Request for Expression of Interest (REOI)
(CONSULTING SERVICES – FIRMS SELECTION)

[PAKISTAN]
[DIGITAL ECONOMY ENHANCEMENT PROJECT (DEEP)]

Assignment Title: Hiring of Firm for Consultancy Services to prepare National Fiberization Policy & Plan and Right of Way one Window Portal.

<u>**Assignment Reference No.:**</u> **PK-MOITT-501952-CS-QCBS**

Ministry of Information Technology and Telecommunication in collaboration with World Bank is implementing Digital Economy Enhancement Project (DEEP). The main objective of the Program is "to enhance the Government's capacity for digitally enabled public services delivery for citizens and businesses".

In this connection, DEEP intends to hire the consultancy services ("Services") for the development of National Fiberization Policy and Plan, legal and policy reforms to enhance fiberization across Pakistan in line with Digital Nation vision including options for private capital mobilization .

The detailed Terms of Reference (TOR) are attached to this Expression of Interest (EOI) and can be downloaded at the following website: (www.moitt.gov.pk)

The Ministry of IT and Telecom (MoITT) envisions increase in the fixed broadband proliferation by:

Expand Broadband Connectivity by 2029:

- Deploy 8-10 million new optical fiber-based broadband unique house passes nationwide.

- Improve FTTH Global Ranking (Pakistan is not even on the list)

- Ensure 80% fiberization of mobile towers to enhance network capacity and reliability.

Enhance Speed and Global Ranking:

- Fixed broadband speed of at least 100 Mbps per user.

- Position Pakistan within the top 50 countries of the Ookla global speed rankings.

Improve Affordability:

- Make internet services and digital devices more accessible and affordable for all citizens.

To support these plans, the consultancy will focus on:

Developing National Fiberization Policy:

Formulate a National Fiberization Policy, including:

- Targets and benchmarks: Identify and cluster countries based on their Fiber Development Index (FDI) scores and select representative benchmarks from each cluster (e.g., high-performing, mid-level, and emerging markets). This will ensure the policy reflects global best practices while remaining contextually relevant to Pakistan's stage of fiberization.

- A comprehensive gap analysis.

- Strategic recommendations and implementation plan considering good international practices.

- Measures to enhance the resilience of fiber networks against natural disasters, cyber threats, and infrastructure failures to ensure uninterrupted broadband services.

National Fiberization Plan and Strategy:

- Develop a detailed operational plan and strategy to execute the National Fiberization Policy effectively for achieving the desired targets.

- Explore and recommend a plan and strategy on how Administrative Incentive Pricing (AIP) can be leveraged as a complementary policy tool to promote efficient spectrum utilization and incentivize fiber deployment for backhaul and middle-mile connectivity, particularly to support 4G densification and 5G readiness. The strategy should clarify the complementary roles of fiber (long-haul, middle-mile, and deep access) and spectrum (last-mile wireless) and ensure that AIP discourages spectrum hoarding while encouraging sustainable, long-term investment in fiber-based infrastructure.

Explore and recommend Investment Options:

- Explore and recommend innovative proposals, plan and strategy for the required investments to achieve the targets of the National Fiberization Policy.

- Develop technical and bankable feasibility studies for the proposals above to attract local and international interest and to crowd in private sector participation through PPP models.

Regulatory and Legal Framework Review:

- Assess and propose amendments to existing laws and policies to help achieve the desired broadband proliferation.

- Provide actionable recommendations to streamline implementation.

- To support the development of a forward-looking policy framework that encourages the transition from microwave-based backhaul to fiber-optic infrastructure, particularly in areas where fiber deployment is technically and economically feasible.

The MoITT invites EOI from interested/eligible consulting firms who should provide information demonstrating that they have the required qualifications and relevant experience to perform the "Services" as follows:

- o The firm must have personnel with advanced degrees in Telecom, Computer Science, Information Technology, Public Policy, legal and regulatory or related fields.
- o In-depth knowledge of broadband business and nationwide fiber rollouts strategies
- o Proven experience in conducting industry research and assessments, strategy development and Conducting training session
- o In-depth knowledge of the local, regional and global telecom sector landscape, including legal frameworks and sectoral dynamics, specifically fiber based broadband services market
- o Demonstrated success in leading similar assignments or projects at the national or international level.
- o Strong capabilities in data collection, qualitative and quantitative analysis, and risk assessment.
- o Experience in engaging with diverse stakeholders, including government agencies, industry players, and civil society, and end users.
- o Excellent communication, presentation, strategy design and implementation, KPI designing and monitoring, and report-writing skills.
- o Fluency in English and Urdu is essential for effective communication and report writing.

