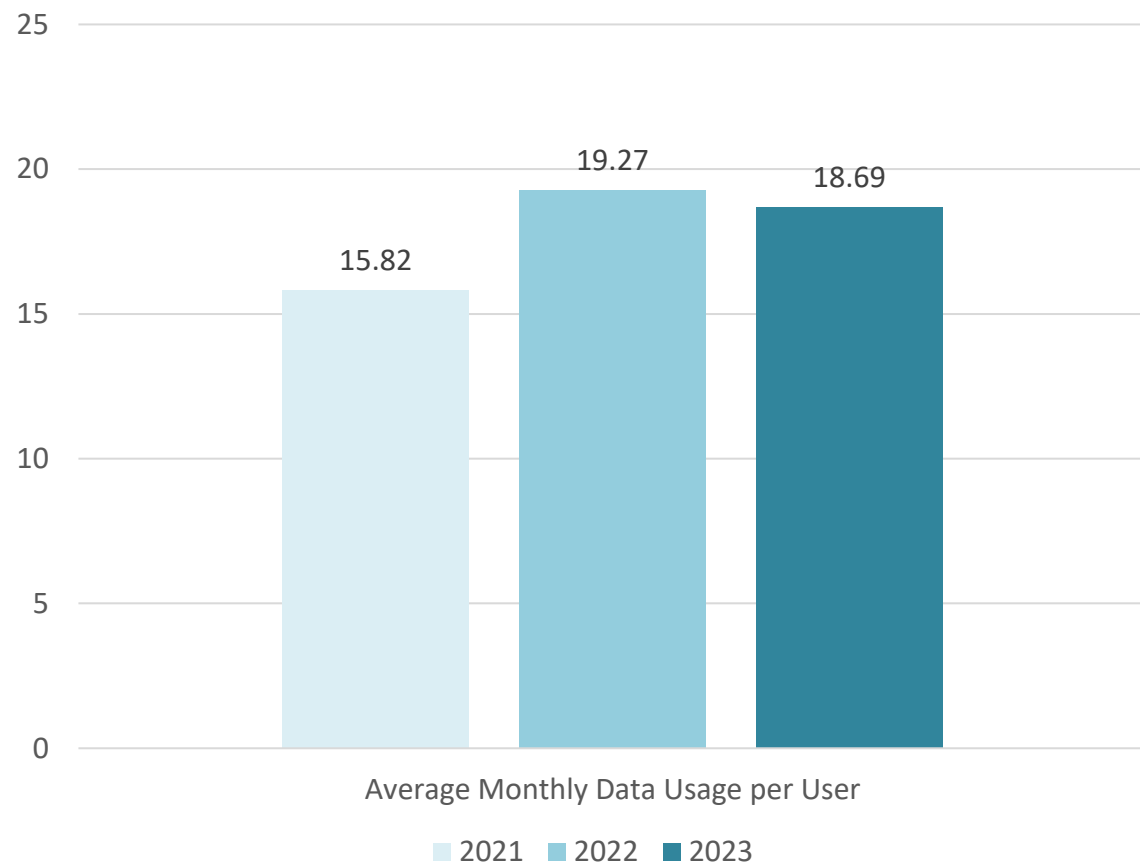


1. Current status of Telecommunication in Cambodia

Average Revenue Per User in USD



Average Monthly Data Usage per User in GB



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2. 5G- Challenges and Opportunities

Market demand and Price



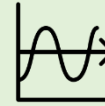
- Still in low demand for both individual consumer and industrial enterprise.
- Users are not willing to pay for the service at higher price.

Infrastructure



- Availability, Standard and Quality of the current infrastructure are still limited.
- Availability of electricity grid is limited and price is still high.

Challenges



Spectrum Resource

- Potential Frequency bands are currently occupied by other services.
- MPTC and TRC are working with neighboring countries on Spectrum Coordination at the borders.



Laws and Regulations

The Initialization of some regulations are still awaiting political decision.



