

Document of  
**The World Bank**  
**FOR OFFICIAL USE ONLY**

Report No: PAD2669

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF €20,700,000  
(US\$ 25 MILLION EQUIVALENT)

TO THE

REPUBLIC OF KOSOVO

FOR A

KOSOVO DIGITAL ECONOMY (KODE) PROJECT  
MAY 31, 2018

Transport & Digital Development Global Practice  
Europe and Central Asia Region

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

## CURRENCY EQUIVALENTS

(Exchange Rate Effective – April 30, 2018)

Currency Unit = Euro (EUR)

€0.8266854 = US\$1

US\$ = SDR 1

## FISCAL YEAR

January 1 - December 31

Regional Vice President: Cyril E Muller

Country Director: Linda Van Gelder

Senior Global Practice Director: Jose Luis Irigoyen

Practice Manager: Jane Lesley Treadwell

Task Team Leader(s): Natalija Gelvanovska-Garcia, Rhedon Begolli

## ABBREVIATIONS AND ACRONYMS

ARKEP	Regulatory Agency for Electronic Communications and Postal Services	M&E	monitoring and Evaluation
Bank	World Bank	MED	Ministry of Economic Development
BFD	Budget and Finance Department (of the Ministry of Economic Development)	MFD	Maximizing Finance for Development (World Bank approach)
CAGR	compound annual growth rate	MoF	Ministry of Finance
CETEP	Creating Employment through Export Promotion (of German Agency for International Cooperation)	MNOs	mobile network operators
CPF	Country Partnership Framework	MTEF	Medium Term Expenditures Framework
COB	cost-benefit analysis	NDS	National Development Strategy 2016-2021 (of Kosovo)
CQS	selection based on consultants' qualifications	NPV	Net present value
DE	digital economy	NSMS	National Spectrum Monitoring System
DPO	Development Policy Operation	NREN	national research and educational network
EBRD	European Bank for Reconstruction and Development	OECD	Organisation for Economic Co-operation and Development
EA	environmental assessment	OP / BP	Operational Policies / Bank Procedures
EC	European Commission	PAD	project appraisal document
ECA	Europe and Central Asia	PAs	protected areas
ESMF	Environmental and Safeguards Management Framework	OECD	Organisation for Economic Co-operation and Development
ESMP	Environmental and Social Management Plan	PCC	Project and Component Coordinator
ERP	Economic Reform Programme (of Kosovo)	PDO	project development objective
ERR	economic rate of return	PPP	purchasing power parity
EU	European Union	PFS	project financial statements
EYE	Enhancing Youth Employment Project (of Swiss Agency for Development and Cooperation)	PFM	public financial management
FDI	foreign direct investment	POM	Project Operations Manual
FM	financial management	PPSD	Project Procurement Strategy for Development
FY	fiscal year (World Bank)	QCBS	quality- and cost-based selection
GDP	gross domestic product	R&D	research and development
GoK	Government of Kosovo	RENS	research and educational networks
GM	Grant Manual	SCD	Systematic Country Diagnostic
GRM	Grievance Redress Mechanism	SEO	search engine optimization
GRS	Grievance Redress Service (of the World Bank)	SMEs	small and medium enterprises
HEIs	higher educational institutions	SOE	statement of expenditures
IBRD	International Bank for Reconstruction and Development (of the World Bank Group)	SPDs	The World Bank's Standard Procurement Documentation
ICK	Innovation Centre Kosovo	STEP	Systematic Tracking of Exchanges in Procurement
ICT	information and communication technologies	TA	technical assistance
IDA	International Development Association (of the World Bank Group)	TTL	task team leader
IFC	International Finance Corporation	USAID	U.S. Agency for International Development
IFR	Interim Financial Report	VPN	virtual private network

IPF	Investment Project Financing	VTC	vocational and training center
IRR	internal rate of return	WB	World Bank
ISPs	internet service providers	WBG	World Bank Group
IT	information technology	WDR	World Development Report (World Bank publication)
KEEREP	Kosovo Energy Efficiency and Renewable Energy Project (of the World Bank)	WeBa	Western Balkans
KFMIS	Kosovo Financial Management Information System	WoW	Women in Online Work Pilot
KGGTF	Korea Green Growth Trust Fund	YOU	Youth Online and Upward Program
KODE	Kosovo Digital Economy Project		
KOSTT	Kosovo's Electricity Transmission, System, and Market Operator		



**BASIC INFORMATION**

Country(ies)	Project Name	
Kosovo	Kosovo Digital Economy (KODE)	
Project ID	Financing Instrument	Environmental Assessment Category
P164188	Investment Project Financing	B-Partial Assessment

**Financing & Implementation Modalities**

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input checked="" type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Disbursement-linked Indicators (DLIs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Closing Date
21-Jun-2018	30-Jun-2023

Bank/IFC Collaboration

No

**Proposed Development Objective(s)**

The Project Development Objective (PDO) for the Kosovo Digital Economy (KODE) Project is to improve access to better quality and high-speed broadband services in project areas and to online knowledge sources, services and labor markets among citizens, and public and academic institutions.

**Components**



Component Name	Cost (US\$, millions)
Digital Inclusion	18.60
Digital Work and Empowerment	5.50
Project Implementation Support	0.90

**Organizations**

Borrower: Ministry of Finance  
 Implementing Agency: Ministry of Economic Development

**PROJECT FINANCING DATA (US\$, Millions)**

**SUMMARY**

<b>Total Project Cost</b>	25.00
<b>Total Financing</b>	25.00
<b>of which IBRD/IDA</b>	25.00
<b>Financing Gap</b>	0.00

**DETAILS**

**World Bank Group Financing**

International Development Association (IDA)	25.00
IDA Credit	25.00

**IDA Resources (in US\$, Millions)**

	Credit Amount	Grant Amount	Total Amount
National PBA	25.00	0.00	25.00
<b>Total</b>	<b>25.00</b>	<b>0.00</b>	<b>25.00</b>

**Expected Disbursements (in US\$, Millions)**

WB Fiscal Year	2018	2019	2020	2021	2022	2023



Annual	0.00	2.77	7.88	8.86	4.83	0.68
Cumulative	0.00	2.77	10.65	19.50	24.33	25.00

**INSTITUTIONAL DATA**

**Practice Area (Lead)**

Transport & Digital Development

**Contributing Practice Areas**

Energy & Extractives, Infrastructure, PPP's & Guarantees

**Climate Change and Disaster Screening**

This operation has been screened for short and long-term climate change and disaster risks

**Gender Tag**

**Does the project plan to undertake any of the following?**

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

**SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)**

**Risk Category**

**Rating**

1. Political and Governance

● Substantial

2. Macroeconomic

● Low

3. Sector Strategies and Policies

● Low

4. Technical Design of Project or Program

● Substantial

5. Institutional Capacity for Implementation and Sustainability

● Substantial

6. Fiduciary

● High

7. Environment and Social

● Moderate



8. Stakeholders

● Substantial

9. Other

10. Overall

● Substantial

**COMPLIANCE**

**Policy**

Does the project depart from the CPF in content or in other significant respects?

Yes  No

Does the project require any waivers of Bank policies?

Yes  No

**Safeguard Policies Triggered by the Project**

Yes

No

Environmental Assessment OP/BP 4.01

✓

Performance Standards for Private Sector Activities OP/BP 4.03

✓

Natural Habitats OP/BP 4.04

✓

Forests OP/BP 4.36

✓

Pest Management OP 4.09

✓

Physical Cultural Resources OP/BP 4.11

✓

Indigenous Peoples OP/BP 4.10

✓

Involuntary Resettlement OP/BP 4.12

✓

Safety of Dams OP/BP 4.37

✓

Projects on International Waterways OP/BP 7.50

✓

Projects in Disputed Areas OP/BP 7.60

✓

**Legal Covenants**

**Conditions**





Kosovo  
Kosovo Digital Economy (KODE)

**TABLE OF CONTENTS**

<b>I. STRATEGIC CONTEXT .....</b>	<b>11</b>
A. Country Context .....	11
B. Sectoral and Institutional Context .....	12
C. Higher Level Objectives to which the Project Contributes .....	14
<b>II. PROJECT DEVELOPMENT OBJECTIVES .....</b>	<b>15</b>
A. PDO.....	15
B. Project Beneficiaries.....	15
C. PDO-Level Results Indicators.....	16
<b>III. PROJECT DESCRIPTION .....</b>	<b>16</b>
A. Project Components.....	16
B. Project Cost and Financing.....	19
C. Lessons Learned and Reflected in the Project Design .....	19
<b>IV. IMPLEMENTATION .....</b>	<b>21</b>
A. Institutional and Implementation Arrangements.....	21
B. Results Monitoring and Evaluation .....	22
C. Sustainability .....	22
D. Role of Partners.....	23
<b>V. KEY RISKS .....</b>	<b>24</b>
A. Overall Risk Rating and Explanation of Key Risks.....	24
<b>VI. APPRAISAL SUMMARY .....</b>	<b>26</b>
A. Economic and Financial (if applicable) Analysis.....	26
B. Technical.....	27
C. Financial Management.....	28
D. Procurement .....	29
E. Social (including Safeguards).....	29
F. Environment (including Safeguards) .....	30
G. Other Safeguard Policies (if applicable).....	31
H. World Bank Grievance Redress.....	31



<b>VII. RESULTS FRAMEWORK AND MONITORING .....</b>	<b>33</b>
<b>ANNEX 1: DETAILED PROJECT DESCRIPTION .....</b>	<b>43</b>
<b>ANNEX 2: IMPLEMENTATION ARRANGEMENTS .....</b>	<b>51</b>
<b>ANNEX 3: IMPLEMENTATION SUPPORT PLAN.....</b>	<b>67</b>
<b>ANNEX 4: TELECOM SUB-SECTOR DEVELOPMENT IN KOSOVO.....</b>	<b>70</b>
<b>ANNEX 5: WOMEN IN ONLINE WORK (WOW) INTERVENTION: LESSONS LEARNT .....</b>	<b>75</b>
<b>ANNEX 6: ECONOMIC AND FINANCIAL ANALYSIS OVERVIEW .....</b>	<b>79</b>
<b>ANNEX 7: ESTIMATING THE IMPACT OF KODE ON HOUSEHOLD WELFARE.....</b>	<b>90</b>



## I. STRATEGIC CONTEXT

### A. Country Context

1. **Kosovo, is Europe's youngest but also one of Europe's poorest countries.** With its new statehood and the average age of its population (26 years) Kosovo is the youngest country on the continent. But almost a third of its 1.8 million population live below the national poverty line.
2. **With policies anchored in its overarching political objective of joining the European Union (EU), Kosovo has made progress in promoting growth, reducing poverty, and improving business climate.** Since independence in 2008, the country has enacted several reforms and has made considerable socioeconomic progress. Real gross domestic product (GDP) grew an average of 3.4 percent from 2008 to 2016. From 2012 to 2015, the poverty rate at the 2011 PPP US\$3.2 per day fell from 5.7 in 2012 to 2.9 percent in 2015.
3. **Yet, serious barriers to greater economic growth remain. This includes disparities within the population especially along the geographic and gender dimensions.** Poverty and social exclusion affect the rural population, and especially women and youth. Approximately 62 percent of Kosovo's population lives in rural areas. Two-thirds of rural dwellers are the bottom 40 percent<sup>1</sup>. **The lack of decent jobs is another significant challenge, aggravating exclusion and stimulating brain drain.** Kosovo has failed to dent its high levels of female (41.6 percent) and youth unemployment (56 percent for 15 to 24-year-olds), as of 2014, with the country scoring particularly low on labor dimensions of gender equality, even from a regional perspective<sup>2</sup>. Since 2012, an increasing number of young men and women have emigrated from Kosovo seeing lack of opportunity at home<sup>3</sup>.
4. **Kosovo's National Development Strategy (NDS) 2016-2021<sup>4</sup> seeks to address those challenges through, *inter alia*, a digital transformation.** High-speed broadband investments and the development of human capital for digital economy are in the list of the priority projects under the Investment Clause<sup>5</sup>. This is intended to promote economic growth and increased employment, hand in hand with improved social cohesion and inclusion.
5. **The KODE Project will finance the critical fundamentals needed for digital transformation.** It will provide high-speed broadband infrastructure and support access to labor markets, new sources of knowledge, and public services to households and institutions in selected underserved rural areas. At the national level, the Project will train and connect youth to online employment opportunities; and improve access to knowledge sources, including to better reach and collaborations opportunities, to High Educational Institutions (HEIs).
6. **Kosovo is also prone to natural hazards, including floods, landslides, droughts, earthquakes, and wildfires, and has low adaptive capacity<sup>6</sup>.** Among many climate change adaptation measures, Kosovo's Climate Change Strategy identifies a need to strengthen the forecast and early warning or disaster warning systems. Through the deployment of the high-speed network, the project will increase the reach to underserved areas. The infrastructure can be leveraged in the future to strengthen disaster warning systems.



## B. Sectoral and Institutional Context

7. **The Government of Kosovo (GoK) has adopted public policies and strategies<sup>7</sup> to promote widespread access and use of digital technologies and created enabling environment that has promoted access to basic internet.** Kosovo's regulatory framework increasingly reflects emerging international best practices to support broadband network deployment.<sup>8</sup> The market for internet services is open and competitive with 54 internet service providers (ISPs). Infrastructure-based competition is strong especially in densely populated areas<sup>9</sup>. About 63 percent of Kosovars use internet daily. Almost 89 percent of households have either a fixed or mobile network-based internet connection.<sup>10</sup>
8. **While basic internet is widely used, connectivity in Kosovo is not future-proof and is not fully inclusive. Unevenly distributed high-speed broadband access reinforces the urban-rural divide.** High-speed broadband infrastructure assists in public service delivery and it opens opportunities for skills acquisition and online income-generation, including through participation in information technology (IT)-based businesses in Kosovo and globally, online work, and trade in services. However, connection speeds are usually low in Kosovo.<sup>11</sup> Few households have access to high-speed broadband. A survey conducted by the World Bank in June 2017 found that only about 1 percent of households have fiber optic-based internet, which enables future-proof high-speeds (over 100 Mbps). This compares poorly to the peer countries of the similar size: Latvia, 45 percent; Georgia, 37 percent; or Moldova, 25 percent.<sup>12</sup> About 10 percent of households remain unconnected, potentially restricting their ability to take advantage of the opportunities of the global digital economy in terms of access to markets, public services, and knowledge.
9. **Institutions lack access to high-quality broadband connectivity.** Many schools lack access to broadband, instead relying on low-speed internet connections or being unconnected.<sup>13</sup> They are thus limited in their ability to shape the human capital required for a knowledge economy<sup>14</sup>. Similarly, not all health centers are connected<sup>15</sup> to high-speed digital infrastructure. This prevents them from expanding medical service coverage to more people, especially in rural and isolated areas, limiting their ability to grow their service portfolio or use e-health applications.
10. **The GoK now aims that 100 percent of Kosovars and public institutions should have access to high-speed broadband networks.** This will ensure inclusion for all Kosovars in the digital economy by closing existing gaps in infrastructure. The target is for most citizens and public institutions (including schools and healthcare facilities) to use internet regularly by 2020,<sup>16</sup> with the access to download/upload speeds of at least 100 Megabit per second (Mbps), which can be further upgraded. This goal is in line with the European Union (EU) sector policies, i.e. Digital Single Market Strategy<sup>17</sup> and the European Gigabit Society.<sup>18</sup>
11. **The market fails to expand high-speed broadband to all of Kosovo's citizens, and especially the poorest, because it is commercially not viable.** While economic spillovers are significant, their commercial returns are either limited or accrue over extended periods. Such market failures result in so-called 'white areas' – territories with no existing or expected high-speed broadband access. Project preparation has identified 266 cadastral zones (located across 27 municipalities)<sup>19</sup> where standalone commercial investments deliver negative net present value (NPV) and internal rate of return (IRR), and therefore will not be undertaken by commercial ISPs.<sup>20</sup> Over 60,000 rural inhabitants live in these



cadastral zones. The GoK recognizes the importance of ‘crowding in’ private investment, and has sought to create an enabling environment to maximize the frontier for commercial viability.

12. **There is consensus among GoK policymakers and ISPs that public co-financing is an adequate instrument to bring private investments to otherwise unprofitable ‘white’ areas.** Following the Maximizing Finance for Development (MFD) model, adequately structured and publicly co-funded projects are deemed to be effective in addressing Kosovo’s digital infrastructure divide. In its preparation for the project, the GoK has sponsored four pilots designed to expand high-speed broadband access into four villages in the municipalities of Gjakova, Obiliq, and Skenderaj.<sup>21</sup> With two-to-four bids per lot, these pilots have demonstrated the willingness of private capital (ISPs) to connect the expensive, hard-to-reach areas if public co-financing is available (on average 49 percent of public financing vs. 51 percent of private investment).<sup>22</sup>
13. **Mobile broadband services have also been slow to develop, limiting innovation in mobile-based digital services.** At the end of 2017 penetration of mobile broadband subscribers stood at 84 percent; Kosovo ranks on this indicator 38th out of 54 countries across Europe.<sup>23</sup> This situation limits innovations such as mobile commerce, smart logistics, and location-based services, and crimps the potential for digital economy development in Kosovo. The slow growth is primarily due to inefficiencies in spectrum management, including delays in radio frequency spectrum licensing. Kosovo is the only country in the region without a national Spectrum Monitoring System (NSMS). This system will enable investments in mobile broadband deployment by informing timely decisions on frequency bands assignment and usage.
14. **There is evidence that Kosovars might not be using internet as much to connect to knowledge, services, or labor markets.** A household survey conducted by the Bank in June 2017 found that only about a third “looked for information about education, training” and less than a fifth “looked for a job or sending a job application.” Therefore, there may be an opportunity to leverage information and awareness raising campaigns to increase Kosovars’ knowledge about the potential of using internet to learn, access e-government services, or find work (online or locally).
15. **Pilot efforts in Kosovo have shown that training could help increase incomes and hence realize greater digital dividends<sup>24</sup>.** Notably, the Women in Online Work (WoW), a pilot program supported by the WB and financed by the Korean Green Growth Trust Fund (KGGTF) in 2015-2017 demonstrated that with modest investment in training and coaching, un- and underemployed young women could earn through online freelancing activities. And their new earning potential can “pay back” at least part of the costs of training in the medium term, apart from generating positive social externalities.<sup>25</sup> This success could thus be spread to other areas of the population.<sup>26</sup>
16. **Universities and colleges in Kosovo are poorly interconnected and are practically unable to engage in knowledge exchange or research collaboration with European partners.** At present, Kosovo’s HEIs often overpay for broadband services that do not meet (in terms of quality) their needs.<sup>27</sup> Out of all countries in the region, only Kosovo has not yet set up a National Research and Education Network (NREN) interconnecting its HEIs. This limits participation in the pan-European academic network GÉANT.<sup>28</sup> GÉANT links NRENs in the EU and beyond – 110 such networks – to high-speed broadband at low cost and provides access to a range of research and innovation services.



### Sector governance

17. **Ministry of Economic Development (MED) guides and coordinates ICT sector development and all major DE initiatives<sup>29</sup>.** Among such major initiatives are the implementation of the policy documents, *Electronic Communications Sector Policy - Digital Agenda for Kosova 2013-2020 (Digital Agenda)*<sup>30</sup> and *Kosovo National IT Strategy (IT Strategy)*<sup>31</sup>, the design and implementation of Rural Broadband pilots, scale-up of the WoW pilot by U.S. Agency for International Development (USAID) and Helvetas Swiss Intercooperation.
18. **ARKEP, Kosovo's telecommunications sector regulator,** supports competition in the market, oversees quality of services, consumer protection, along with the management of national resources, including radio frequency spectrum. The 2012 Law on Electronic Communications<sup>32</sup> strengthened the role of the sector regulator to promote and ensure competition.
19. **While commitment of the GoK to digital goals is commendable, both institutions have limited human and financial implementation capacity.** According to the World Development Report (WDR) 2016 on Digital Dividends, improvements in access to digital technologies could spur positive social and economic impact. But these impacts may be attenuated if 'analog complements' (rules, skills, and institutions) are missing. Project investments in broadband development therefore will be complemented with activities that develop skills and awareness, institutional capacity, and foster collaboration.

### C. Higher Level Objectives to which the Project Contributes

20. **The Project aims to contribute to two interrelated key higher-level objectives: deepening Kosovo's connections to the global economy, and increasing incomes sustainably for its people.** The Project will finance the development of digital infrastructure and of better access to information, services, and labor markets to expand Kosovars' economic opportunities especially through employment.
21. **The Project aims to support the GoK's national and sector strategies to develop DE.** It will equally support Kosovo in its EU integration aspirations<sup>33</sup>, including the Digital Agenda for the Western Balkans under EU's new Enlargement Strategy.
22. **The Project contributes to the focus area (1) - Enhancing Conditions for Accelerated Private Sector Growth and Employment of the Country Partnership Framework (CPF).** The Project will include several activities to mobilize rural inhabitants, youth, and women to participate in the digital economy by expanding their access to high-speed broadband infrastructure and developing their digital skills for income-generation. **Indirectly, the Project will also contribute to the CPF focus area (3) - Promoting Reliable Energy and Stewardship of the Environment.** By expanding the high-speed and resilient to external shocks connectivity in underserved areas, the Project will allow improvements in early warning systems in Kosovo.



## II. PROJECT DEVELOPMENT OBJECTIVES

### A. PDO

23. To improve access to better quality and high-speed broadband services in project areas and to online knowledge sources, services and labor markets among citizens, and public and academic institutions.

### B. Project Beneficiaries

24. **The Project is expected to benefit in the Project areas:** (a) inhabitants through access to high-speed broadband internet and the digital awareness initiative;<sup>34</sup> (b) healthcare institutions<sup>35</sup>, and primary and secondary schools<sup>36</sup>. **The Project is expected to benefit on the national level:** (c) mobile network operators and their customers through higher-quality mobile services; (d) under/unemployed youth through access to the online work program; (e) students, researchers, and staff of HEIs<sup>37</sup> through access to the internet GÉANT network.
25. **The Project may indirectly benefit other individuals, public institutions, and firms.** For example, by integrating the product and process innovations of direct Project beneficiaries (e.g. high-speed broadband users, GÉANT users, etc.) into their own economic activities or leveraging them to generate new innovations, being employed by individuals/firms/public institutions.
26. **Gender.** The Project is classified as gender informed:
- **Analysis.** The Project has been prepared following the identification and analysis of gender issues relevant to its objectives. Females in Kosovo are significantly underrepresented in the labor market —only 11.5 percent of 15–64-year-old women are actively contributing to the economy through employment. Within the ICT sector, only 20% of employees are female and the number of female self-employed online contractors is small, if compared to other countries. These low numbers are in part due to structural -cultural and policy- bottlenecks. Cultural attitudes to female employment and biases in employers' assessments of skills for men and women make it as difficult to attract more women to the ICT field specifically and in the labor force, more broadly.
  - **Action.** The Project is expected to reduce gender disparities through specific actions to address the distinct needs of females in the Project's activities, namely subcomponents 2.1 (Youth Online and Upward (YOU) Program) and 2.2 (Increasing Access to Knowledge Information and Services). Subcomponent 2.1 will actively promote women's involvement, ensuring that 50% of participants are women. In doing so, the Project will build on the lessons learnt (see Annex 5) from the WoW pilots. Specifically, the pilots found that female beneficiaries perceived greater confidence and ability to bid for jobs when technical ICT training was coupled with soft skills training (e.g. business communication techniques). Thus the YOU program will include soft-skills activities as part of the program. To ensure that females are included as part of Subcomponent 2.2, the Project will hold awareness activities for female only groups and at times convenient to females who have household/childcare duties, to ensure that a diverse array of females benefit from the outreach.
  - **Monitoring & evaluation (M&E).** The Results Framework includes mechanisms to monitor gender impact and facilitate gender disaggregated analysis. Indicators are gender-disaggregated: one of the four PDO indicators, and one of the ten intermediate results



indicators. In addition, the mid-term and completion reviews will include an analysis of the gender-specific impacts of the Project.

### C. PDO-Level Results Indicators

27. Proposed PDO-level result indicators are:

- i. **People provided with access to the internet;**
- ii. **Public institutions with access to high-speed internet through the Project;**
- iii. **Beneficiaries of improved HEI access to high-speed broadband through the Project (Of which female);**
- iv. **Beneficiaries of Component 2 who report being employed.**

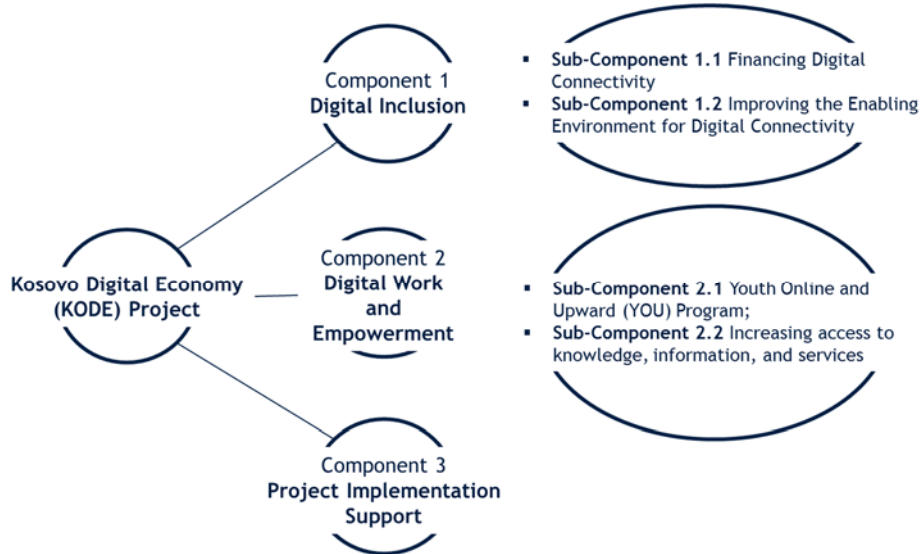
## III. PROJECT DESCRIPTION

### A. Project Components

28. The KODE Project will achieve its development objective through two main sets of activities: (1) expanding access of Kosovars to high-speed and better quality digital infrastructure and (2) support Kosovars to take advantage of regional and global DE opportunities, especially for income generation, usage of services, and learning, thus triggering the growth of a DE in Kosovo.

29. The KODE Project will be structured along three main components: Digital Inclusion, Digital Work and Empowerment, and Project Implementation Support, per figure 1 below.

**Figure 1: The KODE Project Components and Subcomponents**



30. **Component 1: Digital Inclusion (€15.38 million) will support digital inclusion through: (a) the expansion of digital connectivity through the co-financing of deployment of high-speed broadband connectivity in areas that have been identified as not connected or underserved, and (b) improving of the enabling environment for wireless broadband services, through the deployment of the National Spectrum Monitoring System (NSMS).** Importantly, by expanding the high-speed broadband connectivity across the country, including in rural areas which are most





vulnerable to climate change, the activity will help enable improvements in early warning systems through support to better communication between disaster-prone areas and relevant public agencies during and post disasters.

31. **Subcomponent 1.1: Financing of Digital Connectivity (€11.99 million) will finance (1) provision of support to facilitate the deployment of telecommunications infrastructure on technologically neutrality grounds to increase access to high-speed broadband internet for unconnected or underserved settlements and public institutions (especially healthcare and educational institutions). (€11.82 million); and (2) provision of technical assistance and capacity building activities for ARKEP and MED to strengthen the enabling policy, legal, and regulatory environment to support the rollout of high-speed broadband infrastructure on open-access and non-discriminatory terms and development of digital economy (€170,000).** The objective of this subcomponent is to ‘crowd-in’ private investments in areas that will not be served by the market itself (where market failures have been identified<sup>38</sup>), through matching grants arrangement. Specifically, the Project will allocate funding to ISPs that, following the call for proposals, request the least amount of grant and will provide the most efficient technical solution, incl. in terms of budget, to connect the selected unserved settlements (incl. households and public institutions) to download/upload speeds of at least 100 Mbps, which can be further upgraded in the future. Exact geographic locations have been identified and are in process of being re-confirmed and mapped (see Annex 1). The disbursement of the grant amount to the selected ISPs will be linked to completion of deployment. Exact implementation details will be established in Grant Manual (part of Project Operations Manual (POM)).
32. **Subcomponent 1.2: Improving the enabling environment for digital connectivity (€3.39 million) will finance (a) provision of support towards the deployment of NSMS for ARKEP to facilitate investments in wireless infrastructure roll-out through technical inputs on radio-frequency bands assignment and usage and (b) provision of technical assistance and capacity building activities for ARKEP in spectrum management and topics related to improving the quality of wireless broadband services across the country.** Through NSMS ARKEP will ensure efficient spectrum monitoring<sup>39</sup> in the country. Specifically, this activity will finance the deployment of hardware and software elements (e.g. towers and antennas), setup (launch) of the system (including the setup of a control center and launch of the spectrum management software), and training for ARKEP. The NSMS will be operated by ARKEP in accordance with its mandate under the Law.
33. **Component 2: Digital Work and Empowerment (€4.55 million) will support the Youth Online and Upward (YOU) Program and increased access to knowledge, information and online services.**
34. **Subcomponent 2.1: Youth Online and Upward (YOU) Program (€1.65 million) will finance provision of training for young people and their connection<sup>40</sup> to online working opportunities. The activities will primarily cater to unemployed or underemployed young men and women with at least some knowledge of English and university education to increase their ability to compete in relevant segments of online work using computers and smartphones.** The Program will skill beneficiaries to work online, including to perform basic IT and IT-enabled services as online freelancers. It will build on the successes and lessons learnt from the WoW pilots. It is planned to skill up to 2,000 beneficiaries (which is about 10x of the number covered in the two



phases of the WoW pilots and about 1/3 of total employment in the ICT sector in Kosovo), although economies of scale may eventually enable more participants to benefit from the program. It is expected that through this training the beneficiaries will increase their employability also in the local ICT market.

35. **Subcomponent 2.2: Increasing access to knowledge, information, and services (€2.89 million) will finance: (a) Provision of support to (i) set up a National Research and Education Network (NREN) to improve access of students, researches and educators of Higher Educational Institutions (HEIs) in Kosovo to knowledge, research networks and (ii) connect NREN to the GÉANT network (€2.48 million); and (b) Provision of support to increase use of online labor market information and services to improve information flows about work opportunities, through targeted awareness raising and information sharing activities in underserved or unconnected areas identified in Subcomponent 1.1 of the Project (€410,000).**
36. A second stream of activities will aim to increase the use of online services that improve access to financial services, information and services related to the labor market, seeking to improve local information flows about work opportunities (e.g. countering the perception among men that are inactive in the labor market that “no work is available”, or increasing information about family care options among women).<sup>41</sup> Through these activities the Project will pursue a customized approach with an aim to reach more women, which will result in more female beneficiaries, thus contributing to addressing the existing gender gap in labor market participation and, consequently, in employment. The feedback received at the information sessions will be channeled to the Project Implementation Unit (PIU) for follow-up actions and as part of the M&E framework.
37. **Component 3: Project Implementation Support (€740,000) will support project management and implementation and citizen engagement activities: (a) provision of support to the PIU-KODE, including monitoring and evaluation activities, training for PIU staff, fiduciary and safeguards and project management functions; and (b) provision of support to carry out extensive household surveys to monitor progress and estimate development impact of project activities, including tracking the impact of the project investments on beneficiaries’ incomes and employment status and impact on poverty.** In addition to financing the core team of the KODE PIU, the Project will include *communications and CE support* to raise awareness and acceptance of the different KODE activities, and increase the level of engagement around them among target beneficiaries, key stakeholders, and population at-large. Such support will entail organization of private-sector consultations, community roundtables, press events, basic publicity (through the Project-specific webpage), and two-way communication through a social media channel. Through concentrated communications and CE activities the Project will aim to close feedback loops by garnering citizens’ feedback on various Project aspects, feeding it into the Project implementation, and reporting back to citizens on how their feedback was acted on.
38. For M&E, the Project will finance surveys among beneficiary households and public institutions (potentially coordinated with other surveys to reduce costs and improve triangulation of economic impacts) covered by Subcomponent 1.1, a beneficiary survey and focus groups among beneficiaries of the YOU program under Subcomponent 2.1, and a series of focus groups with universities and colleges under Subcomponent 2.2. These would help the PIU to monitor implementation progress, estimate development impact, and to understand the poverty impacts. Program impacts will be estimated several times throughout the estimated five-year roll-out



period. At each stage of the evaluation, average outcomes of interest will be compared between households a treatment group against households in an appropriate control group. Both the treatment and control group households will be drawn from the 266 cadastral zones targeted by the program. Households in the treatment group will be drawn from cadastral zones that have already been connected to broadband, while households in the control group will be drawn from cadastral zones that have not yet been connected to broadband (for more details see Annex 7).