Firm Qualification and Team Composition

1. Relevant Experience

The consulting firm must possess minimum 10 years of experience in telecom infrastructure, particularly in fiber optic network planning and digital connectivity. Experience in designing and implementing digital governance platforms, especially for infrastructure approvals such as RoW, will be considered a key advantage. Prior work with government agencies or multilateral institutions is desirable. The firm should demonstrate a successful track record in delivering large-scale digital transformation projects.

2. Technical Expertise

The firm must have demonstrated expertise in fiber network design, GIS-based mapping, and infrastructure gap analysis. Additionally, the firm should be capable of developing secure, scalable digital platforms for automating regulatory processes such as RoW approvals. Familiarity with FTTH, FTTS, metro and long-haul fiber, and integration of digital platforms with existing government systems is essential. Knowledge of international standards (e.g., ITU-T, IEEE) is required.

3. Team Composition

The consulting team should include telecom engineers, digital policy experts, financial experts, software architects, and GIS specialists. The team must also include UI/UX designers and full-stack developers with experience in building government-facing digital portals. A dedicated project manager with experience in cross-sector coordination and digital platform rollouts is essential. The team should be capable of managing both infrastructure and software development components concurrently. ***Details of team composition is mentioned in detailed ToRs.***

4. Legal and Financial Standing

The firm must be a legally registered entity in Pakistan or have a formal partnership with a local firm. Valid SECP registration, NTN, and tax compliance certificates are mandatory. The firm should demonstrate financial capacity to undertake both infrastructure advisory and digital platform development. Prior compliance with public sector procurement and data protection regulations will be considered favorably.

5. Project Management Capacity

The firm must demonstrate the ability to manage complex, multi-stakeholder projects involving both physical infrastructure and digital systems. Experience in delivering end-to-end digital platforms, including RoW portals or similar regulatory systems, is essential. The firm should be capable of providing detailed implementation plans, risk mitigation strategies, and training modules for platform adoption. Familiarity with government reporting and monitoring frameworks is required.

The attention of interested consulting firms is drawn to Section III, paragraphs, 3.14, 3.16, and 3.17 of the World Bank's "Procurement Regulations for IPF Borrowers" September 2023 revised February 2025("Procurement Regulations"), setting forth theWorld Bank's policy on conflict of interest.

Consultants may associate with other firms to enhance their qualifications but should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected.

A Consulting firms will be selected in accordance with the **Quality Cost Based Selection (QCBS)** method set out in the Procurement Regulations of the World Bank for IPF Borrower September 2023 revised February 2025.

Expression of Interest must be delivered in a written form (in person, or by mail, or by e-mail) not later than **1400 Hours on December 24, 2025.**

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Ministry of Information Technology and
Telecommunication
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Terms of Reference

Hiring of Firm for Consultancy Services to prepare National Fiberization Policy & Plan and Right of Way one Window Portal

Terms of Reference

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Terms of Reference

Title:	**Hiring of Firm for Consultancy Services to prepare National Fiberization Policy & Plan and Right of Way one Window Portal**
Category:	Consulting Firm
Type of Contract:	Fixed Term
Expected Start Date:	October 2025
Duration of Assignment:	Six Months

1. Background

The Ministry of Information Technology and Telecommunication (MoITT) is the national focal Ministry and enabling arm of the Government of Pakistan for planning, coordinating and directing efforts to initiate and launch Information Technology and Telecommunications programs and projects aimed at economic development of the country. The Ministry of Information Technology and Telecommunication (MoITT) of Pakistan plays a critical role in the development and growth of the country's IT and Telecom sector.

Digital Economy Enhancement Project (DEEP) is a World Bank assisted project with the objective of enhancing the Government's capacity for digitally enabled public services delivery for citizens and businesses.