Opportunities (Late Mover Advantages)

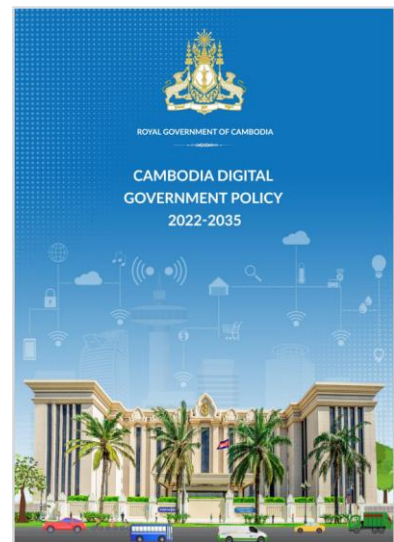
- ✓ Base station and User equipment will be cheaper with better quality and more advanced so that Operators can optimize their investment.
- ✓ Operators can plan their business strategies better and create new services and applications with better standard and quality.
- ✓ With the lessons learned from experienced countries, the development plan can be made in a more insightful and careful manner.

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3. 5G- Laws and Regulations



VISION	“Establish a digital government to improve the citizens’ quality of life and build their trust through better public service provision”.				
GOALS	Build a smart government based on the use of digital infrastructure and technology as an ecosystem for governance system modernization and reform in a transparent and credible manner to develop an inclusive digital economy and society.				
STRATEGIC GOALS	Promote the development of digital government infrastructure		Build digital governance and create digital public services	Digital capacity building and innovation	Promote cooperation and partnerships between public and private sectors
STRATEGIES	Digital connectivity infrastructure	Infrastructure for digital payment systems for public services	Governance of digital government	Building digital human capital	Collaborations with digital technology companies
	Digital security infrastructure	Postal service infrastructure	Transforming digital government and public services	Digital research and innovation	Digital startups

Strategy 1: Digital connectivity infrastructure

Priority 1: Improve mobile and high-speed internet:

- (1) Improve coverage and capacity of 4G,
- (2) Adopt 5G and latest mobile telecommunication technology,
- (3) Deploy submarine fiber optic network
- (4) Promote the practice of sharing infrastructure.



3. 5G- Laws and Regulations



Done

- Sub-decree of Radio Frequency Spectrum Resource Management and Allocation
- Sub-Decree on the Management, Construction and Joint Use of Telecommunication Infrastructure
- **Prakas (Ministerial Declaration) on Telecommunication Equipment Standard**



In progress

- Prakas on Licensing Policy for 5G operation
- Inter-Ministerial Prakas on Radio Frequency Spectrum Auction
- Amendment to Prakas on quality of services regulation (adding indicators and measurement methods for 5G quality of services).



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4. 5G- Frequency Allocation Plan

Low	Mid	Mid	MM wave
700 MHz	2.6 GHz	3.5 GHz	26 GHz
UL: 703 - 748 MHz (45MHz) DL: 758 -803 MHz (45MHz)	UL: 2 520 – 2 550 MHz (30MHz) DL: 2 640 -2 670 MHz (30MHz)	3 300 – 3 900 MHz (600MHz)	24.25 – 26.65 GHz (2.4 GHz)
<ul style="list-style-type: none">Currently is occupied by Analog TVMPTC and TRC are working with Ministry of Information on this matterThe whole band is expected to be released by 2025	<ul style="list-style-type: none">Only 2x30 MHz bandwidth is available, since most part of the 2.6 GHz is already allocated for 4G serviceStill under consideration	<ul style="list-style-type: none">300MHz can be allocated at the First Stage.Most part of the band is already available, only small portions are occupied by Satellite TV of neighboring countries.MPTC and TRC will be working with Neighboring Countries on Spectrum Coordination at the border.	<ul style="list-style-type: none">The Whole band is currently available

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5. 5G- Network Deployment Plan (5-years Plan)

Encourage Operators to:

- Invest in SA network mode
- Use Multi-band antenna with 4G / 5G dual mode
- Obtain licenses to use equipment in accordance with 5G-Advanced technical standards
- Practice Active Infrastructure Sharing

Phase I
(2 years)

- **Network Mode** : NSA
- **Key Feature** : eMMB
- **Tower Type** : Macro Sites, Microsites and In-building Solution
- **Area** : Cities, busy areas, Residential areas, School, Hospital, Commercial centers, Malls,...