## B. Project Cost and Financing

39. **The KODE Project will be financed through a €20,700,000 equivalent IDA credit to the GoK.** The Project will use the Investment Project Financing (IPF) instrument. A breakdown of the financing allocation by component is included in table 1 below. The Project will be fully financed through the IDA credit with no additional counterpart funds or co-financing expected. It is nevertheless anticipated that the Project funds will leverage investment from other sources, notably the private sector investors bidding for contracts under Subcomponent 1.1 (estimated to be around €12 million).
40. **Retroactive Financing.** The Government has allocated resources from its own budget for MED to pilot and prepare some activities in advance of Board approval. The amount of retroactive financing will be €50,000 for payments made for eligible expenditures from May 17, 2018 until the date of signing of the Financing Agreement. To be eligible, (a) activities to be financed by the retroactive financing must be included in the Project description; (b) the payments must be for items procured in accordance with applicable Bank procurement procedures; and (c) activities must comply with relevant safeguards policies.

**Table 1: A Breakdown of KODE Financing Allocation by Component**

Project Components	Project cost	IBRD or IDA Financing	Trust Funds	Counterpart Funding
Digital Inclusion	€15.38 million	IDA	-	-
Digital Work and Empowerment	€4.55 million	IDA	-	-
Project Implementation Support	€740,000	IDA	-	-
<b>Total Costs</b>				
Total Project Costs	€20,700,000			
Front End Fees				
<b>Total Financing Required</b>	<b>€20,700,000</b>			

## C. Lessons Learned and Reflected in the Project Design

41. **This Project’s design benefits from previous and ongoing WB analytical and advisory activities and operations in ICT and DE, as well as from international good practice.** The overarching principles incorporated in the design include: (1) ensuring rapid disbursements through advance



preparation of activities through feasibility studies; (2) pilots to test out new ideas and designs prior to large-scale implementation; (3) simplified design and implementation arrangements, with a focus on capacity building and support for project management; (4) using rigorous monitoring and evaluation procedures to verify that outcomes are reached; and (5) investing in citizen engagement, mobilization, communication, and awareness building to ensure a strong pool of Project beneficiaries and strong linkages between Project components.

42. **The WDR 2016 findings provided a conceptual frame and significantly informed the design of the entire program.** The WDR affirms that while the increase in broadband internet connectivity expands economic opportunities, digital awareness, literacy and skills development remain critical for individuals, firms, and institutions to benefit from those opportunities. Successor projects to WDR2016 *Georgia National Innovation Ecosystem (GENIE) Project* and *Digital Malawi Program Phase I: Digital Foundations Project* exposed the team to the best practices on innovation ecosystem development, incl. through broadband for development financing and support to a national research and educational network.
43. **For the Subcomponent 1.1, key practices relate to the incorporation of the EU experience in state aid for broadband development in rural areas,** particularly the experiences of Finland. The best proposals are to be selected on the least subsidy (grant) basis through a transparent, unbiased, and nonpolitical process, with strict obligations imposed on the winning operators' quality-of-service and access to their built infrastructure (on open access terms). At the same time, maximization of private sector investment, while following an MFD approach, will seek to minimize the complexity of transactions.
44. **The Rural Broadband pilots undertaken by MED in 2017 (and still ongoing) directly informed the design of Subcomponent 1.1, and so did WB ICT analytical contributions in 2014-2017** through *Kosovo SCD, Innovative and Green Growth for Rural Kosovo TA (P151939)*, and *Kosovo Digital Economy TA (P162780)*. These activities helped identify the locations with poor or zero access to high-speed broadband internet, determined the most feasible and viable approach to crowd in private investments (incl. through exposure to international best practices), and through its wide dissemination, which entailed a series of events and production of multiple communications materials, significantly increased the ownership over the digital inclusion and digital economy agenda within government, among ISPs, and other ICT ecosystem stakeholders (e.g. industry associations, academia, and civil society). The pilots were particularly useful in that they successfully tested the proposed implementation approach.
45. **The design of NSMS (under Subcomponent 1.2) was guided by the methodologies established by the International Telecommunications Union (ITU)<sup>42</sup>:** the Handbook for Radio Monitoring (2002 & 2008) and the Handbook on Spectrum Monitoring (2011). Importantly, it drew several lessons learnt from the tender undertaken by ARKEP in 2010 for the procurement of the hard and soft equipment for such a system (the results of which were canceled due to disagreements between the regulator and the Procurement Review Body). First, the tender documentation shall represent a combination of expert opinions incorporating international best practices. Second, a phased approach may be needed for the rollout of the system in the context of Kosovo (based on the findings of the European Bank for Reconstruction and Development (EBRD)-financed feasibility study on the establishment of a spectrum management and monitoring system in Kosovo in 2013 and then in 2017).



46. **The design of the YOU Program (Subcomponent 2.1) was directly informed by the WB-led WoW pilots (2015-2017) and their subsequent replication in new Kosovo municipalities by USAID Empower project and the EYE project of Helvetas Swiss Intercooperation (both in 2017).** The pilots informed the Project of the exact target groups, which are likely to benefit most from the program; the program curriculum streams; and specific implementation arrangements from the training, management, outreach and communications angles. Wide CE efforts during the pilot design (where the proposed design was validated and enhanced through the inputs of the MED Women in ICT Working Group) and the pilot implementation (through wide outreach to attract many applicants, and then through surveys and focus groups of beneficiaries) ‘paid back’ in the high number of applicants and a high share of motivated beneficiaries. Furthermore, these pilots have demonstrated the factors influencing the Program’s effect on beneficiaries’ employability and increase in their earning capacity, while elucidating both preconditions for success and likely challenges. The main findings of the pilots, as relevant to the YOU are outlined in greater detail in Annex 1.

## IV. IMPLEMENTATION

### A. Institutional and Implementation Arrangements

47. **The KODE will be implemented by MED that will provide strategic direction and technical oversight to the entire Project.** MED oversees the ICT sector development and executes this mandate through the Department of Post, Telecommunication and IT (the Department), which for the purposes of this IPF will act as the lead implementing agency and will carry the primary responsibility for all Components of the Project, including Subcomponent 1.2, which entails the activities to support ARKEP.
48. **ARKEP will be involved in the Project implementation (Subcomponent 1.2)** by providing input to the preparation of technical specifications, reviewing and evaluating tenders, and participating in the Commission of Acceptance of the works delivered by the selected vendor.
49. **The KODE PIU will provide support to the fiduciary and safeguards functions.** The KODE PIU will require at least the following personnel, hired through a process and with terms of reference that are acceptable to the Bank:
- (a) a Project and Component Coordinator (“PCC”), responsible for the overall management of the activities;
  - (b) a procurement specialist.
50. In addition, the PIU will hire, using Credit proceeds, qualified and experienced staff, acceptable to the Bank, to fill specific operational advisory, financial management (FM), fiduciary, technical roles, safeguards, technical supervision and oversight, M&E, communications, as identified in the Project Operations Manual (POM), and per Annex 3.
51. **The Project will be implemented in accordance with the POM,** which will include: (a) a detailed description of Project components and their implementation arrangements, incl. Grants Manual that will outline implementation of the Subcomponent 1.1; (b) detailed Project cost estimates; (c) procurement, financial management and disbursement arrangements; and (d) roles and



responsibilities of staff working on the Project. The POM will be amended periodically to incorporate adjustments during Project implementation, in agreement with the Bank. Other integral Project documents include the Procurement Plan, and Environmental and Social Management Framework (ESMF).

## B. Results Monitoring and Evaluation

52. **The M&E framework for the Project will rely on standardized, routinely collected data sources from Kosovo Agency of Statistics (KAS), ARKEP, and international organizations to ensure continuous availability and consistency of data and to minimize any additional administrative burden.** The Project however will also support surveys, and a beneficiary management and data collection system will be developed to register all Project beneficiaries, track the services they receive and results achieved (to the extent possible), and collect the feedback received from beneficiaries on the services and responses issued in the follow-up. An impact evaluation is included in Component 3, the design of which will be refined during the initial period of Project implementation.
53. **MED will oversee all Project M&E.** The PIU will have the responsibility for routinely collecting the M&E data from the relevant data sources. It is not envisaged that a separate M&E expert will be retained under the Project, as this can be carried out under the scope of work of the PCC with support from existing PIU consultants and technical counterparts. However, this may be considered during implementation if needed.

## C. Sustainability

54. The Project has a high degree of ownership by MED, other government and independent agencies, private sector (ISPs), industry associations (e.g. STIKK, ICK), academia, and civil society. Despite frequent political changes, the KODE remains demand-driven, for it is relevant to Kosovo's broader development agenda.
55. The ownership of nongovernment stakeholders around various elements of the KODE Project was consistently nurtured in 2014-2018 through public consultations (with ISPs), expert group discussions (with academia, industry associations, and civil society), information sessions (with municipalities), numerous one-on-one meetings, and public conferences. The input and feedback received during these events was incorporated into the Project planning. The citizenry at-large was informed about the planning of the KODE activities through several communications materials (e.g. WB and MED produced), social media (through the official Facebook account of WB in Kosovo and WoW Facebook page), and through MED visits of the Project locations.
56. In greater detail, sustainability has been evaluated for all sub-components. If specific design considerations are maintained, the likelihood of sustainability of these activities following Project completion is substantial.
57. *Subcomponents 1.1.* The activity will focus on supporting the settlements with the lowest penetration of high-speed broadband internet; those with a functioning school and a health center will be attended to under the Project on a first-priority basis. To ensure adoption of broadband services the Project will undertake awareness raising activities to transfer information and knowledge on the productive usage of broadband for information, services, learning, and revenue generation (thus linking this subcomponent with Subcomponent 2.2).





58. Importantly, broadband networks deployment is characterized by relatively low carbon footprint and overall high resilience to external shocks. Potentially adverse effects of broadband infrastructure deployment will be further minimized under this Project by strict adherence to environmental safeguards procedures and by choice of future-proof technologies. In addition, expansion of high-speed broadband connectivity across the country may enable improvements in the reach and usage of early warning systems and disaster evacuation, thus helping to minimize climate risks and generating climate change adaptation and mitigation co-benefits<sup>43</sup>.
59. *Subcomponent 1.2.* Efficient management and monitoring of radio spectrum through the NSMS will support development of the mobile market. Mobile operators and end users are both poised to benefit from it over long term. A higher quality of mobile service to be provided by the operators will result in more customers and higher revenues, hence the operators shall have a high degree of ownership over this Project subcomponent. Importantly, improved mobile broadband communications may support early warning systems and disaster evacuation (see Annex 4).
60. *Subcomponent 2.1.* WB analytical work has found that there are no independent local training organizations that could bridge—at scale and sustainably—the online employability gap in Kosovo (between formal education and global online work market). Absent such training, Kosovo will not be able to prepare its workforce for DE. Yet, the GoK support to skills development cannot be indefinite. Over time, the program should prove to various stakeholders (especially local ICT training providers, local employers, and jobseekers) that the program benefits them, opening the possibility of their contribution to continue the program. With an assumption of five years of support (under this Project), there is sufficient time for the program to prove its value, on the condition that it is well managed with clear targets reached. Moreover, the ‘training of trainers’ will create a cohort of trainers that will be able to continue skills development into the future and based on local employment centers.
61. *Subcomponent 2.2.* The WB analytical work and consultations with GÉANT representatives show that there is evidence on the success factors (or enabling conditions) to ensure the Kosovo NREN’s sustainability after the end of donor funding, based on the experience of over 110 existing research networks. These factors include existence of local champions, the choice of a right business model for NRENs (the right portfolio of services), and sufficient funding to finance local loops on university campuses (it has been calculated that the cost of campus network is at least 100X higher than international access to the GÉANT). In the countries where these conditions were not observed, there is mixed evidence on the sustainable outcome of a NREN. To safeguard against existing risks, the task team exposed MED to both successful and unsuccessful models of NRENs; identified local champions to drive this important agenda forward; and agreed on the early adoption of EDUROAM (NREN networking) service before/right after the connection to GÉANT.

#### D. Role of Partners

62. Several donor and partners are active in Kosovo’s ICT sector. Beyond select one-off interventions to build ARKEP’s capacity, most partner interventions focus on promoting employability of youth, including through developing their ICT skills or on developing capacity of businesses in the ICT sector to export and expand their operations. All other ongoing donor engagements in the sector



are grant financed. A high-level overview of these activities is provided in table 2 below; a more detailed version is provided in Annex II.

**Table 2: Ongoing Donor Engagements in the ICT Sector in Kosovo**

Donor	Project Name	Grant Amount	Time Frame	Relates to KODE Component:
Embassy of Finland	Regulator to regulator exchange	In-kind	2018	1.2
EBRD	ICT Sector Capacity Building	€150,000	2017	1.2
USAID	EMPOWER Private Sector	N/A	Ongoing- July 2019	2
Embassy of Sweden/SIDA	Budget support to ICK; Contributor to EMPOWER Private Sector	N/A	Ongoing	2
EU	Enhancing Competitiveness of Kosovo ICT Sector, Instrument for Pre-Accession Assistance (IPA) II (2014-2020)	€3M	2018 - TBD	2
Swiss Agency for Development and Cooperation	Enhancing Youth Employment	7.7M CHF	2017 - 2020	2.1
German Agency for International Cooperation	Creating Employment through Export Promotion	€2.5 - 3M	Jan 2018 - Dec 2020	2

## V. KEY RISKS

### A. Overall Risk Rating and Explanation of Key Risks

63. Overall risk is assessed as **Substantial**, with one risk considered **high (Fiduciary)** and four risks considered **Substantial – Technical Design of Project, Political and Governance, Institutional Capacity for Implementation and Sustainability, and Stakeholders**. First, the *fiduciary risk*, is driven by country risk, the implementing entity's weak capacities on the application of the new WB procurement policy framework, and specific fiduciary risks associated with the proposed matching grant financing arrangements. The Project's technical design involves substantial risks. These include (i) potential difficulties that may arise in preparing for and attracting private investment for the proposed financial arrangements under Subcomponent 1.1 (even though the model was tested); (ii) the trained youth under Subcomponent 2.1 may be empowered through the Program to seek jobs in the traditional IT industry outside of Kosovo (thus magnifying existing brain drain); and (iii) Kosovo's NREN will fail to be sustainable after the Project ends (membership fees will not be able to sustain its operating expenses). There may also be delays due to changes in government. Although a new Government coalition was formed in September 2017, some political volatility remains, which may affect ratification of the Financing Agreement and the KODE is not immune to it. Equally important risks may affect the KODE implementation due to legal, fiduciary, and safeguards gaps in institutional capacity, as there is limited experience in implementing activities projects foreseen under Subcomponent 1.1. Finally, even though the Project has only MED as an implementing agency, there's another agency with an important advisory role (ARKEP), the lack of financial independence of which poses certain risks for Subcomponent 1.2. Plus, the Project will rely on other stakeholders (private sector) whose cooperation or lack of thereof could seriously affect the largest portion of the hard investment





(Subcomponent 1.1). For instance, the private sector may exhibit much lower-than-expected interest in grants, or demonstrate a high degree of noncompliance during sub-projects' implementation. There is also possibility of collusion between private ISPs, thus preventing creation of a level-playing field for competition.

64. **The following risk management measures have been put in place.** To ensure high-quality fiduciary compliance and for timely procurement and disbursement under various Project activities, the PIU's capacity for procurement and FM will be strengthened through consultants. The potential impact of the technical complexity of the Project design was mitigated through a range of measures. The risk (i) is mitigated through the testing of the financial arrangements model through four rural broadband pilots undertaken by MED in 2017-2018; the transfer of practical knowledge on the successful financial arrangements for rural broadband practice from Finland through a study visit in 2017 and subsequent consultations. The risk (ii) is mitigated through rigorous testing of various elements of the YOU Program through a four-phased WoW pilot across 7 municipalities and learning from its impact assessment and monitoring reports leveraging three different methodologies. Finally, the risk (iii) is mitigated through the dedicated technical assistance activity under the Project to develop a sustainable NREN model, active knowledge transfer from the GÉANT headquarters and the EC through virtual and in-person communications, and a local workshop in February 2018.
65. **Political and Governance risks are mitigated by the strong ownership in the Project by several successive governments, regardless of the party allegiance.** It is also worth noting that there are favorable sector-specific policies in Kosovo and that the Project is part of the NDS, both of which minimizes the possibility of 'backtracking' on the DE agenda due to political processes.
66. **Gaps in Institutional Capacity for Implementation and Sustainability will be countered through targeted TA and capacity building activities for MED and ARKEP.** The WB will also explore the possibility of raising complementary trust funds to supplement the lack of funding for this 'soft' component.
67. **Although the Stakeholders risk remains Substantial, it should be mentioned that a positive working relationship exists between MED and ARKEP.** To increase the understanding over the KODE objectives and activities, the WB organized several seminars and workshops and financed three study visits in 2016-2018 (to the EU regulatory bodies), in which representatives of both institutions participated. In its turn, MED organized several events (incl. public consultations) for ISPs to sensitize them to the idea of the Subcomponent 1.1. This effort is bearing fruit, as a good degree of private competition marked two bidding processes under the MED rural broadband pilots, a good sign for the KODE which will replicate and scale up these pilots. The risk of low financial independence of ARKEP will be mitigated under the KODE through a technical assistance to analyze the situation and propose a corrective course of action. It is also worth mentioning that ARKEP has already assigned human resources to carry out the necessary work functions in line with the NSMS investment, which speaks to their strong ownership in Subcomponent 1.2.
68. **The KODE design was screened against existing and future climate and geophysical hazards, and it was concluded that potential impact of climate change on the Project is low.** Although the country is susceptible to a variety of natural hazards (extreme precipitation and flooding, landslides, forest fires, extreme temperatures, drought), those are unlikely to pose any major threat, as the technologies to be deployed are made to be resilient to external shocks. At the

same time, the Project activities are expected to address some of the identified risks that the country is facing, thereby potentially generating climate change adaptation co-benefits.

## VI. APPRAISAL SUMMARY

### A. Economic and Financial (if applicable) Analysis

69. **Combining the cost-benefit (COB) projections for the Project subcomponents, the overall Project delivers a positive net present value (NPV) of €3.8 million and economic rate of return (ERR) of 35%.** The combined projections are presented in figure 2 below.

**Figure 2: Combined Cost-Benefit Projections for the Entire KODE Project**

FY	2019	2020	2021	2022	2023
Year into the project	1	2	3	4	5
<b>Net benefits (Relative to no-project scenario), EUR</b>					
Subcomponent 1.1	€ (1,626,386)	€ (2,302,289)	€ 1,240,565	€ 1,343,144	€ 4,135,992
Subcomponent 1.2	€ -	€ (2,083,247)	€ 1,512,718	€ 1,826,696	€ -
Subcomponent 2.1	€ 23,233	€ 456,027	€ 466,864	€ 478,243	€ 331,428
Subcomponent 2.2	€ (101,480)	€ (433,358)	€ 41,106	€ 329,647	€ 562,552
<b>Total (all subcomponents)</b>	<b>€ (1,704,633)</b>	<b>€ (4,362,867)</b>	<b>€ 3,261,253</b>	<b>€ 3,977,731</b>	<b>€ 5,029,973</b>
<b>World Bank Investments, EUR</b>					
Subcomponent 1.1	€ 1,694,705	€ 3,389,410	€ 3,348,076	€ 3,306,742	€ 248,006
Subcomponent 1.2*	€ -	€ 2,083,247	€ 1,140,826	€ 165,337	€ -
Subcomponent 2.1	€ 124,003	€ 413,343	€ 413,343	€ 413,343	€ 289,340
Subcomponent 2.2	€ 181,871	€ 675,815	€ 692,349	€ 692,349	€ 651,015
<b>Component 3 (project implementation support)</b>	<b>€ 169,305</b>	<b>€ 156,905</b>	<b>€ 140,371</b>	<b>€ 138,718</b>	<b>€ 138,718</b>
<b>Total disbursements per year</b>	<b>€ 2,169,884</b>	<b>€ 6,718,720</b>	<b>€ 5,734,965</b>	<b>€ 4,716,488</b>	<b>€ 1,327,078</b>
<b>Cumulative disbursements</b>	<b>€ 2,169,884</b>	<b>€ 8,888,604</b>	<b>€ 14,623,569</b>	<b>€ 19,340,057</b>	<b>€ 20,667,135</b>
<b>% funds disbursed</b>	<b>10%</b>	<b>43%</b>	<b>71%</b>	<b>94%</b>	<b>100%</b>
<b>NPV @ 7.3% social discount rate (all subcomponents)</b>	<b>€ 3,799,050</b>				
<b>IRR (all subcomponents)</b>	<b>35%</b>				
<b>Social discount rate</b>	<b>7.30%</b>				

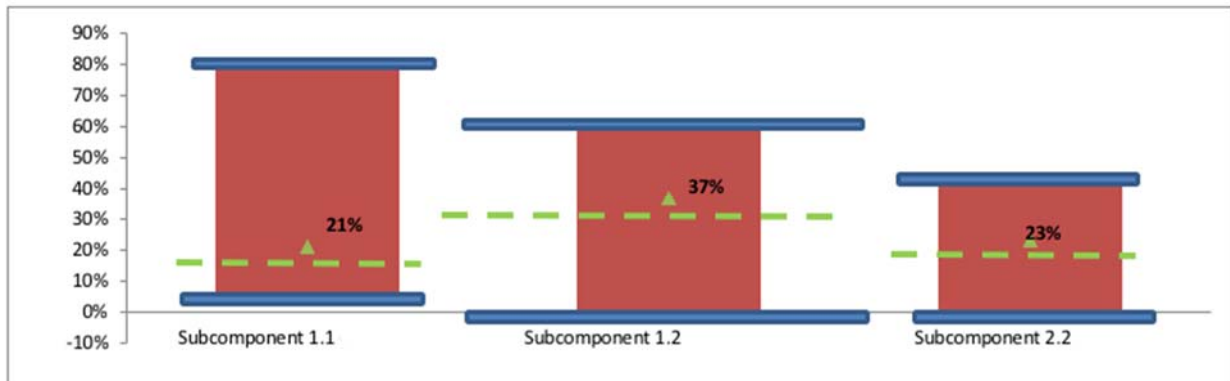
\*Some of the costs under subcomponent 1.2 are shifted one year forward (relative to disbursements) in order to match the corresponding project benefits: \$20 000 (€16 533) - consulting services for MED to review technical specifications for NSMS (to be disbursed in year 1 of the project) - are shifted into year 2, and \$200 000 (€165 337) of maintenance costs (to be disbursed in year 3 of the project) are shifted into year 4.

70. **The estimated ERR of 35% is higher than the social discount rate of 7.3%, which suggests that the Project delivers more value to society than the opportunity cost of resources spent.** Scenario analysis reveals that a high degree of variability in Project outcomes is possible, hence the estimates for ERR for each Project subcomponent might vary: for Subcomponent 1.1 – from 3% to 78% (with projected baseline outcome of 21%), for Subcomponent 1.2 – from -3% to 61% (with projected baseline outcome of 37%), for Subcomponent 2.2 – from -3% to 44% (with projected



baseline outcome of 23%). The results are presented in Figure 3 for Subcomponent 2.1 (YOU Program) has a significantly shorter payback period than other project subcomponents, hence we do not include it in this comparison.

**Figure 3. The range of ERR under diverse Project scenarios for each subcomponent**



- 71. Full COB analysis per Project component is provided in the Annex 6.
- 72. IDA financing is critical because it will provide concessional financing that will crowd in private investment to connect rural communities and train Kosovars for digital jobs. Involvement of the WBG also addresses the lack of other financing means (including from other development partners) for digital economy and especially broadband infrastructure projects. It will mobilize WBG experience on infrastructure deployment, including in the Caribbean and Africa, reduce the risk perception of private investors, and leverage the convening power and honest broker status of the WBG.

## B. Technical

- 73. **The KODE Project addresses important bottlenecks impeding development of DE in Kosovo.** While some activities apply successful examples from other projects implemented by the WB (e.g. digital skills development, support to a NREN), others build on effective programs from other donors or governments (e.g. broadband financing, spectrum monitoring system setup, digital awareness raising). Some of the activities are newer in their design, picking up from innovative interventions in the developing and developed world (e.g. connection to the GÉANT network, online work trainings).
- 74. **The Project components are interlinked to maximize the development impact of the hard investments.** Investments are to be complemented with awareness raising, technical assistance, youth-oriented skills development, and institutional research capacity building with the purpose of not only increasing access to ICTs but also driving adoption of broadband and broadband-enabled services for productive uses of revenue generation, service usage, and learning. This approach reflects the main conclusion of the WDR 2016, which highlights the need for both access to technology and complementary ‘analog’ enablers.
- 75. **As such, the technical design is consistent with existing international best practices.** The design of the Project is based on a model of competitive, private-sector delivery wherever possible, utilizing the MFD approach to leverage private sector expertise and financing and to contribute



to overall sector development. Principles of open access and nondiscriminatory pricing for last mile infrastructure investments (made by contractors who secure the winning tenders under Subcomponent 1.1) will be emphasized to facilitate infrastructure sharing, lower overall sector operating costs, and move competition toward the retail level.

76. A phased approach for Subcomponent 1.2 will allow to establish the NSMS and learn through experience how to improve it in the fastest and most cost-effective way.
77. Project preparation has included consultations with various stakeholders and beneficiaries, increasing buy-in for the Project activities, and informing the design of various components through citizen engagement activities (e.g. focus groups, public consultations with ISPs).
78. MED is currently in the process of preparing TORs for project implementation support consultants. They are expected to be advertised in June 2018 and financed using retroactive financing. Before effectiveness, MED will need to have contracted the key implementation support consultants and prepared the POM. MED is also expected to map the target settlements under Subcomponent 1.1. and prepare the bidding documents; finalize the design of the Subcomponents 1.2 and 2.1-2.2.

### **C. Financial Management**

79. An FM assessment was carried out to determine the FM implementation risk and help establish adequate FM arrangements for the proposed Project. Fiduciary responsibilities for the Project will remain with the MED. The MED demonstrates apt capacity to maintain adequate FM systems in compliance with the World Bank policies based on: (a) the FM arrangements proposed are similar to those of ongoing WB financed projects implemented by MED, (b) no audit issues have been identified from the independent auditors on those projects, and (c) the MED FM staff are by now familiar with implementation of the WB projects.
80. There are areas that require further strengthening and need to be addressed before Project implementation starts, such as:
  - (i) establish financial management procedures, including internal controls and roles and responsibilities of the different institutions involved during the Project implementation and document as part of the POM (project effectiveness condition),
  - (ii) establish rules and procedures for the administering of the competitive matching grant scheme (subcomponent 1.1.) and document in a separate Grant manual, as part of the POM, and
  - (iii) extend the scope of services provided by Kosovo Energy Efficiency and Renewable Energy Project (KEREPP) FM specialist for the proposed project. In addition, continuous training on Bank FM and disbursement procedures would be required for both the FM specialist and staff in the Budget and Finance Department (BFD).
81. The credit proceeds will be disbursed based on the regular IPF disbursement mechanism using traditional disbursement methods such as reimbursement and direct payments. The MED's budget would pre-finance Project expenditures for the respective activities, which will later be reimbursed from IDA credit proceeds, based on Statement of Expenditure (SOEs) documenting such expenditure.



82. As the risk pertaining to insufficient or untimely budgetary appropriation and allocations is substantial, the Project budget and forecast, should be included into the Medium-Term Expenditures Framework (MTEF) and the Annual Budget Law, beginning in the year 2019 when the Project is expected to become effective. Project budget appropriations should meticulously reflect the nature of expected expenditures and implementation plan.
83. Quarterly cash-basis IFRs covering all Project activities will be submitted for the Bank's review within 45 days from the end of the quarter. The annual audit reports on the Project financial statements would be provided to the Bank within six months after the end of each fiscal year. The audit reports would be made publicly available, as per the WBG Policy on Access to Information.

#### D. Procurement

84. **The implementing entity responsible for procurement is MED.** Based on the initial assessment and history of implementation of other WB projects it has been determined that MED has limited procurement capacity to ensure smooth implementation of the Project. The proposed Project will apply the New Procurement Policy Framework (NPF) of the World Bank and the procurement capacities will be strengthened through the hiring of an experienced procurement specialist.
85. **Procurement will be carried out in accordance with the requirements in the Procurement Regulations for IPF Borrowers:** Goods, Works, Non-Consulting Services and Consulting Services dated July 1, 2016; 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants' revised as of July 1, 2016; and provisions stipulated in the Financing Agreement.
86. **The proposed Project will use the Systematic Tracking of Exchanges in Procurement (STEP) system.** STEP is a planning and tracking system, which would provide data on procurement activities, establish benchmarks, monitor delays, and measure procurement performance.
87. **A Project Procurement Strategy for Development (PPSD) was prepared to outline the selection methods to be followed by the borrower during Project implementation in the procurement of goods, works, and non-consulting and consulting services financed by the WB.** The underlying Procurement Plan will be updated at least annually or as required to reflect the actual Project implementation needs and improvements in institutional capacity.
88. **The overall Project procurement risk rating is High.** A procurement capacity and risk assessment was carried out to review the organizational structure for implementing the Project. The KODE will be implemented by the dedicated PIU established under the MED. The risks identified and the mitigation measures are detailed in the PPSD, which is summarized in Annex 2 of this PAD.

#### E. Social (including Safeguards)

89. **Citizen engagement.** The Project will establish a CE framework comprising consultations, youth dialogues, public hearings, a Grievance Redress Mechanism (GRM), and a beneficiary satisfaction survey. A series of consultations will be held at national and local levels (workshops, roundtables, focus-groups). Citizens in target cadastral zones will be consulted on learning and employment needs, and feedback used to design awareness and capacity building activities. In urban areas, dialogues will be held with youth to ensure their engagement (for instance regarding training needs, access to the YOU program, and how to actively engage in the IT service market). Feedback will be used to improve training content and/or take corrective actions during



the outreach and/or application stage. These dialogue platforms will enable participants of the YOU Program to provide feedback annually to inform its implementation. Satisfaction surveys will be conducted annually to obtain feedback from new users of the high-speed broadband, and from YOU Program participants; results will be used to assess satisfaction with CE activities, monitor annual progress, take corrective action and assess the impact at Project closing. Feedback from vulnerable groups (young women, the disabled, and minorities) will be disaggregated to check inclusion. Public hearings will be held annually to report on results and promote accountability and transparency of Project progress.

90. A Project GRM will be established within 6 months of Project effectiveness and will be available for citizens to lodge complaints/feedback on any issue. PIU or ministry staff will be assigned to the grievance redress process; final accountability and follow up will lie with the PIU director. Information about the GRM (contact details, the complaint/feedback process, standards for responses) will be available on the Project website, at targeted local government sites, on village notice boards, and YOU training sites; active dissemination will be carried out during CE events, including the awareness building events. Finally, the Project will use social media and the Project website to disclose Project information (monitoring and safeguards reports, GRM feedback, consultation and survey results) and updated quarterly. The Project has included two indicators in the RF to monitor if beneficiaries are satisfied with access to and quality of broadband services, and if YOU program participants find the Program responsive to their needs. This will check that the citizen engagement is functioning as intended.

#### F. Environment (including Safeguards)

91. **The Project has been classified as Category B mainly for civil works related to installation of high-speed broadband infrastructure under the Subcomponent 1.1.** The designs are not fully defined yet, but works are expected to include small scale civil or earthworks (along existing infrastructure such as roads, electrical cables and pipelines or placed jointly) and/or installation to existing infrastructure (e.g. to overhead power lines). Light construction activities will also take place under the Subcomponent 1.2 for installation of monitoring stations (antennas and antenna tower(s), fixed monitoring stations, mobile monitoring stations) and rehabilitation works to accommodate main control center in Pristina. Some small earth and/or installation works under Subcomponent 2.2 for NREN network infrastructure (at least one interconnected optical ring network) and connecting telecommunications infrastructure to participating universities and colleges (last mile connections).
92. **The Project triggers Environmental Assessment (OP/BP 4.01)** due to the planned civil works indicating possible adverse environmental impacts, including, but not limited to Occupational Health and Safety risks, dust and noise emissions, waste generation. However, these would neither be significant, severe nor lasting. At Project appraisal, sub-project locations and technical details of works are unknown. Therefore, to ensure environmental compliance, MED as the implementation agency, prepared a process ESMF. The document defined procedures for environmental due diligence of Project activities and guides processes facilitating screening, assessment, and management of environmental and social issues during Project implementation.
93. **The geographical scope spreads to 266 target areas, with a possible extension, scattered throughout the territory of Kosovo, some of them possibly in protected areas (PAs).** As only





small scale civil works are planned as part of other infrastructure works (laying pipelines or electricity cables) using existing/planned infrastructure (e.g. roads, overhead power lines, etc.) resulting impacts are expected to be small, temporary, and localized. Therefore, **Natural Habitats Policy (OP/BP 4.04) is not triggered**. However, works allowed under this arrangement have limitations defined in the ESMF and stemming environmental due diligence documents, including (but not limited to): no work will be allowed in critical habitats and no new construction in PAs. For civil works in protected areas, the ISPs will prepare site specific ESMPs, while for all other cases, ESMP Checklists can be used.