MoITT is the sponsoring agency of the project with execution support of (i) Board of Investment (BoI), (ii) National Database and Registration Authority (NADRA), (iii) National IT Board (NITB), and (iv) Ignite – National Technology Fund. Digital Economy Enhancement Project (DEEP) development objective is to enhance the Government's capacity for digitally enabled public service delivery for citizens and businesses.
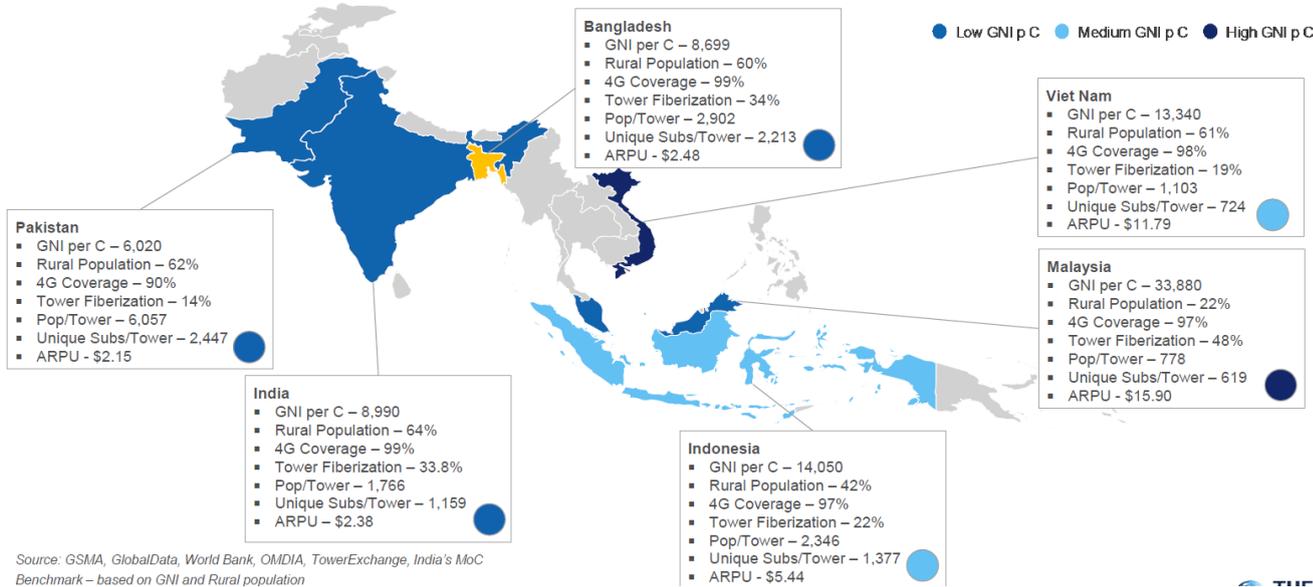
The subcomponent 1(a) of DEEP focusses on *Policy and Regulatory Reforms, and Development of Key Enablers for Whole-of Government Approaches*. This subcomponent supports assistance for policy and regulatory reforms towards the development of the digital economy and society, including cybersecurity, cloud adoption, and open data; improving digital connectivity and addressing digital divide; and development of key frameworks for whole-of-government approaches to digital government transformation through provision of advisory and consultant services.

The first focus area of this subcomponent is to support a series of key legal reforms needed for increased trust and resilience in the digital economy.

The second focus area is on whole-of-government frameworks and standards for effective digital government transformation.

The third focus area is on policy and regulatory reforms for improving digital connectivity and to address the digital divide, notably by financing technical assistance supporting: (a) the right-of-way reform and adoption of a right-of-way single window; (b) an analysis of broadband demand and stimulation options to improve the affordability of smartphones and uptake of digital services; (c) a mapping of broadband infrastructure and assessment of market failure; (d) policy reforms for disaster management framework for telecom sector, including climate-related disasters; (e) assessment of climate resilience of existing telecom infrastructure and options for improving climate-related and other natural disaster resilience of telecom and data infrastructure; (f) institutional and structural reform of the MoITT to meet emerging challenges and opportunities for digital transformation and ; (g) Pakistan advances its digital infrastructure, there is a growing need to optimize the use of microwave spectrum for backhaul while encouraging a strategic shift toward fiber-optic networks. Administrative Incentive Pricing (AIP) offers a regulatory approach to support this transition by promoting efficient spectrum use and guiding investment toward long-term fiber-based solutions. The objectives include addressing key regulatory bottlenecks responsible for the slow penetration of fixed broadband internet, enhancing the disaster resilience of data infrastructure, and encouraging the sharing of last-mile infrastructure.