Phase II
(3 years)

- **Network Mode** : NSA and SA
- **Key Feature** : eMMB, URLLC, mMTC
- **Tower Type** : Macro Sites, Microsites and In-building Solution
- **Area** : Countrywide, Key Industrial areas

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6. 5G Services and Use Cases – General consumer

4G network congestion

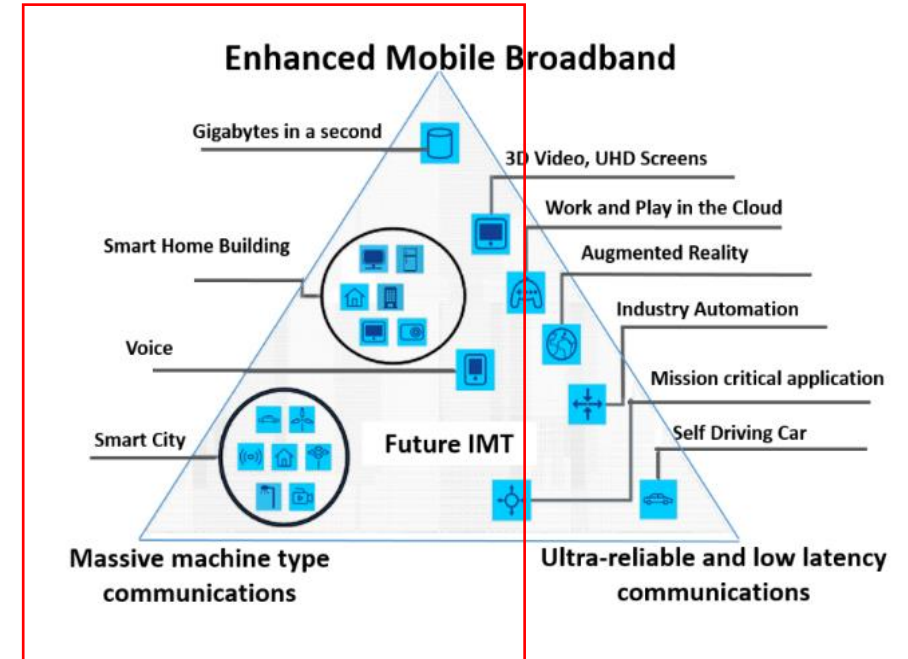
With the help of 5G network, 4G network congestion in some crowded areas can be reduced.

Last mile Connectivity

Fixed Wireless Access (FWA) solutions to provide broadband internet to home, offices and industrial enterprises without the need of laying fiber optical cable.

New Applications

AR/VR, UHD/4K/8K Video, Cloud gaming,..