94. **WB Policy for Physical Cultural Resources OP/BP 4.11 is not triggered** as (i) the building to host the main control center in Pristina nor future NREN educational facilities are not protected as cultural heritage or similar and (ii) installation of infrastructure under Subcomponents 1.1 and 2.2 will not transect or tangent areas or buildings that are protected, not be located in or in the vicinity of, a physical cultural resources site recognized by the borrower. Yet, due to the country's cultural richness, during the earthworks chance finds are possible. For that reason, ESMF and environmental assessments (EAs) will include a chapter/clause on chance finds management.
95. **The ESMF will allow only category B activities/sub-projects. Category A projects or those from the exclusion list (defined in the document) will not be financed and none in critical habitats.** The ESMF was prepared by the Borrower satisfactory to the WB and publicly disclosed (for 14 days) and consulted in Albanian, Serbian and English before appraisal. The ESMF with the call for public consultation was disclosed on the Governmental – Office of the Prime Minister and MED website on April 4<sup>th</sup>, 2018 (hard copy available at premises). The call was also posted on public consultation platform of the Government of Kosovo and public hearing. In addition to the appropriate public call, the government and relevant non-governmental organizations were invited through official invitations sent out by the MED as well as MED informational board. Public consultation meeting was held in MED's premises in Pristina (April 16, 2018). ESMP Checklists and site specific ESMPs that will be prepared during this Project will be disclosed, in Albanian, Serbian and English, on MED website and website of affected municipalities (hard copies available at premises) for at least 14 days with a call for comments.

#### G. Other Safeguard Policies (if applicable)

96. No other safeguard policies are triggered for the Project.

#### H. World Bank Grievance Redress

97. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and->



*services/grievance-redress-service\_* For information on how to submit complaints to the World Bank Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org).





**VII. RESULTS FRAMEWORK AND MONITORING**

**Results Framework**

**Project Development Objective(s)**

The Project Development Objective (PDO) for the Kosovo Digital Economy (KODE) Project is to improve access to better quality and high-speed broadband services in project areas and to online knowledge sources, services and labor markets among citizens, and public and academic institutions.

<b>PDO Indicators by Objectives / Outcomes</b>	<b>DLI</b>	<b>CRI</b>	<b>Unit of Measure</b>	<b>Baseline</b>	<b>End Target</b>
<b>To improve access to better quality and high-speed broadband services in project areas</b>					
People provided with access to the Internet		Yes	Number	274,156.00	544,681.00
Public institutions with access to high-speed internet through the Project			Percentage	0.00	100.00
<b>Improve access to online knowledge, services &amp; labor markets for citizens, public sector, academia</b>					
Beneficiaries of improved HEI access to high-speed broadband through the Project			Percentage	0.00	80.00
Of which female			Percentage	0.00	80.00
Percentage of beneficiaries of activities in Component 2 who report being employed			Percentage	20.00	30.00



Intermediate Results Indicators by Components	DLI	CRI	Unit of Measure	Baseline	End Target
<b>Component 1: Digital Inclusion</b>					
Private capital attracted into digital connectivity as co-investments under Subcomponent 1.1			Percentage	0.00	50.00
Healthcare institutions with access to high-speed broadband internet in Project areas			Percentage	0.00	100.00
Educational institutions with access to high-speed broadband internet in Project areas			Percentage	0.00	100.00
National Spectrum Monitoring System implemented			Yes/No	N	Y
Beneficiaries satisfied with access to and quality of broadband services			Percentage	0.00	75.00
<b>Component 2: Digital Work and Empowerment</b>					
Youth (aged 18-35) provided with digital skills training under the YOU Program			Number	0.00	2,000.00
of which female			Number	0.00	1,000.00
YOU program participants expressing satisfaction that the Program responds to their specific needs			Percentage	0.00	75.00
Establishment of Kosovo NREN			Yes/No	N	Y
Higher educational institutions with access to the GEANT network			Percentage	0.00	50.00
Households in Project areas covered by Digital Awareness Program			Percentage	0.00	100.00



**Monitoring & Evaluation Plan: PDO Indicators**

<b>Indicator Name</b>	People provided with access to the Internet
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	ARKEP
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED and ARKEP
<b>Indicator Name</b>	Public institutions with access to high-speed internet through the Project
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Project data
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED/PIU



---

<b>Indicator Name</b>	Beneficiaries of improved HEI access to high-speed broadband through the Project
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Inputs from connected HEIs, sample survey of students in the connected HEIs
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED/PIU
<b>Indicator Name</b>	Of which female
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Inputs from connected HEIs, sample survey of students in the connected HEIs
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED/PIU



<b>Indicator Name</b>	Percentage of beneficiaries of activities in Component 2 who report being employed
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Survey of beneficiaries under the Project
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	PIU

**Monitoring & Evaluation Plan: Intermediate Results Indicators**

<b>Indicator Name</b>	Private capital attracted into digital connectivity as co-investments under Subcomponent 1.1
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Project Data
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED



---

<b>Indicator Name</b>	Healthcare institutions with access to high-speed broadband internet in Project areas
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Project Data
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED
<b>Indicator Name</b>	Educational institutions with access to high-speed broadband internet in Project areas
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Project Data
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED



---

<b>Indicator Name</b>	National Spectrum Monitoring System implemented
<b>Definition/Description</b>	
<b>Frequency</b>	At the Project end.
<b>Data Source</b>	ARKEP
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	ARKEP
<b>Indicator Name</b>	Beneficiaries satisfied with access to and quality of broadband services
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Project Data
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED



---

<b>Indicator Name</b>	Youth (aged 18-35) provided with digital skills training under the YOU Program
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	PIU
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED
<b>Indicator Name</b>	of which female
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	PIU
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED





---

<b>Indicator Name</b>	YOU program participants expressing satisfaction that the Program responds to their specific needs
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Project Data
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED
<b>Indicator Name</b>	Establishment of Kosovo NREN
<b>Definition/Description</b>	
<b>Frequency</b>	At the Project end
<b>Data Source</b>	PIU
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED



---

<b>Indicator Name</b>	Higher educational institutions with access to the GEANT network
<b>Definition/Description</b>	
<b>Frequency</b>	At the Project end.
<b>Data Source</b>	Project Data
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED
<b>Indicator Name</b>	Households in Project areas covered by Digital Awareness Program
<b>Definition/Description</b>	
<b>Frequency</b>	Annual
<b>Data Source</b>	Surveys of beneficiaries, PIU
<b>Methodology for Data Collection</b>	
<b>Responsibility for Data Collection</b>	MED

---

## ANNEX 1: DETAILED PROJECT DESCRIPTION

### COUNTRY : Kosovo Kosovo Digital Economy (KODE)

#### Component 1: Digital Inclusion (€15.38 million)

**Subcomponent 1.1: Financing Digital Connectivity (€11.99 million)** will finance: (1) deployment of high-speed broadband infrastructure on technologically neutrality grounds to cover: (a) unconnected ('white') settlements across the country, and (b) unconnected public institutions in the same settlements (€11.82 million); and (2) provision of technical assistance and capacity building activities for ARKEP and MED to strengthen the enabling policy, legal, and regulatory environment to support the rollout of high-speed broadband infrastructure on open-access and non-discriminatory terms and development of digital economy (€170,000).

The following describes implementation arrangements for this subcomponent:

- 1. Target beneficiary groups.** Unconnected settlements (cadastral zones) across the country, and unconnected public institutions, namely educational (primary and secondary schools) and healthcare institutions<sup>44</sup>.
- 2. Objective.** The population living in non-covered cadastral zones have the same rights as the rest of the population for access to high-speed broadband networks. Rolling out high-speed broadband infrastructure will improve the quality of life in these areas, while allowing local population to have better access to new sources of information and knowledge, services, and revenue-generating opportunities (e.g. online work). It may even help hinder depopulation of some of these areas. There is conclusive evidence that broadband connectivity is of strategic importance to growth and innovation in all sectors of an economy as well as for social and territorial cohesion. Fast and widely available broadband is therefore key ingredient to local growth and prosperity of Kosovo. The KODE Project strives to make high-speed broadband infrastructure deployment faster and easier, while aiming for the highest impact on the everyday life of the population living in the non-covered cadastral zones.
- 3. Approach.** The Project will allocate grants to ISPs through a competitive matching grants arrangement. The grants will be awarded per lots; each lot will be grouping several cadastral zones<sup>45</sup>. The PPSD lists potential lots for the first 18 months of the Project. ISPs with the most economically advantageous proposal will build, manage, and commercially exploit publicly co-financed broadband networks. This means that the Project will select those ISPs that will provide the most efficient technical solution, incl. in terms of budget, and will request the least amount of grant to connect the selected cadastral zones within the specific lot, including public institutions located there. After the completion of the broadband infrastructure deployment, the state will not assume any role in the ownership or operation of the networks. Operators will assume a number of obligations that are aligned with the EU approach for the regulation of publicly co-funded broadband projects. The disbursement of the grant amount to the selected ISPs will be linked to completion of deployment. Exact Implementation details will be established in Grant Manual (part of Project Operations Manual (POM)).
- 4. Regulatory framework to guide the investments under the Project.** The EU has adopted a comprehensive guidance for EU Member States on the approach for the regulation of publicly co-financed broadband projects (Guidelines).<sup>46</sup> Through different sets of regulatory safeguards (depending on the size of the financial support), the Guidelines ensure that awarded public co-financing does not distort the competition and, at the same time, public objectives are delivered. MED and ARKEP are working to implement the provisions of the Guidelines with regards to publicly co-financed infrastructure. Most of the obligations are already part of the broadband pilots conducted by the MED. The Ministry has also included additional requirements, such as to provide free high-speed broadband internet access (of at least 100 Mbps) to schools and health institutions for a period of five (5) years. All the requirements were pre-discussed and validated by ISPs during the past few years. Technical assistance will be provided by the Project Subcomponent 1.2 to support MED and ARKEP in this work.
- 5. Identification of non-covered areas.** The territory of Kosovo is divided into 1351 cadastral zones. MED conducted identification of uncovered areas based on the geographic division criterion (cadastral zones), the telecom market evidence and in frequent consultations with the private sector to ensure that there is no room for private investments in these areas outside the Project in the next three years. MED has identified 266 cadastral zones, which are non-covered with broadband infrastructure ('white' areas); 719 areas, which are covered with electronic communications networks by only one ISP (so-called 'underserved' or 'grey' areas); and 138 areas, on which more information is required (these are the villages mostly located in the country's north).<sup>47</sup> The process of identification of non-covered areas was conducted in accordance with the recommendations of the Guidelines; the process also

requires that MED verify each lot with ISPs closer to the announcement of the lots. This procedure will be outlined in detail in the POM.

6. **Prioritization of investments.** The Project will address the needs of 266 cadastral zones that are non-covered with broadband infrastructure (see figure 1A.1). Subject to available financing, inclusion of additional cadastral zones will be considered (while the location of these, additional zones is known, the eligibility of these zones for funding under the KODE will have to be re-confirmed).

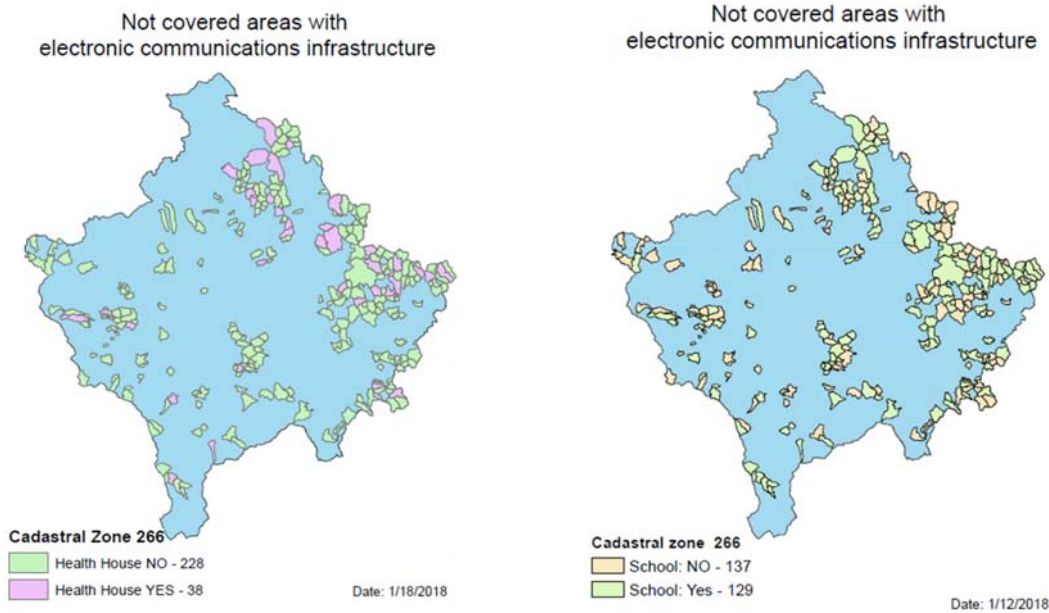
**Figure 1A.1: Map of Non-covered Areas of Kosovo** (highlighted in green)



Source: MED, 2018

7. Overall, the 266 cadastral zones include 129 primary and secondary schools and 38 healthcare facilities, scattered across municipalities of Kosovo, per below figures 1A.2 and 1A.3.

**Figures 1A.2 and 1A.3: Map of Non-covered Healthcare Institutions (left) and Map of Non-covered Educational Institutions (right), Within 266 Cadastral Zones**



Source: MED, 2018

8. Based on the number of inhabitants, the 266 cadastral zones were subsequently divided into three categories for further prioritization and sequencing of activities:

- (a) *Cadastral zones with more than 200 inhabitants.* There are 101 such zones. Usually there are schools in these areas, and there is also presence of health centers. The KODE shall prioritize these areas over others.
  - (b) *Cadastral zones with 50 to 200 inhabitants.* There are 111 such zones, which, in general, do not have a health center, but where there are some schools. The KODE shall prioritize these areas over the ones with fewer than 50 inhabitants.
  - (c) *Cadastral zones with fewer than 50 inhabitants.* There are 54 such areas, and there is not a school and not a health center in any of them. These are typically less (seasonally) inhabited areas located at the country's borders, however visited by tourists. They tend to be located close to bigger (a) and (b) type settlements. These are the areas to be prioritized after cadastral zones (b) will be fully covered.
9. **Technology choice.** The Project aims to achieve guaranteed high-speed broadband connections in non-covered areas of at least 100 Mbps; in case of public institutions, with possibility to upgrade the connection speed to up to 1 Gbps. In doing so, the Project will respect the principle of technological neutrality.
10. **Civil engineering works.** To lower the costs of civil engineering works of broadband deployment (which usually take up to 80% of the cost of the entire project), the Project will, whenever possible, coordinate with civil engineering works, planned or ongoing in the target areas (e.g. works concerning roads, gas, water, or electricity maintenance or provision), to deploy ducts to facilitate further installation of fiber optic cables. For instance, there are some ongoing works led by Kosovo Energy Distribution and Services company (KEDS), aimed at replacing the old electricity poles with new concrete ones. Thus, the installation of the broadband networks shall start in those areas where KEDS has ongoing works, where priority is given to the zones with the number of population of more than 200 inhabitants. New poles installed by KEDS will allow for more cost-efficient aerial installations.
11. This subcomponent will also provide technical assistance and capacity building activities for ARKEP and MED to strengthen the enabling policy, legal, and regulatory environment to support the rollout of high-speed broadband infrastructure on open-access and non-discriminatory terms and development of DE (€170,000).
- Subcomponent 1.2: Improving the enabling environment for digital connectivity (€3.39 million)** will finance: (1) Provision of technical assistance to perform the assessment and review of the Technical Specifications for Kosovo NSMS (€20,000); and (2) will procure the NSMS per updated Technical Specifications (€3.37 million).
12. **Spectrum is a scarce public resource managed by ARKEP; it is essential for the wireless networks' development.** No wireless communications network (incl. mobile) can be developed without usage of relevant spectrum bands. Poor management and monitoring of the spectrum resource leads to inefficiencies in spectrum licensing and usage, causes delays in wireless network roll-out, and weakens quality of wireless services. NSMS provides the technical means<sup>48</sup> to conduct the spectrum monitoring daily and is therefore essential to support investments in wireless networks' roll-out through informed and timely decisions on frequency bands assignment and usage.
13. **Unlike any other country in the WeBa or in the EU, Kosovo does not have required NSMS functionalities and therefore proper means to efficiently manage spectrum, which contributes to poor mobile market performance.** For instance, ARKEP introduced 4G spectrum licenses only in 2014/15, making Kosovo the last country in the region to launch 4G services. At the end of 2017, the penetration of mobile broadband subscribers stood at 84.75 percent<sup>49</sup> - the lowest in the region due to impediments in licensing processes. The country's mobile penetration is lower than the regional average (127.4 vs. 147.8 percent, as of September 2017)<sup>50</sup>.
14. **NSMS will provide ARKEP with technical means to implement spectrum management nationally in an efficient way.** Spectrum management (the overall process of regulating and administering the use of radio spectrum) is among the key functions of ARKEP, per its legal mandate established by Article 97 (4) of the Law on Electronic Communications<sup>51</sup>.
15. **With donor support, ARKEP has conducted preparatory work to develop technical specifications for NSMS.** In 2013-2014, ARKEP benefited from the EBRD-funded "ICT Sector Capacity Building for ARKEP" project, which financed the preparation of the NSMS procurement package: (a) overall requirements for the NSMS, (b) request for proposals for NSMS (incl. technical specifications), and (c) compliance matrix template for prospective bidders. The prepared package was endorsed by ARKEP's Board and consists of the following elements: (1) Main Control Center in Pristina, supported by: (2) Remote Fixed Monitoring Stations to cover all monitoring tasks, including Frequency Band Occupancy and Frequency Channel Occupancy and interference handling; (3) Remote Fixed Direction Finding Station; (4) Mobile Monitoring Stations for all type of mobile monitoring operations; (5) Transportable monitoring station for all type of monitoring operations; and (6) Portable Monitoring Equipment to perform monitoring in local situations (e.g. in buildings).

16. **Under this Subcomponent, the Project will finance the review of the Technical Specifications for Kosovo NSMS and will procure the NSMS per updated Technical Specifications.** Given that the Technical Specifications were prepared some time ago, the Project will finance the review and update of the prepared Technical Specifications to align them with the current situation in terms of wireless technologies in use and forthcoming technical and human capacities of ARKEP, and other important factors that may affect the initial requirements and estimates. After this work has been conducted, the Project will procure the NSMS based on the updated Technical Specifications. Given that NSMS is a highly specific and technologically complex system, its procurement is likely to require expert support for the bids evaluation and implementation oversight (for more details see PPSD).

## **Component 2: Digital Work and Empowerment.**

**Subcomponent 2.1: Youth Online and Upward (YOU) Program (€1.65 million)** will support provision of training for young people and their connection to online working opportunities. The activities will primarily cater to unemployed or underemployed young men and women with at least some knowledge of English and university education to increase their ability to compete in relevant segments of online work using computers.

The following describes implementation arrangements for this subcomponent:

17. **Remit.** This subcomponent will finance ICT industry-oriented skills development training to help tackle existing market failures manifesting themselves in gaps in information on benefits of online work, gaps in information on mechanisms to become an online worker, and high costs of skills acquisition for un-/underemployed youth, especially women. What's more, this activity will aim to help tackle an existing employment gap in the ICT sector by training in digital occupations a significant share of women (50%) who are typically underrepresented in ICT training programs. Conceptually, the Program will build on the lessons learnt of a four-phased WoW pilot in Kosovo. The costing of this subcomponent equally draws on the inputs provided in the impact analysis of Phase I of the WoW, implemented by the WB in the municipalities of Lipjan and Gjakova.
18. **Training approach.** The YOU Program will skill beneficiaries over a period of six months to work online, while performing IT and IT-enabled services in front-end web development, graphic design, and search engine optimization (SEO) as online freelancers. In doing so, the Program will replicate the approach deemed to be the most effective in terms of skills and digital jobs acquisition, tested in a four-phased WoW pilot, designed and implemented by the WB in 2015-2017 in five municipalities, and later replicated by two other donors through similar short-term interventions. While reflecting regional and/or global online work trends, the exact curriculum per stream will have to incorporate specific local demand from Kosovo-based employers through inputs and consultations with the local IT industry and associated sectors, new digital economy businesses/startups.
19. **Beneficiary groups.** The skills development training will be delivered to approximately 2,000 youth (aged 18-35) along the following priority streams: front-end web development (beginner level), graphic design (beginner level), and SEO (beginner level). Economies of scale and/or partnerships with private sector and donors are likely, enabling many more youth to enroll in the program as it progresses, as evidenced by the WoW pilot.
20. **Gender-oriented approach.** In the training, a pre-determined share of spots (50%) will be reserved for young women, as the KODE looks at the youth unemployment problematic in Kosovo from the gender lens. The high rate of female participation in the program will be ensured through wide and inclusive outreach, through the selection procedure, and during program implementation. The outreach will be organized through printed materials, locally-held public consultations (with invitations extended to women NGOs and advocacy groups), local and social media (with targeting of pro-women social media pages and groups). Social media will be also used for soliciting feedback by beneficiaries on this subcomponent (including targeting of women), in addition to the use of surveys to understand the impact of activities on beneficiaries, and on women. The survey activities to measure the Program effectiveness and satisfaction rate are budgeted as part of Component 3.
27. **Criteria for enrolment.** The criteria for enrolment into the YOU program call for clarity, non-ambiguity, and should be sufficiently flexible to allow to attract the motivated and diverse cohort. The criteria for the YOU have been based on the lessons learnt from the WoW pilot, whereby each applicant must undertake a selection process consisting of a questionnaire, a written English level test, a logic test (for the front-end web development stream only), and an interview in English to verify an applicant's command of oral English, plus test his/her motivation for the chosen stream and, in general, for online work. The YOU will be oriented to enroll the youth, with a pre-determined share of spots for qualified young women, with the defined characteristics, such as:
- (a) aged 18-35 years old at the moment of application;
  - (b) who have or will complete university-level education;
  - (c) who is currently unemployed or underemployed, and who would like to find employment; and

(d) who has at least an intermediate level of English.

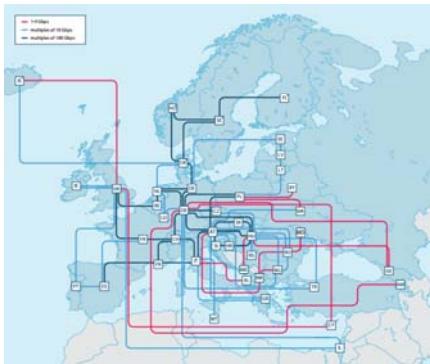
28. **Training venue.** The YOU program plans to leverage a network of seven vocational training centers (VTC) of the MLSW located in the capital (Pristina) and main city centers: Peja, Ferizaj, Gjakova, Mitrovica, Prizreni, and Gjilan. For the WoW pilots, MED and MLSW have signed a Memorandum of Understanding, which allows the MED to use regional VTC for delivering ICT trainings. Organizing the training in these centres would help the program save on the venue rental costs, thus channeling its resources into the delivery of trainings. Phase 1 of WoW leveraged one such VTC (in Gjakova) and the experience has been mostly positive.
29. **Diversity.** YOU shall aim to enroll approximately 150 participants in each of the following cities: Peja, Ferizaj, Gjakova, Mitrovica, Prizreni, and Gjilan, and approximately 1,100 in Pristina. In each city, the program will aim to ensure diversity of profiles by selecting in each location around 50 representatives among: (i) current university students; (ii) unemployed university recent graduates; and (iii) unemployed graduates with professional experience.
30. **Training methodology.** Although the exact teaching (pedagogical) approach is to be proposed by the vendor that will deliver the trainings across all seven locations, a preferred teaching methodology, which has shown success under the WoW, shall rely on the heavy use of digital tools for learning (e.g. massive open online courses, online video lectures) and also application of the gained theoretical knowledge to practice already during the training period, especially through online job bidding, individual portfolio building, and team projects. Where possible, the Program needs to pursue a project-based approach, encouraging group thinking and challenge solving in teams, and extensive self-paced learning outside of class. Although focused on e-learning, it shall also include face-to-face seminars and workshops and peer mentoring from successful graduates of the WoW pilots and local self-made online freelancers. A 'training of trainers' model will be equally pursued to ensure the program sustainability. Seven local employment centers and private sector IT training providers will be encouraged to assign their instructors to observe and participate in the Program to gain hands-on, transferrable skills for further dissemination of knowledge and development of relevant training modules for their clients.

**Subcomponent 2.2: Increasing access to knowledge, information, and services (€2.89 million)** will finance two sets of activities: (1) setup NREN to improve access of students, researchers and educators of HEIs in Kosovo to knowledge, research networks; and connect NREN to the GÉANT network (€2.48 million); and (2) provision of support to increase use of online labor market information and services to improve information flows about work opportunities, through targeted awareness raising and information sharing activities to households in the areas under Subcomponent 1.1 (€410,000).

The following describes implementation arrangements for the first set of activities. Activities implemented under this part of the subcomponent are implemented at the national level.

31. **Improving access to research and education will be undertaken through the establishment of a Kosovo NREN and connecting its members (HEIs) to the GÉANT data network.** Such a connection will increase opportunities for students, researchers, and educators to access knowledge, collaborate in research and development for colleges, universities, research institutions, and so on.
32. **Co-financed through the EU's 7<sup>th</sup> Research and Innovation Framework Program, GÉANT is unique in its role to interconnect research, education, and innovation communities worldwide, with secure, high-capacity networks.** Through connection of over 110 NRENs, the GÉANT network connects over 50 million users in 10,000 various European institutions, supporting all science disciplines, and various services that reach end users through telecommunication networks (see figure 1A.4). Today, major collaborative research projects in Europe rely on this network.

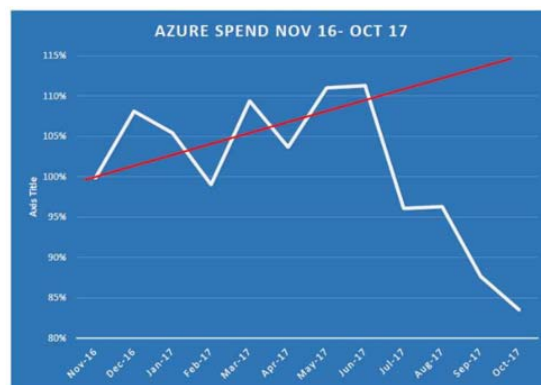
**Figure 1A.4: GÉANT Network Topology, August 2017**



Source: GÉANT

33. **Interconnectivity among national scientific and educational communities in the EU and beyond is organized through the country NRENs; Kosovo is the only country in Europe that has not yet established a NREN.** Each NREN has its own organizational structure, national status, physical network nationally, connecting HEIs among themselves and with the GÉANT network. Each NREN provides a range of services designed for its users in full support of the national research and education process, among them the most important one is the provision of high-speed broadband connectivity. Note that GÉANT does not interconnect with separate HEIs; it interconnects only with NRENs. After during/after interconnection GÉANT works with NRENs to build their unique portfolio of services and tools<sup>52</sup>), based on GÉANT offerings. All European NRENs are members of GÉANT.
34. **Improving access to knowledge activities under this Subcomponent will support Kosovo’s research and education community, making it possible for local HEIs to interconnect and obtain access to the GÉANT Network.** The ease of access to premium world-class academic information and collaboration that this network offers will promote and intensify research activities within the country and between Kosovo and other countries, thus stimulating DE development, among other benefits. Specific outcomes of Kosovo’s connection to the GÉANT network contribute to:
- (a) Increasing participation of Kosovo’s professors/researchers/students in research and development activities led by the international scientific and educational community;
  - (b) Adapting the university and research system in Kosovo to the levels of the EU countries;
  - (c) Reinvigorating and empowering Kosovo’s HEIs and research institutions in their function of disseminating top-notch knowledge, promoting, and conducting research activities; and
  - (d) Supporting regional and European integration of Kosovo.
35. **Establishing of the Kosovo NREN is a prerequisite for the country’s connection to GÉANT. Now, there is no interconnectivity between its universities and colleges; nor is there any sharing or exchange of ICT resources.** A quality change will be therefore achieved through the establishment of the Kosovo NREN and development of modern telecommunication infrastructure interconnecting HEIs across the country, coupled with the GÉANT membership. Quick potential gains include the major decrease of costs related to IT and software that are now being assumed by each HEI individually. Because GÉANT is negotiating connectivity and IT services’ prices on behalf of its entire vast network, Kosovo NREN members will receive advantages and support in the procurement of such services through GÉANT. As an example, the figure 1A.5 below presents the decrease of costs for cloud services for Ireland’s NREN thanks to GÉANT.

Figure 1A.5: Evolution of Microsoft’s Azur Cloud Service Costs in the Case of Ireland’s NREN





Note: Red line show the cost projection without GÉANT intervention; white line – actual experienced costs.

Source: GÉANT

36. **Kosovo NREN physical network.** The connectivity among different users within the country is the main reason for the existence of a NREN. A high-quality education system should be serviced through adequate telecommunication infrastructure and technological tools to facilitate learning, knowledge exchange, and enhance research and scientific productivity. The Project will therefore, first and foremost, support a feasibility study to determine the most optimal way to ensure a high-speed broadband network in nine cities (Pristina, Gjiilan, Ferizaj, Prizren, Gjakova, Peja, Mitrovica, Podujevo, Lipljan), thus providing interconnectivity to all of Kosovo's HEIs, at one or more points of presence for each entity. This network will have to be distinguished from other networks by performance, services, and other advantages offered to the community. The network topology will have to be comprised of at least one interconnected optical ring network. Pristina, as the capital city with the highest population and with the highest number of HEIs, will have to be provided with a metropolitan ring network with a minimum of 10 Gbps backbone capacity. The rest of the cities will be connected using another ring(s), whenever possible. This proposed topology will increase the network reliability and availability, as there will not be any single points of failure; it is also well aligned with the geographical distribution of the cities. Other uncovered cities will have closer access points for connecting to the network. The Project will consider the ability to upgrade the data rate in the future without having to reinvest into a new platform. It is essential that the network implementation should be adaptable to respond to arising bandwidth requirements.
37. **Specific activities to be undertaken to achieve the above include:** (a) feasibility study to determine the ultimate model of Kosovo's NREN, its setup and operation (€420,000); (b) setup of NREN and its network through financing a Virtual Private Network (VPN) among participating HEIs through a competitive selection process (based on the results of the feasibility study) (€1.9 million); and (c) covering of the costs of the GÉANT membership, one-off connection fee, plus annual fees, for the period of four years (€170,000).

The following describes implementation arrangements for the second set of activities (€410,000). Activities implemented under this part of the Subcomponent are limited to the Project areas identified under the Subcomponent 1.1 (a).

38. **The awareness raising activities will finance the targeted distribution of information on productivity-enhancing digital resources and activities, such as services, information on employment, learning opportunities, and cybersecurity, etc. to the households.** The beneficiaries will include the households which benefited from the broadband internet connectivity under Subcomponent 1.1. The proposed activities are expected to address the gaps and asymmetries in the access to information, knowledge, services, and income generation and employment opportunities through a digital awareness program for households. In other words, this Subcomponent will convert the connections financed out of Subcomponent 1.1 into economic opportunities through better access to labor markets and knowledge.
39. **This activity will support increased adoption of broadband services among the target households and public institutions under Subcomponent 1.1 to ensure their participation in the DE.** The focus of this subcomponent will be on rural households, which is driven by the existing digital divide that exists in their access to broadband. The 2017 Urban-Rural ICT Usage Survey, conducted by the WB under Kosovo Digital Economy (KODE) TA concluded that out of those rural households that do not have an internet connection, a greater share finds internet not useful and lack skills to use it; display lower use of public services online and e-commerce activity<sup>53</sup>. Consultations with rural ISPs have affirmed that most rural households that do not subscribe to broadband Internet services expose the lack of knowledge about the uses of the broadband Internet beyond simple social networking or basic communication (e.g. use of Viber or Skype). Given the proximity of ISPs to and knowledge of their existing and potential clients, the Project will closely work with ISPs to address these knowledge and information gaps of rural beneficiaries.