Maybe some international comparison to set the stage and have an understanding of where do we stand and what is the issue. Detailed requirement are mentioned in 4.1.2

Bangladesh
- GNI per C – 8,699
- Rural Population – 60%
- 4G Coverage – 99%
- Tower Fiberization – 34%
- Pop/Tower – 2,902
- Unique Subs/Tower – 2,213
- ARPU - $2.48

Viet Nam
- GNI per C – 13,340
- Rural Population – 61%
- 4G Coverage – 98%
- Tower Fiberization – 19%
- Pop/Tower – 1,103
- Unique Subs/Tower – 724
- ARPU - $11.79

Pakistan
- GNI per C – 6,020
- Rural Population – 62%
- 4G Coverage – 90%
- Tower Fiberization – 14%
- Pop/Tower – 6,057
- Unique Subs/Tower – 2,447
- ARPU - $2.15

Malaysia
- GNI per C – 33,880
- Rural Population – 22%
- 4G Coverage – 97%
- Tower Fiberization – 48%
- Pop/Tower – 778
- Unique Subs/Tower – 619
- ARPU - $15.90

India
- GNI per C – 8,990
- Rural Population – 64%
- 4G Coverage – 99%
- Tower Fiberization – 33.8%
- Pop/Tower – 1,766
- Unique Subs/Tower – 1,159
- ARPU – $2.38

Indonesia
- GNI per C – 14,050
- Rural Population – 42%
- 4G Coverage – 97%
- Tower Fiberization – 22%
- Pop/Tower – 2,346
- Unique Subs/Tower – 1,377
- ARPU - $5.44

Low GNI p C   Medium GNI p C   High GNI p C

Source: GSMA, GlobalData, World Bank, OMDIA, TowerExchange, India's MoC Benchmark – based on GNI and Rural population

2. Guiding Principles of the Consultancy

The guiding principles of the Consultancy must be based on:

- **Technology neutrality**, allowing for flexibility in technological solutions.
- Openness to any aspect of the **connectivity value chain**.
- A strong focus on **enabling** and **mobilizing private capital**.
- **Regulatory support and alignment** with local and national authorities to ensure a conducive environment for project implementation, compliance, and sustainability.

3. Objectives

The Ministry of IT and Telecom (MoITT) envisions increase in the fixed broadband proliferation by:

3.1. Expand Broadband Connectivity by 2029:

- Deploy 8-10 million new optical fiber-based broadband unique house passes nationwide.
- Improve FTTH Global Ranking (Pakistan is not even on the list)
- Ensure 80% fiberization of mobile towers to enhance network capacity and reliability.

3.2. Enhance Speed and Global Ranking:

- Fixed broadband speed of at least 100 Mbps per user.
- Position Pakistan within the top 50 countries of the Ookla global speed rankings.

3.3. Improve Affordability:

- Make internet services and digital devices more accessible and affordable for all citizens.

To support these goals, the consultancy will focus on:

3.4. Developing National Fiberization Policy:

Formulate a National Fiberization Policy, including:

- Targets and benchmarks: Identify and cluster countries based on their Fiber Development Index (FDI) scores and select representative benchmarks from each cluster (e.g., high-performing, mid-level, and emerging markets). This will ensure the policy reflects global best practices while remaining contextually relevant to Pakistan's stage of fiberization.
- A comprehensive gap analysis.

- Strategic recommendations and implementation plan considering good international practices.

- Measures to enhance the resilience of fiber networks against natural disasters, cyber threats, and infrastructure failures to ensure uninterrupted broadband services.

3.5. National Fiberization Plan and Strategy:

- Develop a detailed operational plan and strategy to execute the National Fiberization Policy effectively for achieving the desired targets.

- Explore and recommend a plan and strategy on how Administrative Incentive Pricing (AIP) can be leveraged as a complementary policy tool to promote efficient spectrum utilization and incentivize fiber deployment for backhaul and middle-mile connectivity, particularly to support 4G densification and 5G readiness. The strategy should clarify the complementary roles of fiber (long-haul, middle-mile, and deep access) and spectrum (last-mile wireless) and ensure that AIP discourages spectrum hoarding while encouraging sustainable, long-term investment in fiber-based infrastructure.

3.6. Explore and recommend Investment Options:

- Explore and recommend innovative proposals, plan and strategy for the required investments to achieve the targets of the National Fiberization Policy.

- Develop technical and bankable feasibility studies for the proposals above to attract local and international interest and to crowd in private sector participation through PPP models.

3.7. Regulatory and Legal Framework Review:

- Assess and propose amendments to existing laws and policies to help achieve the desired broadband proliferation.

- Provide actionable recommendations to streamline implementation.

- To support the development of a forward-looking policy framework that encourages the transition from microwave-based backhaul to fiber-optic infrastructure, particularly in areas where fiber deployment is technically and economically feasible.