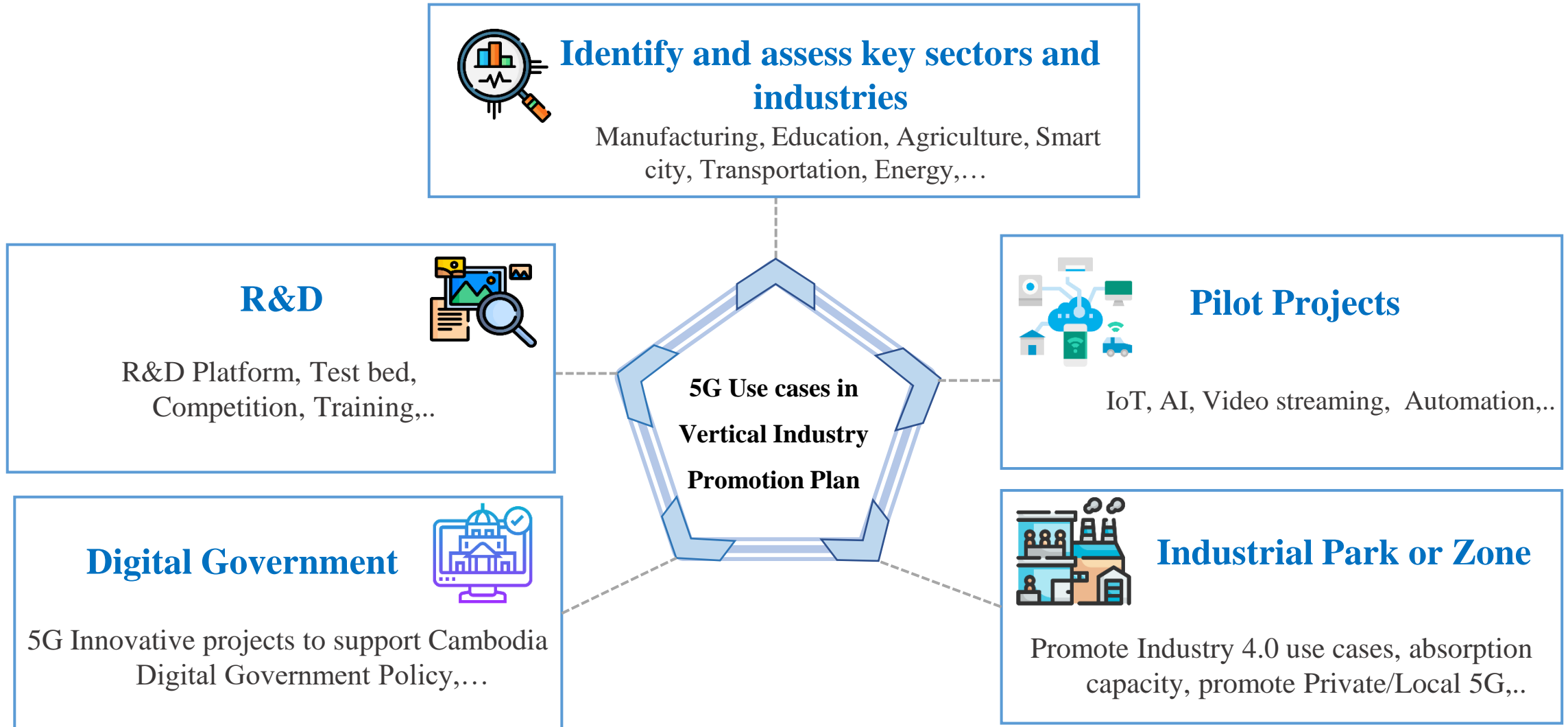


Proposed Solutions

- Demonstrate key differences between 4G and 5G capabilities through awareness raising.
- Introduce innovative and creative 5G applications integrating with technologies like AR/VR, 4K&8K Video, Cloud gaming,..
- Develop new Pricing Strategies

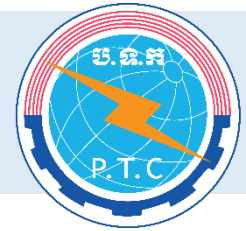


6. 5G Services and Use Cases - Vertical Industry



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7. Key Policy Questions

1. Spectrum Price



Create a balance between raising revenue through spectrum auctions and ensuring affordable access to 5G services for consumers.

2. User Drop-out



The issue of user drop-out in 5G services can be attributed to various factors, including network coverage, reliability, and pricing strategies

5 Key Policies Questions

5. Collaboration



Collaboration between government, industry players, academia, and civil society to work on 5G deployment , addressing regulatory challenges, and promoting digital literacy.

3. Sharing Infrastructure



Make the best use of technological advancement of sharing infrastructure. However, the implementation is still limited or challenging in various countries.

4. Use cases



The challenge of effectively demonstrating the practical benefits and applications of 5G technology to various stakeholders, including consumers, businesses, and policymakers.

Thank You!