#### **Component 3: Project Implementation Support (€740,000).**

40. This component will finance project management activities (incl. environmental safeguards management), fiduciary management, strategic communications, partnership development, M&E functions, and CE. It will sustain operations of a PIU, as well as its institutional strengthening, training, communications and CE activities, M&E, etc. In addition to financing the core team of the PIU, focused primarily on fiduciary, safeguards, and project management functions, the Project will include communications and CE support to raise awareness and acceptance of the different KODE activities, and increase the level of engagement around them among target beneficiaries, key stakeholders, and the population at-large. Such support will entail organization of private-sector

consultations, community roundtables, press events, basic PR/communications campaigns (through the Project-specific webpage and produced media materials), and two-way communication through a social media channel.

41. Through concentrated communications and CE activities the Project will aim to feed citizens' feedback into the Project implementation. It shall set up a trilingual (Albanian, English, and Serbian) Project-specific website, which will feature timely updates on all key Project activities. It will also include a testimonials page featuring the citizen feedback received with replies from the PIU on the feedback, which requires a comment or action. For key milestones of the Project the PIU will be required to hold press briefings or press conferences encouraging wide media and civil society participation (especially of transparency and accountability watchdog groups and citizen activists). The PIU shall also set up a Project-specific Facebook page, which it will have to maintain frequently updated in three languages. This social media component, as part of the overall strategic communications strategy, will aim at facilitating a two-way real-time communication and feedback loop with Project beneficiaries and stakeholders, thus being a valuable complement to the testimonials webpage.
42. With regards to M&E, the Project will finance a survey among beneficiaries (potentially coordinated with other surveys to reduce costs and improve triangulation of economic impacts) under Subcomponent 1.1, a beneficiary survey and focus groups among beneficiaries of the YOU program under Subcomponent 2.1, and a series of focus groups with universities and colleges under Subcomponent 2.2 – all of which will help the PIU to monitor implementation progress and estimate development impact, including tracking the impact of the Project investments on beneficiaries' incomes and employment status, and to understand the poverty impacts.

## ANNEX 2: IMPLEMENTATION ARRANGEMENTS

### COUNTRY : Kosovo Kosovo Digital Economy (KODE)

#### Project Institutional and Implementation Arrangements

1. **The KODE Project will be implemented by MED that will provide strategic direction and technical oversight to the entire Project.** In October 2017 MoF formally requested the WB to support the design and financing of the KODE project confirming MED as its implementation agency. Pursuant to Annex 18 of Regulation No. 02/2011 on the Areas of Administrative Responsibility of the Office of Prime Minister and Ministries, MED oversees the ICT sector development. MED executes its ICT mandate through the Department of Post, Telecommunication and IT (the Department), which for the purposes of this IPF will act as the lead implementing agency for the Project and carry the primary responsibility for the Components 1, 2, and 3, including Subcomponent 1.2 with the activities to support ARKEP.
2. The WB, through various projects and initiatives, has been supporting the Department, and MED since 2013. The Department is thus experienced in working with IFIs, including the WB. For instance, the Department has been the driving force for the preparation of the *Digital Agenda, IT Strategy* and has, with support of different donors successfully implemented several ICT initiatives.
3. **ARKEP will be involved in the Project implementation (Subcomponent 1.2)** by providing input to the preparation of technical specifications, reviewing and evaluating tenders, and participating in the Commission of Acceptance of the works delivered by the selected vendor.
4. **The KODE PIU shall support all fiduciary and safeguards functions.** At a minimum, it will require the following personnel, hired through a process and with terms of reference that are acceptable to the WB:
  - a Project and Component Coordinator (PCC), responsible for the overall management of the activities;
  - a procurement specialist.
5. In addition, the PIU will hire, using Project proceeds, qualified and experienced staff, acceptable to the Bank, to fill specific operational advisory, financial management, fiduciary, technical roles, safeguards, technical supervision and oversight, M&E, communications, as identified in the POM, and per Annex 3.
6. **The Project will be implemented in accordance with the POM,** which will include: (a) a detailed description of Project components and their implementation arrangements; (b) detailed Project cost estimates; (c) procurement, financial management and disbursement arrangements; and (d) roles and responsibilities of staff working on the Project; (e) roles and responsibilities of the agencies involved in the Project implementation and relevant documentation; and (f) matching grant manual. The POM will be amended periodically to incorporate adjustments during Project implementation, in agreement with the WB. Other integral Project documents include the PPSD, Procurement Plan, and ESMF.
7. **Implementing agency's risks have been identified and their mitigation strategy put in place.** First, the *fiduciary risk*, assessed as high is driven by country risk, the implementing entity's weak capacities on the application of the new procurement policy framework of the WB, and specific fiduciary risks associated with the proposed matching grant financing arrangements. From the financial management perspective, the Project would rely extensively on the various elements of Kosovo's public FM systems. While strengths are recognized in Public Financial Management (PFM) systems, these are offset, to some extent, by limited professional and technical capacities and gaps in implementation. There are areas, such as the matching grant financing arrangements proposed, that are not tackled by the current PFM regulation. To ensure high-quality fiduciary compliance and for timely procurement and disbursement under various Project activities, the PIU's capacity for procurement and FM will be strengthened through consultants.
8. Second, the risk pertaining to *insufficient or untimely budgetary allocations* has been assessed as substantial. Project budget appropriations should meticulously reflect the nature of expected expenditures, programs, source of funding, and Project implementation plan. While this risk cannot be entirely eliminated, the annual budget preparation process and related reviews will be followed up by the Bank team.

9. Third, there have been found some *weaknesses in the local capacity to follow WB Safeguard policies*. Measures for strengthening local capacity – of local businesses who are to execute physical works and implement environmental measures and achieve required standards – will include workshops explaining WB safeguard policies and distribution of informational materials.

## Financial Management

10. An FM assessment has been carried out to determine the FM implementation risk and help establish adequate FM arrangements for the proposed operation. The overall FM risk at this point is substantial.
11. Bank policies and procedures on FM and disbursement require that the Borrower and the Project implementing entities maintain FM systems adequate to ensure that they can provide the Bank with accurate and timely information regarding Project resources and expenditures. The existing arrangements are considered adequate for Project implementation; however, there are areas that require further strengthening and need to be addressed before Project implementation starts:
  - (i) establish financial management procedures, including internal controls and roles and responsibilities of the different institutions involved during the Project implementation and document as part of the POM (project effectiveness condition),
  - (ii) establish rules and procedures for the administering of the competitive matching grant scheme (Subcomponent 1.1.) and document in a Grant manual as part of the POM, and
  - (iii) extend the scope services provided by KEEREP FM specialist for the proposed project. In addition, continuous training on Bank FM and disbursement procedures would be required for both the FM specialist and staff in the Budget and Finance Department (BFD).
12. **Use of country systems:** The Project would rely extensively on elements of Kosovo's public FM systems, including (i) planning and budgeting, (ii) internal control, (iii) flow of funds and payments, and (iv) accounting and reporting. Kosovo has participated in a number of detailed reviews of its PFM, among them a series of central government PEFA assessments (2007, 2009, and 2015); a municipal PEFA (2011); a country fiduciary review (2012); annual EU-SIGMA reviews; and other analyses by the World Bank. The various reviews have plotted the significant progress Kosovo has made in improving PFM. The Country Fiduciary Assessment conducted in March 2012 showed that key strengths include the sound legal framework, the integrated central Treasury system, and an increasingly effective external audit office. The strengths are offset by limited professional capacities and gaps in implementation. There is considerable scope for improving budget planning and preparation, internal financial control, audits, debt management, and capital investment management. The authorities are aware of these limitations, and progress is occurring with support from donor community. Lagging areas include (i) limited coordination of budgets, MTEF, sector plans, and budget ceilings; (ii) budget preparation that is not fully linked with Treasury systems; and (iii) FM control and audits that are not fully effective.
13. MTEF and the Annual Budget Law are the two main documents presented for assembly review and approval. Public FM in Kosovo is highly centralized in relation to budget policy and institutional control. The annual budget at the beginning of 2016 covered 16 ministries, 8 agencies, approximately 30 independent institutions, reserved powers, and 38 municipalities (although 3 municipalities only partially participate) - excluding resources and activities funded by Serbia.
14. Budget execution is controlled by setting allocation limits, which are based on forecasts of available resources and the individual needs of the spending institution, with due regard for seasonality of revenues and expenditures. The Treasury manages allocations through the year and controls budget execution and cash management based on the cash plan submitted by the budget organizations themselves. The Kosovo Financial Management Information System (KFMIS) is an important tool in executing the budget. In general, internal control procedures are well-understood. The Treasury is serviced through the Single Treasury Account (STA) with the Central Bank of Kosovo (CBK), through which all government revenues and expenditures are recorded. Reconciliations between CBK and Treasury records are performed daily. The financial information is entered into the KFMIS, which produces reports. Records and information are produced, maintained, and disseminated to fulfill decision-making control, management, and reporting purposes as needed. Budget execution reports are organized by structure of the budget and present fund balance commitment on a monthly and quarterly basis for each category.
15. **Implementing agencies and the FM staff:** The Project's FM will be the responsibility of the Division of Budget and Finance (DBF) in MED. MED has demonstrated adequate FM capacity for ongoing Kosovo Energy Efficiency and Renewable Energy Project (KEEREP), and is generally in compliance with WB requirements. Support by a part-time FM consultant has been provided to MED's DBF, and the same arrangements will be adopted for the proposed

Project.

16. The FM Specialist reports to the head of DBF and works closely with other finance staff on preparing commitments, ex-ante controls in payment of Project expenditures, planning and budgeting of Project, preparation of quarterly IFRs and withdrawal applications. The PIU FM Specialist will have access in KFMIS, to view and generate Project reports. Despite the fact that finance staff have attended trainings and workshops on Bank fiduciary and disbursement in the past, continuous trainings and workshops would be delivered in the future.
17. **Budgeting.** In general, the mechanisms for budgeting and opening the budget (release of funds) in MED are considered adequate for the needs of the proposed Project. The MoF budget instructions guide budget and planning preparation process. Project budgets and forecasts would reflect inputs from the technical departments and agencies involved with the Project and will be based on approved procurement and implementation plan. These budgets would form the basis for allocating funds to Project activities and, after expenditures are paid, for requesting funds from the Bank. To facilitate reporting and planning activities, a unique Project code would be assigned, and all Project activities would be captured by this code. The budgetary ceilings monitored by MoF provide constrain for inclusion of the Project activities in the Ministry budget, especially for those items that are not regulated by the investment clause. A realistic Project budget and forecast, prepared as above, should be included in the MTEF and the Annual Budget Law, beginning in the year the Project is expected to become effective to secure adequate funds availability for the Project activities. Project estimates have been included in the draft MTEF 2019-2021. The annual budget preparation process will be monitored by the bank team.
18. **Internal controls.** General government regulations for processing transactions and approving contracts exist. When gaps are identified, additional measures are put in place for Project activities. Recent external audit reports demonstrate that MED is generally in compliance with PFM regulation, however lagging areas have been identified such as budgeting, allocation and cash flow forecast, subsidies and fixed assets management that require continuous management attention. For the proposed Project, the MED is committed to maintaining an effective internal control system to ensure that Project expenditures are properly verified and authorized; supporting documents are maintained; accounts are reconciled periodically; and Project assets, including cash, are safeguarded. The Financial Management Manual, part of the POM, will describe the FM, disbursement and internal controls policies and procedures, intended to guide staff and minimize the risk of errors and omissions, as well as delays in recording and reporting. These written standards are to clarify segregation of duties and responsibilities, including level of authority, clear control over funds and assets, and it ensures timely and accurate financial reporting. Special attention will be given to those areas that required clarity on roles and responsibilities of different institutions involved during the Project implementation, such as with ARKEP.
19. The MED through the ICT department and support of PIU will be responsible for administering the competitive matching grants activity under Subcomponent 1.1, in accordance with the Grant Manual, which will be prepared in a manner satisfactory to the Bank. Any changes to the Grant Manual during the Project implementation will require prior Bank approval. The Grant Manual will be an integral part of the POM. The project will establish an independent Evaluation Committee to screen service providers' applications for project support based on the evaluation criteria in the Grant Manual.
20. The Manual will describe design, administration and financial management requirements of the proposed matching grants, which are not described in the existing legal framework, and on establishing the clarity on roles and responsibilities during implementation. Key internal controls and procedures that need to be in place with respect to the matching grants mechanism should include *inter alia*:
  - clear description of eligibility criteria for beneficiaries;
  - clear description of eligibility criteria for Project activities;
  - procedures relating to evaluation and selection of grants, including determining and describing responsibilities for this process;
  - procedures relating to the budget mechanisms and timely transfers of funds to beneficiaries;
  - procedures and processes of monitoring of grants implementation, including reporting on the use of funds and technical progress and maintaining appropriate accounting records and supporting documentation;
  - procurement process for the grants.
21. **Accounting System.** MED's BFD, supported by the PIU, will maintain Project financial records (budget appropriations, allocations, commitments, and actual expenditure) in the KFMIS (Free balance system) on cash basis. The Project chart of accounts would be based on the KFMIS. Project funds and expenditures would be accounted separately and identified by the unique Project code. KFMIS is able to generate Project reports by the nature of expenditure, institution, and program. However, the existing chart of accounts does not enable recording of Project expenditure by activity. The FM specialist would be required to maintain parallel contract

monitoring financial data. The data would be cross-checked periodically to KFMIS generated statements.

22. **Financial reporting.** The Interim un-audited Financial Reports (IFRs) will be submitted on a quarterly basis to the Bank within 45 days after the end of each quarter. These reports will be prepared based on the financial information registered in the KFMIS, and will contain at least the following: (i) statement of sources and uses of funds (with expenditure classified by disbursement category), (ii) statements of sources and uses of funds (with expenditure classified by component), (iii) contract monitoring, and (iii) KFMIS budget execution reports. The format and content of IFRs is acceptable. Annual Project financial statements (AFS) would be prepared for the Project and will be based on IPSAS cash basis. The financial statements would cover the government's fiscal year, which coincides with the calendar year. The functional and reporting currency is Euro. Support will be provided by the PIU FM specialist in preparation of IFRs and AFS.
23. **Audit.** The Project's financial statements, as described above, would be audited annually by Kosovo's National Audit Office, under terms of reference acceptable to the Bank. The annual audit scope would be extended to include a relevant sample of matching grants. The audits of the Project financial statements would be financed from Project resources, in case the performance of the audits of National Audit Office is not satisfactory to the Bank. The audited financial statements shall be presented to the Bank no later than six months after the end of the fiscal year and would be made publicly available in a timely manner acceptable to the Bank. There are no overdue audits from the MED on ongoing or closed projects.

## Disbursements

24. **The Project would be financed entirely by an IDA credit.** The credit proceeds will be disbursed on the basis of the regular IPF disbursement mechanism using traditional disbursement methods: reimbursement and direct payments.
25. While advances are not opted by the MoF, the preferred method of disbursement is reimbursement of funds pre-financed from the budget to finance Project expenditures. Therefore, no Designated Account will be used. In addition, direct payments to third parties (consultants, suppliers, and contractors) can be used. The FM specialist would prepare all relevant documents in support of applications for withdrawal. MED and MoF authorized official would act as authorized signatures.
26. Bank funds disbursed using the reimbursement method would be documented by Statement of Expenditures (SOEs) to support applications for withdrawal. Upon receipt of each application for withdrawal from the credit account, the Bank shall, on behalf of the recipient, withdraw from the credit account and deposit into the Single Treasury Account an amount equal to the amount requested.
27. For direct payments, the Bank would require copies of the original documents evidencing eligible expenditures in such form and substance as specified in the Disbursement Letter. Records include such documents as invoices and receipts. MED is required to maintain original documents evidencing eligible expenditures, making them available for audit or inspection. These documents should be maintained for at least two years after receipt by IDA of the audit report and for a period required by local legislation.
28. **Retroactive Financing.** To facilitate prompt execution of Project preparation, the amount of retroactive financing will be €50,000 for payments made for eligible expenditures from May 17, 2018 until the date of signing of the Financing Agreement. These pre-financed funds will be provided by the borrower/MED from its own resources and reimbursed to the Borrower after Project becomes effective.

## Procurement

29. The proposed Project will be guided by Procurement Regulations for IPF Borrowers: Goods, Works, Non-Consulting Services and Consulting Services dated July 1, 2016; 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants' revised as of July 1, 2016; and provisions stipulated in the Financing Agreement.
30. **Procurement Templates.** The Bank's Standard Procurement Documents (SPDs) shall be used for procurement of goods, works, and non-consulting services under International Competitive Procurement. Similarly, selection of consultant firms shall use the Bank's SPDs, in line with procedures described in the Procurement Regulations.
31. **Client Capability and PIU Assessment:** The fiduciary risk for the project is assessed as high and is driven by the country risk, the implementing entity's weak capacities on the application of the new procurement policy

framework of the Bank, and potentially by specific fiduciary risks associated with the proposed procurement arrangements under Subcomponent 1.1.

32. MED has acquired some experience with Bank financed projects through currently implementing KEEREP, which is implemented through the PIU within MED. The PIU conducts its procurement function and project management role through its project manager, procurement specialist, FM specialist and the engineer. The latest procurement post review mission (January 2018) found that the PIU/MED has generally followed the WB's procurement rules and procedures, however Conflict of Interest cases and issues with contract monitoring contributed to a high-risk procurement assessment. To add to that, during the implementation of KEEREP, a misprocurement case was also recorded.
33. Aside from that, MED has its own procurement department. There are 3 procurement specialists in a procurement department. All three specialists are dealing with national and international procurement procedures with some degree of complexity. They are certified according to the PPL of Kosovo. Among others the department is responsible for procurement processes for rural broadband infrastructure deployments which piloting technical arrangements for Subcomponent 1.1. So far, four lots were tendered out in February (2018), bids were received from numerous ISPs and four contracts were signed by MED with four different ISPs, all indicating high interest and acceptability of the technical requirements and arrangements. However, existing procurement capacity cannot be used under KODE project due to lack of knowledge of WB regulations, their current workload and lack of knowledge of English language.
34. **Conclusion:** To ensure high-quality fiduciary compliance, timely procurement and disbursement under various Project's activities, the PIU's capacity for the procurement and FM will be strengthened through selection of dedicated staff. The PIU will be hosted in MED and will lead on all of the procurement and fiduciary functions. Through a process and with terms of reference that are acceptable to the Bank, MED, as a first priority will hire: (a) a Project and Component Coordinator, responsible for the overall management of the activities; and (b) a full-time procurement specialist. Moving forward, PIU structure will be strengthened through additional personnel: two coordinators per each project component; a Financial specialist (part-time); and a team communication officer. The PIU staff will be selected using Individual Consultancy procedures of the WB and following Ministry of Finance Regulation on salary scale. The selected candidates will be reviewed and found acceptable by the WB.
35. **Recommended Procurement arrangements for key activities.** Procurement for the proposed project will be carried out in accordance with the WB's Procurement Regulations for the Investment Project Financing (IPF) Borrowers (July 2016, revised November 2017). All procurement activities will be processed through STEP (Systematic Tracking of Exchanges in Procurement), the procurement tracking system of the WB. In view of the WB's New Procurement Policy Framework, in-depths training on these procedures and the use of the STEP system is required. MED will use the WB's Standard Procurement Documents (SPDs) for all procurement activities in the proposed procurement plan.

#### **Component 1: Digital Inclusion (€15.38 million):**

##### *a) Subcomponent 1.1: Financing of Digital Connectivity (€11.82 million)*

To implement this component, GOM needs to be developed for each measure and each open call for application, which will in detail describe type and amount of investment, the competitive share of the ISPs, eligibility criteria, eligible investments, standard selection document that will be used, etc. The selected beneficiaries (ISPs) would need to match the investment with their own funds, and after investment is completed and confirmed the beneficiary will get certain percentage as a grant. For the beneficiary to receive a grant, they should complete the investment and ensure the supply of internet service to identified areas/zones. This strategy will help keep the selection risk low, while building procurement capacity within MED.

Most of these ISPs showed strong business potential. Also, some of them will have previous experience with grants and procurement process conducted through the pilot projects by MED. However, in most cases, they have a limited understanding of the supply market and competitive matching grants arrangements under the WB Project.

The intention is to keep the process competitive; some ISPs will get few contracts, some of them none. This will depend on the ability of ISP to come up with the best technical and financial solution per zone. The size of the packages was broadly established based on the analysis and pre-discussion with ISPs. The approximate number of packages is expected to be 55, given the size of the Component. The project will follow technologically neutral approach, which means that Project will establish requirements for services provided over the infrastructure deployed. The requirements will be aligned with the EU policy goals, i.e. 100 Mbps in terms of connection speed per subscription with possibility to upgrade this speed in the future. During the piloting phase for each lot advertised, 2 to 4 applications from various ISPs were received. Under this Component, 3 to 4 national ISPs were

identified and remaining ISPs are dispersed across Kosovo, with groups of ISPs operating in different regions. For each call, it is expected to have a combination of application from national and regional ISPs. Experience from pilots shows that regional ISPs are capable of preparing competitive and winning proposals. Interest from all groups of ISPs was also re-confirmed during a few rounds of public consultations.

Based on above, the number of the packages to be advertised is to be determined, although it is preliminary known that during the first 18 months of the Project it is realistic to expect up to 12 such packages to be advertised. The expected procurement approach will be Commercial Practices (CP) (as per paragraph 6.46 Procurement Regulation for IPF Borrowers).

- Capacity Building, Consulting services for MED and ARKEP, through the selection of an international firm. It will be selected through international advertisement, CQS method.

*b) Subcomponent 1.2: Improving the enabling environment for digital connectivity (€3.39 million)*

Activities under this sub-component include:

- NSMS contract, ICT package and will be procured through Request for Bids, one envelope, targeting international market; and

**Component 2: Digital Work and Empowerment (€4.55 million)**

*a) Subcomponent 2.1: Youth Online and Upward (YOU) Program (€1.65 million)*

Activities include the financing of the training and connection of young people to online IT freelancing opportunities. It comprises the selection of a consultancy firm, targeting international markets, the recommended procurement approach is QCBS method.

*b) Sub-component 2.2: Increasing access to knowledge, information, and services (€2.89 million)*

Activities under this Sub-component include:

- Feasibility Study for NREN (consultancy firm, CQS);
- Multiple contracts for the Support for Establishing of the NREN; it will include ICT packages, supply of furniture for the office, mostly RfQ packages and local Individual consultants to operate;
- Virtual Private Network (VPN) connection service contract, contracting national interconnectivity for the National Research and Education Network (NREN) linking participating High Educational Institutions (HEIs). The recommended procurement approach is the Request for Bids, International, single envelope; and
- Consultancy contract to improve the awareness about digitally enabled work, with the recommended procurement approach being the QCBS method.

**Component 3: Project Implementation Support (€740,000)**

Activities include competitive selection of individual consultants to fulfil the role of the PIU. In addition, it is anticipated that a number of individual consultants may need to be hired to support and coordinate efforts in Components 1 and 2.

The expected individual consultants under Project Implementation Support component includes:

PIU Project and Component Coordinator (incl. Environmental focal point function)

Component Coordinator

Procurement Specialist

Financial Management Specialist (Part-time)

M&E, Communications, and Coordination Officer

The recommended procurement approach will be Open Competitive Selection of Individual Consultant as per Clause 7.36 of Procurement Regulation of IPF Borrowers.

National Procurement Procedures for goods/works or non-consulting services will not be applied following the request of the Client.

**36. Procurement Risk Analysis:**



Risk Description	Owner	Description of proposed mitigation
First project in Kosovo to apply the new procurement framework: new bidding documents, different processes.	MED/ WB	Training already delivered by the Bank in February 2018 to be reinforced through follow-up and support from the Bank.
Elevated level of thresholds for prior review.	MED/WB	Regular communication with WB and adequate frequent trainings conducted
Procurements undertaken for the grant beneficiaries (ISPs) are carried out using inadequate procurement documents.	MED/ISPs	WB team to offer support to MED in developing the grant manual.
The beneficiaries (ISPs) might present poor application documents, including ambiguous technical specifications, unclear and unrealistic requirements. This might also delay the selection processes for Component 1.	PIU/ MED	Ensure that the PIU staff correctly understand the needs of the beneficiaries and support them with the elaboration of the technical specifications. Ensure that there is enough time for preparation of documents. Support the beneficiaries in this task.
Beneficiaries have limited experience in procurement, which might impact the achievement of the best value for money.	Grant beneficiaries / PIU/MED	The project is designed in such a way that the selected beneficiaries are expected to match the grants with their own funds. The fact that the grant is combined with private funds increases the beneficiaries' ownership in the sub-projects, while presenting a strong commercial incentive, and increasing their willingness to be competitive with through investments in terms of delivering the value for money. Train the selected beneficiaries on the requirements for application in this project.
Ensure funds are spent for the designated purpose.	PIU/MED	Post-review audits will be randomly performed to assure funds are spent for the designated purpose.
Procurement and implementation delays.	PIU/MED	The risks of procurement & implementation delays are present in the proposed Project but can be manageable through various proper mitigation measures such as (a) Establish Competent and motivated Evaluation Committees; (b) Close cooperation between internal departments of MED for monitoring of contract awards and contract implementation; and (c) Active and close supervision and involvement of the Borrower as well as the Bank team in project planning and implementation activities.
Evaluated prices of calls exceeding the estimate.	PIU/MED	Pilot activities under Component 1, showed that the proposals came in at levels lower than the feasibility estimates, partly due to the fluctuation in material prices and other inputs. Nevertheless, there is a risk that the evaluated prices of the offers will be higher than the existing estimates. This risk will be mitigated through the careful selection of the implementing areas and possible grouping of cadastral zones into lots.

37. Overall the procurement risk of the Bank financed portfolio in Kosovo across sectors is “High”. As identified in the Country Fiduciary Assessment (CFA) of March 2012, the main procurement risks identified for each specific project would include inter alia:

- (i) limited technical and institutional capability to deliver technical inputs;
- (ii) limited experience of institution in implementing World Bank project, including weak procurement capacity of the implementing institutions;
- (iii) low capacity of local bidders/contractors/firms, accompanied with potential lack of competition, which may undermine bidding processes;
- (iv) potential interference by officials in the procurement process, selection, and contract award; and
- (v) perception of high level of fraud and corruption in the country.

During project supervision, including prior review and post review missions, the procurement risk continues to be “High”. The following main issues are observed during the supervision of projects:

- (a) substantial delays during bidding/selection process by implementing agency, especially in prior review

contracts of substantial value, which were indicators of either certain preferences of the evaluation committee towards certain firms, or interference of officials in the bidding/selection process;

- (b) lack of in-house technical capacity to prepare technical specifications, leading to rebidding of the procurement process;
- (c) Delays during contract implementation, in a few cases due to the delays caused by the supplier/contractor, while in most cases caused by the client/employer/end user (not properly planning in advance the schedule of this contract, which happen to be linked with outputs from another contract, etc.);
- (d) Evaluation committees do not observe the evaluation criteria established in the bidding documents;
- (e) Signed contract did not include models for the items offered by the winning firm, while in some cases, the items delivered were still in boxes, while the warranty period was going to expire, etc.;
- (f) Major contract management issues such as the work being performed without signed contracts or contract amendments not executed;
- (g) Payments made beyond the contract ceiling amount and without proper contract amendments approved by the Bank; and
- (h) Poor contract monitoring as contracts are not amended/extended before the contract end date.

**The general risks identified above will be mitigated through development of the POM and the Grant Manual that will explain in detail the flow of procedures and relevant roles and responsibilities.**

38. **Retroactive Financing and Advanced Contracting.** The Government has allocated resources from its own budget for MED to pilot and prepare some activities in advance of the Board approval. The amount of retroactive financing will be €50,000 for payments made for eligible expenditures from May 17, 2018 until the date of signing of the Financing Agreement. This shall allow MED to contract implementation support staff, undertake feasibility studies, start implementation, avoid possible delays to the activities, and accelerate disbursements under the loan. The MED may want to proceed with the procurement process for selection of Individual Consultants of the PIU (Project and Component Coordinator and Procurement Specialist) before the signing of the Financing Agreement. These procurement procedures shall be consistent with Section I, II and III of the Procurement Regulation for IPF Borrowers.
39. **Prior Review threshold:** Based on the assessment, the project shall be subject to high risk prior review threshold, making the project to have a balance between prior and post review contracts.

Expenditure Category	Contract Value (US\$)	Contract Value (Euro)	Procurement Method	Bank Prior Review
Civil Works	>= 5,000,000	≥4,133,427	RFB/ International	All >/=US\$5 million contracts; All € ≥4,133,427
	< 5,000,000	≤4,133,427	RfB/ National	(No packages)
	<200,000	≤165,337.08	RfQ/ National	
	NA		DC	All
Goods	>= 1,000,000	≥ 826,685.4	RfB/International	All >/=US\$1.5 million contracts; ; All €≥826,685.4
	<1,000,000	≤ 826,685.4	RfB/National	(No Packages)
	<100,000	≤82,668.85	RfQ/ National	First contract
	NA		DC	ALL
Consultant Services	NA		QCBS, QBS, FBS, LCS and CQS*	>= USD 0.5 million; ≥€ 413,342.7; all SSS >/=US\$200,000 or €165,337.08 for IC;
	NA		SSS	
	NA		IC	
Notes:	RFB– Request for Bids RfQ – Request for Quotations DC – Direct Contracting QCBS – Quality and Cost Based Selection QBS – Quality Based Selection FBS – Fixed Budget Selection LCS – Least Cost Selection *CQS – Selection Based on Consultants’ Qualification below \$300,000 depending on the nature of assignment SSS – Single (or Sole) Source Selection IC – Individual Consultant selection procedure NA – Not Applicable			

40. **STEP:** The procurement plan for the life of the project will be developed through STEP. It defines the market approach options, the selection methods and contractual arrangements, and determines the WB’s reviews. The initial procurement plan for the first year of the project shall be ratified at negotiations of the loan. The Procurement Plan will be published without cost estimates.

#### 41. Recommended Procurement Plan

A summary of the recommended Procurement Plan for the activities included in the project is provided in the Table below. The Procurement Plan will be updated in agreement with the Bank annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. The Procurement Plan and all its updates shall be subject to the Bank's "Prior Review" and No Objection before implementation. The Procurement Plan and all subsequent updates will be published in the Bank's external website.