4. Scope of Work

Based on the objectives of this Consultancy, the scope of work is divided into the following parts:

4.1. National Fiberization Policy

The Consultancy firm shall produce a detailed National Fiberization policy. This National Fiberization policy shall include the following:

4.1.1. Significance of National Fiberization and respective Policy

The consultancy firm will comprehensively elaborate on the need to have a National Fiberization Policy (NFP) highlighting the impact of Fiberization. The policy must address the profound impact of developing a NFP on various aspects of the country's socio-economic landscape

4.1.2. Gap and Situational Assessment

The consultancy firm must conduct the gap assessment to capture the 'As Is' state and must submit a gap assessment report (should include GIS Maps) covering but not limited to:

a) Existing fiber network mapping(nationwide). Long Haul, Metro.
b) Fiber to the x (FTTx,s,b,h,p)
c) Quality of service (QoS)
d) Incentives for operators
e) Right-of-way (ROW) rates
f) Service availability
g) Mobile Towers
h) Telco POPs
i) Coverage
j) Penetration
k) Uplink/downlink speed
l) latency
m) jitter
n) Telecom Industry Challenges in consultation with stakeholders
o) Conduct a comprehensive assessment of current microwave spectrum utilization for backhaul purposes

4.1.3. Global Overview

The consultancy firm will take a balanced approach to document global view (country examples) with

a) Optical Fiber Connectivity network deployments (with key indicators e.g. fiber deployment in km, broadband speed, availability, FTTx, connections, ROW fees/process/policies, resilience etc.)
b) Facilitative rates, policy and regulations, public and private investments
c) Major international Optical Fiber Cable (OFC) indices e.g. Fiber Development Index (and their method of calculation) and aligned with FTTH Council Definitions (https://fiberconnectmena.org/wp-content/uploads/2025/02/FTTH-Terms_and_definitions.pdf)
d) Country ranking
e) Country wise cost and revenues per house pass
f) Review international best practices in the application of Administrative Incentive Pricing

(AIP) for microwave spectrum and evaluate their relevance to Pakistan's context.

4.1.4. Pakistan Comparison

The consultancy firm will compare Pakistan's current fiberization status and ranking with selected benchmark countries, grouped into clusters based on the Fiber Development Index (FDI). These clusters should represent different stages of fiber maturity, high-performing countries, mid-level performers with moderate progress, and emerging markets. The comparison should highlight Pakistan's relative position, identify gaps, and extract best practices from each cluster to inform actionable recommendations.

4.1.5. Targets

The Ministry of IT and Telecom (MoITT) envisions increase in the fixed broadband proliferation by:

a) adding 8-10 million new optical fiber-based broadband unique house passes nationwide
b) fiberization of mobile towers (80%)
c) achieving a minimum broadband speed of 100 Mbps and ranking of the country in the top first half of Ookla, and
d) improved affordability of internet and devices.

4.1.6. OFC Expansion

The consultancy firm shall propose breakup of targets for fiberization, including:

a) Fiber to the x (FTTx)
b) Public services (including healthcare, education etc.)

4.1.7. Fiberization of Towers

The policy shall strategically address the expansion of tower fiberization to effectively meet large bandwidth requirements and establish a robust backhaul with recommendations which may ensure support towards increasing demand for high-speed data and advanced digital services across various sectors.

4.1.8. Availability of high-speed broadband

The consultancy firm is tasked with formulating and implementing a policy that ensures broadband speeds of at least 100Mbps. The policy should outline actionable steps, timeline, and resource allocation to achieve this target, while also considering sustainability, scalability, and the integration of future technological advancements.

4.1.9. Improvement in Global Indices

The consultancy firm must also ensure that a developing a National fiberization policy will lead to improvement of Pakistan's ranking in Global indices:

   a) Fiber Development Index (FDI)
   b) ICT Development Index (IDI)
   c) Broadband Development Index (BRI)
   d) Global Connectivity Index (GCI)

Additionally, Pakistan ranking of the country should be in the top first half of Ookla for fixed broadband speed.

4.1.10. Challenges and Recommendations

The consultancy firm is required to document challenges and advise recommendations **to meet the desired broadband proliferation and Fiberization by 2029** in the context of policy, regulatory or legal framework.

The aim is to expedite the expansion of fiber networks, broaden telecom infrastructure, promote investments, increase participation in the digital economy and create a supportive policy environment in line with globally adopted/successfully implemented policies.

   a) **Policy and Regulatory Challenges:** The Consultancy firm shall conduct assessment of the policy and regulatory reforms needed for reducing the market efficiency gaps in the telecom sector. This will include *legal and policy reforms which shall lead to reducing the capital cost barriers and inefficiencies faced by the private sector and policy and legal reforms which may lead to increase in the affordability of internet and devices and result in inclusive adoption of internet and digital services in Pakistan*.

   The purpose of these policies and regulatory reforms is to promote public/private sector investment in digital infrastructure to expand the connectivity market and enable the affordability of devices and internet to maximize the adoption of digital services.

   To achieve the aforementioned objective, the Consultancy firm shall recommend needed amendments in the Pakistan Telecommunication Re-Organization Act, Public and Private Right of Way Directive or any other existing or new act/policy/framework/regulations etc. required.

   b) **Affordability:** To maximize the use of the public/private capital to expand the connectivity market and enable the affordability of devices and internet to maximize the adoption of digital services the Consultancy firm shall produce following:

      I.   Innovative financing, business and governance model to maximize

public/private investment in achieving the target.

II. In line with global practices, Consultancy firm shall provide recommendations for demand-stimulation for select group(s)

III. In line with global practices, Consultancy firm shall provide recommendations for minimizing capital cost and market efficiencies.

c) **Right-of-Way Reform and Right-of-Way One-Window Portal**: The Consultancy firm shall provide : i) a report evaluating the current Right-of-Way (RoW) landscape, including the number of RoW owner agencies and proposing a harmonized policy framework; ii) the concept, design, and development of a One-window digital platform (portal) for RoW approvals; iii) an operational model for the RoW portal, outlining a strategy for onboarding RoW owner agencies (at federal, provincial, local government levels, private housing societies, and others) for effective use of the RoW portal in processing telecom sector licensed operator applications; iv) a strategy to reduce RoW processing times to achieve targets, with the goal of decreasing application processing from 100 days to 75 days, and finally to 65 days or fewer; v) recommendations for legal and institutional reforms to facilitate implementation and vi) recommendations for improvements in the Public Private Right of Way Directive.

d) **Network resilience:** Assess current vulnerabilities and propose a resilience framework for fiber infrastructure, including redundancy planning, disaster recovery mechanisms, and climate-adaptive design strategies.

e) **Utilization of current public sector infrastructure:** Consultancy firm shall provide recommendations on increasing utilization of current public sector digital access infrastructure.

f) **Improve Index Ranking:** Consultancy firm shall provide recommendations on improving index rankings

g) **Policy Impact:** The document shall highlight the policy impact in terms of digital economic growth and social impact

h) **Policy Success indicators & monitoring/implementation framework:** Consultancy firm shall provide recommendations on measuring success for the policy.

i) **Strategic Use of AIP to Promote Fiber Deployment:** Recommend policy and regulatory measures that facilitate a gradual and market-friendly shift from microwave to fiber, while ensuring service continuity and affordability

4.2. Fiberization Implementation plan and strategy

The Consultancy firm shall produce a detailed Fiberization implementation plan and strategy to implement the recommendations of the National Fiberization Policy and its targets. The NFP operational plan shall include the following:

4.2.1. Maximize investment in new optical fiber broadband connections:

Innovative financing, business and governance models to maximize public/private investment in

achieving the target of 8-10 million new optical fiber-based broadband unique house passes nationwide. Develop technical and bankable, financial feasibility studies, for the proposals to attract local and international interest. Recommend well-structured and investable proposals with technical and financial feasibilities that can attract sustainable financing and public/private sector participation. Provide detailed reports, presentation and investment pitches.

4.2.2. Maximize investment to increase the affordability of devices and internet:

Innovative financing, business and governance model to increase the affordability of devices and internet leading to increased adoption of internet and digital services

4.2.3. Identification of preferred geographic locations

Identification of preferred geographic cities/locations and respective business feasibilities for the new 8-10 million new optical fiber-based broadband unique house passes nationwide.

4.2.4.   Identification of beneficiaries segments/groups

Procedure for the identification of beneficiaries segments/groups and methodology for the awarding affordable devices and internet subscriptions

4.2.5.   Monitoring framework

Development of a results monitoring framework covering the entire scope of the NFP and the achievement of the targets

4.2.6.   Development of NFP governance model

Development of NFP governance model for ensuring efficient execution

4.2.7.   Development of stakeholder's management plan

Development of stakeholder's roaster and management plan including quarterly consultation sessions for gaining feedback and sharing progress.

4.3. Stakeholder consultation workshops/sessions/investment summit

The Consultancy firm shall conduct multiple stakeholder consultations with the private, public sectors to maximize the role and participation of the private sector and inform the practical design of the policy, legal and regulatory reforms recommendations and investment options.

5. Deliverables

The Consultancy firm will deliver/conduct the following:

A. **Inception Report**: Detailing the methodology, work plan, and timeline.

B. **National Fiberization Policy:** Aligned with the scope of work of this Consultancy, the Consultancy firm shall submit a comprehensive report for each sub-component of section 4.1 and consolidated National Fiberization Policy

C. **Policy recommendations**: Comprehensive recommendations including legal and policy reforms in the <u>required legal formats</u> which shall lead to reducing the capital cost barriers and inefficiencies faced by the private sector and policy and legal reforms which may lead to increase in the affordability of internet and devices and result in inclusive adoption of internet and digital services in Pakistan.