No.	Contract/ Package No.	Contract Description	Selection Method	Prior/Post review	Contract signing date	Contract completion date
<b>Component 1 - Digital Inclusion</b>						
1	KODE/Grants open calls/Multiple/	Financing of Digital Connectivity	Competitive/ Matching grants/ Proposed Procedures for Commercial Practices (CP) (as per paragraph 6.46 Procurement Regulation for IPF Borrowers)	Post	April 2019	December 2022
2	KODE/1.1.2/CQS	Consulting Services for MED and ARKEP	CQS, Open National	Post	March 2019	December 2021
3	KODE 1.2.1/IC	Consulting Services for MED to review technical specifications for NSMS	IC, Open International	Post	March 2019	October 2019
4	KODE/1.2.2/RFB/ ICT	NSMS contract	Request for Bids/ International/ one envelope	Prior	November 2019	December 2020
		<b>Sub-total 1</b>	<b>€15,376,348</b>			
<b>Component 2 – Digital Work and Empowerment</b>						
1	KODE/2.1.1/QCBS	Training and connection of young people	QCBS Open International	Prior	March 2019	June 2023

2	KODE/2.2.1/ CQ	Feasibility Study for NREN	CQS Open National	Post	April 2019	October 2019
3	KODE/ 2.2.2/RfQ/Multiple	Establishing NREN	Request for Quotations National	Post	March 2020	June 2023
4	KODE/2.2.3/ RfB	Virtual Private Network (VPN) connection service contract for NREN	Request for Bids International One envelope	Prior	May 2020	June 2023
5	KODE/2.2.4	GEANT membership and connectivity	N/A	N/A	October 2020	June 2023
6	KODE/2.2b/QCBS	Improving Awareness about digitally enabled work	QCBS Open International	Prior	September 2019	June 2023
		<b>Sub-total 2</b>	<b>€4,546,770</b>			
<b>Component 3 - Implementation Support</b>						
1	KODE/3.1.1/IC	Project and Component Coordinator	IC/ Open/ Local	Prior	August 2018	June 2023
2	KODE/3.1.2/ IC	Procurement Consultant for PIU	IC/Open/Local	Prior	August 2018	June 2023
3	KODE/3.1.3/IC	Financial Management Consultant for PIU (part-time)	IC/Open/Local	Prior	January 2019	June 2023
4	KODE/3.1.5/IC	Component Coordinator	IC/Open/Local	Prior	January 2019	June 2023
5	KODE/3.1.6/IC	M&E, Communications and Coordination Officer	IC/Open/Local	Prior	January 2019	June 2023
6	KODE/3.1.7/IC	International expert for NSMS procurement	IC/Open/International	Prior	January 2019	June 2019
7	KODE/ 3.2.1/ CQ	Audit Service	Open /LCQ/CQ	Post	TBC	June 2023
8	KODE/3.2.2/ TR	Training for PIU staff	N/A	N/A	TBC	December 2020
9	KODE/3.2.3./CQ	Subcomponent 1.1: Beneficiary Survey (Households, Healthcare and educational institutions in Project areas)	Open/CQ/National	Post	July 2019	June 2023
10	KODE/3.2.4/CQ	Subcomponent 2.1 and 2.2: Beneficiary Survey and Focus groups	Open/CQ/National	Post	July 2019	June 2023

11	KODE/3.2.5/RfQ	Office Supply (IT hardware and equipment, furniture, basic stationery)	RfQ/	Post	September 2018	December 2022
12	KODE/3.2.6/RfQ	Purchasing of drones for monitoring	RfQ	Post	September 2019	December 2022
13	KODE/3.2.7/RfQ	Purchasing of the website for the Project	RfQ	Post	December 2018	June 2023
14	KODE/3.2.8 /RfQ	Purchasing of vehicle for the PIU	RfQ	Post	December 2018	-
15	KODE/3.2.9	Operating Costs for the PIU	NA		August 2018	June 2023
	Contingency		N/A			
		<b>Sub-total 3</b>	<b>€744,017</b>			
		<b>TOTAL</b>	<b>€20,700,000</b>			

## Environmental and Social (including safeguards)

42. **The activities of the KODE Project will be site-specific, with negligible ecological footprints, and impacts of low significance, and can be easily mitigated.** Therefore, the Project is classified as environmental Category B.

**Table 2A.4: Safeguard Policies Triggered by the KODE Project**

<i>Safeguard Policies Triggered by the Project</i>	<i>Yes</i>	<i>No</i>
Environmental Assessment OP/BP 4.01	✓	
Natural Habitats OP/BP 4.04		✓
Forests OP/BP 4.36		✓
Pest Management OP 4.09		✓
Physical Cultural Resources OP/BP 4.11		✓
Indigenous Peoples OP/BP 4.10		✓
Involuntary Resettlement OP/BP 4.12		✓
Safety of Dams OP/BP 4.37		✓
Projects on International Waterways OP/BP 7.50		✓
Projects in Disputed Areas OP/BP 7.60		✓

43. **MED is the implementing agency and is responsible for the Project's overall environmental and social safeguards compliance** while the actual implementation will be managed by MED's Department. The Department is experienced in working with the WB and other IFIs, however, the capacity for management of implementation of WB safeguard policies and procedures is assessed low. Limited experience in implementing broadband deployment projects with grants in Kosovo and under-capacity of ISPs in environmental management was particularly considered in the development of ESMF and environmental review procedures. Upon the Project effectiveness, MED will designate a person for the Project safeguards issues, which will be trained by the WB Environmental Specialist.
44. MED prepared the ESMF and will oversee quality of environmental assessment documents, ESMP Checklists, to be prepared by the selected ISPs and MED. In the Subcomponent 1.1 MED is responsible for selection of ISPs and distribution of grants as well as approval of technical specifications for the works, while the selected ISPs are responsible for preparation and contracting. Selected ISPs will also prepare ESMP Checklists for the sub-projects (infrastructure installations), which are subject to MED's approval. The WB Environmental Specialist will approve the first 3-5 ESMP Checklists to be prepared for the Subcomponent 1.1 and all ESMP Checklists prepared for works in PAs. For works on the other components, namely, Subcomponents 1.2 and 2.2 that are directly contracted by MED, the Ministry will prepare ESMP Checklists satisfactory to the WB. All EAs (ESMP Checklists) will be integral part of a bidding and contracting package.
45. The procurement arrangement under Subcomponent 1.1, including the environmental and social safeguards, will be tested through a pilot project on a single section.
46. **Screening of selected sub-projects (ISPs and other, e.g. antenna towers, rehabilitation of monitoring center, etc.) will be done in line with overall sub-project eligibility criteria, which also include environmental specific criteria defined in the ESMF.** Projects that do not meet the environmental and social screening criteria will not be considered for financing. Preliminary designs for the proposed activities/sub-projects will be submitted to MED who will review the documents and advise on the type of environmental and social due diligence documents and procedures. MED will consult with national environmental and nature protection authorities on related requirements and incorporate those into the site-specific ESMFs, especially related to natural habitat regulation. In the case of chance findings, the national procedures will be followed.
47. **MED will supervise the implementation of the ESMF** through ensuring the quality of EA documents (ESMFs and ESMP Checklists) as well as supervising compliance of all sub-projects with respective EA documents' requirements and national environmental and social protection regulation. MED will regularly review ISPs' EAs compliance reports and carry out supervision site visits. ISPs will supervise the work carried out by engaged

contractors, including implementation of ESMPs and national regulation, and report to MED on at least a quarterly basis. MED will report on the environmental and social compliance to the WB safeguards specialists in regular Project progress reports as well as quarterly EAs implementation reports. Environmental capacity building (half-day training) for ISPs will be provided by MED and WB before works commence.

48. **The Project will have an overall positive impact on Kosovo's population**, as it is promoting affordable Internet coverage in the areas with no or low access to communications infrastructure and services to increase Kosovars' income generation in a sustainable manner, through better access to information and services, labor markets, and opportunities to engage in work.
49. **The Project does not trigger Involuntary Resettlement and Land Acquisition Safeguards** because of the nature of the investments and thus no social safeguard instruments will be prepared for the project (see table 2A.4).
50. **Citizen engagement.** The Project will establish a CE framework comprising consultations, youth dialogues, public hearings, a GRM, and a beneficiary satisfaction survey. A series of consultations will be held at national and local levels (workshops, roundtables, focus-groups). Citizens in target cadastral zones will be consulted on learning and employment needs, and feedback used to design awareness and capacity building activities. In urban areas, dialogues will be held with youth to ensure their engagement (for instance regarding training needs, access to the YOU program, and how to actively engage in the IT service market). Feedback will be used to improve training content and/or take corrective actions during the outreach and/or application stage. These dialogue platforms will enable participants of the YOU Program to provide feedback annually to inform its implementation. Satisfaction surveys will be conducted annually to obtain feedback from new users of the high-speed broadband, and from YOU Program participants; results will be used to assess satisfaction with CE activities, monitor annual progress, take corrective action and assess the impact at Project closing. Feedback from vulnerable groups (young women, the disabled, and minorities) will be disaggregated to check inclusion. Public hearings will be held annually to report on results and promote accountability and transparency of Project progress.
51. **The Project with its second component will help address labor market participation gender gap.** Unemployment among women is over 8 percentage points higher than among the male population (41.6 percent vs. 33.1 percent<sup>54</sup>. Barriers that women typically face in entering the workforce are lack of assets for accessing finances and traditionally led societal rules that tie her to the family. Only 16 percent of Kosovar women own land or property. Gender based socioeconomic exclusion is particularly prevalent among RAE women that are married early and women living in rural areas of Kosovo. In fact, 14 percent of rural Kosovar women are illiterate. Overall education obtainment is lower among women than man in Kosovo. Gender inequality is perpetuated by women's economic dependence on men. About 46 percent of women headed households have a family member living abroad and are somewhat more likely to receive remittances from abroad than men headed households (73 percent vs. 68 percent). Remittances are associated with lower economic activity among women (7 percent higher than among non-remittance-receiving women). Greater responsibility for family members (children and elderly) is a probable explanation for the lack of labor force participation among female remittance recipients<sup>55</sup>. To increase women's participation in the Project activities the outreach will be customized to reach more women both in rural areas as well in urban areas for the Component 2. One way for it will through organization of workshops with women only, which is especially important for the rural areas.
52. **A Project GRM will be established within 6 months of Project effectiveness and will be available for citizens to lodge complaints/feedback on any issue.** PIU or ministry staff will be assigned to the grievance redress process; final accountability and follow up will lie with the PC. Information about the GRM (contact details, the complaint/feedback process, standards for responses) will be available on the Project website, at targeted local government sites, on village notice boards, and YOU training sites; active dissemination will be carried out during CE events, including the awareness building events. Finally, the Project will use social media and the Project website to disclose Project information (monitoring and safeguards reports, GRM feedback, consultation and survey results) and updated quarterly. The Project has included two indicators in the RF to monitor if beneficiaries are satisfied with access to and quality of broadband services, and if YOU program



participants find the Program responsive to their needs. This will check that the citizen engagement is functioning as intended.

## Monitoring and Evaluation

53. **The M&E framework for the Project will rely primarily on standardized, routinely collected data sources from Kosovo Agency of Statistics, ARKEP, and international organizations and to ensure continuous availability and consistency of data and to minimize any additional administrative burden.** The Project however will also support a more frequent undertaking of the nationally-representative urban-rural ICT usage survey, first undertaken by WB in the context of the Project Preparation, and the development of a beneficiary management and data collection system will be developed to register all Project beneficiaries, and track the services they receive and results achieved (to the extent possible). An impact evaluation is included in Component 3, the details of which are to be determined.
54. **MED will oversee all Project M&E.** The PIU will have the responsibility for routinely collecting the M&E data from the relevant data sources. It is not envisaged that a separate M&E expert will be retained under the Project as this can be carried out under the scope of work of the PC with support from existing PIU consultants and technical counterparts. However, this may be re-considered during Project implementation, if needed.

## Role of Partners

55. **Several donor agencies are active in Kosovo's ICT sector, providing grant financed capacity and technical assistance support** (see table 2A.5). Nonetheless, no donor is supporting the broadband development agenda. Beyond select one-off interventions to build ARKEP's capacity, most partner interventions focus on promoting employability of youth, including through developing their ICT skills or on developing capacity of businesses in the ICT sector to export and expand their operations. Most of this donor work is coordinated through MED, which will work to ensure complementarity of such work program with the objectives of the KODE. The WB also remains in regular contact with partners – notably GIZ and Swiss – to ensure exchange of lessons learned around best practices, particularly with regards to Component 2.

**Table 2A.5: Outline of Key Donor Initiatives in the ICT Sector in Kosovo**

Donor/Implementing Agency	Project Name	Description	Budget	Time Frame	Relates to KODE Component:
BMZ/GIZ	Creating Employment through Export Promotion (CETEP)	CETEP aims to enable MSMEs in employment-relevant sectors to tap into international markets. The project will focus on three sectors: ICT, manufacturing and agriculture/agro-processing. Specific activities include those seen as crucial to increase companies' capacity to export such as provision of business-related information relevant for DACH and European markets as well as the provision of specific business development services at selected points in the value chain;	€2.5 - 3M	Jan 2018 - Dec 2020	2.1
Swiss Agency for Development and Cooperation/Helvetas Swiss Intercooperation and Management Development Associates	EYE	Implemented by, EYE supports employment opportunities of young graduates from schools and universities by facilitating their transition into the labor market. The project addresses three sides of the labor market by focusing on: 1/Skills Supply according to market demand; 2/Improved Job Matching Service and Information; 3/Private Sector Development;	7.7M CHF	2017 - 2020	2.1
USAID/Cardno Emerging Markets, Ltd	EMPOWER Private Sector	Select engagements in ICT sector - "Women in Online Work"; STIKK Academy - training in IT Fundamentals; Support STIKK B2B events; Support Females in IT program at American University Kosova;	N/A	end July 2019	2
Embassy of Finland/FICORA	Regulator to regulator exchange	Embassy of Finland has agreed to help facilitate contact between Kosovo's Telecom Regulator (ARKEP) and its Finnish counterpart (FICORA) for exchange of best practice on key issues, including managing rural broadband roll out;	In-kind	2018	1.2
Embassy of Sweden, SIDA/Support direct to ICK or through EMPOWER Private Sector project	Support to ICK; EYE and Empower	Founding support to ICK; still serves on the board;	N/A	Ongoing	2
EBRD	ICT Sector Capacity Building	A capacity building and training program on ICT/telecom regulatory issues for the ARKEP;	€150,000	2017	1.2
EU/EU Delegation in Kosovo - direct management	Enhancement of Competitiveness of Kosovo's ICT Sector - IPA II	Specific objective 1: To bridge the digital and business skills gap in a sustainable manner that meets the needs of the market and increases the competitiveness of Kosovo's digital and traditional businesses. Specific Objective 2: To increase the export of Kosovar ICT businesses, and traditional businesses using ICT.	€3M	2018 - TBD	2

## ANNEX 3: IMPLEMENTATION SUPPORT PLAN

COUNTRY : Kosovo  
Kosovo Digital Economy (KODE)

### Strategy and Approach for Implementation Support

1. **The Bank implementation support remains essential to the successful implementation of the KODE Project and to realize the transformational potential of its various activities, given the country's existing fragility and Project-specific identified risks.** It is also worth mentioning that the proposed Project is the first project in Kosovo aimed at developing the DE ecosystem, and the first project in the ICT sector in a decade of Bank activities in Kosovo.
2. **The Project touches upon several technical areas, has several beneficiary groups and multiple stakeholders, and encompasses three types of hard investments, technical assistance, and a training program.** The Project activities will require close monitoring and adherence to timelines to avoid implementation delays, as well as careful sequencing and coordination among activities. Establishment of partnerships with other projects and donors will require additional resources for missions, coordination and information transfer.
3. **The strategy and approach for the implementation support to be provided to the Project stem from the implementation risks associated with the KODE and mitigation measures as described herein.** Mitigation of political and governance risks, institutional capacity for implementation and sustainability risks, technical design of the Project, and stakeholder risks – all of which are assessed as substantial – will require particularly close monitoring and proactive engagement with key policy and decision makers. This will require active engagement not only from the task team, but also the Country Management Unit through the policy dialogue with the government at the highest levels. Maintenance of linkages with the new development policy lending operation will also be essential to helping secure the needed reforms and to prevent any policy backsliding.

### Implementation Support Plan and Resource Requirements

4. *Technical inputs:* Technical consultants will be financed by the Project to provide assistance on the design and implementation of various components and ensure appropriate coordination and linkages among them. In addition, Bank staff and consultants will provide strategic support and advice to MED to assist it in technical issues, and to provide guidance on international best practices, as needed.
5. *Procurement:* The implementation support on procurement will include a series of consultations on procurement-related issues.
6. *Financial management:* As part of its Project implementation support missions, the Bank will conduct risk-based financial management implementation support and supervision within a year from Project effectiveness, and then at appropriate intervals.
7. *Environmental and social safeguards:* The Bank's environmental and social specialists will continue providing regular support to the PIU in tackling safeguards related issues during Project implementation.
8. *Operation:* The co-Task Team Leaders (TTLs) of the Project are in regular contact with MED and implementation support missions are planned for the HQ-based TTL for at least once every six months to supervise the Project and coordinate with the client. Regular video-conferences with MED and partners will help provide timely guidance and support to the client (see Table 3A.1).

Table 3A.1: Outline of resource requirements under the KODE Project

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First twelve months	Technical support in strategic design of the various activities	TTLs, ICT specialists	<b>12 SWs</b>	
	Procurement review of bidding documents	Procurement specialist	<b>4 SWs</b>	
	Project implementation support	TTLs, procurement specialist	<b>4 SWs</b>	
	FM and disbursements	FM specialist	<b>4 SWs</b>	
	Environmental and social supervision	Safeguards specialists	<b>4 SWs</b>	
	Task management	TTLs	<b>4 SWs</b>	
12-48 months	Procurement review of bidding documents	Procurement specialist	<b>4 SWs</b>	
	Project implementation support	TTLs	<b>10 SWs</b>	
	FM and disbursements	FM specialist	<b>4 SWs</b>	
	Environmental and social supervision	Safeguards specialists	<b>4 SWs</b>	
Other	On-demand technical advisory support	ICT specialists	<b>8 SWs</b>	

#### Skills Mix Required

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
TTLs	50	Field trips as required	2, 1 HQ-based and 1 CO-based
Environmental Specialist	10	Field trips as required	CO-based
Social Specialist	10	Field trips as required	CO-based
Procurement Specialist	30	Field trips as required	CO-based
FM specialist	20	Field trips as required	CO-based
ICT specialist	20	Field trips as required	HQ-based

Program assistants	40	Field trips as required	2, 1 HQ-based and 1 CO-based
--------------------	----	-------------------------	------------------------------

Partners

Name	Institution/Country	Role
Minister	Ministry of Economy	Head of the Project oversight and coordination
Deputy Minister	Ministry of Finance	Financial management and disbursement support
Chairman of the Board	ARKEP	Project implementation support, technical support on Component 1

## ANNEX 4: TELECOM SUB-SECTOR<sup>56</sup> DEVELOPMENT IN KOSOVO

1. **After significant growth in 2008-2012, the ICT sector's value added to the GDP of Kosovo has been volatile in 2012-2016; the ICT sector's absolute value peaked in 2015 with over €116 million.** The ICT sector's value added to GDP decreased from 2 percent (2014) to 1.8 percent (2016); its absolute value added in 2016 declined ~6 percent compared to 2015, but grew almost two times in comparison to 2012<sup>57</sup>. In the EU, the ICT sector on average has contributed to GDP 4.5 percent (2015)<sup>58</sup> and in Organisation for Economic Co-operation and Development (OECD) countries – 5,4 percent<sup>59</sup>.
2. **The ICT sector is the greatest supplier of high-paid jobs in Kosovo. The telecom sub-sector constitutes ~60 percent of the ICT sector in terms of value and is the biggest supplier of jobs in the sector.** Around ~7000 workers are employed in the sector (2014). Their share as a percentage of the total employed labor has been growing since 2012: from 4.7 percent to 5 percent in 2015. As recorded throughout 2008-2014, the average monthly gross wage paid per employee has been the highest in the ICT sector (€708), followed by the activities in electricity, gas, steam and air conditioning supply (€610), and in mining and quarrying (€470). These three highest-paying sectors are responsible for ~13 percent of total employment (2014). Out of these sectors, the ICT sector is the second in terms of employment in real numbers and the first in terms of annual employment growth (the sector almost doubled the number of the employed in 2014, compared to 2008). Overall, the ICT sector alone employs 3.2 percent of the total population (2015)<sup>60</sup> and has capacity to increase, when compared to EU-28 average (3.7 percent in 2016), or European ICT champions, such as Finland (6.6 percent, 2016), Sweden (6.3 percent, 2016) or Estonia (5.3 percent, 2016)<sup>61</sup>.
3. **The dynamics of the investments in the Telecom sub-sector evolved in parallel with its revenues, but with a more significant decline.** Total investments in telecoms amounted to €29.8 million in 2016, which is over a quarter lower than a year before. The same year, the investment was sizeable, constituting almost 18 percent of total market revenues, although it went down from more than 27 percent in 2014. (Despite the overall declining trend, the levels of investment in Kosovo constituted 20 percent of the revenues from 2013 until 2016.) Although the falling investments in the subsector also occurred in other WeBa countries, it is important to highlight that Kosovo has seen the biggest downfall, despite being a country with stable GDP growth. This speaks to the low sector maturity (see figure 4A.1).

**Figure 4A.1: Revenues, Investments and Growth of Telecom Sub-sector Segments, 2013-2016**

Revenue [million EUR] of	2013		2014		2015		2016	
telecommunications services:	<b>220.4</b>		<b>192.2</b>		<b>173.8</b>		<b>168.3</b>	
growth:			-12.8%		-9.6%		-3.1%	
in % of country GDP:	4.14%		3.45%		2.99%		2.80%	
mobile operators:	<b>172.4</b>	78.2%	<b>141.9</b>	73.8%	<b>122.2</b>	70.3%	<b>112.3</b>	66.7%
growth:			-17.7%		-13.9%		-8.1%	
fixed telephony:	<b>14.1</b>	6.4%	<b>11.4</b>	5.9%	<b>10.3</b>	5.9%	<b>9.3</b>	5.5%
growth:			-19.5%		-9.8%		-9.4%	
media content distribution:	<b>14.3</b>	6.5%	<b>18.6</b>	9.7%	<b>20.2</b>	11.6%	<b>23.8</b>	14.1%
growth:			30.3%		8.6%		17.6%	
Internet services:	<b>18.6</b>	8.4%	<b>19.6</b>	10.2%	<b>20.5</b>	11.8%	<b>22.5</b>	13.4%
growth:			5.4%		4.6%		9.6%	
<b>Investment [million EUR]:</b>								
	<b>27.9</b>		<b>52.3</b>		<b>40.7</b>		<b>29.8</b>	
growth:			87.3%		-22.1%		-26.9%	

Source: Networld Consulting analysis for the WB, based on ARKEP reports (2017)<sup>62</sup>

4. The Law on Electronic Communications transposed the latest EU telecom regulatory package of 2009. As part of it, the general authorization regime significantly lowered market entry barriers for ISPs. At the end of 2017, there were 54 active ISPs in the market, with four of them constituting above ~85 percent of total subscribers and all of which have direct access to international gateways. Smaller regional ISPs jointly hold around 15 percent of the market share in terms of subscribers<sup>63</sup>. Due to the high number of inhabitants per household

(~5.9 persons per household<sup>64</sup>), internet access penetration at the household level is high (~88.8 percent at the end of 2017<sup>65</sup>), but it is among the lowest in the region when expressed on a per subscriber basis ~14 percent<sup>66</sup>. In terms of internet access speeds, like other countries in the region, Kosovo has few high-speed connections (above 30 Mbps): less than 1/5 of all, with over 80 percent of all connections falling below 15 Mbps (see table 4A.1<sup>67</sup>). In the EU, the number of high-speed broadband connections is 37 percent (2017).

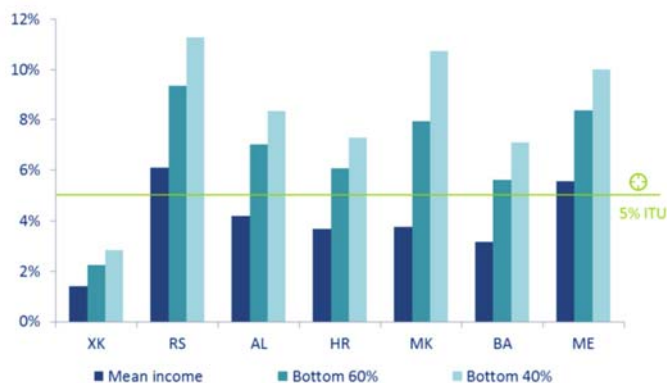
**Table 4A.1: Share of Internet Connections by Speed in Kosovo**

Capacity	up to 2Mbps	2Mbps to 4Mbps	4 Mbps to 8Mbps	10 Mbps to 15Mbps	above 20Mbps
Number of Subscriptions %	<b>17%</b>	<b>0.60%</b>	<b>19.50%</b>	<b>45.90%</b>	<b>17.00%</b>

Source: MED (2017)

5. **When viewed alongside other countries in the region, Kosovo’s mobile market is underdeveloped with a population penetration rate of 108 percent (2017), compared to a regional average of 148 percent (2017).** The competition in the mobile market is relatively limited with only two mobile network operators<sup>68</sup>. State-owned Vala<sup>69</sup> accounts for the lion’s share of mobile market subscriptions, with around 1,35 million subscribers, or 68 percent of the market at the end of March 2017, up slightly from 66.2 percent a year before. Slovenian-capital IPKO signed up 634,235 subscribers at the end of March 2017, up from 592,890 in the corresponding period of 2016<sup>70</sup>. At the end of 2017 the penetration of mobile broadband subscribers stood at 84.75 percent<sup>71</sup>, out of which penetration of 4G subscriptions stood at 24.5 percent. Both operators have near equal market share of 4G subscriptions.
6. **Mobile broadband development is constrained by inefficiencies in radio-frequency spectrum<sup>72</sup> management.** Kosovo experienced major impediments in terms of radio-frequency spectrum licensing, which hindered mobile broadband market development. For instance, ARKEP introduced 4G spectrum licenses only in 2014-2015, making Kosovo the last country in the region to launch 4G services. Similarly, 3G services were launched with a few years of delay when compared to the countries in the region. Among other reasons, inefficiencies in spectrum management were caused by low technical and human capacity of ARKEP. On the technical side, it could be noted that Kosovo is missing a National Spectrum Management System (NSMS) which is essential to support mobile network roll-out through informed and timely decisions on frequency bands assignment and usage. Kosovo is the only country in the region that is lacking this type of system.
7. **Despite the high number of ISPs and affordable retail internet access services (figure 4A.2), further coverage growth has saturated leaving ~12 percent of Kosovo’s population unconnected.** The municipalities, which are considerably underserved in terms of broadband Internet access, contain a higher concentration of bottom 40 percent households<sup>73</sup>. These municipalities include Junik and Decan in Gjakova, Dragash and Mamusha in Prizren, Novoherde and Gračanica in Pristina, Hani i Elezit and Kacanik in Ferizaj), Ranilug in Gjilan, Skenderaj in Mitrovica, Klina in Peja, and Drenas in Glogoc (see figure 4A.3 and table 4A.2). Beyond access gaps, there are other barriers to existing telecommunications infrastructure for the country’s poorest: since 2001, local household expenditures for communication have been steadily increasing<sup>74</sup> and present an impediment to the uptake of ICTs, particularly for the bottom 40 percent<sup>75</sup>. As with access to other types of infrastructures, the level of access to ICTs of the poorest population may determine their ability to accumulate other assets<sup>76</sup>.

**Figure 4A.2: Fixed Broadband Price as a Percentage of Total Household Expenses**



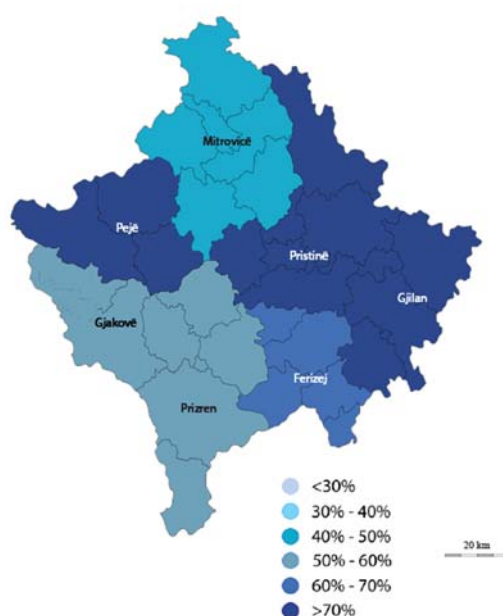
Source: Deloitte feasibility studies for the WB (2015)

Table 4A.2: Fixed Broadband Penetration per Kosovo District, per Technology

fixed BB penetration per district	xDSL	Cable modem	FTTx, LAN Ethernet	FWA	together	fixed BB %	fixed BB per HH
<b>Kosovo</b>	<b>33,428</b>	<b>191,138</b>	<b>13,722</b>	<b>8,156</b>	<b>246,444</b>	<b>27.6%</b>	<b>76.0%</b>
District Ferizej	3,733	18,300	399	706	23,138	12.7%	69.8%
District Gjakovë	2,485	14,971	1,314	380	19,150	10.0%	55.1%
District Gjilan	2,859	18,653	296	921	22,729	12.8%	70.4%
District Mitrovicë	4,714	15,787	861	1,402	22,764	8.5%	46.8%
District Pejë/Peć	6,656	17,374	1,918	1,298	27,246	15.9%	87.6%
District Pristinë	8,626	84,828	3,897	1,414	98,765	21.1%	115.9%
District Prizren	4,355	21,225	5,037	2,035	32,652	10.0%	55.2%

Source: Networld Consulting analysis for the WB, based on ARKEP reports (2017)

Figure 4A.3: Fixed Broadband Penetration Rates in Districts of Kosovo



Source: Networld Consulting analysis for the WB, based on ARKEP data (2017)

8. What are the origins of the existing urban-rural broadband penetration gap? In the case of rural households



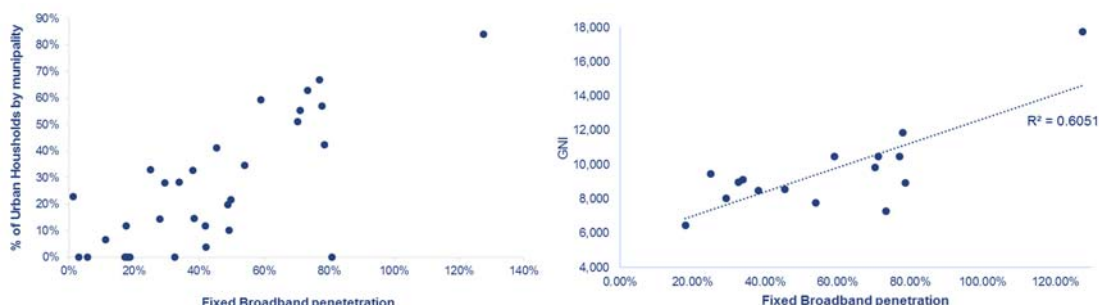
of Kosovo, the correlation between their broadband penetration and demand indicators is nonexistent (see box 1 and figures a and b). In this situation, it is highly unlikely that the private sector will attend to the investment needs of rural Kosovo; it is equally unlikely that demand stimulation programs (for example, digital awareness, literacy, and so on) would be effective without parallel support for infrastructure rollout. Kosovo is thus likely to face a considerable difficulty in meeting the national broadband coverage and speed targets, if fixed internet infrastructure is not rolled out outside of the urban areas<sup>77</sup>.

**Box 1: Correlation between Demand Indicators and Broadband Penetration of Urban and Rural Households in Kosovo**

The feasibility studies under the World Bank’s technical assistance ‘Green Growth for Rural Areas of Kosovo’ (P151939) in 2014-2016 identified the interdependencies between the broadband penetration and sociodemographic parameters that are having the greatest impact on the broadband adoption. In other words, they analyzed the demand indicators on a municipality level. These indicators include the level of income (measured by GNI), level of education (measured by years of education), and population age (measured by average age). Among others, the feasibility studies had to forecast the potential demand for broadband services over the coming years.

While analyzing the interdependencies between the demand indicators and broadband penetration in the case of rural municipalities of Kosovo, no strong correlation between the two variables was identified. However, in the case of urban municipalities, a correlation between the level of broadband penetration and level of income was observed. There was no observed correlation between the level of education or age in the case of either urban or rural households. Broadband penetration and the number of urban households per municipality demonstrated a strong correlation, proving the fact that **most of the broadband connections are concentrated in urban areas**. Note that at the time of the studies (2014-2015) the correlation test using mobile broadband penetration was not performed, because at that time the mobile broadband services were only available in urban areas. Some of the results of the analysis are presented in the figures below.

**Figures a and b: Correlation between Fixed Broadband Penetration and (a) Number of Urban Households per Municipality or (b) Level of Income**



Source: Deloitte feasibility studies for the WB (2015)

9. **With over 60 percent of rural population, Kosovo needs to advance geographically consistent broadband development in the economically unattractive areas and introduce greater efficiency in spectrum management to enable further development of the mobile broadband market.** Extension of high-speed broadband infrastructure to rural areas through the KODE is strategic, for it may address the number of regional development bottlenecks through job creation, attraction of FDI, and positive impact on other sectors, such as agriculture and tourism. This approach is also seen as an efficient measure in the EU (see Box 2).

**Box 2. Why does the EU co-finance broadband infrastructure in rural areas?**

In 2013, ICT was the largest sector for FDI in Europe, representing 18.08 percent of the total capital investment in the region<sup>78</sup>. It employed 5.7 million people in 2014, which is almost 1.5 times higher than in 1995. The intense growth rates of productivity in the sector in 1995-2014 led it to exceed by far the levels of the total economy<sup>79</sup>.