D. **NFP Operational plan and strategy**. Aligned with the scope of work of this Consultancy, the Consultancy firm shall submit a comprehensive report in addition to a complete project appraisal document in the template of the Government of Pakistan's project appraisal document template known as PC-I [1] (if required). The Consultancy firm shall submit comprehensive reports for each sub-component of section 4.2 and datasets including but not limited to the following:

   a. financing, business and governance and feasibility models to maximize public/private investment in achieving the target of 8-10 million new optical fiber-based broadband unique house passes nationwide by the public/private sector.

   b. Develop technical and bankable, financial feasibility studies, for the proposals to attract local and international interest. Recommend well-structured and investable proposals with technical and financial feasibilities that can attract sustainable financing and public/private sector participation. Provide detailed reports, presentation and investment pitches

   c. financing, business and governance model to increase the affordability of devices and internet leading to increased adoption of internet and digital services

   d. Preferred target geographic locations for the new 8-10 million new optical fiber-based broadband unique house passes nationwide by the public/private sector avoiding areas with existing footprint of an existing private sector broadband operator to be done in consultation with telecom operators with complete justification and business case.

   e. project management documents for the selection of public/private sector companies, award and execution of the NFP contracts to the public/private sector, monitoring of the execution and long-term outcomes of the NFP targets

   f. Procedure for the identification of beneficiaries segments/groups and methodology for the awarding affordable devices and internet subscriptions

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[1] PC-1 Proforma, Government of Pakistan, Planning Commission of Pakistan.
https://www.pc.gov.pk/uploads/downloads/PC-Forms/PC-I-revised-2024.pdf

g. Results monitoring framework covering the entire scope of the NFP and the achievement of the targets

h. Environmental and social plan including details of approaches for citizens awareness for maximizing inclusive digital development in Pakistan.

i. Network resilience strategy document outlining infrastructure hardening, redundancy planning, and disaster recovery mechanisms to ensure continuity of broadband services during natural or man-made disruptions.

j. Governance model for ensuring efficient execution of the NFP

k. Stakeholders' roaster and management plan including quarterly consultation sessions for gaining feedback and sharing progress

l. Economic impact projections of increased coverage of high-speed optical fiber and adoption in Pakistan in the overall digital economy

m. Innovative business models for open access network and network sharing like https://fibertime.com/.

E. **Additional documents and material**: including detailed financing models, geographic location selection criteria and datasets, datasets for identification of beneficiaries for the award of affordable internet and device packages, presentation pitch decks for stakeholders sessions and any other material which may support the successful implementation of the NFP and the associated legal and policy reforms.

F. **Microwave AIP and Fiber Promotion Strategy**: The consultant will deliver a detailed report analyzing current microwave spectrum usage and proposing an AIP model suited to Pakistan's context. The report will include strategic recommendations to promote fiber deployment and an implementation roadmap with short-, medium-, and long-term actions

G. **Right-of-Way Reform and Right-of-Way One-Window Portal**: This deliverable will consist of: i) a report evaluating the current Right-of-Way (RoW) landscape, including the number of RoW owner agencies and proposing a harmonized policy framework; ii) the concept, design, and development of a single-window portal (digital platform) for RoW approvals; iii) an operational model for the RoW portal, outlining a strategy for onboarding RoW owner agencies (at federal, provincial, local government levels, private housing societies, and others) for effective use of the RoW portal in processing telecom sector licensed operator applications; iv) a strategy to reduce RoW processing times to achieve targets, with the goal of decreasing application processing from 100 days to 75 days, and finally to 65 days or fewer; v) recommendations for legal and institutional reforms to facilitate implementation and vi) recommendations for improvements in the Public Private Right of Way Directive.

H. Ensure the Fiberization Policy is holistically integrated with **Satellite Broadband**: Define how satellite connectivity (LEO/MEO/GEO) will complement fiber as suitable broadband alternative in hard-to-reach or remote areas, **ISM Band** Usage: Provide recommendations to balance fiber backhaul with ISM-band-based last-mile solutions.