Given the above facts and based on the understanding that broadband internet is an enabler to the entire ICT sector a wide consensus was formed across the EU that by bringing broadband connectivity to rural areas, the member states encourage

the take-up and diffusion of ICTs that are essential for economic diversification of rural areas, as well as for their local social development, provision of public services and promotion of e-inclusion, for instance, by:

- Improving the *competitiveness of the sector* through the adoption of e-Commerce and e-Business and innovative practices in the design, production, marketing and delivery of products and services (for example, e-Tourism) thereby sizing the opportunities offered by the internal and international markets.
- *Reducing the natural handicaps in remote, rural and mountainous areas* thereby contributing to a sustainable, environmentally friendly development through the delivery of affordable ICT broadband services and infrastructure.
- *Improving the quality of life* in rural areas with more efficient e-public services to citizens and enterprises (e-government, e-Health).
- *Enhancing training, skills acquisition* and dissemination of knowledge and expertise through e-learning and networking services.
- *Improving governance* with a better design, management, and implementation of rural development policy through online networking of stakeholders and better monitoring and evaluation tools.

Some more examples of ICT contribution to sectors of economy in the rural areas include the following:

- On the EU level, the *agrifood sector* has been identified as the one lagging in the take-up of ICT. This is particularly the case for smaller businesses. Adoption of e-business applications is still at a low level outside of large multinationals and their larger suppliers. The rural development structural funds are complementing different initiatives across the EU in the fields of e-business (particularly in relation to SMEs), e-skills and e-learning.
- Wide adoption of ICTs is encouraging the *development of tourism*. Tourism is a major growth sector in many rural areas and can build on existing cultural and natural heritage. Increased use of ICT in tourism for bookings, promotion, marketing, service design and recreational activities can help improve visitor numbers and lengths of stays, particularly where ICT provides links to smaller facilities and encourages agritourism.

*Source:* WB analysis based on the Council Decision on Community strategic guidelines for rural development (programming period 2007 to 2013), 2006/144/EC, 20 February 2006, at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:055:0020:0029:EN:PDF>; Commission Staff Working Document, Annex to the: Proposal for a Council Decision on Community strategic guidelines for Rural Development, Update to Impact Assessment Report [SEC(2004) 931]{COM(2005) 304 final}, at: [http://ec.europa.eu/agriculture/rurdev/publi/strategic-guidelines/impact\\_en.pdf](http://ec.europa.eu/agriculture/rurdev/publi/strategic-guidelines/impact_en.pdf).

## ANNEX 5: WOMEN IN ONLINE WORK (WOW) INTERVENTION: LESSONS LEARNT

1. **Creating more and better jobs, and fixing skills mismatches to increase employment and labor productivity of youth and, in particular, women is an economic and social priority for Kosovo. In this small, landlocked and post-war economy, employment of every single person counts, and every effort should be made to activate more adults into the labor force.** Aligned with this objective is the Subcomponent 2.1 of the KODE Project, which aims to implement the YOU Program to mobilize and skill youth, with a focus on women, to participate in the digital economy, specifically for income-generation. The rationale for this program and for addressing a specific ICT sector employment gender gap affecting women is presented below, as are some specific lessons learnt from the pro-women online work intervention – the WoW pilots, implemented by WB and two other donors in 2015-2017 in Kosovo.
2. **Labor market activity is the main conduit for reducing poverty in Kosovo; increased returns to employment have been the biggest factor in raising local consumption and income, including for the poor.** Poverty is much higher among the unemployed: 17.6 percent of the population had expenditures below the poverty threshold in 2015. Among working-age adults, the poverty rates were 23.3 percent among the unemployed and 17.1 percent among the inactive, compared to 11 percent for the employed<sup>80</sup>. The unemployment is oftentimes caused by low labor force participation or inactivity. As shown in figure 5A.1, Kosovo has the lowest share of the population participating in the labor force (37.6 percent as of 2015) in the WeBa region, which partly explains why the country has such a high unemployment rate (32.9 percent in the same year), equally the highest in the region<sup>81</sup>.

**Figure 5A.1: Comparison of Key Labor Statistics across WeBa Countries, 2013-2015**

	Labour Force, Participation Rate			Employment to Population Ratio			Unemployment Rate		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
Kosovo	40.5	41.6	37.6	28.4	26.9	25.2	30.0	35.3	32.9
Albania	59.9	61.5	64.2	50.2	50.5	52.9	16.1	17.9	17.5
FYR Macedonia	57.2	:	64.9	40.6	:	47.8	29.0	:	26.3
Serbia	62.2	51.6	51.6	49.2	42.0	42.5	21.0	18.9	17.7
Montenegro	58.9	61.6	62.6	47.4	50.4	51.4	19.6	18.0	17.8
Bosnia & Herzegovina	43.6	43.7	44.1	31.6	31.7	31.9	27.5	27.5	27.7

Source: KAS (2017)

3. **Tackling of youth un-/underemployment is key to reducing poverty, social fragility, and ongoing brain drain.** Over a third of the country's unemployed are youth, and the overwhelming majority of the unemployed, as well as of the unemployed youth are women (e.g. overall, 41.6 percent of female unemployment rate compared to 33.1 percent for male's<sup>82</sup>). In 2016, unemployment for youth aged 15-24 hit 52.4 percent, the best record since 2012. The same year registered some 30.1 percent of young people not in employment, education or training (NEET), which is particularly worrying<sup>81</sup>. Youth disenfranchisement is a key driver of fragility in today's Kosovo, which is being associated with political instability, low institutional distrust, and widespread desire to migrate<sup>82</sup>.
4. **Weak job creation, coupled with skill mismatches fuels unemployment among youth.** Family responsibilities, weak childcare and eldercare infrastructure, influence of traditional culture are also cited as additional constraints to female labor force participation and employment<sup>83</sup>. Even in high-growth sectors, such as ICT, gender employment gaps persist. For example, only some 20 percent of women work in the ICT sector; the number of female self-employed online contractors (engaged in digital jobs but with specializations including but not limited to IT) is small, if compared to other countries<sup>84</sup>. Albeit facing a thin supply of qualified labor and, at the same time, a rising demand for it<sup>85</sup>, the ICT sector is failing to absorb a higher share of female professionals, in part due to structural -cultural and policy- bottlenecks. Other than the above reasons

negatively affecting women's labor force participation and employment, weaknesses in the formal education system present an additional constraint to hiring more women as ICT professionals (particularly in IT). Over the years, Kosovo's universities and colleges have largely failed to promote ICT as a 'women-friendly' profession among tertiary education female applicants, or to impart the market-oriented skills to female students and graduates. Furthermore, cultural attitudes to female employment and biases in employers' assessments of skills for men and women make it as difficult to activate more women into this cutting-edge technology-heavy sector<sup>86</sup>.

5. **It is possible to address some of the above challenges through a global digital economy. Beyond employment within the ICT sector, digital technologies are linking labor worldwide to global online work platforms, thus transforming the concept of a job. Kosovo has the potential to leverage these platforms to connect its un-/underemployed youth to more and better jobs<sup>87</sup>.** These platforms, the number of which is over 50, prompted the rise of independent workforce (also known as 'online freelancers') who live off flexible revenue-generating contracts, not linked to any particular geographic location. Women and youth particularly benefit from such opportunities<sup>88</sup>. Online work platforms enable workers to become more 'liquid', thus supporting distributed teams that can be quickly assembled to complete projects and then get dispersed. With such flexibility at hand, companies are moving towards operational models, whereby they run their organizations less like a hierarchy of static business processes, and more like an open talent marketplace<sup>89</sup>.
6. **Already, over 20 million people around the world use two of the largest platforms (Upwork and Freelancer) to do digital work—including writing and editing, data entry, programming, graphic design, and online research—for over 5 million employers<sup>90</sup>.** Online work pays more, depending on the needed skill level, than similar hourly rates in local markets. It typically employs the equal share of men and women, and, in some instances, more women<sup>91</sup>. The gross service revenue of global online work industry has been on the rise: its market size was projected to hit \$4.8 billion in 2016. Medium-term models estimate that, in 2020, this global industry will generate gross services revenue in the range of \$15-25 billion<sup>92</sup>.
7. **Prompting emergence of Kosovo's independent youth workforce through online work will support poverty reduction and employment of more women.** Recently-piloted WoW, aimed at increasing employability in online work of young women, especially from rural areas, through a 6-month intensive technical and soft skills module training, showed promising results in terms of employability and revenue generation. After two pilot phases by the WB in 2016-2017, 85 women from Gjakova, Gjilan, Pristina, Obiliq, and Fushe Kosove municipalities finished the program, with collective earning reaching ~\$30,000 on 335 competitively gained online contracts, while additional five participants found jobs in the local IT market (and generated ~US\$9,000). The pilot continuation (phase III) financed out of two USAID-funded projects in the municipalities of Pristina and Gjilan resulted in 20 graduates with at least one online contract, out of whom 7 obtained jobs in the local market, with their collective earnings exceeding €2,500. The fourth pilot financed by the EYE project, relying on Swiss donor funding, "graduated" 29 online freelancers in the municipalities of Podujeva and Mitrovica (both North and South) with over \$1,800 collective earnings and 16 hourly contracts (with hourly wages ranging from \$3 to \$17).
8. **The four-phased WoW training model proved to be working in the context of Kosovo, substantiating publicly-funded program scaleup.** Within the KODE Project, GoK would like to scale it up nationally to un-/underemployed youth (both men and women) under the YOU Program (Subcomponent 2.1). In the context of the preparation and implementation of the YOU Program, a number of pertinent lessons learnt could be drawn from the WoW.
9. **Lesson 1: Don't underestimate the importance of an appropriately equipped and comfortable venue for the training.** A venue with poor electricity and broadband connection, which has heating or air conditioning issue, should be never considered as a training venue, regardless of the cost savings it may generate. An inadequately equipped or uncomfortable venue will be a major source of training disruption, resulting in poor attendance and participant complaints. The YOU Program should well prepare the Employment Center venues for the training and, if necessary, consider renting other venues, if the free-of-charge venues do not pass the basic suitability check. Importantly, the training venue should have arrangements in place to accommodate any admitted participants with disabilities.

10. **Lesson 2: Ensure wide and inclusive outreach to ‘activate’ into the training diverse participation, including national minorities and people with disabilities.** The outreach premised on the use of traditional and social media, mixed with information sessions in public places and distribution of printed materials, should be inclusive along several dimensions: of geography, from the standpoint of access to ICTs, health conditions, etc. As the impact evaluation of the WoW Phase I demonstrated, the program, for example, was very successful in mobilizing participants with relatively high digital literacy, or so-called ‘digitally privileged’. However, it is those program graduates that turned out to be more successful that rated their internet competencies significantly lower than the others. An unexpected conclusion therefore is that, for example, the absence of general competencies in internet skills did not act as a deterrent, but, instead, seemed to be a motivator to succeed in the program. The YOU program may discover the same patterns, if it is sufficiently representative.
11. **Lesson 3: Onboarding in the concept of online work is necessary at the beginning of the program.** As WoW, the YOU program should be prepared to train a cohort with no online freelancing experience and with vague understanding what online work is and what the training program entails. What this practically means is that during the application stage and at the beginning of the program the program administrators should clearly spell out the program mission, objectives, and training modules, including through distribution of simple printed materials. Similarly, the trainees’ expectations with regards to what this training program could offer them should be carefully managed from the onset.
12. **Lesson 4: Program contents should focus on mastering the basics, instead of trying to cover the subject area in great detail.** Self-evaluation of the WoW Phase I graduates showed that, first, a majority of the selected trainees had limited technical skills, and that, second, the program was very effective in teaching the basics of the technical skills based on graduates’ self-evaluation (here: the introduction into front-end web development reflected in these course modules: *HTML5 and CSS3 Basics, Responsive Design, Web Development Tools*). At the same time, the research showed that the program was not effective in teaching ‘higher-level’ programming (e.g. *Website Optimization for Web, Introduction to JavaScript and jQuery, JavaScript Advanced*).
13. **Lesson 5: Favor actual class learning over self-paced home-based learning.** While it is tempting to organize a training around self-paced learning, given the efficiency and cost savings such an approach could create, the YOU program should strive to reach a balance between instructor-led training and home-based assignments. Evidently, the ultimate training methodology should be a combination of lecture-style workshops, project-based team assignments in class and at home, and of self-paced home-based learning.
14. **Lesson 6: Focus on an equal measure on teaching soft skills, including but not limited to time management, ability to brand oneself online, ability to manage stress, business communication, portfolio management, and so on.** Data from the Kosovo Employer STEP survey (2015) indicate that over a fifth of Kosovo firms regard personal skills (or ‘soft skills’) such as time management, reliability, and ability to work with others as deficient among graduates of the general education system<sup>93</sup>. The impact evaluation of the WoW Phase I showed that the trainees have particularly benefitted from this training module, for they realized how soft skills are important in client relationship building and actual performance of online contracts. A testament to this is that far fewer graduates ended up obtaining online contracts in IT than in other subject areas, which speaks to the need to organize a less ambitious program from the standpoint of technical content and a richer program on soft skills.
15. **Lesson 7: Select the most motivated trainees and make them commit to training.** Strong evidence suggests that personal motivation and actual dedication to training, reflected in attending classes and class participation, brought excellent end results to WoW: so-called ‘active graduates’ showed incomparably stronger performance in the program overtime, as reflected in the number of online jobs and the amount of earnings. The YOU Program should aim to ‘test in’ the most motivated trainees and ensure that they commit to training, including through, for example, a refundable small deposit or a signed commitment letter.
16. **Lesson 8: Expect a medium-high attrition rate and plan for it accordingly.** Innovative training programs such as this one are unsurprisingly associated with medium-to-high attrition rate (up to 30 percent). The WoW administrators went about this issue by quickly ‘replenishing’ the program with applicants on the waiting list or applicants sourced through a new round of application, which proved to be a good way to quickly train a

large number of women. This said, some disruption to the learning process of others (dropouts) did occur, and thus any such 'replenishment' needs to factor in any effects on the class morale in the process.

17. **Lesson 9: Select trainees with functional English and conduct the training in English and in the national languages.** Despite a rigorous multi-stage screening process, the WoW Phase I selected into the program a number of candidates who did not entirely meet the language criterion (i.e. intermediate level of English oral and written proficiency). The YOU Program should plan its application process accordingly placing an emphasis on screening in candidates with functional English, given how critical this language is to global digital marketplaces and success in online work.
18. **Lesson 10: Trigger participation through modest incentives.** Such incentives can include a final participation certificate issued on behalf of the Ministry, a graduation ceremony with ministerial-level representation, and small transport and food stipends based on receipts (especially if the training is longer than four hours). While, overall, the issuance of stipends may be found to be controversial, in the context of WoW Phase I, it actually did have positive impact on the stimulation of training attendance and program graduation, especially of the trainees from rural and remote areas.
19. **Given the current high levels of unemployment and inactivity in Kosovo, all formal and informal jobs – including through online platforms – can help boost the welfare of individuals below the poverty line and of their households.** Investing in awareness raising and skills development for online jobs (which, in fact, means self-employment) can have a positive impact on youth and their households, given that it is uncommon for Kosovar youth to live with their parents or even other family members. A young, skilled, and competent independent workforce will help attract investment that would in the long term expand opportunities for formal employment and would lead to sustained income gains.

## ANNEX 6: ECONOMIC AND FINANCIAL ANALYSIS OVERVIEW

1. **The Project aims to improve Kosovo’s digital infrastructure and upskill its labor force for the digital economy**, which is instrumental for the country’s competitiveness, enhanced productivity, better business environment, and job creation. This Annex presents the rationale for the intervention and describes the cost-benefit analysis quantifying the economic impact of the Project.

### I. RATIONALE FOR PROJECT INTERVENTION

2. To achieve its objectives, the Project relies on two components: (1) Digital Inclusion (financing the expansion of high-speed broadband connectivity), (2) Digital Work and Empowerment (investing in upskilling of youth for the digital economy).
3. The rationale for the interventions in each Project component arises from the following:
  - **The Digital Inclusion component helps address the market failure of under-investment in broadband in rural areas with low population density.** The intervention addresses the market failure arising due to the lack of economies of scale in broadband provision. Financial analysis suggests that standalone commercial investments in rural broadband infrastructure deliver negative NPV and IRR, and therefore are not undertaken by commercial ISPs. Because the benefits of broadband deployment are spread across multiple agents, including those who do not directly pay for the provision of broadband services, the supply side faces market failure in broadband provision. To enhance the benefits of broadband provision, the investment in the spectrum monitoring system will improve the regulator’s ability to assign spectrum and resolve any disputes. The public mode of provision is appropriate, as the quality of radio spectrum is a public good, and any misuse or inefficiency with respect to spectrum management results in negative externalities (creating costs to society at large, without appropriate monetary compensation). Therefore, external intervention is needed to help Kosovo realize the benefits of broadband that would not be achieved through the market mechanism alone.
  - **The Digital Work and Empowerment component contributes to solving the problem of skills gap and resulting underemployment of Kosovar youth.** The intervention is aimed at improving the provision of public good of education by enabling access of universities and colleges to GÉANT network<sup>94</sup> and providing training for digital jobs. Economic analysis suggests that alternative modes of provision result in higher training costs, which would be unaffordable to the beneficiaries. In addition, the benefits of improved training and research accrue to agents beyond those who pay for the provision of training and broadband services to higher education students, hence this makes the case for Project intervention in the public good provision. GÉANT network connectivity is a typical example of a public good, with significant positive externalities arising due to better education and research outcomes for the society as a whole, as opposed to benefits pertaining to one entity only.

### II. ECONOMIC COST-BENEFIT ANALYSIS

#### *General framework for the cost-benefit analysis across all subcomponents*

4. **The COB model aims to quantify economic impact of the Project beyond the short-term PDO outcomes outlined in the results framework.** Only direct benefits are quantified, without considering the spillover effects arising from the Project intervention. This makes the model estimates more conservative and eliminates the need for highly uncertain estimates of the indirect effects of the project.
5. **The COB model takes a bottom-up approach to estimating the stream of incremental benefits and costs associated with the Project, relative to the counterfactual “no project” scenario.** This approach involves calculations that rely on the micro-data at municipality level obtained from the government of Kosovo. Earlier WB feasibility studies and estimates from pilot projects (including WoW program) are used to arrive at the key assumptions.

6. **For each of the Project subcomponents, there is a separate COB model that forecasts a stream of costs and benefits over the Project horizon.** The NPV and ERR are calculated for each of the Project components, following the World Bank guidelines to evaluate each Project component separately to determine the value of its inclusion in the Project. As the Project subcomponents represent distinct activities, they are appraised separately, and evaluated based on two conditions: (i) positive expected NPV, and ERR higher than assumed discount rate, and (ii) NPV and ERR higher than or equal to that of the Project alternatives (i.e. no project scenario).
7. **A 5-year forecast horizon is used to make medium-term projections of costs and benefits of the Project.** The Project implementation period is five years, so the cash outflows associated with Project implementation are concentrated within this period. The potential Project benefits may continue for a longer time span than five years, but no projections are made beyond the five years, as the uncertainty about such cash flows is too high to make any reliable estimates. The fast pace of innovations in broadband technologies further exacerbate this uncertainty.
8. **Typically, discounted cash flow calculations of the kind employed in this COB model are quite sensitive to the discount rate assumptions.** Therefore, the COB model for the KODE Project considers two benchmark discount rates – a social discount rate and a financial discount rate. If the social discount rate is used, the resulting NPV calculation implicitly assumes that the cost of capital invested in the Project should be seen as the opportunity cost to Kosovar society as a whole. The social discount rate tends to be relatively smaller than the financial discount rate and therefore results in relatively higher NPV (we refer to it as “upper bound NPV”). If the financial discount rate is used, the resulting NPV calculation implicitly assumes that the cost of capital invested in the Project should be seen as the opportunity cost to investors in the broadband projects of similar risk profile. The financial discount rate tends to be relatively higher, as it reflects the financial risks associated with the Project, and therefore results in relatively lower NPV (“lower bound NPV”). These two NPV bounds can be seen in conjunction as containing the range of plausible NPV estimates.
9. **The social discount rate used to calculate the present value of net benefit flows of the Project is 7.09%.** The social discount rate reflects the opportunity cost of capital from the intertemporal choice perspective for society as a whole. As shown in Ramsey (1928), under constant relative risk aversion, the social discount rate can be expressed as  $r = \beta + \epsilon * \sigma$ , where  $\beta$  - pure time preference rate (most empirical cross-country studies estimate its average value to be 1),  $\epsilon$  - elasticity of marginal utility of consumption (estimated in cross-country studies to be 1.5 on average -see Lopes (2008),  $\sigma$  - expected growth rate of per capita consumption (4.06% - proxied by average projected real GDP growth in Kosovo for the 10 upcoming years).
10. **In addition to the social discount rate, a financial discount rate is calculated to arrive at the conservative estimate of the Project NPV (lower-bound NPV).** The financial discount rate reflects the opportunity cost of capital from the perspective of commercial investors in a broadband project of similar structure as the one undertaken by the WB. The financial discount rate is computed according to the logic of Capital Asset Pricing Model (Sharpe, 1964; Lintner, 1965), which is standard in the industry ( $r = R_f + \beta * (R_m - R_f)$ ). Estimates of the risk-free rate ( $R_f$ ), market risk premium ( $R_m - R_f$ ) and market beta ( $\beta$ ) are taken from the research papers of Aswath Damodaran of Stern School of Business. The risk-free rate for Kosovo reflects the implied rate on government (“risk-free”) debt in Kosovo. The equity risk premium incorporates country risk premium and country default risk, and is estimated as the average of equity risk premia for several countries from the same region as Kosovo (as data on Kosovo is not available). In case of Subcomponents 1.1, 1.2 and 2.2, market beta for telecommunications industry is used to reflect the riskiness of Project cash flows with respect to market fluctuations. For subcomponent 2.1, market beta for software development industry is used.

*COB analysis for Subcomponent 1.1 - Financing of Digital Connectivity (€11.82 million)*

11. **The key objective of this Project subcomponent is to provide fixed broadband connectivity to 266 cadastral zones** that were identified as lacking connectivity due to market failure (i.e. ISPs unwilling to invest in broadband infrastructure due to negative NPV of such investment in these rural areas with low population density).



12. **Within these 266 cadastral zones, the Project seeks to connect estimated 10 544 households, 38 healthcare institutions and 129 schools.** The investment is to be undertaken through grants with the Kosovar ISPs. Private broadband providers will be selected through competitive bidding process.
13. Broadband connectivity generally benefits business productivity and innovation, education, healthcare, environment, e-government etc., but the majority of these impacts are hard to quantify and attribute to the Project with reasonable certainty. Therefore, **for the purpose of the COB analysis only direct benefits are quantified: consumer surplus to estimated 10 544 households, cost savings by 129 schools, and cost savings by 38 healthcare institutions.**
14. **The consumer surplus<sup>95</sup> to households arises due to lower price of broadband and more households being connected, compared to the no-project scenario.** The calculations rely on Project-induced price decrease of 15% every year (compared to 5% price decrease in “no-project” scenario), and estimated 10 544 households benefiting from broadband connectivity by the end of year 2023 (compared to 3 163 households in the “no-project” scenario). Although no broadband rollout investment would be undertaken in the “no-project” scenario, the model allows for 30% of households being connected through the nearest substitute (lower speed or mobile wireless network).
15. **The cost savings to schools and healthcare institutions arise due to availability of broadband at no extra cost for the Project duration.** In no-project scenario, no schools or healthcare institutions would be connected due to the lack of appropriate broadband infrastructure in target areas, while with the Project, 129 schools and 38 healthcare institutions are connected by the end of year 2021.
16. **Commercial revenues and expenses by ISPs arise through service provision to households.** Net commercial benefits are therefore estimated as EBITDA of ISPs – revenues less operating expenses (OPEX), less capital expenditures (CAPEX). OPEX is modelled as % of revenue (40%, based on industry averages), and CAPEX is estimated based on private contribution to Project financing.
17. **The private share of Project investment (private CAPEX) is estimated based on the bids placed during the MED tender for broadband provision in selected rural areas (so-called “rural broadband pilots”) in September 2017.** The average investment of €685 per entity (household / school / healthcare institution) is used for the baseline model estimates. While there is considerable uncertainty about the future bids placed in broadband tenders for allotted areas, the lots from September 2017 tenders reveal useful information about the costs per entity that are acceptable to ISPs from the financial perspective. In further analysis, sensitivity analysis is performed to arrive at the range of acceptable private investments per entity under various financing scenarios.
18. **The public share of Project investment (public CAPEX) financed through the IDA loan is estimated as a multiple of private investment, with the baseline proportion of 50% public to 50% private funds.** In further analysis, sensitivity analysis is performed to determine the acceptable combinations of private investment per entity, and public to private investment proportions, given the World Bank budget allocated to this subcomponent (*€11.82 million*).
19. **Overall, this Project subcomponent is expected to deliver the NPV of social benefits of €1.6 million over the 5-year horizon, with the ERR of 21%.** This calculation relies on the baseline scenario of 50% private financing to 50% public financing (grant), and social discount rate of 7.09%. Various alternative scenarios are considered in the sensitivity analysis below. Figure 6A.1 presents the model calculations.

**Figure 6A.1: COB Analysis for Subcomponent 1.1. Projections for 50% Private and 50% Public Investments**

Scenario 1 - with the project						Scenario 2 - without the project					
FY	2019	2020	2021	2022	2023	FY	2019	2020	2021	2022	2023
Year into the project	1	2	3	4	5	Year into the project	1	2	3	4	5
<b>1. Social benefits, EUR</b>						<b>1. Social benefits, EUR</b>					
<b>1.1. Value to households (consumer surplus)</b>						<b>1.1. Value to households (consumer surplus)</b>					
Reserve price	€ 54,391	€ 294,035	€ 559,183	€ 916,555	€ 1,113,691	€ 5,439	€ 30,177	€ 58,859	€ 98,875	€ 123,044	
Market price	€ 516	€ 516	€ 516	€ 516	€ 516	€ 516	€ 516	€ 516	€ 516	€ 516	
Number of project-targeted households	€ 464	€ 418	€ 376	€ 338	€ 305	€ 422	€ 1200	€ 1600	€ 2067	€ 2109	
<b>1.2. Value to schools (cost savings)</b>						<b>1.2. Value to schools (cost savings)</b>					
Actual price paid	€ 565,453	€ 1,074,360	€ 1,316,629	€ 1,250,797	€ 1,188,257	€ -	€ -	€ -	€ -	€ -	
Market price	€ 11,309	€ 10,744	€ 10,206	€ 9,696	€ 9,211	€ 11,309	€ 10,744	€ 10,206	€ 9,696	€ 9,211	
Number of project-targeted schools	50	100	129	129	129	0	0	0	0	0	
<b>1.3. Value to healthcare institutions (cost savings)</b>						<b>1.3. Value to healthcare institutions (cost savings)</b>					
Actual price paid	€ 113,091	€ 214,872	€ 387,844	€ 368,452	€ 350,029	€ -	€ -	€ -	€ -	€ -	
Market price	€ 11,309	€ 10,744	€ 10,206	€ 9,696	€ 9,211	€ 11,309	€ 10,744	€ 10,206	€ 9,696	€ 9,211	
Number of project-targeted healthcare institutions	10	20	38	38	38	0	0	0	0	0	
<b>2. Commercial revenues and costs, EUR</b>						<b>2. Commercial revenues and costs, EUR</b>					
<b>2.1. Total revenues to ISPs</b>						<b>2.1. Total revenues to ISPs</b>					
Revenues from households	€ 979,045	€ 2,507,039	€ 3,008,447	€ 3,497,247	€ 3,211,758	€ 206,687	€ 558,667	€ 707,645	€ 868,322	€ 841,741	
Revenues from schools	€ 979,045	€ 2,507,039	€ 3,008,447	€ 3,497,247	€ 3,211,758	€ 206,687	€ 558,667	€ 707,645	€ 868,322	€ 841,741	
Revenues from healthcare institutions	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	
<b>2.2. Project costs</b>						<b>2.2. Project costs</b>					
OPEX (ISPs)	€ 3,167,577	€ 5,915,485	€ 3,406,563	€ 3,896,375	€ 931,307	€ 41,337	€ 111,733	€ 141,529	€ 173,664	€ 168,348	
CAPEX - private	€ 195,809	€ 501,408	€ 601,689	€ 699,449	€ 642,352	€ -	€ -	€ -	€ -	€ -	
CAPEX - public	€ 1,485,884	€ 2,707,039	€ 1,402,437	€ 1,598,463	€ 144,478	€ -	€ -	€ -	€ -	€ -	
<b>2.3. EBITDA to ISPs</b>						<b>2.3. EBITDA to ISPs</b>					
	€ (702,648)	€ (701,407)	€ 1,004,321	€ 1,199,335	€ 2,424,929	€ 165,350	€ 446,934	€ 566,116	€ 694,658	€ 673,392	
<b>3. Project net benefits</b>						<b>3. Net benefits in no-project scenario</b>					
	€ (1,455,597)	€ (1,825,178)	€ 1,865,540	€ 2,136,677	€ 4,932,429	€ 170,789	€ 477,111	€ 624,975	€ 793,532	€ 796,436	
<b>4. Net benefits relative to no-project scenario</b>						<b>Cash flows under private provision</b>					
	€ (1,626,386)	€ (2,302,289)	€ 1,240,565	€ 1,343,144	€ 4,135,992	€ (2,122,436)	€ (3,647,734)	€ (475,426)	€ (784,144)	€ 2,045,767	

Cost / benefit analysis		5 Years (50/50)	Description
IRR Cashflow		21%	IRR reflects the minimum required return to recoup the invested capital on the 5-year horizon, with 50/50 public to private financing.
NPV Cashflow -using social discount rate (7%)		€ 1,441,653	Net present value of the project assuming the opportunity cost of capital is equal to the social rate of return.
NPV Cashflow -using financial discount rate (19.4%)		€ 114,744	Net present value of the project assuming the opportunity cost of capital is equal to the financial rate of return.
NPV Cashflow -using the average of social and financial discount rates (13.3%)		€ 658,568	Net present value of the project assuming the opportunity cost of capital is equal to the average of social and financial rates of return.
NPV under private provision		€ (4,157,083)	

20. Under the alternative scenario of 40% private financing and 60% public financing (grant) (keeping other parameters the same), the Project delivers the NPV of €750,000 over the 5-year horizon, with the economic rate of return of 13%. However, if the share of private investment increases to 70%, the Project requires public funding of €17.1 million, which is beyond the allocated budget.

21. Considering various combinations of (i) private investment per HH / institution and (ii) share of public investment (grants), the calculations reveal that at 60% public contribution, the average ISP bid per HH / institution should be no higher than €744 to stay within the Project budget. At 70% public contribution – no higher than €413. Figure 6A.2 presents the public investment required under different scenarios, with green cells corresponding to scenarios within budget.

**Figure 6A.2: Public Investment Amount for Different Combinations of (i) Private Investment per HH/ Institution (horizontal) and (ii) Share of Public investment (Grants) (values within budget are highlighted in green)**

share of public financing, %		private investment per HH / institution							
		€ 165	€ 248	€ 331	€ 413	€ 496	€ 579	€ 661	€ 744
10%	€ 196,769	€ 295,154	€ 393,539	€ 491,924	€ 590,308	€ 688,693	€ 787,078	€ 885,463	€ 983,847
20%	€ 442,731	€ 664,097	€ 885,463	€ 1,106,828	€ 1,328,194	€ 1,549,560	€ 1,770,925	€ 1,992,291	€ 2,213,657
30%	€ 758,968	€ 1,138,452	€ 1,517,936	€ 1,897,420	€ 2,276,904	€ 2,656,388	€ 3,035,872	€ 3,415,356	€ 3,794,840
40%	€ 1,180,617	€ 1,770,925	€ 2,361,234	€ 2,951,542	€ 3,541,851	€ 4,132,159	€ 4,722,468	€ 5,312,776	€ 5,903,085
50%	€ 1,770,925	€ 2,656,388	€ 3,541,851	€ 4,427,314	€ 5,312,776	€ 6,198,239	€ 7,083,702	€ 7,969,165	€ 8,854,627
60%	€ 2,656,388	€ 3,984,582	€ 5,312,776	€ 6,640,970	€ 7,969,165	€ 9,297,359	€ 10,625,553	€ 11,953,747	€ 13,281,941
70%	€ 4,132,159	€ 6,198,239	€ 8,264,319	€ 10,330,399	€ 12,396,478	€ 14,462,558	€ 16,528,638	€ 18,594,717	€ 20,660,797
80%	€ 7,083,702	€ 10,625,553	€ 14,167,404	€ 17,709,255	€ 21,251,106	€ 24,792,956	€ 28,334,807	€ 31,876,658	€ 35,418,509
90%	€ 15,938,329	€ 23,907,494	€ 31,876,658	€ 39,845,823	€ 47,814,988	€ 55,784,152	€ 63,753,317	€ 71,722,481	€ 79,691,646

The sensitivity analysis of NPV with respect to private investment reveals that private investment above €744 per HH/school/institution is likely to result in negative NPV (keeping other parameters constant). The sensitivity analysis of NPV with respect to discount rate suggests that discount rates above 21% (ERR) result in negative

NPV. These sensitivity analyses are performed under 50% private financing to 50% public financing (grant) scenario, and 7.09% discount rate. The results are presented in figure 6A.3.

**Figure 6A.3: Sensitivity Analyses of NPV and IRR with respect to (i) Discount Rate, and (ii) Private Investment per Entity**

Sensitivity analysis - NPV		parameter	Sensitivity analysis - NPV		Sensitivity analysis - IRR	parameter	
NPV (5 years), 50:50		Discount rate	NPV (5 years), 7.09% discount rate, 50:50	IRR (5 years)	private investment per entity		
€	1,780,130	5%					
€	1,455,359	7%					
€	1,167,684	9%	€	9,362,980	n/a	€	248
€	912,569	11%	€	8,613,923	n/a	€	289
€	686,090	13%	€	7,864,865	831%	€	331
€	484,848	15%	€	7,115,808	295%	€	372
€	305,886	17%	€	6,366,751	177%	€	413
€	146,633	19%	€	5,617,694	121%	€	455
€	4,842	21%	€	4,868,636	88%	€	496
€	(121,452)	23%	€	4,119,579	66%	€	537
€	(233,971)	25%	€	3,370,522	49%	€	579
€	(334,228)	27%	€	2,621,464	37%	€	620
€	(423,553)	29%	€	1,872,407	26%	€	661
			€	1,123,350	18%	€	703
			€	374,293	10%	€	744
			€	(374,765)	4%	€	785
			€	(1,123,822)	-1%	€	827

*COB analysis for Subcomponent 1.2 - Improving the enabling environment for digital connectivity (€3.37 million)*

22. **This Subcomponent seeks to provide a network of spectrum monitoring stations for ARKEP to implement the National Spectrum Management System (NSMS).** The purpose of spectrum monitoring is to support the spectrum management process including frequency assignment and spectrum planning functions. Both functions are essential for mobile network roll-out. So far, the regulator has not been able to verify the usability of all frequency bands, which limited its ability to make informed and timely decisions in frequency assignment. With the implementation of the Project, the regulator will have technical tools in place for better monitoring /control, planning and assigning the full range of frequency bands.
23. **The public mode of provision is appropriate, as the quality of radio spectrum is a public good,** and any misuse or inefficiency with respect to spectrum management results in negative externalities (creating costs to society at large, without appropriate monetary compensation). For example, ARKEP had many disputes related to different frequency bands and services (e.g. PMR, GMS/UMTS/LTE, TETRA, Microwave Links etc.), and the monitoring stations can help them identify and solve all disputes between ARKEP and Operators. Additionally, Kosovo is currently the only country in Europe, which does not have an NSMS in place, hence not complying with the EU standards and ITU recommendations for spectrum monitoring.
24. **The direct benefits of implementing a robust spectrum management framework in Kosovo arise due to expanding the available spectrum bands and licensing them to ISPs.** Kosovo so far uses only 206.4 MHz for mobile networks, about 20% of what is available, and this figure includes the temporary authorization that is only valid in one part of the country. Kosovo has only two mobile networks that cover the whole country. In line with the EU policy, ARKEP will utilize the unused mobile spectrum by awarding large amounts of spectrum in the next few years. Taking into account that almost all authorizations will expire during the next four years, ARKEP will have to decide on the future users in the short term in order to give more certainty to investors. This will have significant impact on the incomes from the usage of frequency spectrum.
25. **The second order benefits of this Subcomponent include better precision in measuring the spectrum usage,** which in turn translates into improved regulatory standards, reduced risk of disputes between ARKEP and Operators, as well as reduced risk of service interruptions due to illicit spectrum usage.

26. **The benefits related to this Subcomponent are estimated by quantifying two direct sources: contributions to the Kosovo budget, and revenues to Operators.** Additional budget income from spectrum monitoring arises, because the spectrum monitoring system would allow ARKEP to be more accurate and efficient in licensing out a wider range of spectrum, hence generating extra licensing fees. Additional Operators' revenues arise due to wider geographic coverage, upon ARKEP licensing out a wider range of spectrum. The benefits are estimated under conservative assumption of 4% budget revenue boost, and 2% mobile Operators revenue boost per 10 percentage point increase in spectrum usage<sup>96</sup>. The spectrum usage is projected in proportion to spectrum management capacity enabled by establishing the spectrum monitoring system in Kosovo.
27. **The costs related to this Subcomponent are estimated using the ICT regulation toolkit guidelines** for advanced spectrum monitoring systems. The projected investments cover establishment of six elements of spectrum monitoring system (CAPEX) and station maintenance costs for the duration of the project (OPEX)<sup>97</sup>.
28. **To arrive at the World Bank value added (i.e. net benefits of the Project relative to “no-project” scenario), a counterfactual scenario** of no spectrum monitoring is considered. In this case, no additional revenues for ARKEP budget or operators are realized.
29. **The COB results suggest that the proposed investment of €3.37 million will deliver a NPV of social benefits of €800,000, with ERR of 37% over a 5-year horizon.** The results are presented in figure 6A.4:

Figure 6A.4: COB Analysis for Subcomponent 1.2

Scenario 1 - with the project						Scenario 2 - without the project					
FY	2019	2020	2021	2022	2023	FY	2019	2020	2021	2022	2023
Year into the project	1	2	3	4	5	Year into the project	1	2	3	4	5
<b>1. Project benefits</b>						<b>1. Project benefits</b>					
ARKEP income from spectrum monitoring	€ 2,198,735	€ 2,198,735	€ 2,198,735	€ 2,198,735	€ 2,198,735	ARKEP income from spectrum monitoring	€ 2,198,735	€ 2,198,735	€ 2,198,735	€ 2,198,735	€ 2,198,735
Additional income from wider spectrum utilization	€ -	€ -	€ 410,431	€ 293,165	€ -	Recovered income from illicit spectrum usage	€ -	€ -	€ -	€ -	€ -
ARKEP costs on spectrum monitoring	€ 531,738	€ 531,738	€ 531,738	€ 531,738	€ 531,738	ARKEP costs on spectrum monitoring	€ 531,738	€ 531,738	€ 531,738	€ 531,738	€ 531,738
<b>Contribution to the Kosovo budget</b>	<b>€ 1,666,997</b>	<b>€ 1,666,997</b>	<b>€ 2,077,427</b>	<b>€ 1,960,161</b>	<b>€ 1,666,997</b>	<b>Contribution to the Kosovo budget</b>	<b>€ 1,666,997</b>	<b>€ 1,666,997</b>	<b>€ 1,666,997</b>	<b>€ 1,666,997</b>	<b>€ 1,666,997</b>
ISP revenues from wireless broadband services	€ 20,436,529	€ 22,888,913	€ 24,033,359	€ 25,235,027	€ 26,496,778	ISP revenues from wireless broadband services	€ 20,436,529	€ 22,888,913	€ 24,033,359	€ 25,235,027	€ 26,496,778
Revenue boost from improved spectrum utilization	€ -	€ -	€ 2,243,113	€ 1,682,335	€ -	Revenue boost from improved spectrum utilization	€ -	€ -	€ -	€ -	€ -
<b>ISP benefits</b>	<b>€ 20,436,529</b>	<b>€ 22,888,913</b>	<b>€ 26,276,472</b>	<b>€ 26,917,362</b>	<b>€ 26,496,778</b>	<b>ISP benefits</b>	<b>€ 20,436,529</b>	<b>€ 22,888,913</b>	<b>€ 24,033,359</b>	<b>€ 25,235,027</b>	<b>€ 26,496,778</b>
<b>2. Project costs</b>						<b>2. Project costs</b>					
<b>Total cost</b>	<b>€ -</b>	<b>€ 2,083,247</b>	<b>€ 1,140,826</b>	<b>€ 148,803</b>	<b>€ -</b>	<b>Total cost</b>	<b>€ -</b>	<b>€ -</b>	<b>€ -</b>	<b>€ -</b>	<b>€ -</b>
<b>3. Net benefits</b>						<b>3. Net benefits</b>					
Net benefits (relative to no-project scenario)	€ 22,103,526	€ 22,472,662	€ 27,213,073	€ 28,728,719	€ 28,163,774	Net benefits (relative to no-project scenario)	€ 22,103,526	€ 24,555,909	€ 25,700,355	€ 26,902,023	€ 28,163,774
	€ -	€ (2,083,247)	€ 1,512,718	€ 1,826,696	€ -						
<b>Cost / benefit analysis</b>		<b>5 Years</b>		<b>Description</b>							
IRR Cashflow	37%		IRR reflects the minimum required return to recoup the invested capital on the 5-year horizon.								
NPV Cashflow -using social discount rate (7%)	€ 804,085		Net present value of the project assuming the opportunity cost of capital is equal to the social rate of return								
NPV Cashflow -using financial discount rate (19.4%)	€ 325,336		Net present value of the project assuming the opportunity cost of capital is equal to the financial rate of return								
NPV Cashflow -using the average of social and financial disc	€ 527,274		Net present value of the project assuming the opportunity cost of capital is equal to the average of social and financial rates of return.								

30. Sensitivity analysis suggests that the Project delivers positive net present value of social benefits, as long as spectrum management activities increase ARKEP's income by at least 3% for each 10 percentage points increase in spectrum coverage. Then NPV stays positive, as long as the opportunity cost of capital is below the IRR of 37%. The results are presented in Figure 6A.5:

Figure 6A.5: Sensitivity Analysis for Subcomponent 1.2

Sensitivity analysis - NPV			Discount rate		Sensitivity analysis - NPV		IRR	Revenue boost - ARKEP	Revenue boost - ISPs
€	808,818	5%	€	(2,406,722)			0.50%	0.25%	
€	662,494	7.00%	€	(1,954,865)			1.00%	0.50%	
€	537,249	9.00%	€	(1,503,008)			1.50%	0.75%	
€	429,811	11.00%	€	(1,051,151)		-27.89%	2.00%	1.00%	
€	337,471	13.00%	€	(599,293)		-13.54%	2.50%	1.25%	
€	257,978	15.00%	€	(147,436)		1.80%	3.00%	1.50%	
€	189,448	17.00%	€	304,421		18.58%	3.50%	1.75%	
€	130,304	19.00%	€	756,279		37.28%	4.00%	2.00%	
€	79,218	21.00%	€	1,208,136		58.45%	4.50%	2.25%	
€	35,066	23.00%	€	1,659,993		82.77%	5.00%	2.50%	
€	(3,102)	25.00%	€	2,111,850		111.12%	5.50%	2.75%	

COB analysis for Subcomponent 2.1 – Youth Online and upward (YOU) program (€1.65 million)

31. **This Subcomponent seeks to provide digital skills training to 2,000 underemployed youth and connect the trainees to online outsourcing opportunities.** The subcomponent relies on WoW pilot project undertaken in Kosovo in 2015-2016. The results from WoW project inform the cost assumptions for this Subcomponent.
32. **The public mode of provision is appropriate for the following reasons:** (i) The private provision of the same service would result in the negative NPV, hence would not be undertaken on a commercial basis; (ii) alternative modes of provision (self-study online) result in training costs that are 2.26 times higher than the Project-implied cost of training per participant (equivalent to 40% of average annual income in Kosovo), making the self-study model unaffordable to most participants.
33. The benefits of upskilling in digital work include increased productivity, reduced unemployment, greater innovative capacity for the local economy etc. However, **in quantifying the economic impact of this Project Subcomponent, only direct benefits are considered, arising mainly from the additional income generated by training participants.**
34. **The benefits are estimated by accounting for the beneficiaries' income generated from online work.** Specifically, the benefits pertaining to 2,000 expected Project beneficiaries include their salary from online work (at the conservative rate of €12.4/hour), which is the lower bound of the salary range of front-end developers at Upwork freelancing platform), less the opportunity costs of earning the average salary in alternative occupations (at €372/month).
35. **To account for uncertainty related to finding online work, the beneficiaries are assumed to be successful in bidding for freelancing contracts 33% of the time.** This is a conservative assumption, which accounts for the increased global competition for online jobs and potentially lower quality of trainees compared to the WoW pilot project (CodersTrust evaluation of the WoW pilot project suggested that 57% of bids by program participants were successful within the first 6 months).
36. **To arrive at the Project costs, estimates from the WoW pilot project are used. The program costs are split into two main categories: 85% are training costs (€1.4 million), and 15% are overheads (€250,000).** The cost dynamics relative to the pilot project assumes that the training costs scale up with the number of participants. This is a conservative assumption, as in reality economies of scale are expected, because training materials are readily available from the pilot project.
37. **To arrive at the WB value added (i.e. net benefits of the Project relative to “no-project” scenario), a counterfactual “self-study” mode of provision is considered.** To replicate the WoW program curriculum via self-study modules online, a Project beneficiary would have to pay €1,586 for the 6 months of training, while WoW program offers this training at a cost of €702 per beneficiary. Hence, from the social welfare point of view, program graduates benefit from the implied discount of 56% due to the public provision of financing
38. **The cost of alternative modes of provision constitutes 40% of average annual income in Kosovo,** which means that the alternative modes of provision would need to be heavily subsidized in order for the participants to afford them. However, as shown above, the Youth Online and Upwards program delivers the same training at a lower cost.
39. **Due to the governmental support of the Project, training premises are available at no extra cost, allowing for additional savings on the rental costs.** This implied subsidy is not explicitly quantified, as it would enter both the cost (rental) and the benefit (savings) side of the model.
40. **The COB results suggest that the proposed investment of €1.65 million will deliver a NPV of social benefits of €1.4 million over 5-year horizon.** The corresponding annualized return on investment over 5-year horizon is 23%, with the payback period of 2 years, meaning the Project is likely to self-finance itself already within 24 months from its start. The Project is expected to generate 56% savings on training costs for the beneficiaries compared to the counterfactual “no project” scenario. The results are presented in figure 6A.6:

**Figure 6A.6: COB Analysis for Subcomponent 2.1**

Scenario 1 - with the project					
FY	2019	2020	2021	2022	2023
Year into the project	1	2	3	4	5
<b>1. Project benefits</b>	€ (19,225)	€ 433,482	€ 455,156	€ 477,914	€ 354,219
Income earned by project beneficiaries	€ 66,783	€ 894,057	€ 938,760	€ 985,698	€ 730,576
Number of beneficiaries that work online	80	408	408	408	288
Hours worked per beneficiary (annual)	240	600	600	600	600
Hourly salary	€ 12	€ 13	€ 14	€ 14	€ 15
Probability of finding online employment	0.33	0.33	0.33	0.33	0.33
Revenues to the platform @ 15% of wage	€ 11,785	€ 157,775	€ 165,663	€ 173,947	€ 128,925
<b>Opportunity costs faced by beneficiaries</b>	€ 86,008	€ 460,575	€ 483,603	€ 507,784	€ 376,357
Forgone salary in alternative occupations	€ 3,720	€ 3,906	€ 4,101	€ 4,306	€ 4,522
Employment rate	29%	29%	29%	29%	29%
<b>2. Project costs</b>	€ 119,869	€ 407,969	€ 407,969	€ 407,969	€ 302,567
Training costs	€ 70,268	€ 358,368	€ 358,368	€ 358,368	€ 252,966
Overheads	€ 49,601	€ 49,601	€ 49,601	€ 49,601	€ 49,601
Mobility stipends	€ -	€ -	€ -	€ -	€ -
<b>3. Net project benefit</b>	€ (139,095)	€ 25,513	€ 47,187	€ 69,945	€ 51,652
<b>4. Net income to private entity (assuming private provision)</b>	€ (234,997)	€ (897,450)	€ (889,561)	€ (881,278)	€ (630,528)
NPV for private entity to train and earn net income	€ (2,141,161)	€ -	€ -	€ -	€ -
<b>5. World Bank value added</b>	€ 23,233	€ 456,027	€ 466,864	€ 478,243	€ 331,428
Cumulative benefits	€ 23,233	€ 479,260	€ 946,124	€ 1,424,367	€ 1,755,795
Fraction of costs covered	19%	400%	789%	1188%	1465%

5 year horizon	
NPV (net present value) - using social discount rate (€)	1,389,457
NPV - using financial discount rate (17.5%)	€ 1,036,187
NPV - using the average of social and financial discount rates - (12.4%)	€ 1,194,424

Scenario 2 - without the project					
FY	2019	2020	2021	2022	2023
Year into the project	1	2	3	4	5
<b>1. Self-study benefits</b>	€ (35,415)	€ 216,741	€ 227,578	€ 238,957	€ 177,109
Income earned by self-study beneficiaries	€ 50,593	€ 677,316	€ 711,182	€ 746,741	€ 553,467
Number of beneficiaries	80	408	408	408	288
Hours worked per beneficiary	240	600	600	600	600
Hourly salary	€ 12	€ 13	€ 14	€ 14	€ 15
Probability of finding online employment	0.25	0.25	0.25	0.25	0.25
Revenues to the platform @ 15% of wage	€ 8,928	€ 119,526	€ 125,503	€ 131,778	€ 97,671
<b>Opportunity costs faced by self-study beneficiaries</b>	€ 86,008	€ 460,575	€ 483,603	€ 507,784	€ 376,357
Forgone salary in alternative occupations	€ 3,720	€ 3,906	€ 4,101	€ 4,306	€ 4,522
Employment rate	29%	29%	29%	29%	29%
<b>2. Self-study costs</b>					
Total costs of self-study online training	€ 126,913	€ 647,255	€ 647,255	€ 647,255	€ 456,886
Training costs	€ 126,913	€ 647,255	€ 647,255	€ 647,255	€ 456,886

41. Sensitivity analysis suggests that the Project is robust to adverse scenarios that might affect the probability of finding online employment NPV remains positive for values above 10% probability of finding online employment. The results are presented in Figures 6A.7:

Figures 6A.7: Sensitivity Analysis for Subcomponent 2.1

Sensitivity analysis 1 - NPV depending on success rate in finding online work		
NPV (5-year) @ social discount rate	Success rate in finding online work	
€ (601,046)	0.10	
€ 264,390	0.20	
€ 1,129,826	0.30	
€ 1,995,262	0.40	
€ 2,860,698	0.50	
€ 3,726,134	0.60	
€ 4,591,571	0.70	
€ 5,457,007	0.80	
€ 6,322,443	0.90	

COB analysis for Subcomponent 2.2 - Increasing access to knowledge, information, and services (€2.89 million)

42. The key objective of this Subcomponent is to connect 29 Kosovar higher education institutions to Europe's GÉANT network, the most advanced and research and well-connected research and education network in the world. Connecting to GÉANT is expected to positively affect research outcomes, quality of education, and ultimately – labor productivity in Kosovo.
43. The public provision of financing for this Subcomponent is appropriate for the following reasons: (i) private provision would result in the negative NPV and therefore would not be undertaken on a commercial basis; (ii) alternative modes of provision (delaying the Project until hypothetical investment might be made available through European Commission financing) would result in not realizing 80% of Project benefits attributed to

improved research and teaching outcomes in Kosovar Universities, which is one of the priority areas under the country cooperation framework; (iii) the outcomes under alternative modes of provision would result in 3 years delay in the broadband price reductions and speed upgrades for the higher education institutions. This would in turn slow down the modernization of overall broadband infrastructure in Kosovo.

44. **The Project's developmental impact is quantified by accounting for three main sources of benefits: (i) value of broadband connectivity; (ii) improved quality of research output; (iii) improved teaching outcomes.** The relative importance of various sources of benefits changes over time, with research and teaching improvements becoming relatively more important as time passes, and value of broadband connectivity becoming relatively less important.
45. **The value of broadband connectivity is generated through delivering high-speed broadband service (1 Gbps) to 30 higher education institutions, at lower price (€1,000/month compared to €1,200/month paid by some private colleges) through the GÉANT network.** The net social benefit arises due to value added above "no project" scenario. In "no project" scenario, we assume broadband investments to happen no sooner than year 2021, which corresponds to the European Commission agenda of cooperation with the GoK.
46. **Improved quality of research output is generated through enabling researchers at target universities to access top-quality academic journals and databases, as well as participate in joint projects with academics at other GÉANT-connected institutions around the world.** We quantify productivity improvements by estimating the dollar value of additional research output delivered within the same research budget.
47. **Improved teaching outcomes are generated through allowing students to optimize their classroom hours through e-learning,** more efficient content delivery, and enhanced progress monitoring. We quantify these by estimating the dollar value of additional teaching output delivered within the same cost allocated to higher education from both public and private sources.
48. **Project costs are estimated relying on data from with the Ministry of Education, Science and Technology of Kosovo.** Two main categories are capital expenditures and operational expenditures. As part of CAPEX, the most significant expenses cover network upgrades by ISPs, while OPEX is mostly set to cover the GÉANT fees and operational expenses of running the NREN network.
49. **Net program benefits are quantified in relation to the counterfactual "no project" scenario, which assumes a hypothetical investment in broadband connectivity for Universities without the GÉANT component) in the year 2021.** The timeline of "no-project" scenario reflects the reality of lack of either public or private resources available to finance a broadband project of similar scale in the nearest three years. Additionally, GÉANT requires the participating institutions to create an alliance (umbrella organization of NRENs) before connecting to the network. In the absence of the Project, the Universities would likely delay the creation of such alliance by at least 2-3 years due to the lack of coordination.
50. **The COB results suggest that** the proposed investment of €2.89 million will deliver a net present value of social benefits of €210,000 over 5-year horizon. The corresponding internal rate of return is 23%. The results are presented in Figure 6A.8.
51. **Sensitivity analysis suggests that the Project is robust to adverse scenarios that might affect these two key inputs:** (i) The NPV remains positive for values below 23% cost of capital; (ii) the NPV is positive if productivity increases by at least 1% in research and teaching. Sensitivity analysis is presented in Figure 6A.9.

Figure 6A.8: COB Analysis for Subcomponent 2.2

Scenario 1 - with the project					
FY	2019	2020	2021	2022	2023
Year into the project	1	2	3	4	5
<b>1. Project benefits, EUR</b>					
1.1. Value of broadband connectivity	€ 23,809	€ 82,487	€ 126,329	€ 129,108	€ 148,152
Number of connected universities	2	8	15	20	30
Price with the project	€ 11,904	€ 10,311	€ 8,422	€ 6,455	€ 4,938
<b>1.2. GEANT-induced improvements in research output</b>					
Number of active researchers and administrative staff	13000	13000	13000	13000	13000
Average wage per staff member	€ 4,464	€ 4,549	€ 4,644	€ 4,747	€ 4,842
Percentage of staff using GEANT	15.00%	35.00%	55.00%	75.00%	95.00%
Improved productivity effect	0.65%	0.65%	1.30%	1.30%	1.30%
<b>1.3. GEANT-induced improvements in teaching outcomes</b>					
Costs of higher education (public and private)	€ 25,627,247	€ 26,088,538	€ 26,584,220	€ 27,142,489	€ 27,739,623
Percentage of students using GEANT	5.00%	15.00%	35.00%	55.00%	75.00%
Improved productivity effect	0.00%	0.65%	1.30%	1.30%	1.30%
<b>2. Project costs, EUR</b>					
2.1. CAPEX	€ 181,871	€ 675,915	€ 692,349	€ 692,349	€ 651,015
VPN connection service for NREN	€ -	€ 475,344	€ 475,344	€ 475,344	€ 475,344
<b>2.2. OPEX</b>					
Feasibility Study for NREN	€ 57,868	-	-	-	-
Establishing NREN	€ -	€ 76,468	€ 93,002	€ 93,002	€ 93,002
GEANT fees (connectivity-membership)	€ -	€ 41,334	€ 41,334	€ 41,334	€ 41,334
Digital Awareness Program for Households	€ 124,003	€ 82,669	€ 82,669	€ 82,669	€ 41,334
<b>Net benefits under project scenario</b>					
Net benefits (relative to no project scenario) - World Bank value added	€ (101,480)	€ (433,358)	€ (73,840)	€ 232,463	€ 544,910

Scenario 2 - without the project					
FY	2019	2020	2021	2022	2023
Year into the project	1	2	3	4	5
<b>1. Benefits in no-project scenario, USD</b>					
1.1. Value of broadband connectivity	€ -	€ -	€ 29,724	€ 103,287	€ 158,028
Number of targeted universities	0	0	2	8	15
Price without the project	€ 14,285	€ 14,557	€ 14,862	€ 12,911	€ 10,535
<b>1.2. GEANT-induced improvements in research output</b>					
Number of active researchers and administrative staff	13000	13000	13000	13000	13000
Average salary per staff member	€ 4,464	€ 4,549	€ 4,644	€ 4,747	€ 4,842
Percentage of staff with access to GEANT	0.0%	0.0%	0.0%	0.0%	0.0%
Improved productivity effect	0.0%	0.0%	0.0%	0.0%	0.0%
<b>1.3. GEANT-induced improvements in teaching outcomes</b>					
Costs of higher education (public and private)	€ 25,627,247	€ 26,088,538	€ 26,584,220	€ 27,142,489	€ 27,739,623
Percentage of students with access to GEANT	0.0%	0.0%	0.0%	0.0%	0.0%
Improved teaching efficiency effect	0.0%	0.0%	0.0%	0.0%	0.0%
<b>2. Costs, USD</b>					
2.1. CAPEX	€ -	€ -	€ 144,670	€ 200,471	€ 175,671
Network upgrade expenses by ISPs	€ -	€ -	€ 144,670	€ 82,669	€ 41,334
<b>2.2. OPEX</b>					
Feasibility Study for NREN	€ -	€ -	€ -	€ 117,803	€ 134,326
Establishing NREN	€ -	€ -	€ -	€ 76,468	€ 93,002
GEANT fees (connectivity-membership)	€ -	€ -	€ -	€ 41,334	€ 41,334
Digital Awareness Program for Households	€ -	€ -	€ -	€ -	€ -
<b>Net benefits under no project scenario</b>					
	\$ -	\$ -	\$ -114,945	\$ -97,185	\$ -17,642

Cost / benefit analysis	5 Years	Description
IRR Cashflow	23%	IRR reflects the minimum required return to recoup the invested capital on the 5-year and 10-year horizon respectively
NPV Cashflow using social discount rate (7%)	€ 206,502	Net present value of the project assuming the opportunity cost of capital is equal to the social rate of return
NPV Cashflow using financial discount rate (10.4%)	€ 28,892	Net present value of the project assuming the opportunity cost of capital is equal to the financial rate of return
NPV Cashflow using the average of social and financial discount rates (13.3%)	€ 101,532	Net present value of the project assuming the opportunity cost of capital is equal to the average of social and financial rates of return.
NPV under no-project scenario	€ (122,506)	Net present value if the project was undertaken on commercial basis in year 2021.

Figure 6A.9: Sensitivity analysis for Subcomponent 2.2

Sensitivity analysis - NPV	parameter
NPV (5 years)	Discount rate
€ 212,781	7%
€ 173,043	9%
€ 137,907	11%
€ 106,810	13%
€ 79,269	15%
€ 54,859	17%
€ 33,216	19%
€ 14,018	21%
€ (3,015)	23%
€ (18,126)	25%
€ (31,531)	27%
€ (43,418)	29%
€ (53,954)	31%
€ (63,286)	33%
€ (71,542)	35%
€ (78,837)	37%

Sensitivity analysis - NPV	Sensitivity analysis - IRR	parameter
NPV (5 years)	IRR (5 years)	productivity increase
€ (534,661)	-40.31%	0.80%
€ (386,428)	-24.95%	0.90%
€ (238,195)	-11.71%	1.00%
€ (89,963)	0.35%	1.10%
€ 58,270	11.70%	1.20%
€ 206,502	22.63%	1.30%
€ 354,735	33.32%	1.40%
€ 502,967	43.91%	1.50%
€ 651,200	54.52%	1.60%

Overall Project

52. Combining the cost-benefit projections for all of its subcomponents, the overall Project delivers a positive NPV of €3.8 million and ERR of 35%. The combined projections are presented in Figure 6A.10.

53. The estimated ERR of 35% is higher than the social discount rate of 7.3%, which suggests that the Project delivers more value to society than the opportunity cost of resources spent. Scenario analysis reveals that a



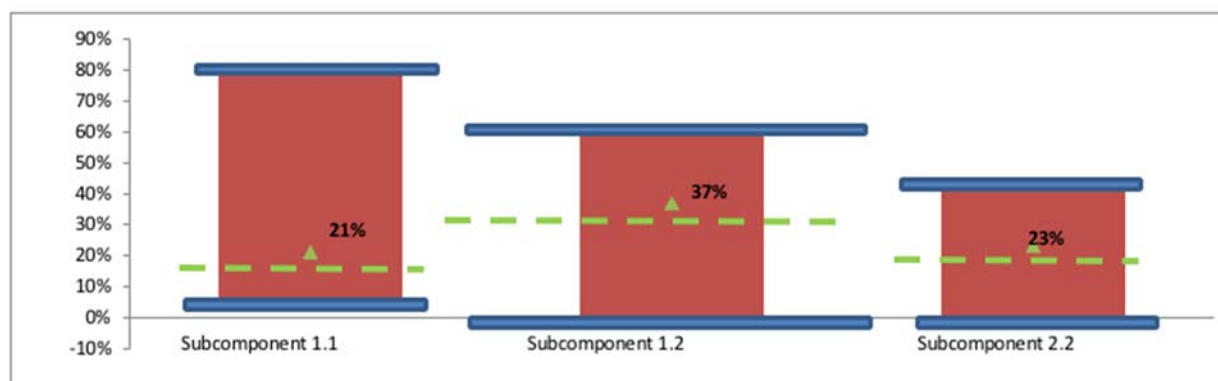
high degree of variability in Project outcomes is possible, hence the estimates for ERR for each Project subcomponent might vary: for Subcomponent 1.1 – from 3% to 78% (with projected baseline outcome of 21%), for Subcomponent 1.2 – from -3% to 61% (with projected baseline outcome of 37%), for Subcomponent 2.2 – from -3% to 44% (with projected baseline outcome of 23%). The results are presented in Figure 6A.11:

**Figure 6A.10: Combined Cost-Benefit Projections for the Overall Project**

FY	2019	2020	2021	2022	2023
Year into the project	1	2	3	4	5
<b>Net benefits (Relative to no-project scenario), EUR</b>					
Subcomponent 1.1	€ (1,626,386)	€ (2,302,289)	€ 1,240,565	€ 1,343,144	€ 4,135,992
Subcomponent 1.2	€ -	€ (2,083,247)	€ 1,512,718	€ 1,826,696	€ -
Subcomponent 2.1	€ 23,233	€ 456,027	€ 466,864	€ 478,243	€ 331,428
Subcomponent 2.2	€ (101,480)	€ (433,358)	€ 41,106	€ 329,647	€ 562,552
<b>Total (all subcomponents)</b>	€ (1,704,633)	€ (4,362,867)	€ 3,261,253	€ 3,977,731	€ 5,029,973
<b>World Bank Investments, EUR</b>					
Subcomponent 1.1	€ 1,694,705	€ 3,389,410	€ 3,348,076	€ 3,306,742	€ 248,006
Subcomponent 1.2*	€ -	€ 2,083,247	€ 1,140,826	€ 165,337	€ -
Subcomponent 2.1	€ 124,003	€ 413,343	€ 413,343	€ 413,343	€ 289,340
Subcomponent 2.2	€ 181,871	€ 675,815	€ 692,349	€ 692,349	€ 651,015
<b>Component 3 (project implementation support)</b>	€ 169,305	€ 156,905	€ 140,371	€ 138,718	€ 138,718
<b>Total disbursements per year</b>	€ 2,169,884	€ 6,718,720	€ 5,734,965	€ 4,716,488	€ 1,327,078
<b>Cumulative disbursements</b>	€ 2,169,884	€ 8,888,604	€ 14,623,569	€ 19,340,057	€ 20,667,135
<b>% funds disbursed</b>	10%	43%	71%	94%	100%
<b>NPV @ 7.3% social discount rate (all subcomponents)</b>	€ 3,799,050				
<b>IRR (all subcomponents)</b>	35%				
<b>Social discount rate</b>	7.30%				

\*Some of the costs under subcomponent 1.2 are shifted one year forward (relative to disbursements) in order to match the corresponding project benefits: \$20 000 (€16 533) - consulting services for MED to review technical specifications for NSMS (to be disbursed in year 1 of the project) - are shifted into year 2, and \$200 000 (€165 337) of maintenance costs (to be disbursed in year 3 of the project) are shifted into year 4.