I.   Propose hybrid models for but not limited to Fiber + Satellite + Wireless (ISM/Microwave) to ensure resilient nationwide connectivity
J.   **National Workshop at the Inception and conclusion of the Consultancy Assignment**:
K.   **Investor summit**
L.   **Provincial stakeholder sessions: 04**
M.   **Policy launch by MoiTT**

6. Reporting

The Consulting Firm will report directly to a designated MoITT official and will be expected to attend regular meetings to provide progress updates and address any questions or concerns. Regular progress updates (should be fortnightly) and reporting requirements to ensure transparency and accountability.

The Consulting Firm must employ an editor with international repute having expertise in technical writing to ensure the clarity, coherence, and overall quality of the technical report, including structural, substantive, copy editing, and proofreading tasks.

In addition, the Consulting Firm will be bound to follow the DEEP and World Bank Protocols for this engagement.

7. Duration of the Assignment

The consultancy is expected to be completed within [06] Six Months, with the possibility of extension based on mutual agreement.

Key Experts for National Fiberization Policy

Consultant Team Structure

Title	Qualification	Experience
K-1: Team Leader / Lead Policy Advisor	Master's or PhD in Public Policy, Telecommunications, ICT, or related field	10–15 years in ICT/broadband policy development, Familiarity with ITU, World Bank, or similar international frameworks. Fluency in English; knowledge of local/national languages is an asset
K-2: Fiber Network Infrastructure Expert	Bachelor's or Master's in Telecommunications Engineering, Electrical Engineering, or related field	8–10 years in Network design and deployment, Proficiency in GIS-based planning and cost modelling, Experience with both passive and active infrastructure components, Experience working with or aligning to international standards (e.g., ITU, World Bank, GSMA, UN Broadband Commission). Fluency in English; knowledge of local/national languages is an asset
K-3: Regulatory and	LLB or LLM in Telecommunications	10+ years in telecom regulation, licensing, and legal

Legal Expert (Telecom & ICT Law)	Law, ICT Law, or related legal discipline	reform, Experience with ROW (Right of Way), infrastructure sharing, and competition policy, Familiarity with strategies and legal frameworks. Experience working with or aligning to international standards (e.g., ITU, World Bank, GSMA, UN Broadband Commission). Fluency in English; knowledge of local/national languages is an asset
K-4: Financial and Investment Analyst	Master's in Finance, Economics, Business Administration, or related field	8–10 years in infrastructure financing and investment analysis, Experience with CAPEX/OPEX modeling and ROI assessments, Familiarity with PPP frameworks and donor-funded digital projects
K-5: Digital Inclusion & Socioeconomic Impact Specialist	Master's in Development Studies, Economics, Public Policy, or related field	7–10 years in digital inclusion, rural connectivity, and socioeconomic impact analysis, Experience in gender equity, affordability, and accessibility policy development, Proven work on ICT's impact in education, health, and economic sectors
K-6: ICT Policy Advisor / National Stakeholder Liaison	Bachelor's or Master's in Public Administration, ICT Policy, or related field	7–10 years in telecom policy advisory or stakeholder engagement, Strong understanding of local political, administrative, and telecom landscape, Fluent in national and local languages; excellent communication skills
K-7: Solution Architect	Bachelor's or Master's in Computer Science, Software Engineering, or a related field.	Minimum 10 years of experience in designing enterprise-level IT systems, with at least 3 large-scale government . System architecture design, cloud infrastructure, integration of APIs, and scalable platform development.
K-8: Full-Stack Developers	Bachelor's degree in Computer Science, Software Engineering, or equivalent	Minimum 5 years of experience in full-stack development (frontend and backend), including experience with frameworks such as React, Angular, Node.js, Django, or similar
K-9: UI/UX Designer	Bachelor's degree in Design, Human-Computer Interaction, or related field	Minimum 5 years of experience in UI/UX design for web and mobile platforms. User research, wireframing, prototyping, accessibility standards, and design tools (e.g., Figma, Adobe XD)
K-10: QA/Test Engineer	Bachelor's degree in Computer Science, Software Engineering, or related discipline	Minimum 5 years of experience in software quality assurance and testing
K-11: Deployment & Support Engineer	Bachelor's degree in Information Technology, Computer Science, or related field	Minimum 5 years of experience in system deployment, user training, and technical support.
Environmental & ROW Compliance Expert	Degree in Environmental Science, Urban Planning, or Law	5–10 years in environmental impact assessments and ROW regulations
Urban Planning / Municipal Infrastructure Expert	Degree in Urban Planning, Civil Engineering, or Architecture	5–10 years in city infrastructure planning and integration of ICT networks
Data Governance & Cybersecurity Advisor	Degree in Cybersecurity, Data Science, or ICT	7–10 years in data protection, cybersecurity policy, and digital infrastructure governance