**Figure 6A.11: The range of ERR under Diverse Project Scenarios for Each Subcomponent**



## ANNEX 7: ESTIMATING THE IMPACT OF KODE ON HOUSEHOLD WELFARE

1. The KODE Project includes financing of surveys for data collection and associated analysis to estimate the impact of its investments on beneficiaries, with a focus on economic impact, as part of Component 3. The focus will be on the impact of improved connectivity on beneficiary households' welfare considering that the Project will also include awareness raising activities that help beneficiaries close information gaps related to employment. This Annex provides an overview of the mechanism of this estimation, along with a discussion on some of the potential risks and challenges. The KODE Project team aims to work closely with the Kosovo Agency of Statistics (KAS) throughout this exercise. The WB team will provide ongoing technical assistance and capacity building support to the MED and other stakeholders in this analysis.

### Theory of Change

2. The long-term outcome of interest is the Project's impact on household welfare and poverty. Household welfare is a general concept, but it is often operationalized by the value of per capita consumption. A positive, long-term impact of this Project would be an increase in the average value of per capita consumption in those areas that benefit from the Project. The assumptions are that any increase in consumption would be driven by increases in labor market income and, to a lesser extent, improved access to government services. Hence, the causal impact of this Project will be to increase household welfare and reduce poverty will operate through three channels: employment (trade in services), information access for jobs and services, and education.
3. Both the employment and information access channels (for jobs) operate through the labor market. The employment channel refers to remote employment in services enabled by access to broadband connectivity. Information access for jobs refers to efficiency gains in access to the existing labor market through reduced job search costs and better matching of employees with employers. Improved information access also has implications for access to public services. Households with broadband access may be able to find information and apply for services directly from their home.
4. The final causal channel is education. Broadband connectivity enables people to connect to a large network of remote learning opportunities. Changes in consumption caused by increased access to education would be a long-term outcome of this Project, and likely outside the scope of this evaluation. However, changes in participation in online learning may be observed.

### Data collection

5. In addition to basic demographic information, the Project will finance a survey that would collect information on the outcomes on which the Project is expected to have an impact in the short, medium, and long-term. Survey questions will be drawn from relevant national surveys wherever possible, to simplify survey construction, piloting, and translation, as well as to enhance the comparability of outcomes with the national population. Relevant surveys include the Labor Force Survey (LFS), Household Budget Survey (HBS), and the Survey on Use of Information and Communication Technology (SUICT). These surveys are all conducted by the KAS, and preliminary discussions suggest the potential for collaboration.
6. The aspects of interest include:

Long Term: Per capita household consumption	HBS: Food and Non-food consumption modules
Medium Term: Hypothesized causal channels	LFS: Employment Channel: including sector of employment (NACE2), work flexibility; Information Channel (Labor Market): Job Search Activities; Information Channel (Access to Public Services): Receiving unemployment assistance or benefits; Education Channel: participation in learning activities

Short Term: ICT use	Access and usage of internet in general and broadband internet specifically: Questions from SUICT
---------------------	---

7. While the objective is to analyze the Project’s impact on welfare as measured by per capita consumption, we are not sure whether it is feasible to collect these data directly in the surveys. Because of the cost of collecting consumption data and the high variance of the resulting estimates, the concern is that good estimates could make the burden of data collection too high, both in terms of length of survey and sample size. Hence, it would be more likely that proxies would be collected, drawing on standard practices (e.g. using an asset index) or could draw on newer estimation techniques being piloted elsewhere.
8. A second concern of analyzing consumption outcomes is the time frame of the evaluation. A household may experience improved labor market outcomes quickly, but might not use additional income for immediate consumption. If an asset index is used instead of collecting consumption data directly, this could lead to a problem of timing. This is because in the case of an asset index, predicted consumption of a household will increase only if household members purchase additional durable goods. This will probably change more slowly than non-durable consumption. The Project may face certain difficulties observing any change in consumption in the evaluation time frame of one year, even if the Project has had the desired impact.

**Timeline**

9. A baseline survey is planned for soon after the Project is in implementation (possibly mid-2019). During this phase, the survey questionnaire will be tested. Moreover, all other activities such as sampling and training of the field staff for the actual survey will be finalized. Subsequent follow-up surveys will be conducted each year in spring (the first envisaged for the beginning of 2019) and finishing with the closing of the KODE Project.

**Treatment Effects Estimation Strategy**

10. The estimation strategy is essentially a comparison of relevant outcomes (or changes in those outcomes) between two groups, the treatment group and the control group. The treatment group will be defined as those households that received high-speed broadband access (the treatment) because of the Project interventions (Subcomponent 1.1). The control group is chosen to be as similar as possible to the treatment group, in terms of both observable and unobservable characteristics.
11. The cadastral zones targeted in this intervention share the characteristic of not having access to broadband internet. Furthermore, all zones that have positively been identified as having no broadband internet (white zones), are included in this Project. The control group, then, must be drawn from the same 266 cadastral zones as the treatment group. The evaluation will take advantage of the phased-rollout of the broadband expansion, which is planned to take place over 5 years. After the first year, roughly 1/5 of the cadastral zones should have completed broadband access. To evaluate this first phase of the intervention, outcomes of the 1/5 of cadastral zones that have access to broadband will be compared to the outcomes of the cadastral zones that are scheduled to receive broadband access in following years.
12. The choice of specific cadastral zones to be included in the control group for a given round will depend on the details of the Project implementation. Because the broadband rollout does not occur randomly, the cadastral zones that receive broadband access in the first year will be different from those that receive it in the final year of the Project. Due to the nature of network expansion, the first cadastral zones selected will likely be those closest to existing network infrastructure. To maintain comparability, the control group for a given year should be those cadastral zones that are scheduled to receive broadband access in the following year.
13. Like most Project evaluations, this evaluation will calculate average treatment effects by comparing outcomes between groups. The challenge is often in defining these groups. Because the evaluation will be ongoing as the Project progresses, membership of the treatment and control groups will change over time. Table 7A.1 defines the relevant evaluation groups that will move in or out of the treatment and control comparison groups over time.

**Table 7A.1: Cadastral Zone Grouping Definitions**

<p><b>Analysis Groups:</b> These refer to the particular treatment and control groups that are defined for a particular estimation of treatment effects. Assignment of cadastral zones to treatment or control groups will change with each survey round, and when looking at different treatment time frames. Most analyses will not include all cadastral zones in the treatment or control group.</p>	
Treatment	Households in cadastral zones that have received access to the broadband network under Subcomponent 1.1.
Control	Households in cadastral zones that have <b>not yet</b> received access to the broadband network, but that are part of the 266 Project cadastral zones (Subcomponent 1.1).
<p><b>Evaluation Groups:</b> Evaluation groups are defined by the survey-year in which they receive access to the broadband network. Membership in a particular evaluation group does not change, but membership is not known at the outset of the Project.</p>	
EG 1	Completion of broadband network in Year 1 of the Project Primarily composed of cadastral zones from Priority Group A.
EG 2	Completion of broadband network in Year 2 of the Project Mixture of cadastral zones from Priority Groups A and B
EG 3	Completion of broadband network in Year 3 of the Project Primarily composed of cadastral zones from Priority Group B
EG 4	Completion of broadband network in Year 4 of the Project Mixture of cadastral zones from Priority Groups B and C
EG 5	Completion of broadband network in Year 5 of the Project Primarily composed of cadastral zones from Priority Group C
<p><b>Priority Groups:</b> Priority Groups are as defined in the PAD. The groups reflect the order in which the broadband network rollout will occur, with larger cadastral zones prioritized at the beginning of the Project. Membership in a priority group will not change, and will be known from the start of the Project.</p>	
A	<i>Cadastral zones with more than 200 inhabitants.</i> There are 101 such zones. Usually there are schools in these areas, and there is also presence of health centers. The KODE shall prioritize these areas to others.
B	<i>Cadastral zones with 50 to 200 inhabitants.</i> There are 111 such zones, which, in general, do not have a health center, but where there are some schools. The KODE shall prioritize these areas to the ones with fewer than 50 inhabitants.
C	<i>Cadastral zones with fewer than 50 inhabitants.</i> There are 54 such areas, and there is not a school and not a health center in any of them. These are typically the areas located at the country's borders, often visited by tourists.

14. Depending on how the Project is rolled out within A/B/C priority groups, it may be beneficial to limit comparisons to cadastral zones within a given group. In other words, treatment zones from the A group would be compared only to control zones also in the A group. This would be beneficial if cadastral zones are essentially selected at random from within each of the three groups. If, instead, cadastral zones are prioritized within each group (by population or some other criteria), it would provide no additional benefit to limit comparisons within groups.

**Identification Assumptions**

15. Validity of treatment effect estimates depends on the comparability of outcomes between the treatment and control groups. The goal of a robust evaluation is to compare outcomes between two groups for whom it could be argued that, in the absence of the Project under consideration, relevant outcomes of the two groups would be identical. Looking at the 2-year treatment effects, the main limitation of this evaluation approach is apparent. There is an unavoidable trade-off between length of treatment effects and comparability between groups. For example, in the 2020 evaluation year, cadastral zones in priority group A are being compared to cadastral zones in priority group B, rather than a mix of A and B. As the time frame of the evaluation increases, the comparability of the treatment and control groups decreases.
16. The longest-term treatment effect that could be calculated would be 4-years. This estimate would be calculated after the 2022 survey. The treatment group would be EG1 and the control group would be EG5. While this comparison would be possible, it is not recommended, and any results would have to be treated with caution. The treatment group would be composed of relatively large cadastral zones with schools and health centers, while the control group would be composed of small cadastral zones without schools

### **Target Population**

17. It is recommended to maintain a consistent survey population, consisting of the households in all 266 cadastral zones, across all survey rounds. This condition will be guaranteed by a regular and thorough listing exercise of the cadastral zones of interest. It is also recommended that for each treatment arm, the same number of households are sampled over time and between the control and treatment groups. It may be possible to reduce the burden of data collection by limiting the target population for certain survey rounds based on the cadastral zones required for that evaluation round. The 2019 survey, for example, could target evaluation groups 1 and 2. That is the cadastral zones that have already received broadband access, and those scheduled to receive it in the following 12 months. This approach, though, may incur additional costs of survey design and introduces the risk of irrecoverable lapses in data collection.
18. If data for certain cadastral zones are not collected at the scheduled interval, it could limit the available analyses going forward. For example, to conduct difference-in-difference estimation after the 2020 survey round, data will be required from 2019, from evaluation group 3. Evaluation group 3 is not part of either the treatment or control group in 2019, so that data might not be collected due to budgetary constraints. If that were the case, difference-in-difference estimation would be impossible.
19. The precise membership of the control group in any given survey year will not be known. Membership in the control group in each year is determined by completed broadband connectivity in the following year. There will likely be a schedule in place to provide guidance on control group membership, but cadastral zones could enter or exit the control group, if network provision proceeded faster or more slowly than expected. Survey data may also be useful to collect purely for descriptive purposes. In the final survey year, for example, there will not be any available control group. Evaluation using this framework may not be possible after the final year of the Project. The status of households in the Project, though, will certainly be of interest after the Project has completed. This final survey round, then, would only be used for descriptive purposes. For these reasons, it is recommended that each round of the survey cover all 266 cadastral zones in the Project.

### **Sample Design**

20. The total target population consists of approximately 61,156 inhabitants that will be randomly selected from the 266 cadastral zones targeted by the Project. There will be 5 rounds of data collection. A panel design is preferred to repeated cross-sections. Panel data will enable the investigation of welfare dynamics, provide more precise Project estimates by controlling for household-specific baseline covariates, and improve the identification of control group households for Treatment on the Treated (TOT) estimates (described below). Sample size calculations are underway, so some details of the sample design are not currently available. Use of existing survey data will be critical in designing and drawing a suitable sample of households. Statistical parameters for key outcomes will be calculated from LFS, HBS, and ICT surveys. Data from the Census will be critical for use as a sampling frame, and will be sought from the KAS.

### **Econometric Analysis**

21. Once the treatment and control groups of cadastral zones are identified, the treatment effects of the Project will be estimated by comparing average household outcomes between the two groups. Note that households in “treatment” cadastral zones will be included in the treatment group, regardless of whether they choose to subscribe to the newly available broadband service. Defining the treatment and control groups by cadastral zone will produce an Intent to Treat (ITT) estimate of Project effects. Analysis will also calculate a TOT estimate of Project effects. This is the effect of having broadband internet in the household. To calculate TOT estimates, outcomes of households who subscribed to broadband access will be compared to the outcomes of appropriate control households. Again, control households will be chosen to be as similar as possible to treatment households.
22. The ideal control group would be households who do not have access to broadband internet, but who would subscribe if they were given the option. These households can be difficult to identify, because we cannot observe their decision about if they would subscribe to broadband, given the opportunity. One approach to identifying control households is propensity score matching. A control group of households is constructed from the control group of cadastral zones. These households are selected to have similar observable characteristics as those households that chose to subscribe to broadband in the treatment cadastral zones. Due to the phased-rollout of the current Project, the control group of households can be observed in subsequent rounds of evaluation. After the second round of broadband rollout, the first-round control group will become the second-round treatment group. After the second-round follow-up survey, the households that chose to subscribe to broadband can be identified. If the PIU has collected panel data, they can then identify those households in the first-round follow-up survey and use their first-round responses to calculate TOT estimates. This means that TOT estimates using the control group identified by observed broadband choices will not be available until after the following year’s data collection has been completed.
  - Include female-specific evaluation description
  - Include equations for single-difference and difference-in-difference evaluation
  - Include equations for ITT and TOT

### Potential for bias

23. In an ideal Project evaluation, treatment and control group will be randomly chosen from the same initial population. The goal is that the observed outcomes of the control group can be used to estimate the counterfactual outcomes of the treatment group. Random assignment is not possible in the current Project, due to the nature of fixed-line network expansion. Out of necessity, fixed-line access will reach communities that are more centrally located, close to existing networks, than more remote rural communities. This reality is reflected in the A, B, and C priority groups.
24. Because of this phenomenon, cadastral zones in the treatment group will always be, on average, larger, more centrally located, and have greater access to public resources (schools and health centers). Cadastral zones in any given control group will be smaller, more remote, with fewer public resources. It is reasonable to assume that the characteristics of the treatment group would be associated with higher economic growth than the characteristics of the control group, even in the absence of access to broadband internet. Estimation of treatment effects based on these two groups is likely to lead to positively biased estimates. The estimated effect of the broadband rollout is likely to be greater than the true effect. This problem is unavoidable. It cannot be prevented, but it can be addressed through various approaches, which will be developed once the Project is in implementation and details on the rollout plans are drawn up.

---

<sup>1</sup> FY17–21 Country Partnership Framework for Republic of Kosovo.

<sup>2</sup> In fact, Kosovo has the largest gender gap in labor force participation in the WeBa and the highest income loss due to gender gaps (28.2% in 2012). See Cuberes, David; Teignier, Marc. 2015. *How Costly are Labor Gender Gaps? : Estimates for the Balkans and Turkey*. Policy Research Working Paper; No. 7319. World Bank, Washington, DC. © World Bank. License: CC BY 3.0 IGO.

<sup>3</sup> The World Bank Group. *Republic of Kosovo Systematic Country Diagnostic*. Washington, DC: The World Bank Group, 2017.

<sup>4</sup> Republic of Kosovo. *National Development Strategy 2016-2021 (NDS)*. Pristina: Office of the Prime Minister, 2016. Note that the NDS is harmonized with EU integration process through the Stabilization and Association Agreement and the Economic Reforms Programme.

<sup>5</sup> In 2015 the GoK, in agreement with the International Monetary Fund, introduced so-called “Investment Clause” allowing for additional spending over the deficit of 2% of GDP, associated with development projects with an impact on economic growth, financed by international financial institutions. In 2016 Kosovo National Investment Council adopted the revised Investment Clause, in which it included expansion of broadband network infrastructure for covering rural areas, schools, hospitals as one of its priority projects.

<sup>6</sup> Ibid 3.

<sup>7</sup> See NDS, Electronic Communications Sector Policy – Digital Agenda for Kosova 2013-2020, Kosovo National IT Strategy 2014, and the Economic Reform Programme 2018-2020.

<sup>8</sup> This is a practical way to utilize public economic assets and help private sector to avoid costly civil works (70-80 percent of the cost). Since June 2017 KOSTT signed two lease agreements with four local ISPs, who aim to provide access to rural areas.

<sup>9</sup> For example, its regulatory framework permits leasing of excess fiber optic capacity of the country’s energy transmission company (KOSTT), helping reduce the costs of network roll out. This is a practical way to utilize public economic assets and help private sector to avoid costly civil works (70-80 percent of the cost). Since June 2017 KOSTT signed two lease agreements with four local ISPs, who aim to provide access to rural areas. This measure is in line with EU Directive 61, adopted by the European Commission in 2014. See Directive 2014/61/EU of the European Parliament and of the Council of 15 May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks Text with EEA relevance.

<sup>10</sup> Data from Kosovo Agency of Statistics, based on a 2017 survey: <http://ask.rks-gov.net/media/3831/tik-2017-ang.pdf>

<sup>11</sup> While 17 percent of all subscriptions are below 2 Mbps and only 17 percent are above 20 Mbps.

<sup>12</sup> TeleGeography, GlobalComms data, December 2017

<sup>13</sup> In 13 municipalities, as many as 40% of all pre-school, primary and secondary educations (155) do not have any internet connection at all. [Survey]. MED (2018), personal communications.

<sup>14</sup> ICT can be a key enabler to boosting educational diffusion and outcomes. World Bank. 2018. World Development Report 2018: Learning to Realize Education’s Promise. Washington, DC: World Bank. doi:10.1596/978-1-4648-1096-1. License: Creative Commons Attribution CC BY 3.0 IGO

<sup>15</sup> In 12 municipalities, as many as 80% of all healthcare institutions (167) do not have any internet connection at all. [Survey]. MED (2018), personal communications.

<sup>16</sup> Republic of Kosovo – Government of Kosovo. *Electronic Communications Sector Policy – Digital Agenda for Kosova 2013-2020*. Pristina: Ministry of Economic Development, 2013.

<sup>17</sup> European Commission. *Shaping the Digital Single Market*. Accessed in March, 2018.

<sup>18</sup> European Commission. *Communication – Connectivity for a Competitive Digital Single Market – Towards a European Gigabit Society*. Brussels: 2016. Related Document: COM(2016)587.

<sup>19</sup> MED (2018), personal communications.

<sup>20</sup> Feasibility studies under the WB TAs and policy dialogue with GoK throughout 2014-2018, the findings of which were validated with ISPs, industry associations, civil society, and academia.

<sup>21</sup> MED (2018), personal communications. Note that these ISPs are facilities-based.

<sup>22</sup> MED (2018), personal communications.

<sup>23</sup> ARKEP (2018), personal communications; regional ranking includes Western and Eastern Europe, per data from TeleGeography GlobalComms, December 2017

<sup>24</sup> Even though Kosovar youth is said to be increasingly interested in IT studies (“young digerati”) their skills, overall, require strengthening, and the talent pool needs to be enlarged to effectively drive expansion in ICT exports.

<sup>25</sup> After two WoW pilot phases by the WB in 2015-2017, 85 women from five municipalities finished the program, with collective earnings of around US\$30,000 on 335 competitively gained online contracts, while 5 participants found jobs in the local IT market (and generated over US\$9,000). The cost-benefit analysis (COB) has also shown that the program is scalable and could deliver positive return on investment (ROI) for up to three times higher than the costs per beneficiary, thus having a positive impact net of costs. Women in Online Work Pilot – Impact Evaluation Report. Innovative and Green Growth for Rural Kosovo Technical Assistance (P151939). June 2017. Staff estimates of the results of WoW Phase 2.

<sup>26</sup> For more information on the WoW pilots and lessons learnt see Annex 5.

<sup>27</sup> 19 universities and colleges (out of 29, in total) pay, on average, €3.45 per Mbps per month for internet. Through the connection to the GÉANT network these and other universities could rapidly upgrade their broadband networks to reliable high-speed connectivity at a cost currently paid for lower-speed broadband. MED (2018), personal communications.

<sup>28</sup> GÉANT is a network interconnecting Europe’s national research and education networking organizations via highly resilient pan-European broadband backbone, as well as offering research collaboration opportunities among the leading Universities throughout Europe. GÉANT is co-funded by the EU’s 7th Research & Development Framework Programme. Further funding is provided by the NREN partners. The other unconnected country is Bosnia & Herzegovina. GÉANT. *About GÉANT*. Accessed in March 2018.

<sup>29</sup> Pursuant to Annex 18 of Regulation No. 02/2011 on the Areas of Administrative Responsibility of the Office of Prime Minister and Ministries

<sup>30</sup> Its main objectives include: (i) development of ICT infrastructure; (ii) development of the electronic content and services and promotion of shared use of thereof; (iii) enhancement of Kosovo’s residents’ ability to use ICT.

<sup>31</sup> Its key goals include: (i) Introducing a comprehensive IT promotion policy; (ii) Promoting company excellence and quality; (iii) Promoting exports of Kosovo’s IT industry; (iv) Developing the domestic market and increasing domestic productivity through IT; (v) Improving IT education and promoting HR excellence; (vi) Increasing systemic competitiveness through IT clusters and collaboration; (vii) Enhancing IT entrepreneurship; (viii) Fostering innovation and applied R&D; (ix) Promoting Kosovo as an IT investment destination. IT Strategy Working Group. *Kosovo IT Strategy*. Pristina.

<sup>32</sup> Law No.4/L-109

<sup>33</sup> Kosovo is a potential candidate for the EU accession. All EU candidate countries must undergo accession negotiations on the Chapter 10: Information Society and Media, and as part of them they must align their electronic communications sector policies with those of the EU.

<sup>34</sup> Over 60,000 as of February 2018. MED (2018), personal communications.

<sup>35</sup> 38 as of February 2018. MED (2018), personal communications.

<sup>36</sup> 129 as of February 2018. MED (2018), personal communications.

<sup>37</sup> 29 as of February 2018. Those of them that will join the NREN may benefit from the connection to GÉANT. MED (2018), personal communications.

<sup>38</sup> Through prior feasibility studies and public consultations with communities and ISPs. Throughout the Project, the situation may evolve. Thus, each specific lot will be re-verified prior to any public investment taking place. There are also more areas that could be identified as ‘white areas’. The Project’s budget does not allow to cover all ‘white’ areas. Project will start with the identified areas per the agreed prioritization framework and will be adding more areas, if the budget allows.

<sup>39</sup> “Spectrum management is the overall process of regulating and administering use of the radio frequency spectrum. The goal of spectrum management is to maximize spectrum efficiency and minimize interference.” Spectrum Research Consultancy for ARKEP (2013), personal communications.

<sup>40</sup> The training will significantly raise awareness and acceptance of YOU beneficiaries of global online work platforms. It will do so by helping beneficiaries create profiles on different platforms and bid on various job opportunities. Those beneficiaries who do not have a bank account and/or credit card account will receive appropriate support. This way the KODE Project will also help increase financial inclusion, especially women, 57% of whom, by one account, do not have a bank account (compared to 31 percent of men without a bank account).

<sup>41</sup> Alexandru Cojocaru. 2017. “Kosovo Jobs Diagnostic.” World Bank, Washington, DC. License: Creative Commons Attribution CC BY 3.0 IGO. P. 31.

<sup>42</sup> A specialized agency of the United Nations that is responsible for issues that concern ICT.

<sup>43</sup> Broadband is an enabling foundation for green technologies, because it substitutes the physical movement of people and goods by the transfer of information while allowing for less usage of energy and other finite resources. Access to affordable and quality broadband service reduces business transaction costs and allows flexible firm locations. Extensive quantitative research and case studies affirm broadband has become a powerful driver for sustainable economic growth. OECD. “Broadband and the Economy.” (*Ministerial background report*, Seoul, Republic of Korea, June 17-18, 2008).

<sup>44</sup> For the purposes of this Project the ‘unconnected’ settlements mean the settlement with no coverage or covered with fixed-wireless technology that does not allow for broadband speeds.

<sup>45</sup> The procurement arrangement for this sub-component will take form of Matching Grants.

<sup>46</sup> EURLEX, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF>

<sup>47</sup> Those areas correspond to the territories of Serb-majority municipalities. There Serbian telecom incumbent has received exclusive rights to provide telecommunication services to the population in exchange for Serbian support to Kosovo to secure the national telephone Country Code. These municipalities, as any other, will be eligible for KODE funding under subcomponent 1.1, as long as the market failure criterion is met. Mapping of these 138 areas in the MED's GIS Broadband Atlas and their categorization based on the available broadband coverage: white, grey, or black – will help determine which of them are eligible for grants.

<sup>48</sup> The purpose of NSMS is to prevent unauthorized use of radio frequency spectrum and to protect authorized users, also to support the spectrum management process, in general, including the frequency assignment and spectrum planning functions.

<sup>49</sup> ARKEP (2018), personal communications.

<sup>50</sup> TeleGeography. Kosovo – Market Commentary on Broadband. Accessed in March, 2018. <https://www.telegeography.com/>

<sup>51</sup> No. 04/L-109, adopted by the Assembly of Kosovo.

<sup>52</sup> These, for example, include: access to digital libraries/journals/databases, security services, e-mail service, videoconferencing/recording/streaming services, higher education management information systems hosting, management of learning management systems, web hosting and data storage and archives, multimedia content repository, connection of e-science resources such as telescopes, sensor networks, accelerators, and supercomputers, cloud services.

<sup>53</sup> Data from the Survey administered under the Kosovo Digital Economy Technical Assistance. The World Bank. 2017.

<sup>54</sup> Ibid 41.

<sup>55</sup> World Bank. 2015. *Kosovo - Gender at a glance (English)*. Europe and Central Asia (ECA) gender at a glance. Washington, D.C.: World Bank Group.

<sup>56</sup> Together with IT sub-sector, both constitute ICT sector.

<sup>57</sup> Kosovo Agency of Statistics. *Gross Domestic Product 2008-2016*. Pristina: 2017.

<sup>58</sup> Eurostat (2017).

<sup>59</sup> OECD (2018), ICT value added (indicator). doi: 10.1787/4bc7753c-en (Accessed on 15 March 2018)

<sup>60</sup> Kosovo Agency of Statistics. *Statistical Yearbook of the Republic of Kosovo 2016*. Pristina: 2016.

<sup>61</sup> Ibid 59.

<sup>62</sup> Based on ARKEP 2016 quarterly reports and based on ARKEP reports »Raporti Vjetor 2015«, »Raporti Vjetor 2014« and »Raporti Vjetor 2013«, at <http://www.arkep-rks.org/?cid=1,32>. Note that Figure “Revenue [in million EUR] of “telecommunication services” does not include revenue out of CATV services (23,769,620 EUR in 2016).

<sup>63</sup> TeleGeography. Kosovo – Market Commentary on Broadband. Accessed in March, 2018. <https://www.telegeography.com/>

<sup>64</sup> Kosovo Agency of Statistics. Census. Pristina: 2011. <http://askdata.rks-gov.net/>

<sup>65</sup> Kosovo Agency of Statistics, *ICT Use Survey for 2017*, as cited in Telecompaper. Accessed in March, 2018.

<sup>66</sup> WB Staff estimates (2018).

<sup>67</sup> MED (2017), personal communications.

<sup>68</sup> TeleGeography. Kosovo – Market Commentary on Wireless. Accessed in March, 2018. <https://www.telegeography.com/>

<sup>69</sup> The brand name of Kosovo Telecom, adopted for all of the company's services in 2013.

<sup>70</sup> Ibid 68.

<sup>71</sup> ARKEP (2018), personal communications.

<sup>72</sup> Essential resource for mobile network development.

<sup>73</sup> The majority of the districts represented have a high distribution of the bottom 40 percent population.

<sup>74</sup> See Kosovo Agency for Statistics, AskData platform, Distribution of consumption for communication in Kosovo, according to consumption groups by consumption and year, 2001-2016.

<sup>75</sup> Postal services, cell phone services and calls, other phone and fax services, Internet, and so on.

<sup>76</sup> Bussolo and Lopez-Calva (2014).

<sup>77</sup> The digital communication sector policy establishes the following goals by 2020: (a) 100% of Kosovo residents have access to the broadband networks and 100% of Kosovo residents have possibility to use 30 Mbps or faster internet and 80% of Kosovo residents have possibility to use broadband internet; (b) upgrade the Internet access infrastructure in libraries so that all libraries are equipped with public Internet access points at 10 Mbps or higher; and (c) upgrade the Internet access infrastructure of schools so that all schools are connected to the Internet at a speed of 10 Mbps or higher. Ibid 16.

<sup>78</sup> The capital spent on ICT and Internet infrastructure in 2013 was the highest recorded since fDi Markets began tracking and was supported by a 66.5 percent rise in project numbers to 328 (fDi Intelligence 2014).

<sup>79</sup> *Latest figures on ICT sector worldwide and its R&D investment*, EU Science Hub.

<sup>80</sup> Ibid 41.

<sup>81</sup> Yearly indicators on Labour Market. ASKDATA Platform (2017). Kosovo Agency for Statistics.

<sup>82</sup> Ibid 41.

<sup>83</sup> See Ibid 81. *Labor Force Survey, Q2, 2017*. Kosovo Agency for Statistics.

<sup>84</sup> Ibid 41.

<sup>85</sup> *Kosovo Results of the 2013 Labor Survey*. Published in July 2014.

<sup>86</sup> Staff estimates based on the data from online work platforms. Also in selected EU and North American countries, the share of female independent workers ranges from 45 to 57 percent. Independent work: Choice, Necessity, and the Gig Economy, *McKinsey Global Institute*, 2016.

<sup>87</sup> There are only some 350-computer science and IT specialists graduating each year from local universities. At the same time, over half of Kosovo's software outsourcing firms (≈120 firms) are actively competing for online contracts from foreign clients. By one account, a staggering 80% of local IT companies perceive a deficit of skilled labor. *STIKK IT Barometer*, 2017.

<sup>88</sup> For example, the gender assessment of skills based on Employer STEP survey shows that, on average, Kosovo firms perceive men as better equipped for specific technical skills, computer skills, calculations and work with numbers, and as more easily adapting to new tasks or challenging situations. For more see Chapter 5 ‘Skill mismatches in the labor market’ by Alexandru Cojocaru. 2017. Ibid 41.

<sup>89</sup> 20 to 30 percent of the working-age population in the USA and the EU engage in independent work. Ibid 86.

<sup>90</sup> As the WDR 2016 on Digital Dividends notes, the Internet reduces transaction costs, increasing opportunities for people who face barriers in finding jobs. Notably, “women with small children... are sometimes unable to engage in work outside the home, but can now engage in telework.” They “can work online and better balance work and family.” World Development Report 2016 (WDR16) on Digital Dividends. The World Bank.

<sup>91</sup> *Technology for People: The Era of the intelligent Enterprise*, Technology Vision 2017, Accenture, 2017.

<sup>92</sup> Simpler, smaller tasks (known as microwork) are also available, including image categorization and data entry, on platforms such as mTurk. Microwork usually pays much less, but also needs very basic skills. *The Global Opportunity in Online Outsourcing*, World Bank, June 2015.

<sup>93</sup> In selected EU and North American countries, the share of female independent workers ranges from 45 to 57 percent. Ibid 86.

<sup>94</sup> Ibid 92.

<sup>95</sup> Ibid 41.

<sup>96</sup> GEANT is a network interconnecting Europe's national research and education networking organizations via highly resilient pan-European broadband backbone, as well as offering research collaboration opportunities among the leading Universities throughout Europe.

<sup>97</sup> Consumer surplus is the monetary amount of welfare gains that economic agents derive from consuming a product or service priced below their maximum willingness to pay for this product or service (reserve price). The natural proxy for consumer surplus is therefore the difference between reserve price and actual price of the product or service, scaled by the amount consumed. Consumer surplus could be depicted as the area of the triangle below the aggregate demand curve for broadband. The formula for consumer surplus calculations is as follows:



---

$CS = \frac{Reserve\ Price - Market\ Price}{2} \times number\ of\ project - targeted\ households$ , where reserve price is taken as the current price of high-speed broadband (US \$52/month), as at this price, demand is 0. Market price is taken as the price of broadband under project-induced discount.

<sup>96</sup> Based on analysis by Soobitsky & Gripando (ITU, 2017).

<sup>97</sup> Based on cost estimates from ITU, World Bank and Info Dev (ICT Regulation Toolkit, 2017).